Application of Pennsylvania-American Water Company for the Acquisition of the Wastewater Collection, Conveyance and Treatment System Owned and Operated by Towamencin Township and Towamencin Municipal Authority (collectively "Towamencin")

Docket No. A-2023-3039900

66 Pa. C.S. § 1329
Application Filing Checklist – Water/Wastewater

20. Proof of Compliance. Provide proof of compliance with applicable design, construction and operation standards of DEP or of the county health department, or both, including:

b. For **wastewater** system acquisitions, provide copies of the water quality management and National Pollution Discharge Elimination System (NPDES) permits for the utility plant.

AMENDED RESPONSE:

b. Please see **Amended Appendix A-20-b.**

Towamencin Municipal Authority - Permits
Page 1 of 2

4672412 – Expansion of Existing 1 MGD WWTP to 2.17 MGD

4674402 – Sanitary extension to serve industrial site along Wambold from Detwiler

4675424 – Sanitary sewer to serve development at Keeler Road and Allentown Road

4676422 – Sanitary sewer to serve the Korman Homes sewer extension.

4676424 – William Nash Subdivision, connecting at Conestoga Lane

4677404 – Country Meadows at Tomlinson and Reinert Roads

4677415 – Sanitary sewer to serve Wentz Church Road and Morris Road

4678414 – Hunter Villa, Sumneytown Pike and Green Lane Road

4678437 – Sanitary sewer extension to the northeast corner of Keeler and Quarry Roads

4678444 – Ralph's Supermarket

4678455 – Brookside Farms

4679414 – Rolling Meadows Estates

4679469 – Sanitary sewer extension to Troxel and Snyder Roads

4679470 – Sanitary sewer extension along Sumneytown Pike

4680417 – Grist Mill (Phase 1)

4680423 – Dintenfuss Estates (Forge Gate Apts)

4680447 – Dock Woods Community (2 Phases)

4681402 – Hunter Hill Drive

4681452 – Sanitary sewer extension to Fretz and Allentown Roads

4682422 – Sanitary sewer for Delp and Detwiler Roads

4682438 – Sanitary Sewer for Troxel and Snyder Roads

4683409 – Dock Acres

4683420 – LinPro (Wood Hollow)

Towamencin Municipal Authority - Permits
Page 2 of 2

4684407 – Heyser, Pheasant Hill Way (16 Lots)

4685410 – Koffel Project (19 Residential Units)

4685455 – Philadelphia Suburban Development Corp.

4687464 – Skippack Creek Interceptor

4693417 – Towamencin Creek Interceptor 1

4600413 – Towamencin Creek Interceptor 2

P765S13 – Trunk line UT to MH No. 201, Trunk line UT-6 to MH No. 30, T Trunk line 4602408 – Inf PS

WWTP Amend 1 – only most recent amendment is transferred 4602408 – Stg 1 Phos Amend 2

4616402 – KRI

4619403 – Rag Compactor

4612408 - TCI MH 103A to WWTTP JB

4691419 – Charlestown Sections 11 -14 gravity sewers

4689423 – Towamencin Village Square Shopping Center gravity sewers

4689415 – Winding Brooke Phase 1 gravity sewers

4689407 – Tow Village Sections 1-5, 8,9 gravity sewers

WWTP NPDES PA 0039004

WWTP D-2002-029 CP-4 Delaware River Basin Commission

PAG 8 – Biosolids land application

Above ground storage tank registration

Underground storage tank registration

WQG02462306 - Hollis Hills Pump Station WQM - Amended 7/26/2023 Permit attached.

WQG02462307 - Milestone Pump Station WQM - Amended 7/26/2023 Permit attached.

H711.046 REV. 8-71

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: February 24, 72

APPLICATION FOR WATER QUALITY MANAGEMENT

For Department Use Only: PQW 6/7/72

BUREAU OF WATER QUALITY MANAGEMENT

APPLICATION NO. 672412 | PLAN REVIEW 3/2/72

APPLICANT NAME: Upper Gwynedd-Towamencin Municipal Authority

TELEPHONE NO.:

MAILING ADDRESS: R.D. #2, Lansdale, Pa. 19446

PROJECT LOCATION
(A) MUNICIPALITY: Towamencin Township, Bucks
(B) COUNTY: Montgomery
REGION: REPORTS
NO. OF VOLUMES: 1 OF 2

HEREBY APPLIES FOR: (CHECK APPROPRIATE BLOCKS IN COLUMNS A, B AND C)

A. APPROVAL OF PLANS FOR CONSTRUCTION OF:	B. APPROVAL TO DISCHARGE:	C. APPROVAL TO OPERATE
☐ PUMP STATIONS; SEWERS AND APPURTENANCES	(1) ☒ TREATED ☐ UNTREATED	☐ MINE
☒ SEWAGE TREATMENT PLANT	(2) ☐ INDUSTRIAL WASTES ☐ MINE DRAINAGE ☒ SEWAGE	☐ N/A
☐ MINE DRAINAGE TREATMENT PLANT		
☐ INDUSTRIAL WASTE TREATMENT PLANT		

(ALL DISCHARGES OF WASTES ARE PURSUANT TO "THE CLEAN STREAMS LAW")

I HEREBY CERTIFY THAT THE COMPLETENESS REPORT AND ALL PLANS, MODULES, AND DOCUMENTS DESIGNATED THEREIN ARE ATTACHED TO THIS APPLICATION, AND MADE A PART HEREOF.

SIGNATURE OF APPLICANT OR RESPONSIBLE OFFICIAL

NAME OF APPLICANT OR RESPONSIBLE OFFICIAL:	TITLE	DATE OF APPLICATION
Mr. John B. Taylor, Jr.	215 Chairman	Febr. 28, 1972.

ADDRESS: 1211 Wabash Drive, Lansdale, Pa. 19446

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA, COUNTY OF Montgomery

I, John B. Taylor, Jr. BEING DULY SWORN, ACCORDING TO LAW, DEPOSE AND SAY THAT I (AM THE APPLICANT) (AM AN OFFICER OR OFFICIAL OF THE APPLICANT) (HAVE THE AUTHORITY TO MAKE THIS APPLICATION) AND THAT THE PLANS, REPORTS AND DOCUMENTS SUBMITTED AS PART OF THE APPLICATION ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

SWORN AND SUBSCRIBED TO BEFORE ME THIS

28 DAY OF Febr. 19 72

NOTARY PUBLIC

SIGNATURE OF APPLICANT OR RESPONSIBLE OFFICIAL

THE SECTION BELOW IS TO BE COMPLETED BY THE DESIGN ENGINEER (OR SURVEYOR) AUTHORIZED BY THE APPLICANT TO PREPARE THIS APPLICATION

NAME OF DESIGN ENGINEER (OR SURVEYOR) AND FIRM:
Janos Liptak
Janos Liptak & Associates

MAILING ADDRESS:
510 Davisville Road
Willow Grove, Pa. 19090

TELEPHONE NUMBER: 215 OL - 9 - 7244

AGREEMENT DATE: 2-28-72

SIGNATURE OF DESIGN ENGINEER (OR SURVEYOR): Janos Liptak

DESIGN ENGINEER'S (OR SURVEYOR'S) SEAL

H710.046:1

DATE PREPARED
Febr. 21, 1972.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH
SANITARY ENGINEERING

WATER POLLUTION CONTROL
SEWERAGE
MODULE 1 – GENERAL INFORMATION

DW 7/6/72
For Department of Health Use Only

DESIGN ENGINEER AND FIRM JAMES LIPTAK AND ASSOCIATES

ADDRESS 510 Davisville Road, Willow Grove, Pa. ZIP CODE 19090 TELEPHONE OL-9-7244

APPLICANT UPPER GWYNEDD - TOWAMENCIN MUNICIPAL AUTHORITY

LOCATION OF PROJECT: MUNICIPALITY KULPSVILLE COUNTY MONTGOMERY

DESCRIPTION OF PROJECT EXPANDING THE CAPACITY OF THE EXISTING 1.0 MGD PLANT TO 2.17 MGD. ADDING NEW FACILITIES TO TREAT ADDITIONAL 1.53 MGD FLOW.

A. DOCUMENTATION REQUIRED

1. HAS A CHECK FOR $25.00, PAYABLE TO THE PENNSYLVANIA DEPARTMENT OF HEALTH, BEEN INCLUDED? (NOT REQUIRED OF STATE OR FEDERAL AGENCIES) [X] Yes [ ] No [ ] N/A

2. HAVE 2 COPIES OF THE APPLICATION, FORM H710.046, BEEN SUBMITTED? (3 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND DELAWARE RIVER BASIN). [X] Yes [ ] No

   A. HAS THE AFFIDAVIT BEEN PROPERLY COMPLETED AND EXECUTED? [X] Yes [ ] No

3. DOES THE APPLICATION INCLUDE THE FOLLOWING APPLICABLE MODULES:

MODULE NUMBER	TITLE	NUMBER OF PAGES	
1	GENERAL INFORMATION---SEWERAGE	9	[X] Yes
4	WASTE LOAD AND CHARACTERISTICS	3	[X] Yes
5	GEOLOGY AND GROUND WATER INFORMATION	2	[ ] Yes
6	SEWERS AND APPURTENANCES	5	[ ] Yes
7	SEWAGE PUMPING STATIONS	4	[X] Yes
9	PUMPING FACILITIES	1	[X] Yes
9	FLOW EQUALIZATION AND STORAGE BASINS	2	[ ] Yes
10	GRIT CHAMBERS	1	[ ] Yes
11	SCREENING AND COMMINUTING DEVICES	2	[X] Yes
12	IMHOFF AND SEPTIC TANKS	2	[ ] Yes
13	SETTLING TANKS	2	[X] Yes
14	TRICKLING FILTER BASINS	2	[ ] Yes

H710.046.1

DATE PREPARED
FEB. 21, 1972

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH
SANITARY ENGINEERING

WATER POLLUTION CONTROL
SEWERAGE
MODULE 1 – GENERAL INFORMATION

DAW 7/6/72
For Department of Health Use Only

A. DOCUMENTATION REQUIRED – CONTINUED

MODULE NUMBER	TITLE	NUMBER OF PAGES	
15	TRICKLING FILTERS	2	☒ Yes
16	AERATION TANKS OR BASINS	3	☒ Yes
17	WASTE STABILIZATION PONDS	3	☐ Yes
18	CHEMICAL TREATMENT (INCLUDING FEEDERS)	3	☒ Yes
19	MIXING AND FLOCCULATION FACILITIES	1	☐ Yes
20	SAND FILTERS	2	☒ Yes
21	DISINFECTION	2	☒ Yes
22	SPRAY IRRIGATION	1	☐ Yes
23	PHYSICAL ABSORPTION, ION EXCHANGE, AND CONTACT UNITS	2	☐ Yes
25	DEEP WELL DISPOSAL	4	☐ Yes
26	SLUDGE TREATMENT AND DISPOSAL		
	A. SEPARATE DIGESTION TANKS AND SLUDGE THICKENING TANKS	2	☒ Yes
	B. ELUTRIATION	1	☐ Yes
	C. WET OXIDATION	1	☐ Yes
	D. SLUDGE DRYING BEDS	1	☐ Yes
	E. LAND DISPOSAL OF SLUDGE	1	☐ Yes
	F. SLUDGE LAGOONS	1	☐ Yes
	G. FILTERS AND CENTRIFUGES	1	☒ Yes
	H. INCINERATION	1	☒ Yes

B. REQUIRED DATA

1. THE FRONT COVER OF EVERY SET OF DRAWINGS AND SPECIFICATIONS MUST BEAR THE SIGNATURE AND SEAL OF THE REGISTERED PROFESSIONAL ENGINEER UNDER WHOM PREPARED. EACH DRAWING MUST BEAR AN IMPRINT OR REASONABLE FACSIMILE OF SUCH SEAL.

H710.046.1

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH
SANITARY ENGINEERING

DATE PREPARED
FEB. 21, 1972

WATER POLLUTION CONTROL
SEWERAGE
MODULE 1 - GENERAL INFORMATION

RECEIVED 7/6/72
For Department of Health Use Only

B. REQUIRED DATA - CONTINUED

2. INFORMATION RELATIVE TO SPECIFIC PROGRAM

A. 2 COPIES OF DESIGNER'S PLANS, MODULES, AND SPECIFICATIONS (3 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND OF LAKE ERIE RIVER BASIN) — ☒ Yes ☐ No ☐ N/A

G. [illegible] APPROVAL TO DISCHARGE — ☐ Yes ☐ No ☒ N/A

R. HYDRAULIC PROFILE OR SCHEMATIC FLOW DIAGRAM FOR PROPOSED TREATMENT PLANT — ☐ N/A

[illegible] APPROVAL — ☐ Yes ☐ No ☒ N/A

C. UNITED STATES GEOLOGICAL SURVEY TOPOGRAPHICAL MAP SHOWING EXACT POINT OF DISCHARGE AND TREATMENT PLANT OR PUMP STATION LOCATION AND/OR AREA TO SEWER — ☐ N/A

[illegible] — ☐ ☐ ☒ N/A

D. HAVE YOU APPLIED FOR A PUBLIC UTILITY COMMISSION CERTIFICATE OF PUBLIC CONVENIENCE? — ☐ Yes ☒ No ☐ N/A

(1) SPECIFY PUBLIC UTILITY COMMISSION APPLICATION NUMBER _____

(2) IS CERTIFICATE OF PUBLIC CONVENIENCE ENCLOSED? — ☐ Yes ☐ No

E. HAVE YOU APPLIED FOR [illegible] AND POWER RESOURCES BOARD APPROVAL FOR STREAM ENCROACHMENT? — ☒ Yes ☐ No ☐ N/A

F. HAVE YOU APPLIED TO DEPARTMENT OF LABOR AND INDUSTRY FOR APPROVAL OF EMPLOYEE SAFETY? — ☒ Yes ☐ No ☐ N/A

G. DO YOU HAVE AN AGREEMENT INDICATING APPROVAL TO DISCHARGE TO SEWER SYSTEM AND TREATMENT PLANT OF ANOTHER PERMITTEE? — ☐ Yes ☐ No ☒ N/A

H. HAVE YOU APPLIED FOR AIR POLLUTION CONTROL COMMISSION APPROVAL FOR FEATURES REQUIRING AIR POLLUTION CONTROL? — ☐ Yes ☐ No ☒ N/A

I. [illegible] WITH NAMES, ADDRESSES AND TITLES OF ALL PARTNERS IN THE CASE OF A PARTNERSHIP OR ALL OFFICERS IN THE CASE OF A CORPORATION OR INCORPORATED ASSOCIATION, INCORPORATED ASSOCIATION, PARTNERSHIP OR OTHER ENTITY (NOT MUNICIPAL) — ☐ Yes ☐ No ☒ N/A

3. SPECIFICATIONS — UPPER ST. CLAIR - TOWNSHIP MUNICIPAL AUTHORITY TREATMENT PLANT EXPANSION

A. PLANS STAGE 1 — NO. OF SHEETS 44 — DATE FEB. 1972

PLANS STAGE 2 — NO. OF SHEETS 34 — DATE FEB. 1972

PLANS _____ — NO. OF SHEETS _____ — DATE _____
TITLE OF DESCRIPTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH
SANITARY ENGINEERING

FWWR-11-1—(ENC) 5M—1-61

Lansdale, Pa.,

May 25, 1972

To the Commonwealth of Pennsylvania

Department of Forests and Waters

Water and Power Resources Board:

In compliance with the provisions of an Act of the General Assembly of the Commonwealth of Pennsylvania, entitled, "An act providing for the regulation of dams, or other structures or obstructions, as defined herein, in, along, across or projecting into all streams and bodies of water wholly or partly within, or forming part of the boundary of, this Commonwealth; vesting certain powers and duties in the Water Supply Commission of Pennsylvania, for this purpose; and providing penalties for the violation of the provisions hereof," approved the 25th day of June, A. D. 1913, as amended by Act No. 137, approved May 6, 1937, and "The Administrative Code" which empowers the Water and Power Resources Board to exercise certain powers and perform certain duties by law vested in and imposed upon the Water Supply Commission of Pennsylvania.

Upper Gwynedd-Towamencin Municipal Authority
(Here state name of person or persons, partnership, association, corporation, county, city, borough, town, or township)

Kriebel Road, Lansdale, RD#2 Pennsylvania (Towamencin Township)

hereby makes application for the consent or permit of the Water and Power Resources Board to construct, ~~xxxxxxxxxxxxxxxxxxxx~~ addition to, ~~xxxxxxxxxx~~ Exist. 21" RCP (Equiv.) Wastewater Treatment Plant outfall with 2-20" (RCP)

in ~~xxxxxxxxxxxx~~ To edge of Towamencin Creek
(Here state name of stream or other body of water)

at a point opposite the Upper Gwynedd-Towamencin Municipal Authority
(Here give location, by distance from mouth of stream, county, township, or municipal boundary, also give city town, or township and county in which located)

Treatment Plant, Kriebel Road, Towamencin Township: at Junction of East and West Branches of Towamencin Creek.

46724.12

for the purpose of Additional subsurface discharge for proposed
(Here state fully the purpose, necessity and description of the proposed obstruction.)
Treatment Plant expansion as filed with Pennsylvania Department of
Environmental Resources.

in accordance with the complete maps, plans, profiles, and specifications filed with this application and made a part hereof.

This application, unless made by Federal, State, County, or municipal agency, must be accompanied by a fee of Thirty Dollars ($30.00) in the form of a certified check or money order, payable to The Commonwealth of Pennsylvania.

Chairman, John B. Taylor

SEAL:

(Address) Kriebel Road, Lansdale

Mailed by [illegible]

Herbert H. Metz, Jr.
George E. Stansbridge
Frederick G. Payne, II

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
24 NORTH WOOD STREET
LANSDALE, PENNSYLVANIA
19446

Copy

RECEIVED
MAY 25 1972

May 23, 1972

PROJECT Upper Gwynedd-Towamencin Municipal Authority

TO Pa. Dept. of Forests & Water

Attention Vaden R. Butler, Chief

We are sending you ☒ enclosed herewith ☐ under separate cover the following:

No. of Prints	Drawing No.	Title and Remarks

☐ FOR APPROVAL ☐ FOR CORRECTION, RESUBMIT

☐ APPROVED ☒ FOR YOUR USE

☐ APPROVED AS NOTED ☐ FOR DISTRIBUTION

Remarks: Enclosed is one (1) copy of Application for permission to construct two (2) additional 20" outfall pipes for the expansion of the existing wastewater treatment plant on Towamencin Creek.

By Ralph A. Wert, P.E.
Herbert H. Metz, Inc

RAW/met

Enclosure

Copy: Liptak

3710 046.1

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH
SANITARY ENGINEERING

DATE PREPARED: Febr. 21, 72

WATER POLLUTION CONTROL
SEWERAGE
MODULE 1 - GENERAL INFORMATION

DQW 7/6/72
For Department of Health Use Only

B. REQUIRED DATA - CONTINUED — UPPER ~~COUNTY~~ DUBLIN-TOWAMENCIN MUNICIPAL AUTHORITY TREATMENT PLANT EXPANSION

B. SPECIFICATIONS (IF APPLICABLE): STAGE I / — / STAGE 2 — TITLE

STAGE 1 — 4
STAGE 2 — 6
NUMBER OF VOLUMES — 10

DATE FEBRUARY 1972

C. OTHER (SPECIFY TYPE AND NUMBER):

4. ARE THE PLANS:

A. CLEAR, LEGIBLE, AND DRAWN TO SCALE WITH NORTH ARROW INDICATED? [X] Yes [ ] No

B. WITHIN MAXIMUM SIZE OF 36 INCHES BY 50 INCHES? [X] Yes [ ] No

C. SEAL AND SIGNATURE OF PROFESSIONAL ENGINEER OR SURVEYOR RESPONSIBLE FOR THIS APPLICATION

1. SIGNATURE OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW) — James Lipsky

2. SEAL OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW)

SEAL

RECEIVED
MAY 25 1972

Herbert H. Metz Inc.
CIVIL ENGINEERS & SURVEYORS

TO CONSIDER CAPACITY INCREASE DUE TO NITRIFICATION
CURBING

WATER POLLUTION CONTROL

For Department of Health Use Only

	0.420	2.220
	1.000	6.500

	Existing Facilities Design	Operating Data	Proposed Total Facilities Design
		ONE DOUBLE	
	8,200	6889	41,300
	1,800	2,810	14,200
	10,000	9,699	56,100
			1490
	24	24	24
	70+30=100	70	100
	0.574	0.532	4.130
	0.246	1.078	0.890
	1.230	0.665	6.195
	2.640	1.064	9.150
AVERAGE DAILY FLOW (MGD)	0.180	0.281	1.480
MAXIMUM DAILY FLOW (MGD)	0.270	0.421	2.220
TOTAL AVERAGE FLOW (MGD)	1.000		6.500

TABLE D FACILITIES DESIGN DATA (Specify number of units)

Units	Existing	To Be Abandoned	Total Proposed	Units	Existing	To Be Abandoned	Total Proposed
1 SCREENING DEVICES	1	-	1	13 CHLORINE CONTACT TANK(S)	ONE DOUBLE	-	1 4
2 GRIT CHAMBER(S)	-	-	-	14 DISINFECTION FACILITIES	1	-	- 1
3 COMMINUTOR(S)	1	-	1 1	15 SEPARATE SLUDGE DIGESTORS	-	-	-
4 PRIMARY SETTLING TANKS	2	-	2 4	16 SLUDGE DRYING BEDS	-	-	-
5 PRIMARY SETTLING TANKS	2	-	2 -	17 MECHANICAL SLUDGE DEWATERING	2	-	- 1
6 IMHOFF TANK(S)	-	-	- -	18 SLUDGE FLUIDIZATION TANKS	-	-	-
7 TRICKLING FILTERS	2	-	- 2	19 SLUDGE STABILIZATION TANKS	-	-	-
8 INTERMEDIATE SETTLING TANKS	-	-	-	20 ~~HEAT RATIO~~	1	-	~~ABOLISH OF~~ 3 HOGE HEARTH
9 CONTACT TANKS	-	-	- 4	21 MIXING AND FLOCCULATION TANKS	-	-	-
10 FINAL SETTLING TANKS	3	-	1 4	22 OTHER (Specify) RAPID SAND FILTER			36 64
11 INTERMITTENT SAND FILTERS	-	-	-	23 OTHER (Specify) FLOCK SEPARATOR			- 4
12 WASTE STABILIZATION POND(S)	-	-	-	24 OTHER (Specify) SLUDGE THICKENER	2		- 2

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH
SANITARY ENGINEERING

APRIL #

T. Glenn Burger

| | | |

OPERATOR: T. Glenn Burger

APPROVED BY:

E	F	G	H	I
		DISSOLVED OXYGEN PPM	Chlor. TIME	Cl_2 ppm	REMARKS
		(a) P.M.	(b) Up Stream	(c) Down Stream			(Enlarge on reverse side if necessary)
				9.0			1.4	
				8.0			1.0	WEEKLY AVERAGE = 1
		240	5.5	8.3			1.4	Flow Thru
				8.6			0.4	
				8.6			1.8	
				7.8			1.2	
				8.2			3.0	
				7.4			0.4	
				5.7			0.3	Flow Thru
				5.8			0.5	WEEKLY AVERAGE =
		194	5.7	4.8			1.0	
				4.8				
				3.0			1.4	WEEKLY AVERAGE =
				3.9			3.2	
7.5	7.5	132	12	210	5.1	8.6	1.4	
							0.8	
							2.2	WEEKLY AVERAGE
							1.4	
							3.2	
							3.0	
		144	14	230	25		3.2	
							1.8	
				640	35.7		1.0	Flow Thru

BROKE WATER MAIN 2 PM 4-20

...ALIZATION TREATMENT UNIT prior to chlorination

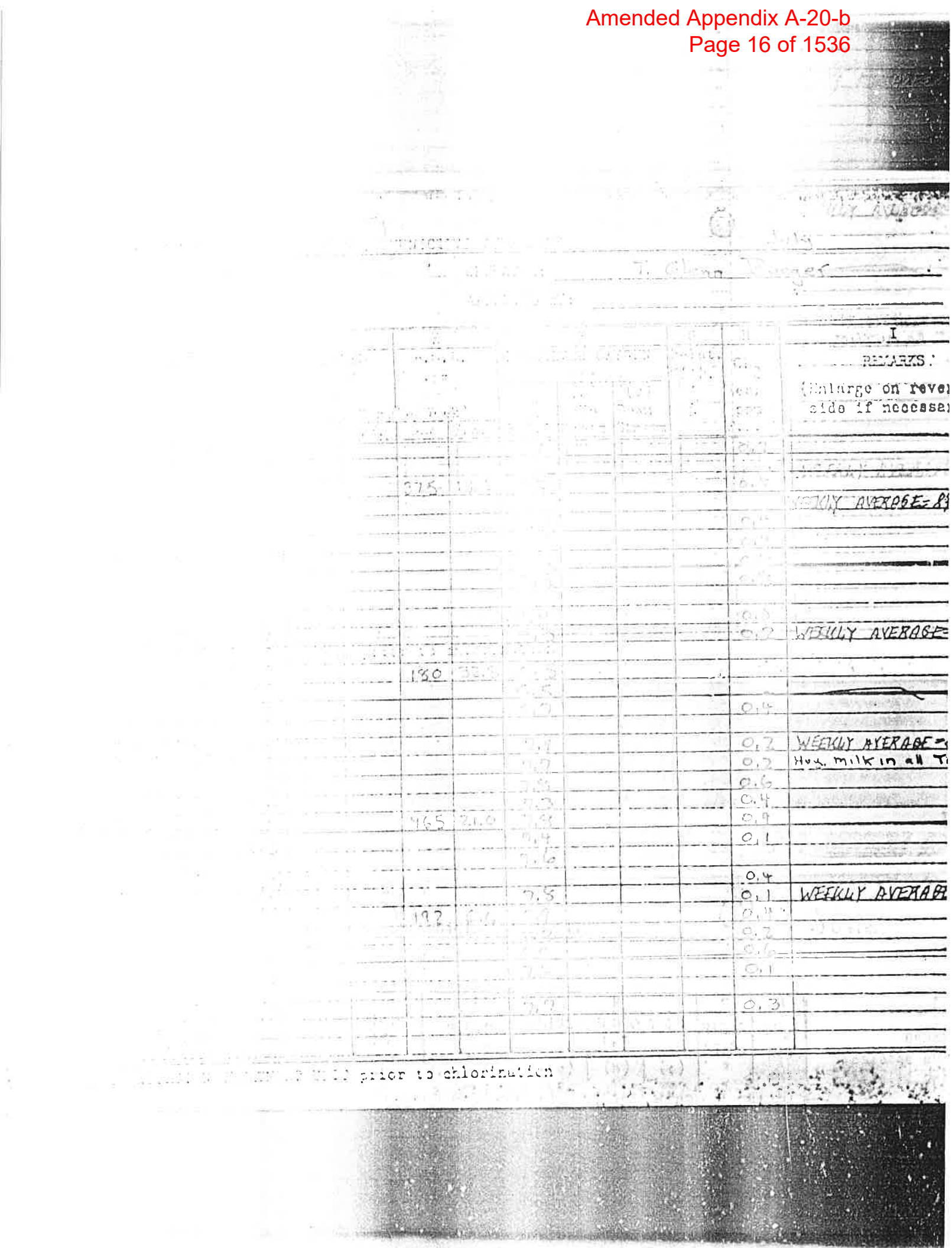
WEEKLY AVERAGE

MUNICIPAL AUTHORITY — June

D SUSPENDED SOLIDS ppm (One Sample/Week)		E B.O.D. ppm (One Sample/Week)		F DISSOLVED OXYGEN ppm			G RELAT. STAB. %	H CL_2 Res. ppm F.E.	I REMARKS (Enlarge on side if nec
	F.E.	Raw	F.E.	(a) F.E.	(b) Up Stream	(c) Down Stream			
								1.0	WEEKLY AVERAGE =
								0.8	
								0.4	
								2.2	
								1.0	WEEKLY AVERAGE
								2.2	
								1.4	
3.	6	287	12.7					1.6	
									WEEKLY AVERAGE =
210	20	466.2	28.8						
								0.1	
								0.1	WEEKLY AVERAGE =
								0.1	
									Heavy Flood.
								0.1	
								0.2	
								0.2	WEEKLY AVERAGE
								0.2	
								0.2	
MR	22	720	122					0.6	Heavy load of

...ENT UNIT prior to chlorination

APPROVED BY: _____



T. Clara Burgess

										REMARKS: (Enlarge on reverse side if necessary)
	275									WEEKLY AVERAGE=
									0.2	WEEKLY AVERAGE=
	180									
									0.4	
									0.2	WEEKLY AVERAGE=
									0.2	Hyg. milk in all T
									0.6	
									0.4	
	165	2.0							0.9	
									0.1	
									0.4	
									0.1	WEEKLY AVERAGE
	192									
									0.2	
									0.6	
									0.1	
									0.3	

prior to chlorination

January 17, 1974

Sewer App. 4671402
Turnpike Construction Co.
Harleysville, Pa.

Z. [illegible]
Bureau of Water Quality Management

G. [illegible]
[illegible]

[illegible] the Department no longer has the [illegible] matters in those areas under the jurisdiction of the [illegible], the following is consistent with good industrial hygiene [illegible] sewer lines are being laid.

1. [illegible], it must be equipped with [illegible] ventilation dust suppression [illegible].

2. [illegible] where noise levels exceed standards [illegible] hearing is required on an annual [illegible].

3. [illegible] where silica dust levels exceed [illegible] (14" x 17") examinations. ([illegible] every three years).

4. [illegible], etc.) must be entered, the [illegible] explosible gases and mechanical [illegible] during occupancy. A [illegible] outside the confined space to [illegible] occur. Procedures for confined space entry must be submitted to the Department.

5. [illegible] or for any other work, it [illegible] with the Department.

After construction of the system is completed, any maintenance work requiring confined space entry must be done in accordance with the confined space entry requirements referred to above.

January 17, 1974

Sewer App. 4674402
Turnpike Construction Co.
Harleysville, Pa.

R. Hinkle
Bureau of Water Quality Management

G. Richey JHR
Bureau of Occupational Health

Although this is a private employer and the Department no longer has the responsibility for occupational health matters in those areas under the jurisdiction of OSHA, the following are consistent with good industrial hygiene practice where sewer line is being laid.

1. If rock drilling machinery is used, it must be equipped with either an integral water or exhaust ventilation dust suppression device.

2. Employees engaged in operations where noise levels exceed standards shall have audiometric tests. (Testing is required on an annual basis).

3. Employees engaged in operations where silica dust levels exceed standards shall have chest X-ray (14" x 17") examinations. (These examinations must be repeated every three years).

4. Where confined spaces (manholes, etc.) must be entered, the atmosphere must be tested for combustible gases and mechanical ventilation used prior to entry and during occupancy. A worker must also be stationed outside the confined space to offer assistance should a problem occur. Procedures for confined space entry must be submitted to the Department.

5. If a laser is used to align pipes or for any other work, it must be registered with the Department.

After construction of the system is completed, any maintenance work requiring confined space entry must be done in accordance with the confined space entry requirements referred to above.

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
1725 Markley Street, Norristown, Pa. 19401

February 12, 1974

RECEIVED
FEB 15 1974
NORRISTOWN REGIONAL OFFICE

Pennsylvania Department of Environmental Resources
Water Quality Management
1875 New Hope St.
Norristown, Pa. 19401
ATTN: Mr. R. David Emerson, PHET

Re: Turnpike Construction Co., Inc.
Towamencin Township

A permit application for encroachment has been submitted to Department of Environmental Resources. A permit may be necessary.

Following the above point and following the plan as submitted, this is an adequate erosion and sediment control plan.

John C. George

John C. George
Soil Conservationist

JCG:fm

cc: M. King, Montgomery County Conservation District

URWILER & WALTER, INC.

SUMNEYTOWN PIKE • SUMNEYTOWN, PENNSYLVANIA 18084 • PHONE (215) 234-4562

MESSAGE	REPLY
TO RICHARD L. HINKLE, P.E., CHIEF	DATE
Derek W. Lindsay	SIGNED
DATE 2-15-74	DETACH AND FILE FOR FOLLOW-UP
PER OUR TELEPHONE CONVERSATION OF 2-15-74, I AM ATTACHING COMPLETED MODULES WHICH CAN BE INSERTED IN PLACE OF THE ONES YOU HAVE FOR TURNPIKE CONSTRUCTION CO. IF YOU HAVE ANY QUESTIONS, PLEASE CONTACT ME	RECEIVED FEB 22 1974 ENV. WATER QUALITY NORRISTOWN REGIONAL OFFICE
BY Derek W. Lindsay	SIGNED

DETACH AND FILE FOR FOLLOW-UP

1875 New Hope Street
Norristown
277-3210

CERTIFIED MAIL
093326

March 15, 1974

Upper Gwynedd-Towamencin Municipal Authority
P. O. Box 203
North Wales, Pa. 19454

Attention: Anton Guerds

Subject: Sewer Application #4674402
Sanitary Sewer Extension
Towamencin Twp., Montgomery County

Dear Sir:

As per my recent telephone conversation on February 13, 1974 with Derek Lindsay at Urwiler & Walter in reference to subject application forms ER-BWQ-51 originally submitted under the name of Turnpike Construction Co. Mr. Lindsay informed me that we would not receive the forms until after the April 2, 1974 meeting of the Authority.

Please have the requested forms in our office on or before April 5, 1974 or I shall have no recourse but to recommend refusal of the subject application.

Should you have any questions feel free to contact the Facilities Section of this office.

Very truly yours,

R. David Emerson
Public Health Engineering Trainee

RDE:jr

cc: Urwiler & Walter, Inc.

HENRY S. CONREY
ALBERT C. SKILES
RALPH A. WERT
JACOB HOTTINGER

Henry S. Conrey, Inc.
Division of Chester Valley Engineers
CIVIL ENGINEERS & SURVEYORS
POST OFFICE BOX 447
159 WEST LANCASTER AVENUE
PAOLI, PA.
19301

Niagara 4-4623
Niagara 4-4624
Area Code 215

March 25, 1974

RECEIVED
MAR 27 1974

Department of Environmental Resources
1875 New Hope Street
Norristown, Pennsylvania

Attn: R. David Emerson

Re: Application #4674402
Sanitary Sewer Extension
Towamencin Twp., Montgomery Co.

Gentlemen:

Enclosed find Application for Water Quality Management Permit which I have executed on behalf of Towamencin Township for the subject Wambold Road sewer extension.

Please note that in your letter of March 15 Mr. Anton Guerds is an official of the developer, Turnpike Construction Co. and not of Towamencin Township or the Upper Gwynedd-Towamencin Municipal Authority.

I now have in my possession copies of the module and related plans from Urwiler and Walter, Inc., Engineers for Turnpike Construction Co.

Very truly yours,

Ralph A Wert, P.E.
Towamencin Township Engineer

RAW/srs

Enclosure
copies: Board
Solicitor
Urwiler

PWSQ-31 Rev. 3-73

Date Prepared 1/10/74

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

For Department Use Only

Application For
Water Quality Management Permit

Applicant Name
Upper Gwynedd Towamencin Municipal Authority

Project Location
(A) Municipality
Towamencin Township

Telephone No. 855-8165

Mailing Address
2225 Kriebel Road
Lansdale, PA 19446

(B) County
Montgomery

Hereby Applies For: (Check appropriate blocks in columns A, B, C and D)

A. Approval of Plans for Construction of:
- ☒ Pump Stations, Sewers and Appurtenances
- ☐ Sewage Treatment Plant
- ☐ Mine Drainage Treatment Plant
- ☐ Industrial Waste Treatment Plant
- ☐ Outfall and Headwall
- ☐ Stream Crossing

B. Approval to Discharge:
(1)
- ☐ Treated
- ☐ Untreated

(2)
- ☐ Industrial Waste
- ☐ Mine Drainage
- ☐ Sewage

C. Approval to Operate:
- ☐ Underground Mine

D. Approval of an
- ☒ Erosion and Sedimentation Plan

Note: Erosion and sediment control plan for Lot 3 has been reviewed & approved by John George of Montg. Co. SCS (All Discharges Of Wastes Are Pursuant To "The Clean Streams Law")

I hereby certify that the accompanying report and all plans, modules, and documents designated therein are attached to this application, and made a part hereof.

Ralph A. Wert Twp. Engineer
Signature of Applicant or Responsible Official

Name of Applicant or Responsible Official:	Title	Date of Application
Ralph A. Wert, P.E.	Township Engineer	

DEPT. OF ENVIRONMENTAL RESOURCES
WATER QUALITY

Address
410 Derstine Ave., Lansdale, PA 19446

Affidavit

Commonwealth of Pennsylvania, County of Montgomery 4074402 2/22/74

I, Ralph A. Wert, being duly sworn, according to law, depose and say that I (am the applicant) (am an officer or official of the applicant) (have the authority to make this application) and that the plans, reports and documents submitted as part of the application are true and correct to the best of my knowledge and belief.

NO. OF VOLUMES 1 / 1

Sworn and subscribed to before me this
8th day of March 1974

Notary Public

Ralph A. Wert - Twp. Engineer
Signature of Applicant or Responsible Official

Summit Tp. & Mtg. Cty. Comm. Exp. 4/12/76

The section below is to be completed by the person authorized by the applicant to prepare this application. NOTE: Sewerage, Industrial Waste, and Mine Drainage applications require a registered professional engineer, except that a registered surveyor is acceptable where public health and safety are not involved.

Name of Design Individual and Firm		
John G. Walter, Jr. Urwiler & Walter, Inc.		
Mailing Address	Telephone Number	Design Engineer (or other)
Box 75A, Sumneytown, Pa. 18084	234-4562	
Agreement Date	Signature of Design Engineer (or other)	

JOHN G. WALTER, JR.
PROFESSIONAL ENGINEER
No. 11892-E
COMMONWEALTH OF PENNSYLVANIA

ER710.046.1

DATE PREPARED 1/10/74

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

APPLICANT Upper Gwynedd Towamencin Municipal Authority

LOCATION OF PROJECT: MUNICIPALITY Towamencin Township COUNTY Montgomery

DESIGN ENGINEER AND FIRM John G. Walter, Jr. Urwiler & Walter, Inc.

DESIGN ENGINEERS ADDRESS Box 75A, Sumneytown, Pa. ZIP CODE 18084 TELEPHONE 234-4562

DESCRIPTION OF PROJECT extension of existing sanitary sewer from intersection of Tambold Road and Detwiler Road along Tambold Road 1150 feet to service proposed industrial site (4 lots)

A. DOCUMENTATION REQUIRED

1. HAS A CHECK FOR $25.00, PAYABLE TO THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES, BEEN INCLUDED? (NOT REQUIRED OF STATE OR FEDERAL AGENCIES) [X] Yes [ ] No [ ] N/A

2. HAVE 2 COPIES OF THE APPLICATION, FORM H710.046, BEEN SUBMITTED? (3 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND DELAWARE RIVER BASIN). [X] Yes [ ] No

A. HAS THE AFFIDAVIT BEEN PROPERLY COMPLETED AND EXECUTED? [X] Yes [ ] No

RECEIVED
FEB 22 1974
WATER MANAGEMENT
NORTHEAST REGIONAL OFFICE

3. DOES THE APPLICATION INCLUDE THE FOLLOWING APPLICABLE MODULES:

MODULE NUMBER	TITLE	NUMBER OF PAGES	
1	GENERAL INFORMATION – SEWERAGE	9	[X] Yes
4	WASTE LOAD AND CHARACTERISTICS	3	[ ] Yes
5	GEOLOGY AND GROUND WATER INFORMATION	2	[ ] Yes
6	SEWERS AND APPURTENANCES	5	[X] Yes
7	SEWAGE PUMPING STATIONS	4	[ ] Yes
8	PUMPING FACILITIES	1	[ ] Yes
9	FLOW EQUALIZATION AND STORAGE BASINS	2	[ ] Yes
10	GRIT CHAMBERS	1	[ ] Yes
11	SCREENING AND COMMINUTING DEVICES	2	[ ] Yes
12	IMHOFF AND SEPTIC TANKS	2	[ ] Yes
13	SETTLING TANKS	2	[ ] Yes
14	EARTHEN SETTLING BASINS	2	[ ] Yes

EM710.046.1

DATE PREPARED 1-10-74

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

A. DOCUMENTATION REQUIRED – CONTINUED This Page N/A

MODULE NUMBER	TITLE	NUMBER OF PAGES	
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26	SLUDGE TREATMENT AND DISPOSAL		
	A. SEPARATE DIGESTION TANKS AND SLUDGE THICKENING TANKS	2	☐ Yes
	B. ELUTRIATION	1	☐ Yes
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	D. SLUDGE DRYING BEDS	1	☐ Yes
	E. LAND DISPOSAL OF SLUDGE	1	☐ Yes
	F. SLUDGE BASINS	1	☐ Yes
	G. FILTERS AND CENTRIFUGES	1	☐ Yes
	H. INCINERATION	1	☐ Yes

B. REQUIRED DATA

1. THE FRONT COVER OR FLYLEAF OF EACH SET OF DRAWINGS AND SPECIFICATIONS MUST BEAR THE SIGNATURE AND SEAL OF THE REGISTERED PROFESSIONAL ENGINEER, SURVEYOR BY OR UNDER WHOM PREPARED. EACH DRAWING MUST BEAR AN IMPRINT OR REASONABLE FACSIMILE OF SUCH SEAL.

 This Page N/A

January 17, 1974

Sewer App. 4674402
Turnpike Construction Co.
Harleysville, Pa.

R. Hinkle
Bureau of Water Quality Management

G. Richey JHR
Bureau of Occupational Health

Although this is a private employer and the Department no longer has the responsibility for occupational health matters in those areas under the jurisdiction of OSHA, the following are consistent with good industrial hygiene practice where sewer line is being laid.

1. If rock drilling machinery is used, it must be equipped with either an integral water or exhaust ventilation dust suppression device.

2. Employees engaged in operations where noise levels exceed standards shall have audiometric tests. (Testing is required on an annual basis).

3. Employees engaged in operations where silica dust levels exceed standards shall have chest X-ray (14" x 17") examinations. (These examinations must be repeated every three years).

4. Where confined spaces (manholes, etc.) must be entered, the atmosphere must be tested for combustible gases and mechanical ventilation used prior to entry and during occupancy. A worker must also be stationed outside the confined space to offer assistance should a problem occur. Procedures for confined space entry must be submitted to the Department.

5. If a laser is used to align pipes or for any other work, it must be registered with the Department.

After construction of the system is completed, any maintenance work requiring confined space entry must be done in accordance with the confined space entry requirements referred to above.

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
1725 Markley Street, Norristown, Pa. 19401

February 12, 1974

RECEIVED
FEB 15 1974
NORRISTOWN REGIONAL OFFICE

Pennsylvania Department of Environmental Resources
Water Quality Management
1875 New Hope St.
Norristown, Pa. 19401
ATTN: Mr. R. David Emerson, PHET

Re: Turnpike Construction Co., Inc.
Towamencin Township

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John C. George

John C. George
Soil Conservationist

JCG:fm

cc: M. King, Montgomery County Conservation District

January 17, 1974

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John C. George
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JCG:fm

cc: M. King, Montgomery County Conservation District

URWILER & WALTER, INC.
SUMNEYTOWN PIKE • SUMNEYTOWN, PENNSYLVANIA 18084 • PHONE (215) 234-4562

MESSAGE	REPLY
TO RICHARD L. HINKLE, P.E., CHIEF	DATE
FROM Derek W. Lindsay	SIGNED
DATE 2-15-74	DETACH AND FILE FOR FOLLOW-UP

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RECEIVED
FEB 22 1974
ENV. WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

BY Derek W. Lindsay SIGNED

DETACH AND FILE FOR FOLLOW-UP

1875 New Hope Street
Norristown
277-3210

CERTIFIED MAIL
093326

March 15, 1974

Upper Gwynedd-Towamencin Municipal Authority
P. O. Box 203
North Wales, Pa. 19454

Attention: Anton Guerds

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Sanitary Sewer Extension
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R. David Emerson
Public Health Engineering Trainee

RDE:jr

cc: Urwiler & Walter, Inc.

HENRY S. CONREY
ALBERT C. SKILES
RALPH A. WERT
JACOB HOTTINGER

Henry S. Conrey, Inc.
Division of Chester Valley Engineers
CIVIL ENGINEERS & SURVEYORS
POST OFFICE BOX 447
159 WEST LANCASTER AVENUE
PAOLI, PA.
19301

Niagara 4-4423
Niagara 4-4424
Area Code 215

March 25, 1974

RECEIVED
MAR 27 1974

Department of Environmental Resources
1875 New Hope Street
Norristown, Pennsylvania

Attn: R. David Emerson

Re: Application #4674402
Sanitary Sewer Extension
Towamencin Twp., Montgomery Co.

Gentlemen:

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Ralph A Wert, P.E.
Towamencin Township Engineer

RAW/srs

Enclosure
copies: Board
Solicitor
Urwiler

EHB-WQ-51 Rev. 3-73

Date Prepared 1/10/74

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

Application For
Water Quality Management Permit

For Department Use Only

Applicant Name	Project Location
Upper Gwynedd Towamencin Municipal Authority	(A) Municipality: Towamencin Township
Telephone No. 855-8165	
Mailing Address: 2225 Kriebel Road, Lansdale, PA 19446	(B) County: Montgomery

Hereby Applies For: (Check appropriate blocks in columns A, B, C and D)

A. Approval of Plans for Construction of:	B. Approval to Discharge:	C. Approval to Operate:	D. Approval of an
☒ Pump Stations, Sewers and Appurtenances	(1) ☐ Treated ☐ Untreated	☐ Underground Mine	☒ Erosion and Sedimentation Plan
☐ Sewage Treatment Plant	(2) ☐ Industrial Waste ☐ Mine Drainage ☐ Sewage		
☐ Mine Drainage Treatment Plant			
☐ Industrial Waste Treatment Plant			
☐ Outfall and Headwall			
☐ Stream Crossing			

Note: Erosion and sediment control plan for Lot 3 has been reviewed & approved by John George of Montg. Co. SCS (All Discharges Of Wastes Are Pursuant To "The Clean Streams Law")

I hereby certify that the accompanying report and all plans, modules, and documents designated therein are attached to this application, and made a part hereof.

Ralph A. Wert Twp. Engineer
Signature of Applicant or Responsible Official

Name of Applicant or Responsible Official:	Title	Date of Application
Ralph A. Wert, P.E.	Township Engineer	

Address: 410 Derstine Ave., Lansdale, PA 19446

Affidavit

Commonwealth of Pennsylvania, County of Montgomery 4074402 2/22/74

I, Ralph A. Wert, being duly sworn, according to law, depose and say that I (am the applicant) (am an officer or official of the applicant) (have the authority to make this application) and that the plans, reports and documents submitted as part of the application are true and correct to the best of my knowledge and belief.

NO. OF VOLUMES 1 OF 1

Sworn and subscribed to before me this 8th day of March 1974

Marylin Seiler
Notary Public

Ralph A. Wert - Twp. Engineer
Signature of Applicant or Responsible Official

Sum. Co. Ct. of C. Mtg. Cty. Comm. Exp. 4/12/76

The section below is to be completed by the person authorized by the applicant to perform this application. NOTE: Sewerage, Industrial Waste , and Mine Drainage applications require registered professional engineer, except that a registered surveyor is acceptable where public health and safety are not involved.

Name of Design Individual and Firm	
John G. Walter, Jr. Urwiler & Walter, Inc.	
Mailing Address: Box 75A, Sumneytown, Pa. 18084	Telephone Number: 234-4562
Agreement Date	Signature of Design Engineer (or other)

Design Engineer (or other)
JOHN G. WALTER, JR.
No. 11892-E
Seal
COMMONWEALTH OF PENNSYLVANIA

ER710.046.1

DATE PREPARED 1/10/74

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

APPLICANT Upper Gwynedd Towamencin Municipal Authority

LOCATION OF PROJECT: MUNICIPALITY Towamencin Township COUNTY Montgomery

DESIGN ENGINEER AND FIRM John G. Walter, Jr. Urwiler & Walter, Inc.

DESIGN ENGINEERS ADDRESS Box 75A, Sumneytown, Pa. ZIP CODE 18084 TELEPHONE 234-4562

DESCRIPTION OF PROJECT extension of existing sanitary sewer from intersection of Wambold Road and Detwiler Road along Wambold Road 1150 feet to service proposed industrial site (4 lots)

A. DOCUMENTATION REQUIRED

1. HAS A CHECK FOR $25.00, PAYABLE TO THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES, BEEN INCLUDED? (NOT REQUIRED OF STATE OR FEDERAL AGENCIES) ☒ Yes ☐ No ☐ N/A

2. HAVE 2 COPIES OF THE APPLICATION, FORM H710.046, BEEN SUBMITTED? (3 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND DELAWARE RIVER BASIN). ☒ Yes ☐ No

A. HAS THE AFFIDAVIT BEEN PROPERLY COMPLETED AND EXECUTED? ☒ Yes ☐ No

RECEIVED
FEB 22 1974
...ENT
NORRISTOWN REGIONAL OFFICE

3. DOES THE APPLICATION INCLUDE THE FOLLOWING APPLICABLE MODULES:

MODULE NUMBER	TITLE	NUMBER OF PAGES	
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7	SEWAGE PUMPING STATIONS	4	☐ Yes
8	PUMPING FACILITIES	1	☐ Yes
9	FLOW EQUALIZATION AND STORAGE BASINS	2	☐ Yes
10	GRIT CHAMBERS	1	☐ Yes
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13	SETTLING TANKS	2	☐ Yes
14	EARTHEN SETTLING BASINS	2	☐ Yes

ER710.046.1

DATE PREPARED 1-10-74

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

A. DOCUMENTATION REQUIRED – CONTINUED This Page N/A

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	A. SEPARATE DIGESTION TANKS AND SLUDGE THICKENING TANKS	2	☐ Yes
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	C. WET OXIDATION	1	☐ Yes
	D. SLUDGE DRYING BEDS	1	☐ Yes
	E. LAND DISPOSAL OF SLUDGE	1	☐ Yes
	F. SLUDGE BASINS	1	☐ Yes
	G. FILTERS AND CENTRIFUGES	1	☐ Yes
	H. INCINERATION	1	☐ Yes

B. REQUIRED DATA

1. THE FRONT COVER OR FLYLEAF OF EACH SET OF DRAWINGS AND SPECIFICATIONS MUST BEAR THE SIGNATURE AND SEAL OF THE REGISTERED PROFESSIONAL ENGINEER, SURVEYOR BY OR UNDER WHOM PREPARED. EACH DRAWING MUST BEAR AN IMPRINT OR REASONABLE FACSIMILE OF SUCH SEAL.

 This Page N/A

ER710.046.1

DATE PREPARED 1/10/74

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

B. REQUIRED DATA – CONTINUED

2. INFORMATION RELATIVE TO SPECIFIC PROGRAMS: N/A

A. 2 COPIES OF DESIGNER'S PLANS, MODULES, AND SPECIFICATIONS (3 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND DELAWARE RIVER BASIN)

B. HYDRAULIC PROFILE OR SCHEMATIC FLOW DIAGRAM FOR PROPOSED TREATMENT PLANT. ☒ N/A

C. UNITED STATES GEOLOGICAL SURVEY TOPOGRAPHICAL MAP SHOWING EXACT POINT OF DISCHARGE AND TREATMENT PLANT OR PUMP STATION LOCATION AND/OR AREA TO SEWERS. ☐ N/A

D. HAVE YOU APPLIED FOR A PUBLIC UTILITY COMMISSION CERTIFICATE OF PUBLIC CONVENIENCE? ☐ Yes ☐ No ☒ N/A

(1) SPECIFY PUBLIC UTILITY COMMISSION APPLICATION NUMBER _____

(2) IS CERTIFICATE OF PUBLIC CONVENIENCE ENCLOSED? ☐ Yes ☐ No N/A

E. HAVE YOU APPLIED FOR APPROVAL OF STREAM ENCROACHMENT(S)? # ☒ Yes ☐ No ☐ N/A
#applied for storm sewer, not sanitary sewer

F. HAVE YOU APPLIED FOR DEPARTMENT OF LABOR AND INDUSTRY APPROVAL FOR FEATURES AFFECTING EMPLOYEE SAFETY? ☐ Yes ☐ No ☒ N/A

G. DO YOU HAVE AN AGREEMENT INDICATING APPROVAL TO DISCHARGE TO SEWER SYSTEM AND TREATMENT PLANT OF ANOTHER PERMITTEE? ☐ Yes ☐ No ☒ N/A

H. HAVE YOU APPLIED FOR APPROVAL OF AIR POLUTION CONTROL FACILITIES? ☐ Yes ☐ No ☒ N/A

I. HAVE YOU SUBMITTED A LIST WITH NAMES, ADDRESSES, AND TITLES OF ALL PARTNERS IN THE CASE OF A PARTNERSHIP OR ALL OFFICERS IN THE CASE OF A CORPORATION, UNINCORPORATED ASSOCIATION, INCORPORATED ASSOCIATION, PARTNERSHIP, OR OTHER ENTITY (NOT MUNICIPAL)? ☐ Yes ☐ No ☒ N/A

3. SPECIFY THE FOLLOWING:

	TITLE/DESCRIPTION	NO. OF SHEETS	DATE
A. PLANS:	Erosion Control Plan	(1) D-5	9/26/73
PLANS:	Const. Improvement Plans	(2) D-6, D-7	9/22/73
PLANS:			

ER710.046.1

DATE PREPARED 1-10-74

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

This Page N/A

B. REQUIRED DATA – CONTINUED

B. SPECIFICATIONS (IF APPLICABLE): _____ TITLE

NUMBER OF VOLUMES _____ DATE _____

C. OTHER (SPECIFY TYPE AND NUMBER):

4. ARE THE PLANS:

A. CLEAR, LEGIBLE, AND DRAWN TO SCALE WITH NORTH ARROW INDICATED? [X] Yes [ ] No

B. WITHIN MAXIMUM SIZE OF 36 INCHES BY 60 INCHES? [X] Yes [ ] No

C. SEAL AND SIGNATURE OF PROFESSIONAL ENGINEER OR SURVEYOR RESPONSIBLE FOR THIS APPLICATION

1. SIGNATURE OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW)

2. SEAL OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW)

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL JOHN C. W[illegible] SEAL ENGINEER No. 11[illegible]E

ER710.046.1

DATE PREPARED 1-10-74
DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

This Page N/A

CLASS OF CONSTRUCTION (Check all applicable blocks)

- ☐ NEW
- ☐ REPLACEMENT OF EXISTING UNIT(S)
- ☐ ADDITIONS AND/OR
- ☐ MODIFICATIONS TO EXISTING UNIT(S)

TABLE I – DESIGN LOADING DATA			Existing Facilities Design	Present Operating Load	Proposed Total Facilities Design
1. EQUIVALENT POPULATION TO BE SERVED (NO. OF PERSONS – SUBMIT CALCULATIONS)					
	A. DOMESTIC				
	B. INDUSTRIAL				
	C. TOTAL				
2. DESIGN YEAR OR PERIOD FOR OPERATING DATA					
3. RUNOFF PERIOD		(HRS)			
4. DOMESTIC WASTE FLOW DATA	A. PER CAPITA FLOW	(GPCD)			
	B. AVERAGE DAILY FLOW	(MGD)			
	C. INFILTRATION	(MGD)			
	D. RUNOFF FLOW RATE	(MGD)			
	E. MAXIMUM FLOW RATE	(MGD)			
5. INDUSTRIAL WASTE FLOW DATA	A. AVERAGE DAILY FLOW	(MGD)			
	B. MAXIMUM DAILY FLOW	(MGD)			
6. TOTAL DESIGN AVERAGE FLOW		(MGD)			

TABLE II – FACILITIES DESIGN DATA (Specify number of units)

Units	Existing	To Be Abandoned	Total Proposed	Units	Existing	To Be Abandoned	Total Proposed
1. SCREENING DEVICES				13. CHLORINE CONTACT TANK(S)			
2. GRIT CHAMBER(S)				14. DISINFECTION FACILITIES			
3. COMMINUTOR(S)				15. SEPARATE SLUDGE DIGESTORS			
4. PRE-AERATION TANKS				16. SLUDGE DRYING BEDS			
5. PRIMARY SETTLING TANKS				17. MECHANICAL SLUDGE DEWATERING			
6. IMHOFF TANK(S)				18. SLUDGE ELUTRIATION TANKS			
7. TRICKLING FILTERS				19. SLUDGE STABILIZATION TANKS			
8. INTERMEDIATE SETTLING TANKS				20. INCINERATOR(S)			
9. AERATION TANKS				21. MIXING AND FLOCCULATION TANKS			
10. FINAL SETTLING TANKS				22. OTHER (Specify)			
11. INTERMITTENT SAND FILTERS				23. OTHER (Specify)			
12. WASTE STABILIZATION POND(S)				24. OTHER (Specify)			

This Page N/A

ER710.046.1

DATE PREPARED 1/10/74
DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

O. GENERAL INFORMATION

1. EXISTING COMBINED SEWERS MAKE UP 0 % OF THE TOTAL AREA SERVED BY THE SYSTEM.

2. ARE THE EXISTING SANITARY SEWERS SUBJECT TO EXCESSIVE INFILTRATION? ☐ Yes ☒ No ☐ N/A

A. IF YES, SPECIFY MAJOR SOURCES OF INFILTRATION: _____

B. HAS A REGULATION PROHIBITING THE ADMITTANCE OF STORM WATER FROM PAVEMENTS, ROOFS, AND OTHER SOURCES BEEN ADOPTED? (IF YES, ENCLOSE COPY.) ☒ Yes ☐ No

C. SPECIFY STEPS TAKEN OR BEING TAKEN TO CORRECT THE INFILTRATION PROBLEM, INCLUDING DATES ☒ N/A

3. TYPES OF INDUSTRIAL WASTES OF SPECIAL CONSIDERATION: None

4. WILL THE APPLICANT BE RESPONSIBLE FOR REPAIR AND MAINTENANCE OF SEWAGE FACILITIES FOR WHICH APPLICATION IS SUBMITTED? ☐ Yes ☒ No

A. IF NO, EXPLAIN The sewer extension will be turned over to Towamencin Sewer Authority upon completion of construction

5. THE DISTANCE OF THIS PLANT TO THE NEAREST OCCUPIED DWELLING: N/A

A. PRESENT _____ FEET

B. PROPOSED _____ FEET

6. IF THE APPLICANT IS OTHER THAN A MUNICIPALITY OR MUNICIPAL AUTHORITY, HAS THE GOVERNING MUNICIPALITY OBJECTED TO THE PROPOSED SEWAGE TREATMENT PLANT? ☐ Yes ☐ No ☒ N/A

ER710.046.1

DATE PREPARED 1/10/74

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

D. GENERAL INFORMATION – CONTINUED

A. IS THE LETTER FROM MUNICIPAL OFFICER, SIGNIFYING THE OPINION, APPENDED TO THIS APPLICATION? ☐ Yes ☐ No N/A

7. ARE DUPLICATE TREATMENT UNITS PROVIDED WHERE REQUIRED? ☐ Yes ☐ No ☒ N/A

A. IF NO, EXPLAIN: _____

8. DO ANY BY-PASS STRUCTURES DISCHARGE TO WATERS OF THE COMMONWEALTH? (SPECIFY PLAN SHEET NUMBER(S) SHOWING BY-PASS STRUCTURES) ☐ Yes ☐ No

8. HAS AN AUXILIARY STANDBY POWER SOURCE BEEN PROVIDED? ☐ Yes ☐ No ☐ N/A

9. DOES ANY PIPING OR CONNECTION EXIST IN ANY PART OF THE TREATMENT WORKS WHICH MAY CAUSE CONTAMINATION OF THE POTABLE WATER SUPPLY? ☐ Yes ☒ No

10. IF A NON-POTABLE WATER SUPPLY IS PROVIDED, ARE ALL OUTLETS PERMANENTLY POSTED TO INDICATE WATER IS NOT SAFE FOR DRINKING? ☐ Yes ☐ No ☒ N/A

11. ARE FACILITIES PROVIDED FOR MEASURING THE SEWAGE FLOW? ☐ Yes ☐ No N/A

12. SAFETY:

A. ARE FACILITIES PROVIDED TO EFFECTIVELY PROTECT THE OPERATOR AND VISITORS? ☐ Yes ☐ No N/A

13. OUTFALL SEWER N/A

A. IS THE OUTFALL SEWER ADEQUATELY PROTECTED TO ENSURE ITS STRUCTURAL STABILITY AND FREEDOM FROM STOPPAGE? ☐ Yes ☐ No N/A

B. IS AN OUTFALL HEAD WALL PROVIDED? ☐ Yes ☐ No ☒ N/A

C. DOES THE OUTFALL EXTEND TO THE LOW WATER MARK OF THE RECEIVING STREAM? ☐ Yes ☐ No ☒ N/A

14. HAVE PROVISIONS BEEN MADE TO PROTECT ALL STRUCTURES AGAINST FLOTATION? ☐ Yes ☐ No N/A

15. IF THE PROJECT INVOLVES ADDITIONS TO AN EXISTING TREATMENT PLANT, DO THE SPECIFICATIONS INCLUDE A PROGRAM TO PREVENT BY-PASSING OF ANY UNIT TO WATERS OF THE COMMONWEALTH DURING CONSTRUCTION? ☐ Yes ☐ No ☒ N/A

A. SPECIFY VOLUME AND PAGE NUMBER OF SPECIFICATIONS: _____

16. SPECIFY NAMES OF MUNICIPALITIES AND POPULATION SERVED OR TO BE SERVED BY THIS PLANT: N/A

ER710.046.1

DATE PREPARED: 1 – 10 – 74

DATE REVISED:

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

E. RECEIVING STREAM* This Page N/A

1. WHAT IS THE NAME OF THE RECEIVING STREAM? _____

A. TRIBUTARY OF _____

B. TRIBUTARY OF _____

C. MAJOR DRAINAGE BASIN: ☐ DELAWARE ☐ SUSQUEHANNA ☐ POTOMAC ☐ LAKE ERIE ☐ GENESEE ☐ ALLEGHENY ☐ MONONGAHELA ☐ OHIO

2. DESCRIBE THE EXACT POINT OF DISCHARGE:

_____ DEG. _____ MIN. _____ SEC LATITUDE

_____ DEG. _____ MIN. _____ SEC LONGITUDE

A. WATERSHED AREA ABOVE POINT OF DISCHARGE IS

_____ SQUARE MILES.

3. WHAT IS THE

A. MINIMUM 7-CONSECUTIVE-DAYS FLOW OCCURRING ONCE IN 10 YEARS?

_____ CUBIC FEET PER SECOND.

B. MINIMUM STREAM FLOW _____

C. ABOVE FLOWS ARE BASED ON: ☐ MEASUREMENTS ☐ ESTIMATES

_____ YEARS OF RECORD

4. IS THE TREATMENT PLANT SUBJECT TO FLOODING? ☐ Yes ☐ No

5. THE PROBABILITY OF THE TREATMENT PLANT BEING OUT OF SERVICE DUE TO FLOODING IS ONCE IN _____ YEARS.

A. LIST BRIEFLY THE METHODS USED FOR FLOOD PROTECTION: _____

* *Attach U.S. Geological Survey 7.5' or 15' Quadrangle Map showing exact points of discharge.*

 This Page N/A

ER710.046.1

DATE PREPARED
1 – 10 – 74

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

E. RECEIVING STREAM – CONTINUED

This Page N/A

6. TO THE BEST OF YOUR KNOWLEDGE, WILL THE TREATED WASTE DISCHARGE ADVERSELY AFFECT:

A. DOMESTIC WATER SUPPLY?	☐ Yes	☐ No
B. BATHING?	☐ Yes	☐ No
C. STOCK WATERING?	☐ Yes	☐ No
D. FISH AND AQUATIC LIFE?	☐ Yes	☐ No
E. INDUSTRIAL WATER SUPPLY?	☐ Yes	☐ No
F. IRRIGATION?	☐ Yes	☐ No
G. BOATING AND AESTHETICS?	☐ Yes	☐ No

7. IF ANY ITEMS IN 6 ABOVE ARE ANSWERED YES, INDICATE DISTANCE TO, LOCATION OF, AND EXTENT OF ADVERSE EFFECT.

This Page N/A

ER710.046.6

DATE PREPARED 1/10/74

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

For Department Use Only

MODULE 6 – SEWERS AND APPURTENANCES

CLASS OF CONSTRUCTION (Check All Applicable Blocks)

- [ ] NEW SYSTEM
- [ ] REPLACEMENT OF EXISTING SYSTEM
- [X] EXTENSION(S) TO EXISTING SYSTEM

TABLE I – DESIGN FLOW AND LOADING INFORMATION

1. POPULATION TO BE SERVED	INITIAL 20	DESIGN 100	DESIGN YEAR 1974
2. AREA TO BE SERVED	ACRES (INITIAL) 9		
TYPE OF AREA (Residential, Commercial, Etc.) Light industrial warehouse	ACRES (FUTURE) 50		

3.			
A. LATERALS AND SUB-MAIN SEWERS	(GPCD)	400
B. MAIN AND TRUNK SEWERS	(GPCD)	N/A
C. INTERCEPTORS	(GPCD)	N/A
(1) MEASURED DRY-WEATHER FLOW	(%)	N/A
(2) ESTIMATED DRY WEATHER FLOW	(%)	N/A
D. IF ANY VALUES LESS THAN PRESCRIBED IN MANUAL, EXPLAIN		N/A

4. DESIGN FLOW DATA	GPCD	MGD
A. AVERAGE DAILY FLOW	50	.005
B. INFILTRATION		included in 4A
C. MAXIMUM INDUSTRIAL WASTE FLOW		none
D. TOTAL DESIGN FLOW		.005
E. MAXIMUM FLOW RATE		.020

TABLE II – GENERAL DESIGN

PIPE DIAMETER (IN.)	MINIMUM SLOPE (%)	MAXIMUM SLOPE (%)	MAXIMUM VELOCITY (FPS)	MAXIMUM FLOW (MGD)	MAXIMUM DISTANCE BETWEEN MANHOLES (Ft.) SEWERS 18 IN. OR LESS	SEWERS 18 IN. TO 30 IN.	TYPE OF SEWER MATERIAL	"N" VALUE
8"	.004	.010	3.4	.5	300'	N/A	ACP	.013

(USE ADDITIONAL SHEETS IF NECESSARY)

TABLE III – CRITICAL DATA

N/A

PLAN SHEET NUMBER	MANHOLE NUMBER FROM	MANHOLE NUMBER TO	SEWER PIPE SIZE (IN.)	SEWER SLOPE (%)	POPULATION SERVED	TOTAL DESIGN FLOW (MGD)	SEWER FLOWING FULL VEL. (FPS)	SEWER FLOWING FULL CAP. (MGD)	MAXIMUM FLOW VELOCITY (FPS)

ER710.046.6

DATE PREPARED 1/10/74

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

MODULE 6 – SEWERS AND APPURTENANCES

For Department Use Only

A. GENERAL DESIGN

1. ARE THE PROPOSED SEWERS DESIGNED AS SEPARATE SANITARY SEWERS? [X] Yes [ ] No

   A. IF NO, EXPLAIN IN DETAIL, INCLUDING THE POSSIBLE EFFECTS UPON WATER COURSES.

2. ARE THE PROPOSED SEWERS DEEP ENOUGH TO SERVE ALL ADJACENT BASEMENTS? [X] Yes [ ] No

   A. IF NO, EXPLAIN

3. ARE THERE ANY OVERFLOWS OR BYPASSES OTHER THAN FROM PUMP STATIONS? [ ] Yes [X] No

   A. IF YES, SPECIFY PLAN SHEET(S) WHERE SHOWN

4. WHERE SMALLER SEWERS JOIN LARGER ONES, HAVE THE INVERTS OF THE LARGER SEWERS BEEN LOWERED SUFFICIENTLY TO MAINTAIN THE SAME ENERGY GRADIENT? [ ] Yes [ ] No [X] N/A

5. SPECIFY THE TYPE OF LEAKAGE TEST (INFILTRATION AND/OR EXFILTRATION) AND THE LIMIT TO BE USED, PREFERABLY IN TERMS OF GALLONS PER INCH OF PIPE DIAMETER PER MILES PER DAY. (INDICATE VOLUME AND PAGE NUMBER OF SPECIFICATIONS.)

   TYPE AND LIMITS standard infiltration test - not to exceed 500 gallons per inch of pipe diameter per mile per day for any section of the system

6. HAVE PROVISIONS BEEN MADE TO PROTECT SEWERS AT VELOCITIES OF OVER 15 FEET PER SECOND? [ ] Yes [ ] No [X] N/A

   A. ARE SEWERS SECURED WITH CONCRETE ANCHORS (OR EQUAL) SPACED AS REQUIRED? [ ] Yes [ ] No [X] N/A

7. ARE MANHOLES PROVIDED AT ALL CHANGES IN SIZE, GRADE, ALIGNMENT, AND SEWER INTERSECTIONS? [X] Yes [ ] No

8. ARE DROP MANHOLES PROVIDED WHERE THE ENTRANCE SEWER INVERT IS 24 INCHES OR MORE ABOVE MANHOLE INVERT? [X] Yes [ ] No

9. ARE WATERTIGHT COVERS USED WHERE MANHOLES ARE SUBJECT TO FLOODING BY STREET RUNOFF OF HIGH WATER? [X] Yes [ ] No

ER – EP

DEPARTMENT OF ENVIRONMENTAL RESOURCES

ENVIRONMENTAL PROTECTION

START

BUREAU / PROGRAM Water Quality Management

DIVISION

COUNTY / MUNICIPALITY 46949

PROGRAM Sew

CASE NAME Upper Gwynedd Towamencin Municipal Authority

FILE

PERMIT NO. 4675424 Zapp & Alderfer Subdivision

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
1725 Markley Street, Norristown, Penna. 19401

September 16, 1975

Mr. Maynard King
Montgomery County Conservation District
3rd floor, Court House
Norristown, Penna. 19404

Re: Lapp & Alderfer
Application # 4675424
Towamencin Township

Dear Mr. King:

The following comments are in reference to the above captioned project:

1.) According to the Montgomery County Soil Survey portions of lots 1 thru 4, 7, 21, 25, and 53 are located within the flood plain.

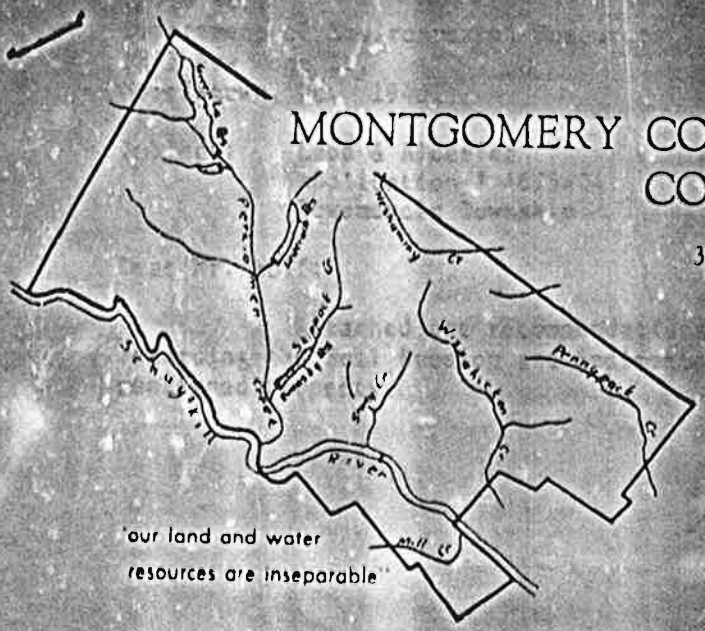
2.) Proposed swale not indicated on Erosion and Sediment Control plan or design criteria submitted.

3.) According to Chapter 102.22 - Any area disturbed left bare and inactive for more than 20 days, interim stabilization measures shall be implemented promptly.

Robert F. Thompson
District Conservationist

RFT/saw

Enclosure



MONTGOMERY COUNTY CONSERVATION DISTRICT

3rd Floor, Court House, Norristown, Pa. 19404
Phone: 275-5000 (Ext. 257)

September 17, 1975

RECEIVED
SEP 8 1975
WATER
NORRISTOWN REGIONAL OFFICE

David Wolf
Department of Environmental Resources
1875 New Hope St.
Norristown, Pa. 19401

Subject: Lapp & Alderfer
Application # 4675424
Towamencin Township

Dear Mr. Wolf:

Attached are recommendations from the Soil Conservation Service regarding the Soil Erosion and Sedimentation Control Plan for the above mentioned property.

Sincerely,

Maynard A. King

Maynard A. King
Executive Assistant

MAK:dvs

NORRISTOWN ADDRESS: 1875 New Hope Street
Norristown, Pennsylvania 19401
215 631-2405

September 30, 1975

Upper Gwynedd - Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, Pennsylvania 19446

SUBJECT: Sewerage Application No. 4673424
Upper Gwynedd - Towamencin Municipal Authority
Lapp Alderfer Subdivision
Towamencin Township, Montgomery County

GENTLEMEN:

The subject application has been reviewed and the following questions and comments must be resolved before we can further process the application.

1. The Soil Erosion and Sedimentation Control Plan as submitted is not adequate. Enclosed is a list of three (3) comments resulting from the review of the plan. Please make the necessary revisions to the plan and if you have any questions contact Mr. Robert Thompson of the Montgomery County Soil Conservation Service.

2. Due to the size of the proposed development, a permanent storm water control basin is strongly recommended. The location and design of such a basin and all associated appurtenances should be prepared and submitted. Please clearly identify all the streams passing through the project site giving names (if any of stream or names of streams that they are tributary to and their drainage areas. Delineate the 50-year flood plain of each stream and clearly show the encroachments such as culverts, headwalls, etc. The culvems design should be based upon atleast 50-year storm frequency rather than the 10-year frequency used in your calculations. Depending upon the size and characteristics of the streams, a Dams and Encroachments Permit may be necessary.

3. It appears that some of the planned routing of Interceptor T-14 is less than 15 feet from the stream bank. Please revise these items or justify

why the proposed route for the sewer must be used.

In order to expedite the processing of this application, it is requested that all revised and supplemental information be promptly submitted. If the requested information is not submitted to this office by October 14, 1975, we may have no recourse but to recommend refusal of a permit.

If there are any questions, please do not hesitate to contact this office.

Very truly yours,

David Q. Wolf
Sanitary Engineer

DQW:jp
CC: Urwiler and Walter, Inc.

Highway Engineering
Structural and Foundation Design
Boundary Surveys
Traffic Engineering and Reports

PHONE (215) 234-4562
(215) 368-5510
(215) 723-5154

Sewerage and Sewage Treatment
Municipal Engineering
Real Estate Developments
Topographic Surveys
Erosion and Sediment Control

URWILER AND WALTER, INCORPORATED
ENGINEERS AND SURVEYORS

303 E. BROAD STREET
SOUDERTON, PA. 18964

SUMNEYTOWN PIKE
SUMNEYTOWN, PA. 18084

CENTURY PLAZA, SUITE 205
100 W. MAIN STREET
LANSDALE, PA. 19446

October 2, 1975

RECEIVED
OCT 6 1975
REGIONAL OFFICE

Dept. of Environmental Resources
1875 New Hope Street
Norristown, Pa.

ATTENTION: Mr. David Q. Wolfe

Re: Lapp & Alderfer subdivision, Towamencin Township.

Dear Dave:

Enclosed please find two (2) sets of revised plans for the Lapp & Alderfer subdivision. In addition to the plans, I would like to answer the Soil Conservation letter and your letter (copies enclosed) point by point in order to facilitate the re-review of the project.

Beginning with Robert Thompson's letter of September 16, 1975; comment no. 1, we are aware that lots no. 1 through 4, 7, 21, 25 and 53 are partially located in the 100 year flood plain area. It should be noted at this time that the flood plain through lots no. 21, 23, 27 and 53 is a dry swale except during wet weather. Lots no. 2 and 3 which contain the greatest amount of flood plain area are shown with proposed dwellings indicating that they are not affected by a 100 year flood.

Comment no. 2, talks about a proposed swale called for in note no. 2 on the erosion control plan. This swale is not now needed since the storm sewer between lots no. 25 and 26 has been extended to the existing swale (see sheet 17 of 19). This has been eliminated.

Comment no. 3, deals with the stabilization of area left bare and inactive for more than 60 days. This comment has been revised to state 20 days on page 5 of the erosion control report. I feel this responds to Robert Thompson' comment.

As can be seen on the erosion control plan, there is no detention basin. When the job was initially designed, thought was given to constructing a basin. The first obvious location for the basin would be in the vicinity of lot no. 53 or lots no. 22, 23, 24 and 25. However, as can be seen by the contours, these areas have too steep a slope. The second choice would be the area between lots no. 60 and 61, but upon further investigation it was found that the contributing drainage area was too small to constitute creating a detention basin and would be of better use as an open space and recreation area. Both Towamencin Township, including their engineer Ralph Wert, and the Montgomery County Planning Commission have reviewed and accepted the plan. For these reasons plus the fact that there would be an obvious loss of lots, I feel that this tract does not warrant the detention

basin. The two (2) swales that traverse the tract eventually join to form a tributary of the Towamencin Creek. The drainage area for each of the swales is shown on the erosion control plan neither drainage area exceeds 47 acres. I hope this data will be sufficient to determine whether or not we need a Dam and Encroachment permit. I would appreciate a response as soon as possible.

As per your item no. 3, the planned routing of interceptor T-14 has been accurately established by field survey in such a manner as to avoid trees and other natural obstructions and has been approved by the affected land owners. We would prefer not to alter the planned route. Manhole no. 164 appears closest to the stream bank and we will attempt to make a field revision of that location (move 5 feet further from stream) as long as we do not damage too many large trees between manhole no. 164 and manhole no. 165.

I hope this letter and the two (2) sets of enclosed plans will help expedite the pending sewer permit.

Very truly yours,

URWILER & WALTER, INC.

Derek W. Lindsay

Derek W. Lindsay

Enclosures
DWL/esm

cc Lapp & Alderfer
Loucky Colivita

3020

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
1725 Markley Street, Norristown, Penna. 19401

December 4, 1975

Maynard King
Montgomery County Conservation District
3rd floor, Court House
Norristown, Penna. 19404

Re: Lapp & Alderfer Subdivision
Application # 4675424
Towamencin Township

Dear Mr. King;

The following comments are in reference to the above captioned project:

1.) Hydrologic Watershed data - suggest this be re-evaluated.

2.) According to Montgomery County Soil Survey lots 1 thru 4, 7, 21, 25 & 53 are partially located within the flood plain.

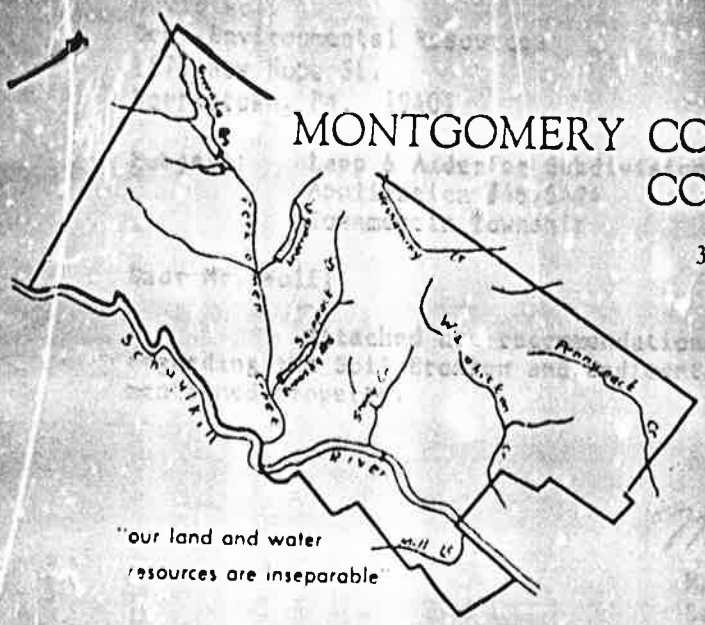
3.) Permit may be required for the construction of proposed Retention structure.

Following the Erosion and Sediment Control Plan as submitted September 1, 1972 and revised October 1, 1975, and adhering to the above comments, the plan is adequate.

Robert F. Thompson
District Conservationist

RFT/saw

Enclosure



MONTGOMERY COUNTY CONSERVATION DISTRICT

RECEIVED
DEC 9 1975
ENVIRONMENTAL
NORRISTOWN REGIONAL OFFICE

3rd Floor, Court House, Norristown, Pa. 19404
Phone: 275-5000 (Ext. 257)

December 5, 1975

David Wolf
Dept. Environmental Resources
1875 New Hope St.
Norristown, Pa. 19401

Subject: Lapp & Alderfer Subdivision
Application #4675424
Towamencin Township

Dear Mr. Wolf:

Attached are recommendations from the Soil Conservation Service regarding the Soil Erosion and Sedimentation Control Plan for the above mentioned property.

Sincerely,

Maynard A. King
Executive Assistant

MAK:dvs

Cooperating with the following Agencies and Organizations: U.S. Soil Conservation Service; Pa. Dept. of Environmental Resources; Penn DOT; Cooperative Extension Service; Farmers Home Administration; Pa. Fish and Game Commissions; County Planning Commission; Agricultural Stabilization and Conservation Service; Bucks County Division of Natural Resources; Pennypack, Perkiomen and Wissahickon Watershed Associations; Citizens' Council of Montgomery County.

PFC 531

COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA FISH COMMISSION

Subject: Review of Permit Application with Recommendations

Date: 9-16-75

In Reply To: 46-75-424

To: Department of Environmental Resources

From: Pennsylvania Fish Commission

Permit Applicant: Upper Gwynedd Towamancin Mun. Auth.

Type of Construction: Sewer line crossing

Location: County Montgomery Township Skippack

Other

Stream Affected Towamencin Cr Trib. To Skippack

Trout Stream no (yes or no) Stocked no (yes or no)

Warm Water Stream no (yes or no) Polluted no (yes or no)

Other Fishing Pressure low (high, med., low, none)

Primary Species Suckers sunfish

☐ Insufficient data submitted. Project approval will be considered only after more details are provided for review.

THE FOLLOWING CONDITIONS ARE TO BE MADE PART OF ALL PERMITS:

1. Stream bed shall not be used as roadway for moving machinery from one site to another. Temporary stream crossings must be provided for equipment that must cross stream during construction. Structures are to be removed and stream bed returned to its original condition when project is completed.
2. Siltation control shall be provided for during construction and bank stabilization shall be undertaken by planting of grasses, shrubbery, or trees immediately after completion of each phase of project.
3. When channel change occurs, the stream bed shall not exceed original width, and if a greater cross sectional area is required, an elevated flood plain must be put into use.
4. All material and debris removed from stream bed shall be moved entirely out of the flood plain area.
5. A permit must be secured from the Pennsylvania Fish Commission in Harrisburg, if the use of explosives is required; P.F.C. Waterways Patrolman F.J.Rotchford must be notified when project is started, when explosives are to be used, and when project is completed for final inspection.

COMMENTS:

Frank Rotchford (Waterways Patrolman) Approved yes (yes or no) Date 9-16-75

Jack G. Miller (Chief, Fisheries Environmental Services) Approved yes (yes or no) Date 9-17-75

March 20, 1975
Rev. November 7, 1975
Rev. December 11, 1975
Rev. December 23, 1975

RECEIVED
DEC 23 1975
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

EROSION CONTROL REPORT and
DETENTION POND STUDY

PREPARED FOR

LAPP & ALDERFER SUBDIVISION

TOWAMENCIN TOWNSHIP

MONTGOMERY COUNTY

8/29/75
REPORTS
NO. OF VOLUMES 1 OF 1

DEPT. OF ENVIRONMENTAL RESOURCES
BUREAU OF
WATER QUALITY MANAGEMENT
APPLICATION
4675424
SECTION
8/29/75
REPORTS
NO. OF VOLUMES 1 OF 1

Urwiler & Walter, Inc.
Engineers & Surveyors
Sumneytown Pike
Sumneytown, Pa. 18084

I INTRODUCTION

This 66.726 acre tract of land on Keeler Road at its juncture with Allentown Road in Towamencin Township, Montgomery County will be developed into a subdivision containing 73 single family dwellings on a minimum lot size of 25,000 square feet. Since the project will be constructed in five phases, approval for the erosion control plan as well as a permit for the sanitary sewer extension will be required from the Department of Environmental Resources.

The additional plans in this submittal detail the construction to be done on this project. These include a sanitary sewer plan, an erosion control plan, a water plan and applicable construction improvement plans.

This project will be started as soon as the necessary approvals are granted by Towamencin Township and the Department of Environmental Resources. Construction will take approximately two years to completion.

II SOIL TYPES

A. Bp - Bowmansville Silt Loam, severe limitations to residential development due to flooding and high water table.

B. RoA - Readington Silt Loam, 0 - 3% slopes, moderate limitations for residential development due to seasonal high water table.

C. RoB2 - Readington Silt Loam, 3 - 8% slopes, moderately eroded, moderate limitations to residential development due to seasonal high water table.

D. RoC2 - Readington Silt Loam, 8 - 15% slopes, moderately eroded, moderate limitations for residential development due to seasonal high water table.

E. RsA2 - Reaville Shaly Silt Loam, 0 - 3% slopes, moderately eroded, severe limitations for residential development due to bedrock and seasonal high water table.

F. RsB2 - Reaville Shaly Silt Loam, 3 - 8% slopes, moderately eroded, severe limitations for residential development due to seasonal high water table and bedrock.

G. RsB3 - Reaville Shaly Silt Loam, 3 - 8% slopes, severely eroded, severe limitations.

H. RsC3 - Reaville Shaly Silt Loam, 8 - 15% slopes, severe limitations.

III PROPOSED ALTERATION TO SITE

The proposed final site will consist of 73 single family residences. These homesites will be serviced by three proposed roads in addition to two existing roads. The proposed roads contain 3.2 acres of paving. Another feature of this development is the detention and sedimentation basin at the south end of the property.

IV THE AMOUNT OF RUNOFF FROM THE PROJECT AREA

As noted on the erosion control plan submitted herewith, there are two main watercourses that cross the subject tract, and flow under Keeler Road by way of pipe conveyances. These pipes have been shown to be inadequate after development of upstream areas. The erosion control and construction plans delineate the new pipes and drainage areas involved.

V STAGING OF EARTHMOVING ACTIVITIES

The first step of construction will be the sedimentation - detention basin at the south end of the property. The next steps will be to cut the

road, install underground utilities, install curb and apply crushed stone to the road areas as soon as they have been cut to subbase level. The roads will act as a stone mulch to intercept sediment flow. All construction shall be from the high areas to the low areas. All existing vegetation will in this way be used as an erosion control device.

VI TEMPORARY CONTROL MEASURES

A. General

1. The sediment from Phases 4 and 5 will be handled in the sedimetation - detention basin. This basin will be utilized as a sedimentation basin during the construction phases of the project and as a permanent detention basin upon the project's completion. The location, side slopes and depths are shown on the accompanying plan.

2. The sediment control from Phase 2 will be handled by a temporary berm shown on the erosion control plan. The berm will be constructed before Phase 2 is begun. At completion of construction the berm will be graded into the final landscape.

3. The sediment in Phases 1 and 3 will be handled in accordance with the methods described in Section V.

4. Any area that is disturbed, left bare and inactive for twenty days must be temporarily seeded and mulched. Each phase will be stabilized before a new phase is begun.

B. Berm and Sedimentation Basin Design

1. All design criteria for the sedimentation basin is taken from the "Erosion and Sediment Control Handbook" prepared by the

Montgomery County Soil and Water Conservation District. On Page 56 of the handbook, it is seen that the particular aspects of this tract and drainage area require the use of a "Type #3" basin.

Storage required = 0.60 site watershed inches (handbook, page 57).

C. Berm and Basin Design

1. Sedimentation Berm

Contributing Area = 8.26 acres
Phase 2

Volume required = 8.26 acres x 0.6 inches x $\frac{1 \text{ foot}}{12 \text{ inches}}$ x $\frac{43,560 \text{ ft}^2}{1 \text{ acre}}$ =

17,990 ft^3

Volume Available = 20,000 ft^3 (see erosion control plan)

2. Basin

Area to be disturbed during construction = 35 acres

Size of basin required = 0.6 inches x 35 acres x 1 ft/12 inches x 43,560 S.F./acre = 76,230 cubic feet required for sedimentation

Volume Available = 85,100 cubic feet (see cross sections and erosion control plan)

The sedimentation basin will be cleaned out when the storage is reduced by sediment to a point where 0.25 inches of site watershed storage (32,126 C. F.) remain and shall be cleaned out upon completion of construction.

3. Pipe Riser

The minimum average capacity of the principal spillway will be sufficient to discharge 0.21 CFS per acre of drainage area (as per handbook, page 58).

Total watershed area = 74 acres, therefore, 0.21 CFS/acre x 74 acres = 15.54 CFS

With head 303 - 301.7 = 1.3 feet.

Use one 24" RCCP, discharge = 20.3 CFS (Table I handbook, page 64)

At time of construction, two 24" RCCP's and risers will be installed. One riser will be perforated with 1½" diameter holes spaced 8" vertically and 10½" horizontally around the pipe. The second riser will have perforations and function after construction. At that time the perforations in the first pipe will be sealed with cement concrete.

4. Emergency Spillway

The emergency spillway for sediment and erosion control shall be sufficient to pass the peak rate of runoff from a 25 year storm minus the capacity of the principal spillway (handbook, pages 57 & 58).

Peak Flow for 25 Year Storm (developed flow)

(Rational Method Q = C x I x A)

Where C = coefficient of runoff

I = intensity (inches/hour)

A = drainage area (acres)

Q = flow (CFS)

A = 74 acres (total watershed area)

C = .38

t_c = 14 minutes

I_{25} = 5.2 inches/hour

Q_{25} = .38 x 5.2 inches/hour x 74 acres

Q_{25} = 146 cubic feet per second

Required spillway design (for sediment and erosion control) =

Q_{25} - Principal spillway capacity

126 CFS - 20.3 CFS = 105.7 CFS (required for sediment and erosion control)

See Emergency Spillway design for detention basin

VII PERMANENT CONTROL MEASURES AND MAINTANENCE OF FACILITIES FOR LONG PROTECTION

A. General

Once the construction on the site is completed and the vegetation has taken hold, the permanent control measures will be limited. They will consist of outfall structures on the ends of the storm sewer system to slow the water to a non-erosive velocity. These outfall structures will further be protected by a 10' radial area of 50 lb. stone (rip-rap). The detention pond has a total capacity of 85,100 cubic feet which will not only retain the water created by the development of this project but impound additional runoff to improve conditions downstream. Finally, the above mentioned control measures and devices require a minimal amount of maintanence.

B. Detention Basin Design

1. Emergency Spillway

For the permanent detention basin, the capacity of the spillway shall be greater than the peak flow of a developed 50 year storm.

Peak flow for a 50 year storm (developed)

A = 74 acres

C = 0.38

t_c = 14.0 minutes

I_{50} = 5.9 inches/hour

$Q_{50} = C \times I \times A$

Q_{50} = 165 CFS (50 year developed flow)

SPILLWAY CROSS - SECTION

Cross sectional area = 12 square feet

Wetted perimeter = 14 L. F.

S = .20 $S^{\frac{1}{2}}$ = .4472 S = slope (ft/ft)

n = .03 (coefficient of roughness for stone lined channel)

$R = \frac{A}{P} = \frac{12}{14} = .85$ R = Hydraulic Radius (ft)

$R^{\frac{2}{3}} = .897$

Available Capacity = $1.486 \times A \times R^{\frac{2}{3}} \times S^{\frac{1}{2}} = 49.53 \times 12 \times .897 \times .4472 = 238$ CFS

As can be seen from above the proposed emergency spillway will be 10 feet long and 1.0 feet below the top of the berm. As shown on the plan of the proposed sedimentation and detention basin, the emergency

PFC 531

COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA FISH COMMISSION

Subject: Review of Permit Application with Recommendations

Date: 9-16-75

In Reply To: 46-75-424

To: Department of Environmental Resources

From: Pennsylvania Fish Commission

Permit Applicant: Upper Gwynedd Towamancin Mun. Auth.

Type of Construction: Sewer line crossing

Location: County Montgomery Township Skippack

Other

Stream Affected Towamencin Cr Trib. To Skippack

Trout Stream no (yes or no) Stocked no (yes or no)

Warm Water Stream no (yes or no) Polluted no (yes or no)

Other Fishing Pressure low (high, med., low, none)

Primary Species Suckers sunfish

☐ Insufficient data submitted. Project approval will be considered only after more details are provided for review.

THE FOLLOWING CONDITIONS ARE TO BE MADE PART OF ALL PERMITS:

1. Stream bed shall not be used as roadway for moving machinery from one site to another. Temporary stream crossings must be provided for equipment that must cross stream during construction. Structures are to be removed and stream bed returned to its original condition when project is completed.
2. Siltation control shall be provided for during construction and bank stabilization shall be undertaken by planting of grasses, shrubbery, or trees immediately after completion of each phase of project.
3. When channel change occurs, the stream bed shall not exceed original width, and if a greater cross sectional area is required, an elevated flood plain must be put into use.
4. All material and debris removed from stream bed shall be moved entirely out of the flood plain area.
5. A permit must be secured from the Pennsylvania Fish Commission in Harrisburg, if the use of explosives is required; P.F.C. Waterways Patrolman F.J.Rotchford must be notified when project is started, when explosives are to be used, and when project is completed for final inspection.

COMMENTS:

Frank Rotchford (Waterways Patrolman) Approved yes (yes or no) Date 9-16-75

Jack G Miller (Chief, Fisheries Environmental Services) Approved yes (yes or no) Date 9-17-75

March 20, 1975
Rev. November 7, 1975
Rev. December 11, 1975
Rev. December 23, 1975

RECEIVED
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Where C = coefficient of runoff

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A = drainage area (acres)

Q = flow (CFS)

A = 74 acres (total watershed area)

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t_c = 14 minutes

I_{25} = 5.2 inches/hour

Q_{25} = .38 x 5.2 inches/hour x 74 acres

Q_{25} = 146 cubic feet per second

Required spillway design (for sediment and erosion control) =

Q_{25} - Principal spillway capacity

146 CFS - 20.3 CFS = 125.7 CFS (required for sediment and erosion control)

See Emergency Spillway design for detention basin

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A. General

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B. Detention Basin Design

1. Emergency Spillway

For the permanent detention basin, the capacity of the spillway shall be greater than the peak flow of a developed 50 year storm.

Peak flow for a 50 year storm (developed)

A = 74 acres

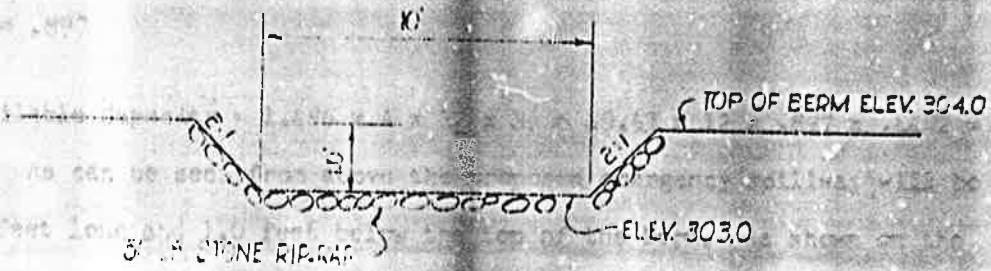
C = 0.38

t_c = 14.0 minutes

I_{50} = 5.9 inches/hour

Q_{50} = C x I x A

Q_{50} = 165 CFS (50 year developed flow)



SPILLWAY CROSS - SECTION

Cross sectional area = 12 square feet

Wetted perimeter = 14 L. F.

S = .20 $S^{\frac{1}{2}}$ = .4472 S = slope (ft/ft)

h = .03 (coefficient of roughness for stone lined channel)

$R = \frac{A}{P} = \frac{12}{14} = .85$ R = Hydraulic Radius (ft)

$R^{\frac{2}{3}} = .897$

Available Capacity = $1.486 \times A \times R^{\frac{2}{3}} \times S^{\frac{1}{2}} = 49.53 \times 12 \times .897 \times .4472 = 238$ CFS

As can be seen from above the proposed emergency spillway will be 10 feet long and 1.0 feet below the top of the berm. As shown on the plan of the proposed sedimentation and detention basin, the emergency

spillway will remain at elevation 303.0 for a width of 10 feet. It will then descend at a 5:1 slope to the stream and will have a floor of 50 lb. stone hand placed in concrete for the entire length of the spillway. Since the peak flow for a 50 year storm is 165 CFS, the emergency spillway (capacity = 238 CFS) is adequate for this flow and also for the flow required in the sedimentation basin (114 CFS).

Note: At the base of the spillway 50 lb. stone rip-rap will be placed loose on both banks of the stream to inhibit erosion.

2. Basin Volume Design

a. Rational Method

For 50 year storm (peak flow - undeveloped tract)

A = 74 acres (total watershed method)

C = 0.33

t_c = 14.0

I_{50} = 5.9 inches/hour

Q_{50} = CIA

Q_{50} = 144 CFS

To determine the volume of detention required to impound the increase in runoff between a 50 year developed and undeveloped storm use:

$$V_{required} = \frac{1}{720}\left[C \times A \times I \times D - \frac{(D + t_c)}{2} Q_{out}\right]$$

(from "Airport Drainage" published by Department of Transportation, FAA).

Where

$V_{required}$ = Volume required at a particular time in minutes

C = Developed coefficient of runoff

A = Drainage area (acres)

I = Intensity (inches/hour)

D = Duration (minutes)

t_c = Time of concentration (minutes)

Q_{out} = Flow out (CFS) = 50 year undeveloped flow = 1.44 CFS

C x A = 0.38 x 74 acres = 28.12 acres

t_c = 14.0 minutes

50 YEAR STORM

Duration (minutes)	Intensity (inches/hour)
20	5.0
25	4.7
30	4.38
35	3.75

$$V_{20} = \frac{1}{720}\left[28.12 \times 20 \times 5.0 - 72\ (34)\right] = 0.506 \text{ acre-feet}$$

$$V_{25} = \frac{1}{720}\left[28.12 \times 25 \times 4.7 - 72\ (39)\right] = .688 \text{ acre-feet}$$

$$V_{30} = \frac{1}{720}\left[28.12 \times 30 \times 4.38 - \frac{144}{2}\ (44)\right] = 0.732 \text{ acre-feet}$$

$$V_{35} = \frac{1}{720}\left[28.12 \times 35 \times 3.75 - 72\ (49)\right] = 0.226 \text{ acre-feet}$$

Maximum occurs at duration = 30 minutes

Volume required = 0.732 x 43,560 = 31,886 ft^3

Volume available = 85,100 ft^3 at emergency spillway elevation = 303.0

b. Soil Cover Complex Method

i General

(from Chapter 2, Soil Conservation Service Engineering Field Manual)

Note: Copies of applicable pages in Soil Conservation Service Engineering Field Manual included.

This method is used to compute direct runoff before and after development. The difference in direct runoff is multiplied by the area under consideration to determine the volume required for detention.

ii Before Development

Runoff curve numbers for the present uses on the tract before development are determined from the chart on page 2-16.1. 64.7 acres are rotation meadow (contoured) in good hydrologic condition and 2 acres are wooded areas in good condition. The conditions and areas were computed from field observations and field topography. All soils on tract are either Readington Silt Loam or Reaville Silt Loam as delineated in the Montgomery County Soil Survey published by Soil Conservation Service, USDA (Hydrologic Soil Group C, p 2-24, 25).

from Exhibit 2-2A

Rotation meadow soil cover no. = 78

Woods soil cover no. = 70

These numbers are multiplied by their respective areas and tabulated as per the enclosed chart to determine the weighted soil cover complex no. (77.8) for the undeveloped tract.

Using a 50 year storm, and its intensity for Montgomery County of 6.4 inches (in 24 hours), the direct runoff and peak discharge are determined using Exhibit 2 - 7A and Exhibit 2-10.

Direct runoff = 3.90 inches

Peak discharge = 190 CFS*

iii After Development

The same procedure is utilized for the project when construction is completed. Runoff curve numbers are determined using p 2-16.2. 59.7 acres will be ½ acre lot area, 5.0 acres will be lawn (open recreation area) and 2 acres will remain wooded as per the proposed plans.

from Exhibit 2-2C

Lot sizes of ½ acre soil cover no. = 80

Lawn soil cover no. = 74

Woods soil cover no. = 70

Again these figures are tabulated using the same procedure for the undeveloped site and a weighted soil cover complex no. of 79.2 is calculated.

*Determined by interpolation between curves #75 and #80.

Determine maximum height of runoff during a fifteen year undeveloped storm with a discharge equal to a two year undeveloped storm.

Again using $V_{required} = \frac{1}{720}\left[C \times A \times I \times D = D + t_o\ (Q_{out})\right]$ with

CA = 28.12 acres

Q_{out} = 75.7 CFS (2 year undeveloped flow)

For a 15 Year Undeveloped Storm

Duration (minutes)	Intensity (inches/hour)
20	4.1
25	3.65
30	3.4
40	2.7
60	2.2

$V_{20} = \frac{1}{720}\left[24.42 \times 20 \times 4.1 - 37.7\ (34)\right] = 1.001$ acre-feet

$V_{25} = \frac{1}{720}\left[24.42 \times 25 \times 3.65 - 37.7\ (39)\right] = 1.053$ acre-feet

$V_{30} = \frac{1}{720}\left[24.42 \times 30 \times 3.4 - 37.7\ (44)\right] = 1.16$ acre-feet

$V_{40} = \frac{1}{720}\left[24.42 \times 40 \times 2.7 - 37.7\ (54)\right] = .835$ acre-feet

$V_{60} = 1\left[24.42 \times 60 \times 2.2 - 37.7\ (74)\right] = .602$ acre-feet

Maximum volume occurs at D = 30 minutes

Volume required = 1.16 x 43,560 = 50,530 ft^2 which occurs at elevation = 301.7

Capacity of detention pond = 85,100 ft^2 at emergency spillway elevation = 303.0

Selection of Horizontal Pipe Size

from Soil Conservation Service Engineering Field Manual p 3-25

$$Q = a\sqrt{\frac{2gH}{1 + Km + KpL}}$$

Use 2 27" CMP where

$a = 3.98\ ft^2$

$H = 301.7 - 296.76 = 4.94$ feet

$Km = 1$

$Kp = .0362$

$L = 60$ feet

$$Q = 3.98\sqrt{\frac{2 \times 32.2 \times 4.94}{1 + 1 + .0362\ (60)}} = 34.7\ CFS$$

$2 \times 34.7\ CFS = 69.4\ CFS < 75.7\ CFS$

Therefore, these pipes will discharge slightly less than a 2 year undeveloped storm.

Selection of Riser Pipe Size

These pipes must discharge the difference between a 50 year undeveloped storm and the capacity of the horizontal pipes.

$Q = 144\ CFS - 69.4\ CFS = 74.6\ CFS$

again use $Q = a\sqrt{\frac{2gH}{1 + Km + KpL}}$

Use 2 24" RCCP

where

$a = 3.14\ ft^2$

$H = 303 - 296.76 = 6.24$ feet

$Kp = .0124$

$L = 60$ feet

$Q = 37.9\ CFS \times 2 = 75.8\ CFS > 74.6\ CFS$

These pipes were sized using the following criteria: The horizontal pipes (two 27" CMP's) were sized to handle a two year undeveloped storm. During an undeveloped 15 year storm, the runoff will rise to an elevation of 301.7. At a storm greater than 15 years the two vertical 24" RCCP will be utilized and are capable, along with the two horizontal 27" CMP, of discharging a 50 year undeveloped storm (144 CFS).

Selection of Barrel Size

$$Q = a\sqrt{\frac{2gH}{1 + Km + KpL}}$$

Use 3 27" RCCP

$a = 3.98\ ft^2$

$H = 303 - 296.76 = 6.24$

$Kp = .01061$

$L = 60$

$Q = 49.1\ CFS \times 3 = 147.3\ CFS > 144\ CFS$

Therefore, the 3 27" RCCP are capable of discharging a 50 year undeveloped flow of 144 CFS, which is the combined flow from the 2 27" CMP horizontal pipes and the 2 24" RCCP vertical pipes.

C. Detention Volume Determination

A. The final detention volume of 85,100 ft^3 (emergency spillway elevation = 303.0) has been utilized. This was determined following a field inspection and discussions with the hydraulic representative of the Department of Environmental Resources, Norristown.

PA ENG 13
REV 4-69
FILE CODE:
ENG 11

U.S. DEPT. OF AGRICULTURE
SOIL CONSERVATION SERVICE

JOB # 72803-A

HYDROLOGIC WATERSHED DATA

NAME Lapp & Alderfer DATE 12-12-75

BEFORE DEVELOPMENT
SIZE OF DRAINAGE AREA: 66.7 ACRES.
AVERAGE SLOPE OF WATERSHED 3-8%
SLOPE FACTOR (FLAT, MODERATE, STEEP)

HYDRO SOIL GROUP	LAND USE	CONDITION OR PRACTICE	SOIL COVER NO.	AREA ACRES	COMP NO X ACRES
C	Rotation Meadow	good	78	64.7	5047
C	Woods	good	70	2	140

WEIGHTED SOIL COVER COMPLEX No.

TOTAL COL 6 / TOTAL COL 5 = 5187 / 66.7 = 77.8

RAINFALL (24 HR) 50 YEAR FREQUENCY 6.4 INCHES

DIRECT RUNOFF Q = 3.90 INCHES

PEAK DISCHARGE q = 190 C.F.S.

AFTER DEVELOPMENT
SIZE OF DRAINAGE AREA 66.7 ACRES
AVERAGE SLOPE OF WATERSHED 3-8%
SLOPE FACTOR (FLAT, MODERATE, STEEP)

HYDRO SOIL GROUP	LAND USE	CONDITION OR PRACTICE	SOIL COVER No.	AREA ACRES	COMP. No. x ACRES
C	½ Ac Lots		80	59.7	4776
C	lawn		74	5	370
C	Woods	good	70	2	140

WEIGHTED SOIL COVER COMPLEX NO.

TOTAL COL 6 / TOTAL COL 5 = 5286 / 66.7 = 79.2

RAINFALL (24 hr) 50 YEAR FREQUENCY 6.4 INCHES

DIRECT RUNOFF Q = 4.06 INCHES

PEAK DISCHARGE q = 210 CFS

DIFFERENCE IN DIRECT RUNOFF = 0.16 INCHES x 66.7 ACRES
= 10.67 ACRE-INCHES
= 38,739 ft³

Using a 50 year storm, direct runoff and peak discharge are determined from Exhibit 2-7A and Exhibit 2-10.

Direct runoff = 4.06 inches

peak discharge = 210 CFS*

iv Volume Computation

To determine difference in direct runoff:

direct runoff = 4.06 inches - 3.90 inches

= 0.16 inches x area

= 0.16 inches x 66.7 acres

= 10.67 acre-inches

$10.67 \text{ acre-inches} \times \frac{43,560 \text{ SF}}{\text{acre}} \times \frac{1 \text{ foot}}{12 \text{ inches}} = 38,739 \text{ ft}^3$

which would be detention volume required to provide for the difference between a 50 year developed storm and 50 year undeveloped storm.

3. Discharge Pipe Design

For a 2 year undeveloped storm at t_c = 14.0 minutes

I_2 year = 3.1 inches/hour

Undeveloped Flow

A = 74 acres

C = 0.33

t_c = 14 minutes

I_2 year = 3.1 inches/hour

Q_2 year = 75.7 CFS

*Determined by interpolation between curves #75 and #80.

ER – EP

START

DEPARTMENT OF ENVIRONMENTAL RESOURCES

BUREAU / PROGRAM Water Quality Management

ENVIRONMENTAL PROTECTION

DIVISION

COUNTY / MUNICIPALITY 46949

PROGRAM Sew

START

CASE NAME Upper Gwynedd Towamencin Municipal Authority

FILE P

PERMIT NO. 4676422 Kolman Corporation

BUREAU / PROGRAM Water Quality Management

DIVISION

COUNTY / MUNICIPALITY 46949

PROGRAM Sew

CASE NAME Upper Gwynedd Towamencin Municipal Authority

FILE P

PERMIT NO. 4676422 Kolman Corporation

SANITARY SEWER DESIGN ANALYSIS

SHEET 5

ORMAN CORPORATION MUNICIPALITY TOWAMENCIN TWP. COUNTY MONTGOMERY

M.H. to M.H.	LENGTH (FEET)	INVERT/INVERT	FALL (FEET)	SLOPE (FT. PER FT.)	CONNECTIONS INCREM'T	CONNECTIONS TOTAL	POPULATION @ # E.D.U.	FULL FLOW M.G.D. @ 400 gpcd	PIPE n = 0.013	DES.
NOTE: ADDITIONAL UPSTREAM		147 E.D.U.'S ESTIMATED TO CONNECT TO SAN. SEWER EXTEN FROM SAN. MH 30.9 (BASED ON TRIBUTARY SHED AREA DEVELOPED AS ZONED RESIDENTIAL)								
		269.20				147				
30.9		273.00								
30.8	400	265.60	7.4	0.0185	0	147	514.5	0.2058		1.
30.8		265.40								
30.7	206	262.40	3.0	0.0146	0	147	514.5	0.2058		0
30.7		262.20								
30.6	224	256.40	5.6	0.0250	0	147				1.
30.6		256.40								
30.5	292	248.40	8.0	0.0274	0	147	514.5	0.2058		1.
						+47 FROM SHEET 2 OF 6				
						194				
30.5		248.20								
30.4	64	247.00	1.2	0.0180	0	194	679.8	0.2719		1.
30.4		247.00								
30.3	400	239.60	7.4	0.0185	0	194	679.8	0.2719		1.
30.3	400	239.60	7.4	0.0185	0	194	679.8	0.2719		1.

SANITARY SEWER DESIGN ANALYSIS
ORMAN CORPORATION

SHEET 6

SANITARY SEWER DESIGN ANALYSIS

ORMAN CORPORATION MUNICIPALITY TOWAMENCIN TWP. COUNTY MONTGOMERY

	M.H. to M.H.	LENGTH (FEET)	INVERT/INVERT	FALL (FEET)	SLOPE (FT PER FT)	CONNECTIONS INCREM'T	CONNECTIONS TOTAL	POPULATION @3.5/E.D.U.	FULL FLOW MGD @ 400 gpcd	PIPE n=0.013	DES
	30.3		244.00								
	30.2	184	240.40	3.6	0.0196	0	216	756.0	0.3024		1.
NT											
/L	30.2		240.20								
CK	30.1	310	230.40	9.8	0.0316	0	216	756.0	0.3024		1.
	30.1		230.20								
NH	30	306	221.00	9.2	0.0300	0	216	756.0.	0.3024		1
TRUNK											

HERBERT H. METZ, JR.

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P.O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA 19446

PHONE: 855-3111

September 13, 1976

KORMAN CORPORATION SUBDIVISION
Towamencin Township, Montgomery County
Upper Gwynedd-Towamencin Mun. Auth. System

WATER QUALITY MANAGEMENT APPLICATION DOCUMENTS
(All items listed are submitted in duplicate)

1. Application for Water Quality Management Permit
2. Modular report forms 1 & 6
3. Exhibit "A" - copy of Upper Gwynedd-Towamencin Municipal Authority regulation prohibiting storm water admittance
4. Addenda to Towamencin Twp. Sanitary Sewer Specifications dated January 1, 1973, regarding stream protection
5. Modular report form 28 for sewer stream crossing, accompanied by the erosion and sedimentation control plan and narrative report for extension sanitary sewerage system, etc.
6. Copy of letter from Towamencin Township Board of Supervisors to Mr. A. M. Spinelli, Jr., dated May 14, 1976
7. Copy of letter from Upper Gwynedd-Towamencin Municipal Authority to Mr. Michael L. Simon, Sanitarian, dated May 19, 1976 describing capacity vs. time estimate for expansion of existing treatment plant
8. Copy of letter from Mr. Michael L. Simon to Mr. Joseph W. Kapusta (Towamencin Twp. Manager) dated July 29, 1976 acknowledging review and approval of subdivision planning module. (No. 1-46949-001-4)
9. Subdivision Plan package including:
   a) Title Plan (1)
   b) Construction Improvement Plan (1)
   c) Erosion and Sedimentation Plan (1)
   d) Plan-Profiles (13)
10. Erosion and Sedimentation Control Narrative Report
11. Sanitary sewer design analysis (Sheets 1 through 6)

SANITARY SEWER DESIGN ANALYSIS

CORPORATION ___ MUNICIPALITY TOWAMENCIN TWP. COUNTY MONTGOMERY

MH TO MH	LENGTH (FEET)	INVERT/INVERT	FALL (FEET)	SLOPE (FT PER FT)	CONNECTIONS INCREMENT	CONNECTIONS TOTAL	POPULATION @ 3.5 G.P.D.	FULL FLOW MGD @ 0.85
30-2		244.00						
29-2	184	240.48	3.6	0.0196	2	216	756.0	0.3024
		240.28						
		230.40	9.8	0.0516	2			

SANITARY SEWER DESIGN ANALYSIS

SEPT. 13, 1976 SHEET 1
HERBERT H. METZ, INC., ENG.

ORMAN CORPORATION MUNICIPALITY TOWAMENCIN TWP. COUNTY MONTGOMERY

	M.H. to M.H.	LENGTH (FEET)	INVERT/INVERT	FALL (FEET)	SLOPE (FT PER FT.)	CONNECTIONS INCREM'T	CONNECTIONS TOTAL	POPULATION @3.5/E.D.U.	FULL FLOW M.G.D. 400	PIPE n = 0.013	DES.
ST	30.535		304.60								
	30.534	346	294.80	9.8	0.0283	6	6	21.0	0.0084		
	30.534		294.60								
	30.533	386	284.80	9.8	0.0254	7	13	45.5	0.0182		
	30.533		284.60								
	30.532	276	271.80	12.8	0.0464	4	17	59.5	0.0238		
	30.532		271.60								
	30.531	185	268.50	3.1	0.0168	3	20	70.0	0.0280		
	30.531		888.30								
	30.53	320	264.50	3.8	0.0119	4	24	84.0	0.0336		

SANITARY SEWER DESIGN ANALYSIS

SHEET 2

KORMAN CORPORATION MUNICIPALITY TOWAMENCIN TWP. COUNTY MONTGOMERY

:T	M.H. to M.H.	LENGTH (FEET)	INVERT/INVERT	FALL (FEET)	SLOPE (FT PER FT.)	CONNECTIONS INCREM'T	CONNECTIONS TOTAL	POPULATION @3.5/E.D.U.	FULL FLOW MGD @ 400 gpcd	PIPE n=0.013	DE
EST	30.58		302.90								
E	30.57	345	291.30	11.6	0.0336	5	5	17.5	0.0070		
VIEW	30.57		291.10								
	30.56	284	286.60	4.5	0.0158	3	8	28.0	0.0112		
	30.56		286.60								
	30.55	197	282.70	3.9	0.0198	4	12	42.0	0.0168		
	30.55		282.70								
	30.54	346	268.90	13.8	0.0400	6	18	63.0	0.0252		
	30.54		268.70								
	30.53	216	264.50	4.2	0.0194	3	21	73.5	0.0294		
							+24 FROM SHEET 1 OF 6				
							45				
	30.53		264.30								
	30.52	50	263.80	0.5	0.0100	0	45	157.5	0.0630		
T ON	30.52		263.60								
OT (33)	30.51	154	258.20	5.4	0.0351	2	47	164.5	0.0658		
	30.51		258.00								
	30.5	70	248.40	9.6	0.1371	0	47	164.5	0.0658		

SANITARY SEWER DESIGN ANALYSIS

SHEET

KORMAN CORPORATION MUNICIPALITY TOWAMENCIN TWP. COUNTY MONTGOMERY

:T	M.H. to M.H.	LENGTH (FEET)	INVERT/INVERT	FALL (FEET)	SLOPE (FT. PER FT.)	CONNECTIONS INCREM'T	CONNECTIONS TOTAL	POPULATION @ 3.5/E.D.U.	FULL FLOW MGD @ 400 gpcd	PIPE n = 0.013	Des
WAY	30.443		290.20								
	30.442	130	290.30	5.9	0.0454	2	2	7.0	0.0028		
T ON	30.442		290.30								
LOTS	30.441	184	288.37	1.93	0.0105	5	7	24.5	0.0098		
⑨											
	30.441		288.37								
	30.44	224	286.00	2.37	0.0105	0	7	24.5	0.0098		

SANITARY SEWER DESIGN ANALYSIS

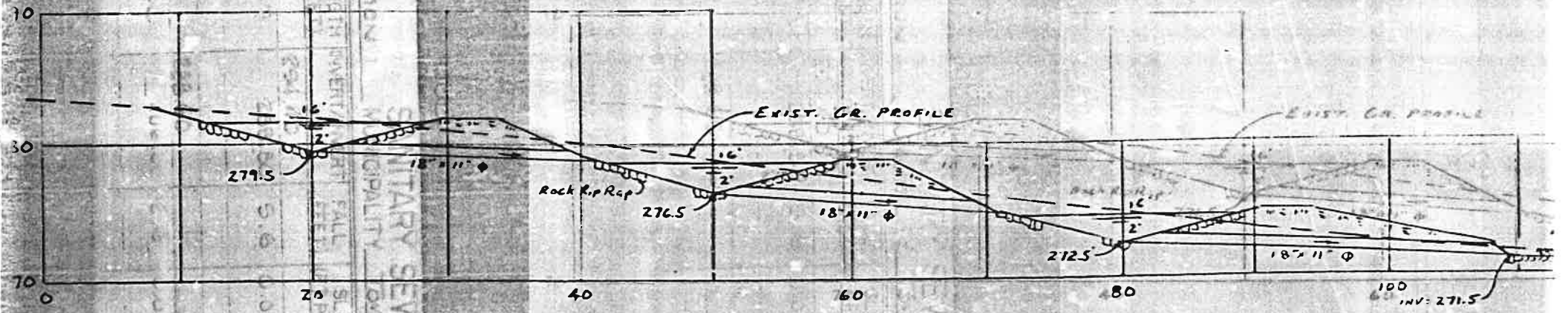
SHEET 4

KORMAN CORPORATION MUNICIPALITY TOWAMENCIN TWP. COUNTY MONTGOMERY

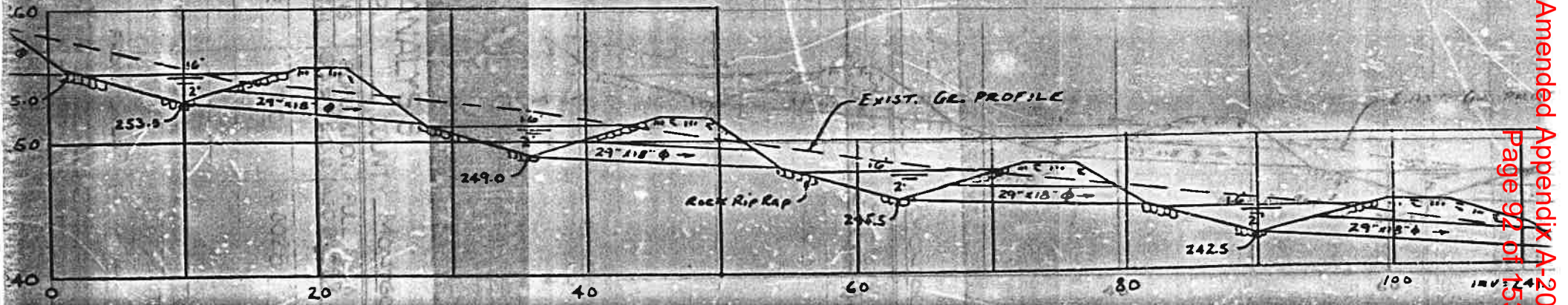
T	M.H. to M.H.	LENGTH (FEET)	INVERT/INVERT	FALL (FEET)	SLOPE (FT. PER FT.)	CONNECTIONS INCREM'T	CONNECTIONS TOTAL	POPULATION @3.5 / E.D.U.	FULL FLOW MGD @ 100 gpcd	PIPE n = 0.013	Des
WAY	30.46		294.40								
	30.45	100	288.80	5.6	0.0361	2	2	7.0	0.0028		
	30.45		288.60								
	30.44	100	286.00	2.6	0.0260	2	4	14.0	0.0056		
							+7 FROM SHEET 3 OF 6				
							11				
	30.44		285.80								
	30.43	228	278.40	7.4	0.0325	3	14	49.0	0.0196		
	30.43		278.20								
	30.42	825	271.20	7.0	0.0215	5	19	66.5	0.0266		
T ON	30.42		271.00								
OT (14)	30.41	190	258.20	12.8	0.0674	3	22	77.0	0.0308		
	30.41		250.40								
	30.4	80	247.00	3.4	0.0425	0	22	77.0	0.0308		

THE KORMAN CORP. RES. SUB-DIVISION - TOWAMENCIN TWP
STORM WATER MANAGEMENT: STORAGE - INFILTR.
CONTOUR TERRACE CHANNELS SECTIONS
SCALES: H. & V. 1"=10'

REV:



(I) SECTION A-A

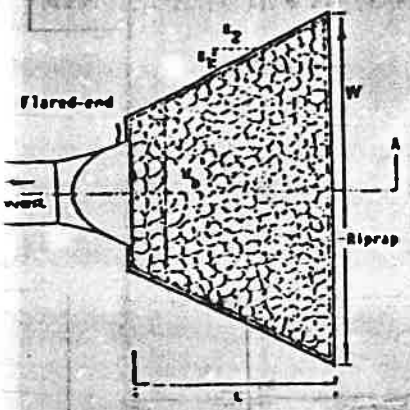


(V) SECTION A-A

Amended Appendix A-20-b
Page 92 of 1536

ENERGY DISSIPATORS

EMENT DESIGN CRITERIA



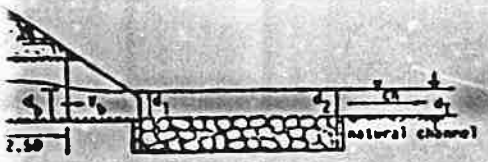


Figure 2. Definition of parameters.

D AND NOTES

ATE OF DISCHARGE
E OF CULVERT
DESIGN FLOW
ROCK BASIN
IZE
@ PIPE OUTLET
@ OUTLET END
K BASIN
VING BASIN
RATIO OF SIDES OF BASIN

H. METZ, INC.

THE NORMAN CORP. (M-2367)

LOT SUBDIVISION TRACT
TOWAMENCIN TOWNSHIP, MONTG. CO., PA.
SEPT. 1976 REV: 11/10/76

LAST REV: 11/29/76

PIPE OUTFALL LOCATION →	I	II	III	IV	V
ϕ	18"x11"	36"x22"	54" (+2@18"ϕ)	43"x27"	29"x18"
Q_D	7.5 CFS	20 CFS	130 CFS	18 CFS	22 CFS
Q_F		27 CFS	140 CFS	25 CFS	
V_D	6 FPS	6 FPS	7.5 FPS	4 FPS	7 FPS
V/V_P	0.3 (NO SILL)	0.3 (W/SILL)	0.3 (W/SILL)	0.5 (NO SILL)	0.3 (W/SILL)
V	1.8 FPS	1.8 FPS	2.25 FPS	2.0 FPS	2.1 FPS
$Q/D^{2.5}$	$\frac{7.5}{1.75} = 4.3$	$\frac{20}{9.88} = 2.02$	$\frac{130}{43} = 3$	$\frac{18}{15.6} = 1.15$	$\frac{22}{5.65} = 3.9$
$d_1/D_{MAX.}$	0.25	0.4	0.4	0.25	0.4
d_1	.25x1.25=.313'	0.4x2.5=1.0'	0.4x4.5=1.8'	0.25x3=0.75'	0.4x2=0.8'
D/d	4	3	6	3	3
d	$\frac{15}{4} = 4"$	$\frac{30}{3} = 10"$	$\frac{54}{6} = 9"$	$\frac{36}{3} = 12"$	$\frac{24}{3} = 3"$
L/D	8.8	7.05	4.75	7.6	5.7
L	8.8x1.25=11.0'	7.05x2.5=17.6'	4.75x4.5=21.4'	7.6x3.0=22.8'	5.7x2=11.4'
l_1/l_2	1:3	1:1.75	1:1.75	1:3	1:1.75
W	11.3'*	26.7'*	36.5'*	23.2'*	18.5'*

* I: $11/3 \times 2 + 4' w_b = 11.33'$ * III: $21.4/1.75 \times 2 + 8' w_b = 36.5'$ * V: $11.4/1.75 \times 2 + 5.5 w_b = 18.5'$
* II: $17.6/1.75 \times 2 + 6.5 w_b = 26.7'$ * IV: $22.8/3 \times 2 + 8 w_b = 23.2'$

Amended Appendix A-204b
Page 93 of 1536

THE KORMA
TOW

PRESENT CONDIT

DRAINAGE AREA

AVE. WATERSHED SLOPE

SOIL TYPES

HYDR. SOIL GROUP

MEAN CN

DIRECT RUNOFF

PEAK DISCHARGE

FUTURE RES. DE

FUTURE

DIRECT RUNOFF

PEAK DISCHARGE

ΔQ (RUNOFF IN.) DR

REQUIRED VOL. TO MANA

* COMBINATION
UTI

TESTED AVE. SOIL PEA

PROVIDED

M-2267 N. H. METZ, INC.
11/10/76 REV: 11/29/76

50 YR FREQUENCY STORM DESIGN CRITERIA ANALYSIS
– MONTG. CO. – PA. – VARIOUS SUB-DRAINAGE AREAS

OW MEADOW LANDS 24 HR. RAINFALL = 6.4 IN.

D.A. I	SUB D.A. IV	SUB D.A. V	BAL. SITE
.75 Ac.	8.0 Ac.	17.4 Ac.	32 Ac.
.9 %	3.6 %	3.9 %	5 %
PeB3, PeC3	PeB3	ReB2, RsB3, KsB3, KsE3	Re, Rs, Bp, Ks, Pe
C	C	C	C
78	78	78	78
.94 IN	3.94 IN.	3.94 IN.	3.94 IN
4 C.F.S	38 CFS	72 CFS	113 CFS

LAND USE	%	CN	PRODUCT
.. W/LOT SIZE ½+ AC.	83	80	6640
N/CURBS, WALKS, DRIVES	17	98	1666
	100		8306

B306/100 = 83 weighted CN

RES. LAWN CN = 80

.46 IN.	4.46 IN	4.46 IN	4.14 IN.
1 CFS	44 CFS	86 CFS.	124 CFS
1.52"	0.52"	0.52"	0.20"
4.75 = 2.47 Ac-In	0.52" x 8.0 = 4.16 Ac-In	0.52" x 17.4 = 9.06 Ac-In.	0.20" x 32 = 6.4 Ac-In.
8,970 CU.FT.	(or) 15,100 CU.FT.	(or) 32,850 CU.FT.	(or) 23,230 CU.FT.

-CHARGE & STORAGE (RETARDATION) TERRACES PROPOSED.
ERRACES HAVING AVE. CROSS-SECTION AREA = 16 SQ.FT.

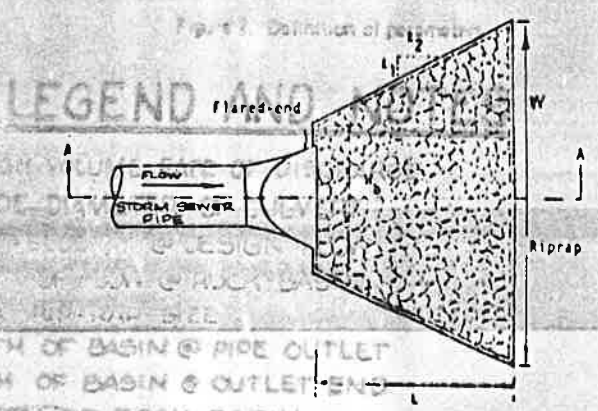
0 MIN/IN = 2 FT. / 24 HRS	60 MIN/IN	50 MIN/IN (USE 60 MIN/IN)
6' = 7200 C.F. STOR.		1250 L.F. x 16' = 20,000 C.F. STORAGE
' = 14,400 C.F. INF		1250' x 16' x 2' = 40,000 C.F. INFILTR.
21,600 C.F.	0	TOTAL 60,000 C.F.

0

THE KORMA
TOT.

ROCK BASIN ENERGY DISSIPATORS

STORM WATER MANAGEMENT DESIGN CRITERIA



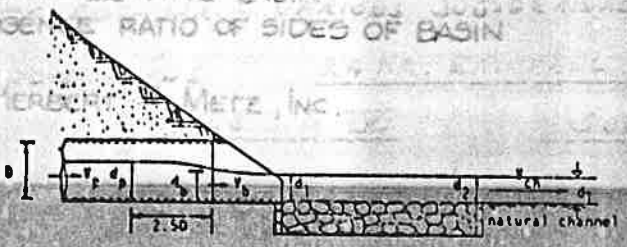


Figure 2. Definition of parameters.

LEGEND AND NOTES

Q = DESIGN VOLUME RATE OF DISCHARGE
D = INSIDE DIAMETER OF CULVERT
V_p = PIPE VELOCITY @ DESIGN FLOW
d_1 = DEPTH OF FLOW @ ROCK BASIN
d_r = ROCK RIP-RAP SIZE
W_b = WIDTH OF BASIN @ PIPE OUTLET
W = WIDTH OF BASIN @ OUTLET END
L = LENGTH OF ROCK BASIN
V = VELOCITY LEAVING BASIN
Z_1/Z_2 = DIVERGENCE RATIO OF SIDES OF BASIN

HERBERT H. METZ, INC.

THE KORMAN CORP.

LOT SUBDIVISION TRACT
TOWAMENCIN TOWNSHIP, MONTG
SEPT. 1976

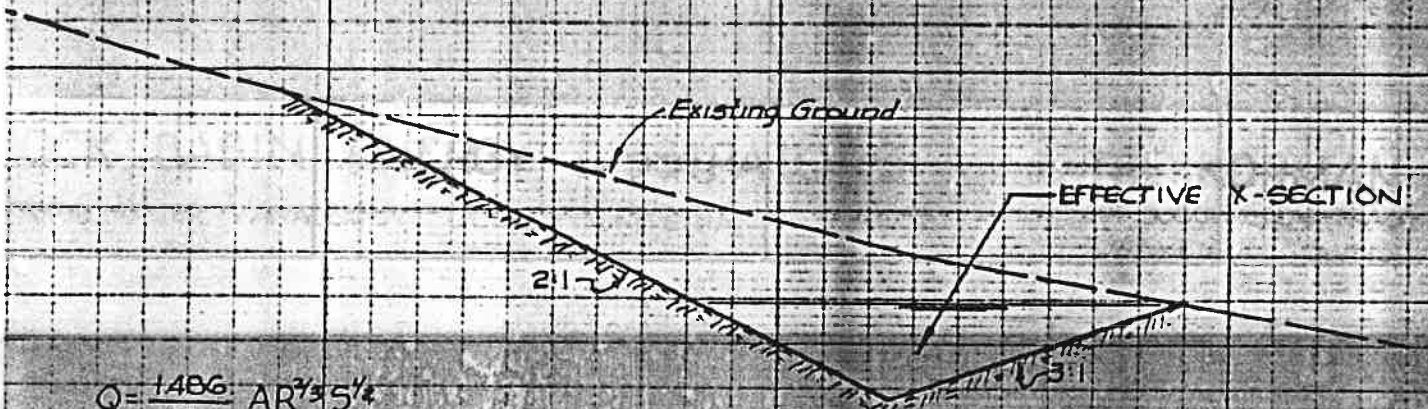
PIPE OUTFALL LOCATION →	I	II	III
Φ	22"x13"	36"x22"	54" (+2@18"Φ)
Q_D	9 CFS	20 CFS	130 CFS
Q_F	12 CFS	27 CFS	140 CFS
V_D	7 FPS	6 FPS	7.5 FPS
V/V_p	0.3 (NO SILL)	0.3 (W/SILL)	0.3 (W/SILL)
V	2.1 FPS	1.8 FPS	2.25 FPS
$Q/D^{2.5}$	$\frac{9}{2.76} = 3.25$	$\frac{20}{9.88} = 2.02$	$\frac{130}{43} = 3$
$d_1/D_{MAX.}$	0.25	0.4	0.4
d_1	.25x1.5=0.375'	0.4x2.5=1.0'	0.4x4.5=1.8'
D/d	3	3	6
d	$\frac{18}{3} = 6"$	$\frac{30}{3} = 10"$	$\frac{54}{6} = 9"$
L/D	10.65	7.05	4.75
L	10.65x1.5=16'	7.05x2.5=17.6'	4.75x4.5=21.4'
Z_1/Z_2	1:3	1:1.75	1:1.75
W	14.67'*	26.7'*	36.5'*

* I: $16/3 \times 2 + 4' W_b = 14.67$
* II: $17.6/1.75 \times 2 + 6.5 W_b = 26.7$
* III: $21.4/1.75 \times 2$
* III: $22.8/3 \times 2$

:VEL SPREADER

PICAL X-SECTION

THE KORMAN CORP.
(M-2367)
LOT SUBDIVISION TRACT
TOWAMENCIN TWP., MONTG. CO., PA
SEPT. 1976



$$Q = \frac{1.486}{n} A R^{2/3} S^{1/2}$$

A = 11.6 Sq. Ft.
$R^{2/3}$ = 0.99
n = 0.035
S = 0.003
$S^{1/2}$ = 0.0548

Q = 27 CFS (DES. $Q = \frac{45 \text{ CFS}}{2} = 23$ CFS)
V = 2.3 FPS

HERBERT H. METZ, INC.
CIVIL ENGINEERS
LANSDALE, PA

SCALE: 1" = 4'

ROCK BASIN ENERGY DISSIPATORS — THE KORMAN CORP.

1875 New Hope Street
Norristown, Pennsylvania 19401
215 631-2402

September 22, 1976

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: H. Warren Dimmig

Re: Application No. 4676422
Towamencin Township
Montgomery County

Gentlemen:

This will acknowledge receipt of your application on September 16, 1976 for approval to construct a sanitary sewer extension to serve the Korman lot subdivision in Towamencin Township, Montgomery County.

The material submitted is accepted for technical review by the staff of the Department of Environmental Resources.

You are reminded that any proposed facilities cannot be constructed or operated without first obtaining the required permits.

Applications are normally processed within sixty (60) days. If you have not received notification of the action taken within this period, feel free to contact me for information concerning the status of the review.

Very truly yours,

Leon T. Gonshor
Acting Regional Director

CC: W.Q.M. - Facilities
Program Services
Herbert H. Metz, Jr., P.E.
File

LTG/lm

HERBERT H. METZ, JR.

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

PHONE 855-3111

September 13, 1976

RECEIVED
SEP 16 1976
ENVIRONMENTAL RESOURCES
WATER QUALITY
NORRISTOWN REGIONAL OFFICE

Department of Environmental Resources
Region I
Commonwealth of Pennsylvania
1875 New Hope Street
Norristown, Pennsylvania 19401

Attn: Mr. Richard Hinkle, Chief
Facilities Section
Bureau of Water Quality Management

Subject: Sanitary Sewer Extension
Upper Gwynedd-Towamencin Municipal Authority
For: Korman Corporation - Planned
Residential Subdivision, Towamencin Twp.

Dear Sirs:

Transmitted with this letter is a Water Quality Management Application for sanitary sewers extension sewerage permit for the subject project for review and approval.

A list enumerating the completed application forms and supporting documents is enclosed together with duplicate sets of the pertinent forms and documents.

It should be noted that all prior planning reviews and approvals have been obtained as understood to be required; including that of Community Environmental Control for planning modules, and consultation review by Montgomery County Soil and Water Conservation District for storm water management.

The subject project was designed and planned for phased-development in cooperation with a building permit and occupancy allotment schedule coordinated by the Upper Gwynedd-Towamencin Municipal Authority and Towamencin Township to coincide with the Authority treatment plant expansion presently under construction. A copy of a letter dated May 14, 1976, addressed to the Department of Environmental Resources, 750 East Johnson Highway, Norristown to the attention of Mr. A. M. Spinelli by Joseph W. Kapusta, Secretary-Manager for Towamencin Township, which outlines this connection allotment schedule is one of the supporting documents appended to this application.

Enclosures

HERBERT H. METZ, INC.

4876422

Dept. of Environmental Resources
Re: Korman Corp., Towamencin Twp.
September 13, 1976
Page 2 of 2

We respectfully request that this final application-for-permit be processed as expeditiously as possible.

Very truly yours,

Herbert H. Metz, Jr., P.E.
Herbert H. Metz, Inc.

HHM/srs

Enclosures

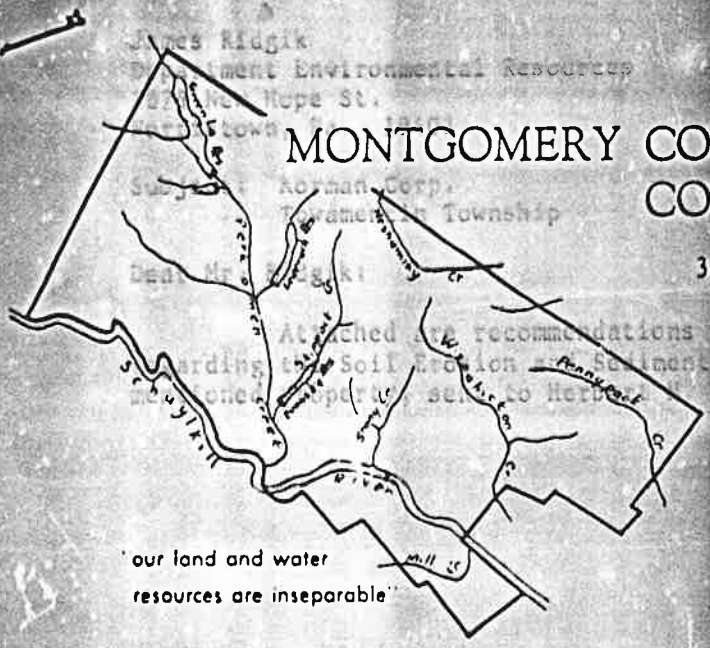
HERBERT H. METZ, INC.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 347
ARDENSTRIE AVENUE
LANSDALE, PENNSYLVANIA
19446

September 13, 1976

RECEIVED

Department of Environmental Resources
Region 3
Commonwealth of Pennsylvania
1875 New Hope Street
Norristown, Pennsylvania 19401

Re: Richard Hinkle, Chief



MONTGOMERY COUNTY CONSERVATION DISTRICT

3rd Floor, Court House, Norristown, Pa. 19404
Phone: 275-5000 (Ext. 257)

September 30, 1976

RECEIVED
OCT 1 1976
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

James Ridgik
Department Environmental Resources
1875 New Hope St.
Norristown, Pa. 19401

Subject: Korman Corp.
Towamencin Township

Dear Mr. Ridgik:

Attached are recommendations from the Soil Conservation Service regarding the Soil Erosion and Sedimentation Control Plan for the above mentioned property, sent to Herbert H. Metz, Jr. on Sept. 24, 1976.

Sincerely,

Maynard King

Maynard King,
Executive Assistant

MK:dvs

HERBERT H. METZ, INC.

Dept. of Environmental Resources
Re: Korman Corp., Towamencin Twp.
September 13, 1976
Page 2 of 2

We respectfully request that this final application for permit be processed as expeditiously as possible.

Very truly yours,

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

1726 Markley Street, Norristown, Penna. 19401

September 24, 1976

Mr. Maynard King
Montgomery County Conservation District
Fifth floor, Court House
Norristown, Penna. 19404

Re: Korman Corp.
Towamencin Township

Dear Mr. King;

The Erosion and Sediment Control Plan for the 62 acres of land which Korman Corporation plan for development of 69 homes. The Erosion Control Plan is adequate to control erosion during and after construction.

There is a possible water problem associated with soils, Readington silt loam and Reaville shaly silt loam due to seasonal high watertable. The use of underground drainage around the home foundations should be part of each home site location plan.

The flood plain soils and drainage easements need continuous inspections to preserve and protect the drainage systems.

Sincerely,

William T. Klages

William T. Klages
District Conservationist

WTK/saw

Enclosure

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF ENVIRONMENTAL RESOURCES
POST OFFICE BOX 2063
HARRISBURG, PENNSYLVANIA 17120

October 7, 1976

Herbert H. Metz, Jr., P.E.
Herbert H. Metz, Inc.
P. O. Box 647
410 Derstine Avenue
Lansdale, Pennsylvania 19446

Dear Mr. Metz:

This is in reply to your letter of September 24, 1976, concerning the replacement of the culvert under Morris Road in Towamencin Township, Montgomery County.

The site of the proposed culvert installation has been noted and in view of the small drainage area involved, permit from the Division of Dams and Encroachments will not be required in accordance with Section 9 of the Act of June 25, 1913, P.L. 555, as amended.

Sincerely yours,

Daniel Lenyo, Chief
Water Obstructions Control Section
Division of Dams and Encroachments

RECEIVED
OCT 12 1976
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

HERBERT H. METZ, JR.

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111

October 8, 1976

☐ FOR APPROVAL ☐ FOR CORRECTION, RESUBMIT

PROJECT Water Quality Management Application
Korman Corp. Project, Towamencin Twp., Montg. Co., Pa.

TO Dept. of Environmental Resources

☐ APPROVED AS NOTED ☐ FOR DISTRIBUTION

Attention James Ridgik, San. Engineer

We are sending you ☐ enclosed herewith ☐ under separate cover the following:

No. of Prints	Drawing No.	Title and Remarks

H. H. Metz Jr/sss
Herbert H. Metz, Jr.

☐ FOR APPROVAL ☐ FOR CORRECTION, RESUBMIT

☐ APPROVED ☐ FOR YOUR USE

☐ APPROVED AS NOTED ☐ FOR DISTRIBUTION

Remarks: Enclosed find supplemental commentary in support of the processing of the subject project application, for your information and file per H. H. Metz, Jr.

DEPARTMENT OF ENVIRONMENTAL RESOURCES
POST OFFICE BOX 2063
HARRISBURG, PENNSYLVANIA 17120
October 12 1976

By H. H. Metz Jr/sss
Herbert H. Metz, Jr.

HERBERT H. METZ, JR.

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

PHONE: 855-3191

October 26, 1976

Pa. Department of Environmental Resources
1875 New Hope Street
Norristown, Pennsylvania 19401

Attn: Mr. James Ridgik, San. Engineer

RE: Korman Corporation
Proposed 69-Lot Residential Subdivision

Dear Mr. Ridgik:

Pursuant to our phone conversations regarding the Korman Corporation and your subsequent request for supplemental information on same we are enclosing, in duplicate, copies of the following:

OK 1. Construction Improvement Plan (last revised Oct. 23, 1976) including proposed public water layout (in plan view) and stating (by note) necessary clearance requirements of public water service facilities with regard to sanitary sewerage facilities.

2. Erosion and Sedimentation Control Plan (last revised Oct. 23, 1976) noting alluvial soil flood plain lines and data related to proposed energy dissipating devices I, II, III, and IV. (Also enclosed are copies of design data tabulation for dissipators.)

OK 3. Plan and Profile sheets 12 and 13 (of 13), last revised Oct. 15, 1976, with grade conflict resolved and noting necessity of watertight manhole covers for M.H.'s 30.1 through 30.9, inclusive.

These plan sheets should supplant those respective plan sheets originally submitted, in support of the application, so that your review approval may be completed.

Very truly yours,

Clifford T. Stout

Clifford T. Stout
Herbert H. Metz, Inc.

CTS/srs

Enclosures

HERBERT H. METZ, JR.

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

PHONE: 855-3111

4676422

October 26, 1976

Mr. James A. Ridgik, San. Engineer
Pa. Department of Environmental Resources
Region I
1875 New Hope Street
Norristown, Pennsylvania 19401

RE: Water Quality Management Application for Sewerage Permit
Upper Gwynedd-Towamencin Municipal Authority
The Korman Corporation Lot Subdivision
Towamencin Township, Montgomery County

Dear Mr. Ridgik:

The purpose of this letter is to summarize and address expressed review comments concerning the subject application (submitted September 13, 1976) by your Department and other jurisdictional agencies so that the issuance of a sewerage permit for the project may be expedited.

Accompanying this communication is a transmittal letter from Mr. Clifford Stout, of our office, which references and appends revised copies of specific amended plans in support of the application. These revised application plans depict supplementary or omitted design data and notations cited in your verbal review comments and are supplied as dated, amended supporting documents so they may be referenced as such in preparation of the permit.

Known application review comments concerning general site conditions and development plans are addressed herewith:

1. Necessity for Division of Dams and Encroachments Permit re: Morris Road culvert crossing replacement. Correspondence and consultation with Mr. Daniel Lenyo, Chief of Water Obstructions Control Section of this Department Division has determined that a D. & E. Permit shall not be required. I believe I have already sent to you a copy of Mr. Lenyo's letter of October 7, 1976 which states this opinion; however, a copy thereof is also attached herewith.

Amended Appendix A-20-b
Page 106 of 1536

2. Reference to seasonal high water table characteristic of Readington and Reaville soils, which comprise a portion of the tract site land, in the project review letter dated September 24, 1976 of Mr. William T. Klages, District Conservationist, Soil Conservation Service, U.S. Dept. of Agriculture:

I believe Mr. Klages' comment was intended to alert and caution the developer to the need for the implementation of adequate underground drainage facilities around house foundations constructed in these soils locations. Consultation with representatives of The Korman Corporation has determined that they will likely construct a selective mixture of basement and slab or crawl-space types of dwellings. In this regard, customarily, house-type construction and foundation drainage treatment shall be determined by site soil and sub-soil conditions.

It should be noted that approximately 25 house lot sites are situated in the Readington and Reaville soils areas as delineated on the tract site from the Montgomery County Soil Survey. On nine (9) of these lots which are located along the West side of Valley View Way, basement houses shall likely be constructed as fairly steep front-to-rear ground slopes will permit rear basement-floor elevation establishment at grade and gravity foundation drainage outlet to natural surface grade to the rear of the lots. On the more moderately sloped lots in these soils areas, slab-type houses would likely be constructed to permit foundation drainage by gravity to ground surface or street gutter grade.

3. Storm Water Management:

Representatives of The Korman Corporation and I met with Dr. Aslam Shah at the tract site on October 14, 1976 for a general inspection of the site features and review of storm water management design plans for the development.

Review comment obtained from Dr. Shah and you by telephone today, in this regard, has expressed a necessity for the provision of storm water detention facilities at several collection outlet locations on the tract of sufficient equivalent capacity for the increment rate of runoff increase anticipated by site development at such locations.

HERBERT H. METZ, INC.

James A. Ridgik
RE: The Korman Corporation
October 26, 1976
Page 3 of 3

It would appear that this is now the single remaining design feature to resolve so that a sewerage permit may be issued for the project. We shall, following immediate consultation with the Towamencin Township Engineer and the developer, design such facilities satisfactory for the purpose to all concerned parties.

As soon as we have these storm water management features designed, we shall submit them for approval so that the sewerage permit may be issued. It should be noted that the tract will be developed in three (3) sections (Sect. I = 22.5± Acres, Sect. II = 22.4± Acres, Sect. III = 17.5± Acres), so that considerably less than 25 acres of land shall be disturbed during any one phase of the project.

The Korman Corporation is endeavoring to complete its development agreement with Towamencin Township in early November. In view of the apparent completeness of all other aspects of the application and this time schedule it would be appreciated if all feasible interim preparation of the sewerage permit could be accomplished pending submittal of the aforementioned supplementary storm water management design facilities.

Very truly yours,

Herbert H. Metz, Jr., P.E.
Herbert H. Metz, Inc.

HHM/srs

Enclosures
c.c. G. Greenwood
W. T. Klages
M. A. King
A. Shah
J. Kapusta

HERBERT H. METZ, JR.
GEORGE B. STANDBRIDGE

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

PHONE: 855-3111

April 1976

EROSION AND SEDIMENTATION CONTROL PLAN FOR EXTENSION SANITARY SEWERAGE SYSTEM INCLUDING SEWER STREAM CROSSING, TO SERVE RESIDENTIAL LOT SUBDIVISION OF KORMAN CORPORATION; TOWAMENCIN TWP., MONTG. CO., PA.

To control erosion and sedimentation during and after construction, the Contractor shall:

1. Reduce the area and duration of exposure of readily erodible soils by disturbing only the areas needed for construction, opening a maximum of only 200 feet of trench at a time, removing only those trees, shrubs and grasses that must be removed for construction, and protecting the rest to preserve their esthetic and erosion control value.

2. Exposed soil surface shall be protected from erosion by installing coverings formed from mulch; sheets of plastic; burlap or jute netting; temporary growths of fast growing grasses or sod blankets or temporary paving in construction areas to be exposed for extended periods, or to be re-vegetated.

   Mulch shall consist of hay, straw, wood chips, corn stalks, bark or any other suitable protective material. It shall be anchored to slopes with liquid asphalt, stakes, covered with netting or worked into the soil with various types of equipment to provide additional slope stability. All slopes of 2:1 and steeper shall be mulched as soon as they are rough graded.

   Mulching, seeding and sodding shall be accomplished as specified in the applicable standard set forth in the "Erosion and Sediment Control Handbook" as published by the Montgomery County (Pennsylvania) Soil and Water Conservation District.

   Temporary paving shall be as specified in the plans and construction specifications, if required or indicated.

3. Runoff shall be controlled by the installation of temporary diversions, berms, slope drains, flow barriers or other structures which will decrease its velocity or prevent concentration of runoff in areas of erodible soils. Diversion structures consisting of temporary compacted earth embankments,

bales of straw, ditches and furrows shall be constructed to direct runoff away from stockpiles and excavated areas.

4. Sediments carried by runoff water and dewatering operations shall be trapped behind temporary barriers. The barriers shall consist of grassed embankments, sand, gravel or bales of hay or straw. Prior to removing the temporary barriers any accumulated sediments shall be spread within the right-of-way or, if suitable, used for backfill. Sediment accumulated on paved areas shall be removed from the site or used as backfill, if suitable.

5. As construction activities within an area are completed, the area shall be permanently stabilized with perennial vegetation as specified in the "Erosion and Sediment Control Handbook" of the Montgomery County (Pennsylvania) Soil and Water Conservation District.

6. If possible, construction in rights-of-way shall be planned and scheduled for the summer months when erosion is less of a hazard, and there is minimal, or no, surface runoff in furrows, swales and water courses.

7. During construction, equipment shall be used in a manner that does not leave the site susceptible to erosion. Wheel mounted equipment shall be used whenever possible.

8. When stream crossings are required, temporary crushed stone dams shall be constructed downstream of the crossing site to trap sediment. Sediment shall be removed from behind the dam when the sediment buildup reaches 25% of the height of the dam and shall be completely removed prior to removal of the dam. Stream crossings shall be scheduled so that they are made during times of low stream flow and shall be completed as rapidly as possible, once begun.

Specific construction procedures and safeguards shall be implemented for the construction of the planned stream crossing connecting sewer segment (M.H. A to M.H. B). These shall include, in addition to a downstream temporary crushed stone dam, a parallel water course diversion channel for continuous stream flow around stream crossing work area if required by flows at time of construction, and operation, stabilization and restoration as outlined above. Construction plan and procedures for this sewer stream crossing are more fully described on attached "Exhibit A".

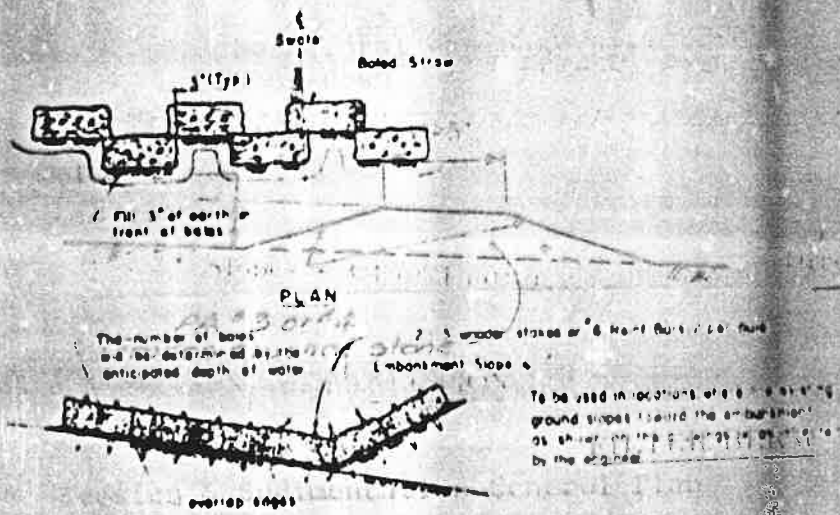
HERBERT H. METZ, INC.

Erosion & Sedimentation Control Plan
Page 3 of 3

9. A temporary stream crossing haul route shall be provided for equipment use in the construction of sanitary sewer crossing in stream bed.

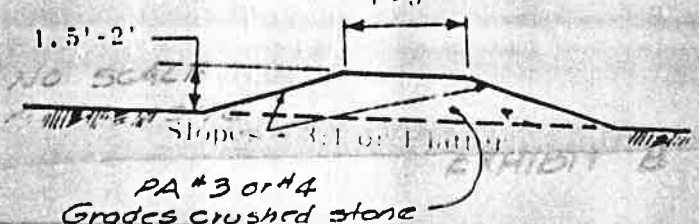
10. No natural drainage will be obstructed or blocked during a shut-down.

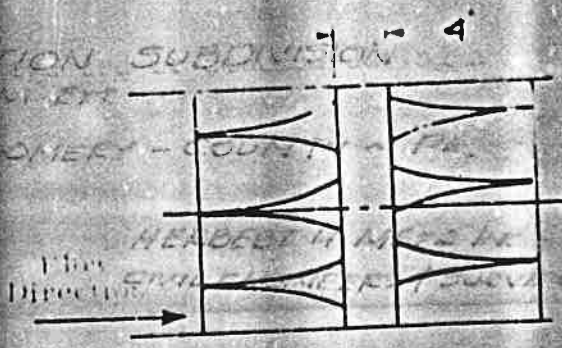
EXHIBIT "B"



BALED STRAW BARRIER

SEDIMENTATION CONTROL FACILITIES
SANITARY SEWER STREAM CROSSING
KORMAN CORPORATION SUBDIVISION
SAN. SEWER SYSTEM EXT.
TOWAMENCIN TOWNSHIP - MONTGOMERY - COUNTY - PA.





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Erosion & Sedimentation Control Plan
Page 3 of 3

SEDIMENTATION CONTROL
FACILITIES
SANITARY SEWER STREAM CROSSING

KORMAN CORPORATION SUBDIVISION
SAN. SEWER SYSTEM EXT.
TOWAMENCIN TOWNSHIP - MONTGOMERY - COUNTY - PA.

NO SCALE
APRIL 1976

HERBERT H. METZ INC
CIVIL ENGINEERS & SURVEYORS

EXHIBIT "B"

RECEIVED
NOV 8 1976
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
HARRISBURG REGIONAL OFFICE

PFC 531

COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA FISH COMMISSION

Subject: Review of Permit Application with Recommendations

Date:

In Reply To:

To: Department of Environmental Resources

From: Pennsylvania Fish Commission

Permit Applicant: Upper Gwynedd - Towamencin Mu. Auth.

Type of Construction: Sewer crossing

Location: County Montgomery Township Towamencin

Other

Stream Affected Unnamed Trib Trib. To Towamencin Creek

Trout Stream No (yes or no) Stocked No (yes or no)

Warm Water Stream Unk (yes or no) Polluted No (yes or no)

Other Fishing Pressure Low (high, med., low, none)

Primary Species Fish-bait, bait-fish.

☐ Insufficient data submitted. Project approval will be considered only after more details are provided for review.

THE FOLLOWING CONDITIONS ARE TO BE MADE PART OF ALL PERMITS:

1. Stream bed shall not be used as roadway for moving machinery from one site to another. Temporary stream crossings must be provided for equipment that must cross stream during construction. Structures are to be removed and stream bed returned to its original condition when project is completed.
2. Siltation control shall be provided for during construction and bank stabilization shall be undertaken by planting of grasses, shrubbery, or trees immediately after completion of each phase of project.
3. When channel change occurs, the stream bed shall not exceed original width, and if a greater cross sectional area is required, an elevated flood plain must be put into use.
4. All material and debris removed from stream bed shall be moved entirely out of the flood plain area.
5. A permit must be secured from the Pennsylvania Fish Commission in Harrisburg, if the use of explosives is required; P.F.C. Waterways Patrolman Johnston must be notified when project is started, when explosives are to be used, and when project is completed for final inspection.

COMMENTS:

Jay B. Johnston
(Waterways Patrolman) Approved Yes (yes or no) Date 10/25/76

Jack R. Miller
(Chief, Fisheries Environmental Services) Approved Yes (yes or no) Date 10-29-76

ER 710.046.28

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

Date Prepared
5-3-76
Date Revised

For Department Use Only

Module 28 - Sewer Stream Crossing - Outfall and Headwall

A. General Design

1. In cases other than political subdivisions, has a fee in the amount of $30.00 in the form of a check or money order payable to the Commonwealth of Pennsylvania been enclosed? (This fee is in addition to the $25.00 fee required for sewerage applications). — [X] Yes [ ] No

2. Are sewers in streams protected with at least 1 foot of cover in rock and 3 feet cover in other material? — [X] Yes [ ] No [ ] N/A

3. Have plans been made to minimize disturbing or uprooting trees and vegetation along the stream bank and in the vicinity of the stream? — [X] Yes [ ] No

4. Is the sewer along the stream located a sufficient distance from the bank of the stream to provide for possible increase in the width of the stream? — [X] Yes [ ] No [X] N/A
Only one stream crossing.

5. Has the sewer system been designed to minimize the number of stream crossings? — [X] Yes [ ] No [ ] N/A

6. Is the stream crossing designed to cross the stream as nearly perpendicular to the stream flow as possible? — [X] Yes [ ] No [ ] N/A

7. Are the proposed sewer outfalls, headwalls, manholes, gateboxes, or other structures so located that they do not interfere with the free discharge of flood flows of the stream? — [X] Yes [ ] No [ ] N/A

General Design - Continued

8. Have provisions been made to control siltation of readily erodible soils during construction, during suspension of operation for an appreciable length of time, and after construction, by the methods of temorary vegetation, or seeding and mulch or by accelerating the establishment of permanent vegetation? [X] Yes [ ] No

9. Have provisions been made to retard the rate of runoff from the construction site and control disposal of runoff? [X] Yes [ ] No

10. Have provisions been made to trap sediment resulting from construction in temporary or permanent silt holding basins, including pump discharges resulting from dewatering operations? [X] Yes [ ] No

11. Have provisions been made to minimize turbidity by prohibiting the dumping of soil and debris into streams and/or on banks of streams, pumping silt-laden water into the stream and the operating of equipment in the streams? [X] Yes [ ] No

12. Have provisions been made to remove all cofferdams and stream crossings for equipment that must cross the stream during construction, including a provision to return the stream bed to its original condition when the project is completed? [X] Yes [ ] No

General Design - Continued

13. Have provisions been made to deposit all material and debris removed from the stream bed out of the flood plain area? [X] Yes [ ] No

14. Is the design coordinated with the Pennsylvania Fish Commission to take into account any comments or suggestions which the Fish Commission may have concerning the stream crossing? [ ] Yes [ ] No [X] N/A

Intermittent water course in summer months.

ER-BWQ-51 Rev. 74

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: 9-10-76

RECEIVED 9/29/76
For Department Use Only

APPLICATION FOR WATER QUALITY MANAGEMENT PERMIT

APPLICANT NAME
Upper Gwynedd-Towamencin Municipal Authority

TELEPHONE NO. 855-8165

MAILING ADDRESS
2225 Kriebel Road
Lansdale, M.R., PA 19446

PROJECT LOCATION
(A) MUNICIPALITY: Towamencin Township
NORRISTOWN REGIONAL OFFICE

(B) COUNTY: Montgomery

HEREBY APPLIES FOR: (CHECK APPROPRIATE BLOCKS IN SECTION A, B, C AND D)

A. APPROVAL OF PLANS FOR CONSTRUCTION OF:
- [X] PUMP STATIONS, SEWERS AND APPURTENANCES
- [ ] SEWAGE TREATMENT PLANT
- [ ] MINE DRAINAGE TREATMENT PLANT
- [ ] INDUSTRIAL WASTE TREATMENT PLANT
- [ ] OUTFALLS AND HEADWALLS, ETC.
- [X] STREAM CROSSING

B. APPROVAL TO DISCHARGE:
(1) [X] TREATED [ ] UNTREATED
(2) [ ] INDUSTRIAL WASTES [ ] MINE DRAINAGE [X] SEWAGE via exist. Auth. Plant

C. APPROVAL TO OPERATE:
[ ] UNDERGROUND MINE

D. APPROVAL OF AN
[X] EROSION AND SEDIMENTATION PLAN

(ALL DISCHARGES OF WASTES ARE PURSUANT TO "THE CLEAN STREAMS LAW")

I HEREBY CERTIFY THAT THE ACCOMPANYING REPORT AND ALL PLANS, MODULES, AND DOCUMENTS DESIGNATED THEREIN ARE ATTACHED TO THIS APPLICATION, AND MADE A PART HEREOF.

NAME OF DESIGN ENGINEER (OR SURVEYOR) AND FIRM: Herbert H. Metz, Jr., P.E.-Herbert H. Metz, Inc.

MAILING ADDRESS: 410 Derstine Avenue, Lansdale, Pa 19446

SIGNATURE OF APPLICANT OR RESPONSIBLE OFFICIAL: H. Warren Dimmig

NAME OF APPLICANT OR RESPONSIBLE OFFICIAL: H. Warren Dimmig

TITLE: Chairman

DATE OF APPLICATION: 9/15/76

ADDRESS: 2225 Kriebel Road, Lansdale, M.R., PA 19446

AFFIDAVIT
COMMONWEALTH OF PENNSYLVANIA, COUNTY OF Montgomery

H. Warren Dimmig BEING DULY SWORN, ACCORDING TO LAW, DEPOSE AND SAY, THAT I (AM THE APPLICANT) (AM AN OFFICER OR OFFICIAL OF THE APPLICANT) (HAVE THE AUTHORITY TO MAKE THIS APPLICATION) AND THAT THE PLANS, REPORTS AND DOCUMENTS SUBMITTED AS PART OF THE APPLICATION ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

SWORN AND SUBSCRIBED TO BEFORE ME THIS 14th DAY OF Sept 19 76

Dorothy E. McGlashan
NOTARY PUBLIC NOTARY PUBLIC
Montgomery County
My Commission Expires Feb. 6, 1978

SIGNATURE OF APPLICANT OR RESPONSIBLE OFFICIAL: H. Warren Dimmig

THIS SECTION BELOW IS TO BE COMPLETED BY THE PERSON AUTHORIZED BY THE APPLICANT TO PREPARE THIS APPLICATION. NOTE: SEWERAGE, INDUSTRIAL WASTE, AND MINE DRAINAGE APPLICATIONS REQUIRE A REGISTERED PROFESSIONAL ENGINEER, EXCEPT THAT A REGISTERED SURVEYOR IS ACCEPTABLE WHERE PUBLIC HEALTH AND SAFETY ARE NOT INVOLVED.

NAME OF DESIGN ENGINEER (OR SURVEYOR) AND FIRM: Herbert H. Metz, Jr., P.E.-Herbert H. Metz, Inc.

MAILING ADDRESS: 410 Derstine Avenue, Lansdale, Pa 19446

TELEPHONE NUMBER: 855-3111

AGREEMENT DATE:

SIGNATURE OF DESIGN ENGINEER (OR SURVEYOR): Herbert H. Metz, P.E.

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL DESIGN ENGINEER
HERBERT HALLIDAY METZ, JR.
(OR SURVEYOR'S)
ENGINEER SEAL No. 9953-E

ER-BWQ-188.1 REV. 3/75

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED 9-10-76
DATE REVISED

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

JAR: 9/22/76
For Department Use Only

APPLICANT Upper Gwynedd-Towamencin Municipal Authority

LOCATION OF PROJECT: MUNICIPALITY Towamencin Township COUNTY Montgomery

DESIGN ENGINEER AND FIRM Herbert H. Metz, Jr., P.E.—Herbert H. Metz, Inc.

DESIGN ENGINEERS ADDRESS 410 Derstine Avenue Lansdale, Pa. ZIP CODE 19446 TELEPHONE 855-3111

DESCRIPTION OF PROJECT Sanitary sewer extension - The Korman Corp. Lot Subdivision - To service 69 single dwelling lots, phased construction, as shown and described on attached Plans and Exhibits.

A. DOCUMENTATION REQUIRED

1. HAS A CHECK FOR $25.00, PAYABLE TO THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES, BEEN INCLUDED? (NOT REQUIRED OF STATE OR FEDERAL AGENCIES) [X] Yes [ ] No [ ] N/A

2. HAVE 2 COPIES OF THE APPLICATION, FORM H710.046, BEEN SUBMITTED? (3 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND DELAWARE RIVER BASIN). [X] Yes [ ] No

   A. HAS THE AFFIDAVIT BEEN PROPERLY COMPLETED AND EXECUTED? [X] Yes [ ] No

3. DOES THE APPLICATION INCLUDE THE FOLLOWING APPLICABLE MODULES:

MODULE NUMBER	TITLE	NUMBER OF PAGES	
1	GENERAL INFORMATION – SEWERAGE	9	[X] Yes
4	WASTE LOAD AND CHARACTERISTICS	3	[ ] Yes
5	GEOLOGY AND GROUND WATER INFORMATION	2	[ ] Yes
6	SEWERS AND APPURTENANCES	5	[X] Yes
7	SEWAGE PUMPING STATIONS	4	[ ] Yes
8	PUMPING FACILITIES	1	[ ] Yes
9	FLOW EQUALIZATION AND STORAGE BASINS	2	[ ] Yes
10	GRIT CHAMBERS	1	[ ] Yes
11	SCREENING AND COMMINUTING DEVICES	2	[ ] Yes
12	IMHOFF AND SEPTIC TANKS	2	[ ] Yes
13	SETTLING TANKS	2	[ ] Yes
14	EARTHEN SETTLING BASINS	2	[ ] Yes

ER-BWQ-[illegible] 1 (REV. 3/25)

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: 9-10-76
DATE REVISED:

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

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A. DOCUMENTATION REQUIRED – CONTINUED (THIS SHEET NOT APPLICABLE)

MODULE NUMBER	TITLE	NUMBER OF PAGES	
15	TRICKLING FILTERS	2	☐ Yes
16	AERATION TANKS OR BASINS	3	☐ Yes
17	WASTE STABILIZATION PONDS	3	☐ Yes
18	CHEMICAL TREATMENT (INCLUDING FEEDERS)	3	☐ Yes
19	MIXING AND FLOCCULATION FACILITIES	1	☐ Yes
20	SAND FILTERS	2	☐ Yes
21	DISINFECTION	2	☐ Yes
22	SPRAY IRRIGATION	1	☐ Yes
23	PHYSICAL ABSORPTION, ION EXCHANGE, AND CONTACT UNITS	2	☐ Yes
25	DEEP WELL DISPOSAL	4	☐ Yes
26	SLUDGE TREATMENT AND DISPOSAL		
	A. SEPARATE DIGESTION TANKS AND SLUDGE THICKENING TANKS	2	☐ Yes
	B. ELUTRIATION	1	☐ Yes
	C. WET OXIDATION	1	☐ Yes
	D. SLUDGE DRYING BEDS	1	☐ Yes
	E. LAND DISPOSAL OF SLUDGE	1	☐ Yes
	F. SLUDGE BASINS	1	☐ Yes
	G. FILTERS AND CENTRIFUGES	1	☐ Yes
	H. INCINERATION	1	☐ Yes

B. REQUIRED DATA

1. THE FRONT COVER OR FLYLEAF OF EACH SET OF DRAWINGS AND SPECIFICATIONS MUST BEAR THE SIGNATURE AND SEAL OF THE REGISTERED PROFESSIONAL ENGINEER, SURVEYOR BY OR UNDER WHOM PREPARED. EACH DRAWING MUST BEAR AN IMPRINT OR REASONABLE FACSIMILE OF SUCH SEAL.

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B. REQUIRED DATA – CONTINUED

2. INFORMATION RELATIVE TO SPECIFIC PROGRAMS:

A. 2 COPIES OF DESIGNER'S PLANS, MODULES, AND SPECIFICATIONS (3 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND DELAWARE RIVER BASIN)			
B. HYDRAULIC PROFILE OR SCHEMATIC FLOW DIAGRAM FOR PROPOSED TREATMENT PLANT.			X N/A
C. UNITED STATES GEOLOGICAL SURVEY TOPOGRAPHICAL MAP SHOWING EXACT POINT OF DISCHARGE AND TREATMENT PLANT OR PUMP STATION LOCATION AND/OR AREA TO SEWERS.			X N/A
D. HAVE YOU APPLIED FOR A PUBLIC UTILITY COMMISSION CERTIFICATE OF PUBLIC CONVENIENCE?	☐ Yes	☐ No	X N/A
(1) SPECIFY PUBLIC UTILITY COMMISSION APPLICATION NUMBER N.A.			
(2) IS CERTIFICATE OF PUBLIC CONVENIENCE ENCLOSED? N/A	☐ Yes	☐ No	
E. HAVE YOU APPLIED FOR APPROVAL OF STREAM ENCROACHMENT(S)? (Appended in conjunction with this applic.)	X Yes	☐ No	☐ N/A
F. HAVE YOU APPLIED FOR DEPARTMENT OF LABOR AND INDUSTRY APPROVAL FOR FEATURES AFFECTING EMPLOYEE SAFETY?	☐ Yes	☐ No	X N/A
G. DO YOU HAVE AN AGREEMENT INDICATING APPROVAL TO DISCHARGE TO SEWER SYSTEM AND TREATMENT PLANT OF ANOTHER PERMITTEE?	☐ Yes	☐ No	X N/A
H. HAVE YOU APPLIED FOR APPROVAL OF AIR POLUTION CONTROL FACILITIES?	☐ Yes	☐ No	X N/A
I. HAVE YOU SUBMITTED A LIST WITH NAMES, ADDRESSES, AND TITLES OF ALL PARTNERS IN THE CASE OF A PARTNERSHIP OR ALL OFFICERS IN THE CASE OF A CORPORATION, UNINCORPORATED ASSOCIATION, INCORPORATED ASSOCIATION, PARTNERSHIP, OR OTHER ENTITY (NOT MUNICIPAL)?	☐ Yes	☐ No	X N/A

3. SPECIFY THE FOLLOWING:

A. PLANS: Record Subdiv. Plan (TITLE/DESCRIPTION) NO. OF SHEETS 1 DATE Nov. 26, 1975

PLANS: Construction Impr. Plans (TITLE/DESCRIPTION) NO. OF SHEETS 2 DATE Nov. 26, 1976

PLANS: Plan-Profiles (TITLE/DESCRIPTION) NO. OF SHEETS 13 DATE Feb. 18, 1976 & March 1, 1976

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B. REQUIRED DATA — CONTINUED

B. SPECIFICATIONS (IF APPLICABLE): Upper Gwynedd-Towamencin Municipal Authority
TITLE
Reference specifications and pertinences as filed at Pa. D.E.R.
by Upper Gwynedd-Towamencin Mun. Auth.
NUMBER OF VOLUMES _____ DATE _____

C. OTHER (SPECIFY TYPE AND NUMBER):

4. ARE THE PLANS:

A. CLEAR, LEGIBLE, AND DRAWN TO SCALE WITH NORTH ARROW INDICATED? [X] Yes [ ] No

B. WITHIN MAXIMUM SIZE OF 36 INCHES BY 50 INCHES? [X] Yes [ ] No

C. SEAL AND SIGNATURE OF PROFESSIONAL ENGINEER OR SURVEYOR RESPONSIBLE FOR THIS APPLICATION

1. SIGNATURE OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW) Herbert H. Metz, Jr., P.E

2. SEAL OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW)

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
HERBERT HALLMAN METZ, JR.
ENGINEER
No. 5953-E

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CLASS OF CONSTRUCTION (THIS SHEET NOT APPLICABLE)
(Check all applicable blocks)

- ☐ NEW
- ☐ REPLACEMENT OF EXISTING UNIT(S)
- ☐ ADDITIONS AND/OR
- ☐ MODIFICATIONS TO EXISTING UNIT(S)

TABLE I – DESIGN LOADING DATA	To Be Abandoned	Existing Facilities Design	Present Operating Load	Proposed Total Facilities Design
1. EQUIVALENT POPULATION TO BE SERVED (NO. OF PERSONS – SUBMIT CALCULATIONS)				
A. DOMESTIC				
B. INDUSTRIAL				
C. TOTAL				
2. DESIGN YEAR OR PERIOD FOR OPERATING DATA				
3. RUNOFF PERIOD (HRS)				
4. DOMESTIC WASTE FLOW DATA – A. PER CAPITA FLOW (GPCD)				
4. DOMESTIC WASTE FLOW DATA – B. AVERAGE DAILY FLOW (MGD)				
4. DOMESTIC WASTE FLOW DATA – C. INFILTRATION (MGD)				
4. DOMESTIC WASTE FLOW DATA – D. RUNOFF FLOW RATE (MGD)				
4. DOMESTIC WASTE FLOW DATA – E. MAXIMUM FLOW RATE (MGD)				
5. INDUSTRIAL WASTE FLOW DATA – A. AVERAGE DAILY FLOW (MGD)				
5. INDUSTRIAL WASTE FLOW DATA – B. MAXIMUM DAILY FLOW (MGD)				
6. TOTAL DESIGN AVERAGE FLOW (MGD)				

TABLE II – FACILITIES DESIGN DATA (Specify number of units)

Units	Existing	To Be Abandoned	Total Proposed	Units	Existing	To Be Abandoned	Total Proposed
1. SCREENING DEVICES				13. CHLORINE CONTACT TANK(S)			
2. GRIT CHAMBER(S)				14. DISINFECTION FACILITIES			
3. COMMINUTOR(S)				15. SEPARATE SLUDGE DIGESTORS			
4. PRE-AERATION TANKS				16. SLUDGE DRYING BEDS			
5. PRIMARY SETTLING TANKS				17. MECHANICAL SLUDGE DEWATERING			
6. IMHOFF TANK(S)				18. SLUDGE ELUTRIATION TANKS			
7. TRICKLING FILTERS				19. SLUDGE STABILIZATION TANKS			
8. INTERMEDIATE SETTLING TANKS				20. INCINERATOR(S)			
9. AERATION TANKS				21. MIXING AND FLOCCULATION TANKS			
10. FINAL SETTLING TANKS				22. OTHER (Specify)			
11. INTERMITTENT SAND FILTERS				23. OTHER (Specify)			
12. WASTE STABILIZATION POND(S)				24. OTHER (Specify)			

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D. GENERAL INFORMATION

1. EXISTING COMBINED SEWERS MAKE UP 0 % OF THE TOTAL AREA SERVED BY THE SYSTEM.

2. ARE THE EXISTING SANITARY SEWERS SUBJECT TO EXCESSIVE INFILTRATION? [X] Yes [ ] No [ ] N/A

A. IF YES, SPECIFY MAJOR SOURCES OF INFILTRATION: Top brick courses in Old Inglewood Area - See Liptak report of 2/16/73 - Filed with E.P.A. for correction.

B. HAS A REGULATION PROHIBITING THE ADMITTANCE OF STORM WATER FROM PAVEMENTS, ROOFS, AND OTHER SOURCES BEEN ADOPTED? [X] Yes [ ] No
(IF YES, ENCLOSE COPY.) See Exhibit "A" - Also refer to U. Gwy.-Tow. Mun. Auth. Rates, Rule & Regulations, Construction Specs. & National Plumbing Code

C. SPECIFY STEPS TAKEN OR BEING TAKEN TO CORRECT THE INFILTRATION PROBLEM, INCLUDING DATES: [X] N/A
See Liptak Report of 2/16/73

3. TYPES OF INDUSTRIAL WASTES OF SPECIAL CONSIDERATION: NONE

4. WILL THE APPLICANT BE RESPONSIBLE FOR REPAIR AND MAINTENANCE OF SEWAGE FACILITIES FOR WHICH APPLICATION IS SUBMITTED? [X] Yes [ ] No

A. IF NO, EXPLAIN:

5. THE DISTANCE OF THIS PLANT TO THE NEAREST OCCUPIED DWELLING:

A. PRESENT _____ FEET

B. PROPOSED N/A FEET

6. IF THE APPLICANT IS OTHER THAN A MUNICIPALITY OR MUNICIPAL AUTHORITY, HAS THE GOVERNING MUNICIPALITY OBJECTED TO THE PROPOSED SEWAGE TREATMENT PLANT? [ ] Yes [ ] No [X] N/A

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(THIS SHEET NOT APPLICABLE)

E. RECEIVING STREAM – CONTINUED

6. TO THE BEST OF YOUR KNOWLEDGE, WILL THE TREATED WASTE DISCHARGE ADVERSELY AFFECT:

A. DOMESTIC WATER SUPPLY?	☐ Yes	☐ No
B. BATHING?	☐ Yes	☐ No
C. STOCK WATERING?	☐ Yes	☐ No
D. FISH AND AQUATIC LIFE?	☐ Yes	☐ No
E. INDUSTRIAL WATER SUPPLY?	☐ Yes	☐ No
F. IRRIGATION?	☐ Yes	☐ No
G. BOATING AND AESTHETICS?	☐ Yes	☐ No

7. IF ANY ITEMS IN 6 ABOVE ARE ANSWERED YES, INDICATE DISTANCE TO, LOCATION OF, AND EXTENT OF ADVERSE EFFECT:

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D. GENERAL INFORMATION – CONTINUED (THIS SHEET NOT APPLICABLE)

12. SAFETY
A. IS THE LETTER FROM MUNICIPAL OFFICER, SIGNIFYING THE OPINION, APPENDED TO THIS APPLICATION? ☐ Yes ☐ No

7. ARE DUPLICATE TREATMENT UNITS PROVIDED WHERE REQUIRED? ☐ Yes ☐ No ☐ N/A

13. OUTFALL SEWER
A. IF NO, EXPLAIN: _____

B. DO ANY BY-PASS STRUCTURES DISCHARGE TO WATERS OF THE COMMONWEALTH? (SPECIFY PLAN SHEET NUMBER(S) SHOWING BY-PASS STRUCTURES) ☐ Yes ☐ No

8. HAS AN AUXILIARY STANDBY POWER SOURCE BEEN PROVIDED? ☐ Yes ☐ No ☐ N/A

9. DOES ANY PIPING OR CONNECTION EXIST IN ANY PART OF THE TREATMENT WORKS WHICH MAY CAUSE CONTAMINATION OF THE POTABLE WATER SUPPLY? ☐ Yes ☐ No

10. IF A NON-POTABLE WATER SUPPLY IS PROVIDED, ARE ALL OUTLETS PERMANENTLY POSTED TO INDICATE WATER IS NOT SAFE FOR DRINKING? ☐ Yes ☐ No ☐ N/A

11. ARE FACILITIES PROVIDED FOR MEASURING THE SEWAGE FLOW? ☐ Yes ☐ No

12. SAFETY:

A. ARE FACILITIES PROVIDED TO EFFECTIVELY PROTECT THE OPERATOR AND VISITORS? ☐ Yes ☐ No

13. OUTFALL SEWER:

A. IS THE OUTFALL SEWER ADEQUATELY PROTECTED TO ENSURE ITS STRUCTURAL STABILITY AND FREEDOM FROM STOPPAGE? ☐ Yes ☐ No

B. IS AN OUTFALL HEAD WALL PROVIDED? ☐ Yes ☐ No ☐ N/A

C. DOES THE OUTFALL EXTEND TO THE LOW WATER MARK OF THE RECEIVING STREAM? ☐ Yes ☐ No ☐ N/A

14. HAVE PROVISIONS BEEN MADE TO PROTECT ALL STRUCTURES AGAINST FLOTATION? ☐ Yes ☐ No

15. IF THE PROJECT INVOLVES ADDITIONS TO AN EXISTING TREATMENT PLANT, DO THE SPECIFICATIONS INCLUDE A PROGRAM TO PREVENT BY-PASSING OF ANY UNIT TO WATERS OF THE COMMONWEALTH DURING CONSTRUCTION? ☐ Yes ☐ No ☐ N/A

A. SPECIFY VOLUME AND PAGE NUMBER OF SPECIFICATIONS: _____

16. SPECIFY NAMES OF MUNICIPALITIES AND POPULATION SERVED OR TO BE SERVED BY THIS PLANT: _____

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E. RECEIVING STREAM* (THIS SHEET NOT APPLICABLE)

1. WHAT IS THE NAME OF THE RECEIVING STREAM? _____

A. TRIBUTARY OF _____

B. TRIBUTARY OF _____

C. MAJOR DRAINAGE BASIN:
- ☐ DELAWARE
- ☐ SUSQUEHANNA
- ☐ POTOMAC
- ☐ LAKE ERIE
- ☐ GENESEE
- ☐ ALLEGHENY
- ☐ MONONGAHELA
- ☐ OHIO

2. DESCRIBE THE EXACT POINT OF DISCHARGE:

_____ DEG, _____ MIN, _____ SEC LATITUDE

_____ DEG, _____ MIN, _____ SEC LONGITUDE

A. WATERSHED AREA ABOVE POINT OF DISCHARGE IS

_____ SQUARE MILES.

3. WHAT IS THE:

A. MINIMUM 7-CONSECUTIVE-DAYS FLOW OCCURRING ONCE IN 10 YEARS?

_____ CUBIC FEET PER SECOND.

B. MINIMUM STREAM FLOW: _____

C. ABOVE FLOWS ARE BASED ON:
- ☐ MEASUREMENTS
- ☐ ESTIMATES

_____ YEARS OF RECORD

4. IS THE TREATMENT PLANT SUBJECT TO FLOODING? ☐ Yes ☐ No

5. THE PROBABILITY OF THE TREATMENT PLANT BEING OUT OF SERVICE DUE TO FLOODING IS ONCE IN _____ YEARS.

A. LIST BRIEFLY THE METHODS USED FOR FLOOD PROTECTION: _____

* *Attach U.S. Geological Survey 7.5' or 15' Quadrangle Map showing exact points of discharge.*

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MODULE 6 – SEWERS AND APPURTENANCES

CLASS OF CONSTRUCTION (Check All Applicable Blocks)
- [ ] NEW SYSTEM
- [X] EXTENSION(S) TO EXISTING SYSTEM
- [ ] REPLACEMENT OF EXISTING SYSTEM

TABLE I – DESIGN FLOW AND LOADING INFORMATION

1. POPULATION TO BE SERVED	INITIAL: 28 (Jan/1977)	DESIGN: 242 (this project)*	DESIGN YEAR: 1978
2. AREA TO BE SERVED: Residential	ACRES (INITIAL): 62.4 (this project)*		
TYPE OF AREA (Residential, Commercial, Etc.): Residential	ACRES (FUTURE): Add. 70± Ac. possible in Worcester Twp.		

3.			
A. LATERALS AND SUB-MAIN SEWERS	(GPCD)	400
B. MAIN AND TRUNK SEWERS	(GPCD)	N/A
C. INTERCEPTORS	(GPCD)	N/A
(1) MEASURED DRY-WEATHER FLOW	(%)	N/A
(2) ESTIMATED DRY-WEATHER FLOW	(%)	N/A

D. IF ANY VALUES LESS THAN PRESCRIBED IN MANUAL, EXPLAIN: NONE

4. DESIGN FLOW DATA	GPCD	MGD
A. AVERAGE DAILY FLOW	100	.0242
B. INFILTRATION		incl. in "A"
C. MAXIMUM INDUSTRIAL WASTE FLOW		N/A
D. TOTAL DESIGN FLOW		.0242
E. MAXIMUM FLOW RATE		.0968

TABLE II – GENERAL DESIGN

PIPE DIAMETER (IN.)	MINIMUM SLOPE (%)	MAXIMUM SLOPE (%)	MAXIMUM VELOCITY (FPS)	MAXIMUM FLOW (MGD)	MAXIMUM DISTANCE BETWEEN MANHOLES (Ft.) SEWERS 15 IN. OR LESS	MAXIMUM DISTANCE BETWEEN MANHOLES (Ft.) SEWERS 18 IN. TO 30 IN.	TYPE OF SEWER MATERIAL	"N" VALUE
8"	.010	.1371	12.5*	2.9*	400		A.C.P.	0.013

*Full Flow

(USE ADDITIONAL SHEETS IF NECESSARY)

TABLE III – CRITICAL DATA No Critical Sections

PLAN SHEET NUMBER	MANHOLE NUMBER FROM	MANHOLE NUMBER TO	SEWER PIPE SIZE (IN.)	SEWER SLOPE (%)	POPULATION SERVED	TOTAL DESIGN FLOW (MGD)	SEWER FLOWING FULL VEL. (FPS)	SEWER FLOWING FULL CAP. (MGD)	MAXIMUM FLOW VELOCITY (FPS)
No Critical Sections									

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MODULE 6 – SEWERS AND APPURTENANCES

A. GENERAL DESIGN

1. ARE THE PROPOSED SEWERS DESIGNED AS SEPARATE SANITARY SEWERS? [X] Yes [ ] No

   A. IF NO, EXPLAIN IN DETAIL, INCLUDING THE POSSIBLE EFFECTS UPON WATER COURSES.

   N/A

2. ARE THE PROPOSED SEWERS DEEP ENOUGH TO SERVE ALL ADJACENT BASEMENTS? [X] Yes [ ] No

   A. IF NO, EXPLAIN.

   N/A

3. ARE THERE ANY OVERFLOWS OR BYPASSES OTHER THAN FROM PUMP STATIONS? [ ] Yes [X] No

   A. IF YES, SPECIFY PLAN SHEET(S) WHERE SHOWN.

   N/A

4. WHERE SMALLER SEWERS JOIN LARGER ONES, HAVE THE INVERTS OF THE LARGER SEWERS BEEN LOWERED SUFFICIENTLY TO MAINTAIN THE SAME ENERGY GRADIENT? [X] Yes [ ] No [ ] N/A

5. SPECIFY THE TYPE OF LEAKAGE TEST (INFILTRATION AND/OR EXFILTRATION) AND THE LIMIT TO BE USED, PREFERABLY IN TERMS OF GALLONS PER INCH OF PIPE DIAMETER PER MILES PER DAY. (INDICATE VOLUME AND PAGE NUMBER OF SPECIFICATIONS.)

   TYPE AND LIMITS: Infiltration & exfiltration---200 gal. per inch pipe diam. per mile per day (Upper Gwynedd-Towamencin Mun Auth. Spec.)

6. HAVE PROVISIONS BEEN MADE TO PROTECT SEWERS AT VELOCITIES OF OVER 15 FEET PER SECOND? [ ] Yes [ ] No [X] N/A

   A. ARE SEWERS SECURED WITH CONCRETE ANCHORS (OR EQUAL) SPACED AS REQUIRED? [ ] Yes [ ] No [X] N/A

7. ARE MANHOLES PROVIDED AT ALL CHANGES IN SIZE, GRADE, ALIGNMENT, AND SEWER INTERSECTIONS? [X] Yes [ ] No

8. ARE DROP MANHOLES PROVIDED WHERE THE ENTRANCE SEWER INVERT IS 24 INCHES OR MORE ABOVE MANHOLE INVERT? [X] Yes [ ] No

9. ARE WATERTIGHT COVERS USED WHERE MANHOLES ARE SUBJECT TO FLOODING BY STREET RUNOFF OF HIGH WATER? [X] Yes [ ] No

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WATER POLLUTION CONTROL

MODULE 6 – SEWERS AND APPURTENANCES

For Department Use Only

A. GENERAL INFORMATION – CONTINUED

10. ARE SEWERS IN STREAMS PROTECTED WITH AT LEAST 1 FOOT COVER IN ROCK AND 3 FEET COVER IN OTHER MATERIAL? [X] Yes [ ] No [ ] N/A

11. ARE SEWERS IN STREAMS CONSTRUCTED TO REMAIN WATERTIGHT AND IN ALIGNMENT? [X] Yes [ ] No [ ] N/A

12. DOES THE APPLICATION INVOLVE CAPPED SEWERS? [ ] Yes [X] No

A. IF YES, SPECIFY PLAN SHEET NUMBER. _____

13. HOW MANY INVERTED SIPHONS ARE INCLUDED IN THIS DESIGN? None

14. IF SIPHONS ARE INCLUDED, SPECIFY THE FOLLOWING:

	SIPHON:	SIPHON:	SIPHON:
A. NUMBER OF BARRELS	N/A		
B. MINIMUM PIPE SIZE			
C. MINIMUM VELOCITY AT AVERAGE FLOW			

D. HAS PROVISION BEEN MADE FOR FLUSHING, ROUDING, AND MAINTENANCE? [ ] Yes [ ] No

15. IS THERE ANY CONNECTION BETWEEN THE SEWER AND A PUBLIC OR PRIVATE POTABLE WATER SUPPLY OR APPURTENANCES? [ ] Yes [X] No

16. ARE ANY WATER SUPPLY SOURCES, PUBLIC OR PRIVATE, LOCATED WITHIN 200 FEET OF THE SEWERS? [ ] Yes [X] No

A. IF YES, SPECIFY PLAN SHEET(S) ON WHICH SOURCES ARE SHOWN. N/A

B. IF YES, WILL SEWERS BE ENCASED OR WATERTIGHT? N/A [ ] Yes [ ] No

17. ARE SEWERS AT LEAST 10 FEET HORIZONTALLY FROM WATER LINES AND/OR AT LEAST 18 INCHES BELOW THE WATER LINE? [X] Yes [ ] No

18. IF THE PROPOSED FACILITY WILL DISCHARGE TO THE SEWER SYSTEM AND TREATMENT PLANT OF ANOTHER MUNICIPALITY, HAVE APPROPRIATE AGREEMENTS BEEN REACHED? [ ] Yes [ ] No [X] N/A

A. IS THE AGREEMENT A CERTIFIED AGREEMENT? [ ] Yes [ ] No [X] N/A

B. IS THE AGREEMENT A LETTER OF INTENT? [ ] Yes [ ] No [X] N/A

C. HAVE DUPLICATE COPIES BEEN ENCLOSED? N/A [ ] Yes [ ] No

19. DO THE EXISTING SEWERS TO WHICH THE PROPOSED SEWERS WILL CONNECT HAVE ADEQUATE CAPACITY TO CONVEY THE ADDITIONAL FLOW? [X] Yes [ ] No [ ] N/A

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MODULE 6 – SEWERS AND APPURTENANCES

A. GENERAL INFORMATION – CONTINUED

20. ON THE PLANS, INDICATE THE PERMIT NUMBER OF EXISTING SEWER AT EACH PROPOSED POINT OF CONNECTION AND THE NAME OF THE PERMITEE; SPECIFY PLAN SHEET NUMBER(S) ON WHICH INDICATED: Permit #765513 connecting to M. H. #30 on UT-7 Trunk ☐ N/A

21. WILL THERE BE A PUMP STATION INVOLVED IN RECEIVING SEWAGE FROM THE SEWER EXTENSION? ☐ Yes ☒ No ☐ N/A

A. IF YES, SPECIFY PRESENT AND DESIGN FLOWS OF PUMPING STATION. N/A

22. RECEIVING SEWAGE TREATMENT PLANT (FILL IN FOR EXTENSION(S) TO EXISTING SYSTEM ONLY)

A. OWNER OF PLANT Upper Gwynedd-Towamencin Municipal Authority

B. NAME OF PLANT Upper Gwynedd-Towamencin Mun. Auth. Waste Water Treatment Plant

C. DISCHARGE DATA

	WASTE FLOW (MGD)	SOLIDS SUSPENDED (#/DAY)	SOLIDS SETTLEABLE (ML/L)	BOD 5 DAY 20°C (#/DAY)
(1) ALLOWABLE LOAD TO STREAM AUTHORIZED UNDER PRESENT PERMIT	2.5 (1) by Nov./76 under current exp.	376	None stated	89.6
(2) PRESENT LOAD TO STREAM FROM TREATMENT PLANT	1.280 (2)	214 (20 ppm)	0.4 ave.	160 (15ppm)
(3) ADDITIONAL LOAD TO STREAM EXPECTED DURING THE NEXT FIVE YEARS FROM EXISTING SYSTEM	0.119	19.8	0.4	14.9
(4) ADDITIONAL LOAD TO STREAM DURING THE NEXT FIVE YEARS FROM PROPOSED EXTENSION	0.0242	4.0	0.4	3.0
(5) TOTAL ANTICIPATED LOAD TO STREAM IN NEXT FIVE YEARS (2+3+4)	1.423	237.8	0.4	177.9

D. TREATMENT PLANT OPERATING EFFICIENCY

	SOLIDS SUSPENDED (%)	SOLIDS SETTLEABLE (%)	BOD 5 DAY 20° C (%)
(1) PRESENT TREATMENT PLANT	88.9	97.7	91
(2) AFTER INITIAL LOAD FROM PROPOSED EXTENSION	88.9	97.7	91
(3) IN FIVE YEARS	87.7	97.0	89.6

(May, 1976)

23. WILL THE LOAD UNDER 22.B.(5) ABOVE PRODUCE AN EFFLUENT THAT WILL HAVE AN ADVERSE EFFECT UPON THE RECEIVING STREAM? ☐ Yes ☒ No

(1) 1.5 mgd present plus 1.0 m.g.d. current expansion cap. = 2.5 m.g.d.
(2) Ave. Daily Flow - 4/1 to 5/31/1976

ER-BWQ-188.6(REV. 3/75

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED

DATE REVISED

WATER POLLUTION CONTROL

MODULE 6 – SEWERS AND APPURTENANCES

For Department Use Only

A. GENERAL INFORMATION – CONTINUED

A. IF YES, EXPLAIN

B. IF APPLICANT IS NOT OWNER OF THE RECEIVING SEWAGE TREATMENT PLANT, INDICATE SOURCE OF INFORMATION.

TO BE COMPLETED BY THE REGIONAL SANITARY ENGINEER

1. WILL THE LOAD UNDER 22.B.(5) MEET THE PERMIT REQUIREMENTS? ☐ Yes ☐ No

A. WILL THE LOAD UNDER 22.B.(5) CAUSE POLLUTION OF THE RECEIVING STREAM? ☐ Yes ☐ No

2. IS THERE ANY QUESTION AS TO WHETHER THE LOAD IS NOW CAUSING OR WILL CAUSE POLLUTION? ☐ Yes ☐ No

A. IF YES, COMPLETE A POLLUTION REPORT.

3. IS THE TREATMENT PLANT IN COMPLIANCE? ☐ Yes ☐ No

4876422

EXCERPT from Rules and Regulations of
TOWAMENCIN TOWNSHIP PLUMBING CODE

STORM WATER DRAINS

1101. DRAINAGE OF YARDS, AREAS AND ROOFS - All roofs and paved areas, yards, courts and court yards may be drained into the stormwater sewer system but not into the sewers intended for sewage only.

Where there is no storm-water sewer accessible, such connections may discharge into the public gutter, unless otherwise directed by the proper authorities however, in no case shall water from said sources drain over the surface of side walks nor be allowed to damage any neighbors property.

EXHIBIT "A"

DATE REVISED

WATER POLLUTION CONTROL

MODULE 6 -- SEWERS AND APPURTENANCES

A. GENERAL INFORMATION -- CONTINUED

A. IF YES, EXPLAIN

B. IF APPLICANT IS NOT OWNER OF THE RECEIVING SEWAGE TREATMENT PLANT, INDICATE SOURCE OF INFORMATION.

EXHIBIT "A"

4676422

Henry S. Conrey, Inc.
Division of Chester Valley Engineers
Civil Engineers & Surveyors
Post Office Box 447
159 West Lancaster Avenue
Paoli, Pa.

ADDENDA
TO
TOWAMENCIN TOWNSHIP
SANITARY SEWER SPECIFICATIONS
1973

ITEM There shall be added the following item

STREAM PROTECTION - The work shall be carried out in such a manner to prevent siltation of any streams and/or waterways.

The Contractor shall submit a written statement describing proposed construction procedures; upon a review of this statement the Engineer may prescribe certain facilities which will prevent erosion and siltation and provide for a satisfactory means to carry off surface waters.

January 1, 1973

BOARD OF SUPERVISORS
TOWAMENCIN TOWNSHIP
1655 Sumneytown Pike
Box 99 Kulpsville, Pa. 19443
Phone (215) 368-7602

May 14, 1976

Dept. of Environmental Resources
750 East Johnson Highway
Norristown, Pennsylvania 19401

Attn: Mr. A. M. Spinelli, Jr.

Gentlemen:

Our new treatment plant project is now under construction and Accelerated Stage 1 (to 2.5 MGD) is scheduled for completion in six months.

During the last eight months we have submitted planning modules for the following single-family house developments:

Wm. Nash - Weikel Road - 22 lots (10/75)
Anthony M. DiLucia, Inc. - Reinert Road - 46 lots (10/75)
Korman Corporation - Morris Road - 69 lots (5/76)

During 1975 two developments were issued sewer extension permits by D.E.R.:

Bremen Woods - Allentown Road - 28 lots
Lapp and Alderfer - Keeler Road - 72 lots

Due to the uncertainty of schedule for treatment plant construction the township has been limiting building permits to these and other prior approved developments and will continue to do so until actual added capacity is available.

It is urgent, however, to the economy of the "waiting" developers and to the budget of the Authority (which has been affected by the past two-year building stoppage) that these modules be processed as soon as possible so that new sanitary sewers may be constructed. Today's market also requires time to fund and begin such projects. The authority must begin payments on the new construction this month.

4676422

The Board has also received bids and will shortly resume work to be completed this summer on correction of the deteriorated brick manholes in the Inglewood area. The infiltration will be significantly reduced by this operation although the infiltration/inflow program will consume two years. This would provide a safety valve in the event plant construction falls behind schedule.

Schedule of Occupied Dwellings

	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	
22-Nash				2	3	2	1	2	2	1		etc.
46-DiLucia				3	2	2	2	1	2	2		etc.
69-Korman				3	2	3	3	3	3	4		etc.
Stage 1 Contr.	ADDED 1 MGD →											

Very truly yours,

Joseph W. Kapusta
Sec/Mgr

/bgt

c.c. Engineer
Solicitor

1635 Sumneytown Pike
Box 99 Kulpsville, Pa. 19443
Phone (215) 368-7802

Upper Gwynedd-Towamencin Municipal Authority

KRIEBEL ROAD ◆ R.D. 2 ◆ LANSDALE, PA. ◆ 19446

(215) 855-8165

May 19, 1976

Department of Environmental Resources
750 East Johnson Highway
Norristown, Pennsylvania 19401

ATTN: Mr. Michael L. Simon, Sanitarian

Dear Mr. Simon:

This letter is to inform you that we have awarded contracts 01 and 03 for accelerated Stage 1 construction of our new wastewater treatment plant. We estimate the 1 MGD added capacity for completion in November 1976.

Very truly yours,

H. W. Dimmig,
Chairman

HWD/mes

copies: Board
Consultant
Twp. Engineer

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF ENVIRONMENTAL RESOURCES
750 East Johnson Highway
Norristown, Pennsylvania 19401
215 631-2280

July 29, 1976

Mr. Joseph Kapusta
655 Sumneytown Pike
Box 99
Kulpsville, Pa. 19443

Re: Korman Corporation Subdivision
No. 1-46949-001-4
Towamencin Township

Dear Mr. Kapusta:

The above subdivision planning module has been reviewed by this office in conjunction with the Bureau of Water Quality Management.

We concur that the proposed supplement to the Towamencin Township official plan meets the Requirements of Chapter 71, Section 71.15 of the Pennsylvania Department of Environmental Resources Rules and Regulations; and is hereby approved. In accordance with this Chapter, the Department of Environmental Resources holds Towamencin Township responsible for implementing the supplement as per the approved module.

If you have any questions, please contact this office.

Very truly yours,

Michael L. Simon
Sanitarian
Montgomery County

MLS:mc/jt

cc: Simon
Ed Prout
Mr. Berton E. Korman

H710.047 REV. 9-70 COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH
SANITARY ENGINEERING

For Department of Health Use Only

INTERNAL REVIEW AND RECOMMENDATIONS

REGIONAL ENGINEER'S REVIEW

NAME OF APPLICANT: Upper Gwynedd-Towamencin Twp. Municipal Auth.
PROJECT LOCATION: Towamencin Township Montgomery County
APPLICATION NUMBER: 4676422

BRIEF DESCRIPTION OF PROJECT: This application requests approval for the construction of a sanitary sewer extension to serve The Korman Corporation's residential subdivision consisting of 69 single family dwelling units in Towamencin Township, Montgomery County. This subdivision is located approximately 2,000 feet southeast of Trumbauer Road, and it lies between Morris Road, Valley Forge Road and the NE Extension of the PA Turnpike. The sanitary sewers from this development connect with those approved by Permit #765S13, U. Gwynedd-Towamencin Mun. Authority. (CONT.)

DISCUSSION (Use Additional Sheets If Necessary):

Sewage from the proposed sewer extension will be conveyed to the Upper Gwynedd-Towamencin Township Municipal Authority's Sewage Treatment Plant via existing Upper Gwynedd-Towamencin Municipal Authority's sewers. The final effluent will be afforded tertiary treatment before discharge to the Towamencin Creek. The proposed sewer extension will serve 28 people initially and 242 ultimately. The soil erosion and sedimentation control plan has been reviewed and approved by the Montgomery County Conservation District.

(continued)

CURRENT ESTIMATE OF COMPLETION DATE OF PROJECT (Industrial Wastes Only)

RECOMMENDATION AND ACTION

APPROVAL – RELEVANT LAWS, REGULATIONS, STANDARDS, AND POLICIES HAVE BEEN COMPLIED WITH:

Issue By Region	Issue By Central Office	Refuse	Signature	Date
☒	☐	☐	James R. Ridgik — REVIEWING ENGINEER	12/2/76
☑	☐	☐	Richard L. Bunkel — FACILITIES ENGINEER	12/3/76
☒	☐	☐	C. T. Beckwood — REGIONAL ENGINEER	12/6/76
	☐	☐	DIV. FACILITIES ENGINEER	
	☐	☐	DIVISION DIRECTOR	
		☐	BUREAU DIRECTOR	

PERMIT CONDITIONS:
1. STANDARD –

1 thru 9, 11 thru 14, 21, 22, 30, 31, 32, 33
Erosion Control (1973)

2. SPECIAL (Use Additional Sheets If Necessary) –

Recording of Permit: Montgomery County

467422

(CONT.)

It should be noted that the Upper Gwynedd-Towamencin Township Municipal Authority's sewage treatment plant is presently being expanded with the expansion scheduled for completion in November 1976. The Board of Supervisors of Towamencin Township have submitted documentation of the schedule for occupying these 69 dwelling units so that in no event will the treatment plant be subject to hydraulic and/or organic overloading.

The Division of Dams and Encroachments reviewed and approved the site of the proposed culvert installation and they had stated that no formal Encroachment Permit is necessary since the drainage area is so small. The Storm Water Management aspects of the project have been reviewed and approved by the Region's Hydraulic Engineer. The developer's engineer is proposing a combination infiltration re-charge and storage (retardation) terraces to control the rate of storm water leaving the property.

The sanitary sewer stream crossing involved with the application has been reviewed and approved by the Pennsylvania Fish Commission.

It should be noted that the Tract will be developed in three (3) sections (Section I-22.5 acres, Section II - 22.4 acres, Section III - 17.5 acres) and that less than 25 acres of land will be disturbed at any one time. Therefore, no Erosion and Sedimentation Control Permit is necessary.

INTERNAL REVIEW AND RECOMMENDATIONS

For Department of Health Use Only

REGIONAL ENGINEER'S REVIEW

NAME OF APPLICANT: Upper Gwynedd-Towamencin Twp. Municipal Auth. PROJECT LOCATION: Towamencin Township Montgomery County APPLICATION NUMBER:

BRIEF DESCRIPTION OF PROJECT: This application requests approval for the construction of a sanitary sewer extension to serve The Herman Corporation's residential subdivision consisting of 69 single family dwelling units in Towamencin Township, Montgomery County. This subdivision is located approximately 2,000 feet southeast of Trumbauer Road and it lies between [illegible] Road.

Note approved by Permit #7655[illegible] Gwynedd-Towamencin Mun. Auth.

ER-BWQ-15 - Rev. 9/73

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT

NO. 4676422

A. PERMITTEE (Name and Address)

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

B. PROJECT LOCATION

Municipality: Towamencin Township
County: Montgomery County

C. TYPE OF FACILITY OR ESTABLISHMENT

sanitary sewer extension

D. NAME OF MINE, OPERATION OR AREA SERVED

The Korman Corporation - 69 dwelling units

E. THIS PERMIT APPROVES

1. Plans For Construction of
   - a. [X] ~~XXXXXXXXXXX~~ SEWERS AND APPURTENANCES
   - b. [ ] SEWAGE TREATMENT FACILITIES
   - c. [ ] MINE DRAINAGE TREATMENT FACILITIES
   - d. [ ] INDUSTRIAL WASTE TREATMENT FACILITIES
   - e. [ ] OUTFALL & HEADWALL
   - f. [X] STREAM CROSSING

2. The Discharge of: N/A
   - a. [ ] TREATED
   - [ ] UNTREATED
   - b. [ ] INDUSTRIAL WASTE
   - [ ] MINE DRAINAGE
   - [ ] SEWAGE

3. The Operation of: N/A
   - [ ] MINE MAXIMUM AREA TO BE DEEP MINED
   - [ ] DAM

4. An Erosion and Sedimentation Control Plan [X] PROJECT AREA IS 62 ACRES.

5. Nature of Discharge or Impoundment: N/A
   - [ ] DISCHARGE TO SURFACE WATER
   - [ ] DISCHARGE TO GROUND WATER
   - [ ] IMPOUNDMENT

(Name of Stream to which discharged or drainage area on which ground water discharge takes place or impoundment is located).

F. You are hereby authorized to construct, operate or discharge, as indicated above, provided that you comply with the following:

1. All representations regarding operations, construction, maintenance and closing procedures as well as all other matters set forth in your application and its supporting documents (Application No. 4676422 dated September 15, 1976), and amendments dated 10/15,23,26/76, 11/10,29/76
   Such application, it's supporting documents and amendments are hereby made a part of this permit.
2. Conditions numbered 1 thru 9, 11 thru 14, 21, 22, 30 and 31, 32, 33 of the Sewerage Standard Conditions dated 1972
   which conditions are attached hereto and are made a part of this permit.
3. Special condition(s) designated This permit is also subject to the Standard Conditions Relating to Erosion Control which are attached hereto and are made a part of this permit.

G. The Authority granted by this permit is subject to the following further qualifications: (1973).

1. If there is a conflict between the application or its supporting documents and amendments and the standard or special conditions, the standard or special conditions shall apply.
2. Failure to comply with the Rules and Regulations of the Department or the terms or conditions of this permit shall void the authority given to the permittee by the issuance of the permit.
3. This permit is issued pursuant to the Clean Streams Law, The Act of June 22, 1937, P.L. 1987 as amended and/or the Water Obstruction Act of June 25, 1913, P.L. 555 as amended. Issuance of this permit shall not relieve the permittee of any responsibility under any other law.

This permit must be recorded in the Recorder of Deeds Office in Montgomery County.

PERMIT ISSUED
DEPARTMENT OF ENVIRONMENTAL RESOURCES

DATE 12-6-76 BY C.T. Beechwood

C.T. Beechwood
TITLE Regional Sanitary Engineer

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
Norristown, Pennsylvania 19401
215 631-2405

December 6, 1976

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

RE: Sewerage Permit #4676422
The Korman Corporation
U. Gwynedd-Towamencin Municipal Authority
Towamencin Township, Montgomery County

Attention: H. Warren Dimmig
Chairman

Gentlemen:

Above referenced permit is enclosed.

Please study the permit carefully and direct any questions to the Facilities Section of this office.

To become operative this permit must be recorded in the Office of the Recorder of Deeds in the county in which the discharge is located. Enclosed is a certificate and pre-addressed envelope for this purpose. Please have the Recorder of Deeds accomplish the certificate and return it within ten (10) days.

Very truly yours,

C.T. Beechwood
Regional Sanitary Engineer

Enclosures: Permit
Standard Conditions Relating to Sewerage
Standard Conditions Relating to Erosion Control
Recorder of Deeds Certificate with envelope
Notary Public Certificate

CC: Program Services Section, Water Quality Management
30 day hold
Regional File
Herbert Metz, Inc.
The Korman Corporation
Waterways Patrolman, Montgomery County and Pa. Fish Comm.

CTB/JAR/mc/lm

ER-BWQ-68 Rev. 4-73

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446
Permit #4676422
Towamencin Township
Montgomery County

Commonwealth of Pennsylvania
Department of Environmental Resources

to Upper Gwynedd-Towamencin Municipal Authority

bearing date of 12-6-76

RECORDER OF DEEDS CERTIFICATE

I hereby certify that on Dec. 17, 1976 (Date)

there was recorded in Book Deed Book 4166 County

page 95 the sewerage permit issued

to Upper Gwynedd - Towamencin Muni. Auth.

bearing date of 12-6-76

Loretta D. Bradbury
deputy Recorder of Deeds for

Montgomery County

ER-BWQ-69 Rev. 4-73

4675422

and duly acknowledged the foregoing permit to be his act and deed and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year aforesaid.

STATE OF PENNSYLVANIA }
COUNTY OF MONTGOMERY } SS

John F. Daly Jr.
NOTARY PUBLIC

JOHN F. DALY, JR.

On the 6th day of December in the year one thousand nine hundred and Seventy-six before me, the Subscriber, a Notary Public, came the above named

C.T. Beechwood

and duly acknowledged the foregoing permit to be his act and deed and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year aforesaid.

John F. Daly Jr.
NOTARY PUBLIC

JOHN F. DALY, JR.
Notary Public, Norristown Boro, Montg. Co.
My Commission Expires August 16, 1980

Permit #4675422
Towamencin Township
Montgomery County

Commonwealth of Pennsylvania
Department of Environmental Resources

RECORDER OF DEEDS CERTIFICATE

ER-BWQ-69 Rev. 4-73

EPR-1:2/74

Form No. 1

Application Nos.: 4676422

SUBJECT: Sewerage
TOWAMENCIN TWP
Montgomery County

CONTACT: Upper Gwynedd-Towamencin Municipal authority
2225 Kriebel Road
Lansdale, M.R., Pa
19446

New Proposal	✓
Revised Proposal	

From

~~TO:~~ Regional Coordinator L Gonsher 9/21/76

~~FROM:~~ R Hinkle

On 9-16-76, we received an application for plan approval and/or permit to construct a Sewer extension. The proposed installation involves:

~~Sanitary~~ Sewer extension to serve The Korman Corporation's lot subdivision in Towamencin Township, Montgomery County.

Sew to Upper Gwynedd-Towamencin STP

Permit Coordination Requirements: OH COMMENTS TO BE INCORPORATED IN REVIEW

To 9-22-76

	No Permit Required	No Permit Req. Prior Approval Required	Permit Req. Appli. on Hand	Permit Req. Appli. Needed
Air Quality	✓			
Water Quality			9/21/76	
Land Protection	✓			
Community Env. Control	✓			
Occupational Health	See comments	✓		
Surface Mine Reclamation	✓			
Radiological Health	✓			

RECEIVED
SEP 21 1976
Regional Office

Please indicate your interest on this form and return to the Coordinator by 9-22-76.

OA-501 12-67

COMMONWEALTH OF PENNSYLVANIA

September 21, 1976

SUBJECT: Application No. 4676422
Upper Gwynedd Towamencin Municipal Authority

TO: Richard Hinkle, Chief
Facilities Section
Bureau of Water Quality Management

FROM: L. T. Gonshor
Regional Industrial Hygienist

The following are comments from the Bureau of Occupational Health relating to the above application.

Employees of private companies are subject to regulations of the federal Occupational Safety and Health Administration whereas employees of state and local government related agencies are subject to regulations of the Commonwealth.

The contract should include a clause that all work on the project must be done in compliance with State and Federal occupational health and safety regulations.

If rock drilling machinery is used, it must be equipped with an integral water or exhaust ventilation dust suppression device.

Potential noise exposures should be evaluated and control measures and medical programs (audiometric tests) implemented as necessary.

Potential dust exposures should be evaluated and control measures and medical programs (chest X-ray (14" x 17") examinations) implemented as necessary.

Where confined spaces (manholes, etc.) must be entered, the atmosphere must be tested for combustible gases (as a minimum) and mechanical ventilation used prior to entry and during occupancy. A worker must also be stationed outside the confined space to offer assistance should a problem occur. Procedures for entry must be submitted to the Department where the employer is subject to Commonwealth regulations.

Lasers used for alignment work must be registered with the Department and any injuries resulting from the use of lasers must be reported.

cc: G. Richey
cc: B O H

ER-EPR-1:2/74

Form No. 1

Application Nos.: 4676422

SUBJECT: Sewerage
Towamencin Twp
Montgomery County

CONTACT: Upper Gwynedd-Towamencin Municipal authority
2225 Kriebel Road
Lansdale, R.D., Pa
19446

New Proposal	✓
Revised Proposal	

TO: Regional Coordinator J Gonsher

FROM: R Dentle

On 9-16-76, we received an application for plan approval and/or permit to construct a Sewer extension. The proposed installation involves:

Sanitary Sewer extension to serve The Korman Corporation's lot subdivision in Towamencin township, Montgomery County.

Sewer to Upper Gwynedd-Towamencin STP

Permit Coordination Requirements:

	No Permit Required	No Permit Req. Prior Approval Required	Permit Req. Appli. on Hand	Permit Req. Appli. Needed
Air Quality				
✓ Water Quality			N/A	
Land Protection				
Community Env. Control				
Occupational Health				
Surface Mine Reclamation				
Radiological Health				

Please indicate your interest on this form and return to the Coordinator by 9-22-76.

ER – EP

START

DEPARTMENT OF ENVIRONMENTAL RESOURCES

BUREAU / PROGRAM Water Quality Management

ENVIRONMENTAL PROTECTION

DIVISION

COUNTY / MUNICIPALITY 46949

PROGRAM Sew

START

CASE NAME Upper Gwynedd Towamencin Municipal Authority

FILE P

PERMIT NO. 4676424 William Nash

BUREAU / PROGRAM Water Quality Management

DIVISION

COUNTY / MUNICIPALITY 46949

PROGRAM Sew

CASE NAME Upper Gwynedd Towamencin Municipal Authority

FILE P

PERMIT NO. 4676424 William Nash Subdivision

RECEIVED
OCT 21 1976
WATER
MORRISTOWN REGIONAL OFFICE

HERBERT H. METZ, JR.
Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446
PHONE: 855-6111

October 19, 1976

WILLIAM NASH SUBDIVISION - SECTION II
Towamencin Township, Montgomery County
Upper Gwynedd-Towamencin Mun. Auth. System

WATER QUALITY MANAGEMENT APPLICATION DOCUMENTS

(All items listed are submitted in duplicate)

Application for Water Quality Management Permit

Modular report forms 1 & 6

Exhibit "A" - copy of Upper Gwynedd-Towamencin Municipal Authority regulation prohibiting storm water admittance

Addenda to Towamencin Twp. Sanitary Sewer Specifications dated January 1, 1973, regarding stream protection

Exhibit "B" - copy of letter from Towamencin Township Board of Supervisors to Mr. A. M. Spinelli, Jr., dated May 14, 1976

Copy of letter from Upper Gwynedd-Towamencin Municipal Authority to Mr. Michael L. Simon, Sanitarian, dated May 19, 1976 describing capacity vs. time estimate for expansion of existing treatment plant

Copy of letter from Mr. Michael L. Simon to Mr. Joseph W. Kapusta (Towamencin Twp. Manager) dated July 29, 1976 acknowledging review and approval of subdivision planning module. (No. 1-46949-003-4)

Subdivision Plan package including:

a) Title Plan (1)

b) Construction Improvement Plan (1)

c) Erosion and Sedimentation Plan (1)

d) Plan-Profiles (2)

Erosion and Sedimentation Control Narrative Report

Sanitary sewer design analysis (Sheet 1 of 1)

ENVIRONMENTAL
PROTECTION

1875 New Hope Street
Norristown, Pennsylvania 19401
215 631-2411

November 19, 1976

The Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, MR, Pa. 19446

Attention: Mr. H. Warren Dimmig
Chairman

Re: Sewerage Permit Application #4676424
Upper Gwynedd-Towamencin Municipal Auth.
Towamencin Township, Montgomery County

Dear Mr. Dimmig:

The technical review of the subject permit application has been completed. As a result of this review, the following points must be addressed prior to issuance of a permit.

1) Manhole No. 131.11 must be of the drop type. Since the difference between invert elevations of the entering sewer lines is 5 ft. In addition, module 6-2, item A8 must be changed to answer yes. Please submit a revised plan and module sheet, 6-2, to reflect this point.

2) The receiving sewer permit No. 765S13 must be indicated on the appropriate plan sheet at the point of connection. Please submit a revised plan which reflects this point.

3) The following points refer to the stormwater management aspects of this project.

   a) How many acres are involved in Section 3 of this development.

   b) What is the drainage area of the creek flowing through the property.

   c) What is the velocity (after the rip-rap) of the two stormwater headwalls discharging to this creek.

4) Please be informed that when Section 3 of this development is developed in the near future, a stormwater management plan should be submitted, along with an Erosion and Sedimentation Control Plan.

5) The Montgomery County Conservation District is currently reviewing the project's soil erosion and sedimentation control plan. When their approval is obtained, a letter from this Conservation District indicating this approval must be submitted.

RECEIVED

We request that the aforementioned revisions and supplemental information be submitted in duplicate to us wihtin seven days to allow us to continue processing this application. These revisions and supplemental information should be consistent with the information previously submitted. If the data is not received by this date, or it is incomplete or incorrect, the application will be processed on the data we presently have, and our recommendations will be made accordingly. Enclosed are Occupational Health comments which should be included in the contract specifications.

If there are any questions relating to the above points, please feel free to contact the undersigned.

Very truly yours,

John R. Gee
Public Health Engineer

CC: 30-Day File
Regional Office File
Central Office File
Mr. Herbert H. Metz, Jr., P.E.

JRG:mc/mj

HERBERT H. METZ, JR.

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

PHONE: 855-3111

RECEIVED
NOV 24 1976
ENVIRONMENTAL RESOURCES
WATER MANAGEMENT
NORRISTOWN REGIONAL OFFICE

November 22, 1976

Department of Environmental Resources
1875 New Hope Street
Norristown, Pennsylvania 19401

Attn: Mr. John Gee, Public Health Engineer

RE: William Nash Subdivision - Section II
Sewerage Permit Application #4676424
Upper Gwynedd-Towamencin Municipal Authority
Towamencin Township, Montgomery County

Dear Mr. Gee:

As consulting engineer for the developer, and in response to comments expressed in your phone conversation with this office and your review letter to Mr. H. Warren Dimmig (Upper Gwynedd-Towamencin Municipal Authority) dated November 19, 1976, we are submitting the following (in duplicate):

1) Complete set of engineering plans, as last revised November 17, 1976, showing proposed drop M.H. 131.11, and noting receiving sewer permit number at point of connection.

2) Module Sheet 6-2, revised to show proposed drop M.H. 131.11.

3) Preliminary plan showing proposed Section III, with acreage data.

4) Photocopy of part of Lansdale Quadrant of U.S.G.S. (1"= 2000') with drainage area tributary to downstream end of site shaded in red.

5) Storm Water Management Data for Rock Basin Energy Dissipator, required at location (A), to decrease exist velocity of storm water to less than 3 FPS.

6) Copy of approval letter by Montgomery County Conservation District Executive Assistant, Maynard A. King, dated November 4, 1976 citing comments of District Conservationist, William Klages (also enclosed).

HERBERT H. METZ, INC.

Mr. John Gee
Re: Wm. Nash Subd. Sect. II
November 22, 1976
Page 2 of 2

I would, again, like to extend the invitation for you to contact our office directly if you should have any further comments or questions.

Very truly yours,

Clifford T. Stout

Clifford T. Stout
Herbert H. Metz, Inc.

CTS/srs

Enclosures

NOV 24 1976

November 22, 1976

Department of Environmental Resources
1875 New Hope Street
Norristown, Pennsylvania 19401

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ER-BWQ-188.1-REV. 12/75

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED 9/30/76
DATE REVISED 10/15/76

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

APPLICANT Upper Gwynedd-Towamencin Municipal Authority

LOCATION OF PROJECT: MUNICIPALITY Towamencin Township COUNTY Montgomery

DESIGN ENGINEER AND FIRM Herbert H. Metz, Jr., P.E.-Herbert H. Metz, Inc.

DESIGN ENGINEERS ADDRESS 410 Derstine Ave., Lansdale, PA ZIP CODE 19446 TELEPHONE 855-3111

DESCRIPTION OF PROJECT Sanitary Sewer extension system-William Nash Lot Subdivision Section No. 2 - To service 22 proposed single dwelling lots to be developed under phased building permit-connection control schedule per Township letter to D.E.R. dated May 14, 1976 (Exhibit "B")

A. DOCUMENTATION REQUIRED

1. HAS A CHECK FOR $25.00, PAYABLE TO THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES, BEEN INCLUDED? (NOT REQUIRED OF STATE OR FEDERAL AGENCIES) — [X] Yes [ ] No [ ] N/A

2. HAVE 2 COPIES OF THE APPLICATION, FORM H710.046, BEEN SUBMITTED? (3 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND DELAWARE RIVER BASIN). — [X] Yes [ ] No

   A. HAS THE AFFIDAVIT BEEN PROPERLY COMPLETED AND EXECUTED? — [X] Yes [ ] No

3. DOES THE APPLICATION INCLUDE THE FOLLOWING APPLICABLE MODULES:

MODULE NUMBER	TITLE	NUMBER OF PAGES	
1	GENERAL INFORMATION – SEWERAGE	9	[X] Yes
4	WASTE LOAD AND CHARACTERISTICS	3	[ ] Yes
5	GEOLOGY AND GROUND WATER INFORMATION	2	[ ] Yes
6	SEWERS AND APPURTENANCES	5	[X] Yes
7	SEWAGE PUMPING STATIONS	4	[ ] Yes
8	PUMPING FACILITIES	1	[ ] Yes
9	FLOW EQUALIZATION AND STORAGE BASINS	2	[ ] Yes
10	GRIT CHAMBERS	1	[ ] Yes
11	SCREENING AND COMMINUTING DEVICES	2	[ ] Yes
12	IMHOFF AND SEPTIC TANKS	2	[ ] Yes
13	SETTLING TANKS	2	[ ] Yes
14	EARTHEN SETTLING BASINS	2	[ ] Yes

ER-BWQ-188 (REV. 3/75)

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED 9/30/76
DATE REVISED 10/15/76

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

A. DOCUMENTATION REQUIRED – CONTINUED (THIS SHEET NOT APPLICABLE)

MODULE NUMBER	TITLE	NUMBER OF PAGES	
15	TRICKLING FILTERS	2	☐ Yes
16	AERATION TANKS OR BASINS	3	☐ Yes
17	WASTE STABILIZATION PONDS	3	☐ Yes
18	CHEMICAL TREATMENT (INCLUDING FEEDERS)	3	☐ Yes
19	MIXING AND FLOCCULATION FACILITIES	1	☐ Yes
20	SAND FILTERS	2	☐ Yes
21	DISINFECTION	2	☐ Yes
22	SPRAY IRRIGATION	1	☐ Yes
23	PHYSICAL ABSORPTION, ION EXCHANGE, AND CONTACT UNITS	2	☐ Yes
25	DEEP WELL DISPOSAL	4	☐ Yes
26	SLUDGE TREATMENT AND DISPOSAL		
	A. SEPARATE DIGESTION TANKS AND SLUDGE THICKENING TANKS	2	☐ Yes
	B. ELUTRIATION	1	☐ Yes
	C. WET OXIDATION	1	☐ Yes
	D. SLUDGE DRYING BEDS	1	☐ Yes
	E. LAND DISPOSAL OF SLUDGE	1	☐ Yes
	F. SLUDGE BASINS	1	☐ Yes
	G. FILTERS AND CENTRIFUGES	1	☐ Yes
	H. INCINERATION	1	☐ Yes

B. REQUIRED DATA

1. THE FRONT COVER OR FLYLEAF OF EACH SET OF DRAWINGS AND SPECIFICATIONS MUST BEAR THE SIGNATURE AND SEAL OF THE REGISTERED PROFESSIONAL ENGINEER, SURVEYOR BY OR UNDER WHOM PREPARED. EACH DRAWING MUST BEAR AN IMPRINT OR REASONABLE FACSIMILE OF SUCH SEAL.

ER-BWQ-188.1-REV 3/76

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED 9/30/76
DATE REVISED 10/15/76

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

NUMBER 4676424
For Department Use Only

B. REQUIRED DATA – CONTINUED

2. INFORMATION RELATIVE TO SPECIFIC PROGRAMS:

A. 2 COPIES OF DESIGNER'S PLANS, MODULES, AND SPECIFICATIONS (3 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND DELAWARE RIVER BASIN)			
B. HYDRAULIC PROFILE OR SCHEMATIC FLOW DIAGRAM FOR PROPOSED TREATMENT PLANT.			[X] N/A
C. UNITED STATES GEOLOGICAL SURVEY TOPOGRAPHICAL MAP SHOWING EXACT POINT OF DISCHARGE AND TREATMENT PLANT OR PUMP STATION LOCATION AND/OR AREA TO SEWERS.			[X] N/A
D. HAVE YOU APPLIED FOR A PUBLIC UTILITY COMMISSION CERTIFICATE OF PUBLIC CONVENIENCE?	[ ] Yes	[ ] No	[X] N A
(1) SPECIFY PUBLIC UTILITY COMMISSION APPLICATION NUMBER N/A			
(2) IS CERTIFICATE OF PUBLIC CONVENIENCE ENCLOSED? N/A	[ ] Yes	[X] No	
E. HAVE YOU APPLIED FOR APPROVAL OF STREAM ENCROACHMENT(S)?	[ ] Yes	[ ] No	[X] N/A
F. HAVE YOU APPLIED FOR DEPARTMENT OF LABOR AND INDUSTRY APPROVAL FOR FEATURES AFFECTING EMPLOYEE SAFETY?	[ ] Yes	[ ] No	[X] N/A
G. DO YOU HAVE AN AGREEMENT INDICATING APPROVAL TO DISCHARGE TO SEWER SYSTEM AND TREATMENT PLANT OF ANOTHER PERMITTEE?	[ ] Yes	[ ] No	[X] N/A
H. HAVE YOU APPLIED FOR APPROVAL OF AIR POLLUTION CONTROL FACILITIES?	[ ] Yes	[ ] No	[X] N/A
I. HAVE YOU SUBMITTED A LIST WITH NAMES, ADDRESSES, AND TITLES OF ALL PARTNERS IN THE CASE OF A PARTNERSHIP OR ALL OFFICERS IN THE CASE OF A CORPORATION, UNINCORPORATED ASSOCIATION, INCORPORATED ASSOCIATION, PARTNERSHIP, OR OTHER ENTITY (NOT MUNICIPAL)?	[ ] Yes	[ ] No	[X] N/A

3. SPECIFY THE FOLLOWING:

	TITLE/DESCRIPTION	NO. OF SHEETS	DATE
A. PLANS:	Title Plan	1	Feb. 10, 1975 Rev. Oct. 15, 1976
PLANS:	Construction Improvement Plans	2	Rev. Oct. 12, 1976
PLANS:	Plan-Profiles	2	Rev. Sept. 27, 1976

ER-SWQ-; 88.1 REV. 3/75

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: 9/30/76
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WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

B. REQUIRED DATA – CONTINUED

B. SPECIFICATIONS (IF APPLICABLE): Upper Gwynedd-Towamencin Municipal Authority
TITLE
Reference specifications and pertinences as filed at Pa. D.E.R. by Upper Gwynedd-Towamencin Mun. Auth.
NUMBER OF VOLUMES _____ DATE _____

C. OTHER (SPECIFY TYPE AND NUMBER):

3. SEAL OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW)

4. ARE THE PLANS:

A. CLEAR, LEGIBLE, AND DRAWN TO SCALE WITH NORTH ARROW INDICATED? [X] Yes [ ] No

B. WITHIN MAXIMUM SIZE OF 36 INCHES BY 60 INCHES? [X] Yes [ ] No

C. SEAL AND SIGNATURE OF PROFESSIONAL ENGINEER OR SURVEYOR RESPONSIBLE FOR THIS APPLICATION

1. SIGNATURE OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW) Herbert H. Metz, Jr., P.E.

2. SEAL OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW)

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER SEAL No. 5083-E

ER-BWQ-188.1 REV. 3/75

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: 9/30/76
DATE REVISED: 10/15/76

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION – SEWERAGE

For Department Use Only

CLASS OF CONSTRUCTION (THIS SHEET NOT APPLICABLE)
(Check all applicable blocks)
☐ NEW
☐ REPLACEMENT OF EXISTING UNIT(S)
☐ ADDITIONS AND/OR
☐ MODIFICATIONS TO EXISTING UNIT(S)

TABLE I – DESIGN LOADING DATA			Existing Facilities Design	Present Operating Load	Proposed Total Facilities Design
1. EQUIVALENT POPULATION TO BE SERVED (NO. OF PERSONS – SUBMIT CALCULATIONS)					
	A. DOMESTIC				
	B. INDUSTRIAL				
	C. TOTAL				
2. DESIGN YEAR OR PERIOD FOR OPERATING DATA					
3. RUNOFF PERIOD		(HRS)			
4. DOMESTIC WASTE FLOW DATA	A. PER CAPITA FLOW	(GPCD)			
	B. AVERAGE DAILY FLOW	(MGD)			
	C. INFILTRATION	(MGD)			
	D. RUNOFF FLOW RATE	(MGD)			
	E. MAXIMUM FLOW RATE	(MGD)			
5. INDUSTRIAL WASTE FLOW DATA	A. AVERAGE DAILY FLOW	(MGD)			
	B. MAXIMUM DAILY FLOW	(MGD)			
6. TOTAL DESIGN AVERAGE FLOW		(MGD)			

TABLE II – FACILITIES DESIGN DATA (Specify number of units)

Units	Existing	To Be Abandoned	Total Proposed	Units	Existing	To Be Abandoned	Total Proposed
1. SCREENING DEVICES				13. CHLORINE CONTACT TANK(S)			
2. GRIT CHAMBER(S)				14. DISINFECTION FACILITIES			
3. COMMINUTOR(S)				15. SEPARATE SLUDGE DIGESTORS			
4. PRE-AERATION TANKS				16. SLUDGE DRYING BEDS			
5. PRIMARY SETTLING TANKS				17. MECHANICAL SLUDGE DEWATERING			
6. IMHOFF TANK(S)				18. SLUDGE ELUTRIATION TANKS			
7. TRICKLING FILTERS				19. SLUDGE STABILIZATION TANKS			
8. INTERMEDIATE SETTLING TANKS				20. INCINERATOR(S)			
9. AERATION TANKS				21. MIXING AND FLOCCULATION TANKS			
10. FINAL SETTLING TANKS				22. OTHER (Specify)			
11 INTERMITTENT SAND FILTERS				23. OTHER (Specify)			
12. WASTE STABILIZATION POND(S)				24. OTHER (Specify)			

ER-BWQ-[illegible] REV. 3/75

DATE PREPARED 9/30/76

DATE REVISED 10/15/76

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

D. GENERAL INFORMATION

1. EXISTING COMBINED SEWERS MAKE UP 0 % OF THE TOTAL AREA SERVED BY THE SYSTEM.

2. ARE THE EXISTING SANITARY SEWERS SUBJECT TO EXCESSIVE INFILTRATION? [X] Yes [ ] No [ ] N/A

A. IF YES, SPECIFY MAJOR SOURCES OF INFILTRATION: Top brick courses in old Inglewood Area - See Liptak report of 2/16/73 - Filed with E.P.A. for correction.

B. HAS A REGULATION PROHIBITING THE ADMITTANCE OF STORM WATER FROM PAVEMENTS, ROOFS, AND OTHER SOURCES BEEN ADOPTED? [X] Yes [ ] No
(IF YES, ENCLOSE COPY.) See Exhibit "A" - Also refer to U. Gwynedd-Towamencin Mun, Auth, Rates, Rules & Regulations, construction specs. and National Plumbing Code.

C. SPECIFY STEPS TAKEN OR BEING TAKEN TO CORRECT THE INFILTRATION PROBLEM, INCLUDING DATES: [X] N/A
See Liptak Report of 2/16/73, aforementioned

3. TYPES OF INDUSTRIAL WASTES OF SPECIAL CONSIDERATION: None

4. WILL THE APPLICANT BE RESPONSIBLE FOR REPAIR AND MAINTENANCE OF SEWAGE FACILITIES FOR WHICH APPLICATION IS SUBMITTED? [X] Yes [ ] No

A. IF NO, EXPLAIN:

5. THE DISTANCE OF THIS PLANT TO THE NEAREST OCCUPIED DWELLING:

A. PRESENT _____ FEET N/A

B. PROPOSED _____ FEET

6. IF THE APPLICANT IS OTHER THAN A MUNICIPALITY OR MUNICIPAL AUTHORITY, HAS THE GOVERNING MUNICIPALITY OBJECTED TO THE PROPOSED SEWAGE TREATMENT PLANT? [ ] Yes [ ] No [X] N/A

FR-BWQ-186 1 REV 3/79

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED
9/30/76
DATE REVISED

WATER POLLUTION CONTROL
MODULE 1 -- GENERAL INFORMATION
SEWERAGE

For Department Use Only

(THIS SHEET NOT APPLICABLE)

D. GENERAL INFORMATION -- CONTINUED

A. IS THE LETTER FROM MUNICIPAL OFFICER, SIGNIFYING THE OPINION, APPENDED TO THIS APPLICATION? ☐ Yes ☐ No

7. ARE DUPLICATE TREATMENT UNITS PROVIDED WHERE REQUIRED? ☐ Yes ☐ No ☐ N/A

A. IF NO, EXPLAIN: _____

B. DO ANY BY-PASS STRUCTURES DISCHARGE TO WATERS OF THE COMMONWEALTH? (SPECIFY PLAN SHEET NUMBER(S) SHOWING BY-PASS STRUCTURES) ☐ Yes ☐ No

8. HAS AN AUXILIARY STANDBY POWER SOURCE BEEN PROVIDED? ☐ Yes ☐ No ☐ N/A

9. DOES ANY PIPING OR CONNECTION EXIST IN ANY PART OF THE TREATMENT WORKS WHICH MAY CAUSE CONTAMINATION OF THE POTABLE WATER SUPPLY? ☐ Yes ☐ No

10. IF A NON-POTABLE WATER SUPPLY IS PROVIDED, ARE ALL OUTLETS PERMANENTLY POSTED TO INDICATE WATER IS NOT SAFE FOR DRINKING? ☐ Yes ☐ No ☐ N/A

11. ARE FACILITIES PROVIDED FOR MEASURING THE SEWAGE FLOW? ☐ Yes ☐ No

12. SAFETY:

A. ARE FACILITIES PROVIDED TO EFFECTIVELY PROTECT THE OPERATOR AND VISITORS? ☐ Yes ☐ No

13. OUTFALL SEWER:

A. IS THE OUTFALL SEWER ADEQUATELY PROTECTED TO ENSURE ITS STRUCTURAL STABILITY AND FREEDOM FROM STOPPAGE? ☐ Yes ☐ No

B. IS AN OUTFALL HEAD WALL PROVIDED? ☐ Yes ☐ No ☐ N/A

C. DOES THE OUTFALL EXTEND TO THE LOW WATER MARK OF THE RECEIVING STREAM? ☐ Yes ☐ No ☐ N/A

14. HAVE PROVISIONS BEEN MADE TO PROTECT ALL STRUCTURES AGAINST FLOTATION? ☐ Yes ☐ No

15. IF THE PROJECT INVOLVES ADDITIONS TO AN EXISTING TREATMENT PLANT, DO THE SPECIFICATIONS INCLUDE A PROGRAM TO PREVENT BY-PASSING OF ANY UNIT TO WATERS OF THE COMMONWEALTH DURING CONSTRUCTION? ☐ Yes ☐ No ☐ N/A

A. SPECIFY VOLUME AND PAGE NUMBER OF SPECIFICATIONS: _____

16. SPECIFY NAMES OF MUNICIPALITIES AND POPULATION SERVED OR TO BE SERVED BY THIS PLANT: _____

ER-BWQ-188.1 REV. 3/75

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED 9/30/76
DATE REVISED

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

(THIS SHEET NOT APPLICABLE)

E. RECEIVING STREAM – CONTINUED

6. TO THE BEST OF YOUR KNOWLEDGE, WILL THE TREATED WASTE DISCHARGE ADVERSELY AFFECT:

A. DOMESTIC WATER SUPPLY?	☐ Yes	☐ No
B. BATHING?	☐ Yes	☐ No
C. STOCK WATERING?	☐ Yes	☐ No
D. FISH AND AQUATIC LIFE?	☐ Yes	☐ No
E. INDUSTRIAL WATER SUPPLY?	☐ Yes	☐ No
F. IRRIGATION?	☐ Yes	☐ No
G. BOATING AND AESTHETICS?	☐ Yes	☐ No

7. IF ANY ITEMS IN 6 ABOVE ARE ANSWERED YES, INDICATE DISTANCE TO, LOCATION OF, AND EXTENT OF ADVERSE EFFECT:

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COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: 9/30/96
DATE REVISED:

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

E. RECEIVING STREAM* (THIS SHEET NOT APPLICABLE)

1. WHAT IS THE NAME OF THE RECEIVING STREAM? _____

A. TRIBUTARY OF _____

B. TRIBUTARY OF _____

C. MAJOR DRAINAGE BASIN:

- ☐ DELAWARE
- ☐ SUSQUEHANNA
- ☐ POTOMAC
- ☐ LAKE ERIE
- ☐ GENESEE
- ☐ ALLEGHENY
- ☐ MONONGAHELA
- ☐ OHIO

2. DESCRIBE THE EXACT POINT OF DISCHARGE:

_____ DEG, _____ MIN, _____ SEC LATITUDE

_____ DEG, _____ MIN, _____ SEC LONGITUDE

A. WATERSHED AREA ABOVE POINT OF DISCHARGE IS

_____ SQUARE MILES.

3. WHAT IS THE:

A. MINIMUM 7-CONSECUTIVE-DAYS FLOW OCCURRING ONCE IN 10 YEARS?

_____ CUBIC FEET PER SECOND.

B. MINIMUM STREAM FLOW: _____

C. ABOVE FLOWS ARE BASED ON:

- ☐ MEASUREMENTS
- ☐ ESTIMATES

_____ YEARS OF RECORD

4. IS THE TREATMENT PLANT SUBJECT TO FLOODING? ☐ Yes ☐ No

5. THE PROBABILITY OF THE TREATMENT PLANT BEING OUT OF SERVICE DUE TO FLOODING IS ONCE IN _____ YEARS.

A. LIST BRIEFLY THE METHODS USED FOR FLOOD PROTECTION: _____

* *Attach U.S. Geological Survey 7.5' or 15' Quadrangle Map showing exact points of discharge.*

ER-BWQ-188.8(REV. 9/78) COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: 9/30/76
DATE REVISED:

WATER POLLUTION CONTROL

For Department Use Only

MODULE 6 – SEWERS AND APPURTENANCES

CLASS OF CONSTRUCTION (Check All Applicable Blocks)
[ ] NEW SYSTEM
[X] EXTENSION(S) TO EXISTING SYSTEM
[ ] REPLACEMENT OF EXISTING SYSTEM

TABLE I – DESIGN FLOW AND LOADING INFORMATION

1. POPULATION TO BE SERVED	INITIAL	DESIGN	DESIGN YEAR
	28 (Jan. 1977)	77	1977

2. AREA TO BE SERVED	ACRES (INITIAL)
Residential	13
TYPE OF AREA (Residential, Commercial, Etc.)	ACRES (FUTURE)
Residential	13

3.			
A. LATERALS AND SUB-MAIN SEWERS	(GPCD)	400
B. MAIN AND TRUNK SEWERS	(GPCD)	N/A
C. INTERCEPTORS	(GPCD)	N/A
(1) MEASURED DRY-WEATHER FLOW	(%)	N/A
(2) ESTIMATED DRY-WEATHER FLOW	(%)	N/A

D. IF ANY VALUES LESS THAN PRESCRIBED IN MANUAL, EXPLAIN: None

4. DESIGN FLOW DATA	GPCD	MGD
A. AVERAGE DAILY FLOW	100	.0077
B. INFILTRATION		incl. in A
C. MAXIMUM INDUSTRIAL WASTE FLOW		N/A
D. TOTAL DESIGN FLOW		.0077
E. MAXIMUM FLOW RATE		.0308

TABLE II – GENERAL DESIGN

PIPE DIAMETER (IN.)	MINIMUM SLOPE (%)	MAXIMUM SLOPE (%)	MAXIMUM VELOCITY (FPS)	MAXIMUM FLOW (MGD)	MAXIMUM DISTANCE BETWEEN MANHOLES (FT.) SEWERS 15 IN. OR LESS	MAXIMUM DISTANCE BETWEEN MANHOLES (FT.) SEWERS 18 IN. TO 30 IN.	TYPE OF SEWER MATERIAL	"N" VALUE
8"	0.5	1.71	4.8*	1.0*	395		A.C.P.	.013

*Full Flow (USE ADDITIONAL SHEETS IF NECESSARY)

TABLE III – CRITICAL DATA (No Critical Sections)

PLAN SHEET NUMBER	MANHOLE NUMBER FROM	MANHOLE NUMBER TO	SEWER PIPE SIZE (IN.)	SEWER SLOPE (%)	POPULATION SERVED	TOTAL DESIGN FLOW (MGD)	SEWER FLOWING FULL VEL. (FPS)	SEWER FLOWING FULL CAP. (MGD)	MAXIMUM FLOW VELOCITY (FPS)
				(No Critical Sections)					

ER-SWG-188.6/REV. 3/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED 9/30/76
DATE REVISED 11/17/76

WATER POLLUTION CONTROL

For Department Use Only

MODULE 6 – SEWERS AND APPURTENANCES

A. GENERAL DESIGN

1. ARE THE PROPOSED SEWERS DESIGNED AS SEPARATE SANITARY SEWERS? [X] Yes [ ] No
   A. IF NO, EXPLAIN IN DETAIL, INCLUDING THE POSSIBLE EFFECTS UPON WATER COURSES.
   N/A

2. ARE THE PROPOSED SEWERS DEEP ENOUGH TO SERVE ALL ADJACENT BASEMENTS? [X] Yes [ ] No
   A. IF NO, EXPLAIN. N/A

3. ARE THERE ANY OVERFLOWS OR BYPASSES OTHER THAN FROM PUMP STATIONS? [ ] Yes [X] No
   A. IF YES, SPECIFY PLAN SHEET(S) WHERE SHOWN. N/A

4. WHERE SMALLER SEWERS JOIN LARGER ONES, HAVE THE INVERTS OF THE LARGER SEWERS BEEN LOWERED SUFFICIENTLY TO MAINTAIN THE SAME ENERGY GRADIENT? [ ] Yes [ ] No [X] N/A

5. SPECIFY THE TYPE OF LEAKAGE TEST (INFILTRATION AND/OR EXFILTRATION) AND THE LIMIT TO BE USED, PREFERABLY IN TERMS OF GALLONS PER INCH OF PIPE DIAMETER PER MILES PER DAY. (INDICATE VOLUME AND PAGE NUMBER OF SPECIFICATIONS.)

   TYPE AND LIMITS: Infiltration & Exfiltration---200 gal. per inch pipe diam. per mile per day (Upper Gwynedd-Tow. Mun. Auth. Spec.)

6. HAVE PROVISIONS BEEN MADE TO PROTECT SEWERS AT VELOCITIES OF OVER 15 FEET PER SECOND? [ ] Yes [ ] No [X] N/A
   A. ARE SEWERS SECURED WITH CONCRETE ANCHORS (OR EQUAL) SPACED AS REQUIRED? [ ] Yes [ ] No [X] N/A

7. ARE MANHOLES PROVIDED AT ALL CHANGES IN SIZE, GRADE, ALIGNMENT, AND SEWER INTERSECTIONS? [X] Yes [ ] No

8. ARE DROP MANHOLES PROVIDED WHERE THE ENTRANCE SEWER INVERT IS 24 INCHES OR MORE ABOVE MANHOLE INVERT? [X] Yes [ ] No

9. ARE WATERTIGHT COVERS USED WHERE MANHOLES ARE SUBJECT TO FLOODING BY STREET RUNOFF OR HIGH WATER? [X] Yes [ ] No

ER-BWQ-188.6 REV. 3/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

MODULE 6 – SEWERS AND APPURTENANCES

DATE PREPARED: 9/30/76
DATE REVISED:

For Department Use Only

A. GENERAL INFORMATION – CONTINUED

10. ARE SEWERS IN STREAMS PROTECTED WITH AT LEAST 1 FOOT COVER IN ROCK AND 3 FEET COVER IN OTHER MATERIAL? ☐ Yes ☐ No ☒ N/A

11. ARE SEWERS IN STREAMS CONSTRUCTED TO REMAIN WATERTIGHT AND IN ALIGNMENT? ☐ Yes ☐ No ☒ N/A

12. DOES THE APPLICATION INVOLVE CAPPED SEWERS? ☐ Yes ☒ No

A. IF YES, SPECIFY PLAN SHEET NUMBER. N/A

13. HOW MANY INVERTED SIPHONS ARE INCLUDED IN THIS DESIGN? None

14. IF SIPHONS ARE INCLUDED, SPECIFY THE FOLLOWING:

	SIPHON:	SIPHON:	SIPHON:
A. NUMBER OF BARRELS			
B. MINIMUM PIPE SIZE			
C. MINIMUM VELOCITY AT AVERAGE FLOW			

D. HAS PROVISION BEEN MADE FOR FLUSHING, RODDING, AND MAINTENANCE? ☐ Yes ☐ No

15. IS THERE ANY CONNECTION BETWEEN THE SEWER AND A PUBLIC OR PRIVATE POTABLE WATER SUPPLY OR APPURTENANCES? ☐ Yes ☒ No

16. ARE ANY WATER SUPPLY SOURCES, PUBLIC OR PRIVATE, LOCATED WITHIN 200 FEET OF THE SEWERS? ☐ Yes ☒ No

A. IF YES, SPECIFY PLAN SHEET(S) ON WHICH SOURCES ARE SHOWN. N/A

B. IF YES, WILL SEWERS BE ENCASED OR WATERTIGHT? N/A ☐ Yes ☐ No

17. ARE SEWERS AT LEAST 10 FEET HORIZONTALLY FROM WATER LINES AND/OR AT LEAST 18 INCHES BELOW THE WATER LINE? ☒ Yes ☐ No

18. IF THE PROPOSED FACILITY WILL DISCHARGE TO THE SEWER SYSTEM AND TREATMENT PLANT OF ANOTHER MUNICIPALITY, HAVE APPROPRIATE AGREEMENTS BEEN REACHED? ☐ Yes ☐ No ☒ N/A

A. IS THE AGREEMENT A CERTIFIED AGREEMENT? ☐ Yes ☐ No ☒ N/A

B. IS THE AGREEMENT A LETTER OF INTENT? ☐ Yes ☐ No ☒ N/A

C. HAVE DUPLICATE COPIES BEEN ENCLOSED? N/A ☐ Yes ☐ No

19. DO THE EXISTING SEWERS TO WHICH THE PROPOSED SEWERS WILL CONNECT HAVE ADEQUATE CAPACITY TO CONVEY THE ADDITIONAL FLOW? ☒ Yes ☐ No ☐ N/A

ER-SWQ-188.6(REV. 3/75) COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED 9/30/76
DATE REVISED

WATER POLLUTION CONTROL

MODULE 6 – SEWERS AND APPURTENANCES

For Department Use Only

A. GENERAL INFORMATION – CONTINUED

20. ON THE PLANS, INDICATE THE PERMIT NUMBER OF EXISTING SEWER AT EACH PROPOSED POINT OF CONNECTION AND THE NAME OF THE PERMITEE; SPECIFY PLAN SHEET NUMBER(S) ON WHICH INDICATED. ☐ N/A
M.H. #131.10, Conestoga Lane, U. Gwy.-Tow. Mun. Auth. System – Permit #765513 - Connecting to

21. WILL THERE BE A PUMP STATION INVOLVED IN RECEIVING SEWAGE FROM THE SEWER EXTENSION? ☐ Yes ☒ No ☐ N/A

A. IF YES, SPECIFY PRESENT AND DESIGN FLOWS OF PUMPING STATION. N/A

22. RECEIVING SEWAGE TREATMENT PLANT (FILL IN FOR EXTENSION(S) TO EXISTING SYSTEM ONLY)

A. OWNER OF PLANT Upper Gwynedd-Towamencin Municipal Authority

B. NAME OF PLANT U. Gwy.-Tow. Mun. Auth. Wastewater Treatment Plant

C. DISCHARGE DATA

	WASTE FLOW (MGD)	SOLIDS SUSPENDED (#/DAY)	SOLIDS SETTLEABLE (ML/L)	BOD 5 DAY 20°C (#/DAY)
(1) ALLOWABLE LOAD TO STREAM AUTHORIZED UNDER PRESENT PERMIT	2.5 (1) by Nov./76	376	None stated	
(2) PRESENT LOAD TO STREAM FROM TREATMENT PLANT	1.280 (2)	214 (20 ppm)	0.4 ave.	160 (15 ppm)
(3) ADDITIONAL LOAD TO STREAM EXPECTED DURING THE NEXT FIVE YEARS FROM EXISTING SYSTEM	0.1694 (3)	30	0.4	21
(4) ADDITIONAL LOAD TO STREAM DURING THE NEXT FIVE YEARS FROM PROPOSED EXTENSION	.0077	1.5	0.4	1.0
(5) TOTAL ANTICIPATED LOAD TO STREAM IN NEXT FIVE YEARS (2+3+4)	1.457	245.5	0.4	182

D. TREATMENT PLANT OPERATING EFFICIENCY

*May, 1976 Plant Operations Report

	SOLIDS SUSPENDED (%)	SOLIDS SETTLEABLE (%)	BOD 5 DAY 20° C (%)
* (1) PRESENT TREATMENT PLANT	88.9	97.7	91
(2) AFTER INITIAL LOAD FROM PROPOSED EXTENSION	88.9	97.7	91
(3) IN FIVE YEARS	88	98	90

23. WILL THE LOAD UNDER 22.B.(5) ABOVE PRODUCE AN EFFLUENT THAT WILL HAVE AN ADVERSE EFFECT UPON THE RECEIVING STREAM? ☐ Yes ☒ No

Notes (1), (2), (3) - See Supplemental Sheet 6-4

4676424

SUPPLEMENTAL SHEET 6-4

NOTES:

(1) 1.5 MGD present, plus 1.0 MGD current expansion cap. = 2.5 MGD.

(2) Ave. Daily Flow: 4/1 to 5/31/76

(3) Incl. present pending Korman Corp. Application

ER-BWQ-188.6(REV. 3/75

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

MODULE 6 – SEWERS AND APPURTENANCES

DATE PREPARED 9/30/76
DATE REVISED

For Department Use Only

A. GENERAL INFORMATION – CONTINUED

A. IF YES, EXPLAIN N/A

B. IF APPLICANT IS NOT OWNER OF THE RECEIVING SEWAGE TREATMENT PLANT, INDICATE SOURCE OF INFORMATION.

N/A

TO BE COMPLETED BY THE REGIONAL SANITARY ENGINEER

1. WILL THE LOAD UNDER 22.B.(5) MEET THE PERMIT REQUIREMENTS? ☐ Yes ☐ No

   A. WILL THE LOAD UNDER 22.B.(5) CAUSE POLLUTION OF THE RECEIVING STREAM? ☐ Yes ☐ No

2. IS THERE ANY QUESTION AS TO WHETHER THE LOAD IS NOW CAUSING OR WILL CAUSE POLLUTION? ☐ Yes ☐ No

   A. IF YES, COMPLETE A POLLUTION REPORT.

3. IS THE TREATMENT PLANT IN COMPLIANCE? ☐ Yes ☐ No

Other:

(1) 1.5 MGD present, plus 1.0 MGD current expansion cap. = 2.5 MGD.

(2) Ave. Daily Flow: 4/1 to 9/30/76

(3) Incl. present pending Korman Corp. Application

SUPPLEMENTAL SHEET 6-B

EXCERPT from Rules and Regulations of
TOWAMENCIN TOWNSHIP PLUMBING CODE

STORM WATER DRAINS

1101. DRAINAGE OF YARDS, AREAS AND ROOFS - All roofs and paved areas, yards, courts and court yards may be drained into the stormwater sewer system but not into the sewers intended for sewage only.

Where there is no storm-water sewer accessible, such connections may discharge into the public gutter, unless otherwise directed by the proper authorities however, in no case shall water from said sources drain over the surface of side walks nor be allowed to damage any neighbors property.

EXHIBIT "A"

WATER POLLUTION CONTROL

MODULE 6 – SEWERS AND APPURTENANCES

A. GENERAL INFORMATION – CONTINUED

A. IF YES, EXPLAIN N/A

B. IF APPLICANT IS NOT OWNER OF THE RECEIVING SEWAGE TREATMENT PLANT, INDICATE SOURCE OF INFORMATION.

N/A

EXHIBIT "A"

Henry S. Conrey, Inc.
Division of Chester Valley Engineers
Civil Engineers & Surveyors
Post Office Box 447
159 West Lancaster Avenue
Paoli, Pa.

ADDENDA
TO
TOWAMENCIN TOWNSHIP
SANITARY SEWER SPECIFICATIONS
1973

ITEM There shall be added the following item

STREAM PROTECTION - The work shall be carried out in such a manner to prevent siltation of any streams and/or waterways.

The Contractor shall submit a written statement describing proposed construction procedures; upon a review of this statement the Engineer may prescribe certain facilities which will prevent erosion and siltation and provide for a satisfactory means to carry off surface waters.

January 1, 1973

4878424

BOARD OF SUPERVISORS
TOWAMENCIN TOWNSHIP
1655 Sumneytown Pike
Box 99 Kulpsville, Pa. 19443
Phone (215) 368-7602

May 14, 1976

Dept. of Environmental Resources
750 East Johnson Highway
Norristown, Pennsylvania 19401

Attn: Mr. A. M. Spinelli, Jr.

Gentlemen:

Our new treatment plant project is now under construction and Accelerated Stage 1 (to 2.5 MGD) is scheduled for completion in six months.

During the last eight months we have submitted planning modules for the following single-family house developments:

Wm. Nash - Weikel Road - 22 lots (10/75)
Anthony M. DiLucia, Inc. - Reinert Road - 46 lots (10/75)
Korman Corporation - Morris Road - 69 lots (5/76)

During 1975 two developments were issued sewer extension permits by D.E.R.:

Bremen Woods - Allentown Road - 28 lots
Lapp and Alderfer - Keeler Road - 72 lots

Due to the uncertainty of schedule for treatment plant construction the township has been limiting building permits to these and other prior approved developments and will continue to do so until actual added capacity is available.

It is urgent, however, to the economy of the "waiting" developers and to the budget of the Authority (which has been affected by the past two-year building stoppage) that these modules be processed as soon as possible so that new sanitary sewers may be constructed. Today's market also requires time to fund and begin such projects. The authority must begin payments on the new construction this month.

Exhibit "8"

The Board has also received bids and will shortly resume work to be completed this summer on correction of the deteriorated brick manholes in the Inglewood area. The infiltration will be significantly reduced by this operation although the infiltration/inflow program will consume two years. This would provide a safety valve in the event plant construction falls behind schedule.

/bgt

c.c. Engineer
Solicitor

Schedule of Occupied Dwellings

	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	
22-Nash					2	3	2	1	2	2	1	etc.
46-DiLucia					3	2	2	2	1	2	2	etc.
69-Korman					3	2	3	3	3	3	4	etc.
Stage 1 Contr.					ADDED 1 MGD →							

Very truly yours,

Joseph W. Kapusta
Sec/Mgr

/bgt

c.c. Engineer
Solicitor

BOARD OF SUPERVISORS
TOWAMENCIN TOWNSHIP
1655 Sumneytown Pike
Box 99 Kulpsville, Pa. 19443
Phone (215) 368-7602

Upper Gwynedd-Towamencin Municipal Authority

KRIEBEL ROAD ◆ R.D. 2 ◆ LANSDALE, PA. ◆ 19446

(215) 855-8165

May 19, 1976

Department of Environmental Resources
750 East Johnson Highway
Norristown, Pennsylvania 19401

ATTN: Mr. Michael L. Simon, Sanitarian

Dear Mr. Simon:

This letter is to inform you that we have awarded contracts 01 and 03 for accelerated Stage 1 construction of our new wastewater treatment plant. We estimate the 1 MGD added capacity for completion in November 1976.

Very truly yours,

H. W. Dimmig,
Chairman

HWD/mes

copies: Board
Consultant
Twp. Engineer

4676424

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF ENVIRONMENTAL RESOURCES

750 East Johnson Highway
Norristown, Pennsylvania 19401
215 631-2280

July 29, 1976

Mr. Joseph Kapusta
655 Sumneytown Pike
Box 99
Kulpsville, Pa. 19443

Re: William E. Nash Subdivision
No. 1-46949-003-4

Dear Mr. Kapusta:

The above subdivision planning module has been reviewed by this office in conjunction with the Bureau of Water Quality Management.

We concur that the proposed supplement to the Towamencin Township official plan meets the Requirements of Chapter 71, Section 71.15 of the Pennsylvania Department of Environmental Resources Rules and Regulations; and is hereby approved. In accordance with this Chapter, the Department of Environmental Resources holds Towamencin Township responsible for implementing the supplement as per the approved module.

If you have any questions, please contact this office.

Very truly yours,

Michael L. Simon
Sanitarian
Montgomery County

MLS:mc/jt

cc: Simon
Ed Prout
William Nash

NARRATIVE REPORT

EROSION AND SEDIMENTATION CONTROL PLAN
FOR
22-LOT SUBDIVISION DEVELOPMENT

FOR

WILLIAM NASH, SECTION II
TOWAMENCIN TOWNSHIP, MONTGOMERY COUNTY, PA.

OCTOBER 13, 1976

1. GENERAL DESCRIPTION OF SITE LOCATION

The subject site is a 13± Acre tract known as William Nash Subdivision, Section II (of III). Situate in Towamencin Township, the tract is bordered on the Northeast by Allentown Road (L.R. 46043), on the Southeast by the approved Section I of said subdivision project (fronting on Weikel Road, T-387), on the Southwest by an existing residential development known as "Towamencin Colonial Village", and on the North by a tributary of the Towamencin Creek across from which is the future proposed Section III of said subdivision project.

The Section II lot subdivision plan comprises 22 single-dwelling lots ranging in size from 20,019 to 30,898 square feet. Access to the tract lots will be by proposed extension of existing township roads, Conestoga Lane and Salem Way.

2. GENERAL DESCRIPTION OF STORM WATER COLLECTION AND CONTROL

The storm water pipe and inlet collection system was designed using 25-year storm frequency criteria. Inlets and storm sewers have been planned for placement at appropriate critical locations along the streets' frontage and on the site and adjoining drainage easements to collect and convey storm runoff to existing and natural storm sewers and water courses serving the site and vicinity.

Energy-dissipating devices are designed for proposed storm water outlets for release at reduced velocities.

3. GENERAL DESCRIPTION OF ACCELERATED EROSION CONTROL

As hereinafter described and as shown and noted on the Erosion and Sedimentation Control Plan, and in the following (Item #8) construction control stage sequence, the following erosion control procedures and devices shall be employed.

The streets shall be graded and crushed stone base course applied, and curbing placed as soon as possible, to prevent erosion of the sub-grade. During street grading, interceptor dikes, filter berms and filter inlets shall be constructed at appropriate intervals to minimize gullying and washing, and siltation in pipes and water courses.

Graded slopes, on-lot sedimentation control features and other critical disturbed areas shall be temporarily seeded following earth-moving procedures.

4676424

Rear-of-lot belt areas not significant to the progression of construction of houses and improvements and drainage controls shall be left undisturbed until lawn grading phase of finish construction.

4. GENERAL DESCRIPTION OF SEDIMENTATION CONTROL

Protection during construction will be provided by controlled-flow interceptor diversion berms, constructed with levelling devices at the outlet end.

Interceptor dikes and stone filter inlets shall be employed, during specific construction phases at appropriate spaced locations across or along graded rights-of-way, such as noted on the Erosion and Sedimentation Control Plan.

Upon completion of construction, the temporary diversions and filter inlets shall be removed and the remaining areas re-graded and seeded or paved.

5. SANITARY SEWERAGE FACILITIES

Public sanitary sewerage facilities are proposed to serve this development, with planned sanitary sewer extensions to connect and discharge into the existing Upper Gwynedd-Towamencin Municipal Sewer Authority Sanitary Sewer System via a proposed gravity sewer connection to existing Authority manhole #131.10.

Collected sewage will be conveyed by the Authority system for treatment at the Upper Gwynedd-Towamencin Municipal Sewer Authority plant.

6. TOPOGRAPHIC AND GEOLOGIC FEATURES

The topography shown on the plans is based on actual physical ground surveys, and elevation data is based on U.S.G.S. and Upper Gwynedd-Towamencin Municipal Sewer Authority datum. The soils information is taken from Soil Conservation Service and Montgomery County Soil Survey data and is indicated on the Erosion and Sedimentation Control Plan and supporting data.

7. HYDROLOGIC RUNOFF COMPUTATIONS

The Montgomery County Soil Conservation Service Erosion and Sedimentation Control Handbook and Soils Conservation Engineering Field Manual were used as references.

4676424

8. STAGING OF EARTHMOVING ACTIVITIES

a. Clear and grub street rights-of-way and building sites.

b. Available topsoil shall be removed and stockpiled for re-use in finish grading. Should be stockpiled or windrowed down-slope from construction area where feasible.

c. Juncture portions of proposed roads with existing roads are to be graded and stone ballast placed, with a ballast over-berm formed across the throat of the junction as an erosion and sediment control deterrent and stabilization device for protection of the existing roadways.

d. Rough grade roadways to proposed sub-grade elevation gradient and cross-section.

e. Install storm sewers and sanitary sewers and appurtenant structures. Install all underground utilities. Direct surface runoff to completed storm drainage facilities by constructed temporary interceptor dikes and filter inlets.

f. Temporarily seed all disturbed soil banks with rye grass.

g. Construct buildings, fine grade streets and place stone base course. (On-lot sedimentation control measures are to be constructed prior to improvements and house construction.)

h. Finish grade and establish permanent seeding as soon as possible thereafter, in building construction areas. Immediately following removal of temporary erosion and sedimentation control structures, grade and permanently seed these areas.

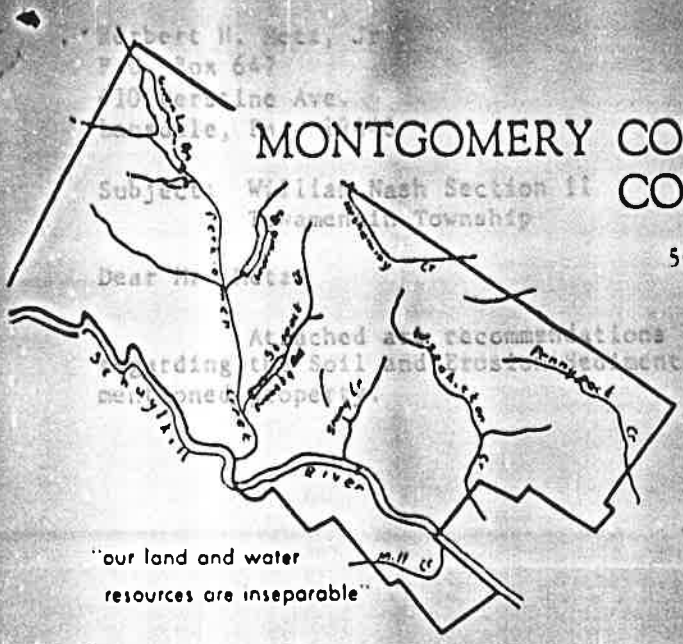
SANITARY SEWER DESIGN ANALYSIS

HERBERT H. METZ, INC. SHEET
OCT. 12, 1976

WILLIAM NASH SUB-DIVISION MUNICIPALITY TOWAMENCIN TOWNSHIP COUNTY MONTGOMERY

T	M.H. to M.H	LENGTH (FEET)	INVERT/INVERT	FALL (FEET)	SLOPE (FT PER FT)	CONNECTIONS INCREM'T	CONNECTIONS TOTAL	POPULATION @3.5/E.D.U	FULL FLOW M.G.D. @ 100 SPEED	PIPE n = 0.013	DES
AY	131.112		300.50								
	131.11	146	298.00	2.50	0.0171	2	2	7.0	0.0028		
							2				
	131.11		293.00								
	MH 131.10	262	290.55	2.45	0.0094	0	22	77.0	0.0308		
AY	131.111		295.06								
	131.11	391	293.10	1.96	0.0050	9	9	31.5	0.0126		
							9				
A	131.13		296.50								
	131.12	380	294.60	1.90	0.0050	10	10	35.0	0.0140		
	131.12		294.50								
	131.11	160	293.10	1.40	0.0088	1	11	38.5	0.0154		
							+ 2	FROM PROP. MH 131.112			
							+ 9	FROM PROP. MH 131.111			
							22				
	131.11		293.00								
G-T	MH 131.10	262	290.55	2.45	0.0094	0	22	77.0	0.0308		

46 76 124



"our land and water resources are inseparable"

MONTGOMERY COUNTY CONSERVATION DISTRICT

5th Floor, Court House, Norristown, Pa. 19404
Phone: 275-5000 (Ext. 257)

November 4, 1976

Herbert H. Metz, Jr.
P.O. Box 647
410 Derstine Ave.
Lansdale, Pa. 19446

Subject: William Nash Section II
Towamencin Township

Dear Mr. Metz:

Attached are recommendations from the Soil Conservation Service regarding the Soil and Erosion Sedimentation Control Plan for the above mentioned property.

Sincerely,

Maynard A. King
Executive Assistant

MAK:dvs

CC: Towamencin Twp. Engineer

Cooperating with the following Agencies and Organizations: U.S. Soil Conservation Service; Pa. Dept. of Environmental Resources; Penn DOT; Cooperative Extension Service; Farmers Home Administration; Pa. Fish and Game Commissions; County Planning Commission; Agricultural Stabilization and Conservation Service; Bucks County Division of Natural Resources; Pennypack, Perkiomen and Wissahickon Watershed Associations; Citizens' Council of Montgomery County.

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
1725 Markley Street, Norristown, Penna. 19401

Review of Erosion and Sedimentation Control Plan for 22 lot subdivision, William Nash. Section II. This Erosion and Sedimentation Control Plan is adequate to control erosion during and after construction.

Sincerely,

Bill Klages
Bill Klages
District Conservationist

November 2, 1976

Mr. Maynard King
Montgomery County Conservation District
5th floor, Court House
Norristown, Penna. 19404

Re: William Nash Section II
Towamencin Township

Dear Mr. King;

Review of Erosion and Sedimentation Control Plan for 22 lot subdivision, William Nash. Section II. This Erosion and Sedimentation Control Plan is adequate to control erosion during and after construction.

Sincerely,

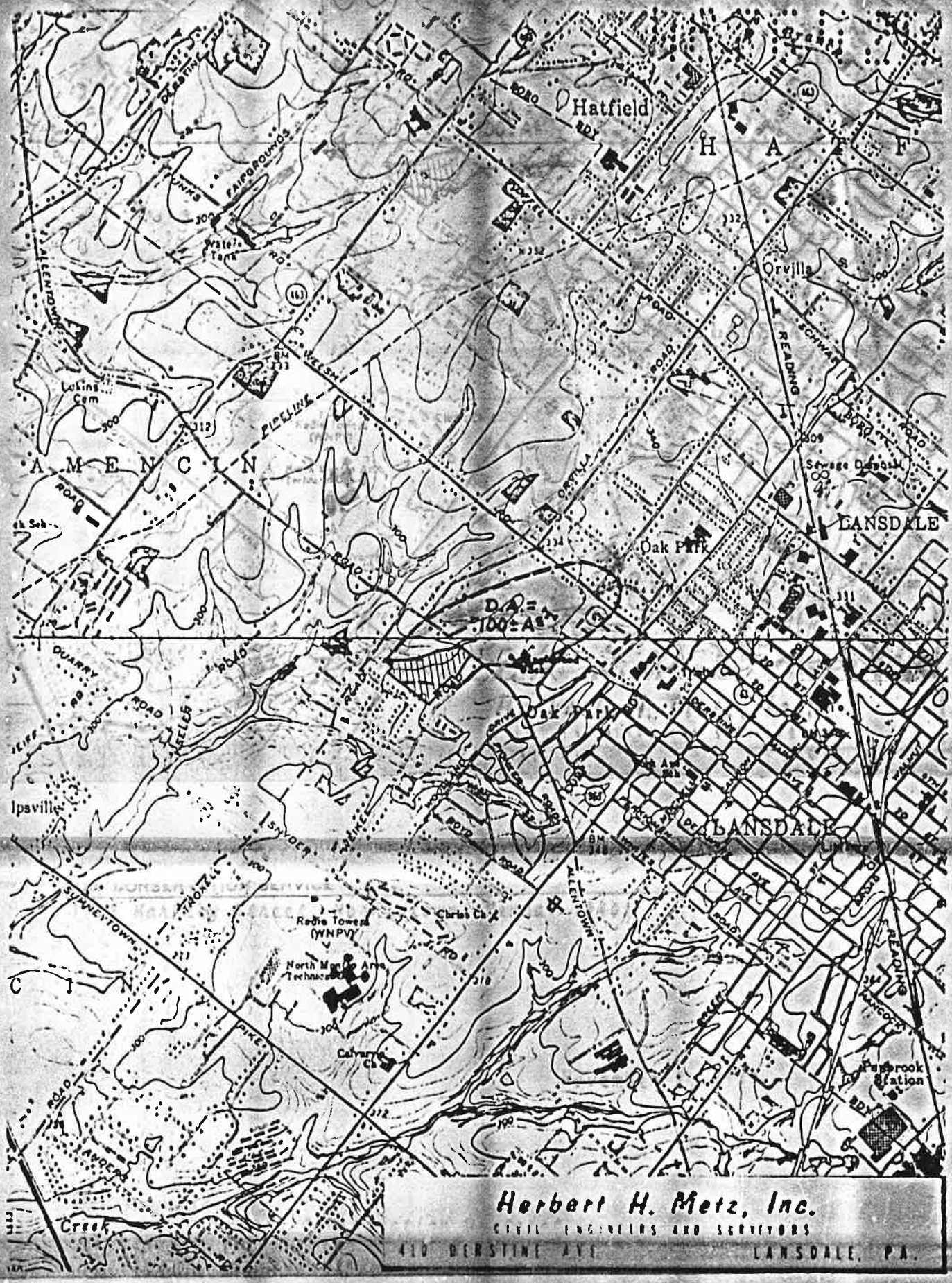
Bill Klages
Bill Klages
District Conservationist

BK/saw

Enclosure

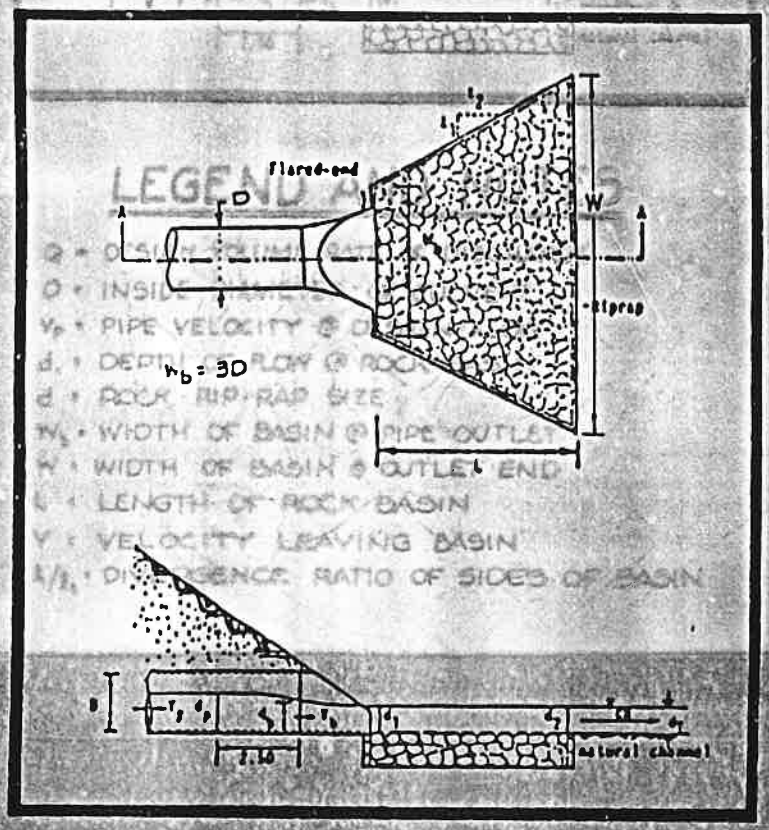
MONTGOMERY COUNTY
CONSERVATION DISTRICT
5th floor, Court House, Norristown, Pa. 19404
Phone: 278-3600 (Ext. 23)

November 2, 1976


Hatfield
H A T F
Orvilla
READING
SCHWAR
Sewage Disposal
LANSDALE
Oak Park
A M E N C L N
PIPELINE
Lutins Cem
Water Tank
FAIRGROUNDS
ALLENTOWN
WELSH
ROAD
QUARRY
KEELER
Ipsville
SUMNEYTOWN
TROXELL
ISAYOCK
Radio Towers (WNPV)
North Montgomery Area Technical
Calvary Ch
Christ Ch
PIKE
Creek
Penrook Station
D.A. = 100± Ac.
Herbert H. Metz, Inc.
CIVIL ENGINEERS AND SURVEYORS
410 BERSTINE AVE
LANSDALE, PA.

ROCK BASIN ENERGY DISSIPATORS

STORM WATER MANAGEMENT DESIGN CRITERIA



LEGEND AND NOTES

- Q = DESIGN VOLUME RATE OF DISCHARGE
- D = INSIDE DIAMETER OF CULVERT
- V_p = PIPE VELOCITY @ DESIGN FLOW
- d_1 = DEPTH OF FLOW @ ROCK BASIN
- d = ROCK RIP-RAP SIZE
- W_b = WIDTH OF BASIN @ PIPE OUTLET
- W = WIDTH OF BASIN @ OUTLET END
- L = LENGTH OF ROCK BASIN
- V = VELOCITY LEAVING BASIN
- l_1/l_2 = DIVERGENCE RATIO OF SIDES OF BASIN

WILLIAM NASH - SECTION

RESIDENTIAL LOT SUBDIVISION TR
TOWAMENCIN TOWNSHIP, MONTGOMERY COU

PIPE OUTFALL LOCATION	(A)
Φ	36"x 22"
Q_D	15 CFS
Q_F	16 CFS
V_o	3.6 FPS
V/V_p	0.5 (NO SILL)
V_p	7.1.8 FPS
$Q/D^{2.5}$	$\frac{15}{9.88} = 1.52$
$d_1/D_{MAX.}$	0.25
d_1	0.25 x 2.5 = 0.63'
D/d	3
d	$\frac{30}{3} = 10"$
L/D	7.45 (no scour)
L	18.6'
l_1/l_2	1:3
W	19.9'

NOVEMBER 1976

Herbert H. Metz, Inc.
CIVIL ENGINEERS AND SURVEYORS
410 DERSTINE AVE. LANSDALE,

ER-BWQ-43 Rev. 2-73

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
Bureau of Water Quality Management

For Department Use Only

INTERNAL REVIEW AND RECOMMENDATIONS

REGIONAL ENGINEER'S REVIEW

NAME OF APPLICANT: Upper Gwynedd-Towamencin Municipal Authority
PROJECT LOCATION: Towamencin Township Montgomery County
APPLICATION NUMBER: 4676424

BRIEF DESCRIPTION OF PROJECT: This application requests approval for the construction of a sanitary sewer extension to serve William Nash Lot Subdivision Section No. 2, located on Allentown Rd. between Troxel Rd. and Weikel Rd. The storm water management aspects of this application have been reviewed and approved by the Regional Hydraulic Engineer.

DISCUSSION (Use Additional Sheets If Necessary): Sewage from the proposed sewer extension will be conveyed to the Upper Gwynedd-Towamencin Sewage Treatment Plant via existing Upper Gwynedd-Towamencin sewers. The final effluent will be afforded tertiary treatment before discharge to Towamencin Creek. The proposed sewer extension will serve 28 people initially and 7 ultimately. The soil erosion and sedimentation control plan has been reviewed and approved by the Conservation District. The William Nash Subdivision is divided into three sections. Section No. 1 is already constructed. Section No. 3 is proposed and has no aspects related to section No. 2.
There are no encroachments involved in this application.

CURRENT ESTIMATE OF COMPLETION DATE OF PROJECT (Industrial Wastes Only)

RECOMMENDATION AND ACTION

APPROVAL – RELEVANT LAWS, REGULATIONS, STANDARDS, AND POLICIES HAVE BEEN COMPLIED WITH:

Issue By Region	Issue By Central Office	Refuse	Signature	Date
☒	☐	☐	REVIEWING ENGINEER John R Lee	12/7/76
☐	☐	☐	FACILITIES ENGINEER	
☒	☐	☐	REGIONAL ENGINEER C F Bauermeister	12/7/76
	☐	☐	DIV. FACILITIES ENGINEER	
	☐	☐	DIVISION DIRECTOR	
		☐	BUREAU DIRECTOR	

PERMIT CONDITIONS:
1. STANDARD Sewerage (1972)
1 thru 9, 11 thru 14, 21, 22, 30, 31
Erosion Control (1973)

2. SPECIAL (Use Additional Sheets If Necessary)

Recording of Permit: Montgomery County

ER-BWQ-15 Rev. 9/73

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT NO. 4676424

A. PERMITTEE (Name and Address)
Upper Gwynedd-Towamencin Municipal Auth.
2225 Kriebel Road
Lansdale, M.R., PA 19446

B. PROJECT LOCATION
Municipality: Towamencin Township
County: Montgomery

C. TYPE OF FACILITY OR ESTABLISHMENT
Sanitary Sewer Extension

D. NAME OF MINE, OPERATION OR AREA SERVED
William Nash Subdivision Section No. 2

E. THIS PERMIT APPROVES

1. Plans For Construction of
   - a. [X] SEWERS AND APPURTENANCES
   - b. [ ] SEWAGE TREATMENT FACILITIES
   - c. [ ] MINE DRAINAGE TREATMENT FACILITIES
   - d. [ ] INDUSTRIAL WASTE TREATMENT FACILITIES
   - e. [ ] OUTFALL A HEADWALL
   - f. [ ] STREAM CROSSING

2. The Discharge of: N/A
   - a. [ ] TREATED
   - [ ] UNTREATED
   - b. [ ] INDUSTRIAL WASTE
   - [ ] MINE DRAINAGE
   - [ ] SEWAGE

3. The Operation of: N/A
   - [ ] MINE MAXIMUM AREA TO BE DEEP MINED
   - [ ] DAM

4. An Erosion and Sedimentation Control Plan [X] PROJECT AREA IS 13 ACRES.

5. Nature of Discharge or Impoundment: N/A
   - [ ] DISCHARGE TO SURFACE WATER
   - [ ] DISCHARGE TO GROUND WATER
   - [ ] IMPOUNDMENT

(Name of Stream to which discharged or drainage area on which ground water discharge takes place or impoundment is located)

F. You are hereby authorized to construct, operate or discharge, as indicated above, provided that you comply with the following:

1. All representations regarding operations, construction, maintenance and closing procedures as well as all other matters set forth in your application and its supporting documents (Application No. 4676424 dated 10/20/76), and amendments dated 11/17/76 11/22/76 Such application, it's supporting documents and amendments are hereby made a part of this permit.
2. Conditions numbered 1 thru 9, 11 thru 14, 21, 22, 30, 31 of the Sewerage Standard Conditions dated 1972 which conditions are attached hereto and are made a part of this permit.
3. Special condition(s) designated This permit is also subject to the Standard which are attached hereto and are made a part of this permit Conditions Relating to Erosion Control (1973).

G. The Authority granted by this permit is subject to the following further qualifications:

1. If there is a conflict between the application or its supporting documents and amendments and the standard or special conditions, the standard or special conditions shall apply.
2. Failure to comply with the Rules and Regulations of the Department or the terms or conditions of this permit shall void the authority given to the permittee by the issuance of the permit.
3. This permit is issued pursuant to the Clean Streams Law, The Act of June 22, 1937, P.L. 1987 as amended and/or the Water Obstruction Act of June 25, 1913, P.L. 555 as amended. Issuance of this permit shall not relieve the permittee of any responsibility under any other law.

This permit must be recorded in the Recorder of Deeds Office in Montgomery County

PERMIT ISSUED
DEPARTMENT OF ENVIRONMENTAL RESOURCES

DATE 12-7-76 BY C. T. Beechwood
C.T. Beechwood
TITLE Regional Sanitary Engineer

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
Norristown, Pennsylvania 19401
215 631-2405

December 8, 1976

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, M.R., PA 19446

Re: Sewerage Permit No. 4676424
Upper Gwynedd-Towamencin
Municipal Authority
Towamencin Township, Montgomery County

Attention: H. Warren Dimmig
Chairman

Gentlemen:

Above referenced permit is enclosed.

Please study the permit carefully and direct any questions to the Facilities Section of this office.

To become operative this permit must be recorded in the Office of the Recorder of Deeds in the county in which the discharge is located. Enclosed is a certificate and pre-addressed envelope for this purpose. Please have the Recorder of Deeds accomplish the certificate and return it within ten (10) days.

Very truly yours,

C.T. Beechwood
Regional Sanitary Engineer

Enclosures: Permit
Standard Conditions Relating to Sewerage
Standard Conditions Relating to Erosion Control
Recorder of Deeds Certificate with envelope
Notary Public Certificate

CC: Program Services Section, Water Quality Management
Herbert H. Metz, Jr., P.E. (Includes Construction Report Forms)
Regional Office File

30-Day File

CTB:JAP:mc/mj

ER-BWQ-68 Rev. 4-73

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, M.R., PA 19446

Permit No. 4676424

Towamencin Township
Montgomery County

Commonwealth of Pennsylvania
Department of Environmental Resources

RECORDER OF DEEDS CERTIFICATE

I hereby certify that on JAN 11 1977 (Date)

there was recorded in Book Deed Book 4172 County

page 303 the sewerage permit issued

to Upper Gwynedd-Towamencin Municipal Auth.

bearing date of 12-7-76

Recorder of Deeds for

Montgomery County

DEPARTMENT OF ENVIRONMENTAL RESOURCES
7875 New Hope Street
Norristown, Pennsylvania
215 63[illegible]-2405

December 6, 1976

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, M.R., PA 19446

Re: Sewerage Permit No. 4676424

ER-BWQ-69 Rev. 4-73

and duly acknowledged the foregoing permit to be his act and deed and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year aforesaid.

STATE OF PENNSYLVANIA }
COUNTY OF MONTGOMERY } SS

John F. Daly Jr.
NOTARY PUBLIC
JOHN F. DALY, JR.

On the 7th day of December in the year one thousand nine hundred and Seventy-six before me, the Subscriber, a Notary Public, came the above named

C.T. Beechwood

and duly acknowledged the foregoing permit to be his act and deed and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year aforesaid.

John F. Daly Jr.
NOTARY PUBLIC
JOHN F. DALY, JR.
Notary Public, Norristown Boro, Montg. Co.
My Commission Expires August 16, 1980

Towamencin Township
Montgomery County

Commonwealth of Pennsylvania
Department of Environmental Resources

RECORDER OF DEEDS

ER-BWQ-68 Rev. 4-73

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

1875 New Hope Street
Norristown, Pennsylvania 19401
215 631-2402

October 25, 1976

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, M.R., Pa. 19446

Attention: H. Warren Dimmig

Re: Application No. 4676424
Towamencin Township
Montgomery County

Gentlemen:

This will acknowledge receipt of your application on October 21, 1976 for approval to construct a sewer extension to serve the William Nash Lot Subdivision, Section 2, in Towamencin Township, Montgomery County.

The material submitted is accepted for technical review by the staff of the Department of Environmental Resources.

You are reminded that any proposed facilities cannot be constructed or operated without first obtaining the required permits.

Applications are normally processed within sixty (60) days. If you have not received notification of the action taken within this period, feel free to contact me for information concerning the status of the review.

Very truly yours,

Leon T. Gonshor
Acting Regional Director

LTG:mc/jt

cc: Water Quality Management
Facilities Section
Program Services Section
Herbert H. Metz, Jr., P.E.

ER-EPR-Y:2/74

Form No. 1

Application Nos.: 4676424

SUBJECT: Sewerage
Towamencin Township
Montgomery County

CONTACT: Upper Gwynedd-Towamencin Municipal authority
2225 KRIEBEL RD.
Lansdale, Mtg. Pa
19446

New Proposal	✓
Revised Proposal	

FROM

~~TO:~~ Regional Coordinator A Sonsher 10/25/76

~~FROM:~~ R. Linkle

On 10-21-76, we received an application for plan approval and/or permit to construct a sewer extension. The proposed installation involves:

a sewer extension to serve the William Nash Lot Subdivision, Section 2, in Towamencin Township, Montgomery County.
(Sew to Upper Gwynedd-Towamencin STP)

Permit Coordination Requirements: OH COMMENTS TO BE INCORPORATED IN REVIEW

TO: 10-28-76

	No Permit Required	No Permit Req. Prior Approval Required	Permit Req. Appli. on Hand	Permit Req. Appli. Needed
Air Quality	✓			
Water Quality			10/	
Land Protection	✓			
Community Env. Control	✓			
Occupational Health	✓			
Surface Mine Reclamation	✓			
Radiological Health	✓			

RECEIVED
OCT 22 1976
Regional Office

Please indicate your interest on this form and return to the Coordinator by 10-28-76.

ER-EPR-1:2/74

15 day R.T.

Form No. 1

Application Nos.: 4676424

SUBJECT: Sewerage
Towamencin Township
Montgomery County

CONTACT: Upper Gwynedd-Towamencin Municipal Authority
2225 KRIEBEL RD.
Lansdale, R.D. Pa
19446

New Proposal	✓
Revised Proposal	

TO: Regional Coordinator A Sonsher

FROM: R. Linkle

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a Sewer extension to serve the William Nash Lot Subdivision, Section 2, in Towamencin Township, Montgomery County.
(Sew to Upper Gwynedd-TOWAMENCIN STP)

Permit Coordination Requirements:

	No Permit Required	No Permit Req. Prior Approval Required	Permit Req. Appli. on Hand	Permit Req. Appli. Needed
Air Quality				
Water Quality			10/21	
Land Protection				
Community Env. Control				
Occupational Health				
Surface Mine Reclamation				
Radiological Health				

Please indicate your interest on this form and return to the Coordinator by 10-28-76.

ER – EP

START

DEPARTMENT OF ENVIRONMENTAL RESOURCES

BUREAU / PROGRAM Water Quality Management

ENVIRONMENTAL PROTECTION

DIVISION

COUNTY / MUNICIPALITY

PROGRAM Sew

START

CASE NAME Upper Gwynedd Towamencin Municipal Authority

FILE P

PERMIT NO.

BUREAU / PROGRAM Water Quality Management

DIVISION

COUNTY / MUNICIPALITY 46949

PROGRAM Sew

CASE NAME Upper Gwynedd Towamencin Municipal Authority

FILE P

PERMIT NO. 4677404 Country Meadows East cancelled

ER-EPR-4:2/74

3020 0 1 0 8

HERBERT H. METZ, JR.

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111

RECEIVED
JAN 24 1977
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

January 21, 1977

Department of Environmental Resources
Region I
Commonwealth of Pennsylvania
1875 New Hope Street
Norristown, Pennsylvania 19401

Attn: Mr. John R. Gee,
Public Health Officer
Bureau of Water Quality Management

Subject: Sanitary Sewer Extension
Upper Gwynedd-Towamencin Municipal Authority
For: A. M. DiLucia, Inc. - Country Meadows II
Residential Subdivision, Towamencin Twp.

Dear Sirs:

Transmitted with this letter is a Water Quality Management Application and Encroachment Application for sanitary sewers extension sewerage permit for the subject project for review and approval.

A list enumerating the completed application forms and supporting documents is enclosed together with duplicate sets of the pertinent forms, plans, and documents.

It should be noted that all prior planning reviews and approvals have been obtained as understood to be required; including that of Community Environmental Control for planning modules; and consultation review by Montgomery County Soil and Water Conservation District for erosion and sedimentation control is being solicited at this same time by submission thereto of pertinent erosion and sedimentation control plan and narrative data.

The subject project was designed and planned for timed development in cooperation with a building permit and occupancy allotment schedule coordinated by the Upper Gwynedd-Towamencin Municipal Authority and Towamencin Township to coincide with the Authority treatment plant expansion presently under construction. A copy of a letter dated May 14, 1976, addressed to the Department of Environmental Resources, 750 East Johnson Highway, Norristown to the attention of Mr. A. M. Spinelli by Joseph W. Kapusta, Secretary-Manager for Towamencin Township, which outlines this connection allotment schedule is one of the supporting documents appended to this application.

EA — EP

HERBERT H. METZ, INC.

Dept. of Environmental Resources
Re: A. M. DiLucia, Inc., Tow. Twp.
January 21, 1977
Page 2 of 2

Enclosures

It should be noted that the only sewer extensions covered by Permits issued in the last 12+ months under this phased connection schedule developed at the time of application have not yet taken out any building permits. No houses are on stream under that schedule, whereas a number of connections were projected by this date. In point of fact, the actual schedule for new house constructions trails projection by at least six (6) months.

We respectfully request that this application-for-permit be processed as expeditiously as possible.

Very truly yours,

Herbert H. Metz, Jr., P.E.
Herbert H. Metz, Inc.

HHM/srs

Enclosures

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

RECEIVED
JAN 24 1977

January 21, 1977

Department of Environmental Resources
Region 1
Commonwealth of Pennsylvania
1815 New Hope Street
Norristown, Pennsylvania 19401

ER-BWQ-43 Rev. 2-73

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
Bureau of Water Quality Management

For Department Use Only

INTERNAL REVIEW AND RECOMMENDATIONS

REGIONAL ENGINEER'S REVIEW

NAME OF APPLICANT: Upper Gwynedd Towamencin Municipal Authority
PROJECT LOCATION: Towamencin Township, Montgomery County
APPLICATION NUMBER: 4677404

BRIEF DESCRIPTION OF PROJECT: This application requests approval for the construction of a sanitary sewer extension to serve the Country Meadows east Section II subdivision. The storm water aspects of this project has been reviewed and approved by the Facilities Section. This permit will be coordinated with permit #4677703 as well as another dams and encroachment permit for the stream relocation and three proposed headwalls. (App. No. 4677712).

DISCUSSION (Use Additional Sheets If Necessary): Sewage from the proposed sewer extension will be conveyed to the Upper Gwynedd Towamencin Municipal Authority Sewage Treatment Plant via existing Upper Gwynedd Towamencin Municipal Authority sewers covered under Permit #765513. The final effluent will be afforded secondary treatment before discharge to the Towamencin Creek. The proposed sewer extension will serve 32 people initially and 161 ultimately. The soil erosion and sedimentation control plan has been reviewed and approved by the Montgomery County Conservation District.

CURRENT ESTIMATE OF COMPLETION DATE OF PROJECT (Industrial Wastes Only)

RECOMMENDATION AND ACTION

APPROVAL – RELEVANT LAWS, REGULATIONS, STANDARDS, AND POLICIES HAVE BEEN COMPLIED WITH:

Issue By Region	Issue By Central Office	Refuse	Signature	Date
☑	☐	☐	REVIEWING ENGINEER: Thomas Hagerty	3/27/77
☒	☐	☐	FACILITIES ENGINEER: Richard L. Beitle	4/7/77
☒	☐	☐	REGIONAL ENGINEER: C. T. Fenchel Acting	4/7/77
	☐	☐	DIV. FACILITIES ENGINEER	
	☐	☐	DIVISION DIRECTOR	
		☐	BUREAU DIRECTOR	

PERMIT CONDITIONS:
1. STANDARD – 1 thru 9, 11 thru 14, 21, 22, 30, 31 Erosion Control (1973)
2. SPECIAL (Use Additional Sheets If Necessary) –

Recording of Permit: Montgomery County

HERBERT H. METZ, JR.

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111

January 21, 1977

COUNTRY MEADOWS II SUBDIVISION - A. M. DiLUCIA, INC.
Towamencin Township, Montgomery County
Upper Gwynedd-Towamencin Mun. Auth. System

WATER QUALITY MANAGEMENT APPLICATION DOCUMENTS

(All items listed are submitted in duplicate)

Application for Water Quality Management Permit

Modular report forms 1 & 6

Exhibit "A" - copy of Upper Gwynedd-Towamencin Municipal Authority regulation prohibiting storm water admittance

Addenda to Towamencin Twp. Sanitary Sewer Specifications dated January 1, 1973, regarding stream protection

Exhibit "B" - copy of letter from Towamencin Township Board of Supervisors to Mr. A. M. Spinelli, Jr., dated May 14, 1976

Copy of letter from Mr. Michael L. Simon to Mr. Joseph W. Kapusta (Towamencin Twp. Manager) dated July 29, 1976 acknowledging review and approval of subdivision planning module. (No. 1-46949-004-4)

Subdivision Plan package including:

a) Subdivision Plan (1)

b) Topo & Construction Improvement Plan (1)

c) Plan-Profiles (13)

d) Erosion and Sedimentation Plan (1)

Erosion and Sedimentation Control Narrative Report

Storm Water Management Data Sheet (Rock Basin Outfall Energy Dissipators)

Sanitary sewer design analysis (2 sheets)

Application for Encroachment Permit

Module 28 (with supporting documents*)

*Erosion & Sedimentation Control Narrative
*Exhibit "A" - Detail Loc. Plan
*Exhibit "B" - Sed. Control Facilities Details

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
1725 Markley Street, Norristown, Penna. 19401

February 1, 1977

Mr. Maynard King
Montgomery County Conservation District
5th floor, Court House
Norristown, Penna. 19404

Re: Country Meadows II
Towamencin Township

Dear Mr. King;

The Erosion and Sedimentation Control Plan for Country Meadows East - Section II is adequate to control erosion both temporary measures and permanent measures on this 42 acre site.

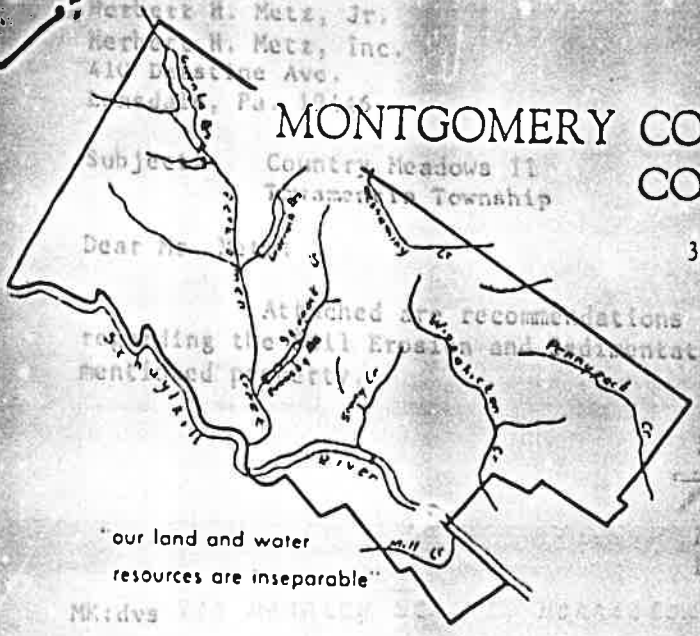
Sincerely,

Bill Klages
District Conservationist

Enclosure

MONTGOMERY COUNTY CONSERVATION DISTRICT

3rd Floor, Court House, Norristown, Pa. 19404
Phone: 275-5000 (Ext. 257)



"our land and water resources are inseparable"

Feb. 4, 1977

Herbert H. Metz, Jr.
Herbert H. Metz, Inc.
410 Derstine Ave.
Lansdale, Pa. 19446

Subject: Country Meadows II
Towamencin Township

Dear Mr. Metz:

Attached are recommendations from the Soil Conservation Service regarding the Soil Erosion and Sedimentation Control Plan for the above mentioned property.

Sincerely,

Maynard King
Executive Assistant

MK:dvs

CC: Towamencin Twp. Engineer

EXHIBIT "A"

EXHIBIT "A"

HERBERT H. METZ, JR.

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

PHONE: 855-3111

RECEIVED
FEB 8 1977
PA. DEPT. OF ENVIRONMENT
NORRISTOWN REGIONAL OFFICE

February 7, 1977

Mr. Thomas Shanley
Bureau of Water Quality Management
Pa. Dept. of Environmental Resources
1875 New Hope Street
Norristown, Pennsylvania 19401

RE: W.Q.M.A. for Permit
Upper Gwynedd-Towamencin Municipal Authority
For: A. M. DiLucia, Inc. - Country Meadows II
Residential Subdivision, Towamencin Twp.

Dear Mr. Shanley:

With reference to the subject application I am enclosing copies of review commentary letters dated February 1, 1977 and February 4, 1977, of U. S. Department of Agriculture, Soil Conservation Service and Montgomery County Conservation District, respectively, relative to the Erosion and Sedimentation Control Plan for the project.

These were received by our office on February 5th, and are transmitted for your information in completing your review of the Water Quality Management Application for permit approval.

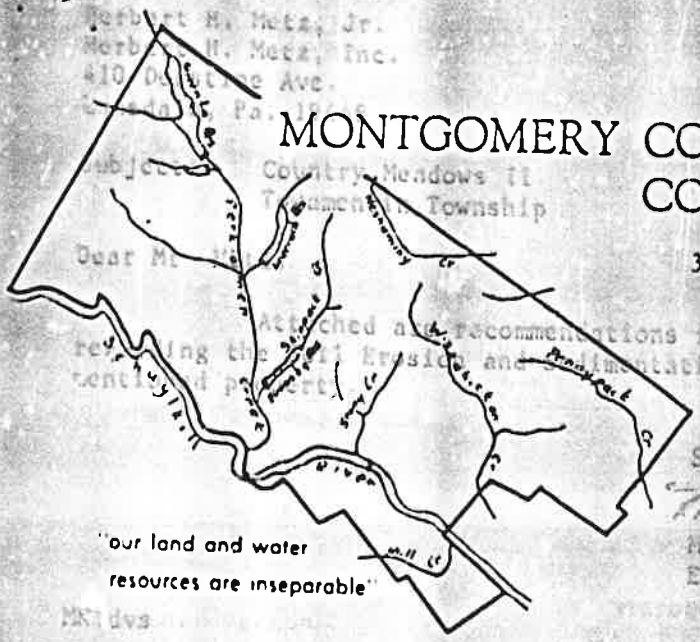
Very truly yours,

Herbert H. Metz, Jr., P.E.
Herbert H. Metz, Inc.

HHM/srs

Enclosures

Rev. request. 2/10/77



MONTGOMERY COUNTY CONSERVATION DISTRICT

3rd Floor, Court House, Norristown, Pa. 19404
Phone: 275-5000 (Ext. 257)

Feb. 4, 1977

Herbert H. Metz, Jr.
Herbert H. Metz, Inc.
410 Derstine Ave.
Lansdale, Pa. 19446

Subject: Country Meadows II
Towamencin Township

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Attached are recommendations from the Soil Conservation Service regarding the Soil Erosion and Sedimentation Control Plan for the above mentioned property.

Sincerely,

Maynard King
Executive Assistant

MK:dvs

CC: Towamencin Twp. Engineer

Cooperating with the following Agencies and Organizations: U.S. Soil Conservation Service; Pa. Dept. of Environmental Resources; Penn DOT; Cooperative Extension Service; Farmers Home Administration; Pa. Fish and Game Commissions; County Planning Commission; Agricultural Stabilization and Conservation Service; Bucks County Division of Natural Resources; Pennypack, Perkiomen and Wissahickon Watershed Associations; Citizens' Council of Montgomery County.

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
1725 Markley Street, Norristown, Penna. 19401

The Erosion and Sedimentation Control Plan for Country Meadows East - Section II is adequate to control erosion both temporary measures and permanent measures on this 42 acre site.

Sincerely,

Bill Klages
Bill Klages
District Conservationist

Enclosure

February 1, 1977

Mr. Maynard King
Montgomery County Conservation District
5th floor, Court House
Norristown, Penna. 19404

Re: Country Meadows II
Towamencin Township

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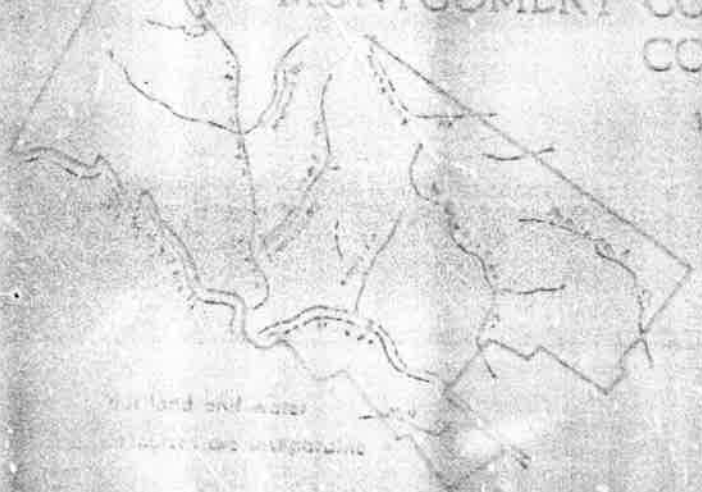
Bill Klages
Bill Klages
District Conservationist

Enclosure



MONTGOMERY COUNTY
CONSERVATION DISTRICT

1875 New Hope Street
Norristown, Pennsylvania 19401
215-631-2411

February 10, 1977

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, M.P., Pa. 19446

Attention: H. Warren Dimmig,
Chairman

Re: Sewerage Application #4677404
Country Meadows East - Section II
Towamencin Township, Montgomery County

Gentlemen:

We have completed our initial review of the subject sewerage application received in this office on January 24, 1977. The following points need to be revised and/or clarified before we can continue to process this application:

1. In regards to the Waste Water Treatment Plant, we understand the sewage treatment plant is currently undergoing expansion. However, we need to know what is the available capacity in the plant at this time. The present load to the stream from the treatment plant indicated on Module 6-4 should be based on average daily flows over the most recent 12 month period. On Module 6-4, please indicate the estimated completion date for the plant expansion.

2. We will require the water mains be shown on the sanitary sewer profiles at all points of intersection between water mains and sanitary sewers.

3. Does this application for Section II include the entire subdivision or are the other sections to be developed; if so, when will these additional sections be constructed. When will applications for sewer permits be made.

4. Bill Klages from the Soil Conservation Service informed me that the Erosion and Sedimentation Control Plan will be approved. However, we will need to see the stormwater drainage calculations for this site based on a 100 year storm.

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
1725 Markley Street, Norristown, Penna. 19401

The Erosion and Sedimentation Control Plan for Country Meadows East - Section II is adequate to control erosion both temporary measures and permanent measures on this 42 acre site.

Sincerely,

February 1, 1977

Bill Klages
Bill Klages
District Conservationist

Enclosure

Mr. Maynard King
Montgomery County Conservation District
5th floor, Court House
Norristown, Penna. 19404

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Towamencin Township

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Sincerely,

Bill Klages
Bill Klages
District Conservationist

Enclosure

February 10, 1977

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road

1875 New Hope Street
Norristown, Pennsylvania 19401
215-631-2411

February 10, 1977

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, M.P., Pa. 19446

Attention: H. Warren Dimmig,
Chairman

Re: Sewerage Application #4677404
Country Meadows East - Section II
Towamencin Township, Montgomery County

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Thomas Shanley
Pulbic Health Engineer

cc: Herbert H. Metz, Inc.
30-Day File
Regional Office File
Central Office Files (WQM)

TS:mc/jm

5. How is the 260 acre off-site section zoned? What then is the expected population for this area.

6. We are forwarding the design engineer the necessary forms to make application for the proposed stream relocation and the construction of three headwalls. Sent to Kenyo 3/9/77. Call Dan 3/16/77

Please forward all revisions and clarifications to this office within two (2) weeks of the date of this letter.

Very truly yours,

Thomas Shanley
Pulbic Health Engineer

cc: Herbert H. Metz, Inc.
30-Day File
Regional Office File
Central Office Files (WQM)

TS:mc/jm

1875 New Hope Street
Norristown, Pennsylvania 19401
215-631-2417

February 10, 1977

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

March 9, 1977

Division of Dams and Encroachments
Bureau of Water Quality Management
Department of Environmental Resources
Fulton Building, Box 2063
Harrisburg, Pennsylvania 17120

Attn: Mr. Daniel Lenyo, Chief
Water Obstructions Control Section

Subject: Sewerage Application #4677404 - Region I
Country Meadows East-II, A. M. DiLucia, Inc.
Upper Gwynedd-Towamencin Municipal Authority
Towamencin Township, Montgomery County

Dear Sirs:

Pursuant to receipt of review letter dated February 10, 1977, pertaining to the subject application, from Thomas Shanley, Public Health Engineer, PADER, Norristown - a copy of which is enclosed - we are responding to review comment #6 contained therein.

In conjunction with the submission of the subject W.Q.M.A. to the regional office we had also completed and submitted a "Module 28" application to cover a required sanitary sewer crossing of a water-course pertinent to the subdivision project. This procedure was followed as for a similar previous project where the "Module 28" was processed for permit with the W.Q.M.A. at the regional office level. However, Mr. Shanley advises that the Module 28 application pertinent to the subject project should also be submitted to your office. Accordingly, we are enclosing herewith duplicate copies of that application package as submitted to the regional office.

In addition, the design project involves a single watercourse segment re-location to accommodate a required parallel sanitary sewer extension, and three (3) adjacent storm sewer outfalls along the tract watercourse, a small tributary to the Skippack Creek. These are the watercourse-related facilities referenced in comment #6 of the afore-mentioned letter of Mr. Shanley - and for which we are also submitting with this transmittal an Application for Stream Encroachment Permit.

HERBERT H. METZ, INC.

Mr. Daniel Lenyo
Re: Sewerage Application #4677404
March 9, 1977
Page 2 of 2

In support of this Application the following documents are enclosed, in duplicate:

1. Completed Application for Encroachment Permit Module 28 (with supporting documents*)
   *Erosion & Sediment Control Narrative Report
   *Exhibit "A" - Detail Location Plan
   *Exhibit "B" - Sediment Control Facilities Details

2. Plans and data for stream re-location section & three (3) storm sewer outfalls.

   a. Construction Improvement Plan (Sheet #2 of 16)
   b. Stream Re-location Plan/Profile (Sheet #1 of 1)
   c. Hydrologic Calculations for design flows through stream re-location section.

3. Erosion and Sediment Control Narrative Report

4. Rock Basin Data Sheet

5. Copy of Montgomery County Soil Conservation Service review/approval correspondence.

Very truly yours,

Herbert H. Metz, Jr., P.E.
Herbert H. Metz, Inc.

HHM/srs
Enclosures

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD I. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

March 10, 1977

Mr. Thomas Shanley, Public Health Engineer
Department of Environmental Resources
1875 New Hope Street
Norristown, Pennsylvania 19401

RE: Sewerage Application #4677404
Country Meadows East - Section II
Towamencin Township, Montgomery County
D.E.R. 2/10/77 Review-Commentary Letter

Dear Mr. Shanley:

Please excuse the delay in processing the requested supplemental data for the above-captioned sewerage application, but, assembling the necessary additional data was a more involved process than originally anticipated. At this time, however, I am ready to address the comments listed in your February 10th letter to Mr. Warren Dimmig of the Upper Gwynedd-Towamencin Municipal Authority.

Regarding Item #1:

Upon inquiry to the consulting engineers for the Upper Gwynedd-Towamencin Municipal Authority I have been advised as follows:

The entire Wastewater Treatment Plant expansion program is a three-phase operation. The first phase expansion is proceeding well and is now projected to be "on-stream" with an additional 1.0 MGD plant capacity by mid-1977, thus increasing capacity to 2.5 MGD.

It should also be noted that it seems highly unlikely the developer will start to build before the fall of 1977 since a collateral agreement with the township must be executed before the start of such development. At this time said agreement has not been applied for.

A revised Module 6-4 Sheet has also been enclosed (in duplicate).

Regarding Item #2:

All points of intersection between water mains and sanitary sewers have been depicted on relevant profile sheets P.S. #3 and P.S. #7.

HERBERT H. METZ, INC.

Mr. Thomas Shanley
RE: Sewerage Application #4677404
March 10, 1977
Page 2 of 3

Regarding Item #3:

Country Meadows East - Section II is an entity unto itself. There are no future sections to be developed.

Regarding Item #4:

I have enclosed a copy of Mr. Klages' review/approval letter regarding the Erosion and Sediment Control Plan (See Exhibit "A"). I have also enclosed drainage calculations on a before versus after format based on a 100-year storm frequency (See Exhibit "B"). Due to the previous land use, the proposed development should not create any marked effect regarding storm water runoff.

Regarding Item #5:

The "upstream" 260± Acres is divided into four (4) different zoning districts; Limited Industrial, Shopping Center, Commercial, and Residential. A study by this office (with corroboration by the Authority's engineer) indicates a maximum 630± EDU's generating 220,500± gpd (.2205 MGD) average or 0.882 MGD at peak flow.

If projected Country Meadows II peak flows are added to the last figure, the total expected peak flow figure is projected at 0.95 MGD.

These flow figures are presented on the sewer design analysis sheets, and the full flow capacities of the minimum slope segments of 10" and 12" sewer in the shed service line are set forth in Table II of Module 6-1.

Regarding Item #6:

I am enclosing a copy of our letter dated March 9, 1977, which transmitted an Application for Encroachment Permit, to Mr. Daniel Lenyo, Chief, Water Obstructions Section, Div. of Dams and Encroachments, in Harrisburg.

CTS/srs

HERBERT H. METZ, INC.

Mr. Thomas Shanley
RE: Sewerage Application #4677404
March 10, 1977
Page 3 of 3

If you should have any questions or comments regarding this project, please don't hesitate to contact this office by telephone. Mr. Metz or myself would welcome the opportunity for personal inter-office communication.

Very truly yours,

Clifford T. Stout

Clifford T. Stout
for Herbert H. Metz, Jr., P.E.
Herbert H. Metz, Inc.

CTS/srs

RE: Sewerage Application #4677404
March 10, 1977
Page 2 of 3

Regarding Item #3:

Country Meadows East - Section II is an entity unto itself. There are no future sections to be developed.

Regarding Item #4:

I have enclosed a copy of Mr. Kin[illegible] regarding the [illegible] adjacent [illegible] (See Exhibit A). I have also discussed [illegible] sions on a [illegible]

HERBERT H. METZ, INC.

Mr. Thomas Shanley

BOARD OF SUPERVISORS
TOWAMENCIN TOWNSHIP
1655 Sumneytown Pike
Box 99 Kulpsville, Pa. 19443
Phone (215) 368-7602

May 14, 1976

Dept. of Environmental Resources
750 East Johnson Highway
Norristown, Pennsylvania 19401

Attn: Mr. A. M. Spinelli, Jr.

Gentlemen:

Our new treatment plant project is now under construction and Accelerated Stage 1 (to 2.5 MGD) is scheduled for completion in six months.

During the last eight months we have submitted planning modules for the following single-family house developments:

Wm. Nash - Weikel Road - 22 lots (10/75)
Anthony M. DiLucia, Inc. - Reinert Road - 46 lots (10/75)
Korman Corporation - Morris Road - 69 lots (5/76)

During 1975 two developments were issued sewer extension permits by D.E.R.:

Bremen Woods - Allentown Road - 28 lots
Lapp and Alderfer - Keeler Road - 72 lots

Due to the uncertainty of schedule for treatment plant construction the township has been limiting building permits to these and other prior approved developments and will continue to do so until actual added capacity is available.

It is urgent, however, to the economy of the "waiting" developers and to the budget of the Authority (which has been affected by the past two-year building stoppage) that these modules be processed as soon as possible so that new sanitary sewers may be constructed. Today's market also requires time to fund and begin such projects. The authority must begin payments on the new construction this month.

EXHIBIT NO. "B"-1

H0774UK

The Board has also received bids and will shortly resume work to be completed this summer on correction of the deteriorated brick manholes in the Inglewood area. The infiltration will be significantly reduced by this operation although the infiltration/inflow program will consume two years. This would provide a safety valve in the event plant construction falls behind schedule.

/bgt

c.c. Engineer
Solicitor

Schedule of Occupied Dwellings

	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	
22-Nash				2	3	2	1	2	2	1	etc.	
46-DiLucia				3	2	2	2	1	2	2	etc.	
69-Korman				3	2	3	3	3	3	4	etc.	
Stage 1 Contr.					ADDED 1 MGD →							

Very truly yours,

Joseph W. Kapusta
Sec/Mgr

/bgt

c.c. Engineer
Solicitor

BOARD OF SUPERVISORS
TOWAMENCIN TOWNSHIP
1655 Sumneytown Pike
Box 99 Kulpsville, Pa. 19443
Phone (215) 368-7002

EXHIBIT "B"-2

4677404

Date 2/1/77

SUBJECT: Sewerage Application No. 4677404

Country Meadows Subdivision
Towamencin Twp., Mont. Co.

Dear Sir:

The subject sewerage permit application has been submitted to the Norristown Regional Office for review. This project involves a Sanitary sewer Stream Crossing for which application for a permit is being made. We have also informed the design engineer that a seperate encroachment permit will be necessary for the proposed stream relocation and headwalls.

We note that the following types of stream encroachments are included as part of the proposed sewerage facilities:

☐ Sewage Treatment Plant Headwall and/or Outfall Sewer

☑ Sanitary Sewer Stream Crossing(s)

☐ Other _____

Please review the enclosed documents, and return all documents with your comments and recommendations within thirty (30) days so we can complete the processing of this permit application.

Should you have any questions relative to this project, please feel free to contact us.

Very truly yours,

Thomas Stanley
Sanitary Engineer
Norristown Office

Enclosure:

cc: Pennsylvania Fish Commission (Jack Miller)

ER 710.046.28

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

Date Prepared
1-7-77
Date Revised

For Department Use Only

Module 28 - Sewer Stream Crossing - Outfall and Headwall

A. General Design

1. In cases other than political subdivisions, has a fee in the amount of $30.00 in the form of a check or money order payable to the Commonwealth of Pennsylvania been enclosed? (This fee is in addition to the $25.00 fee required for sewerage applications). [X] Yes [ ] No

2. Are sewers in streams protected with at least 1 foot of cover in rock and 3 feet cover in other material? [X] Yes* [ ] No [ ] N/A
*concrete encasement @ crossings.

3. Have plans been made to minimize disturbing or uprooting trees and vegetation along the stream bank and in the vicinity of the stream? [X] Yes [ ] No

4. Is the sewer along the stream located a sufficient distance from the bank of the stream to provide for possible increase in the width of the stream? [X] Yes [ ] No [ ] N/A

5. Has the sewer system been designed to minimize the number of stream crossings? [X] Yes [ ] No [ ] N/A

6. Is the stream crossing designed to cross the stream as nearly perpendicular to the stream flow as possible? [X] Yes [ ] No [ ] N/A

7. Are the proposed sewer outfalls, headwalls, manholes, gateboxes, or other structures so located that they do not interfere with the free discharge of flood flows of the stream? [X] Yes [ ] No [ ] N/A

467404

General Design - Continued

8. Have provisions been made to control siltation of readily erodible soils during construction, during suspension of operation for an appreciable length of time, and after construction, by the methods of temorary vegetation, or seeding and mulch or by accelerating the establishment of permanent vegetation? [X] Yes [ ] No

9. Have provisions been made to retard the rate of runoff from the construction site and control disposal of runoff? [X] Yes [ ] No

10. Have provisions been made to trap sediment resulting from construction in temporary or permanent silt holding basins, including pump discharges resulting from dewatering operations? [X] Yes [ ] No

11. Have provisions been made to minimize turbidity by prohibiting the dumping of soil and debris into streams and/or on banks of streams, pumping silt-laden water into the stream and the operating of equipment in the streams? [X] Yes [ ] No

12. Have provisions been made to remove all cofferdams and stream crossings for equipment that must cross the stream during construction, including a provision to return the stream bed to its original condition when the project is completed? [X] Yes [ ] No

4674 04

General Design - Continued

13. Have provisions been made to deposit all material and debris removed from the stream bed out of the flood plain area? [X] Yes [ ] No

14. Is the design coordinated with the Pennsylvania Fish Commission to take into account any comments or suggestions which the Fish Commission may have concerning the stream crossing? [ ] Yes [X] No [ ] N/A

TOWAMENCIN TOWNSHIP, MONTGOMERY COUNTY

467404

NARRATIVE REPORT

EROSION AND SEDIMENTATION CONTROL PLAN

FOR

COUNTRY MEADOWS EAST - SECTION 2

LOT SUBDIVISION DEVELOPMENT

OF

A. M. DiLUCIA, INC.

TOWAMENCIN TOWNSHIP, MONTGOMERY COUNTY, PA.

JANUARY 1977

HERBERT H. METZ, INC.

JANUARY 1977

HERBERT H. METZ, INC.

1. GENERAL DESCRIPTION OF SITE LOCATION

The project site is a 42± acre tract of land situated on the Northerly corner of Tomlinson Road (T-438) and Reinert Road (T-401) in Towamencin Township. The Tract is bounded on the West by Tomlinson Road; on the North by a tributary to Skippack Creek and occupied residential properties; on the East by a developed residential lot subdivision; and on the South by Reinert Road.

Soils composition on the site, as identified by the Montgomery County Soils Survey, include Bowmansville, Klinesville, Readington and Reaville classifications. Surface slopes on the site range from 2% to 15% on land which has been utilized as a farm homestead for open meadow and some crop growth. A small tributary to a branch of Skippack Creek from a crossing at Reinert Road, courses Southeast to Northwest within and along the Easterly boundary of the site.

2. GENERAL DESCRIPTION OF STORM WATER COLLECTION AND CONTROL

The storm water pipe and inlet collection system was designed using 10-year storm frequency criteria. Inlets and storm sewers have been planned for placement at appropriate critical locations along the tract streets and in lot easements for dispersal to a natural water course on the tract at several locations to minimize point runoff impact.

Oversize pipe outfalls at minimum slopes and outlet energy-dissipating devices are designed for release at reduced velocities.

3. GENERAL DESCRIPTION OF ACCELERATED EROSION CONTROL

As hereinafter described and as shown and noted on the Erosion and Sedimentation Control Plan, and in the following (Item #8) construction control stage sequence, the following erosion control procedures and devices shall be employed. It should be noted that development is to proceed under controlled building-permit allocation schedule in phase with current treatment plant expansion.

The streets shall be graded and crushed stone base course applied, and curbing placed as soon as possible, to prevent erosion of the sub-grade. During street grading, interceptor dikes, filter berms and filter inlets shall be constructed at appropriate intervals to minimize gullying and washing, and siltation in pipes and water courses.

Graded slopes, swales and diversions, on-lot sedimentation control features and other critical disturbed areas shall be temporarily seeded following earth-moving procedures.

3. continued

Rear-of-lot belt areas not significant to the progression of construction of houses and improvements and drainage controls shall be left undisturbed until lawn grading phase of finish construction. In addition, top soil storage as a protective berm may be utilized across the down-slope limit of construction on lots along the natural water course.

4. GENERAL DESCRIPTION OF SEDIMENTATION CONTROL

On-lot protection during construction will be provided by temporary controlled-flow interceptor diversion berms.

Interceptor dikes and stone filter inlets and filter berms shall be employed, during specific construction phases at appropriate spaced locations across or along graded rights-of-way, such as noted on the Erosion and Sedimentation Control Plan. Stone ballast over-berm to be placed at intersection of proposed road with existing road.

Upon completion of construction, the temporary diversions and filter inlets shall be removed and the remaining areas re-graded and seeded or paved.

5. SANITARY SEWERAGE FACILITIES

Public sanitary sewerage facilities are proposed to serve this development, with planned sanitary sewer extensions to connect and discharge into the existing Upper Gwynedd-Towamencin Municipal Sewer Authority Sanitary Sewer System via gravity sewer connection to the existing Authority T-S trunk collector sewer.

Collected sewage will be conveyed by the Authority system for treatment at the Upper Gwynedd-Towamencin Municipal Sewer Authority plant.

6. TOPOGRAPHIC AND GEOLOGIC FEATURES

The topography shown on the plans is based on actual physical ground surveys, and elevation data is based on U.S.G.S. and Upper Gwynedd-Towamencin Municipal Sewer Authority datum. The soils information is taken from Soil Conservation Service and Montgomery County Soil Survey data and is indicated on the Erosion and Sedimentation Control Plan and supporting data.

Approximately half of the planned residential lot sites are situated in areas of Readington and Reaville soils which are characteristically subject to seasonal high water tables. Effective underground drainage facilities around foundations constructed in these classes of soils should be implemented. Foundations drainage (French drain, pipe, etc.) should be directed by gravity flow to ground surface or street gutter grade wherever possible.

7. HYDROLOGIC RUNOFF COMPUTATIONS

The Montgomery County Soil Conservation Service Erosion and Sedimentation Control Handbook and Soils Conservation Engineering Field Manual were used as references.

8. STAGING OF EARTHMOVING ACTIVITIES

a. Construct interceptor diversions in accordance with the design criteria shown on the Control Plan. Grade and seed all exposed areas of embankments.

b. Clear and grub street rights-of-way and building sites.

c. Available topsoil shall be removed and stockpiled for re-use in finish grading. Should be stockpiled or wind-rowed down-slope from construction area where feasible.

d. Juncture portion of proposed road with existing road is to be graded and stone ballast placed, with a ballast over-berm formed across the throat of the intersection as an erosion and sediment control deterrent and stabilization device for protection of the existing roadway.

e. Rough grade roadways to proposed sub-grade elevation gradient and cross-section.

f. Install storm sewers and sanitary sewers and appurtenant structures. Install all underground utilities. Direct surface runoff to completed storm drainage facilities by constructed temporary interceptor channels and dikes and filter inlets.

g. Temporarily seed all disturbed soil banks with rye grass.

h. Construct buildings, fine grade streets and place stone base course. (On-lot sedimentation control measures are to be constructed prior to improvements and house construction as noted in a.)

i. Finish grade and establish permanent seeding as soon as possible thereafter in building construction areas. Immediately following removal of temporary erosion and sedimentation control structures, grade and permanently seed these areas.

ER-BWQ-188.1 REV. 3/75

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED 1/7/77
DATE REVISED

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

APPLICANT Upper Gwynedd-Towamencin Municipal Authority

LOCATION OF PROJECT: MUNICIPALITY Towamencin Township COUNTY Montgomery

DESIGN ENGINEER AND FIRM Herbert H. Metz, Jr., P.E.-Herbert H. Metz, Inc.

DESIGN ENGINEERS ADDRESS 410 Derstine Avenue Lansdale, Pa. ZIP CODE 19446 TELEPHONE 855-3111

DESCRIPTION OF PROJECT Sanitary sewer extension system-Country Meadows Lot Subdivision of A. M. DiLucia, Inc. to serve 46 planned single dwelling lots to be developed under phased building permit-connection control schedule per Township letter to D.E.R. dated May 14, 1976 (Exhibit "B"

A. DOCUMENTATION REQUIRED

1. HAS A CHECK FOR $28.00, PAYABLE TO THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES, BEEN INCLUDED? (NOT REQUIRED OF STATE OR FEDERAL AGENCIES) [X] Yes [ ] No [ ] N/A

2. HAVE 2 COPIES OF THE APPLICATION, FORM H710.046, BEEN SUBMITTED? (3 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND DELAWARE RIVER BASIN). [X] Yes [ ] No

   A. HAS THE AFFIDAVIT BEEN PROPERLY COMPLETED AND EXECUTED? [X] Yes [ ] No

3. DOES THE APPLICATION INCLUDE THE FOLLOWING APPLICABLE MODULES:

MODULE NUMBER	TITLE	NUMBER OF PAGES	
1	GENERAL INFORMATION - SEWERAGE	9	[X] Yes
4	WASTE LOAD AND CHARACTERISTICS	3	[ ] Yes
5	GEOLOGY AND GROUND WATER INFORMATION	2	[ ] Yes
6	SEWERS AND APPURTENANCES	5	[X] Yes
7	SEWAGE PUMPING STATIONS	4	[ ] Yes
8	PUMPING FACILITIES	1	[ ] Yes
9	FLOW EQUALIZATION AND STORAGE BASINS	2	[ ] Yes
10	GRIT CHAMBERS	1	[ ] Yes
11	SCREENING AND COMMINUTING DEVICES	2	[ ] Yes
12	IMHOFF AND SEPTIC TANKS	2	[ ] Yes
13	SETTLING TANKS	2	[ ] Yes
14	EARTHEN SETTLING BASINS	2	[ ] Yes

ER-RWD-3 (REV. 2/78)

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: 1/7/77
DATE REVISED:

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

A. DOCUMENTATION REQUIRED – CONTINUED THIS SHEET NOT APPLICABLE

MODULE NUMBER	TITLE	NUMBER OF PAGES	
15	TRICKLING FILTERS	2	☐ Yes
16	AERATION TANKS OR BASINS	3	☐ Yes
17	WASTE STABILIZATION PONDS	3	☐ Yes
18	CHEMICAL TREATMENT (INCLUDING FEEDERS)	3	☐ Yes
19	MIXING AND FLOCCULATION FACILITIES	1	☐ Yes
20	SAND FILTERS	2	☐ Yes
21	DISINFECTION	2	☐ Yes
22	SPRAY IRRIGATION	1	☐ Yes
23	PHYSICAL ABSORPTION, ION EXCHANGE, AND CONTACT UNITS	2	☐ Yes
25	DEEP WELL DISPOSAL	4	☐ Yes
26	SLUDGE TREATMENT AND DISPOSAL		
	A. SEPARATE DIGESTION TANKS AND SLUDGE THICKENING TANKS	2	☐ Yes
	B. ELUTRIATION	1	☐ Yes
	C. WET OXIDATION	1	☐ Yes
	D. SLUDGE DRYING BEDS	1	☐ Yes
	E. LAND DISPOSAL OF SLUDGE	1	☐ Yes
	F. SLUDGE BASINS	1	☐ Yes
	G. FILTERS AND CENTRIFUGES	1	☐ Yes
	H. INCINERATION	1	☐ Yes

B. REQUIRED DATA

1. THE FRONT COVER OR FLYLEAF OF EACH SET OF DRAWINGS AND SPECIFICATIONS MUST BEAR THE SIGNATURE AND SEAL OF THE REGISTERED PROFESSIONAL ENGINEER, SURVEYOR BY OR UNDER WHOM PREPARED. EACH DRAWING MUST BEAR AN IMPRINT OR REASONABLE FACSIMILE OF SUCH SEAL.

ER-BWQ-188.1 REV. 3/75 COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED 1/7/77
DATE REVISED
NUMBER N/A

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

B. **REQUIRED DATA** – CONTINUED

2. INFORMATION RELATIVE TO SPECIFIC PROGRAMS:

A. 2 COPIES OF DESIGNER'S PLANS, MODULES, AND SPECIFICATIONS (3 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND DELAWARE RIVER BASIN)	☐ Yes	☐ No	☐ N/A	
B. HYDRAULIC PROFILE OR SCHEMATIC FLOW DIAGRAM FOR PROPOSED TREATMENT PLANT.			☒ N/A	
C. UNITED STATES GEOLOGICAL SURVEY TOPOGRAPHICAL MAP SHOWING EXACT POINT OF DISCHARGE AND TREATMENT PLANT OR PUMP STATION LOCATION AND/OR AREA TO SEWERS.			☒ N/A	
D. HAVE YOU APPLIED FOR A PUBLIC UTILITY COMMISSION CERTIFICATE OF PUBLIC CONVENIENCE?	☐ Yes	☐ No	☒ N/A	
(1) SPECIFY PUBLIC UTILITY COMMISSION APPLICATION NUMBER N/A				
(2) IS CERTIFICATE OF PUBLIC CONVENIENCE ENCLOSED? N/A	☐ Yes	☒ No		
E. HAVE YOU APPLIED FOR APPROVAL OF STREAM ENCROACHMENT(S)? (Module 28 submission appended in conjunction w/chis applic.)	☒ Yes	☐ No	☐ N/A	
F. HAVE YOU APPLIED FOR DEPARTMENT OF LABOR AND INDUSTRY APPROVAL FOR FEATURES AFFECTING EMPLOYEE SAFETY?	☐ Yes	☐ No	☒ N/A	
G. DO YOU HAVE AN AGREEMENT INDICATING APPROVAL TO DISCHARGE TO SEWER SYSTEM AND TREATMENT PLANT OF ANOTHER PERMITTEE?	☐ Yes	☐ No	☒ N/A	
H. HAVE YOU APPLIED FOR APPROVAL OF AIR POLUTION CONTROL FACILITIES?	☐ Yes	☐ No	☒ N/A	
I. HAVE YOU SUBMITTED A LIST WITH NAMES, ADDRESSES, AND TITLES OF ALL PARTNERS IN THE CASE OF A PARTNERSHIP OR ALL OFFICERS IN THE CASE OF A CORPORATION, UNINCORPORATED ASSOCIATION, INCORPORATED ASSOCIATION, PARTNERSHIP, OR OTHER ENTITY (NOT MUNICIPAL)?	☐ Yes	☐ No	☒ N/A	

3. SPECIFY THE FOLLOWING:

	TITLE/DESCRIPTION	NO. OF SHEETS	DATE
A. PLANS:	Subdivision	1	Last Rev. 1/17/77
PLANS:	Topo & Constr. Improvement	1	Last Rev. 1/17/77
PLANS:	Plan-Profiles	13	1/17/77 (or) Last Rev. 1/17/77
	Erosion & Sedimentation	1	Last Rev. 1/17/77

ER-BWQ-1M.1(REV. 3/78)

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: 12/7/79
DATE REVISED:

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

B. REQUIRED DATA – CONTINUED

B. SPECIFICATIONS (IF APPLICABLE): Upper Gwynedd-Towamencin Municipal Authority
Reference specifications and pertinences as filed at Pa. D.E.R.
by Upper Gwynedd-Towamencin Mun. Auth.
TITLE
NUMBER OF VOLUMES _____ DATE _____

C. OTHER (SPECIFY TYPE AND NUMBER):

4. ARE THE PLANS:

A. CLEAR, LEGIBLE, AND DRAWN TO SCALE WITH NORTH ARROW INDICATED? [X] Yes [ ] No

B. WITHIN MAXIMUM SIZE OF 36 INCHES BY 50 INCHES? [X] Yes [ ] No

C. SEAL AND SIGNATURE OF PROFESSIONAL ENGINEER OR SURVEYOR RESPONSIBLE FOR THIS APPLICATION

1. SIGNATURE OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW) Herbert H. Metz, Jr., P.E.

2. SEAL OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW)

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
HERBERT HALLMAN METZ, JR.
ENGINEER
No. 5953-E

ER-BWQ-188.1 REV. 3/75

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: 1/7/77

DATE REVISED:

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

CLASS OF CONSTRUCTION — THIS SHEET NOT APPLICABLE

(Check all applicable blocks)

- ☐ NEW
- ☐ REPLACEMENT OF EXISTING UNIT(S)
- ☐ ADDITIONS AND/OR
- ☐ MODIFICATIONS TO EXISTING UNIT(S)

TABLE I – DESIGN LOADING DATA			To Be Abandoned	Existing Facilities Design	Present Operating Load	Proposed Total Facilities Design
1. EQUIVALENT POPULATION TO BE SERVED (NO. OF PERSONS – SUBMIT CALCULATIONS)						
	A. DOMESTIC					
	B. INDUSTRIAL					
	C. TOTAL					
2. DESIGN YEAR OR PERIOD FOR OPERATING DATA						
3. RUNOFF PERIOD		(HRS)				
4. DOMESTIC WASTE FLOW DATA	A. PER CAPITA FLOW	(GPCD)				
	B. AVERAGE DAILY FLOW	(MGD)				
	C. INFILTRATION	(MGD)				
	D. RUNOFF FLOW RATE	(MGD)				
	E. MAXIMUM FLOW RATE	(MGD)				
5. INDUSTRIAL WASTE FLOW DATA	A. AVERAGE DAILY FLOW	(MGD)				
	B. MAXIMUM DAILY FLOW	(MGD)				
6. TOTAL DESIGN AVERAGE FLOW		(MGD)				

TABLE II – FACILITIES DESIGN DATA (Specify number of units)

Units	Existing	To Be Abandoned	Total Proposed	Units	Existing	To Be Abandoned	Total Proposed
1. SCREENING DEVICES				13. CHLORINE CONTACT TANK(S)			
2. GRIT CHAMBER(S)				14. DISINFECTION FACILITIES			
3. COMMINUTOR(S)				15. SEPARATE SLUDGE DIGESTORS			
4. PRE-AERATION TANKS				16. SLUDGE DRYING BEDS			
5. PRIMARY SETTLING TANKS				17. MECHANICAL SLUDGE DEWATERING			
6. IMHOFF TANK(S)				18. SLUDGE ELUTRIATION TANKS			
7. TRICKLING FILTERS				19. SLUDGE STABILIZATION TANKS			
8. INTERMEDIATE SETTLING TANKS				20. INCINERATOR(S)			
9. AERATION TANKS				21. MIXING AND FLOCCULATION TANKS			
10. FINAL SETTLING TANKS				22. OTHER (Specify)			
11. INTERMITTENT SAND FILTERS				23. OTHER (Specify)			
12. WASTE STABILIZATION POND(S)				24. OTHER (Specify)			

ER-BWQ-SEB.1 REV. 3/75

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE FIRST PART D SUB. 1/7/77
DATE REVISED

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

See Exhibit "A" - Also refer to U. Gwynedd-Tow. Mun. Auth. Rates, Rules & Regulations, Construction specs., and National Plumbing Code Report of 2/16/73

N/A

For Department Use Only

D. GENERAL INFORMATION

1. EXISTING COMBINED SEWERS MAKE UP 0 % OF THE TOTAL AREA SERVED BY THE SYSTEM.

2. ARE THE EXISTING SANITARY SEWERS SUBJECT TO EXCESSIVE INFILTRATION? Some Sections [X] Yes [ ] No [ ] N/A

A. IF YES, SPECIFY MAJOR SOURCES OF INFILTRATION: Top brick courses in manholes in old Inglewood area - See Liptak report of 2/16/73 - Filed with E.P.A. for correction

B. HAS A REGULATION PROHIBITING THE ADMITTANCE OF STORM WATER FROM PAVEMENTS, ROOFS, AND OTHER SOURCES BEEN ADOPTED? [X] Yes [ ] No
(IF YES, ENCLOSE COPY.) See Exhibit "A" - Also refer to U. Gwynedd-Tow. Mun. Auth. Rates, Rules & Regulations, Construction specs., and National Plumbing Code

C. SPECIFY STEPS TAKEN OR BEING TAKEN TO CORRECT THE INFILTRATION PROBLEM, INCLUDING DATES: See aforementioned Liptak Report of 2/16/73 [ ] N/A

3. TYPES OF INDUSTRIAL WASTES OF SPECIAL CONSIDERATION: None

4. WILL THE APPLICANT BE RESPONSIBLE FOR REPAIR AND MAINTENANCE OF SEWAGE FACILITIES FOR WHICH APPLICATION IS SUBMITTED? [X] Yes [ ] No
A. IF NO, EXPLAIN: *Following construction inspection, testing & acceptance into Auth. system.

5. THE DISTANCE OF THIS PLANT TO THE NEAREST OCCUPIED DWELLING:

A. PRESENT _____ FEET

B. PROPOSED _____ FEET N/A

6. IF THE APPLICANT IS OTHER THAN A MUNICIPALITY OR MUNICIPAL AUTHORITY, HAS THE GOVERNING MUNICIPALITY OBJECTED TO THE PROPOSED SEWAGE TREATMENT PLANT? [ ] Yes [ ] No [X] N/A

PR-BWQ-186 1 REV 3/75

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: 1/7/77
DATE REVISED:

WATER POLLUTION CONTROL
MODULE 1 - GENERAL INFORMATION SEWERAGE

For Department Use Only

D. GENERAL INFORMATION - CONTINUED THIS SHEET NOT APPLICABLE ☐

12. SAFETY:

A. IS THE LETTER FROM MUNICIPAL OFFICER, SIGNIFYING THE OPINION, APPENDED TO THIS APPLICATION? ☐ Yes ☐ No

7. ARE DUPLICATE TREATMENT UNITS PROVIDED WHERE REQUIRED? ☐ Yes ☐ No ☐ N/A

13. OUTFALL SEWER:

A. IF NO, EXPLAIN: _____

A. IS THE OUTFALL SEWER ADEQUATELY PROTECTED TO ENSURE ITS STRUCTURAL STABILITY AND FREEDOM FROM STOPPAGE? ☐ Yes ☐ No

B. DO ANY BY-PASS STRUCTURES DISCHARGE TO WATERS OF THE COMMONWEALTH? (SPECIFY PLAN SHEET NUMBER(S) SHOWING BY-PASS STRUCTURES) ☐ Yes ☐ No

8. HAS AN AUXILIARY STANDBY POWER SOURCE BEEN PROVIDED? ☐ Yes ☐ No ☐ N/A

9. DOES ANY PIPING OR CONNECTION EXIST IN ANY PART OF THE TREATMENT WORKS WHICH MAY CAUSE CONTAMINATION OF THE POTABLE WATER SUPPLY? ☐ Yes ☐ No

10. IF A NON-POTABLE WATER SUPPLY IS PROVIDED, ARE ALL OUTLETS PERMANENTLY POSTED TO INDICATE WATER IS NOT SAFE FOR DRINKING? ☐ Yes ☐ No ☐ N/A

11. ARE FACILITIES PROVIDED FOR MEASURING THE SEWAGE FLOW? ☐ Yes ☐ No

12. SAFETY:

A. ARE FACILITIES PROVIDED TO EFFECTIVELY PROTECT THE OPERATOR AND VISITORS? ☐ Yes ☐ No

13. OUTFALL SEWER:

A. IS THE OUTFALL SEWER ADEQUATELY PROTECTED TO ENSURE ITS STRUCTURAL STABILITY AND FREEDOM FROM STOPPAGE? ☐ Yes ☐ No

B. IS AN OUTFALL HEAD WALL PROVIDED? ☐ Yes ☐ No ☐ N/A

C. DOES THE OUTFALL EXTEND TO THE LOW WATER MARK OF THE RECEIVING STREAM? ☐ Yes ☐ No ☐ N/A

14. HAVE PROVISIONS BEEN MADE TO PROTECT ALL STRUCTURES AGAINST FLOTATION? ☐ Yes ☐ No

15. IF THE PROJECT INVOLVES ADDITIONS TO AN EXISTING TREATMENT PLANT, DO THE SPECIFICATIONS INCLUDE A PROGRAM TO PREVENT BY-PASSING OF ANY UNIT TO WATERS OF THE COMMONWEALTH DURING CONSTRUCTION? ☐ Yes ☐ No ☐ N/A

A. SPECIFY VOLUME AND PAGE NUMBER OF SPECIFICATIONS: _____

16. SPECIFY NAMES OF MUNICIPALITIES AND POPULATION SERVED OR TO BE SERVED BY THIS PLANT: _____

ER-BWQ-3 88 (REV 3/88)

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

DATE RECEIVED: 1/7/77
DATE REVISED:

WATER POLLUTION CONTROL
MODULE 1 - GENERAL INFORMATION
SEWERAGE

For Department Use Only

E. RECEIVING STREAM* THIS SHEET NOT APPLICABLE

1. WHAT IS THE NAME OF THE RECEIVING STREAM? _____

   A. TRIBUTARY OF _____

   B. TRIBUTARY OF _____

   C. MAJOR DRAINAGE BASIN ☐ DELAWARE ☐ SUSQUEHANNA ☐ POTOMAC ☐ LAKE ERIE ☐ GENESEE ☐ ALLEGHENY ☐ MONONGAHELA ☐ OHIO

2. DESCRIBE THE EXACT POINT OF DISCHARGE:

   _____ DEG, _____ MIN, _____ SEC LATITUDE

   _____ DEG, _____ MIN, _____ SEC LONGITUDE

   A. WATERSHED AREA ABOVE POINT OF DISCHARGE IS

   _____ SQUARE MILES.

3. WHAT IS THE:

   A. MINIMUM 7-CONSECUTIVE-DAYS FLOW OCCURRING ONCE IN 10 YEARS?

   _____ CUBIC FEET PER SECOND.

   B. MINIMUM STREAM FLOW: _____

   C. ABOVE FLOWS ARE BASED ON: ☐ MEASUREMENTS ☐ ESTIMATES

   _____ YEARS OF RECORD

4. IS THE TREATMENT PLANT SUBJECT TO FLOODING? ☐ Yes ☐ No

5. THE PROBABILITY OF THE TREATMENT PLANT BEING OUT OF SERVICE DUE TO FLOODING IS ONCE IN _____ YEARS.

   A. LIST BRIEFLY THE METHODS USED FOR FLOOD PROTECTION: _____

* Attach U.S. Geological Survey 7.5' or 15' Quadrangle Map showing exact points of discharge.

ER-BWQ-188.1-REV. 3/75

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED 1/7/77

DATE REVISED

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

THIS SHEET NOT APPLICABLE

E. RECEIVING STREAM – CONTINUED

6. TO THE BEST OF YOUR KNOWLEDGE, WILL THE TREATED WASTE DISCHARGE ADVERSELY AFFECT:

A. DOMESTIC WATER SUPPLY?	☐ Yes	☐ No
B. BATHING?	☐ Yes	☐ No
C. STOCK WATERING?	☐ Yes	☐ No
D. FISH AND AQUATIC LIFE?	☐ Yes	☐ No
E. INDUSTRIAL WATER SUPPLY?	☐ Yes	☐ No
F. IRRIGATION?	☐ Yes	☐ No
G. BOATING AND AESTHETICS?	☐ Yes	☐ No

7. IF ANY ITEMS IN 6 ABOVE ARE ANSWERED YES, INDICATE DISTANCE TO, LOCATION OF, AND EXTENT OF ADVERSE EFFECT

PFC 531

COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA FISH COMMISSION

Subject: Review of Permit Application with Recommendations

Date:

In Reply To: 4677404

To: Department of Environmental Resources

From: Pennsylvania Fish Commission

Permit Applicant: Country Meadows

Type of Construction: Sanitary Sewer Stream Crossings

Location: County Montgomery Township Towamencin

Other

Stream Affected Unnamed Trib Trib. To Skippack Creek

Trout Stream No (yes or no) Stocked No (yes or no)

Warm Water Stream No (yes or no) Polluted Unk. (yes or no)

Other Fishing Pressure Unk. (high, med., low, none)

Primary Species Bait-fish, fish-bait.

☐ Insufficient data submitted. Project approval will be considered only after more details are provided for review.

THE FOLLOWING CONDITIONS ARE TO BE MADE PART OF ALL PERMITS:

1. Stream bed shall not be used as roadway for moving machinery from one site to another. Temporary stream crossings must be provided for equipment that must cross stream during construction. Structures are to be removed and stream bed returned to its original condition when project is completed.
2. Siltation control shall be provided for during construction and bank stabilization shall be undertaken by planting of grasses, shrubbery, or trees immediately after completion of each phase of project.
3. When channel change occurs, the stream bed shall not exceed original width, and if a greater cross sectional area is required, an elevated flood plain must be put into use.
4. All material and debris removed from stream bed shall be moved entirely out of the flood plain area.
5. A permit must be secured from the Pennsylvania Fish Commission in Harrisburg, if the use of explosives is required; P.F.C. Waterways Patrolman must be notified when project is started, when explosives are to be used, and when project is completed for final inspection.

COMMENTS: No Channel relocation.

Jay B. Johnston (Waterways Patrolman) Approved Yes (yes or no) Date 3/14/77

Jack D. Miller (Chief, Fisheries Environmental Services) Approved Yes (yes or no) Date 3/16/77

ER-BWQ-168.6 REV. 3/75 COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED 1-10-77
DATE REVISED

WATER POLLUTION CONTROL

For Department Use Only

MODULE 6 – SEWERS AND APPURTENANCES

CLASS OF CONSTRUCTION (Check All Applicable Blocks)
[X] NEW SYSTEM
[ ] REPLACEMENT OF EXISTING SYSTEM
[X] EXTENSION(S) TO EXISTING SYSTEM

TABLE I – DESIGN FLOW AND LOADING INFORMATION

1. POPULATION TO BE SERVED	INITIAL 32	DESIGN 161 (this project)*	DESIGN YEAR 1978
2. AREA TO BE SERVED: Residential	ACRES (INITIAL) 41.9 (this project)*		
TYPE OF AREA (Residential, Commercial, Etc.): Residential	ACRES (FUTURE) Potential additional 260± Ac. (See appended Sheet 6-1a.)		

3.			
A. LATERALS AND SUB-MAIN SEWERS	(GPCD)	400
B. MAIN AND TRUNK SEWERS	(GPCD)	N/A
C. INTERCEPTORS	(GPCD)	N/A
(1) MEASURED DRY-WEATHER FLOW	(%)	N/A
(2) ESTIMATED DRY-WEATHER FLOW	(%)	N/A

D. IF ANY VALUES LESS THAN PRESCRIBED IN MANUAL, EXPLAIN: None

4. DESIGN FLOW DATA	GPCD	MGD
A. AVERAGE DAILY FLOW	100	.0161
B. INFILTRATION		incl. in "A"
C. MAXIMUM INDUSTRIAL WASTE FLOW		N/A
D. TOTAL DESIGN FLOW		.0161*
E. MAXIMUM FLOW RATE		.0644*

*(this project)

TABLE II – GENERAL DESIGN

PIPE DIAMETER (IN.)	MINIMUM SLOPE (%)	MAXIMUM SLOPE (%)	MAXIMUM VELOCITY (FPS)	MAXIMUM FLOW (MGD)	MAXIMUM DISTANCE BETWEEN MANHOLES (Ft.) SEWERS 18 IN. OR LESS	MAXIMUM DISTANCE BETWEEN MANHOLES (Ft.) SEWERS 18 IN. TO 30 IN.	TYPE OF SEWER MATERIAL	"N" VALUE
8"	1.48*	10.63	11.5	0.95*	400		ACP	.013
10"	0.87*	2.72	6.6	1.29*	275		ACP	.013
12"	0.30*	—	2.5	1.22*	145		ACP	.013

*Full Flow

(USE ADDITIONAL SHEETS IF NECESSARY)

TABLE III – CRITICAL DATA N/A

PLAN SHEET NUMBER	MANHOLE NUMBER FROM	MANHOLE NUMBER TO	SEWER PIPE SIZE (IN.)	SEWER SLOPE (%)	POPULATION SERVED	TOTAL DESIGN FLOW (MGD)	SEWER FLOWING FULL VEL. (FPS)	SEWER FLOWING FULL CAP. (MGD)	MAXIMUM FLOW VELOCITY (FPS)
(No Critical Sections)									

ER-BWQ-188.0 REV. 5/75

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: 1-10-77
DATE REVISED:

WATER POLLUTION CONTROL

For Department Use Only

MODULE 6 – SEWERS AND APPURTENANCES

A. GENERAL DESIGN

1. ARE THE PROPOSED SEWERS DESIGNED AS SEPARATE SANITARY SEWERS? [X] Yes [ ] No

   A. IF NO, EXPLAIN IN DETAIL, INCLUDING THE POSSIBLE EFFECTS UPON WATER COURSES.

   N/A

2. ARE THE PROPOSED SEWERS DEEP ENOUGH TO SERVE ALL ADJACENT BASEMENTS? [X] Yes [ ] No

   A. IF NO, EXPLAIN. N/A

3. ARE THERE ANY OVERFLOWS OR BYPASSES OTHER THAN FROM PUMP STATIONS? [ ] Yes [X] No

   A. IF YES, SPECIFY PLAN SHEET(S) WHERE SHOWN. N/A

4. WHERE SMALLER SEWERS JOIN LARGER ONES, HAVE THE INVERTS OF THE LARGER SEWERS BEEN LOWERED SUFFICIENTLY TO MAINTAIN THE SAME ENERGY GRADIENT? [X] Yes [ ] No [ ] N/A

5. SPECIFY THE TYPE OF LEAKAGE TEST (INFILTRATION AND/OR EXFILTRATION) AND THE LIMIT TO BE USED, PREFERABLY IN TERMS OF GALLONS PER INCH OF PIPE DIAMETER PER MILES PER DAY. (INDICATE VOLUME AND PAGE NUMBER OF SPECIFICATIONS.)

   TYPE AND LIMITS: Infiltration/exfiltration---not to exceed 200 gal. per inch pipe diameter per day per mile of sewer.

6. HAVE PROVISIONS BEEN MADE TO PROTECT SEWERS AT VELOCITIES OF OVER 15 FEET PER SECOND? [ ] Yes [ ] No [X] N/A

   A. ARE SEWERS SECURED WITH CONCRETE ANCHORS (OR EQUAL) SPACED AS REQUIRED? [ ] Yes [ ] No [X] N/A

7. ARE MANHOLES PROVIDED AT ALL CHANGES IN SIZE, GRADE, ALIGNMENT, AND SEWER INTERSECTIONS? [X] Yes [ ] No

8. ARE DROP MANHOLES PROVIDED WHERE THE ENTRANCE SEWER INVERT IS 24 INCHES OR MORE ABOVE MANHOLE INVERT? [ ] Yes [ ] No N/A

9. ARE WATERTIGHT COVERS USED WHERE MANHOLES ARE SUBJECT TO FLOODING BY STREET RUNOFF OF HIGH WATER? [X] Yes [ ] No

467404

SUPPLEMENTARY SHEET 6-1a.

6-1 - Table 1-2. Acres (future)

The Towamencin Township gravity sub-shed (of which Country Meadows II subdivision is a part) tributary to the Authority system via this project's 511A to 511A-7 sewer extension to existing Authority T-S Trunk Line, comprises an additional 260± acres of future development potential.

DATE REVISED

WATER POLLUTION CONTROL

For Department Use Only

MODULE 6 - SEWERS AND APPURTENANCES

A. GENERAL DESIGN

1. ARE THE PROPOSED SEWERS DESIGNED AS SEPARATE SANITARY SEWERS? ☒ Yes ☐ No

2. IF NO, EXPLAIN IN DETAIL, INCLUDING THE POSSIBLE EFFECTS UPON WATER COURSES

N/A

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES

ER-BWQ-188.6 REV. 3/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: 1-10-77
DATE REVISED:

WATER POLLUTION CONTROL

For Department Use Only

MODULE 6 – SEWERS AND APPURTENANCES

A. GENERAL INFORMATION – CONTINUED

10. ARE SEWERS IN STREAMS PROTECTED WITH AT LEAST 1 FOOT COVER IN ROCK AND 3 FEET COVER IN OTHER MATERIAL? [X] * Yes [ ] No [ ] N/A
*concrete encasement @ crossings

11. ARE SEWERS IN STREAMS CONSTRUCTED TO REMAIN WATERTIGHT AND IN ALIGNMENT? [X] Yes [ ] No [ ] N/A

12. DOES THE APPLICATION INVOLVE CAPPED SEWERS? [ ] Yes [X] No

A. IF YES, SPECIFY PLAN SHEET NUMBER. N/A

13. HOW MANY INVERTED SIPHONS ARE INCLUDED IN THIS DESIGN? None

14. IF SIPHONS ARE INCLUDED, SPECIFY THE FOLLOWING:

	SIPHON:	SIPHON:	SIPHON:
A. NUMBER OF BARRELS			
B. MINIMUM PIPE SIZE			
C. MINIMUM VELOCITY AT AVERAGE FLOW			

D. HAS PROVISION BEEN MADE FOR FLUSHING, RODDING, AND MAINTENANCE? [ ] Yes [ ] No [X] N/A

15. IS THERE ANY CONNECTION BETWEEN THE SEWER AND A PUBLIC OR PRIVATE POTABLE WATER SUPPLY OR APPURTENANCES? [ ] Yes [X] No

16. ARE ANY WATER SUPPLY SOURCES, PUBLIC OR PRIVATE, LOCATED WITHIN 200 FEET OF THE SEWERS? [ ] Yes [X] No

A. IF YES, SPECIFY PLAN SHEET(S) ON WHICH SOURCES ARE SHOWN. N/A

B. IF YES, WILL SEWERS BE ENCASED OR WATERTIGHT? N/A [ ] Yes [ ] No

17. ARE SEWERS AT LEAST 10 FEET HORIZONTALLY FROM WATER LINES AND/OR AT LEAST 18 INCHES BELOW THE WATER LINE? [X] Yes [ ] No

18. IF THE PROPOSED FACILITY WILL DISCHARGE TO THE SEWER SYSTEM AND TREATMENT PLANT OF ANOTHER MUNICIPALITY, HAVE APPROPRIATE AGREEMENTS BEEN REACHED? [ ] Yes [ ] No [X] N/A

A. IS THE AGREEMENT A CERTIFIED AGREEMENT? [ ] Yes [ ] No [X] N/A

B. IS THE AGREEMENT A LETTER OF INTENT? [ ] Yes [ ] No [X] N/A

C. HAVE DUPLICATE COPIES BEEN ENCLOSED? N/A [ ] Yes [ ] No

19. DO THE EXISTING SEWERS TO WHICH THE PROPOSED SEWERS WILL CONNECT HAVE ADEQUATE CAPACITY TO CONVEY THE ADDITIONAL FLOW? [X] Yes [ ] No [ ] N/A

ER-BWQ-188.6 REV. 2/75

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

DATE PREPARED: 1-10-77
DATE REVISED:

For Department Use Only

MODULE 6 – SEWERS AND APPURTENANCES

A. GENERAL INFORMATION – CONTINUED

20. ON THE PLANS, INDICATE THE PERMIT NUMBER OF EXISTING SEWER AT EACH PROPOSED POINT OF CONNECTION AND THE NAME OF THE PERMITEE; SPECIFY PLAN SHEET NUMBER(S) ON WHICH INDICATED: (#765513) ☐ N/A

Construction Improvement Plan Sheet #2 & Profile Sheet #9

21. WILL THERE BE A PUMP STATION INVOLVED IN RECEIVING SEWAGE FROM THE SEWER EXTENSION? ☐ Yes ☒ No ☐ N/A

A. IF YES, SPECIFY PRESENT AND DESIGN FLOWS OF PUMPING STATION. N/A

22. RECEIVING SEWAGE TREATMENT PLANT (FILL IN FOR EXTENSION(S) TO EXISTING SYSTEM ONLY)

A. OWNER OF PLANT Upper Gwynedd-Towamencin Municipal Authority

B. NAME OF PLANT U.G.-Tow. Mun. Auth. Waste Water Treatment Plant

C. DISCHARGE DATA

	WASTE FLOW (MGD)	SOLIDS SUSPENDED (#/DAY)	SOLIDS SETTLEABLE (ML/L)	BOD 5 DAY 20°C (#/DAY)
(1) ALLOWABLE LOAD TO STREAM AUTHORIZED UNDER PRESENT PERMIT	2.5 (1) by Jan/77 under current exp.	376	None stated	90
(2) PRESENT LOAD TO STREAM FROM TREATMENT PLANT	1.28 (2)	214	0.4 ave.	160
(3) ADDITIONAL LOAD TO STREAM EXPECTED DURING THE NEXT FIVE YEARS FROM EXISTING SYSTEM	0.1771 (3)	32	0.4	22
(4) ADDITIONAL LOAD TO STREAM DURING THE NEXT FIVE YEARS FROM PROPOSED EXTENSION	0.0161	3	0.4	2
(5) TOTAL ANTICIPATED LOAD TO STREAM IN NEXT FIVE YEARS (2+3+4)	1.4732	249	0.4	184

D. TREATMENT PLANT OPERATING EFFICIENCY

	SOLIDS SUSPENDED (%)	SOLIDS SETTLEABLE (%)	BOD 5 DAY 20° C (%)
(1) PRESENT TREATMENT PLANT	88.9	97.7	91
(2) AFTER INITIAL LOAD FROM PROPOSED EXTENSION	88.9	97.7	91
(3) IN FIVE YEARS	88	98	90

23. WILL THE LOAD UNDER 22.B.(5) ABOVE PRODUCE AN EFFLUENT THAT WILL HAVE AN ADVERSE EFFECT UPON THE RECEIVING STREAM? ☐ Yes ☒ No

Note (1), (2), (3) - See supplemental Sheet 6-4a.

4676404

SUPPLEMENTARY SHEET 6-4a.

NOTES: Re: 6-4: 22.C.

(1) 1.5 MGD present, plus 1.0 MGD current expansion cap. = 2.5 MGD

(2) Ave. Daily Flow: 4/1 to 5/31/76

(3) Includes recently approved Korman Corporation Subdivision (Permit #4676422) and Nash Subdivision (Permit #4676424) incremental contributions.

VOID

MODULE 6 - SEWERS AND APPURTENANCES

A. GENERAL INFORMATION - CONTINUED

30. ON THE PLANS, INDICATE THE PERMIT NUMBER OF EXISTING SEWERS AT EACH PROPOSED POINT OF CONNECTION AND THE NAME OF THE PERMITTEE. SPECIFY PLAN SHEET NUMBER(S) ON WHICH INDICATED. N/A

Construction Improvement Plan Sheet #2 & Profile Sheet #

31. WILL THERE BE A PUMPSTATION INVOLVED IN RECEIVING SEWAGES FROM THE SEWER EXTENSION? Yes [ ] No [X] N/A [ ]

FLOWS OR PUMPING STATION N/A

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES

TO BE COMPLETED BY THE REGIONAL SANITARY ENGINEER

ER-BWQ-188.6 REV. 3/75

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED
1-10-77

DATE REVISED

WATER POLLUTION CONTROL

MODULE 6 – SEWERS AND APPURTENANCES

For Department Use Only

A. GENERAL INFORMATION – CONTINUED

A. IF YES, EXPLAIN N/A

3 IS THE TREATMENT PLANT IN COMPLIANCE? ☐ Yes ☐ No

B. IF APPLICANT IS NOT OWNER OF THE RECEIVING SEWAGE TREATMENT PLANT, INDICATE SOURCE OF INFORMATION.

N/A

TO BE COMPLETED BY THE REGIONAL SANITARY ENGINEER

1. WILL THE LOAD UNDER 22.B.(5) MEET THE PERMIT REQUIREMENTS? ☐ Yes ☐ No

   A. WILL THE LOAD UNDER 22.B.(5) CAUSE POLLUTION OF THE RECEIVING STREAM? ☐ Yes ☐ No

2. IS THERE ANY QUESTION AS TO WHETHER THE LOAD IS NOW CAUSING OR WILL CAUSE POLLUTION? ☐ Yes ☐ No

   A. IF YES, COMPLETE A POLLUTION REPORT.

3. IS THE TREATMENT PLANT IN COMPLIANCE? ☐ Yes ☐ No

SUPPLEMENTARY SHEET NO.

NOTES: Re: 6-4: 22.C.

(1) 1.5 MGD present, plus 1.0 MGD current expansion cap. = 2.5 MGD

(2) Ave. Daily Flow: 4/1 to 9/31/76

(3) Includes recently approved Norman Corporation Subdivision (Permit #4676422) and Nash Subdivision (Permit #4676420) incremental contributions.

PA-BWQ-188.6(REV. 3/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

MODULE 6 – SEWERS AND APPURTENANCES

DATE PREPARED: 1-10-77
DATE REVISED: 3-8-77

For Department Use Only

A. GENERAL INFORMATION – CONTINUED

20. ON THE PLANS, INDICATE THE PERMIT NUMBER OF EXISTING SEWER AT EACH PROPOSED POINT OF CONNECTION AND THE NAME OF THE PERMITEE, SPECIFY PLAN SHEET NUMBER(S) ON WHICH INDICATED. (#765513) ☐ N/A

Construction Improvement Plan Sheet #2 & Profile Sheet #9

21. WILL THERE BE A PUMP STATION INVOLVED IN RECEIVING SEWAGE FROM THE SEWER EXTENSION? ☐ Yes ☒ No ☐ N/A

A. IF YES, SPECIFY PRESENT AND DESIGN FLOWS OF PUMPING STATION. N/A

22. RECEIVING SEWAGE TREATMENT PLANT (FILL IN FOR EXTENSION(S) TO EXISTING SYSTEM ONLY)

A. OWNER OF PLANT Upper Gwynedd-Towamencin Municipal Authority

B. NAME OF PLANT U. G.-Tow. Mun. Auth. Waste Water Treatment Plant

C. DISCHARGE DATA

	WASTE FLOW (MGD)	SOLIDS SUSPENDED (#/DAY)	SOLIDS SETTLEABLE (ML/L)	BOD 5 DAY 20°C (#/DAY)
(1) ALLOWABLE LOAD TO STREAM AUTHORIZED UNDER PRESENT PERMIT	2.5 (1) by Jun 77 under current exp.	376	None stated	90
(2) PRESENT LOAD TO STREAM FROM TREATMENT PLANT	1.166 (2)	214	0.4 ave.	160
(3) ADDITIONAL LOAD TO STREAM EXPECTED DURING THE NEXT FIVE YEARS FROM EXISTING SYSTEM	0.1771 (3)	32	0.4	22
(4) ADDITIONAL LOAD TO STREAM DURING THE NEXT FIVE YEARS FROM PROPOSED EXTENSION	0.161	3	0.4	2
(5) TOTAL ANTICIPATED LOAD TO STREAM IN NEXT FIVE YEARS (2+3+4)	1.3592	249	0.4	184

D. TREATMENT PLANT OPERATING EFFICIENCY

	SOLIDS SUSPENDED (%)	SOLIDS SETTLEABLE (%)	BOD 5 DAY 20° C (%)
(1) PRESENT TREATMENT PLANT	88.9	97.7	91
(2) AFTER INITIAL LOAD FROM PROPOSED EXTENSION	88.9	97.7	91
(3) IN FIVE YEARS	88	98	90

23. WILL THE LOAD UNDER 22.B.(5) ABOVE PRODUCE AN EFFLUENT THAT WILL HAVE AN ADVERSE EFFECT UPON THE RECEIVING STREAM? ☐ Yes ☒ No

Notes (1), (2), (3) – See supplemental Sheet 6-4a.

4677404

SUPPLEMENTARY SHEET 6-4a.

NOTES: Re: 6-4: 22.C.

(1) 1.5 MGD present, plus 1.0 MGD current expansion cap. = 2.5 MGD Estimated completion date, current plant expansion is June-July 1977.

(2) Ave. Daily Flow: From Monthly Operations Reports - Jan. 1975 to Jan. 1976, incl.)

(3) Includes recently approved Korman Corporation Subdivision (Permit #4676422) and Nash Subdivision (Permit #4676424) incremental contributions.

A. GENERAL INFORMATION – CONTINUED

20. ON THE PLANS, INDICATE THE PERMIT NUMBER OF EXISTING SEWER AT EACH PROPOSED POINT OF CONNECTION AND THE NAME OF THE PERMITTEE. SPECIFY PLAN SHEET NUMBER(S) ON WHICH INDICATED (#765513) Construction Improvement Plan Sheet #2 & Profile Sheet #9 ☐ N/A

21. WILL THERE BE A PUMP STATION INVOLVED IN RECEIVING SEWAGE FROM THE SEWER EXTENSION? ☐ YES ☒ NO ☐ N/A

A. IF YES SPECIFY PRESENT AND DESIGN FLOWS OF PUMPING STATION N/A

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

DATE PREPARED 1-10-77
REVISED 1-18-77

UNTRY MEADOWS EAST SECTION II

SANITARY SEWER DESIGN ANALYSIS

JAN, 1977 SHEET 1

MUNICIPALITY TOWAMENCIN TOWNSHIP COUNTY MONTGOMERY

	M.H. TO M.H.	LENGTH (FEET)	INVERT/INVERT	FALL (FEET)	SLOPE (FT PER FT)	CONNECTIONS INCREM'T	CONNECTIONS TOTAL	POPULATION @ 3.5/E.D.U.	FULL FLOW MGD @ 100% filled n = .013	PIPE	Des
NT	511A-7		253.00								
OURSE	511A-6	250	247.20	5.80	0.0232	2	2	7.0	0.0028	10"	
	SUB-TOTAL THIS LINE @ MH. 511A-6						2	7.0	0.0028		
	511A-6.5		290.61								
Y	511A-6.4	245	286.20	4.41	0.0180	8	8	28	0.0112	8"	
	511A-6.4		286.04								
	511A-6.3	241	281.59	4.41	0.0183	2	10	35	0.0140	8"	
	511A-6.3		281.39								
	511A-6.2	145	279.25	2.14	0.0148	2	12	42	0.0168	8"	
L	511A-6.2		279.05								
	511A-6.1	310	266.00	13.05	0.0421	2	14	49	0.0196	8"	
	511A-6.1		265.80								
T	511A-6	175	247.20	18.60	0.1063	3	17	59.5	0.0238	8"	
	TOTAL @ M.H. 511A-6						19	66.5	0.0266		
IT	511A-6		247.00								
URSE	511A-5	275	244.60	2.40	0.0087	0	19	66.5	0.0266	10"	
	SUB-TOTAL THIS LINE @ M.H. 511A-5						19	66.5	0.0266		
	511A-5.3		278.80								
	511A-5.2	382	271.48	7.32	0.0192	9	9	31.5	0.0126	8"	
	511A-5.2		271.28								
	511A-5.1	280	262.40	8.88	0.0317	2	11	38.5	0.0154	8"	
	511A-5.1		262.20								
T	511A-5	195	244.60	17.60	0.0903	2	13	45.5	0.0182	8"	

COUNTRY MEADOWS, EAST SECTION II

SANITARY SEWER DESIGN ANALYSIS

JAN., 1977 SHEET

MUNICIPALITY TOWAMENCIN TOWNSHIP COUNTY MONTGOMERY

FEET	M.H. TO M.H.	LENGTH (FEET)	INVERT/INVERT	FALL FEET	SLOPE (FT PER FT)	CONNECTIONS INCREM'T	CONNECTIONS TOTAL	POPULATION @ 3.5/E.D.U.	FULL FLOW MGDC 400 g.p.c.d	PIPE n=.013
			TOTAL @ M.H. 511A-5				32	112	0.0448	
EMENT	511A-5 / 511A-4	250	244.40 / 241.20	3.20	0.0128	1	33	115.5	0.0462	10"
RNG	511A-4 / 511A-3	250	241.00 / 234.20	6.80	0.0272	2	35	122.5	0.0490	10"
COURSE	511A-3 / 511A-2	275	234.00 / 229.80	4.20	0.0153	1	36	126	0.0504	10"
			SUB-TOTAL THIS LINE @ M.H. 511A-2				36	126	0.0504	
BIN	511A-24 / 511A-23	146	276.72 / 272.25	4.47	0.0306	3	3	10.5	0.0042	8"
WAY	511A-2.3 / 511A-2.2	264	272.05 / 259.20	12.85	0.0487	2	5	17.5	0.0070	8"
DINAL WAY	511A-2.2 / 511A-2.1	331	259.00 / 250.20	8.80	0.0266	2	7	24.5	0.0098	8"
L WAY & EASEM	511A-2.1 / 511A-2	230	250.00 / 229.80	20.20	0.0878	4	11	38.5	0.0154	8"
			TOTAL @ M.H. 511A-2				47	164.5	0.0658	
SEMENT	511A-2 / 511A-1	90	229.60 / 228.00	1.60	0.01778	0	47	164.5	0.0658	10"
.07 34										
ONG COURSE	511A-1 / 511A *	145	227.74 / 227.30	0.44	0.0030	0	47	164.5	0.0658	12"

* M.H. 511A IS PROPOSED J.M.H. CONNECTION @ EXISTING AUTH. 18"d. T-S TRUNK LINE

NOTE: (D)

COUNTRY MEADOWS EAST - SECTION II

BEFORE DEVELOPMENT

PA. ENG 13 U.S. DEPARTMENT OF AGRICULTURE
Rev 4-69
File Code: SOIL CONSERVATION SERVICE
ENG. 11

HYDROLOGIC DATA FOR WATERSHED
COUNTRY MEADOWS EAST
NAME SECTION II DATE 2-28-77

Size of drainage area 41.2± acres (PROJECT SITE AREA)

Average slope of watershed 4±%

Slope Factor (flat, moderate, steep)

Hydro. Soil Group	Land Use	Condition or Practice	Soil Cover No	Area Acres	Comp. No X Acres
C	ROTATION MEADOW - STRAIGHT ROW	GOOD	81	38.3	3102
C	WOODS	FAIR	73	2.9	212

WEIGHTED SOIL COVER COMPLEX NO.
TOTAL COL 6 / TOTAL COL B = 3314 / 41.2 = 80.4 (use curve 80)

RAINFALL (24 hr.) 100 YEAR FREQUENCY 7.1 INCHES

DIRECT RUNOFF Q = 4.79 INCHES

PEAK DISCHARGE q = 175± C.F.S.

AFTER DEVELOPMENT

PA. ENG 13 U.S. DEPARTMENT OF AGRICULTURE
Rev 4-69
File Code: SOIL CONSERVATION SERVICE
ENG. 11

HYDROLOGIC DATA FOR WATERSHED
COUNTRY MEADOWS EAST
NAME SECTION II DATE 2-

Size of drainage area 41.2± acres

Average slope of watershed 4±%

Slope Factor (flat, moderate, steep)

Hydro. Soil Group	Land Use	Condition or Practice	Soil Cover No	Area Acres
C	3/4 ACRE RESID. LOTS	———	80	41.2

WEIGHTED SOIL COVER COMPLEX NO.
TOTAL COL 6 / TOTAL COL B = ____ = curve

RAINFALL (24 hr.) 100 YEAR FREQUENCY 7.1

DIRECT RUNOFF Q = 4.79 INCHES

PEAK DISCHARGE q = 175± C.F.S.

HERBERT H. METZ, INC.

EXHIBIT "

TOWAMENCIN TOWNSHIP, MONTGOMERY COUNTY, PA.

467404

NARRATIVE REPORT

EROSION AND SEDIMENTATION CONTROL PLAN

FOR

COUNTRY MEADOWS EAST - SECTION 2

LOT SUBDIVISION DEVELOPMENT

OF

A. M. DiLUCIA, INC.

TOWAMENCIN TOWNSHIP, MONTGOMERY COUNTY, PA.

JANUARY 1977

HERBERT H. METZ, INC.

COUNTRY MEADOWS EAST - SECTION II

BEFORE DEVELOPMENT

AFTER DEVELOPMENT

JANUARY 1977

HERBERT H. METZ, INC.

1. GENERAL DESCRIPTION OF SITE LOCATION

The project site is a 42± acre tract of land situated on the Northerly corner of Tomlinson Road (T-438) and Reinert Road (T-401) in Towamencin Township. The Tract is bounded on the West by Tomlinson Road; on the North by a tributary to Skippack Creek and occupied residential properties; on the East by a developed residential lot subdivision; and on the South by Reinert Road.

Soils composition on the site, as identified by the Montgomery County Soils Survey, include Bowmansville, Klinesville, Readington and Reaville classifications. Surface slopes on the site range from 2% to 15% on land which has been utilized as a farm homestead for open meadow and some crop growth. A small tributary to a branch of Skippack Creek from a crossing at Reinert Road, courses Southeast to Northwest within and along the Easterly boundary of the site.

2. GENERAL DESCRIPTION OF STORM WATER COLLECTION AND CONTROL

The storm water pipe and inlet collection system was designed using 10-year storm frequency criteria. Inlets and storm sewers have been planned for placement at appropriate critical locations along the tract streets and in lot easements for dispersal to a natural water course on the tract at several locations to minimize point runoff impact.

Oversize pipe outfalls at minimum slopes and outlet energy-dissipating devices are designed for release at reduced velocities.

3. GENERAL DESCRIPTION OF ACCELERATED EROSION CONTROL

As hereinafter described and as shown and noted on the Erosion and Sedimentation Control Plan, and in the following (Item #8) construction control stage sequence, the following erosion control procedures and devices shall be employed. It should be noted that development is to proceed under controlled building-permit allocation schedule in phase with current treatment plant expansion.

The streets shall be graded and crushed stone base course applied, and curbing placed as soon as possible, to prevent erosion of the sub-grade. During street grading, interceptor dikes, filter berms and filter inlets shall be constructed at appropriate intervals to minimize gullying and washing, and siltation in pipes and water courses.

Graded slopes, swales and diversions, on-lot sedimentation control features and other critical disturbed areas shall be temporarily seeded following earth-moving procedures.

3. continued

Rear-of-lot belt areas not significant to the progression of construction of houses and improvements and drainage controls shall be left undisturbed until lawn grading phase of finish construction. In addition, top soil storage as a protective berm may be utilized across the down-slope limit of construction on lots along the natural water course.

4. GENERAL DESCRIPTION OF SEDIMENTATION CONTROL

On-lot protection during construction will be provided by temporary controlled-flow interceptor diversion berms.

Interceptor dikes and stone filter inlets and filter berms shall be employed, during specific construction phases at appropriate spaced locations across or along graded rights-of-way, such as noted on the Erosion and Sedimentation Control Plan. Stone ballast over-berm to be placed at intersection of proposed road with existing road.

Upon completion of construction, the temporary diversions and filter inlets shall be removed and the remaining areas re-graded and seeded or paved.

5. SANITARY SEWERAGE FACILITIES

Public sanitary sewerage facilities are proposed to serve this development, with planned sanitary sewer extensions to connect and discharge into the existing Upper Gwynedd-Towamencin Municipal Sewer Authority Sanitary Sewer System via gravity sewer connection to the existing Authority T-S trunk collector sewer.

Collected sewage will be conveyed by the Authority system for treatment at the Upper Gwynedd-Towamencin Municipal Sewer Authority plant.

6. TOPOGRAPHIC AND GEOLOGIC FEATURES

The topography shown on the plans is based on actual physical ground surveys, and elevation data is based on U.S.G.S. and Upper Gwynedd-Towamencin Municipal Sewer Authority datum. The soils information is taken from Soil Conservation Service and Montgomery County Soil Survey data and is indicated on the Erosion and Sedimentation Control Plan and supporting data.

Approximately half of the planned residential lot sites are situated in areas of Readington and Reaville soils which are characteristically subject to seasonal high water tables. Effective underground drainage facilities around foundations constructed in these classes of soils should be implemented. Foundations drainage (French drain, pipe, etc.) should be directed by gravity flow to ground surface or street gutter grade wherever possible.

7. HYDROLOGIC RUNOFF COMPUTATIONS

The Montgomery County Soil Conservation Service Erosion and Sedimentation Control Handbook and Soils Conservation Engineering Field Manual were used as references.

8. STAGING OF EARTHMOVING ACTIVITIES

a. Construct interceptor diversions in accordance with the design criteria shown on the Control Plan. Grade and seed all exposed areas of embankments.

b. Clear and grub street rights-of-way and building sites.

c. Available topsoil shall be removed and stockpiled for re-use in finish grading. Should be stockpiled or wind-rowed down-slope from construction area where feasible.

d. Juncture portion of proposed road with existing road is to be graded and stone ballast placed, with a ballast over-berm formed across the throat of the intersection as an erosion and sediment control deterrent and stabilization device for protection of the existing roadway.

e. Rough grade roadways to proposed sub-grade elevation gradient and cross-section.

f. Install storm sewers and sanitary sewers and appurtenant structures. Install all underground utilities. Direct surface runoff to completed storm drainage facilities by constructed temporary interceptor channels and dikes and filter inlets.

g. Temporarily seed all disturbed soil banks with rye grass.

h. Construct buildings, fine grade streets and place stone base course. (On-lot sedimentation control measures are to be constructed prior to improvements and house construction as noted in a.)

i. Finish grade and establish permanent seeding as soon as possible thereafter in building construction areas. Immediately following removal of temporary erosion and sedimentation control structures, grade and permanently seed these areas.

ER-BWQ-43 Rev. 2-73

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
Bureau of Water Quality Management

4677404
For Department Use Only

INTERNAL REVIEW AND RECOMMENDATIONS

REGIONAL ENGINEER'S REVIEW

NAME OF APPLICANT: Upper Gwynedd Towamencin Municipal Authority
PROJECT LOCATION: Towamencin Township, Montgomery County
APPLICATION NUMBER: 4677404

BRIEF DESCRIPTION OF PROJECT: This application requests approval for the construction of a sanitary sewer extension to serve the Country Meadows east Section II subdivision. The storm water aspects of this project has been reviewed and approved by the Facilities Section. This permit will be coordinated with permit #4677703 as well as another dams and encroachment permit for the stream relocation and three proposed headwalls. (App. No. 4677712).

DISCUSSION (Use Additional Sheets If Necessary): Sewage from the proposed sewer extension will be conveyed to the Upper Gwynedd Towamencin Municipal Authority Sewage Treatment Plant via existing Upper Gwynedd Towamencin Municipal Authority sewers covered under Permit #765S13. The final effluent will be afforded secondary treatment before discharge to the Towamencin Creek. The proposed sewer extension will serve 32 people initially and 161 ultimately. The soil erosion and sedimentation control plan has been reviewed and approved by the Montgomery County Conservation District.

CURRENT ESTIMATE OF COMPLETION DATE OF PROJECT (Industrial Wastes Only)

RECOMMENDATION AND ACTION

APPROVAL – RELEVANT LAWS, REGULATIONS, STANDARDS, AND POLICIES HAVE BEEN COMPLIED WITH:

Issue By Region	Issue By Central Office	Refuse	Signature	Date
☑	☐	☐	REVIEWING ENGINEER	3/27/77
☒	☐	☐	FACILITIES ENGINEER	4/7/77
☒	☐	☐	REGIONAL ENGINEER	4/7/77
	☐	☐	DIV. FACILITIES ENGINEER	
	☐	☐	DIVISION DIRECTOR	
		☐	BUREAU DIRECTOR	

PERMIT CONDITIONS:
1. STANDARD –
1 thru 9, 11 thru 14, 21, 22, 30, 31
Erosion Control (1973)

2. SPECIAL (Use Additional Sheets If Necessary) –

Recording of Permit: Montgomery County

EB-BWQ-15 Rev. 9/73

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT

NO. 4677404

A. PERMITTEE (Name and Address)
Upper Gwynedd Towamencin Municipal Auth.
2225 Kriebel Road
Lansdale, M.R., PA 19446

B. PROJECT LOCATION
Municipality: Towamencin Township
County: Montgomery

C. TYPE OF FACILITY OR ESTABLISHMENT
Sanitary Sewer Extension

D. NAME OF MINE, OPERATION OR AREA SERVED
Country Meadows East Section 2 Subdivision

E. THIS PERMIT APPROVES

1. Plans For Construction of
   - a. [X] SEWERS AND APPURTENANCES
   - b. [ ] SEWAGE TREATMENT FACILITIES
   - c. [ ] MINE DRAINAGE TREATMENT FACILITIES
   - d. [ ] INDUSTRIAL WASTE TREATMENT FACILITIES
   - e. [ ] OUTFALL & HEADWALL
   - f. [ ] STREAM CROSSING

2. The Discharge of: N/A
   - a. [ ] TREATED
   - [ ] UNTREATED
   - b. [ ] INDUSTRIAL WASTE
   - [ ] MINE DRAINAGE
   - [ ] SEWAGE

3. The Operation of: N/A
   - [ ] MINE MAXIMUM AREA TO BE DEEP MINED
   - [ ] DAM

4. An Erosion and Sedimentation Control Plan [X] PROJECT AREA IS 41.9 ACRES.

5. Nature of Discharge or Impoundment: N/A
   - [ ] DISCHARGE TO SURFACE WATER
   - [ ] DISCHARGE TO GROUND WATER
   - [ ] IMPOUNDMENT

(Name of Stream to which discharged or drainage area on which ground water discharge takes place or impoundment is located).

F. You are hereby authorized to construct, operate or discharge, as indicated above, provided that you comply with the following:

1. All representations regarding operations, construction, maintenance and closing procedures as well as all other matters set forth in your application and its supporting documents (Application No. 4677404 dated January 20, 1977), and amendments dated March 10, 1977. Such application, it's supporting documents and amendments are hereby made a part of this permit.
2. Conditions numbered 1 thru 9, 11 thru 14, 21, 22, 30, 31 of the Sewerage Standard Conditions dated 1972 which conditions are attached hereto and are made a part of this permit.
3. Special condition(s) designated This permit is also subject to the Standard Conditions Relating To Erosion Control (1972), which are attached hereto and are made a part of this permit.

G. The Authority granted by this permit is subject to the following further qualifications:

1. If there is a conflict between the application or its supporting documents and amendments and the standard or special conditions, the standard or special conditions shall apply.
2. Failure to comply with the Rules and Regulations of the Department or the terms or conditions of this permit shall void the authority given to the permittee by the Issuance of the permit.
3. This permit is issued pursuant to the Clean Streams Law, The Act of June 22, 1937, P.L. 1987, as amended and/or the Water Obstruction Act of June 25, 1913, P.L. 555 as amended. Issuance of this permit shall not relieve the permittee of any responsibility under any other law.

This permit must be recorded in the Recorder of Deeds Office in Montgomery County.

PERMIT ISSUED
DATE

DEPARTMENT OF ENVIRONMENTAL RESOURCES
BY C.T. Beechwood
C.T. Beechwood
TITLE Regional Sanitary Engineer

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
Norristown, Pennsylvania 19401
215 631-2405

May 24, 1977

Upper Gwynedd Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, M. R., PA 19446

Attention: H. Dimmig, Chairman

Re: Sewerage Permit #4677404
Upper Gwynedd Towamencin Municipal Authority
Towamencin Township, Montgomery County

Gentlemen:

Above referenced permit is enclosed.

Please study the permit carefully and direct any questions to the Facilities Section of this office.

To become operative this permit must be recorded in the Office of the Recorder of Deeds in the county in which the discharge is located. Enclosed is a certificate and pre-addressed envelope for this purpose. Please have the Recorder of Deeds accomplish the certificate and return it within ten (10) days.

Very truly yours,

C.T. Beechwood

C.T. Beechwood
Regional Sanitary Engineer

Enclosures: Permit
Standard Conditions Relating to Sewerage
Standard Conditions Relating to Erosion Control
Recorder of Deeds Certificate with envelope
Notary Public Certificate

CC: 30 day hold
Regional File
Central Files (WQM)
Herbert H. Metz, Inc.
Construction report forms

CTB:JP:smc

ER-BWQ-68 Rev. 4-73

Upper Gwynedd Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, M. R., PA 19446

Permit No. 4677404

Towamencin Township
Montgomery County

RECEIVED
JUN 9 1977
NORRISTOWN REGIONAL OFFICE

Commonwealth of Pennsylvania
Department of Environmental Resources

RECORDER OF DEEDS CERTIFICATE

I hereby certify that on JUN 08 1977 (Date) Loretta D. Bradbury Recorder of Deeds for

there was recorded in Book 4206 Montgomery County

page 207 the sewerage permit issued

to Upper Gwynedd Towamencin Mun. Auth.

bearing date of May 24, 1977

Loretta D. Bradbury
Deputy Recorder of Deeds for

Montgomery County

ER-BWQ-69 Rev. 4-73

STATE OF PENNSYLVANIA }
COUNTY OF MONTGOMERY } SS

On the 24th day of May in the year one thousand nine hundred and seventy seven before me, the Subscriber, a Notary Public, came the above named Christian T. Beechwood and duly acknowledged the foregoing permit to be his act and deed and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year aforesaid.

NOTARY PUBLIC
JOHN F. DALY, JR.
Notary Public, Norristown Boro., Mont'y. Co.
My Commission Expires August 10, 1981

Swamencin Township
Montgomery County

Commonwealth of Pennsylvania
Department of Environmental Resources

RECORDER OF DEEDS CERTIFICATE

ER-BWQ-68 Rev. 4-73

OA-501 12-67

COMMONWEALTH OF PENNSYLVANIA

February 7, 1977

SUBJECT: Application No. 4677404
Upper Gwynedd Towamencin M. A.

TO: Richard Hinkle, Chief
Facilities Section
Bureau of Water Quality Management

FROM: L. T. Gonshor
Regional Industrial Hygienist

The following are comments from the Bureau of Occupational Health relating to the above application.

Employees of private companies are subject to regulations of the federal Occupational Safety and Health Administration whereas employees of state and local government related agencies are subject to regulations of the Commonwealth.

The contract should include a clause that all work on the project must be done in compliance with State and Federal occupational health and safety regulations.

If rock drilling machinery is used, it must be equipped with an integral water or exhaust ventilation dust suppression device.

Potential noise exposures should be evaluated and control measures and medical programs (audiometric tests) implemented as necessary.

Potential dust exposures should be evaluated and control measures and medical programs (chest X-ray (14" x 17") examinations) implemented as necessary.

Where confined spaces (manholes, etc.) must be entered, the atmosphere must be tested for combustible gases (as a minimum) and mechanical ventilation used prior to entry and during occupancy. A worker must also be stationed outside the confined space to offer assistance should a problem occur. Procedures for entry must be submitted to the Department where the employer is subject to Commonwealth regulations.

Lasers used for alignment work must be registered with the Department and any injuries resulting from the use of lasers must be reported.

CC: G. Richey
CC: B.O.H.

ER-EPS-1-2174 Form No. 1 Application No.: 4677404

SUBJECT: Sewerage
Towamencin TWP
Montgomery County

CONTACT: Upper Gwynedd - Towamencin MA.
2225 Kriebel RD
Lansdale Pa 19446
APPL: 855-8160
Enf: 855-3111

New Proposal	✓
Revised Proposal	

FROM: R Hittle

TO: Regional Coordinator L Sanders

2/7/77

On 1-24-77, we received an application for plan approval and/or permit to construct

a Sewer extension. The proposed installation involves:

As to sewer Country Meadows Lot Subdivision in Towamencin TWP, Montgomery County.
(Sew to U Gwynedd-Towamencin STP)

Coordination — D/E Appl. # 4677703

Permit Coordination Requirements: An encroachment permit application is required for the Outfall Structure (Headwall) Application has been sent to the Conservation District.

	No Permit Required	No Permit Required Prior Approval Attached	Permit Required (Application Attached)	Permit Required (Application Needed)
Air Quality	✓			
Water Quality, " " , Dam			✓ 1/27	✓ 1/27
Land Protection	✓			
Community Env. Control	✓			
Occupational Health	See comments	✓		
Surface Mine Reclamation	✓			
Radiological Health	✓			

Please indicate your interest on this form and return to the Coordinator by 1-28-77.

DA-501 12-97

1875 New Hope Street
Norristown, Pennsylvania 19401
215 631-2402

February 8, 1977

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: H. Warren Dimmig

Re: Application Nos. 4677404, 4677703
Towamencin Township
Montgomery County

Gentlemen:

This will acknowledge receipt of your applications on January 24, 1977 for approval to construct a sewer extension and connection to the existing T-8 trunk line in Towamencin Township, Montgomery County.

The material submitted is accepted for technical review by the staff of the Department of Environmental Resources.

In addition to the above applications, an encroachment permit for the proposed project is required for the stream relocation and the three (3) storm sewer headwalls. Application forms have been sent to the consulting engineer.

All applications must be submitted as soon as possible so that they can be processed concurrently. No permits will be issued until processing is completed on all required applications. The permits will be issued simultaneously from this office.

You are reminded that any proposed facilities cannot be constructed or operated without first obtaining the required permits.

Applications are normally processed within sixty (60) days. If you have not received notification of the action taken within this period, feel free to contact me for information concerning the status of the review.

Very truly yours,

Leon T. Gumbner,
Acting Regional Director

CC: Facilities
Dams & Encroachments
Water Programming Services

Herbert H. Metz, Jr., P.E.
Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Re: Application Nos. 4677404, 4677703
Towamencin Township
Montgomery County

TS

ER-EPR-1:7/74

Form No. 1

Application Nos.: 4677703

SUBJECT: Encroachment
Towamencin Twp
Montgomery County

CONTACT: Upper-Gwynedd Towamencin Mun Auth
2225 Kriebel Rd
Lansdale, PA 19446
Appl —
engr —

New Proposal	✓
Revised Proposal	

Fax

TO: Regional Coordinator L Bonsken

FROM: R Hulse

An encroachment permit application is required for the stream relocation and the three (3) storm sewer headwalls. Application forms have been sent to the consulting engineers.

On 1-24-77 we received an application for plan approval and/or permit as checked below for an Encroachment. The proposed installation involves:

AS ext along/across 2 Tributaries to the Skippack Creek near Fretz + Tomlinson Rds to provide Gravity sewers for the Country Meadows Lot Subd. in Towamencin Twp, Montgomery county.
Coordination - Sewerage Appl. #4677403 and DEP Appl. to be submitted

Permit Coordination Requirements:

	No Permit Required	No Permit Required Prior Approval Required	Permit Required Application on Hand	Permit Required Application Needed
Air Quality	✓			
Water Quality, Dam			✓ Dam	✓ 1/25 (Dam)
Land Protection	✓			
Community Env. Control	✓			
Occupational Health	✓			
Surface Mine Reclamation	✓			
Radiological Health	✓			

JAN 31

Please indicate your interest on this form and return to the Coordinator by 1-25-77

ER – EP

START

DEPARTMENT OF ENVIRONMENTAL RESOURCES

BUREAU / PROGRAM Water Quality Management

ENVIRONMENTAL PROTECTION

DIVISION

COUNTY / MUNICIPALITY 46949

PROGRAM Sew

START

CASE NAME Upper Gwynedd Towamencin Municipal Authority

FILE P

PERMIT NO. 4677415 Dougherty Brothers

BUREAU / PROGRAM Water Quality Management

DIVISION

COUNTY / MUNICIPALITY 46949

PROGRAM Sew

CASE NAME Upper Gwynedd Towamencin Municipal Authority

FILE P

PERMIT NO. 4677415 Dougherty Brothers

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

RECEIVED
MAR 30 1977
ENVIRONMENTAL RESOURCES
WATER MANAGEMENT
NORRISTOWN REGIONAL OFFICE

March 30, 1977

Commonwealth of Pennsylvania
Department of Environmental Resources
Region I
1875 New Hope Street
Norristown, Pennsylvania 19401

ATTN: Mr. Richard Hinkle, Chief
Facilities Section
Bureau of Water Quality Management

Subject: Sanitary Sewer Extension
Upper Gwynedd-Towamencin Municipal Authority
For: Dougherty Brothers (Formerly Michael Ford)
Planned Residential Subdivision
Towamencin Township

Dear Sirs:

Transmitted with this letter are a Water Quality Management Application and an Encroachment Application for sanitary sewer extension sewerage permit for the subject project for review and approval.

A list enumerating the completed application forms and supporting documents is enclosed together with duplicate sets of the pertinent forms, plans, and documents.

It should be noted that all prior planning reviews and approvals have been obtained as understood to be required; including that of Community Environmental Control for planning modules; consultation review by Montgomery County Soil and Water Conservation District for erosion and sediment control is being solicited at this same time by submission thereto of pertinent erosion and sedimentation control and narrative data.

We respectfully request that this application-for-permits be processed as expeditiously as possible. If you have any questions or comments, please don't hesitate to contact me by phone. I would welcome the opportunity for direct communication with your agency.

Very truly yours

Clifford T. Stout

Clifford T. Stout
Herbert H. Metz, Inc.

CTS/srs

Enclosures

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P.O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Phone: 855-3111
855-1686

March 30, 1977

Dougherty Brothers Subdivision
Towamencin Township, Montgomery County
Upper Gwynedd-Towamencin Municipal Authority System

WATER QUALITY MANAGEMENT APPLICATION DOCUMENTS

Application for Water Quality Management Permit

Modular report forms 1 & 6 with check for $25.00 made payable to PADER.

Exhibit "I" - Dougherty Brothers Partnership Structure.

Exhibit "II" - Copy of U.G.T.M.A. regulation prohibiting storm water admittance.

Exhibit "III" - Addenda to Towamencin Township Sanitary Sewer Specs. regarding stream protection.

Exhibit "IV" - Copy of letter from Mr. Michael L. Simon to Mr. Joseph Kapusta (Towamencin Twp. Manager) dated February 24, 1977 acknowledging review and approval of subdivision planning module (No. 1-46949-008-4)

Subdivision Plan package including:

a)	Subdivision Title Plan	Sheet 1 of 4
b)	Erosion & Sediment Control Plan	" 2 of 4
c)	Plan/Profile - Wentz Church Way	" 3 of 4
d)	Plan/Profile - Sanitary Sewer Facilities	" 4 of 4

Exhibit "V" - Erosion & Sediment Control Narrative Report

Exhibit "VI" - Storm Water Management Data Sheet (Rock Basin Outfall Energy Dissipator)

Exhibit "VII" - Sanitary Sewer design analysis.

Application for Encroachment Permit

Modular Report form 28 (with supporting documents)

Exhibit "A" - Erosion & Sediment Control Narrative for stream crossing.

Exhibit "B" - Detail Location Plan

Exhibit "C" - Sediment Control Facilities Details

1875 New Hope Street
Norristown, Pennsylvania 19401
215 631-2402

April 8, 1977

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: H. Warren Dimmig

Re: Application No. 4677415
Towamencin Township
Montgomery County

Gentlemen:

This will acknowledge receipt of your application on April 4, 1977 for approval to construct a sewer extension to serve the Dougherty Brothers subdivision in Towamencin Township, Montgomery County.

The material submitted is accepted for technical review by the staff of the Department.

You are reminded that any proposed facilities cannot be constructed without first obtaining the required permits.

Applications are normally processed within sixty (60) days. If you have not received notification of the action taken within this period, feel free to contact me for information concerning the status of the review.

Very truly yours,

Leon T. Gonshor
Acting Regional Director

CC: Facilities
Program Services
Herbert H. Metz, P.E.

ER-BWQ-68:REV. 3/76

Review of sanitary sewer stream crossing is included with review of sewers. No separate application for encroachment is necessary.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES

APPLICATION FOR ENCROACHMENT PERMIT

March 30, 1977

In compliance with the provisions of an Act of the General Assembly of the Commonwealth of Pennsylvania, entitled, "An act providing for the regulation of Dams or other structures or obstructions, as defined herein, in, along, across or projecting into all streams and bodies of water wholly or partly within, or forming part of the boundary of, this Commonwealth; vesting certain powers and duties in the Water Supply Commission of Pennsylvania, for this purpose; and providing penalties for the violation of the provisions hereof," approved the 25th day of June, A.D. 1913, as amended by Act No. 137, approved May 6, 1937, and "The Administrative Code" which empowers the Department of Environmental Resources to exercise certain powers and perform certain duties by law vested in and imposed upon the Water Supply Commission of Pennsylvania, and the Water and Power Resources Board.

Upper Gwynedd-Towamencin Municipal Authority
(Here state name of person or persons, partnership, association, corporation, county, city, borough, town, or township.)

hereby makes application for the consent or permit of the Department of Environmental Resources to construct, ~~or to make a change in, or addition to, or to maintain~~

a sanitary sewer extension

in, along, or across the Towamencin Creek
(Here state name of stream or other body of water.)

at a point near Kriebel Road and Parkview Drive in Towamencin Township
(Here give location, by distance from mouth of stream, county, township, or municipal boundary; also give city, town or township and county in which located.)

Montgomery County, approximately 0.6 mile upstream along Towamencin Creek from its point of crossing under Bustard Road

for the purpose of providing gravity sanitary sewer service for a planned
(Here state fully the purpose, necessity, and description of the proposed obstruction.)

7-lot (single dwellings) residential subdivision by sewer system extension-connection to existing M.H. #8 on U-T Trunk Line of the Upper Gwynedd-Towamencin Municipal Authority.

(Continued on other side)

in accordance with the complete maps, plans, profiles, and specifications filed with this application and made a part hereof.

NOTE: This application, together with all maps, plans, profiles and specifications, and all papers, information and data filed in connection therewith, will remain on file in the office of the Department.

NOTE: Submit this application in single copy only, WITH DUPLICATE SET OF PLANS. All references to Department of Forests and Waters and/or the Water and Power Resources Board in this Document may be interchangeably known by its successor, Department of Environmental Resources.

Signature and Title

SEAL:

If privately owned, the individual owner, or each member of a partnership, should sign the application. If owned by a corporation, it should be signed by the president, the corporate seal affixed and attested by the secretary, and, if owned by a city, borough, township or county, it should be signed by the Chief officer, Supervisors or Commissioners, the seal affixed and attested by the clerk.

WITNESS:

(Address)

NOTE: This application, together with all maps, plans, profiles and specifications, and all papers, information and data filed in connection therewith, will remain on file in the office of the Department.

NOTE: Submit this application in single copy only, WITH DUPLICATE SET OF PLANS. All references to Department of Forests and Waters and/or the Water and Power Resources Board in this Document may be interchangeably known by its successor, Department of Environmental Resources.

PFC 531

COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA FISH COMMISSION

RECEIVED
AUG 17 1977
REGIONAL OFFICE
HARRISBURG, PA.

Subject: Review of Permit Application with Recommendations

Date:

In Reply To: 4677415

To: Department of Environmental Resources

From: Pennsylvania Fish Commission

Permit Applicant: Towamencin Mun. Auth.

Type of Construction: Sanitary Sewer Extension

Location: County Montgomery Township Towamencin

Other

Stream Affected Towamencin Creek Trib. To Perkiomen Creek

Trout Stream No (yes or no) Stocked No (yes or no)

Warm Water Stream Unk. (yes or no) Polluted Unk (yes or no)

Other Fishing Pressure Low (high, med., low, none)

Primary Species bait-fish, panfish, suckers, eels.

☐ Insufficient data submitted. Project approval will be considered only after more details are provided for review.

THE FOLLOWING CONDITIONS ARE TO BE MADE PART OF ALL PERMITS:

1. Stream bed shall not be used as roadway for moving machinery from one site to another. Temporary stream crossings must be provided for equipment that must cross stream during construction. Structures are to be removed and stream bed returned to its original condition when project is completed.
2. Siltation control shall be provided for during construction and bank stabilization shall be undertaken by planting of grasses, shrubbery, or trees immediately after completion of each phase of project.
3. When channel change occurs, the stream bed shall not exceed original width, and if a greater cross sectional area is required, an elevated flood plain must be put into use.
4. All material and debris removed from stream bed shall be moved entirely out of the flood plain area.
5. A permit must be secured from the Pennsylvania Fish Commission in Harrisburg, if the use of explosives is required; P.F.C. Waterways Patrolman must be notified when project is started, when explosives are to be used, and when project is completed for final inspection.

COMMENTS:

Jay B. Johnston (Waterways Patrolman) Approved Yes (yes or no) Date 7/17/77

for Ron Tibbott (Chief, Fisheries Environmental Services) Approved Yes (yes or no) Date 8/3/77

Date 4/12/77

SUBJECT: Sewerage Application No. 4677415

☐ Upper Gwynedd - Towamencin M.A.

☑ Towamencin Twp. Montgomery Co.
(Dougherty Bros. subdivision)

☐ Other

Dear Mr. Johnston,

The subject sewerage permit application has been submitted to the Norristown Regional Office for review. This project involves a sanitary sewer extension system to serve seven (7) planned single family dwelling lots. A portion of this proposed extension will cross under the Towamencin Creek.

We note that the following types of stream encroachments are included as part of the proposed sewerage facilities:

☐ Sewage Treatment Plant Headwall and/or Outfall Sewer

☑ Sanitary Sewer Stream Crossing(s)

☐ Other

Please review the enclosed documents, and return all documents with your comments and recommendations within thirty (30) days so we can complete the processing of this permit application.

Should you have any questions relative to this project, please feel free to contact us.

Very truly yours,

William B. Gowan Jr.
Sanitary Engineer
Norristown Office

Enclosure: Module 28, Plans

cc: Pennsylvania Fish Commission (Jack Miller)

ER-BWQ-197 8/75

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

Date Prepared
3-30-77

Date Revised

For Department Use Only

Module 28 - Sewer Stream Crossing - Outfall and Headwall

A. General Design

1. In cases other than political subdivisions, has a fee in the amount of $30.00 in the form of a check or money order payable to the Commonwealth of Pennsylvania been enclosed? (This fee is in addition to the $25.00 fee required for sewerage applications). ☐ Yes ☐ No N.A.

2. Are sewers in streams protected with at least 1 foot of cover in rock and 3 feet cover in other material? ☒ Yes* ☐ No ☐ N/A
*concrete encasement @ crossing

3. Have plans been made to minimize disturbing or unrooting trees and vegetation along the stream bank and in the vicinity of the stream? ☒ Yes ☐ No

4. Is the sewer along the stream located a sufficient distance from the bank of the stream to provide for possible increase in the width of the stream? ☒ Yes ☐ No ☐ N/A

5. Has the sewer system been designed to minimize the number of stream crossings? ☒ Yes ☐ No ☐ N/A

6. Is the stream crossing designed to cross the stream as nearly perpendicular to the stream flow as possible? ☒ Yes ☐ No ☐ N/A

7. Are the proposed sewer outfalls, headwalls, manholes, gateboxes, or other structures so located that they do not interfere with the free discharge of flood flows of the stream? ☒ Yes ☐ No ☐ N/A

Date 4/12/77

SUBJECT: Sewerage Application No. 4677415

☐ Upper Gwynedd-Towamencin M.A.

☑ Towamencin Twp. Montgomery Co.
(Dougherty Bros. subdivision)

☐ Other _____

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Very truly yours,

William B. Gomm Jr.
Sanitary Engineer
Norristown Office

Enclosure: Madule 25, Plans

cc: Pennsylvania Fish Commission (Jack Miller)

ER-BWQ-197 8/75

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

Date Prepared
3-30-77

Date Revised

For Department Use Only

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2. Are sewers in streams protected with at least 1 foot of cover in rock and 3 feet cover in other material? ☒ Yes* ☐ No ☐ N/A *concrete encasement @ crossing

3. Have plans been made to minimize disturbing or uprooting trees and vegetation along the stream bank and in the vicinity of the stream? ☒ Yes ☐ No

4. Is the sewer along the stream located a sufficient distance from the bank of the stream to provide for possible increase in the width of the stream? ☒ Yes ☐ No ☐ N/A

5. Has the sewer system been designed to minimize the number of stream crossings? ☒ Yes ☐ No ☐ N/A

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7. Are the proposed sewer outfalls, headwalls, manholes, gateboxes, or other structures so located that they do not interfere with the free discharge of flood flows of the stream? ☒ Yes ☐ No ☐ N/A

ER-BWQ-197 8/75

General Design - Continued

8. Have provisions been made to control siltation of readily erodible soils during construction, during suspension of operation for an appreciable length of time, and after construction, by the methods of temporary vegetation, or seeding and mulch or by accelerating the establishment of permanent vegetation? [X] Yes [ ] No

9. Have provisions been made to retard the rate of runoff from the construction site and control disposal of runoff? [X] Yes [ ] No

10. Have provisions been made to trap sediment resulting from construction in temporary or permanent silt holding basins, including pump discharges resulting from dewatering operations? [X] Yes [ ] No

11. Have provisions been made to minimize turbidity by prohibiting the dumping of soil and debris into streams and/or on banks of streams, pumping silt-laden water into the stream and the operating of equipment in the streams? [X] Yes [ ] No

12. Have provisions been made to remove all cofferdams and stream crossings for equipment that must cross the stream during construction, including a provision to return the stream bed to its original condition when the project is completed? [X] Yes [ ] No

13. Have provisions been made to deposit all material and debris removed from the stream bed out of the flood plain area? [X] Yes [ ] No

14. Is the design coordinated with the Pennsylvania Fish Commission to take into account any comments or suggestions which the Fish Commission may have concerning the stream crossing? [ ] Yes [X] No [ ] N/A

467416

NARRATIVE REPORT

EROSION AND SEDIMENTATION CONTROL PLAN

FOR

DOUGHERTY BROTHERS

LOT SUBDIVISION DEVELOPMENT

TOWAMENCIN TOWNSHIP, MONTGOMERY COUNTY, PA.

February 1977

HERBERT H. METZ, INC.

EXHIBIT "X"

8. Have provisions been made to control siltation of readily erodible soils during construction, during suspension of operation for an appreciable length of time, and after construction, by the methods of temporary vegetation, or seeding and mulch or by accelerating the establishment of permanent vegetation? X Yes ___ No

February 1977

HERBERT H. METZ, INC.

EXHIBIT "X"

1. GENERAL DESCRIPTION OF SITE LOCATION

The project site is a 7.3± Acre tract of land in Towamencin Township, abutting Worcester Township, immediately Northeast of the "T" intersection of Morris Road and Wentz Church Road.

The tract is basically triangular in shape and is bounded on the West by lands of the Philadelphia Electric Company, on the Northeast by park lands of Towamencin Township and on the Southeast by residential property presently under tentative approval for subdivision.

Soils composition on the site, as identified by the Montgomery County Soils Survey, is made up mainly by elements of the following classifications: Penn Silt Loam, Klinesville Very Shaly Silt Loam, and Reaville Shaly Silt Loam. In addition to these soil types there exist smaller areas of the following classifications: Rowland Silt Loam, Bowmansville Silt Loam, and Readington Silt Loam.

Surface slopes on the site range from 3% to 15%.

2. GENERAL DESCRIPTION OF STORM WATER COLLECTION AND CONTROL

The storm water pipe and inlet collection system was designed using 10-year storm frequency criteria. Inlets and storm sewers have been planned for placement at appropriate critical locations along the tract street and in lot easements for dispersal to a natural water course on the tract.

Energy dissipating devices at pipe outfalls are designed for release of storm water runoff at reduced velocities.

3. GENERAL DESCRIPTION OF ACCELERATED EROSION CONTROL

As hereinafter described and as shown and noted on the Erosion and Sedimentation Control Plan, and in the following (Item #8) construction control stage sequence, the following erosion control procedures and devices shall be employed.

The street shall be graded and crushed stone base course applied, and curbing placed as soon as possible, to prevent erosion of the sub-grade. During street grading, filter berms and filter inlets shall be constructed at appropriate locations to minimize gullying and washing, and siltation in pipes and water courses.

Graded slopes, on-lot sedimentation control features and other critical disturbed areas shall be temporarily seeded following earth-moving procedures.

3. Continued

Rear-of-lot belt areas not significant to the progression of construction of houses and improvements and drainage controls shall be left undisturbed until lawn grading phase of finish construction. In addition, top soil storage as a protective berm may be utilized across the down-slope limit of construction on lots along the natural water course.

4. GENERAL DESCRIPTION OF SEDIMENTATION CONTROL

On-lot protection during construction will be provided by temporary controlled-flow interceptor diversion berms.

Stone filter inlets and filter berms shall be employed, during specific construction phases at appropriate locations across graded right-of-way, such as noted on the Erosion and Sedimentation Control Plan. Stone ballast over-berm to be placed at intersection of proposed road with existing road.

Upon completion of construction, the temporary diversions and filter inlets shall be removed and the remaining areas re-graded and seeded or paved.

5. SANITARY SEWERAGE FACILITIES

Public sanitary sewerage facilities are proposed to serve this development, with planned sanitary sewer extensions to connect and discharge into the existing Upper Gwynedd-Towamencin Municipal Sewer Authority Sanitary Sewer System via gravity sewer connection to the existing Authority UT trunk collector sewer.

Collected sewage will be conveyed by the Authority system for treatment at the Upper Gwynedd-Towamencin Municipal Sewer Authority plant.

6. TOPOGRAPHIC AND GEOLOGIC FEATURES

The topography shown on the plans is based on actual physical ground surveys. The soils information is taken from Soil Conservation Service and Montgomery County Soil Survey data and is indicated on the Erosion and Sedimentation Control Plan and supporting data.

7. HYDROLOGIC RUNOFF COMPUTATIONS

The Montgomery County Soil Conservation Service Erosion and Sedimentation Control Handbook and Soils Conservation Engineering Field Manual were used as references.

8. STAGING OF EARTHMOVING ACTIVITIES

a. Construct interceptor diversions in accordance with the design criteria shown on the Control Plan. Grade and seed all exposed areas of embankments.

b. Clear and grub street right-of-way and building sites.

c. Available topsoil shall be removed and stockpiled for re-use in finish grading. Should be stockpiled or wind-rowed down-slope from construction area where feasible.

d. Juncture portion of proposed road with existing road is to be graded and stone ballast placed, with a ballast over-berm formed across the throat of the intersection as an erosion and sediment control deterrent and stabilization device for protection of the existing roadway.

e. Rough grade roadway to proposed sub-grade elevation gradient and cross-section.

f. Install storm sewers and sanitary sewers and appurtenant structures. Install all underground utilities. Direct surface runoff to completed storm drainage facilities.

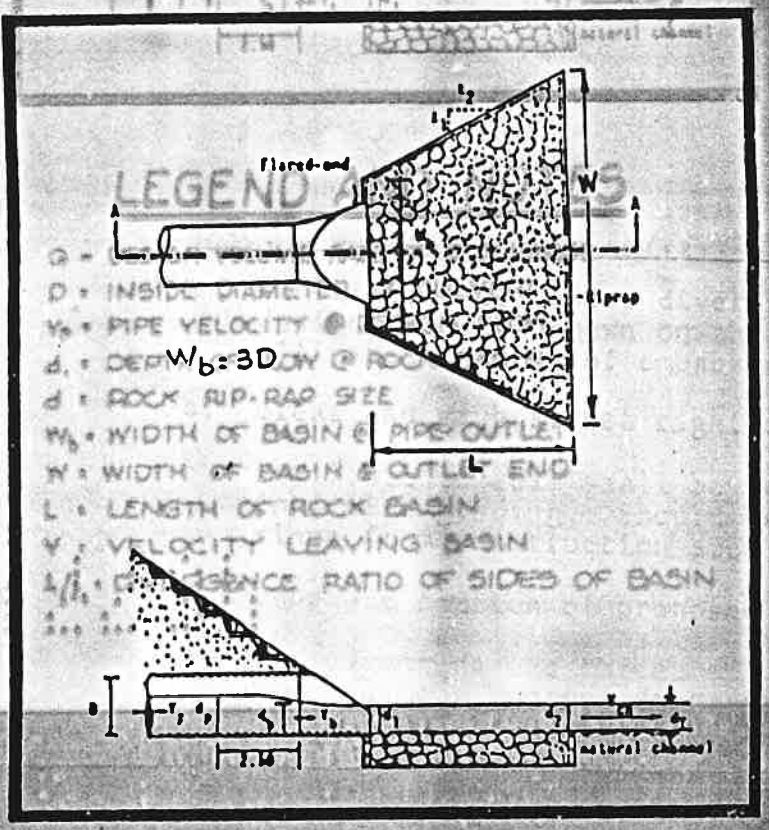
g. Temporarily seed all disturbed soil banks with rye grass.

h. Construct buildings, fine grade streets and place stone base course. (On-lot sedimentation control measures are to be constructed prior to improvements and house construction as noted in 'a'.)

i. Finish grade and establish permanent seeding as soon as possible thereafter in building construction areas. Immediately following removal of temporary erosion and sedimentation control structures, grade and permanently seed these areas.

OCK BASIN ENERGY DISSIPATORS

STORM WATER MANAGEMENT DESIGN CRITERIA



LEGEND AND NOTES

- Q = DESIGN VOLUME RATE OF DISCHARGE
- D = INSIDE DIAMETER OF CULVERT
- V_p = PIPE VELOCITY @ DESIGN FLOW
- d_1 = DEPTH OF FLOW @ ROCK BASIN
- d = ROCK RIP-RAP SIZE
- W_b = WIDTH OF BASIN @ PIPE OUTLET
- W = WIDTH OF BASIN @ OUTLET END
- L = LENGTH OF ROCK BASIN
- V = VELOCITY LEAVING BASIN
- l_1/l_2 = DIVERGENCE RATIO OF SIDES OF BASIN

DOUGHERTY BROTHERS (FORMERLY MICHAEL

RESIDENTIAL LOT SUBDIVISION TR
TOWAMENCIN TOWNSHIP, MONTGOMERY CO

PIPE OUTFALL LOCATION	(A)	
Φ	43 x 27 (4 @ 22" x 13")	BASIN @ OUTL
Q_D	70 CFS	
V_D	8.5 FPS	
V/V_p	.3	
V	2.5 FPS	
$Q/D^{2.5}$	$\frac{70}{15.6} = 4.5$	
d_1/D_{MAX}	0.25	
d_1	.25 x 3 = 0.75	
D/d	3	
d	$\frac{36}{3} = 12"$	RIP-RA
L/D	9.00	
L	27'	BASIN
l_1/l_2	1:3	
W	27'	BASIN @ OUTL

MARCH 1977

Herbert H. Metz, Inc.
CIVIL ENGINEERS AND SURVEYORS
410 BERSTINE AVE. LANSDAL

SANITARY SEWER DESIGN ANALYSIS

HERBERT H. METZ, INC. FEBRUARY 1977 SHEET 1

LOUGHERTY BROS. SUBDIVISION MUNICIPALITY TOWAMENCIN TOWNSHIP COUNTY MONTGOMERY

	M.H. to M.H.	LENGTH (FEET)	INVERT/INVERT	FALL (FEET)	SLOPE (FT. PER FT.)	CONNECTIONS INCREM'T	CONNECTIONS TOTAL	POPULATION @3.5/E.D.U.	FULL FLOW MGD @ 400 gpcd	PIPE n=0.013	DES.
OSED & EWER T	8.111/8.11	394	206.00/186.10	17.90	0.0505	3	3	10.5	0.0042		1
							3				
	8.13/8.12	396	212.50/197.10	15.40	0.0389	1	1	3.5	0.0014		
	8.12/8.11	146	197.00/186.10	10.90	0.0747	3	4	14.0	0.0056		
							+3 FROM PROP. MH 8.111				
							7				
	8.11/8	219	186.00/183.40	2.60	0.0119	0	7	24.5	0.0098		
			EXIST. UG-T M.A. MH								

CH BASIN ENERGY DISSIPATORS

STORM WATER MANAGEMENT DESIGN CRITERIA

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

PHONE: 855-5111
855-1686

February 1977

EROSION AND SEDIMENTATION CONTROL PLAN FOR EXTENSION SANITARY SEWERAGE SYSTEM INCLUDING SEWER STREAM CROSSING, TO SERVE DOUGHERTY BROTHERS RESIDENTIAL LOT SUBDIVISION, TOWAMENCIN TWP., MONTG. CO., PA.

To control erosion and sedimentation during and after construction, the Contractor shall:

1. Reduce the area and duration of exposure of readily erodible soils by disturbing only the areas needed for construction, opening a maximum of only 200 feet of trench at a time, removing only those trees, shrubs and grasses that must be removed for construction, and protecting the rest to preserve their esthetic and erosion control value.

2. Disturbed soil surfaces shall be protected from erosion by installing coverings formed from mulch; sheets of plastic; burlap or jute netting; temporary growths of fast growing grasses or sod blankets or temporary paving in construction areas to be exposed for extended periods, or to be re-vegetated.

   Mulch shall consist of hay, straw, wood chips, corn stalks, bark or any other suitable protective material. It shall be anchored to slopes with liquid asphalt, stakes covered with netting or worked into the soil with various types of equipment to provide additional slope stability. All slopes of 2:1 and steeper shall be mulched as soon as they are rough graded.

   Mulching, seeding and sodding shall be accomplished as specified in the applicable standards set forth in the "Erosion and Sediment Control Handbook" as published by the Montgomery County (Pennsylvania) Soil and Water Conservation District.

3. Runoff shall be controlled by the installation of temporary diversions, berms, slope drains, flow barriers or other structures which will decrease its velocity or pervent concentration of runoff in areas of erodible soils. Diversion structures consisting of temporary compacted earth embankments, bales of straw, ditches and furrows shall be constructed to direct runoff away from stockpiles and excavated areas.

EXHIBIT "A"

HERBERT H. METZ, INC.

Erosion & Sedimentation Control Plan
Page 2 of 2

4. Sediments carried by runoff water and dewatering operations shall be trapped behind temporary barriers. The barriers shall consist of grassed embankments, sand, gravel or bales of hay or straw. Prior to removing the temporary barriers any accumulated sediments shall be spread within the right-of-way or, if suitable, used for backfill. Sediment accumulated on paved areas shall be removed from the site or used as backfill, if suitable.

5. As construction activities within an area are completed, the area shall be permanently stabilized with perennial vegetation as specified in the "Erosion and Sediment Control Handbook" of the Montgomery County (Pennsylvania) Soil and Water Conservation District.

6. If possible, construction in rights-of-way shall be planned and scheduled for the summer months when erosion is less of a hazard, and there is minimal, or no, surface runoff in furrows, swales and water courses.

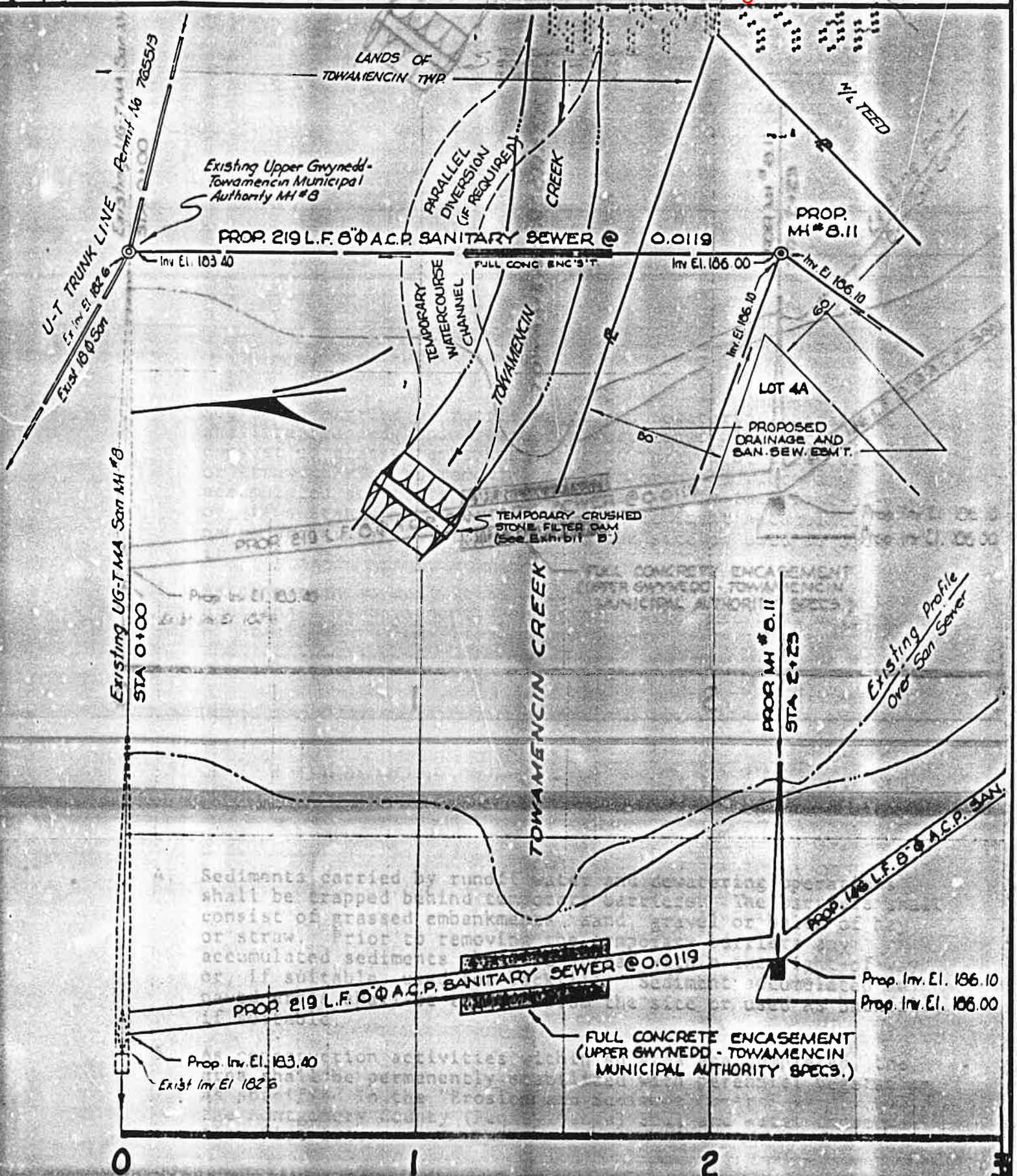
7. During construction, equipment shall be used in a manner that does not leave the site susceptible to erosion. Wheel mounted equipment shall be used whenever possible.

8. When stream crossings are required, temporary crushed stone dams shall be constructed downstream of the crossing site to trap sediment. Sediment shall be removed from behind the dam when the sediment buildup reaches 25% of the height of the dam and shall be completely removed prior to removal of the dam. Stream crossings shall be scheduled so that they are made during times of low stream flow and shall be completed as rapidly as possible, once begun.

Specific construction procedures and safeguards shall be implemented for the construction of the planned stream crossing connecting sewer segment (M.H. 8 - M.H. 8.1). These shall include, in addition to a downstream temporary crushed stone dam, a parallel water course diversion channel for continuous work area if required by flows at time of construction; and operation, stabilization and restoration as outlined above. Construction plan and procedures for this sewer stream crossing are more fully described on attached "Exhibit B".

9. A temporary stream crossing haul route shall be provided for equipment use in the construction of sanitary sewer crossing in stream bed.

10. No natural drainage will be obstructed or blocked during a shut-down.


LANDS OF TOWAMENCIN TWP.
N/4 TEED
Existing Upper Gwynedd-Towamencin Municipal Authority MH #8
PARALLEL DIVERSION (IF REQUIRED)
CREEK
PROP. MH #8.11
PROP. 219 L.F. 8"Φ A.C.P. SANITARY SEWER @ 0.0119
Inv El. 183.40
FULL CONC. ENC'S'T
Inv El. 186.00
Inv. El. 186.10
U-T TRUNK LINE
Permit #6 765513
Ex. Inv. El. 182.6
Exist 18"Φ San
TEMPORARY WATERCOURSE CHANNEL
TOWAMENCIN
Inv. El. 186.10
60'
LOT 4A
PROPOSED DRAINAGE AND SAN. SEW. EASM'T.
80'
TEMPORARY CRUSHED STONE FILTER DAM (See Exhibit "B")
Existing UG-TMA San MH #8
STA 0+00
TOWAMENCIN CREEK
PROP MH #8.11
STA 2+23
Existing Profile over San Sewer
PROP. 146 L.F. 8"Φ A.C.P. SAN.
PROP 219 L.F. 8"Φ A.C.P. SANITARY SEWER @ 0.0119
Prop. Inv. El. 186.10
Prop. Inv. El. 186.00
FULL CONCRETE ENCASEMENT (UPPER GWYNEDD - TOWAMENCIN MUNICIPAL AUTHORITY SPECS.)
Prop. Inv. El. 183.40
Exist Inv El 182.6
0
1
2

CONSTRUCTION CONTROL SEQUENCE FOR SANITARY SEWER STREAM CROSSING

1. Construct temporary stone filter dam, as depicted, 100± feet downstream from sanitary sewer stream crossing location to trap silt and sediment. A straw bale sediment barrier may be substituted if construction is accomplished during dry weather period. See attached Exhibit "B" for detail.

2. Construct initial 120± L.F. sewer segment out of existing downstream MH#8. Backfill and consolidate trench.

3. If existing watercourse is of significant flow at the time of construction then construct a parallel watercourse diversion, as shown, to provide for continuous water flow around sewer crossing site.

4. Construct balance of sewer section to upstream MH #8.11. Place concrete encasement for natural watercourse crossing segment. As soon as concrete is adequately "set", backfill stream-bed segment with suitable material in compacted layers providing a stable non-erodible surface condition conforming to original stream channel cross-section.

5. Backfill balance of sewer trench with clean, compacted soil fill. Restore stream embankments to original cross-section, fine grade and seed with fast-growing perennial vegetation to stabilize. Protect embankment planting with mulch or jute netting.

6. Finish grade backfilled sewer trench and other disturbed areas, and seed and mulch.

7. When stream embankment vegetation is established:
   a. Remove silt from behind filter dam and dispose of same out of stream and flood plain area.
   b. Remove temporary dam structure material, clean channel.
   c. If watercourse diversion was used, backfill and grade temporary diversion channel; seed and mulch re-graded area.

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
HERBERT HALLMAN METZ, JR.
ENGINEER
No. 5953-E

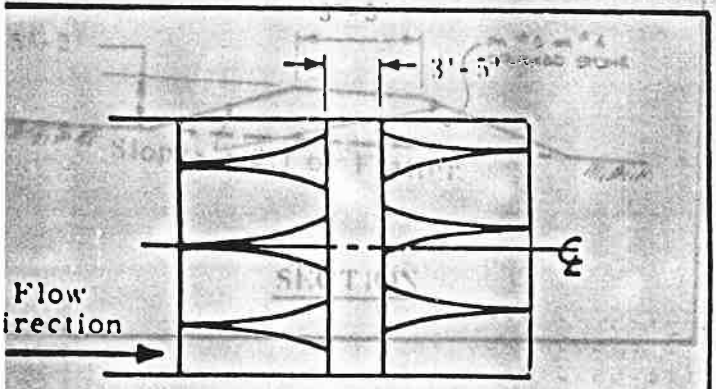
DETAIL LOCATION PLAN AND CONSTRUCTION CONTROL SCHEDULE FOR
SANITARY SEWER STREAM CROSSING
DOUGHERTY BROS. SUBDIVISION
TOWAMENCIN TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

date: FEB. 1977
rel.:
job: 8040

Herbert H. Metz, Inc.
CIVIL ENGINEERS AND SURVEYORS
410 DERSTINE AVE. LANSDALE, PA.

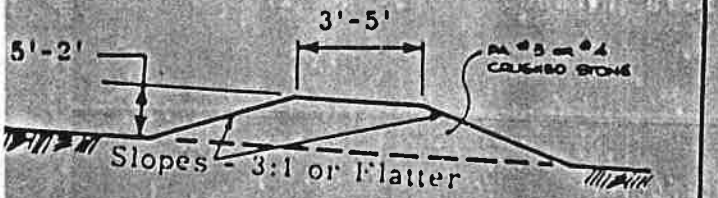
sheet: EXHIBIT "B"

scale: H:1"=40, V:1"=4
drawn by: C.T.S.
checked by:
file:

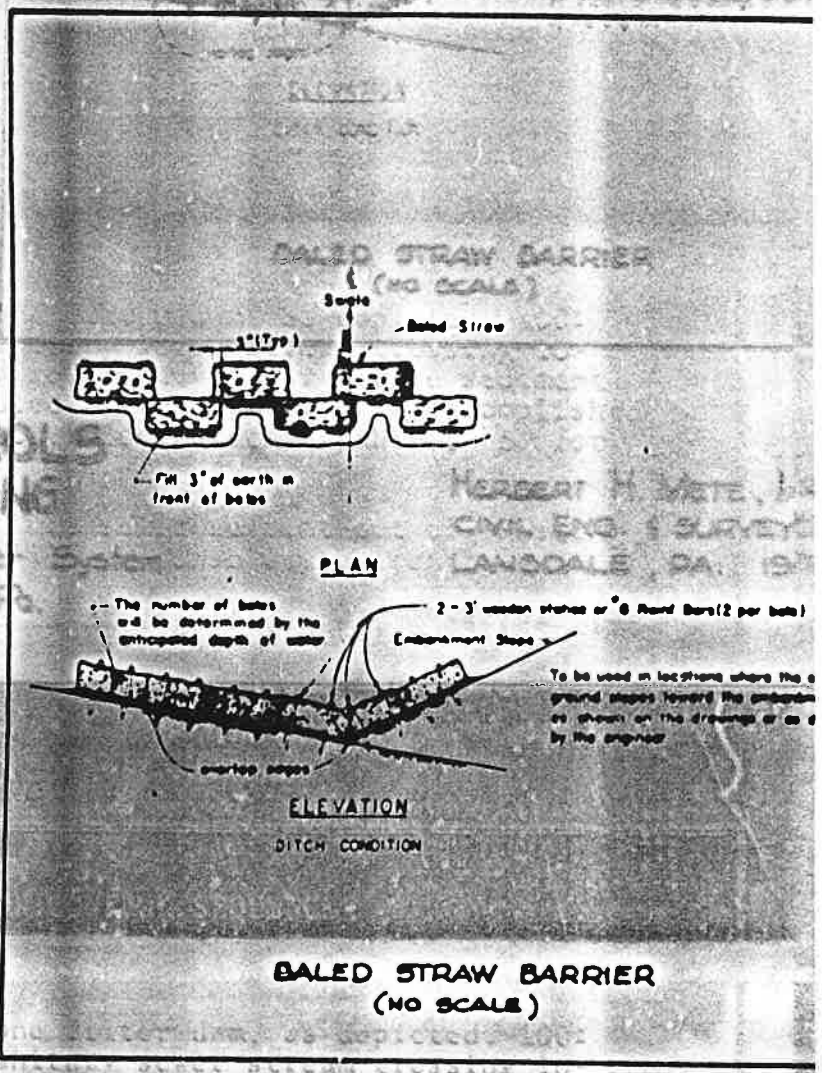


PLAN

STONE FILTER BERM
(NO SCALE)



SECTION



BALED STRAW BARRIER
(NO SCALE)

OSION AND SEDIMENT CONTROLS
SANITARY SEWER STREAM CROSSING

Daugherty Brothers Subdivision Sanitary Sewer System
Towamencin Township, Montgomery County, Pa.

HERBERT H. METZ, INC.
CIVIL ENG. & SURVEYORS
LANSDALE, PA. 19446

Charles Dougherty, Secretary

LIST OF PARTNERS

DOUGHERTY BROTHERS

Dennis Dougherty, President	2647 Hazel Avenue North Hills, Pa.
William Dougherty, Vice President	320 Hamel Avenue North Hills, Pa.
Charles Dougherty, Secretary	631 Penn Avenue Ardsley, Pa.

EXHIBIT "I"

467428

EXCERPT from Rules and Regulations of
TOWAMENCIN TOWNSHIP PLUMBING CODE

STORM WATER DRAINS

1101. DRAINAGE OF YARDS, AREAS AND ROOFS - All roofs and paved areas, yards, courts and court yards may be drained into the stormwater sewer system but not into the sewers intended for sewage only.

Where there is no storm-water sewer accessible, such connections may discharge into the public gutter, unless otherwise directed by the proper authorities however, in no case shall water from said sources drain over the surface of side walks nor be allowed to damage any neighbors property.

EXHIBIT "I"

LIST OF PARTNERS

DOUGHERTY BROTHERS

Dennis Dougherty, President

William Dougherty, Vice President

EXHIBIT "II"

407416

Henry S. Conrey, Inc.
Division of Chester Valley Engineers
Civil Engineers & Surveyors
Post Office Box 447
159 West Lancaster Avenue
Paoli, Pa.

ADDENDA
TO
TOWAMENCIN TOWNSHIP
SANITARY SEWER SPECIFICATIONS
1973

ITEM There shall be added the following item

STREAM PROTECTION - The work shall be carried out in such a manner to prevent siltation of any streams and/or waterways.

The Contractor shall submit a written statement describing proposed construction procedures; upon a review of this statement the Engineer may prescribe certain facilities which will prevent erosion and siltation and provide for a satisfactory means to carry off surface waters.

EXHIBIT II

January 1, 1973

EXHIBIT "III"

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF ENVIRONMENTAL RESOURCES

750 E. Johnson Highway
Norristown, Pennsylvania 19401
215 631-2280

February 24, 1977

Mr. Joseph H. Kapusta, Manager
Towamencin Township
Box 99
Sumneytown Pike
Kulpsville, PA 19443

Re: Dougherty Brothers Subdivision
No. 1-46949-008-4
Towamencin Township

Dear Mr. Kapusta:

Please be advised that a review has been made and completed of the above referenced Planning Module for Land Development.

This supplement to the Towamencin Township Official Sewage Facilities Plan meets the requirements of Chapter 71, Section 71.17 of the Pennsylvania Department of Environmental Resources Rules and Regulations.

Approval is hereby granted; and in accordance with this Chapter, the Department holds Towamencin Township responsible for implementing this supplement as per the approved module.

If you have any questions, please feel free to contact this office.

Very truly yours,

Michael L. Simon
Sanitarian
Montgomery County

CC: Sewage Facilities Consultant
File
Mr. Dennis Dougherty

MLS:mj

EXHIBIT "IV"

ER-BWQ-61 Rev. 74

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: 3-30-77

APPLICATION FOR WATER QUALITY MANAGEMENT PERMIT

4677 415

For Department Use Only

APPLICANT NAME: Upper Gwynedd-Towamencin Municipal Authority

TELEPHONE NO. 855-8165

MAILING ADDRESS: 2225 Kriebel Road, Lansdale, PA 19446

PROJECT LOCATION

(A) MUNICIPALITY: Towamencin Township

(B) COUNTY: Montgomery

HEREBY APPLIES FOR: (CHECK APPROPRIATE BLOCKS IN SECTION A, B, C AND D)

A. APPROVAL OF PLANS FOR CONSTRUCTION OF:
- [X] ~~EXTENSIONS~~ SEWERS AND APPURTENANCES
- [ ] SEWAGE TREATMENT PLANT
- [ ] MINE DRAINAGE TREATMENT PLANT
- [ ] INDUSTRIAL WASTE TREATMENT PLANT
- [ ] OUTFALL AND HEADWALL
- [X] STREAM CROSSING

B. APPROVAL TO DISCHARGE:
(1) [X] TREATED [ ] UNTREATED
(2) [ ] INDUSTRIAL WASTES [ ] MINE DRAINAGE [X] SEWAGE

C. APPROVAL TO OPERATE: [ ] UNDERGROUND MINE

D. APPROVAL OF AN [X] EROSION AND SEDIMENTATION PLAN

(ALL DISCHARGES OF WASTES ARE PURSUANT TO "THE CLEAN STREAMS LAW")

I HEREBY CERTIFY THAT THE ACCOMPANYING REPORT AND ALL PLANS, MODULES, AND DOCUMENTS DESIGNATED THEREIN ARE ATTACHED TO THIS APPLICATION, AND MADE A PART HEREOF.

NAME OF DESIGN ENGINEER (OR SURVEYOR) AND FIRM: Herbert H. Metz, Jr., P.E. - Herbert H. Metz, Inc.

H. Warren Dimmig
SIGNATURE OF APPLICANT OR RESPONSIBLE OFFICIAL

NAME OF APPLICANT OR RESPONSIBLE OFFICIAL	TITLE	DATE OF APPLICATION
H. Warren Dimmig	Chairman - U.G.T.M.A.	3-30-77

ADDRESS: 2225 Kriebel Road, Lansdale, PA 19446

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA, COUNTY OF Montgomery

I, H. Warren Dimmig, BEING DULY SWORN, ACCORDING TO LAW, DEPOSE AND SAY THAT I (AM THE APPLICANT) (AM AN OFFICER OR OFFICIAL OF THE APPLICANT) (HAVE THE AUTHORITY TO MAKE THIS APPLICATION) AND THAT THE PLANS, REPORTS AND DOCUMENTS SUBMITTED AS PART OF THE APPLICATION ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

SWORN AND SUBSCRIBED TO BEFORE ME THIS 30 DAY OF March 1977

NOTARY PUBLIC

NOTARY PUBLIC
My Commission Expires Jan. 23, 1979

H. Warren Dimmig
SIGNATURE OF APPLICANT OR RESPONSIBLE OFFICIAL

THIS SECTION BELOW IS TO BE COMPLETED BY THE PERSON AUTHORIZED BY THE APPLICANT TO PREPARE THIS APPLICATION. NOTE: SEWERAGE, INDUSTRIAL WASTE, AND MINE DRAINAGE APPLICATIONS REQUIRE A REGISTERED PROFESSIONAL ENGINEER, EXCEPT THAT A REGISTERED SURVEYOR IS ACCEPTABLE WHERE PUBLIC HEALTH AND SAFETY ARE NOT INVOLVED.

NAME OF DESIGN ENGINEER (OR SURVEYOR) AND FIRM: Herbert H. Metz, Jr., P.E. - Herbert H. Metz, Inc.

MAILING ADDRESS: 410 Derstine Ave., Lansdale, Pa. 19446

TELEPHONE NUMBER: 855-3111

AGREEMENT DATE: 3-30-77

SIGNATURE OF DESIGN ENGINEER (OR SURVEYOR): Herbert H. Metz

COMMONWEALTH OF PENNSYLVANIA
PROFESSIONAL DESIGN ENGINEER
HERBERT HOLLOW METZ JR.
(OR SURVEYOR'S)
REGISTRATION
RE 5063-E

EH-BWQ-888.1(REV. 3/75)

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED 3-30-77
DATE REVISED

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

RECEIVED
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APPLICANT Upper Gwynedd-Towamencin Municipal Authority

LOCATION OF PROJECT: MUNICIPALITY Towamencin Township COUNTY Montgomery

DESIGN ENGINEER AND FIRM Herbert H. Metz, Jr., P.E. - Herbert H. Metz, Inc.

DESIGN ENGINEERS ADDRESS 410 Derstine Avenue Lansdale, Pa. ZIP CODE 19446 TELEPHONE 855-3111

DESCRIPTION OF PROJECT Sanitary sewer extension system - Dougherty Brothers Lot Subdivision to serve seven (7) planned single family dwelling lots.

A. DOCUMENTATION REQUIRED

1. HAS A CHECK FOR $25.00, PAYABLE TO THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES, BEEN INCLUDED? (NOT REQUIRED OF STATE OR FEDERAL AGENCIES) — [X] Yes [ ] No [ ] N/A

2. HAVE 2 COPIES OF THE APPLICATION, FORM H710.046, BEEN SUBMITTED? (3 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND DELAWARE RIVER BASIN). — [X] Yes [ ] No

   A. HAS THE AFFIDAVIT BEEN PROPERLY COMPLETED AND EXECUTED? — [X] Yes [ ] No

3. DOES THE APPLICATION INCLUDE THE FOLLOWING APPLICABLE MODULES:

MODULE NUMBER	TITLE	NUMBER OF PAGES	
1	GENERAL INFORMATION – SEWERAGE	9	[X] Yes
4	WASTE LOAD AND CHARACTERISTICS	3	[ ] Yes
5	GEOLOGY AND GROUND WATER INFORMATION	2	[ ] Yes
6	SEWERS AND APPURTENANCES	5	[X] Yes
7	SEWAGE PUMPING STATIONS	4	[ ] Yes
8	PUMPING FACILITIES	1	[ ] Yes
9	FLOW EQUALIZATION AND STORAGE BASINS	2	[ ] Yes
10	GRIT CHAMBERS	1	[ ] Yes
11	SCREENING AND COMMINUTING DEVICES	2	[ ] Yes
12	IMHOFF AND SEPTIC TANKS	2	[ ] Yes
13	SETTLING TANKS	2	[ ] Yes
14	EARTHEN SETTLING BASINS	2	[ ] Yes

ER-BWD-138 (REV. 03/78) COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: 3-30-77
DATE REVISED:

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

WPM
For Department Use Only

A. DOCUMENTATION REQUIRED – CONTINUED

THIS SHEET NOT APPLICABLE.

MODULE NUMBER	TITLE	NUMBER OF PAGES	
15	TRICKLING FILTERS	2	☐ Yes
16	AERATION TANKS OR BASINS	3	☐ Yes
17	WASTE STABILIZATION PONDS	3	☐ Yes
18	CHEMICAL TREATMENT (INCLUDING FEEDERS)	3	☐ Yes
19	MIXING AND FLOCCULATION FACILITIES	1	☐ Yes
20	SAND FILTERS	2	☐ Yes
21	DISINFECTION	2	☐ Yes
22	SPRAY IRRIGATION	1	☐ Yes
23	PHYSICAL ABSORPTION, ION EXCHANGE, AND CONTACT UNITS	2	☐ Yes
25	DEEP WELL DISPOSAL	4	☐ Yes
26	SLUDGE TREATMENT AND DISPOSAL		
	A. SEPARATE DIGESTION TANKS AND SLUDGE THICKENING TANKS	2	☐ Yes
	B. ELUTRIATION	1	☐ Yes
	C. WET OXIDATION	1	☐ Yes
	D. SLUDGE DRYING BEDS	1	☐ Yes
	E. LAND DISPOSAL OF SLUDGE	1	☐ Yes
	F. SLUDGE BASINS	1	☐ Yes
	G. FILTERS AND CENTRIFUGES	1	☐ Yes
	H. INCINERATION	1	☐ Yes

B. REQUIRED DATA

1. THE FRONT COVER OR FLYLEAF OF EACH SET OF DRAWINGS AND SPECIFICATIONS MUST BEAR THE SIGNATURE AND SEAL OF THE REGISTERED PROFESSIONAL ENGINEER, SURVEYOR BY OR UNDER WHOM PREPARED. EACH DRAWING MUST BEAR AN IMPRINT OR REASONABLE FACSIMILE OF SUCH SEAL.

ER-BWQ-188.1 REV. 3/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED 3-30-77
DATE REVISED

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

B. REQUIRED DATA – CONTINUED

2. INFORMATION RELATIVE TO SPECIFIC PROGRAMS:

A. 2 COPIES OF DESIGNER'S PLANS, MODULES, AND SPECIFICATIONS (3 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND DELAWARE RIVER BASIN)			
B. HYDRAULIC PROFILE OR SCHEMATIC FLOW DIAGRAM FOR PROPOSED TREATMENT PLANT.			☒ N/A
C. UNITED STATES GEOLOGICAL SURVEY TOPOGRAPHICAL MAP SHOWING EXACT POINT OF DISCHARGE AND TREATMENT PLANT OR PUMP STATION LOCATION AND/OR AREA TO SEWERS.			☒ N/A
D. HAVE YOU APPLIED FOR A PUBLIC UTILITY COMMISSION CERTIFICATE OF PUBLIC CONVENIENCE?	☐ Yes	☐ No	☒ N/A
(1) SPECIFY PUBLIC UTILITY COMMISSION APPLICATION NUMBER N.A.			
(2) IS CERTIFICATE OF PUBLIC CONVENIENCE ENCLOSED? N.A.	☐ Yes	☐ No	
E. HAVE YOU APPLIED FOR APPROVAL OF STREAM ENCROACHMENT(S)? (Module 28 submission appended in conjunction with this application)	☒ Yes	☐ No	☐ N/A
F. HAVE YOU APPLIED FOR DEPARTMENT OF LABOR AND INDUSTRY APPROVAL FOR FEATURES AFFECTING EMPLOYEE SAFETY?	☐ Yes	☐ No	☒ N/A
G. DO YOU HAVE AN AGREEMENT INDICATING APPROVAL TO DISCHARGE TO SEWER SYSTEM AND TREATMENT PLANT OF ANOTHER PERMITTEE?	☐ Yes	☐ No	☒ N/A
H. HAVE YOU APPLIED FOR APPROVAL OF AIR POLUTION CONTROL FACILITIES?	☐ Yes	☐ No	☒ N/A
I. HAVE YOU SUBMITTED A LIST WITH NAMES, ADDRESSES, AND TITLES OF ALL PARTNERS IN THE CASE OF A PARTNERSHIP OR ALL OFFICERS IN THE CASE OF A CORPORATION, UNINCORPORATED ASSOCIATION, INCORPORATED ASSOCIATION, PARTNERSHIP, OR OTHER ENTITY (NOT MUNICIPAL)? SEE EXHIBIT "I"	☒ Yes	☐ No	☐ N/A

3. SPECIFY THE FOLLOWING:

A. PLANS: Title Plan (TITLE/DESCRIPTION)	NO. OF SHEETS 1	DATE REV. MAR 25, 1977 June 1973	
PLANS: Comprehensive Plan with Erosion & Sediment Control (TITLE/DESCRIPTION)	NO. OF SHEETS 1	DATE June 12, 1974	
PLANS: Plan & Profiles (TITLE/DESCRIPTION)	NO. OF SHEETS 2	DATE Sept. 1, 1973. Feb. 4, 1977	

ER-BWQ-188.1 REV. 3/78

DATE PREPARED 3-30-77

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

B. REQUIRED DATA – CONTINUED

B. SPECIFICATIONS (IF APPLICABLE): Upper Gwynedd-Towamencin Municipal Authority
Reference specifications & pertinences TITLE
as filed at Pa. D.E.R. by U.G.T.M.A.

NUMBER OF VOLUMES _____ DATE _____

C. OTHER (SPECIFY TYPE AND NUMBER):

4. ARE THE PLANS:

A. CLEAR, LEGIBLE, AND DRAWN TO SCALE WITH NORTH ARROW INDICATED? [X] Yes [ ] No

B. WITHIN MAXIMUM SIZE OF 36 INCHES BY 50 INCHES? [X] Yes [ ] No

C. SEAL AND SIGNATURE OF PROFESSIONAL ENGINEER OR SURVEYOR RESPONSIBLE FOR THIS APPLICATION

1. SIGNATURE OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW) Herbert H. Duff Jr.

2. SEAL OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW)

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
HERBERT HALLADAY DUFF, JR.
SEAL
ENGINEER
No. 5953-E

ER-BWQ-188.1-REV. 3/78 COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED 3-30-77
DATE REVISED

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

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CLASS OF CONSTRUCTION (Check all applicable blocks) THIS SHEET NOT APPLICABLE
☐ NEW ☐ REPLACEMENT OF EXISTING UNIT(S) ☐ ADDITIONS AND/OR ☐ MODIFICATIONS TO EXISTING UNIT(S)

TABLE I – DESIGN LOADING DATA			Existing Facilities Design	Present Operating Load	Proposed Total Facilities Design
1. EQUIVALENT POPULATION TO BE SERVED (NO. OF PERSONS – SUBMIT CALCULATIONS)					
	A. DOMESTIC				
	B. INDUSTRIAL				
	C. TOTAL				
2. DESIGN YEAR OR PERIOD FOR OPERATING DATA					
3. RUNOFF PERIOD		(HRS)			
4. DOMESTIC WASTE FLOW DATA	A. PER CAPITA FLOW	(GPCD)			
	B. AVERAGE DAILY FLOW	(MGD)			
	C. INFILTRATION	(MGD)			
	D. RUNOFF FLOW RATE	(MGD)			
	E. MAXIMUM FLOW RATE	(MGD)			
5. INDUSTRIAL WASTE FLOW DATA	A. AVERAGE DAILY FLOW	(MGD)			
	B. MAXIMUM DAILY FLOW	(MGD)			
6. TOTAL DESIGN AVERAGE FLOW		(MGD)			

TABLE II – FACILITIES DESIGN DATA (Specify number of units)

Units	Existing	To Be Abandoned	Total Proposed	Units	Existing	To Be Abandoned	Total Proposed
1. SCREENING DEVICES				13. CHLORINE CONTACT TANK(S)			
2. GRIT CHAMBER(S)				14. DISINFECTION FACILITIES			
3. COMMINUTOR(S)				15. SEPARATE SLUDGE DIGESTORS			
4. PRE-AERATION TANKS				16. SLUDGE DRYING BEDS			
5. PRIMARY SETTLING TANKS				17. MECHANICAL SLUDGE DEWATERING			
6. IMHOFF TANK(S)				18. SLUDGE ELUTRIATION TANKS			
7. TRICKLING FILTERS				19. SLUDGE STABILIZATION TANKS			
8. INTERMEDIATE SETTLING TANKS				20. INCINERATOR(S)			
9. AERATION TANKS				21. MIXING AND FLOCCULATION TANKS			
10. FINAL SETTLING TANKS				22. OTHER (Specify)			
11. INTERMITTENT SAND FILTERS				23. OTHER (Specify)			
12. WASTE STABILIZATION POND(S)				24. OTHER (Specify)			

ER-SW [illegible] REV. 5/77

DATE APPROVED 3-30-77

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

WPS

For Department Use Only

D. GENERAL INFORMATION

1. EXISTING COMBINED SEWERS MAKE UP 0 % OF THE TOTAL AREA SERVED BY THE SYSTEM.

2. ARE THE EXISTING SANITARY SEWERS SUBJECT TO EXCESSIVE INFILTRATION? [X] Yes [ ] No [ ] N/A
Some Sections

A. IF YES, SPECIFY MAJOR SOURCES OF INFILTRATION: Top brick courses in manholes in Old Inglewood Area - See Liptak report of 2/16/73 - Filed with E.P.A. for correction.

B. HAS A REGULATION PROHIBITING THE ADMITTANCE OF STORM WATER FROM PAVEMENTS, ROOFS, AND OTHER SOURCES BEEN ADOPTED? [X] Yes [ ] No
(IF YES, ENCLOSE COPY.) See Exhibit "I" - Also refer to Upper Gwy.-Tow. Mun. Auth. Rates, Rules & Regulations, Construction Specs., and National Plumbing Code.

C. SPECIFY STEPS TAKEN OR BEING TAKEN TO CORRECT THE INFILTRATION PROBLEM, INCLUDING DATES: [ ] N/A
See aforementioned Liptak Report of 2/16/73

A. PRESENT _____ FEET

B. PROPOSED _____ FEET

3. TYPES OF INDUSTRIAL WASTES OF SPECIAL CONSIDERATION: NONE

4. WILL THE APPLICANT BE RESPONSIBLE FOR REPAIR AND MAINTENANCE OF SEWAGE FACILITIES FOR WHICH APPLICATION IS SUBMITTED? [X] * Yes [ ] No
*Following construction inspection, testing & acceptance into Auth. system.

A. IF NO, EXPLAIN: _____

5. THE DISTANCE OF THIS PLANT TO THE NEAREST OCCUPIED DWELLING:

A. PRESENT _____ FEET

B. PROPOSED _____ FEET

N.A.

6. IF THE APPLICANT IS OTHER THAN A MUNICIPALITY OR MUNICIPAL AUTHORITY, HAS THE GOVERNING MUNICIPALITY OBJECTED TO THE PROPOSED SEWAGE TREATMENT PLANT? [ ] Yes [ ] No [X] N/A

ER-BWQ-188.1 REV. 3/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: 3-30-77
DATE REVISED:

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

D. GENERAL INFORMATION – CONTINUED THIS SHEET NOT APPLICABLE

A. IS THE LETTER FROM MUNICIPAL OFFICER, SIGNIFYING THE OPINION, APPENDED TO THIS APPLICATION? ☐ Yes ☐ No

7. ARE DUPLICATE TREATMENT UNITS PROVIDED WHERE REQUIRED? ☐ Yes ☐ No ☐ N/A

A. IF NO, EXPLAIN: _____

B. DO ANY BY-PASS STRUCTURES DISCHARGE TO WATERS OF THE COMMONWEALTH? (SPECIFY PLAN SHEET NUMBER(S) SHOWING BY-PASS STRUCTURES) ☐ Yes ☐ No

8. HAS AN AUXILIARY STANDBY POWER SOURCE BEEN PROVIDED? ☐ Yes ☐ No ☐ N/A

9. DOES ANY PIPING OR CONNECTION EXIST IN ANY PART OF THE TREATMENT WORKS WHICH MAY CAUSE CONTAMINATION OF THE POTABLE WATER SUPPLY? ☐ Yes ☐ No

10. IF A NON-POTABLE WATER SUPPLY IS PROVIDED, ARE ALL OUTLETS PERMANENTLY POSTED TO INDICATE WATER IS NOT SAFE FOR DRINKING? ☐ Yes ☐ No ☐ N/A

11. ARE FACILITIES PROVIDED FOR MEASURING THE SEWAGE FLOW? ☐ Yes ☐ No

12. SAFETY:

A. ARE FACILITIES PROVIDED TO EFFECTIVELY PROTECT THE OPERATOR AND VISITORS? ☐ Yes ☐ No

13. OUTFALL SEWER:

A. IS THE OUTFALL SEWER ADEQUATELY PROTECTED TO ENSURE ITS STRUCTURAL STABILITY AND FREEDOM FROM STOPPAGE? ☐ Yes ☐ No

B. IS AN OUTFALL HEAD WALL PROVIDED? ☐ Yes ☐ No ☐ N/A

C. DOES THE OUTFALL EXTEND TO THE LOW WATER MARK OF THE RECEIVING STREAM? ☐ Yes ☐ No ☐ N/A

14. HAVE PROVISIONS BEEN MADE TO PROTECT ALL STRUCTURES AGAINST FLOTATION? ☐ Yes ☐ No

15. IF THE PROJECT INVOLVES ADDITIONS TO AN EXISTING TREATMENT PLANT, DO THE SPECIFICATIONS INCLUDE A PROGRAM TO PREVENT BY-PASSING OF ANY UNIT TO WATERS OF THE COMMONWEALTH DURING CONSTRUCTION? ☐ Yes ☐ No ☐ N/A

A. SPECIFY VOLUME AND PAGE NUMBER OF SPECIFICATIONS: _____

16. SPECIFY NAMES OF MUNICIPALITIES AND POPULATION SERVED OR TO BE SERVED BY THIS PLANT: _____

ER-BWQM-1 (REV. 3/78)

DATE PREPARED 3-30-87

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1 - GENERAL INFORMATION
SEWERAGE

WPG

For Department Use Only

E. RECEIVING STREAM

THIS SHEET NOT APPLICABLE

1. WHAT IS THE NAME OF THE RECEIVING STREAM?

A. TRIBUTARY OF

B. TRIBUTARY OF

C. MAJOR DRAINAGE BASIN:

- ☐ DELAWARE
- ☐ SUSQUEHANNA
- ☐ POTOMAC
- ☐ LAKE ERIE
- ☐ GENESEE
- ☐ ALLEGHENY
- ☐ MONONGAHELA
- ☐ OHIO

2. DESCRIBE THE EXACT POINT OF DISCHARGE:

_____ DEG, _____ MIN, _____ SEC LATITUDE

_____ DEG, _____ MIN, _____ SEC LONGITUDE

A. WATERSHED AREA ABOVE POINT OF DISCHARGE IS

_____ SQUARE MILES.

3. WHAT IS THE:

A. MINIMUM 7-CONSECUTIVE-DAYS FLOW OCCURRING ONCE IN 10 YEARS?

_____ CUBIC FEET PER SECOND.

B. MINIMUM STREAM FLOW: _____

C. ABOVE FLOWS ARE BASED ON:

- ☐ MEASUREMENTS
- ☐ ESTIMATES

_____ YEARS OF RECORD

4. IS THE TREATMENT PLANT SUBJECT TO FLOODING? ☐ Yes ☐ No

5. THE PROBABILITY OF THE TREATMENT PLANT BEING OUT OF SERVICE DUE TO FLOODING IS ONCE IN _____ YEARS.

A. LIST BRIEFLY THE METHODS USED FOR FLOOD PROTECTION: _____

Attach U.S. Geological Survey 7.5' or 15' Quadrangle Map showing exact points of discharge.

ER-BWQ-188.1-REV. 3/75

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED 3-30-77
DATE REVISED

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

THIS SHEET NOT APPLICABLE

E. RECEIVING STREAM – CONTINUED

6. TO THE BEST OF YOUR KNOWLEDGE, WILL THE TREATED WASTE DISCHARGE ADVERSELY AFFECT:

A. DOMESTIC WATER SUPPLY?	☐ Yes	☐ No
B. BATHING?	☐ Yes	☐ No
C. STOCK WATERING?	☐ Yes	☐ No
D. FISH AND AQUATIC LIFE?	☐ Yes	☐ No
E. INDUSTRIAL WATER SUPPLY?	☐ Yes	☐ No
F. IRRIGATION?	☐ Yes	☐ No
G. BOATING AND AESTHETICS?	☐ Yes	☐ No

7. IF ANY ITEMS IN 6 ABOVE ARE ANSWERED YES, INDICATE DISTANCE TO, LOCATION OF, AND EXTENT OF ADVERSE EFFECT:

ER-BWQ-188.6 REV. 3/75

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

DATE PREPARED: 3-30-77
DATE REVISED:

For Department Use Only

MODULE 6 – SEWERS AND APPURTENANCES

CLASS OF CONSTRUCTION (Check All Applicable Blocks)
[X] NEW SYSTEM [X] EXTENSION(S) TO EXISTING SYSTEM
[ ] REPLACEMENT OF EXISTING SYSTEM

TABLE I – DESIGN FLOW AND LOADING INFORMATION

1. POPULATION TO BE SERVED	INITIAL	DESIGN	DESIGN YEAR
	24.5	24.5	1977
2. AREA TO BE SERVED: Residential	ACRES (INITIAL) 7.3±		
TYPE OF AREA (Residential, Commercial, Etc.)	ACRES (FUTURE)		

3. A. LATERALS AND SUB-MAIN SEWERS	(GPCD)	400
B. MAIN AND TRUNK SEWERS	(GPCD)	N.A.
C. INTERCEPTORS	(GPCD)	N.A.
(1) MEASURED DRY-WEATHER FLOW	(%)	N.A.
(2) ESTIMATED DRY-WEATHER FLOW	(%)	N.A.

D. IF ANY VALUES LESS THAN PRESCRIBED IN MANUAL, EXPLAIN:

4. DESIGN FLOW DATA	GPCD	MGD
A. AVERAGE DAILY FLOW	100	0.0025
B. INFILTRATION		included in "A"
C. MAXIMUM INDUSTRIAL WASTE FLOW		N.A.
D. TOTAL DESIGN FLOW		0.0025?
E. MAXIMUM FLOW RATE		0.01 ?

TABLE II – GENERAL DESIGN

PIPE DIAMETER (IN.)	MINIMUM SLOPE (%)	MAXIMUM SLOPE (%)	MAXIMUM VELOCITY (FPS)	MAXIMUM FLOW (MGD)	MAXIMUM DISTANCE BETWEEN MANHOLES (Ft.) SEWERS 15 IN. OR LESS	MAXIMUM DISTANCE BETWEEN MANHOLES (Ft.) SEWERS 18 IN. TO 30 IN.	TYPE OF SEWER MATERIAL	"N" VALUE
8"	.0119	.0747	9.5	2.13*	= 400	N.A.	A.C.P.	.013

*Full Flow

(USE ADDITIONAL SHEETS IF NECESSARY)

TABLE III – CRITICAL DATA N.A.

PLAN SHEET NUMBER	MANHOLE NUMBER FROM	MANHOLE NUMBER TO	SEWER PIPE SIZE (IN.)	SEWER SLOPE (%)	POPULATION SERVED	TOTAL DESIGN FLOW (MGD)	SEWER FLOWING FULL VEL. (FPS)	SEWER FLOWING FULL CAP. (MGD)	MAXIMUM FLOW VELOCITY (FPS)
				(NO CRITICAL SECTIONS)					

DATE PREPARED: 3-30-77
DATE REVISED:

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

For Department Use Only

MODULE 6 – SEWERS AND APPURTENANCES

A. GENERAL DESIGN

1. ARE THE PROPOSED SEWERS DESIGNED AS SEPARATE SANITARY SEWERS? [X] Yes [ ] No

   A. IF NO, EXPLAIN IN DETAIL, INCLUDING THE POSSIBLE EFFECTS UPON WATER COURSES.

   N.A.

2. ARE THE PROPOSED SEWERS DEEP ENOUGH TO SERVE ALL ADJACENT BASEMENTS? [X] Yes [ ] No

   A. IF NO, EXPLAIN. N.A.

3. ARE THERE ANY OVERFLOWS OR BYPASSES OTHER THAN FROM PUMP STATIONS? [ ] Yes [X] No

   A. IF YES, SPECIFY PLAN SHEET(S) WHERE SHOWN. N.A.

4. WHERE SMALLER SEWERS JOIN LARGER ONES, HAVE THE INVERTS OF THE LARGER SEWERS BEEN LOWERED SUFFICIENTLY TO MAINTAIN THE SAME ENERGY GRADIENT? [X] Yes [ ] No [ ] N/A

5. SPECIFY THE TYPE OF LEAKAGE TEST (INFILTRATION AND/OR EXFILTRATION) AND THE LIMIT TO BE USED, PREFERABLY IN TERMS OF GALLONS PER INCH OF PIPE DIAMETER PER MILES PER DAY. (INDICATE VOLUME AND PAGE NUMBER OF SPECIFICATIONS.)

   TYPE AND LIMITS: Infiltration/Exfiltration---Not to exceed 200 gallons per inch pipe diameter per day per mile of sewer

6. HAVE PROVISIONS BEEN MADE TO PROTECT SEWERS AT VELOCITIES OF OVER 15 FEET PER SECOND? [ ] Yes [ ] No [X] N/A

   A. ARE SEWERS SECURED WITH CONCRETE ANCHORS (OR EQUAL) SPACED AS REQUIRED? [ ] Yes [ ] No [X] N/A

7. ARE MANHOLES PROVIDED AT ALL CHANGES IN SIZE, GRADE, ALIGNMENT, AND SEWER INTERSECTIONS? [X] Yes [ ] No

8. ARE DROP MANHOLES PROVIDED WHERE THE ENTRANCE SEWER INVERT IS 24 INCHES OR MORE ABOVE MANHOLE INVERT? [ ] Yes [ ] No N.A.

9. ARE WATERTIGHT COVERS USED WHERE MANHOLES ARE SUBJECT TO FLOODING BY STREET RUNOFF OR HIGH WATER? [X] Yes [ ] No

FR-BWQ-188.6 REV. 3/75

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

MODULE 6 – SEWERS AND APPURTENANCES

DATE PREPARED: 3-30-77
DATE REVISED:

For Department Use Only

A. GENERAL INFORMATION – CONTINUED

10. ARE SEWERS IN STREAMS PROTECTED WITH AT LEAST 1 FOOT COVER IN ROCK AND 3 FEET COVER IN OTHER MATERIAL? [X] Yes* [ ] No [ ] N/A
*concrete encasement @ crossing

11. ARE SEWERS IN STREAMS CONSTRUCTED TO REMAIN WATERTIGHT AND IN ALIGNMENT? [X] Yes [ ] No [ ] N/A

12. DOES THE APPLICATION INVOLVE CAPPED SEWERS? [ ] Yes [X] No

A. IF YES, SPECIFY PLAN SHEET NUMBER. N.A.

13. HOW MANY INVERTED SIPHONS ARE INCLUDED IN THIS DESIGN? NONE

14. IF SIPHONS ARE INCLUDED, SPECIFY THE FOLLOWING:

	SIPHON:	SIPHON:	SIPHON:
A. NUMBER OF BARRELS			
B. MINIMUM PIPE SIZE			
C. MINIMUM VELOCITY AT AVERAGE FLOW			

D. HAS PROVISION BEEN MADE FOR FLUSHING, RODDING, AND MAINTENANCE? [ ] Yes [ ] No

15. IS THERE ANY CONNECTION BETWEEN THE SEWER AND A PUBLIC OR PRIVATE POTABLE WATER SUPPLY OR APPURTENANCES? [ ] Yes [X] No

16. ARE ANY WATER SUPPLY SOURCES, PUBLIC OR PRIVATE, LOCATED WITHIN 200 FEET OF THE SEWERS? [ ] Yes [X] No

A. IF YES, SPECIFY PLAN SHEET(S) ON WHICH SOURCES ARE SHOWN. N.A.

B. IF YES, WILL SEWERS BE ENCASED OR WATERTIGHT? N.A. [ ] Yes [ ] No

17. ARE SEWERS AT LEAST 10 FEET HORIZONTALLY FROM WATER LINES AND/OR AT LEAST 18 INCHES BELOW THE WATER LINE? [X] Yes [ ] No

18. IF THE PROPOSED FACILITY WILL DISCHARGE TO THE SEWER SYSTEM AND TREATMENT PLANT OF ANOTHER MUNICIPALITY, HAVE APPROPRIATE AGREEMENTS BEEN REACHED? [ ] Yes [ ] No [X] N/A

A. IS THE AGREEMENT A CERTIFIED AGREEMENT? [ ] Yes [ ] No [X] N/A

B. IS THE AGREEMENT A LETTER OF INTENT? [ ] Yes [ ] No [X] N/A

C. HAVE DUPLICATE COPIES BEEN ENCLOSED? [ ] Yes [ ] No N.A.

19. DO THE EXISTING SEWERS TO WHICH THE PROPOSED SEWERS WILL CONNECT HAVE ADEQUATE CAPACITY TO CONVEY THE ADDITIONAL FLOW? [X] Yes [ ] No [ ] N/A

ER-SWQ-188.6(REV. 3/78) COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED 3-30-77
DATE REVISED

WATER POLLUTION CONTROL

AWMP
For Department Use Only

MODULE 6 – SEWERS AND APPURTENANCES

A. GENERAL INFORMATION – CONTINUED

20. ON THE PLANS, INDICATE THE PERMIT NUMBER OF EXISTING SEWER AT EACH PROPOSED POINT OF CONNECTION AND THE NAME OF THE PERMITEE; SPECIFY PLAN SHEET NUMBER(S) ON WHICH INDICATED: ☐ N/A
Permit #765513
Comprehensive Plan Sheet #2 and Profile Sheet #4

21. WILL THERE BE A PUMP STATION INVOLVED IN RECEIVING SEWAGE FROM THE SEWER EXTENSION? ☐ Yes ☒ No ☐ N/A

A. IF YES, SPECIFY PRESENT AND DESIGN FLOWS OF PUMPING STATION. N.A.

22. RECEIVING SEWAGE TREATMENT PLANT (FILL IN FOR EXTENSION(S) TO EXISTING SYSTEM ONLY)

A. OWNER OF PLANT Upper Gwynedd-Towamencin Municipal Authority

B. NAME OF PLANT U. Gwy.-Tow. Mun. Auth. Wastewater Treatment Plant

C. DISCHARGE DATA

	WASTE FLOW (MGD)	SOLIDS SUSPENDED (#/DAY)	SOLIDS SETTLEABLE (ML/L)	BOD 5-DAY 20°C (#/DAY)
(1) ALLOWABLE LOAD TO STREAM AUTHORIZED UNDER PRESENT PERMIT	2.5 (1) by June '77 under current exp.	376	None Stated	
(2) PRESENT LOAD TO STREAM FROM TREATMENT PLANT	1.166 (2)	214	0.4 avg.	160
(3) ADDITIONAL LOAD TO STREAM EXPECTED DURING THE NEXT FIVE YEARS FROM EXISTING SYSTEM	.1932 (3)	35	0.4	24
(4) ADDITIONAL LOAD TO STREAM DURING THE NEXT FIVE YEARS FROM PROPOSED EXTENSION	.0025	1	0.4	1
(5) TOTAL ANTICIPATED LOAD TO STREAM IN NEXT FIVE YEARS (2+3+4)	1.3617	250	0.4	185

D. TREATMENT PLANT OPERATING EFFICIENCY

	SOLIDS SUSPENDED (%)	SOLIDS SETTLEABLE (%)	BOD 5 DAY 20° C (%)
(1) PRESENT TREATMENT PLANT	88.9	97.7	91
(2) AFTER INITIAL LOAD FROM PROPOSED EXTENSION	88.9	97.7	91
(3) IN FIVE YEARS	88	98	90

23. WILL THE LOAD UNDER 22.B.(5) ABOVE PRODUCE AN EFFLUENT THAT WILL HAVE AN ADVERSE EFFECT UPON THE RECEIVING STREAM? ☐ Yes ☒ No

NOTES (1), (2), (3) – See Supplemental Sheet 6-4a.

4676424

SUPPLEMENTARY SHEET 6-4a.

NOTES: Re: 6-4: 22.C.

(1) 1.5 MGD present, plus 1.0 MGD current expansion cap. = 2.5 MGD Estimated completion date, current plant expansion is June-July, 1977

(2) Ave. Daily Flow: From Monthly Operations Reports Jan. 1975 to Jan. 1976, incl.

(3) Includes recently approved Korman Corporation Subdivision (Permit #4676422), Nash Subdivision (Permit #4676424), and in-process A. M. DiLucia, Inc.-Country Meadows II Subdivision incremental contributions.

MODULE 6 - SEWERS AND APPURTENANCES

A. GENERAL INFORMATION - CONTINUED

20. ON THE PLANS, INDICATE THE PERMIT NUMBER OF EXISTING SEWERS AT EACH PROPOSED POINT OF CONNECTION AND THE NAME OF THE PERMITTEE. SPECIFY PLAN SHEET NUMBER(S) ON WHICH INDICATED. Permit #7605513 Comprehensive Plan Sheet #2 and Profile Sheet #4

21. WILL THERE BE A PUMP STATION INVOLVED IN RECEIVING SEWAGE FROM THE SEWER EXTENSION?

WATER POLLUTION CONTROL

ER-BWQ-188.6 REV. 3/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

DATE PREPARED: 3-30-77
DATE REVISED:

WATER POLLUTION CONTROL

For Department Use Only

MODULE 6 – SEWERS AND APPURTENANCES

A. GENERAL INFORMATION – CONTINUED

20. ON THE PLANS, INDICATE THE PERMIT NUMBER OF EXISTING SEWER AT EACH PROPOSED POINT OF CONNECTION AND THE NAME OF THE PERMITEE; SPECIFY PLAN SHEET NUMBER(S) ON WHICH INDICATED: Permit #765513 Comprehensive Plan Sheet #2 and Profile Sheet #4 ☐ N/A

21. WILL THERE BE A PUMP STATION INVOLVED IN RECEIVING SEWAGE FROM THE SEWER EXTENSION? ☐ Yes ☒ No ☐ N/A

A. IF YES, SPECIFY PRESENT AND DESIGN FLOWS OF PUMPING STATION. N.A.

22. RECEIVING SEWAGE TREATMENT PLANT (FILL IN FOR EXTENSION(S) TO EXISTING SYSTEM ONLY)

A. OWNER OF PLANT Upper Gwynedd-Towamencin Municipal Authority

B. NAME OF PLANT U. Gwy.-Tow. Mun. Auth. Wastewater Treatment Plant

C. DISCHARGE DATA

	WASTE FLOW (MGD)	SOLIDS SUSPENDED (#/DAY)	SOLIDS SETTLEABLE (ML/L)	BOD 5 DAY 20°C (#/DAY)
(1) ALLOWABLE LOAD TO STREAM AUTHORIZED UNDER PRESENT PERMIT	2.5 (1) by June '77 under current exp.	376	None Stated	
(2) PRESENT LOAD TO STREAM FROM TREATMENT PLANT	1.166 (2)	214	0.4 avg.	160
(3) ADDITIONAL LOAD TO STREAM EXPECTED DURING THE NEXT FIVE YEARS FROM EXISTING SYSTEM	.1932 (3)	35	0.4	24
(4) ADDITIONAL LOAD TO STREAM DURING THE NEXT FIVE YEARS FROM PROPOSED EXTENSION	.0025	1	0.4	1
(5) TOTAL ANTICIPATED LOAD TO STREAM IN NEXT FIVE YEARS (2+3+4)	1.3617	250	0.4	185

D. TREATMENT PLANT OPERATING EFFICIENCY

	SOLIDS SUSPENDED (%)	SOLIDS SETTLEABLE (%)	BOD 5 DAY 20° C (%)
(1) PRESENT TREATMENT PLANT	88.9	97.7	91
(2) AFTER INITIAL LOAD FROM PROPOSED EXTENSION	88.9	97.7	91
(3) IN FIVE YEARS	88	98	90

23. WILL THE LOAD UNDER 22.B.(5) ABOVE PRODUCE AN EFFLUENT THAT WILL HAVE AN ADVERSE EFFECT UPON THE RECEIVING STREAM? ☐ Yes ☒ No

NOTES (1), (2), (3) - See Supplemental Sheet 6-4a.

SUPPLEMENTARY SHEET 6-4a.

NOTES: Re: 6-4: 22.C.

(1) 1.5 MGD present, plus 1.0 MGD current expansion cap. = 2.5 MGD Estimated completion date, current plant expansion is June-July, 1977

(2) Ave. Daily Flow: From Monthly Operations Reports Jan. 1975 to Jan. 1976, incl.

(3) Includes recently approved Korman Corporation Subdivision (Permit #4676422), Nash Subdivision (Permit #4676424), and in-process A. M. DiLucia, Inc.-Country Meadows II Subdivision incremental contributions.

Sewerage Permit No. 4677415

Upper Gwynedd-Towamencin Municipal Authority

This permit is subject tot he following Special Conditions:

A. The stream bed shall not be used as a roadway for moving machinery from one site to another. Temporary stream crossings must be provided for equipment that must cross the stream during construction. Structures are to be removed and the stream bed returned to its original condition when the project is completed.

B. Siltation control shall be provided during construction and bank stabilization shall be undertaken by planting of grasses, shrubbery, or trees immediately after completion of each phase of the project.

C. When channel changes occur, the stream bed shall not exceed the original width and if a greater cross sectional area is required, an elevated flood plain must be put into use.

D. All material and debris removal from the stream bed shall be moved entirely out of the flood plain area.

E. A permit must be secured from the Pennsylvania Fish Commission in Harrisburg, if the use of explosives is required: P.F.C. Waterways Patrolman, Jay Johnston, Box 83, R.D. No. 1, New Hope, Pa. 18938 must be notified when the project is started, when explosives are to be used, and when the project is completed for final inspection.

M710-047 REV. 6-71

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
SANITARY ENGINEERING

4677415
For Department Use Only

INTERNAL REVIEW AND RECOMMENDATIONS

REGIONAL ENGINEER'S REVIEW

NAME OF APPLICANT: Upper Gwynedd-Towamencin Municipal Authority

PROJECT LOCATION: Towamencin Township Montgomery County

APPLICATION NUMBER: 4677415

BRIEF DESCRIPTION OF PROJECT: This application requests approval for the construction of a sanitary sewer extension to serve seven proposed single family dwelling units in the Dougherty Brothers Lot Subdivision in Towamencin Township, Montgomery County. The project is located to the northeast of Morris Road approximately one-half mile southeast Buster Road, one mile northeast of Valley Forge Road into the southwest of Towamencin Creek ~~and~~ Kriebel Road.

DISCUSSION (Use Additional Sheets If Necessary): Sewage from the proposed sewer extension will be conveyed to the Upper Gwynedd-Towamencin Municipal Authority Wastewater Treatment Plant via existing Upper Gwynedd-Towamencin Municipal Authority Sewers covered under Permit #765S13. The final effluent will be afforded secondary treatment before discharge to the Towamencin Creek. The proposed sewer extension will serve 25 people initially and ultimately. The soil erosion and sedimentation control plan has been reviewed and approved by the reviewing engineer. The details of the sanitary sewer stream crossing of Towamencin Creek were found to be adequate by the reviewing engineer. The information was sent to the Bucks County Waterways Patrolman but no response was received within thirty days.

CURRENT ESTIMATE OF COMPLETION DATE OF PROJECT (Industrial Wastes Only)

RECOMMENDATION AND ACTION

APPROVAL – RELEVANT LAWS, REGULATIONS, STANDARDS, AND POLICIES HAVE BEEN COMPLIED WITH:

Issue By Region	Issue By Central Office	Refuse	Signature	Date
☑	☐	☐	William B. Forman Jr. REVIEWING ENGINEER	6/16/77
☐	☐	☐	FACILITIES ENGINEER	6/16/77
☒	☐	☐	REGIONAL ENGINEER	6/16/77
	☐	☐	DIV. FACILITIES ENGINEER	
	☐	☐	DIVISION DIRECTOR	
		☐	BUREAU DIRECTOR	

PERMIT CONDITIONS:

1. STANDARD - Sewage (1972)
1 thru 9, 11 thru 14, 21, 22, 30, 31

2. SPECIAL (Use Additional Sheets If Necessary) –
A, B, C, D, E

Recording of Permit; Montgomery County

ER-BWQ-16 Rev. 9/73

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT

NO. 4677415

A. PERMITTEE (Name and Address)

Upper Gwynedd-Towamencin Municipal Auth.
2225 Kriebel Road
Lansdale, Pennsylvania 19446

B. PROJECT LOCATION

Municipality: Towamencin Township
County: Montgomery County

C. TYPE OF FACILITY OR ESTABLISHMENT

Sanitary Sewer Extension

D. NAME OF MINE, OPERATION OR AREA SERVED

Dougherty Brothers Lot Subdivision

E. THIS PERMIT APPROVES

1. Plans For Construction of
   - a. [X] SEWERS AND APPURTENANCES
   - b. [ ] SEWAGE TREATMENT FACILITIES
   - c. [ ] MINE DRAINAGE TREATMENT FACILITIES
   - d. [ ] INDUSTRIAL WASTE TREATMENT FACILITIES
   - e. [ ] OUTFALL & HEADWALL
   - f. [X] STREAM CROSSING

2. The Discharge of: N/A
   - a. [ ] TREATED
   - [ ] UNTREATED
   - b. [ ] INDUSTRIAL WASTE
   - [ ] MINE DRAINAGE
   - [ ] SEWAGE

3. The Operation of: N/A
   - [ ] MINE — MAXIMUM AREA TO BE DEEP MINED
   - [ ] DAM

4. An Erosion and Sedimentation Control Plan [X] PROJECT AREA IS 7.3 ACRES.

5. Nature of Discharge or Impoundment: N/A
   - [ ] DISCHARGE TO SURFACE WATER
   - [ ] DISCHARGE TO GROUND WATER
   - [ ] IMPOUNDMENT

(Name of Stream to which discharged or drainage area on which ground water discharge takes place or Impoundment is located).

F. You are hereby authorized to construct, operate or discharge, as indicated above, provided that you comply with the following:

1. All representations regarding operations, construction, maintenance and closing procedures as well as all other matters set forth in your application and its supporting documents (Application No. 4677415 dated March 30, 1977), and amendments dated _____ Such application, it's supporting documents and amendments are hereby made a part of this permit.
2. Conditions numbered 1 thru 9, 11 thru 14, 21, 22, 30, 31, 32, 33 of the Sewerage Standard Conditions dated 1972 which conditions are attached hereto and are made a part of this permit.
3. Special condition(s) designated A, B, C, D, E which are attached hereto and are made a part of this permit. This permit is also subject to the Standard Conditions Relating to Erosion Control (1973).

G. The Authority granted by this permit is subject to the following further qualifications:

1. If there is a conflict between the application or its supporting documents and amendments and the standard or special conditions, the standard or special conditions shall apply.
2. Failure to comply with the Rules and Regulations of the Department or the terms or conditions of this permit shall void the authority given to the permittee by the issuance of the permit.
3. This permit is issued pursuant to the Clean Streams Law, The Act of June 22, 1937, P.L. 1987 as amended and/or the Water Obstruction Act of June 25, 1913, P.L. 555 as amended. Issuance of this permit shall not relieve the permittee of any responsibility under any other law.

This permit must be recorded in the Recorder of Deeds Office in Montgomery County.

PERMIT ISSUED

DEPARTMENT OF ENVIRONMENTAL RESOURCES

DATE 6-10-77

BY C.T. Beechwood

C.T. Beechwood

TITLE Regional Sanitary Engineer

Sewerage Permit No. 4677415

Upper Gwynedd-Towamencin Municipal Authority

This permit is subject tot he following Special Conditions:

A. The stream bed shall not be used as a roadway for moving machinery from one site to another. Temporary stream crossings must be provided for equipment that must cross the stream during construction. Structures are to be removed and the stream bed returned to its original condition when the project is completed.

B. Siltation control shall be provided during construction and bank stabilization shall be undertaken by planting of grasses, shrubbery, or trees immediately after completion of each phase of the project.

C. When channel changes occur, the stream bed shall not exceed the original width and if a greater cross sectional area is required, an elevated flood plain must be put into use.

D. All material and debris removal from the stream bed shall be moved entirely out of the flood plain area.

E. A permit must be secured from the Pennsylvania Fish Commission in Harrisburg, if the use of explosives is required: P.F.C. Waterways Patrolman, Jay Johnston, Box 83, R.D. No. 1, New Hope, Pa. 18938 must be notified when the project is started, when explosives are to be used, and when the project is completed for final inspection.

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
Norristown, Pennsylvania 19401
215 631-2405

June 13, 1977

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, Pennsylvania 19446

Attention: H. Warren Dimmig

Re: Sewerage Permit No. 4677415
Dougherty Brothers Lot Subdivision
Towamencin Township, Montgomery County

Gentlemen:

Above referenced permit is enclosed.

Please study the permit carefully and direct any questions to the Facilities Section of this office.

To become operative this permit must be recorded in the Office of the Recorder of Deeds in the county in which the discharge is located. Enclosed is a certificate and pre-addressed envelope for this purpose. Please have the Recorder of Deeds accomplish the certificate and return it within ten (10) days.

Very truly yours,

C.T. Beechwood

C.T. Beechwood
Regional Sanitary Engineer

Enclosures: Permit
Standard Conditions Relating to Sewerage
Standard Conditions Relating to Erosion Control
Recorder of Deeds Certificate with envelope
Notary Public Certificate

CC: 30 day hold
Regional File
Central Files (WQM)
Pennsylvania Fish Commission
Jay Johnston (Bucks County Waterways Patrolman)
Herbert H. Metz, Inc.

CTB:WG:smc

ER-BWQ-69 Rev. 4-73

STATE OF PENNSYLVANIA }
COUNTY OF MONTGOMERY } SS

On the 13th day of June in the year one thousand nine hundred and seventy-seven before me, the Subscriber, a Notary Public, came the above named

C.T. Beechwood

and duly acknowledged the foregoing permit to be his act and deed and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year aforesaid.

John F. Daly, Jr.
NOTARY PUBLIC

JOHN F. DALY, JR.
Notary Public, Norristown Boro, Montg. Co.
My Commission Expires August 16, 1980

OA-501 12-67

COMMONWEALTH OF PENNSYLVANIA
April 12, 1977

BG

SUBJECT: Application No. 4677415
Upper Gwynedd Towamencin Municipal Authority

TO: Richard Hinkle, Chief
Facilities Section
Bureau Water Quality Management

FROM: L. T. Gonshor
Regional Industrial Hygienist

The following are comments from the Bureau of Occupational Health relating to the above application.

Employees of private companies are subject to regulations of the federal Occupational Safety and Health Administration whereas employees of state and local government related agencies are subject to regulations of the Commonwealth.

The contract should include a clause that all work on the project must be done in compliance with State and Federal occupational health and safety regulations.

If rock drilling machinery is used, it must be equipped with an integral water or exhaust ventilation dust suppression device.

Potential noise exposures should be evaluated and control measures and medical programs (audiometric tests) implemented as necessary.

Potential dust exposures should be evaluated and control measures and medical programs (chest X-ray (14" x 17") examinations) implemented as necessary.

Where confined spaces (manholes, etc.) must be entered, the atmosphere must be tested for combustible gases (as a minimum) and mechanical ventilation used prior to entry and during occupancy. A worker must also be stationed outside the confined space to offer assistance should a problem occur. Procedures for entry must be submitted to the Department where the employer is subject to Commonwealth regulations.

Lasers used for alignment work must be registered with the Department and any injuries resulting from the use of lasers must be reported.

CC: Occ Health
CC: B.O.H.

OA-501 12-67

COMMONWEALTH OF PENNSYLVANIA

April 7, 1977

SUBJECT: Application No. 4677415
Upper Gwynedd Towamencin Municipal Auth.

TO: Richard Hinkle, Chief
Facilities Section
Water Quality Management

FROM: L. T. Gonshor
Regional Industrial Hygienist

The following are comments from the Bureau of Occupational Health relating to the above application.

Employees of private companies are subject to regulations of the federal Occupational Safety and Health Administration whereas employees of state and local government related agencies are subject to regulations of the Commonwealth.

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Where confined spaces (manholes, etc.) must be entered, the atmosphere must be tested for combustible gases (as a minimum) and mechanical ventilation used prior to entry and during occupancy. A worker must also be stationed outside the confined space to offer assistance should a problem occur. Procedures for entry must be submitted to the Department where the employer is subject to Commonwealth regulations.

Lasers used for alignment work must be registered with the Department and any injuries resulting from the use of lasers must be reported.

CC: Occ. Health
CC: B.O.H.

ER-EPR-1:2/74

Form No. 1

B. 6

SUBJECT: Sewerage
Towamencin TWP
montgomery county

Application No.: 4677415

CONTACT: U. Gwynedd-Towamencin MA.
3225 Kriebel RD.
Lansdale Pa 19446
PHONE: 855-8165
EXT: 855-3111

New Proposal	✓
Revised Proposal	

From
TO: Regional Coordinator L Gonsher 4/5/77

FROM: R Hinkle

On 4-4-77, we received an application for plan approval and/or permit to construct a Sewer ext. The proposed installation involves:

to serve The Dougherty Brothers Subdivision in Towamencin TWP, montgomery county
(Sews to U Gwynedd - Towamencin STP)

Permit Coordination Requirements: OK COMMENTS TO BE FORWARDED IN REVIEW

	No Permit Required	No Permit Required Prior Approval Required	Permit Required Application on Hand	Permit Required Application Needed
Air Quality	✓			
Water Quality			VOID	
Land Protection	✓			
Community Env. Control	✓			
Occupational Health	✓	✓		
Surface Mine Reclamation	✓			
Radiological Health	✓			

Please indicate your interest on this form and return to the Coordinator by 4-8-77

ER-EPR-1:2/74 Form No. 1

B.G.

Application No.: 4677415-

SUBJECT: Sewerage
Towamencin TWP
montgomery county

CONTACT: U. Gwynedd-Towamencin MA.
2325 Kriebel RD.
Lansdale Pa 19446
Appl: 855-8165-
Engr: 855-3111

New Proposal	✓
Revised Proposal	

TO: Regional Coordinator L Gonshen

FROM: K Hinkle

On 4-4-77, we received an application for plan approval and/or permit to construct a Sewer ext. The proposed installation involves:

To serve The Dougherty Brothers subdivision in Towamencin TWP, Montgomery county
(Serv to U Gwynedd-Towamencin STP)

Permit Coordination Requirements:

	No Permit Required	No Permit Required Prior Approval Required	Permit Required Application on Hand	Permit Required Application Needed
Air Quality				
Water Quality			V	
Land Protection				
Community Env Control				
Occupational Health				
Surface Mine Reclamation				
Radiological Health				

Please indicate your interest on this form and return to the Coordinator by 4-8-77

ER – EP

START

DEPARTMENT OF ENVIRONMENTAL RESOURCES

BUREAU / PROGRAM Water Quality Management

ENVIRONMENTAL PROTECTION

DIVISION

COUNTY / MUNICIPALITY 46949

PROGRAM Sew

START

CASE NAME Upper Gwynedd Towamencin Municipal Authority

FILE

PERMIT NO.

BUREAU / PROGRAM Water Quality Management

DIVISION

COUNTY / MUNICIPALITY 46949

PROGRAM Sew

CASE NAME Upper Gwynedd Towamencin Municipal Authority

FILE

PERMIT NO. 4678414 Hunter Villa Subdivision

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P.O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-2111
855-1686

March 14, 1978

U. S. Dept. of Agriculture
Soils Conservation District
1725 Markley Street
Norristown, Pennsylvania 19401

ATTN: Mr. William Klages
District Conservationist

RE: Hunter Construction Company - "Hunter Villa"
Planned Residential Subdivision Development
Towamencin Township

Dear Mr. Klages:

Transmitted with this letter are duplicate copies of pertinent plans and supporting documents (for your review) associated with the Hunter Construction Company (Hunter Villa) planned 101-lot residential subdivision project in Towamencin Township. Said plans and documents are tabulated on an attached sheet.

Application for a Water Quality Management Permit is being submitted to the Bureau of Water Quality Management, D.E.R. simultaneously; a copy of the transmittal letter identifying said submission has been enclosed for your convenience.

I believe the enclosed package is complete and in order. I would appreciate having your review commentary.

Very truly yours,

Clifford T. Stout

Clifford T. Stout, P.E.
Herbert H. Metz, Inc.

CTS/srs

Enclosures

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
1725 Markley Street, Norristown, PA 19401

March 17, 1978

Mr. Maynard King
Montgomery County Conservation District
One Montgomery Plaza, Court House
Norristown, PA 19404

Dear Mr. King:

Re: Hunter Villa Section 1 and 2
Sanitary Sewer Extension
Towamencin Township

The review of the Erosion and Sedimentation Control Plan for Hunter Villa Section 1 and 2 subdivision located in Towamencin Township was made by the Soil Conservation Service for Montgomery County Conservation District. Plan development and content should meet the guidelines of Soil Erosion and Sedimentation Control by Pennsylvania Department of Environmental Resources.

This plan needs the following information:

1. Narrative.
2. Method of calculating stormwater runoff and the downstream effect.
3. Maintenance program.
4. Soils with seasonal high water table are difficult to use on lot storage of stormwater due to moderately slow permeability in Abbottstown, Readington, and Reaville soils.
5. Needs standards and specifications for establishing and maintaining conservation practices.

This plan is not complete as needed to meet the required regulations of the Clean Streams Law "Soil Erosion and Sedimentation Control."

Sincerely,

William T. Klages

William T. Klages
District Conservationist

1875 New Hope Street
Norristown, Pennsylvania 19401
215 631-2402

March 22, 1978

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: Mr. H. Warren Dimig

Re: Application No. 4678414
Towamencin Township
Montgomery County

Gentlemen:

This will acknowledge receipt of your application on March 14, 1978 for approval to construct a sewer extension to serve Hunter Villa Subdivision in Towamencin Township, Montgomery County.

The material submitted is accepted for technical review by the staff of the Department.

In addition to the above application, other features associated with the proposed project which requires submission of a permit application include:

Encroachment permit for the storm sewer headwall, bridge and water main crossing of the stream.

We have enclosed a handout and application forms in the consultant's copy with respect to the remaining permit application yet to be submitted.

All applications must be submitted as soon as possible so that they can be processed concurrently. No permits will be issued until processing is completed on all required applications. The permits will be issued simultaneously from this office.

You are reminded that any proposed facilities cannot be constructed without first obtaining the required permits.

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-2111
855-1686

RECEIVED
APR 1 1978
WAT.
NORR... OFFICE

April 11, 1978

Mr. George Kohut, Sanitary Engineer
Pa. Dept. of Environmental Resources
1875 New Hope Street
Norristown, Pennsylvania 19401

RE: Water Quality Management Application No. 4678414
Hunter Villa Subdivision
Towamencin Township, Montgomery County

Dear Mr. Kohut:

First of all, I would like to express my appreciation to you for being so patient with me in regards to forwarding the supporting information you requested in your March 28th letter. Due to certain circumstances within our corporate structure it became difficult for me to perform the necessary functions to obtain the required information.

Be that as it may, I am herewith submitting the following (in duplicate):

1) Set of revised plan/profiles showing proposed water line locations. These water lines also appear on the construction improvement plans sheets 3 and 4. A typical section, showing relationships between sanitary sewers and water mains, has been added to the construction detail sheet (21).

2) Storm Water Management Calculations including (a) before development vs. after development runoff comparison, substantiated by photos of the subject site (also enclosed); (b) pipe sizes/inlet tabulation for each series of catch basins and associated culverts (numbers corresponding to each storm water structure appear on plans for ease of correlation between documents and plans); and (c) tabulation of recommended Rock Basin Energy Dissipators to be permanently constructed at each outfall.

3) A phasing plan, incorporated into the title plan, showing approximate acreage to be disturbed.

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

April 11, 1978

Mr. William T. Klages, District Conservationist
U. S. Department of Agriculture
Soil Conservation Service
1725 Markley Street
Norristown, Pennsylvania 19401

RE: Hunter Villa Subdivision
Towamencin Township

Dear Mr. Klages:

Pursuant to your letter of March 17th, I am enclosing with this letter the following (in duplicate):

1) Set of revised plans (Sheets 1 thru 21 of 21)

2) Storm Water Management Calculations including (a) before development vs. after development runoff comparison substantiated by photos of the subject site (one set enclosed); (b) pipe sizes/inlet tabulation for each series of catch basins and associated culverts (numbers corresponding to each storm water structure appear on plans for ease of correlation between documents and plans); (c) tabulation of recommended Rock Basin Energy Dissipators to be permanently constructed at each outfall; and (d) erosion and sedimentation narrative report.

Due to the physical presence of a branch of the Towamencin Creek running across the tract, full scale development would necessitate the construction of a bridge and extension of a water main across the creek. However, at this time the developer has put Section 2, Phase B (see Sheet 2) on "hold" due to the high construction improvement costs required to gain access to this area. Therefore, this application does not include either the bridge or water main extension to that area. However, should Section 2, Phase B be developed I will then submit erosion and sediment control measures for those particular creek encroachments.

I trust these plans, supporting documents and calculations are complete and in order. If you have any questions or comments, please don't hesitate to call.

Very truly yours,

Clifford T. Stout

Clifford T. Stout, P.E

CTS/srs
encl.

1875 New Hope Street
Norristown, Pennsylvania 19401
215 631-2411

March 28, 1978

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, Pennsylvania 19446

Attention: Mr. H. Warren Dimig

Re: Application No. 4678414
Hunter Villa Subdivision
Towamencin Township
Montgomery County

Gentlemen:

We have completed an inventory of the above sewerage application and supporting documents and find the following items were not included in your submission.

1. The water main location must be shown on the plan and profiles, please note that where water mains cross sanitary and storm sewers the mains should cross 18 inches over the sewers as measured from the bottom of the main to the top of the sewer.

2. Storm water calculations are needed to complete the storm water management plan.

3. If the development is to be phased, please submit a phasing schedule. If more than 25 acres are to be disturbed a Soil Erosion and Sedimentation permit will be required.

4. As noted in our acceptance (of the application) letter dated March 22, 1978, an encroachment permit for the storm sewer headwalls, bridge and water main crossing of the stream will have to be obtained before we can issue the sewerage permit, all permits will be issued simultaneously.

Please submit the above items to this office wihtin two weeks of the date of this letter. If these items are not received or they are incomplete or incorrect, we will continue to process this application based on the data on hand and make our recommendations accordingly.

Very truly yours,

George Kohut

George Kohut
Sanitary Engineer

cc: Re Ce 30
H.H. Metz, Inc.

GK:smc

Applications are normally processed within sixty (60) days. If you have not received notification of the action taken within this period, feel free to contact me for information concerning the status of the review.

Very truly yours,

Leon T. Gonshor
Acting Regional Director

cc: Facilities
Program Services
Dams & Encroachments
Herbert H. Metz, Inc.

LTG/lm

HERBERT H. METZ, INC.

Mr. George Kohut
April 11, 1978
Page 2 of 2

I trust these plans, supporting documents and calculations are complete and in order.

May I also advise you that I am simultaneously making application to the Division of Dams and Encroachments for approval to cross or encroach within the bounds of the Towamencin Creek which naturally subdivides the tract.

Again, thank you for your patience.

Very truly yours,

Clifford T. Stout

Clifford T. Stout, P.E.
Herbert H. Metz, Inc.

CTS/srs

encl.

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

RECEIVED
APR 21 1978
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

April 17, 1978

Mr. George Kohut, Sanitary Engineer
Pa. Dept. of Environmental Resources
1875 New Hope Street
Norristown, Pennsylvania 19401

RE: Water Quality Management Application No. 4678414
Hunter Villa Subdivision
Towamencin Township, Montgomery County

Dear Mr. Kohut:

In response to your inquiry expressed in our telephone conversation this afternoon I offer the following explanation:

As you are aware, the entire project is divided into two parts, Section I and Section II. Each of those sections is also split into two parts, Phase A and Phase B; the project totalling four separate phases. Each phase is to be treated as a separate entity. Only after one phase is completed will the contractor proceed to the next phase, thereby disturbing less than 25 Acres at any time.

I hope this answers your questions. I thank you for your speedy commentary.

Very truly yours,

Clifford T. Stout

Clifford T. Stout, P.E.
Herbert H. Metz, Inc.

CTS/srs

Kohut

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
1725 Markley Street, Norristown, PA 19401

RECEIVED
MAY 22 1978
WATER ... NORRISTOWN REGIONAL OFFICE

April 25, 1978

Mr. Maynard King
Montgomery County Conservation District
One Montgomery Plaza, Court House
Norristown, PA 19404

Dear Mr. King:

Re: Sect. 1 & 2- Hunter Villa Subdivision
Towamencin Township

Soil Erosion and Sedimentation Control Plan has been reviewed by the Soil Conservation Service for Montgomery County Conservation District. Adequate erosion control measures, both temporary and permanent, are found in this plan. The Montgomery County Conservation District should be furnished a report as to the erosion control practices installed. The stream and floodplain should be reserved for open space and only sewer construction permitted in these areas.

Sincerely,

William T. Klages

William T. Klages
District Conservationist

Enclosure

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
1725 Markley Street, Norristown, PA 19401

April 25, 1978

Mr. Maynard King
Montgomery County Conservation District
One Montgomery Plaza, Court House
Norristown, PA 19404

Enclosure

Dear Mr. King:

Re: Section 1 - Hunter Villa Subdivision
Towamencin Township

Soil Erosion and Sedimentation Control Plan has been reviewed by the Soil Conservation Service for Montgomery County Conservation District. Adequate erosion control measures, both temporary and permanent, are found in this plan. The Montgomery County Conservation District should be furnished a report as to the erosion control practices installed. The stream and floodplain should be reserved for open space and only sewer construction permitted in these areas.

Sincerely,

William T. Klages

William T. Klages
District Conservationist

Enclosure

GK

1875 New Hope Street
Norristown, Pennsylvania 19401
215 631-2402

June 6, 1978

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: Mr. H. Warren Dimmig
Chairman

RE: Application No. 4678414
Towamencin Township
Montgomery County

Gentlemen:

I am pleased to inform you that our Facilities Section has completed their review of the above application.

With reference to my letter dated March 22, 1978 the permit will not be issued until approvals have been received from our Dams & Encroachments program for the stream encroachments associated with this project. It is my understanding that processing on the encroachment application is nearing completion.

Very truly yours,

Leon T. Gonshor
Regional Director

LTG:mj

cc: Dams & Encroachments
Facilities
Hunter Construction Company

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 447
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

DEPT. OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER MANAGEMENT
APPLICATION NO. 467844 PLANS REC'D 3-14-78
REPORTS
NO. OF VOLUMES 1 OF 1

RECEIVED
APR 1 1978

"HUNTER VILLA"
Single-Family Residential Development
by
Hunter Construction Company

BEFORE DEVELOPMENT vs. AFTER DEVELOPMENT
STORM WATER RUNOFF COMPARISON

EXISTING CONDITIONS

The subject site is a 67± Acre tract of land at the Southeasterly corner of the intersection of Sumneytown Pike with Green Lane Road near Kulpsville in Towamencin Township. The site has, for the most part, gently rolling slopes; excepting those areas near Towamencin Creek which bisects the tract. Existing soil types on the site are of a silty clay nature predominant in Towamencin and nearby townships. An examination of the site reveals that vegetation on the tract is sparce and appears mainly in the flood prone areas.

Some years ago the site was used primarily for farming, specifically for corn crops planted in distinct rows (see enclosed photographs). These rows were not planted along the contours, as would have been good practice to decrease erosion, but instead were planted in general alignment to the slopes. Over its recent, idle years the once farmed portion of the tract has been subjected to severe erosion, evidenced by the contour lines (obtained by aerial photogrammetry) appearing on the enclosed photo index map. This part of the tract has degenerated to a point where silt laden ruts exist between rows of corn stalk stumps.

For a silty, clay soil like that mentioned above, given the sparce vegetation indicated in the previous paragraphs, and depicted in the photographs, runoff coefficients could be expected to vary between 0.4 and 0.45.

PROPOSED DEVELOPMENT

The tract is proposed to be developed into 101 single-family residential dwelling units each having a minimum lot area of 18,000 Sq. Ft. The development has been laid out in the "cluster" concept of the township's R-125 Residential zoning requirements as opposed to the "standard" R-125 requirements. This cluster concept permits no greater number of dwelling units for the tract (than standard requirements) but enables the homes to be gathered together more closely in order to let an equivalent number of homes to be served by less roadway area; thereby lessening the amount of impervious cover that would have been needed.

HERBERT H. METZ, INC.

"Hunter Villa"
Storm Water Runoff Comparison
Page 2 of 2

Vegetation, in the form of grassed lawn areas, shrubs, and shade trees, will be planted and serve to retard the erosion so prevalent on the site. This vegetation would also decrease the "imperviousness" of the soil beneath it by slowing down runoff and enabling the storm water to infiltrate downward into the soil layers and recharge the ground-water table, and of course reduce the expected runoff at times of heavy rain.

The total expected paved acreage, including streets, drives, and sidewalks, is approximately 6.5 Acres (having a runoff coefficient varying between .85 to .90); lawn area, etc. is approximately 51.5 Acres (with a runoff coefficient of approximately .35); and undisturbed flood plain area totals 9± Acres (with a .35 runoff coefficient).

Obtaining a weighted average of all these values gives the total tract a weighted runoff coefficient of 0.40. A comparison of this value against its "existing conditions" counterpart reveals that it is as good or better <u>after</u> development than it was before. Simply stated, the proposed development should have no adverse effect on either expected runoff or erosion.

PHOTO (1)

PHOTO (1)

PHOTO (2)

PHOTO (2)

HERBERT H. METZ, INC.

"Hunter Villa"
Storm Water Runoff Comparison
Page 2 of 2

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF ENVIRONMENTAL RESOURCES
750 E. Johnson Highway
Norristown, Pennsylvania 19401
215 631-2280

January 24, 1978

RECEIVED
MAR 1 4 1978

Ms. Barbara Jean Bowers
Box 303
1655 Sumneytown Pike
Kulpesville, PA 19443

Re: Villa Vista
Number 1-46949-014-4
Towamencin Township

Dear Ms. Bowers:

Please be advised that a review has been made and completed of the above referenced Planning Module for Land Development.

This revision to the Towamencin Township Official Sewage Facilities Plan meets the requirements of Chapter 71, Section 71.17 of the Pennsylvania Department of Environmental Resources Rules and Regulations.

Approval is hereby granted; and in accordance with this Chapter, the Department holds Towamencin Township responsible for implementing this revision as per the approved module.

If you have any questions, please feel free to contact this office.

Very truly yours,

Michael L. Simon
Sanitarian
Montgomery County

ML.S:efl

CC: Sewage Facilities Consultant
File
WAMIS

ENVIRONMENTAL PROTECTION

EXHIBIT "B"

PHOTO (3)

PHOTO (4)

PHOTO (5)

PHOTO (5)

PHOTO (6)

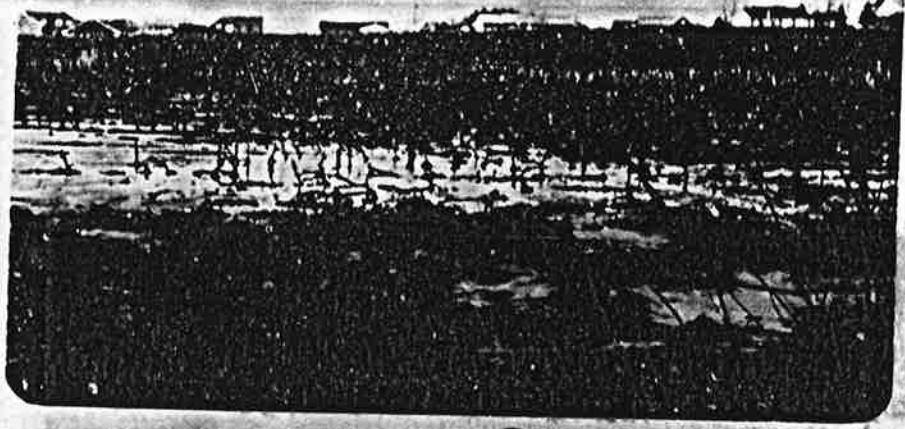


PHOTO (6)

NARRATIVE REPORT

EROSION AND SEDIMENTATION CONTROL PLAN

FOR

HUNTER CONSTRUCTION CO.

"HUNTER VILLA" RESIDENTIAL SUBDIVISION DEVELOPMENT

TOWAMENCIN TOWNSHIP, MONTGOMERY COUNTY, PA.

DEPT. OF ENVIRONMENTAL RESOURCES
BUREAU OF
WATER QUALITY MANAGEMENT
APPLICATION NO. 4678414 PLANS REC'D. REGION 3-14-78
REPORTS
NO. OF VOLUMES 1 OF 1

RECEIVED
MAR 14 1978
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

JANUARY, 1978

HERBERT H. METZ, INC.

EXHIBIT "C"

1. GENERAL DESCRIPTION OF SITE LOCATION

The project site is a 68.1 Acre tract of land situated at the South corner of the intersection of Sumneytown Pike and Green Lane Road in the Village of Kulpsville, Towamencin Township, Montgomery County.

The site is also bounded on the Southeast by undeveloped residential property and on the Southwest by the Northeast Extension of the Pennsylvania Turnpike.

Soils composition on the site, as identified by the Montgomery County Soils Survey, is made up of the following categories: Abbottstown Silt Loam, Klinesville Very Shaly Silt Loam, Readington Silt Loam, Reaville Shaly Silt Loam, and strips of flood plain soils, Bowmansville Silt Loam and Rowland Silt Loam, in the immediate vicinity of Towamencin Creek which runs through the tract from Northeast to Southwest.

2. GENERAL DESCRIPTION OF STORM WATER COLLECTION AND CONTROL

The storm water pipe and inlet collection system was designed using 10-year storm frequency criteria. Inlets and storm sewers have been planned for placement at appropriate critical locations along the tract streets and in lot easements for dispersal to the Towamencin Creek which runs through the provided "open space" of the tract.

Pipe outfalls at minimum slopes and outlet energy-dissipating devices are designed for release of storm water runoff at reduced velocities.

Inlet control design and individual on-lot grading/landscaping features are planned to also minimize point runoff impact.

3. GENERAL DESCRIPTION OF ACCELERATED EROSION CONTROL

As hereinafter described and as shown and noted on the Erosion and Sedimentation Control Plan, and in the following (Item #8) construction control stage sequence, the following erosion control procedures and devices shall be employed.

The streets shall be graded and crushed stone base course applied, and curbing placed as soon as possible, to prevent erosion of the sub-grade. During street grading, filter berms and filter inlets are proposed to be constructed at appropriate intervals and locations to minimize gullying and washing, and siltation in pipes and water courses. Utilization of temporary straw bale silt barriers is also proposed along adjacent roadway and established-developed areas where on-site earth movement and construction is planned.

3. continued

Graded slopes, swales and diversions, on-lot sedimentation control features and other critical disturbed areas shall be temporarily seeded following earth-moving procedures.

Rear-of-lot belt areas not significant to the progression of construction of houses and improvements and drainage controls shall be left undisturbed until lawn grading phase of finish construction. In addition, top soil storage as a protective berm may be utilized across the down-slope limit of construction in some locations.

4. GENERAL DESCRIPTION OF SEDIMENTATION CONTROL

On-lot protection during construction and grading activity will be provided by temporary controlled-flow interceptor diversion berms on individual lots.

Straw bale filter inlets and filter berms shall be employed, during specific construction phases at appropriate spaced locations across or along graded rights-of-way, such as noted on the Erosion and Sedimentation Control Plan. Stone ballast over-berm to be placed at intersections or junctures of proposed road with existing road.

Upon completion of construction, the temporary berms and filter inlets shall be removed and the remaining areas re-graded and seeded or paved.

5. SANITARY SEWERAGE FACILITIES

Public sanitary sewerage facilities are proposed to serve this development, with planned sanitary sewer extensions to connect and discharge into the existing Upper Gwynedd-Towamencin Municipal Sewer Authority System via 8" Ø gravity sewer connection-extension of existing T-Trunk sewer (15" Ø) which closely follows the path of the aforementioned Towamencin Creek.

Collected sewage will be conveyed by the Authority system for treatment at the Upper Gwynedd-Towamencin Municipal Sewer Authority Wastewater Treatment Plant.

6. TOPOGRAPHIC AND GEOLOGIC FEATURES

The topography shown on the plans is based on actual physical ground surveys. The soils information is taken from Soil Conservation Service and Montgomery County Soil Survey data and is indicated on the Erosion and Sedimentation Control Plan and supporting data.

7. HYDROLOGIC RUNOFF COMPUTATIONS

The Montgomery County Soil Conservation Service Erosion and Sedimentation Control Handbook and Soils Conservation Engineering Field Manual were used as references.

8. STAGING OF EARTHMOVING ACTIVITIES

a. Construct on-site temporary sediment control facilities in accordance with scheduled construction and the design criteria shown on the Control Plan. Grade and seed all exposed areas of embankments.

b. Clear and grub street rights-of-way and building sites.

c. Available topsoil shall be removed and stockpiled or windrowed (downslope from construction area where feasible); for use in finish grading.

d. Juncture portion of proposed roads with existing road is to be graded and stone ballast placed, with a ballast overberm formed across the throat of the intersection as an erosion and sediment control deterrent and stabilization device for protection of the existing roadway.

e. Rough grade roadways to proposed sub-grade elevation gradient and cross-section.

f. Install storm sewers and sanitary sewers and appurtenant structures. Install all underground utilities. Direct surface runoff to completed storm drainage facilities by constructed temporary interceptor channels and dikes and filter inlets.

g. Temporarily seed all disturbed soil banks with rye grass.

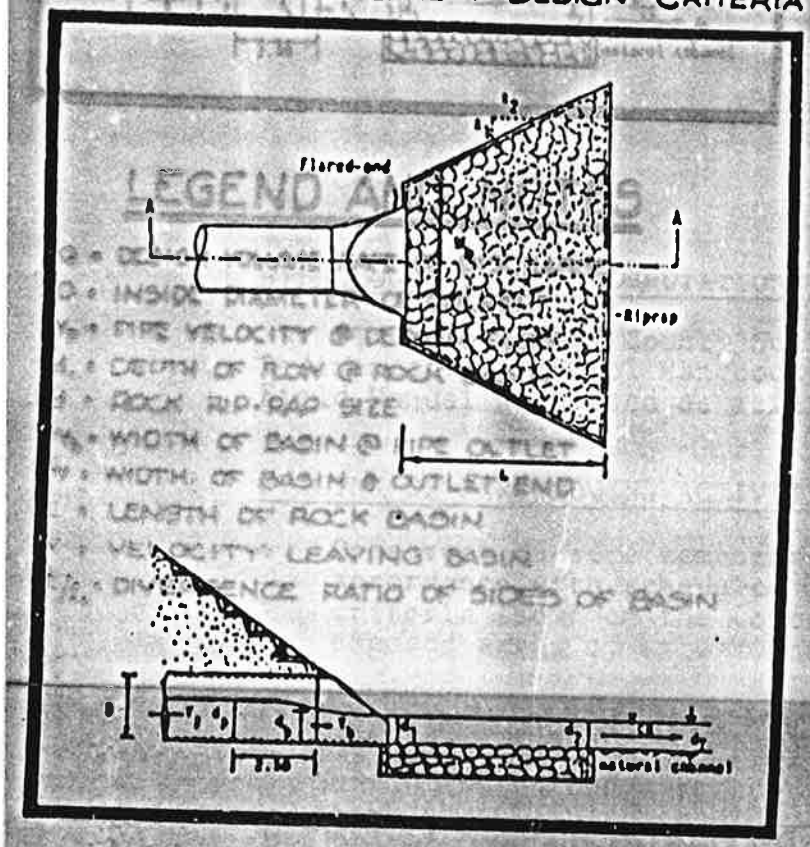
h. Construct buildings, fine grade streets and place stone base course. (On-lot sedimentation control measures are to be constructed prior to improvements and house construction as noted in "a.")

i. Finish grade and establish permanent seeding as soon as possible thereafter in building construction areas. Immediately following removal of temporary erosion and sedimentation control structures, grade and permanently seed these areas, implementing permanent on-lot grading/landscaping features planned to minimize surface runoff impact.

OCK BASIN ENERGY DISSIPATORS

STORM WATER MANAGEMENT DESIGN CRITERIA

M-



PIPE OUTFALL LOCATION	(A)	(B)	(C)
ϕ	28"x20"	42"x29"	49"x33"
Q_D	11.1 CFS	47.9 CFS	19.5 CFS
Q_f	15.5 CFS	47.9 CFS	46.0 CFS
V_p	5.4 FPS	6.8 FPS	4.8 FPS
V/V_p	0.5 (NO SILL)	0.4 (NO SILL)	0.5 (NO SILL)
V	2.7 F.P.S.	2.7 FPS	2.4 FPS
$Q/D^{2.5}$	$\frac{11.1}{5.66}$ = 1.96	$\frac{47.9}{15.59}$ = 3.07	$\frac{19.5}{22.92}$ = 0.85
$d_1/D_{MIN.}$	0.25	0.25	0.25
d_1	0.25 x 2' = 0.50'	0.25 x 3' = 0.75'	0.25 x 3.5' = 0.88'
D/d	3	3	3
d	$\frac{24}{3}$ = 8"	$\frac{36}{3}$ = 12"	$\frac{42}{3}$ = 14"
L/D	7.22 (NO SCOUR)	8.30 (NO SCOUR)	8.0± (NO SCOUR)
L	14.5'	24.9'	24.0'
L_1/L_2	1:3	1:3	1:3
W	16.5'	24.6'	25.0'
COMMENTS			

LEGEND AND NOTES

- Q = DESIGN VOLUME RATE OF DISCHARGE
- D = INSIDE DIAMETER OF CULVERT
- V_p = PIPE VELOCITY @ DESIGN FLOW
- d_1 = DEPTH OF FLOW @ ROCK BASIN
- d = ROCK RIP-RAP SIZE
- W_b = WIDTH OF BASIN @ PIPE OUTLET
- W = WIDTH OF BASIN @ OUTLET END
- L = LENGTH OF ROCK BASIN
- V = VELOCITY LEAVING BASIN
- L_1/L_2 = DIVERGENCE RATIO OF SIDES OF BASIN

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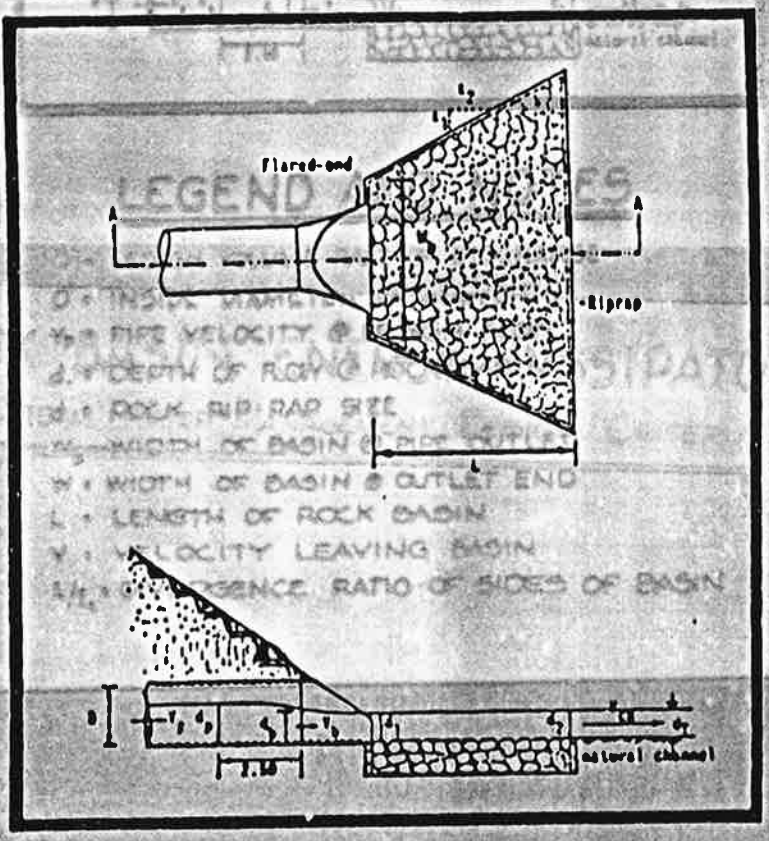
ROCK BASIN ENERGY DISSIPATORS

STORM WATER MANAGEMENT DESIGN CRITERIA



PIPE OUTFALL LOCATION	(D)	(E)	(F)
ϕ	42"x29"	28"x20"	35"x24"
Q_D	30.8 CFS	15.1 CFS	18.6 CFS
Q_F	39.5 CFS	15.1 CFS	20.5 CFS
V_p	6.1 FPS	4.8 FPS	4.4 FPS
V/V_p	0.5 (SILL)	0.5 (SILL)	0.5 (SILL)
V	3.05 FPS	2.4 FPS	2.2 FPS
$Q/D^{2.5}$	$\frac{30.8}{15.59}$ = 1.98	$\frac{15.1}{5.66}$ = 2.67	$\frac{18.6}{9.88}$ = 1.88
$d_1/D_{MAX.}$	0.25	0.25	0.25
d_1	0.25'x3'to.75'	0.25'x2'to.50'	0.25'x2.5'to.6
D/d	3	3	3
d	$\frac{36}{3}$ = 12"	$\frac{24}{3}$ = 8"	$\frac{30}{3}$ = 10"
L/D	7.20 (NO SCOUR)	6.80 (NO SCOUR)	7.25 (NO SCOUR)
L	21.6'	13.6'	21.8'
L_1/L_2	3:1	3:1	3:1
W	23.4'	15.1'	21.5'
COMMENTS			

LEGEND AND NOTES

- Q = DESIGN VOLUME RATE OF DISCHARGE
- D = INSIDE DIAMETER OF CULVERT
- V_p = PIPE VELOCITY @ DESIGN FLOW
- d_1 = DEPTH OF FLOW @ ROCK BASIN
- d = ROCK RIP-RAP SIZE
- W_b = WIDTH OF BASIN @ PIPE OUTLET
- W = WIDTH OF BASIN @ OUTLET END
- L = LENGTH OF ROCK BASIN
- V = VELOCITY LEAVING BASIN
- L_1/L_2 = DIVERGENCE RATIO OF SIDES OF BASIN

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SANITARY SEWER DESIGN ANALYSIS

Sheet 1

TER VILLA RESID. SUBDIV. MUNICIPALITY TOWAMENCIN TOWNSHIP COUNTY MONTGOMERY

M.H. to M.H.	LENGTH (FEET)	INVERT/INVERT	FALL FEET	SLOPE (FT PER FT)	CONNECTIONS INCREM'T	CONNECTIONS TOTAL	POPULATION @3.5 per conn.	FULL FLOW MGD@400gpcd	PIPE 8"Φ n=0.013	R
110 A.3/110 A.2	162	215.00/207.65	7.35	0.0454	4	4	14	0.0056		1.
110 A.2/110 A.1	255	207.50/204.15	3.35	0.0131	7	11	38.5	0.0154		0
110 A.1/110 A	222	204.00/191.00	13.00	0.0586	2	13	45.5	0.0182		1
110 A/THROUGH EXIST. U.G.T.M.A. "T" TRUNK LINE : 15"Φ										
110.2A4/110.2A3	181	247.00/238.20	8.80	0.0486	3	3	10.5	0.0042		
110.2A3/110.2A2	396	238.00/218.20	18.80	0.0475	4	7	24.5	0.0098		
110.2A2.1/110.2A2	101	221.00/219.10	1.90	0.0188	2	9	31.5	0.0126		
110.2A2/110.2A1	396	219.00/210.10	8.90	0.0225	5	14	49	0.0196		
110.2A1/110.2A	90	210.00/205.20	4.80	0.0533	0	14	49	0.0196		
110.2A/THROUGH EXIST. U.G.T.M.A. SAN. SEWER : 8"Φ										
111.5/111.4	199	223.00/218.10	4.90	0.0246	7	7	24.5	0.0098		
111.4/111.3	396	218.00/205.70	12.30	0.0311	4	11	38.5	0.0154		
111.31/111.3	55	206.50/205.65	0.85	0.0155	1	1	3.5	0.0014		
111.3/111.2	157	205.50/135.20	10.30	0.0656	1	13	45.5	0.0182		
111.2/111.1	73	195.00/192.25	2.75	0.0377	1	14	49	0.0196		
111.12/111.11	252	210.00/193.15	16.85	0.0669	3	3	10.5	0.0042		
111.11/111.1	136	193.00/192.25	0.75	0.0055	1	4	14	0.0056		
111.1/EXIST MH 111	20	192.15/192.00	0.15	0.0075	0	18	63	0.0252		
THROUGH EXIST. U.G.T.M.A. "T" TRUNK LINE : 15"Φ										

CK BASIN ENERGY DISSIPATORS

EXHIBIT

SANITARY SEWER DESIGN ANALYSIS

Sh

HUNTER VILLA RESID. SUBDIV. MUNICIPALITY TOWAMENCIN TOWNSHIP COUNTY MONTGOMERY

ET	MH TO/MH	LENGTH (FEET)	INVERT/INVERT	FALL FEET)	SLOPE (FT PER FT)	CONNECTIONS INCREM'T	CONNECTIONS TOTAL	POPULATION @3.5 per conn.	FULL FLOW MGD@400gpcd	PIPE 8"ϕ n = 0.013
	111A.10/111A.9	125	267.30/265.45	1.85	0.0148	2	2	7.0	0.0028	
S	111A.9/111A.8	110	265.30/259.60	5.70	0.0518	1	3	10.5	0.0042	
	111A.8/111A.7	109	259.50/255.60	3.90	0.0358	4	7	24.5	0.0098	
	111A.7/111A.6	206	255.50/247.65	7.85	0.0381	2	9	31.5	0.0126	
DRIVE	111A.6/111A.5	265	256.50/247.65	8.85	0.0334	6	6	21.0	0.0084	
	111A.6/111A.5	171	247.50/240.65	6.85	0.0401	1	16	56	0.0224	
	111A.5/111A.4	169	240.50/234.15	6.35	0.0376	2	18	63	0.0252	
E	111A.4/111A.3	165	234.00/228.15	5.85	0.0355	3	21	73.5	0.0294	
	111A.3/111A.2	232	228.00/221.10	6.90	0.0297	2	23	80.5	0.0322	
E	111A.22/111A.21	169	237.00/230.15	6.85	0.0405	6	6	21.	0.0084	
	111A.21/111A.12	205	230.00/221.10	8.90	0.0434	2	8	28	0.0112	
RIVE	111A.2/111A.1	363	221.00/213.20	7.80	0.0215	5	36	126	0.0504	
	111A.11/111A.1	240	222.00/213.20	8.80	0.0367	3	3	10.5	0.0042	
E	111A.1/111A	296	213.00/194.00	19.00	0.0642	4	43	150.5	0.0602	
	111A/THROUGH EXIST. U.G.T.M.A. "T" TRUNK LINE : 15"ϕ									
S	114.6/114.5	170	242.00/235.65	6.35	0.0374	6	6	21	0.0084	
	114.5/114.4	201	235.50/230.15	5.35	0.0266	3	9	31.5	0.0126	
	114.4/114.3	116	230.00/227.85	2.15	0.0185	3	12	42	0.0168	
	114.3/DROP MH 114.2	75	227.50/215.00	12.50	0.1667	0	12	42	0.0168	
	114.2/114.1	50	210.00/202.00	8.00	0.1600	0	12	42	0.0168	
NTS	114.11/114.1	264	205.50/202.00	3.50	0.0133	1	1	3.5	0.0014	
	114.1/EXIST MH 114	43	201.65/199.00	2.65	0.0616	0	13	45.5	0.0182	
	THROUGH EXIST. U.G.T.M.A. "T" TRUNK LINE : 15"ϕ									
					TOTAL :		101 EDU			EXHIBIT

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STORM NETWORK "A"

M-2673

AC_o = AC (Contrib. Surface Flow between Inlets)
AC_B = AC (Bypassing Flow From Previous Inlet)
AC_i = AC (Entering Inlet)
C = Runoff Factor

SHEET NO ____ OF ____ BY ____ DA
CHKD BY ____ DA

COMPUTATION TABLE - STORM SEWER DESIGN

DRAINAGE AREA							TIME		RAIN-FALL INTEN-SITY	DIS-CHARGE	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS n VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL	RE
AA	C	AAC_C	AAC_B	$AAC_o + AAC_B$	AAC	ΣAC	AT	ET	I	Q								
ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	CFS	FEET	FT/FT			IN	FPS	CFS	
1.01	0.51	0.52	—	0.52	0.35	0.35	2.70	2.70	6.5	2.3	41	.0098	C.A.L.P.	.012	15	5.0	6.8	Overc
1.92	0.45	0.86			0.59	0.94	5.85	5.85	6.3	5.9	125	.0122	C.A.A.P.	.012	15	6.8	7.8	Uncon
1.13	0.39	0.44	3.44	0.82	3.28	1.82	0.30	6.15	6.1	11.1	120	.0258	C.A.A.P.	0.14	18	12.8	23.2	Low
							0.16	6.31	6.	11.1	50	.008	C.A.A.P.	0.17	28×20	5.4	15.5	
							0.15	6.46	6.1	11.1								

SANITARY SEWER DESIGN ANALYSIS

FLOWER VILLA RESID. SUBDIV. ... MONTGOMERY

STORM NETWORK

M-2673

Δ AC_o = AC (Contrib. Surface Flow between Inlets)
Δ AC_B = AC (Bypassing Flow From Previous Inlet)
Δ AC_i = AC (Entering Inlet)
C = Runoff Factor

SHEET NO. 2 OF 2 BY ___ CHKD BY ___

COMPUTATION TABI-E-STORM SEWER DESIGN

STA	DRAINAGE AREA							TIME		RAIN-FALL INTEN-SITY	DIS-CHARGE	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS n VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL	
	AA	C	ΔAC_o	ΔAC_B	$\Delta AC_o + \Delta AC_B$	ΔAC	ΣAC	ΔT	ΣT	I	Q								
	ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	CFS	FEET	FT/FT			IN	FPS	CFS	
	1.50	0.67	1.01	—	1.01	0.49	0.49	3.60	3.60	6.5	3.2	211	.0344	C.A.A.P.	.012	15	8.5	12.5	
	0.85	0.46	0.39	0.52	0.91	0.53	1.02	0.41	4.01	6.5	6.6	221	.0081	C.A.A.P.	.014	18	5.3	8.8	
	0.72	0.47	0.34	0.38	0.72	0.42	1.44	0.70	4.71	6.5	9.4	46	.0217	C.A.A.P.	.014	18	8.7	14.0	
	4.0	0.40	1.60	—	1.60	5.60	5.60	30.0	30.0	2.15	12.6	100	.033	C.A.A.P.	.024	12	12.2	20.5	
	1.16	0.57	0.66	—	0.66	0.23	7.37	0.03	4.20	6.5	47.9	60	.055	C.M.P.	.016	30	6.5	47.2	
								0.11	4.95	6.5	47.2								

Note: As shown in the above calculations, the flow from inlet B-2 peaks in 4.71 min. from the start of the storm, and the flow from inlet B-11 (whose drainage system peaks 30 min. after the storm starts, To add these two peaks together as if they both occured simultaneously, would be an overestimation of the total peak flow. However, this is exactly what was done in order to indicate that the capacity does

STORM NETWORK

M-2673

Δ AC_o = AC (Contrib. Surface Flow between Inlets)
Δ AC_B = AC (Bypassing Flow From Previous Inlet)
Δ AC_i = AC (Entering Inlet)
C = Runoff Factor

SHEET NO 3 OF 8 BY ___
CHKD BY ___

COMPUTATION TABLE - STORM SEWER DESIGN

	DRAINAGE AREA							TIME		RAIN-FALL INTEN-SITY	DIS-CHARGE	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS N VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL	
	ΔA	C	ΔAC_o	ΔAC_B	$\Delta AC_o + \Delta AC_B$	ΔAC	ΣAC	ΔT	ΣT	I	Q								
	ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	CFS	FEET	FT/FT			IN	FPS	CFS	
	1.57	0.45	0.71	0.45	1.16	0.58	0.58	4.44	4.44	6.5	3.8	102	.0309	C.A.M.P.	.012	15	8.7	12.2	Ove
	0.20	0.50	0.10	—	0.10	0.10	0.68	0.20	4.64	6.5	4.4	57	.0219	C.A.M.P.	.012	15	8.0	10.2	
	0.92	0.41	0.37	—	0.37	0.30	0.98	4.84	4.84	6.5	6.4	81	.0556	C.A.M.P.	.012	15	8.2	13.5	Ove
	0.49	0.53	0.21	—	0.21	0.18	1.16	0.15	5.00	6.5	7.5	233	.0556	C.A.M.P.	.012	15	13.0	12.2	
	0.25	0.35	0.13	0.66	0.25	0.25	0.25	5.55	5.55	6.4	5.4	26	.0212	C.A.M.P.	.012	15	7.3	9.0	Ca
	0.21	0.38	0.08	0.62	0.12	0.18	1.63	0.23	5.60	6.4	10.4	30	.0317	C.A.M.P.	.012	15	10.5	10.6	Ca
	0.48	0.58	0.28	0.03	0.31	0.26	3.05	0.04	5.64	6.4	19.5	45	.0056	C.A.M.P.	.020	49x33	4.8	44.0	
								0.16	5.80	6.4	19.5								

STORM NETWORK

M-2673

Δ AC_o = AC (Contrib. Surface Flow between Inlets)
Δ AC_B = AC (Bypassing Flow From Previous Inlet)
Δ AC_i = AC (Entering Inlet)
C = Runoff Factor

SHEET NO. 4 OF 2 BY ____
CHKD BY ____

COMPUTATION TABLE - STORM SEWER DESIGN

	DRAINAGE AREA							TIME		RAIN-FALL INTEN-SITY I	DIS-CHARGE Q	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS N VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL	R
Δ A	Δ A	C	Δ AC_c	Δ AC_b	Δ AC_o + Δ AC_B	Δ AC	Σ AC	Δ T	Σ T										
	ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	C F S	FEET	FT/FT			IN	F P S	C F S	
	0.97	0.50	0.49	—	0.49	0.35	0.35	3.65	3.65	6.5	2.3	45	.0511	C.A.A.P.	.012	15	6.8	15.5	Drec
	0.90	0.56	0.50	0.14	0.64	0.41	0.76	0.09	3.74	6.5	4.9	165	.0242	C.A.A.P.	.012	15	9.4	12.0	
	1.87	0.42	0.42	0.00	1.42	0.35	1.11	0.42	4.53	6.5	7.2	223	.0243	C.A.A.P.	.012	15	11.2	13.0	
	0.68	0.51	0.30	—	0.35	0.28	0.28	1.50	1.50	6.5	1.8	50	.0640	C.A.A.P.	.012	15	9.1	16.3	Drec
	0.34	0.50	0.31	—	0.31	0.29	0.29	2.05	2.05	6.5	1.9	48	.0563	C.A.A.P.	.012	15	9.7	15.5	Gut
	0.97	0.48	0.47	0.54	1.01	0.54	2.42	0.33	4.36	6.5	15.7	101	.0381	C.A.A.P.	.014	18	12.3	19.5	
	0.17	0.50	0.09	0.27	0.36	0.39	2.81	0.14	4.50	6.5	18.3	150	.0343	C.A.A.P.	.014	12	10.2	18.3	
	0.32	0.50	0.16	0.17	0.33	0.30	3.11	0.25	4.75	6.5	20.2	60	.0350	C.A.A.P.	.010	21	12.7	23.2	
	0.66	0.50	0.33	0.12	0.41	0.31	3.42	0.09	4.84	6.5	22.2	228	.0351	C.A.A.P.	.010	21	10.2	23.0	
	2.05	0.42	0.20	—	0.86	0.47	0.47	5.10	5.10	6.5	3.1	26	.0154	C.A.A.P.	.012	15	5.8	9.2	Drc
	0.64	0.50	0.32	0.03	0.35	0.22	4.16	0.32	5.22	6.5	27.0	101	.0312	C.A.A.P.	.017	24	11.4	31.0	
	0.63	0.48	0.22	—	0.30	0.24	0.24	2.15	2.15	6.5	1.6	32	.0203	C.A.A.P.	.012	15	8.1	9.3	Drc

STORM NETWORK

· M-2673

Δ AC_o = AC (Contrib. Surface Flow between Inlets)
Δ AC_B = AC (Bypassing Flow From Previous Inlet)
Δ AC_i = AC (Entering Inlet)
C = Runoff Factor

SHEET NO 5 OF 9 BY ___ D
CHKD. BY ___ D

COMPUTATION TABLE - STORM SEWER DESIGN

	DRAINAGE AREA							TIME		RAIN-FALL INTEN-SITY I	DIS-CHARGE Q	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS N VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL	RI
	ΔA	C	ΔAC_o	ΔAC_B	$\Delta AC_o + \Delta AC_B$	ΔAC	ΣAC	ΔT	ΣT										
	ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	CFS	FEET	FT/FT			IN	FPS	CFS	
	1.25	0.44	0.55	—	0.55	0.20	0.64	6.55	6.55	6.0	3.8	102	.039	C.A.P.P.	.012	15	9.5	13.5	Grd
	0.21	0.43	0.09	0.15	0.24	0.24	0.88	0.18	6.73	6.0	5.3	75	.0107	C.A.P.P.	.014	18	5.6	9.8	
	0.01	0.71	0.25	0.08	0.13	0.13	5.17	0.22	6.93	5.95	30.8	145	.0468	C.A.P.P.	.017	24	3.2	36.5	
								0.18	7.13	5.95	30.8	36	.0447	C.A.P.P.	.017	24	13.1	36.0	
								0.05	7.18	5.95	30.8	30	.007	C.A.P.P.	.019	42x29	6.1	39.5	
								0.08	7.26	5.95	30.8								

STORM NETWORK

M-2673

ΔAC_o = AC (Contrib. Surface Flow between Inlets)
ΔAC_B = AC (Bypassing Flow From Previous Inlet)
ΔAC_i = AC (Entering Inlet)
C = Runoff Factor

SHEET NO 6 OF 2 BY ___ DA
CHKD BY ___ DA

COMPUTATION TABLE - STORM SEWER DESIGN

DRAINAGE AREA							TIME		RAIN-FALL INTEN-SITY I	DIS-CHARGE Q	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS N VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL	RE
ΔA	C	ΔAC_o	ΔAC_B	$\Delta AC_o + \Delta AC_B$	ΔAC	ΣAC	Δt	Σt										
ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	CFS	FEET	FT/FT			IN	FPS	CFS	
2.23	0.42	0.20	—	0.26	0.52	0.52	4.51	4.51	6.5	3.4	120	.0275	C.M.P.	.012	15	6.7	11.2	Over
2.08	0.43	0.89	0.44	.33	0.80	1.32	5.55	5.55	6.3	8.3	26	.0346	C.A.P.	.014	12	9.5	17.6	Over
1.01	0.53	0.54	0.53	1.07	1.07	2.39	0.05	5.60	6.3	15.1	132	0.0256	C.M.P.	.014	18	8.2	21.0	Ca
							0.16	5.76	6.3	15.1	61	.1048	C.A.P.	.025	18	11.3	29.0	Full
							0.09	5.85	6.3	15.1	33	.0061	C.A.P.	.017	28x20	4.8	15.1	Surc
							0.11	5.96	6.3	15.1								D

STORM NETWORK "F

M-2673

Δ ACo = AC (Contrib. Surface Flow between Inlets)
Δ ACB = AC (Bypassing Flow From Previous Inlet)
Δ ACi = AC (Entering Inlet)
C = Runoff Factor

COMPUTATION TABLE - STORM SEWER DESIGN

SHEET NO 7 OF 9 BY ___ DATE ___
CHKD BY ___ DATE ___

DRAINAGE AREA							TIME		RAIN-FALL INTEN-SITY	DIS-CHARGE	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS N VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL	REMA
ΔA ACRES	C	ΔAC$_o$ ACRES	ΔAC$_B$ ACRES	ΔAC$_o$ + ΔAC$_B$ ACRES	ΔAC ACRES	ΣAC$_i$ ACRES	Δt MIN	Σt MIN	I IN/HR	Q C.F.S.	FEET	FT/FT			IN	F.P.S.	C.F.S.	
2.65	0.40	1.06	—	1.06	1.06	1.06	2.50	2.50	6.5	6.9	166	.0512	C.A.&P.	.012	15	12.1	16.0	Overload
2.97	0.45	1.22	0.07	1.32	1.32	2.32	0.23	2.73	6.5	15.5	26	.2308	C.I.&P.	.014	18	19.5	19.5	Low F
2.37	2.56	0.32	0.16	0.48	0.48	2.26	0.04	2.77	6.5	18.6	326	.0337	C.A.&P.	.016	21	11.1	25.5	Low Fa
							0.56	3.33	6.5	18.6	115	.0100	C.A.&P.	.017	24	5.9	18.6	
							0.33	3.66	6.5	18.6	20	.005	C.A.&P.	.018	35x24	4.4	20.5	
							0.08	3.74	6.5	18.6								

STORM NETWORK

M-2673

ΔAC_o = AC (Contrib. Surface Flow between Inlets)
ΔAC_B = AC (Bypassing Flow From Previous Inlet)
ΔAC_i = AC (Entering Inlet)
C = Runoff Factor

SHEET NO 8 OF 9 BY ____ CHKD BY ____

COMPUTATION TABLE - STORM SEWER DESIGN

	DRAINAGE AREA							TIME		RAIN-FALL INTEN-SITY	DIS-CHARGE	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS N VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL	
	ΔA	C	ΔAC_o	ΔAC_b	$\Delta AC_o + \Delta AC_B$	ΔAC	ΣAC_i	ΔT	ΣT	I	Q								
	ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	CFS	FEET	FT/FT			IN	FPS	CFS	
	1.91	0.49	0.93	—	0.74	0.53	0.53	3.50	3.50	6.5	3.50	295	.0334	C.M.P.	.012	15	8.9	13.0	Ove
	0.22	0.40	2.11	6.16	0.27	0.22	0.75	2.55	4.05	6.5	4.9	166	.0181	C.M.P.	.014	18	0.8	13.3	
								0.41	4.46	6.5	4.9								Exi AC

SANITARY SEWER DESIGN ANALYSIS

Sheet

UNTER VILLA RESID. SUBDIV. MUNICIPALITY TOWAMENCIN TOWNSHIP COUNTY MONTGOMERY

	MH TO MH	LENGTH (FEET)	INVERT/INVERT	FALL FEET	SLOPE (FT PER FT)	CONNECTIONS INCREM'T	CONNECTIONS TOTAL	POPULATION @3.5 per conn.	FULL FLOW MGD@400gpcd	PIPE 8"ϕ n = 0.013	DE
	111A.10/111A.9	125	267.80/265.45	1.85	0.0148	2	2	7.0	0.0028		
	111A.9/111A.8	110	265.30/259.60	5.70	0.0518	1	3	10.5	0.0042		
	111A.8/111A.7	109	259.50/255.60	3.90	0.0358	4	7	24.5	0.0098		
	111A.7/111A.6	206	255.50/247.65	7.85	0.0381	2	9	31.5	0.0126		
RIVE	111A.6/111A.5	265	256.50/247.65	8.85	0.0334	6	6	21.0	0.0084		
	111A.6/111A.5	171	247.50/240.65	6.85	0.0401	1	16	56	0.0224		
	111A.5/111A.4	169	240.50/234.15	6.35	0.0376	2	18	63	0.0252		
	111A.4/111A.3	165	234.00/228.15	5.85	0.0355	3	21	73.5	0.0294		
	111A.3/111A.2	232	228.00/221.10	6.90	0.0297	2	23	80.5	0.0322		
	111A.22/111A.21	169	237.00/230.15	6.85	0.0405	6	6	21.	0.0084		
	111A.21/111A.12	205	230.00/221.10	8.90	0.0434	2	8	28	0.0112		
VE	111A.2/111A.1	363	221.00/213.20	7.80	0.0215	5	56	126	0.0504		
	111A.11/111A.1	240	222.00/213.20	8.80	0.0367	3	3	10.5	0.0042		
	111A.1/111A	296	213.00/194.00	19.00	0.0642	4	43	150.5	0.0602		
	111A/THROUGH EXIST. U.G.T.M.A. "T" TRUNK LINE: 15"ϕ										
	114.6/114.5	170	242.00/235.65	6.35	0.0374	6	6	21.	0.0084		
	114.5/114.4	201	235.50/230.15	5.35	0.0266	3	9	31.5	0.0126		
	114.4/114.3	116	230.00/227.85	2.15	0.0185	3	12	42	0.0168		
	114.3/DROP MH 114.2	75	227.50/215.00	12.50	0.1667	0	12	42	0.0168		
	114.2/114.1	50	210.00/202.00	8.00	0.1600	0	12	42	0.0168		
ITS	114.11/114.1	264	205.50/202.00	3.50	0.0133	1	1	3.5	0.0014		
	114.1/EXIST MH 114	43	201.65/199.00	2.65	0.0616	0	13	45.5	0.0182		
	THROUGH EXIST. U.G.T.M.A. "T" TRUNK LINE: 15"ϕ										
					TOTAL:		101 EDU				

EXHIBIT

RECEIVED

STORM NETWORK

M-2673

ΔAC$_o$ = AC (Contrib. Surface Flow between Inlets)
ΔAC$_B$ = AC (Bypassing Flow From Previous Inlet)
ΔAC$_i$ = AC (Entering Inlet)
C = Runoff Factor

SHEET NO ____ OF ____ BY ____
CHKD BY ____

COMPUTATION TABLE - STORM SEWER DESIGN

STA	DRAINAGE AREA							TIME		RAIN-FALL INTEN-SITY	DIS-CHARGE	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS n VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL	
	ΔA	C	ΔAC$_C$	ΔAC$_B$	ΔAC$_o$ + ΔAC$_B$	ΣAC	ΣAC$_i$	Δt	Σt	I	Q								
	ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	C.F.S.	FEET	FT/FT			IN.	F.P.S.	C.F.S.	
	1.01	0.51	0.52	—	0.52	0.35	0.35	2.70	2.70	6.5	2.3	41	.0098	C.M.C.P.	.012	15	5.0	6.8	0.
	1.92	0.45	0.86			0.59	0.94	5.85	5.85	6.3	5.9	125	.0120	C.A.A.P.	.012	15	6.9	7.8	
	1.13	0.39	0.44	0.44	0.82	0.88	1.82	0.30	6.15	6.1	11.1	120	.0558	C.A.A.P.	0.14	18	12.8	23.2	
								0.16	6.31	6.	11.1	50	.008	C.A.A.P.	0.17	28×20	5.4	15.5	
								0.15	6.46	6.1	11.1								

SANITARY SEWER

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P.O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

March 14, 1978

Commonwealth of Pennsylvania
Department of Environmental Resources
Region I
1875 New Hope Street
Norristown, Pennsylvania 19401

ATTN: Mr. Richard Hinkle, Chief
Facilities Section
Bureau of Water Quality Management

Subject: Sanitary Sewer Extension
Upper Gwynedd-Towamencin Municipal Authority
For: Hunter Construction Company
Planned Residential Subdivision
Towamencin Township

Dear Sirs:

Transmitted with this letter is a Water Quality Management Application to obtain a sanitary sewer extension permit for the subject project for your review and approval.

A list enumerating the completed application forms and supporting documents is enclosed together with duplicate sets of the pertinent forms, plans, and documents.

It should be noted that all prior planning reviews and approvals have been obtained as understood to be required; including that of Community Environmental Control for planning modules; consultation review by Montgomery County Soil and Water Conservation District for erosion and sediment control is being solicited at this same time by submission thereto of pertinent erosion and sedimentation control and narrative data.

We respectfully request that this application-for-permits be processed as expeditiously as possible. If you have any questions or comments, please don't hesitate to contact me by telephone. I would welcome the opportunity for direct communication with your agency.

Very truly yours,

Clifford T. Stout

Clifford T. Stout, P.E.
Herbert H. Metz, Inc.

CTS/srs

STORM NETWORK "

M-2673

Δ AC_o = AC (Contrib. Surface Flow between Inlets)
Δ AC_B = AC (Bypassing Flow From Previous Inlet)
Δ AC_i = AC (Entering Inlet)
C = Runoff Factor

SHEET NO 2 OF 2 BY DA
CHKD BY DA

COMPUTATION TABLE-STORM SEWER DESIGN

DRAINAGE AREA							TIME		RAIN-FALL INTEN-SITY	DIS-CHARGE	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS N VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL	RE
Δ A	C	ΔAC_o	ΔAC_B	$\Delta AC_o + \Delta AC_B$	ΔAC	ΣAC	Δ T	Σ T	I	Q								
ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	C F S	FEET	FT/FT			IN	F P S	C F S	
1.50	0.67	1.01	—	1.01	0.49	0.49	3.60	3.60	6.5	3.2	211	.0344	C.A.A.P.	.012	15	8.5	12.5	Exec
0.85	0.46	0.39	0.52	0.91	0.53	1.02	0.41	4.01	6.5	6.6	221	.0081	C.A.A.P.	.014	18	5.3	8.8	
0.72	0.47	0.34	0.38	0.72	0.42	1.44	0.10	4.11	6.5	9.4	46	.0217	C.A.A.P.	.014	18	8.7	14.0	
14.0	0.40	5.60	—	5.60	5.60	5.60	30.0	30.0	3.15	17.6	100	.042	C.A.A.P.	.24	12	13.2	20.0	Exc
1.16	0.57	0.66	—	1.60	0.23	7.37	0.05	4.20	6.5	47.9	60	.025	C.A.A.P.	.016	24"x19"	6.5	47.2	Sur
							0.1	4.25	6.5	47.3								
																		*Se

As shown in the above calculations, the flow from inlet B-2 peaks in 4.2 min. from the start of the storm, and the flow from inlet B-1.1 (on a drainage system) peaks 30 min. after the storm starts. To use these two peaks together as if they both occured simultaneously, would be an overestimation of the total peak flow. However, this is exactly what was done in order to indicate that the capacity does

STORM NETWORK "C

M-2673

Δ AC_o = AC (Contrib. Surface Flow between Inlets)
Δ AC_B = AC (Bypassing Flow From Previous Inlet)
Δ AC_i = AC (Entering Inlet)
C = Runoff Factor

SHEET NO 3 OF 9 BY ___ DA

CHKD BY ___ DA

COMPUTATION TABLE - STORM SEWER DESIGN

DRAINAGE AREA							TIME		RAIN-FALL INTEN-SITY I	DIS-CHARGE Q	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS n VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL	RE
ΔA	C	ΔAC_o	ΔAC_B	$\Delta AC_o + \Delta AC_B$	ΔAC	ΣAC	Δt	ET										
ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	CFS	FEET	FT/FT			IN	FPS	CFS	
1.57	0.45	0.71	0.45	1.16	0.58	0.58	4.44	4.44	6.5	3.8	102	.0309	C.A.A.P.	.012	15	3.7	12.3	Dre
0.20	0.50	0.10	—	0.10	0.10	0.68	0.20	4.64	6.5	4.4	57	.0219	C.A.A.P.	.012	15	2.0	10.3	
0.92	0.41	0.37	—	0.37	0.37	0.30	4.25	4.25	6.5	2.0	81	.0556	C.A.A.P.	.012	15	4.2	15.2	Cur
0.49	0.53	0.21	—	0.21	0.18	1.16	0.15	5.00	6.5	7.5	234	.0556	C.A.A.P.	.012	15	13.0	11.2	
0.26	0.35	0.09	0.66	0.75	0.25	0.25	5.55	5.55	6.4	5.2	26	.0212	C.A.A.P.	.012	15	2.3	7.6	Lan
0.23	0.58	0.13	0.62	0.75	0.18	1.65	0.03	5.60	6.4	10.4	30	.0417	C.A.A.P.	.012	15	5	15.6	Lan
0.48	0.58	0.28	0.03	0.31	0.26	3.05	0.04	5.64	6.4	19.5	45	.0056	C.A.A.P.	.020	49x33	4.8	44.0	
							0.16	5.80	6.4	19.5								

STORM NETWORK

M-2673

Δ AC_o = AC (Contrib. Surface Flow between Inlets)
Δ AC_B = AC (Bypassing Flow From Previous Inlet)
Δ AC_i = AC (Entering Inlet)
C = Runoff Factor

SHEET NO. 4 OF 9 BY ____ CHKD BY ____

COMPUTATION TABLE - STORM SEWER DESIGN

	DRAINAGE AREA							TIME		RAINFALL INTENSITY I	DISCHARGE Q	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS N VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL	
	Δ A	C	ΔAC_o	ΔAC_b	$\Delta AC_o + \Delta AC_B$	ΔAC	ΣAC	t_1	t_2										
	ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	C F S	FEET	FT/FT			IN	F P S	C F S	
	0.97	0.50	0.42	—	2.49	2.35	0.35	3.65	3.65	6.5	2.3	45	.0511	C.A.A.P.	.012	15	8.8	15.5	Over
	0.90	0.66	0.50	0.14	0.64	0.41	0.76	4.09	4.14	6.5	4.9	166	.0272	C.A.A.P.	.012	15	9.4	12.0	
	1.89	0.42	0.42	0.00	.42	0.55	1.31	0.22	4.23	6.5	8.5	223	.0243	C.A.A.P.	.012	15	11.2	15.0	
	0.68	0.51	0.35	—	0.35	0.28	0.28	1.50	1.50	6.5	1.8	50	.0640	C.A.A.P.	.012	15	9.1	16.3	Over
	0.44	0.50	0.21	—	0.21	0.24	0.24	2.05	2.05	6.5	1.9	48	.0563	C.A.A.P.	.012	15	9.7	15.5	Gut
	0.97	0.42	0.41	1.54	1.01	0.54	2.42	0.33	4.36	6.5	15.7	101	.0281	C.A.A.P.	.014	18	12.3	19.5	
	0.17	0.50	0.09	0.47	0.56	0.39	2.81	0.14	4.50	6.5	18.3	150	.0343	C.A.A.P.	.014	18	10.2	18.3	
	0.32	0.50	0.16	0.17	0.33	0.30	3.11	0.25	4.75	6.5	20.2	60	.0350	C.A.A.P.	.010	21	12.1	23.2	
	0.00	0.50	0.23	0.42	0.65	0.31	3.42	0.09	4.84	6.5	22.2	228	.0351	C.A.A.P.	.010	21	10.6	23.0	
	2.05	0.42	0.50	—	0.86	0.47	0.47	5.10	5.10	6.5	3.1	26	.0154	C.A.A.P.	.012	15	5.8	9.0	Over
	0.64	0.50	0.32	0.03	0.35	0.21	4.16	0.32	5.22	6.5	27.0	101	.0312	C.A.A.P.	.017	24	11.4	31.0	
	0.63	0.48	0.30	—	0.30	0.24	0.24	2.15	2.15	6.5	1.6	32	.0203	C.A.A.P.	.012	15	6.1	9.3	Over

STORM NETWORK

M-2673

ΔAC_o = AC (Contrib. Surface Flow between Inlets)
ΔAC_B = AC (Bypassing Flow From Previous Inlet)
ΔAC_i = AC (Entering Inlet)
C = Runoff Factor

SHEET NO. 5 OF 9 BY ____

CHKD. BY ____

COMPUTATION TABLE - STORM SEWER DESIGN

DRAINAGE AREA							TIME		RAIN-FALL INTEN-SITY	DIS-CHARGE	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS N VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL	R
ΔA	C	ΔAC_o	ΔAC_b	$\Delta AC_o + \Delta AC_B$	ΣAC	ΣAC_i	ΔT	ΣT	I	Q								
ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	CFS	FEET	FT/FT			IN	FPS	CFS	
1.25	0.44	0.55	—	0.55	0.40	0.64	6.55	6.55	6.0	3.8	102	.0392	C.A.C.P.	.012	15	9.5	13.5	Ove
0.21	0.43	0.09	0.15	0.24	0.24	0.88	0.18	6.73	6.0	5.3	75	.0133	C.A.C.P.	.014	12	2.6	9.8	
5.01	0.71	2.85	2.28	5.13	0.13	5.17	3.22	6.95	5.95	30.8	145	.0469	C.A.C.P.	.011	24	3.5	36.5	
							0.18	7.13	5.93	30.8	36	.0441	C.A.C.P.	.011	24	13.1	36.0	
							0.05	7.18	5.95	30.8	30	.007	C.A.S.P.	.019	42"x29"	6.1	39.5	
							0.08	7.26	5.95	30.8								

STORM NETWORK "E

M-2673

AC_o = AC (Contrib. Surface Flow between Inlets)
AC_b = AC (Bypassing Flow From Previous Inlet)
AC_i = AC (Entering Inlet)
C = Runoff Factor

SHEET NO 6 OF 9 BY ___ DATE ___
CHKD BY ___ DATE ___

COMPUTATION TABLE-STORM SEWER DESIGN

DRAINAGE AREA							TIME		RAIN-FALL INTEN-SITY	DIS-CHARGE	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS N VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL	REMA
ΔA	C	ΔAC_o	ΔAC_b	$\Delta AC_o + \Delta AC_b$	ΔAC	ΣAC_i	ΔT	ΣT	I	Q								
ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	C F S	FEET	FT/FT			IN	F P S	C F S	
2.23	0.42	0.20	—	0.26	0.52	0.52	4.51	4.51	6.3	3.4	120	.0275	C.A.A.P.	.012	15	6.7	11.2	Overla
2.08	0.23	0.89	0.43	.33	0.80	1.32	5.55	5.55	6.3	8.3	26	.0346	C.A.A.P.	.014	12	9.5	17.6	Overla
1.01	0.53	0.54	0.53	1.07	1.01	2.33	0.05	5.60	6.3	15.1	132	0.0256	C.A.A.P.	.014	12	12.2	21.6	Low
							0.16	5.76	6.3	15.1	61	.1048	C.A.A.P.	.025	18	11.3	32.0	From
							0.09	5.85	6.3	15.1	33	.0061	C.A.A.P.	.017	28×20	4.8	65.1	Surch
							0.11	5.96	6.3	15.1								

STORM NETWORK

M-2673

ΔAC_o = AC (Contrib Surface Flow between Inlets)
ΔAC_B = AC (Bypassing Flow From Previous Inlet)
ΔAC_i = AC (Entering Inlet)
C = Runoff Factor

COMPUTATION TABLE-STORM SEWER DESIGN

SHEET NO 7 OF 9 BY ___ DAT
CHKD BY ___ DAT

DRAINAGE AREA							TIME		RAIN-FALL INTEN-SITY	DIS-CHARGE	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS n VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL	REM
ΔA	C	ΔAC_o	ΔAC_B	$\Delta AC_o + \Delta AC_B$	$\Sigma \Delta AC$	ΣAC_i	ΔT	ΣT	I	Q								
ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	CFS	FEET	FT/FT			IN	FPS	CFS	
2.65	0.40	1.06	—	1.06	1.06	1.06	2.50	2.50	6.5	6.9	166	.0512	C.A.P.	.012	15	12.1	16.0	Overca
2.97	0.43	1.28	0.04	1.32	1.32	2.38	0.23	2.73	6.5	15.5	26	.0362	C.M.P.	.013	18	12.5	17.5	Low
2.57	2.56	0.32	0.16	0.48	0.48	2.86	0.04	2.77	6.5	18.6	376	.0371	C.A.P.	.010	21	14.7	25.5	Low
							0.56	3.33	6.5	18.6	115	.0100	C.A.P.	.017	24	15.9	18.6	
							0.33	3.66	6.5	18.6	20	.005	C.M.P.	.018	35x24	4.4	20.5	
							0.08	3.74	6.5	18.6								

STORM NETWORK "(

M-2673

Δ AC_o = AC (Contrib. Surface Flow between Inlets)
Δ AC_B = AC (Bypassing Flow From Previous Inlet)
Δ AC_i = AC (Entering Inlet)
C = Runoff Factor

SHEET NO 8 OF 9 BY ___ DAT
CHKD BY ___ DAT

COMPUTATION TABLE - STORM SEWER DESIGN

DRAINAGE AREA							TIME		RAIN-FALL INTEN-SITY	DIS-CHARGE	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS N VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL	REM
ΔA	C	ΔAC_o	ΔAC_B	$\Delta AC_o + \Delta AC_B$	ΔAC	ΣAC	Δt	Σt	I	Q								
ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	C.F.S	FEET	FT/FT			IN	F.P.S	C.F.S	
1.91	0.49	0.94	—	0.94	0.53	0.53	3.50	3.50	6.5	3.50	275	.0334	C.M.P.	.012	15	8.9	13.0	Overca
0.22	0.40	2.11	6.16	0.27	0.22	0.75	2.55	4.05	6.5	4.9	166	.0181	C.M.P.	.014	18	6.8	13.3	
							0.41	4.46	6.5	4.9								Exist. Accm

STORM NETWORK "H"

M-2673

= AC (Contrib. Surface Flow between Inlets)
= AC (Bypassing Flow From Previous Inlet)
= AC (Entering Inlet)
= Runoff Factor

COMPUTATION TABLE - STORM SEWER DESIGN

SHEET NO 3 OF 3 BY ___ DATE ___
CHKD BY ___ DATE ___

		DRAINAGE AREA					TIME		RAIN-FALL INTEN-SITY	DIS-CHARGE	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS n VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL	REMARKS
		AAC_a	AAC_b	$AAC_a + AAC_b$	AAC	EAC,	ΔT	ΣT	I	Q								
		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	CFS	FEET	FT/FT			IN	FPS	CFS	
21	0.55	0.50	—	0.50	0.36	0.36	2.75	2.75	6.5	2.3	285	.0302	C.M.P.	.012	15	7.5	12.0	Gutter F
20	0.55	0.17	0.14	2.31	0.25	0.61	0.63	3.38	6.5	4.0	35	.0343	R.C.	.013	24	8.0	40.3	Flush at 24" R
							0.01	3.25	6.5									

ER-BWQ-188.1(REV. 3/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

DATE PREPARED: 8-13-78
DATE REVISED:

For Department Use Only

APPLICANT: Upper Gwynedd-Towamencin Municipal Authority

LOCATION OF PROJECT: MUNICIPALITY: Towamencin Township COUNTY: Montgomery

DESIGN ENGINEER AND FIRM: Clifford T. Stout, P.E. - Herbert H. Metz, Inc.

DESIGN ENGINEERS ADDRESS: 410 Derstine Avenue, Lansdale, PA ZIP CODE: 19446 TELEPHONE: 215-855-3111

DESCRIPTION OF PROJECT: Sanitary Sewer Extension System - Hunter Construction Company Subdivision "Hunter Villa" - to serve 101 planned single family residential dwelling lots. (formerly known as Villa Vista)

A. DOCUMENTATION REQUIRED

1. HAS A CHECK FOR $25.00, PAYABLE TO THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES, BEEN INCLUDED? (NOT REQUIRED OF STATE OR FEDERAL AGENCIES) — [X] Yes [ ] No [ ] N/A

2. HAVE 2 COPIES OF THE APPLICATION, FORM H710.046, BEEN SUBMITTED? (3 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND DELAWARE RIVER BASIN). — [X] Yes [ ] No

A. HAS THE AFFIDAVIT BEEN PROPERLY COMPLETED AND EXECUTED? — [X] Yes [ ] No

3. DOES THE APPLICATION INCLUDE THE FOLLOWING APPLICABLE MODULES:

MODULE NUMBER	TITLE	NUMBER OF PAGES	
1	GENERAL INFORMATION – SEWERAGE	9	[X] Yes
4	WASTE LOAD AND CHARACTERISTICS	3	[ ] Yes
5	GEOLOGY AND GROUND WATER INFORMATION	2	[ ] Yes
6	SEWERS AND APPURTENANCES	5	[X] Yes
7	SEWAGE PUMPING STATIONS	4	[ ] Yes
8	PUMPING FACILITIES	1	[ ] Yes
9	FLOW EQUALIZATION AND STORAGE BASINS	2	[ ] Yes
10	GRIT CHAMBERS	1	[ ] Yes
11	SCREENING AND COMMINUTING DEVICES	2	[ ] Yes
12	IMHOFF AND SEPTIC TANKS	2	[ ] Yes
13	SETTLING TANKS	2	[ ] Yes
14	EARTHEN SETTLING BASINS	2	[ ] Yes

RECEIVED
MAR 14 1979
REGIONAL OFFICE

DATE PREPARED 3-15-78
DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

A. DOCUMENTATION REQUIRED – CONTINUED

THIS SHEET NOT APPLICABLE

MODULE NUMBER	TITLE	NUMBER OF PAGES	
15	TRICKLING FILTERS	2	☐ Yes
16	AERATION TANKS OR BASINS	3	☐ Yes
17	WASTE STABILIZATION PONDS	3	☐ Yes
18	CHEMICAL TREATMENT (INCLUDING FEEDERS)	3	☐ Yes
19	MIXING AND FLOCCULATION FACILITIES	1	☐ Yes
20	SAND FILTERS	2	☐ Yes
21	DISINFECTION	2	☐ Yes
22	SPRAY IRRIGATION	1	☐ Yes
23	PHYSICAL ABSORPTION, ION EXCHANGE, AND CONTACT UNITS	2	☐ Yes
25	DEEP WELL DISPOSAL	4	☐ Yes
26	SLUDGE TREATMENT AND DISPOSAL		
	A. SEPARATE DIGESTION TANKS AND SLUDGE THICKENING TANKS	2	☐ Yes
	B. ELUTRIATION	1	☐ Yes
	C. WET OXIDATION	1	☐ Yes
	D. SLUDGE DRYING BEDS	1	☐ Yes
	E. LAND DISPOSAL OF SLUDGE	1	☐ Yes
	F. SLUDGE BASINS	1	☐ Yes
	G. FILTERS AND CENTRIFUGES	1	☐ Yes
	H. INCINERATION	1	☐ Yes

B. REQUIRED DATA

1. THE FRONT COVER OR FLYLEAF OF EACH SET OF DRAWINGS AND SPECIFICATIONS MUST BEAR THE SIGNATURE AND SEAL OF THE REGISTERED PROFESSIONAL ENGINEER, SURVEYOR BY OR UNDER WHOM PREPARED. EACH DRAWING MUST BEAR AN IMPRINT OR REASONABLE FACSIMILE OF SUCH SEAL.

ER-WWQ-188.1(REV. 3/78)

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED 3-13-78
DATE REVISED

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

B. REQUIRED DATA – CONTINUED

2. INFORMATION RELATIVE TO SPECIFIC PROGRAMS:

A. 2 COPIES OF DESIGNER'S PLANS, MODULES, AND SPECIFICATIONS (3 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND DELAWARE RIVER BASIN)	YES			
B. HYDRAULIC PROFILE OR SCHEMATIC FLOW DIAGRAM FOR PROPOSED TREATMENT PLANT.				☒ N/A
C. UNITED STATES GEOLOGICAL SURVEY TOPOGRAPHICAL MAP SHOWING EXACT POINT OF DISCHARGE AND TREATMENT PLANT OR PUMP STATION LOCATION AND/OR AREA TO SEWERS.				☒ N/A
D. HAVE YOU APPLIED FOR A PUBLIC UTILITY COMMISSION CERTIFICATE OF PUBLIC CONVENIENCE?		☐ Yes	☐ No	☒ N/A
(1) SPECIFY PUBLIC UTILITY COMMISSION APPLICATION NUMBER _____				
(2) IS CERTIFICATE OF PUBLIC CONVENIENCE ENCLOSED?		☐ Yes	☐ No	
E. HAVE YOU APPLIED FOR APPROVAL OF STREAM ENCROACHMENT(S)?		☐ Yes	☐ No	☒ N/A
F. HAVE YOU APPLIED FOR DEPARTMENT OF LABOR AND INDUSTRY APPROVAL FOR FEATURES AFFECTING EMPLOYEE SAFETY?		☐ Yes	☐ No	☒ N/A
G. DO YOU HAVE AN AGREEMENT INDICATING APPROVAL TO DISCHARGE TO SEWER SYSTEM AND TREATMENT PLANT OF ANOTHER PERMITTEE?		☐ Yes	☐ No	☒ N/A
H. HAVE YOU APPLIED FOR APPROVAL OF AIR POLUTION CONTROL FACILITIES?		☐ Yes	☐ No	☒ N/A
I. HAVE YOU SUBMITTED A LIST WITH NAMES, ADDRESSES, AND TITLES OF ALL PARTNERS IN THE CASE OF A PARTNERSHIP OR ALL OFFICERS IN THE CASE OF A CORPORATION, UNINCORPORATED ASSOCIATION, INCORPORATED ASSOCIATION, PARTNERSHIP, OR OTHER ENTITY (NOT MUNICIPAL)?		☐ Yes	☐ No	☒ N/A

3. SPECIFY THE FOLLOWING:

A. PLANS: Title Plans (TITLE/DESCRIPTION) NO. OF SHEETS 2 DATE Dec. 13, 1977

PLANS: Comprehensive Plan with Erosion & Sediment Control (TITLE/DESCRIPTION) NO. OF SHEETS 2 DATE March 13, 1978

PLANS: Plan/Profiles & Detail Sheet (TITLE/DESCRIPTION) NO. OF SHEETS 17 DATE March 13, 1978

ER-WQ-1[illegible] REV. 3/75

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: 8-13-78
DATE REVISED:

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

[ ] Yes [ ] No
For Department Use Only

B. REQUIRED DATA – CONTINUED

B. SPECIFICATIONS (IF APPLICABLE): Upper Gwynedd-Towamencin Municipal Authority
Reference specifications & pertinences as filed at Pa. D.E.R. by U.G.T.M.A.
TITLE
NUMBER OF VOLUMES _____ DATE _____

C. OTHER (SPECIFY TYPE AND NUMBER):

4. ARE THE PLANS:

A. CLEAR, LEGIBLE, AND DRAWN TO SCALE WITH NORTH ARROW INDICATED? [X] Yes [ ] No

B. WITHIN MAXIMUM SIZE OF 36 INCHES BY 50 INCHES? [X] Yes [ ] No

C. SEAL AND SIGNATURE OF PROFESSIONAL ENGINEER OR SURVEYOR RESPONSIBLE FOR THIS APPLICATION

1. SIGNATURE OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW) Clifford T. Stout

2. SEAL OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW)

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
CLIFFORD T. STOUT
SEAL
ENGINEER
No. 26336E

ER-BWQ-188.1 REV. 3/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED 8/13/78

DATE REVISED

WATER POLLUTION CONTROL
MODULE 1 — GENERAL INFORMATION
SEWERAGE

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CLASS OF CONSTRUCTION (Check all applicable blocks)

- ☐ NEW
- ☐ REPLACEMENT OF EXISTING UNIT(S)
- ☐ ADDITIONS AND/OR
- ☐ MODIFICATIONS TO EXISTING UNIT(S)

TABLE I — DESIGN LOADING DATA			To Be Abandoned	Existing Facilities Design	Present Operating Load	Proposed Total Facilities Design
1. EQUIVALENT POPULATION TO BE SERVED (NO. OF PERSONS — SUBMIT CALCULATIONS)						
	A. DOMESTIC					
	B. INDUSTRIAL					
	C. TOTAL					
2. DESIGN YEAR OR PERIOD FOR OPERATING DATA						
3. RUNOFF PERIOD		(HRS)				
4. DOMESTIC WASTE FLOW DATA	A. PER CAPITA FLOW	(GPCD)				
	B. AVERAGE DAILY FLOW	(MGD)				
	C. INFILTRATION	(MGD)				
	D. RUNOFF FLOW RATE	(MGD)				
	E. MAXIMUM FLOW RATE	(MGD)				
5. INDUSTRIAL WASTE FLOW DATA	A. AVERAGE DAILY FLOW	(MGD)				
	B. MAXIMUM DAILY FLOW	(MGD)				
6. TOTAL DESIGN AVERAGE FLOW		(MGD)				

TABLE II — FACILITIES DESIGN DATA (Specify number of units)

Units	Existing	To Be Abandoned	Total Proposed	Units	Existing	To Be Abandoned	Total Proposed
1. SCREENING DEVICES				13. CHLORINE CONTACT TANK(S)			
2. GRIT CHAMBER(S)				14. DISINFECTION FACILITIES			
3. COMMINUTOR(S)				15. SEPARATE SLUDGE DIGESTORS			
4. PRE-AERATION TANKS				16. SLUDGE DRYING BEDS			
5. PRIMARY SETTLING TANKS				17. MECHANICAL SLUDGE DEWATERING			
6. IMHOFF TANK(S)				18. SLUDGE ELUTRIATION TANKS			
7. TRICKLING FILTERS				19. SLUDGE STABILIZATION TANKS			
8. INTERMEDIATE SETTLING TANKS				20. INCINERATOR(S)			
9. AERATION TANKS				21. MIXING AND FLOCCULATION TANKS			
10. FINAL SETTLING TANKS				22. OTHER (Specify)			
11. INTERMITTENT SAND FILTERS				23. OTHER (Specify)			
12. WASTE STABILIZATION POND(S)				24. OTHER (Specify)			

EPA-SWQ-1 (10-1-73) PA 3730

DATE PREPARED 3-15-78

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

D. GENERAL INFORMATION

1. EXISTING COMBINED SEWERS MAKE UP 0 % OF THE TOTAL AREA SERVED BY THE SYSTEM.

2. ARE THE EXISTING SANITARY SEWERS SUBJECT TO EXCESSIVE INFILTRATION? [X] Yes [ ] No [ ] N/A
Some Sections

A. IF YES, SPECIFY MAJOR SOURCES OF INFILTRATION: Top brick courses in manholes in Old Inglewood Area - See Liptak report of 2/16/73 - filed with E.P.A. for correction

B. HAS A REGULATION PROHIBITING THE ADMITTANCE OF STORM WATER FROM PAVEMENTS, ROOFS, AND OTHER SOURCES BEEN ADOPTED? [X] Yes [ ] No
(IF YES, ENCLOSE COPY.) See enclosed Exhibit "A"; also refer to U.G.T.M.A. Rates, Rules & Regulations, Constr. Spec. & National Plumbing Code

C. SPECIFY STEPS TAKEN OR BEING TAKEN TO CORRECT THE INFILTRATION PROBLEM, INCLUDING DATES: [ ] N/A
See aforementioned Liptak Report of 2/16/73

3. TYPES OF INDUSTRIAL WASTES OF SPECIAL CONSIDERATION: N/A

4. WILL THE APPLICANT BE RESPONSIBLE FOR REPAIR AND MAINTENANCE OF SEWAGE FACILITIES FOR WHICH APPLICATION IS SUBMITTED? [X] Yes [ ] No
A. IF NO, EXPLAIN: Following construction inspection, testing & acceptance in Authority system

5. THE DISTANCE OF THIS PLANT TO THE NEAREST OCCUPIED DWELLING: N/A

A. PRESENT _____ FEET

B. PROPOSED _____ FEET

6. IF THE APPLICANT IS OTHER THAN A MUNICIPALITY OR MUNICIPAL AUTHORITY, HAS THE GOVERNING MUNICIPALITY OBJECTED TO THE PROPOSED SEWAGE TREATMENT PLANT? [ ] Yes [ ] No [X] N/A

DRAFT

EXCERPT from Rules and Regulations of
TOWAMENCIN TOWNSHIP PLUMBING CODE

RECEIVED
MAR 14 1978
NORRISTOWN PUBLIC OFFICE

STORM WATER DRAINS

1101. DRAINAGE OF YARDS, AREAS AND ROOFS - All roofs and paved areas, yards, courts and court yards may be drained into the stormwater sewer system but not into the sewers intended for sewage only.

Where there is no stormwater sewer accessible, such connections may discharge into the public gutter, unless otherwise directed by the proper authorities however, in no case shall water from said sources drain over the surface of sidewalks nor be allowed to damage any neighbor's property.

EXHIBIT A

MODULE I - GENERAL INFORMATION
SEWERAGE

B. GENERAL INFORMATION

1. EXISTING COMBINED SEWERS MAKE UP 0 % OF THE TOTAL AREA SERVED BY THE SYSTEM.

2. ARE THE EXISTING SANITARY SEWERS SUBJECT TO EXCESSIVE INFILTRATION? YES NO

Some Sections

A. IF YES, SPECIFY MAJOR SOURCES OF INFILTRATION

Old Maplewood Area - See Engineer's Report

EXHIBIT "A"

ER-BWQ-188.1 REV. 3/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: 3.13.78
DATE REVISED:

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

THIS SHEET NOT APPLICABLE

D. GENERAL INFORMATION – CONTINUED

A. IS THE LETTER FROM MUNICIPAL OFFICER, SIGNIFYING THE OPINION, APPENDED TO THIS APPLICATION? ☐ Yes ☐ No

7. ARE DUPLICATE TREATMENT UNITS PROVIDED WHERE REQUIRED? ☐ Yes ☐ No ☐ N/A

A. IF NO, EXPLAIN: _____

B. DO ANY BY-PASS STRUCTURES DISCHARGE TO WATERS OF THE COMMONWEALTH? (SPECIFY PLAN SHEET NUMBER(S) SHOWING BY-PASS STRUCTURES) ☐ Yes ☐ No

8. HAS AN AUXILIARY STANDBY POWER SOURCE BEEN PROVIDED? ☐ Yes ☐ No ☐ N/A

9. DOES ANY PIPING OR CONNECTION EXIST IN ANY PART OF THE TREATMENT WORKS WHICH MAY CAUSE CONTAMINATION OF THE POTABLE WATER SUPPLY? ☐ Yes ☐ No

10. IF A NON-POTABLE WATER SUPPLY IS PROVIDED, ARE ALL OUTLETS PERMANENTLY POSTED TO INDICATE WATER IS NOT SAFE FOR DRINKING? ☐ Yes ☐ No ☐ N/A

11. ARE FACILITIES PROVIDED FOR MEASURING THE SEWAGE FLOW? ☐ Yes ☐ No

12. SAFETY:

A. ARE FACILITIES PROVIDED TO EFFECTIVELY PROTECT THE OPERATOR AND VISITORS? ☐ Yes ☐ No

13. OUTFALL SEWER:

A. IS THE OUTFALL SEWER ADEQUATELY PROTECTED TO ENSURE ITS STRUCTURAL STABILITY AND FREEDOM FROM STOPPAGE? ☐ Yes ☐ No

B. IS AN OUTFALL HEAD WALL PROVIDED? ☐ Yes ☐ No ☐ N/A

C. DOES THE OUTFALL EXTEND TO THE LOW WATER MARK OF THE RECEIVING STREAM? ☐ Yes ☐ No ☐ N/A

14. HAVE PROVISIONS BEEN MADE TO PROTECT ALL STRUCTURES AGAINST FLOTATION? ☐ Yes ☐ No

15. IF THE PROJECT INVOLVES ADDITIONS TO AN EXISTING TREATMENT PLANT, DO THE SPECIFICATIONS INCLUDE A PROGRAM TO PREVENT BY-PASSING OF ANY UNIT TO WATERS OF THE COMMONWEALTH DURING CONSTRUCTION? ☐ Yes ☐ No ☐ N/A

A. SPECIFY VOLUME AND PAGE NUMBER OF SPECIFICATIONS: _____

16. SPECIFY NAMES OF MUNICIPALITIES AND POPULATION SERVED OR TO BE SERVED BY THIS PLANT: _____

DATE PREPARED 8-13-20

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

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E. RECEIVING STREAM*

1. WHAT IS THE NAME OF THE RECEIVING STREAM? _____

A. TRIBUTARY OF _____

B. TRIBUTARY OF _____

C. MAJOR DRAINAGE BASIN:

- ☐ DELAWARE
- ☐ SUSQUEHANNA
- ☐ POTOMAC
- ☐ LAKE ERIE
- ☐ GENESEE
- ☐ ALLEGHENY
- ☐ MONONGAHELA
- ☐ OHIO

2. DESCRIBE THE EXACT POINT OF DISCHARGE:

_____ DEG, _____ MIN, _____ SEC LATITUDE

_____ DEG, _____ MIN, _____ SEC LONGITUDE

A. WATERSHED AREA ABOVE POINT OF DISCHARGE IS

_____ SQUARE MILES.

3. WHAT IS THE:

A. MINIMUM 7-CONSECUTIVE-DAYS FLOW OCCURRING ONCE IN 10 YEARS?

_____ CUBIC FEET PER SECOND.

B. MINIMUM STREAM FLOW: _____

C. ABOVE FLOWS ARE BASED ON:

- ☐ MEASUREMENTS
- ☐ ESTIMATES

_____ YEARS OF RECORD

4. IS THE TREATMENT PLANT SUBJECT TO FLOODING? ☐ Yes ☐ No

5. THE PROBABILITY OF THE TREATMENT PLANT BEING OUT OF SERVICE DUE TO FLOODING IS ONCE IN _____ YEARS.

A. LIST BRIEFLY THE METHODS USED FOR FLOOD PROTECTION: _____

* Attach U.S. Geological Survey 7.5' or 15' Quadrangle Map showing exact points of discharge.

ER-BWQ-188.1 REV. 3/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED 3-13-78
DATE REVISED

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

THIS SHEET NOT APPLICABLE

E. RECEIVING STREAM – CONTINUED

6. TO THE BEST OF YOUR KNOWLEDGE, WILL THE TREATED WASTE DISCHARGE ADVERSELY AFFECT:

A. DOMESTIC WATER SUPPLY?	☐ Yes	☐ No
B. BATHING?	☐ Yes	☐ No
C. STOCK WATERING?	☐ Yes	☐ No
D. FISH AND AQUATIC LIFE?	☐ Yes	☐ No
E. INDUSTRIAL WATER SUPPLY?	☐ Yes	☐ No
F. IRRIGATION?	☐ Yes	☐ No
G. BOATING AND AESTHETICS?	☐ Yes	☐ No

7. IF ANY ITEMS IN 6 ABOVE ARE ANSWERED YES, INDICATE DISTANCE TO, LOCATION OF, AND EXTENT OF ADVERSE EFFECT:

DATE REVISED

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

THIS SHEET NOT APPLICABLE

RECEIVING STREAM

1. WHAT IS THE NAME OF THE RECEIVING STREAM?

A. TRIBUTARY OF

B. TRIBUTARY OF

C. MAJOR DRAINAGE BASIN: ☐ DELAWARE RIVER BASIN ☐ SUSQUEHANNA RIVER BASIN ☐ POTOMAC RIVER BASIN ☐ ALLEGHENY RIVER BASIN ☐ LAKE ERIE

D. (BECAUSE THE ENACTMENT OF DECEMBER 1968

ER-BWQ-188.6(REV. 3/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: 3.13.78
DATE REVISED:

WATER POLLUTION CONTROL

For Department Use Only

MODULE 6 – SEWERS AND APPURTENANCES

CLASS OF CONSTRUCTION (Check All Applicable Blocks): [X] NEW SYSTEM [X] EXTENSION(S) TO EXISTING SYSTEM [ ] REPLACEMENT OF EXISTING SYSTEM

TABLE I – DESIGN FLOW AND LOADING INFORMATION

1. POPULATION TO BE SERVED	INITIAL: 217	DESIGN: 353.5	DESIGN YEAR: 1978
2. AREA TO BE SERVED	ACRES (INITIAL): 41.480		
TYPE OF AREA (Residential, Commercial, Etc.): Residential	ACRES (FUTURE): 26.622		

3. A. LATERALS AND SUB-MAIN SEWERS (GPCD)		400
B. MAIN AND TRUNK SEWERS (GPCD)		N.A.
C. INTERCEPTORS (GPCD)		N.A.
(1) MEASURED DRY-WEATHER FLOW (%)		N.A.
(2) ESTIMATED DRY-WEATHER FLOW (%)		N.A.
D. IF ANY VALUES LESS THAN PRESCRIBED IN MANUAL, EXPLAIN:		

4. DESIGN FLOW DATA	GPCD	MGD
A. AVERAGE DAILY FLOW	100	0.0354
B. INFILTRATION		included in "A"
C. MAXIMUM INDUSTRIAL WASTE FLOW		N.A.
D. TOTAL DESIGN FLOW		0.0354
E. MAXIMUM FLOW RATE		0.1414

TABLE II – GENERAL DESIGN

PIPE DIAMETER (IN.)	MINIMUM SLOPE (%)	MAXIMUM SLOPE (%)	MAXIMUM VELOCITY (FPS)	MAXIMUM FLOW (MGD)	MAXIMUM DISTANCE BETWEEN MANHOLES (Ft.) SEWERS 15 IN. OR LESS	MAXIMUM DISTANCE BETWEEN MANHOLES (Ft.) SEWERS 18 IN. TO 30 IN.	TYPE OF SEWER MATERIAL	"N" VALUE
8"	0.5%	17.1	14.3	3.23*	400	N/A	ACP	.013

*Full Flow

(USE ADDITIONAL SHEETS IF NECESSARY)

TABLE III – CRITICAL DATA NO CRITICAL SECTIONS

PLAN SHEET NUMBER	MANHOLE NUMBER FROM	MANHOLE NUMBER TO	SEWER PIPE SIZE (IN.)	SEWER SLOPE (%)	POPULATION SERVED	TOTAL DESIGN FLOW (MGD)	SEWER FLOWING FULL VEL. (FPS)	SEWER FLOWING FULL CAP. (MGD)	MAXIMUM FLOW VELOCITY (FPS)

RECEIVED
MAR 1 1978

ER-BWQM Document Rev. 3/93

DATE PREPARED: 2-13-78

DATE REVISED:

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

For Department Use Only

MODULE 6 – SEWERS AND APPURTENANCES

A. GENERAL DESIGN

1. ARE THE PROPOSED SEWERS DESIGNED AS SEPARATE SANITARY SEWERS? [X] Yes [ ] No

   A. IF NO, EXPLAIN IN DETAIL, INCLUDING THE POSSIBLE EFFECTS UPON WATER COURSES.

2. ARE THE PROPOSED SEWERS DEEP ENOUGH TO SERVE ALL ADJACENT BASEMENTS? [X] Yes [ ] No

   A. IF NO, EXPLAIN.

3. ARE THERE ANY OVERFLOWS OR BYPASSES OTHER THAN FROM PUMP STATIONS? [ ] Yes [X] No

   A. IF YES, SPECIFY PLAN SHEET(S) WHERE SHOWN.

4. WHERE SMALLER SEWERS JOIN LARGER ONES, HAVE THE INVERTS OF THE LARGER SEWERS BEEN LOWERED SUFFICIENTLY TO MAINTAIN THE SAME ENERGY GRADIENT? [X] Yes [ ] No [ ] N/A

5. SPECIFY THE TYPE OF LEAKAGE TEST (INFILTRATION AND/OR EXFILTRATION) AND THE LIMIT TO BE USED, PREFERABLY IN TERMS OF GALLONS PER INCH OF PIPE DIAMETER PER MILES PER DAY. (INDICATE VOLUME AND PAGE NUMBER OF SPECIFICATIONS.)

   TYPE AND LIMITS: Infiltration/Exfiltration - Not to exceed 200 gallons per inch pipe diameter per day per mile of sewer

6. HAVE PROVISIONS BEEN MADE TO PROTECT SEWERS AT VELOCITIES OF OVER 15 FEET PER SECOND? [ ] Yes [ ] No [X] N/A

   A. ARE SEWERS SECURED WITH CONCRETE ANCHORS (OR EQUAL) SPACED AS REQUIRED? [ ] Yes [ ] No [X] N/A

7. ARE MANHOLES PROVIDED AT ALL CHANGES IN SIZE, GRADE, ALIGNMENT, AND SEWER INTERSECTIONS? [X] Yes [ ] No

8. ARE DROP MANHOLES PROVIDED WHERE THE ENTRANCE SEWER INVERT IS 24 INCHES OR MORE ABOVE MANHOLE INVERT? [X] Yes [ ] No

9. ARE WATERTIGHT COVERS USED WHERE MANHOLES ARE SUBJECT TO FLOODING BY STREET RUNOFF OF HIGH WATER? [X] Yes [ ] No

ER-RWQ-188.6(REV. 3/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED 3-13-78
DATE REVISED

WATER POLLUTION CONTROL

For Department Use Only

MODULE 6 – SEWERS AND APPURTENANCES

A. GENERAL INFORMATION – CONTINUED

10. ARE SEWERS IN STREAMS PROTECTED WITH AT LEAST 1 FOOT COVER IN ROCK AND 3 FEET COVER IN OTHER MATERIAL? ☐ Yes ☐ No ☒ N/A

11. ARE SEWERS IN STREAMS CONSTRUCTED TO REMAIN WATERTIGHT AND IN ALIGNMENT? ☐ Yes ☐ No ☒ N/A

12. DOES THE APPLICATION INVOLVE CAPPED SEWERS? ☐ Yes ☒ No

A. IF YES, SPECIFY PLAN SHEET NUMBER. _____

13. HOW MANY INVERTED SIPHONS ARE INCLUDED IN THIS DESIGN? N/A

14. IF SIPHONS ARE INCLUDED, SPECIFY THE FOLLOWING: N/A

	SIPHON:	SIPHON:	SIPHON:
A. NUMBER OF BARRELS			
B. MINIMUM PIPE SIZE			
C. MINIMUM VELOCITY AT AVERAGE FLOW			

D. HAS PROVISION BEEN MADE FOR FLUSHING, RODDING, AND MAINTENANCE? ☐ Yes ☐ No

15. IS THERE ANY CONNECTION BETWEEN THE SEWER AND A PUBLIC OR PRIVATE POTABLE WATER SUPPLY OR APPURTENANCES? ☐ Yes ☒ No

16. ARE ANY WATER SUPPLY SOURCES, PUBLIC OR PRIVATE, LOCATED WITHIN 200 FEET OF THE SEWERS? ☐ Yes ☒ No

A. IF YES, SPECIFY PLAN SHEET(S) ON WHICH SOURCES ARE SHOWN. _____

B. IF YES, WILL SEWERS BE ENCASED OR WATERTIGHT? ☐ Yes ☐ No

17. ARE SEWERS AT LEAST 10 FEET HORIZONTALLY FROM WATER LINES AND/OR AT LEAST 18 INCHES BELOW THE WATER LINE? ☒ Yes ☐ No

18. IF THE PROPOSED FACILITY WILL DISCHARGE TO THE SEWER SYSTEM AND TREATMENT PLANT OF ANOTHER MUNICIPALITY, HAVE APPROPRIATE AGREEMENTS BEEN REACHED? ☐ Yes ☐ No ☒ N/A

A. IS THE AGREEMENT A CERTIFIED AGREEMENT? ☐ Yes ☐ No ☒ N/A

B. IS THE AGREEMENT A LETTER OF INTENT? ☐ Yes ☐ No ☒ N/A

C. HAVE DUPLICATE COPIES BEEN ENCLOSED? ☐ Yes ☐ No N/A

19. DO THE EXISTING SEWERS TO WHICH THE PROPOSED SEWERS WILL CONNECT HAVE ADEQUATE CAPACITY TO CONVEY THE ADDITIONAL FLOW? ☒ Yes ☐ No ☐ N/A

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: 3-13-78
DATE REVISED:

WATER POLLUTION CONTROL

For Department Use Only

MODULE 6 – SEWERS AND APPURTENANCES

A. GENERAL INFORMATION – CONTINUED

20. ON THE PLANS, INDICATE THE PERMIT NUMBER OF EXISTING SEWER AT EACH PROPOSED POINT OF CONNECTION AND THE NAME OF THE PERMITEE; SPECIFY PLAN SHEET NUMBER(S) ON WHICH INDICATED: Permit #765513
Plan Sheets #3 & #4; Profiles #8, 16, 17, 19, 20 ☐ N/A

21. WILL THERE BE A PUMP STATION INVOLVED IN RECEIVING SEWAGE FROM THE SEWER EXTENSION? ☐ Yes ☒ No ☐ N/A

A. IF YES, SPECIFY PRESENT AND DESIGN FLOWS OF PUMPING STATION. _____

22. RECEIVING SEWAGE TREATMENT PLANT (FILL IN FOR EXTENSION(S) TO EXISTING SYSTEM ONLY)

A. OWNER OF PLANT Upper Gwynedd-Towamencin Municipal Authority

B. NAME OF PLANT Upper Gwy.-Tow. Mun. Auth. Wastewater Treatment Plant

C. DISCHARGE DATA

	WASTE FLOW (MGD)	SOLIDS SUSPENDED (#/DAY)	SOLIDS SETTLEABLE (ML/L)	BOD 5 DAY 20°C (#/DAY)
(1) ALLOWABLE LOAD TO STREAM AUTHORIZED UNDER PRESENT PERMIT	2.5 (1)	376	None Stated	
(2) PRESENT LOAD TO STREAM FROM TREATMENT PLANT	1.043 (2)	214	0.4	185
(3) ADDITIONAL LOAD TO STREAM EXPECTED DURING THE NEXT FIVE YEARS FROM EXISTING SYSTEM	.221 (3)	41	0.1	29
(4) ADDITIONAL LOAD TO STREAM DURING THE NEXT FIVE YEARS FROM PROPOSED EXTENSION	0.0354	7	Negl.	6
(5) TOTAL ANTICIPATED LOAD TO STREAM IN NEXT FIVE YEARS (2+3+4)	1.2994	262	0.5	220

D. TREATMENT PLANT OPERATING EFFICIENCY

	SOLIDS SUSPENDED (%)	SOLIDS SETTLEABLE (%)	BOD 5 DAY 20° C (%)
(1) PRESENT TREATMENT PLANT	89	98	91
(2) AFTER INITIAL LOAD FROM PROPOSED EXTENSION	89	98	91
(3) IN FIVE YEARS	89	98	91

23. WILL THE LOAD UNDER 22.B.(5) ABOVE PRODUCE AN EFFLUENT THAT WILL HAVE AN ADVERSE EFFECT UPON THE RECEIVING STREAM? ☐ Yes ☒ No

Notes (1), (2), (3) - See Supplemental Sheet 6-4a.

Dougherty Brothers Subdivision Permit

Regent Manor Subdivision Permit #46

SUPPLEMENTARY SHEET 6-4a.

NOTES - Re: 6-4 22.C

(1) 1.5 MGD former capacity, plus 1.0 MGD current expansion capacity = 2.5 MGD

(2) Avg. Daily Flow: Obtained by averaging 9 monthly operations reports' daily recorded flows from October 1976 thru August 1977.

(3) Includes incremental contributions for projected flows of recently approved

DiLucia (Country Meadows) Subdivision Permit #4677404

Dougherty Brothers Subdivision Permit #4677415

Regent Manor Subdivision Permit #4677438

For Department use only

MODULE 6 - SEWERS AND APPURTENANCES

A. GENERAL INFORMATION - CONTINUED

20. ON THE PLANS, INDICATE THE PERMIT NUMBER OF EXISTING SEWER AT EACH PROPOSED POINT OF CONNECTION AND THE NAME OF THE PERMITTEE. SPECIFY PLAN SHEET NUMBER(S) ON WHICH INDICATED. Permit #4677438

Plan Sheets #3 & #4; Profiles #6 thru 17 & 20

21. WILL THERE BE A PUMP STATION INVOLVED IN RECEIVING SEWAGE FROM THE SEWER EXTENSION? ☐ Yes ☐ No

ER-BWQ-188.6(REV. 8/75)

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED 3-13-78
DATE REVISED

WATER POLLUTION CONTROL

MODULE 6 – SEWERS AND APPURTENANCES

For Department Use Only

A. GENERAL INFORMATION – CONTINUED N/A

A. IF YES, EXPLAIN _____

B. IF APPLICANT IS NOT OWNER OF THE RECEIVING SEWAGE TREATMENT PLANT, INDICATE SOURCE OF INFORMATION.

TO BE COMPLETED BY THE REGIONAL SANITARY ENGINEER

1. WILL THE LOAD UNDER 22.B.(5) MEET THE PERMIT REQUIREMENTS? ☐ Yes ☐ No

   A. WILL THE LOAD UNDER 22.B.(5) CAUSE POLLUTION OF THE RECEIVING STREAM? ☐ Yes ☐ No

2. IS THERE ANY QUESTION AS TO WHETHER THE LOAD IS NOW CAUSING OR WILL CAUSE POLLUTION? ☐ Yes ☐ No

   A. IF YES, COMPLETE A POLLUTION REPORT.

3. IS THE TREATMENT PLANT IN COMPLIANCE? ☐ Yes ☐ No

SUPPLEMENTARY SHEET 6-A

NOTES - Re: 6-A 22.0

(1) 1.5 MGD former capacity; plus 1.0 MGD current expansion capacity = 2.5 MGD

(2) Avg. Daily Flow: Obtained by averaging 3 monthly operations reports daily recorded flows from Datalex [illegible]

H710.047 REV. 8-71

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
SANITARY ENGINEERING

4678414

For Department Use Only

INTERNAL REVIEW AND RECOMMENDATIONS

REGIONAL ENGINEER'S REVIEW

NAME OF APPLICANT: Upper Gwynedd-Towamencin Municipal Authority

PROJECT LOCATION: Towamencin Township Montgomery County

APPLICATION NUMBER: 4678414

BRIEF DESCRIPTION OF PROJECT: This application requests approval to construct sanitary sewer extensions to serve the Hunter Villa Subdivision located at the south corner of the intersection of Green Lane Road and Sumneytown Pike. The site consists of 62 acres, which will be developed in phases each less than 25 acres. The population served will be 217 initially and 353.5 ultimately. The Storm Water Management Plan was revised and found adequate by the Montgomery County ~~Soil~~ Conservation District and the Regional Hydraulic Engineer. An encroachment permit 4678716 is required for the construction of Bridge, head endwalls at the stream.

DISCUSSION (Use Additional Sheets If Necessary):

Sewage from the proposed sewer extension will be conveyed to the Upper Gwynedd-Towamencin Municipal Authority's STP via existing Upper Gwynedd-Towamencin Municipal Authority sewers covered under permit no. 765S13. The STP provides secondary treatment before discharge to the Towamencin Creek.

The Soil Erosion and Sedimentation plan was reviewed and found adequate by the Montgomery County Conservation District and the reviewing engineer.

CURRENT ESTIMATE OF COMPLETION DATE OF PROJECT (Industrial Wastes Only)

RECOMMENDATION AND ACTION

APPROVAL – RELEVANT LAWS, REGULATIONS, STANDARDS, AND POLICIES HAVE BEEN COMPLIED WITH:

Issue By Region	Issue By Central Office	Refuse	Signature	Date
☒	☐	☐	George E Bokut — REVIEWING ENGINEER	5/31/78
☒	☐	☐	Richard L Hankle — FACILITIES ENGINEER	5/31/78
☒	☐	☐	C. T. Beckwood — REGIONAL ENGINEER	5/31/78
	☐	☐	DIV. FACILITIES ENGINEER	
	☐	☐	DIVISION DIRECTOR	
		☐	BUREAU DIRECTOR	

PERMIT CONDITIONS:

1. STANDARD –
Sewerage (1972)
1 thru 9, 11 thru 14, 21, 22, 30 and 31
Erosion Control (1973)

2. SPECIAL (Use Additional Sheets If Necessary) –

Recording of Permit: Montgomery County

ER-BWQ-15: Rev. 1/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT

NO. 4678414

A. PERMITTEE: (Name and Address)
Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

B. PROJECT LOCATION
Municipality: Towamencin Township
County: Montgomery

C. TYPE OF FACILITY (For industrial wastes, type of establishment)
sanitary sewer extension

D. NAME OF MINE, PLANT, AREA SERVED, OUTFALL NO., ETC.
Hunter Villa Subdivision

E. THIS PERMIT APPROVES:

1. Plans For Construction Of:
   - a. [X] Sewers and Appurtenances
   - b. [ ] Sewage Treatment Facilities
   - c. [ ] Industrial Wastes Treatment Facilities
   - d. [ ] Mine Drainage Treatment Facilities
   - e. [ ] Outfall & Headwall
   - f. [ ] Stream Crossing
   - g. [ ] Impoundment

2. The Discharge Of: N/A
   - a. [ ] Treated
   - b. [ ] Untreated
   - c. [ ] Sewage
   - d. [ ] Industrial Wastes

3. Discharge To: N/A
   - a. [ ] Surface Water
   - b. [ ] Ground Water

Name of Stream to which discharged or drainage area in which groundwater discharge takes place or impoundment is located.

4. The Operation of a Mine [ ]
   Maximum Area to be Deep Mined _____ Acres

5. An Erosion and Sedimentation Control Plan [X]
   Project Area is 68.102 Acres

F. THIS APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:

1. ALL CONSTRUCTION, OPERATIONS, PROCEDURES AND DISCHARGE SHALL BE IN ACCORDANCE WITH APPLICATION NO. 4678414 DATED March 14, 1978 ITS SUPPORTING DOCUMENTATION AND AMENDMENTS DATED April 14, 1978, SUCH APPLICATION, ITS SUPPORTING DOCUMENTATION, AND AMENDMENTS ARE HEREBY MADE A PART OF THIS PERMIT.
2. CONDITIONS NUMBERED 1-9, 11-14, 21, 22, 30 and 31 OF THE Sewerage STANDARD CONDITIONS DATED 1972 AND CONDITIONS NUMBERED 1 thru 20 OF THE EROSION CONTROL STANDARD CONDITIONS DATED 1973, WHICH CONDITIONS ARE ATTACHED AND MADE PART OF THIS PERMIT.
3. SPECIAL CONDITION(S) DESIGNATED _____ WHICH ARE ATTACHED AND ARE MADE A PART OF THIS PERMIT.

G. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. IF THERE IS A CONFLICT BETWEEN THE APPLICATION OR ITS SUPPORTING DOCUMENTS AND AMENDMENTS AND THE STANDARD OR SPECIAL CONDITIONS, THE STANDARD OR SPECIAL CONDITIONS SHALL APPLY.
2. FAILURE TO COMPLY WITH THE RULES AND REGULATIONS OF THE DEPARTMENT OR WITH THE TERMS OR CONDITIONS OF THIS PERMIT SHALL VOID THE AUTHORITY GIVEN TO THE PERMITTEE BY THE ISSUANCE OF THE PERMIT.
3. THIS PERMIT IS ISSUED PURSUANT TO THE CLEAN STREAMS LAW, ACT OF JUNE 22, 1937, P.L. 1987 AS AMENDED, 35 P.S. § 691.1 ET SEQ. AND/OR THE WATER OBSTRUCTION ACT, ACT OF JUNE 25, 1913, P.L. 555 AS AMENDED, 32 P.S. § 681 ET SEQ. ISSUANCE OF THIS PERMIT SHALL NOT RELIEVE THE PERMITTEE OF ANY RESPONSIBILITY UNDER ANY OTHER LAW.

This permit must be recorded in the Office of the Recorder of Deeds in Montgomery County

PERMIT ISSUED
DEPARTMENT OF ENVIRONMENTAL RESOURCES

DATE JUN 30 1978 BY C. T. Beechwood

TITLE C.T. Beechwood
Regional Sanitary Engineer

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
Norristown, Pennsylvania 19401
215 631-2405

June 30, 1978

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: H. Warren Dimmig
Chairman

Re: Sewerage Permit No. 4678414
Hunter Villa Subdivision
Towamencin Township, Montgomery County

Gentlemen:

Above referenced permit is enclosed.

Please study the permit carefully and direct any questions to the Facilities Section of this office.

To become operative this permit must be recorded in the Office of the Recorder of Deeds in the county in which the discharge is located. Enclosed is a certificate and pre-addressed envelope for this purpose. Please have the Recorder of Deeds accomplish the certificate and return it within ten (10) days.

Very truly yours,

C.T. Beechwood
Regional Sanitary Engineer

Enclosures: Permit
Standard Conditions Relating to Sewerage
Standard Conditions Relating to Erosion Control
Recorder of Deeds Certificate with envelope
Notary Public Certificate
Occupational Health Comments

cc: Herbert H. Metz, Inc.
Ce Re 30

CTB/JAP/lm

ER-BWQ-68 Rev. 4-73

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446
Permit #4678414
Towamencin Township
Montgomery County

Commonwealth of Pennsylvania
Department of Environmental Resources

RECORDER OF DEEDS CERTIFICATE

I hereby certify that on JUL 13 1978 (Date)

There was recorded in Book 4319 Page 518 the sewerage permit issued

to Upper Gwynedd-Towamencin Twp.

bearing date of June 30, 1978

Loretta D. Bradbury
Dep. Recorder of Deeds for
Montgomery County

BWQ-69 Rev. 4-73

duly acknowledged the foregoing permit to be his act and deed and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year aforesaid.

STATE OF PENNSYLVANIA }
COUNTY OF MONTGOMERY } SS

NOTARY PUBLIC

On the thirtieth day of June in the year one thousand nine hundred and seventy eight before me, the Subscriber, a Notary Public, came the above named

C. T. Beechwood

and duly acknowledged the foregoing permit to be his act and deed and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year aforesaid.

NOTARY PUBLIC

JOHN F. DALY, JR.
Notary Public, Norristown Boro, Montg. Co.
My Commission Expires August 16, 1980

ER-EPR-1:2/74

Form No. 1

Application Nos.: 4678716

SUBJECT: HUNTER CONSTRUCTION COMPANY CONTACT:

Lowcky J. Colovita, President TEL: 855-3111/1686

215 W. Moreland Road
Willow Grove, PA 19090

Herbert H. Metz, Inc.
P.O. Box 647
Lansdale, PA 19446

New Proposal	
Revised Proposal	

5/4/78

FROM: Regional Coordinator NORRISTOWN
Division of Dams and Encroachments
P.O. Box 2063, Harrisburg, PA 17120

On 4/20/78, we received an application for plan approval and/or permit to construct a storm sewer outfalls. The proposed installation involves:

To construct six (6) storm sewer outfalls in and along the Kulpsville Branch of the Towamencin Creek, Towamencin Township, Montgomery County.

Application also to be amended to include [illegible] bridge [illegible] main channel [illegible] Cond. Req'd. [illegible] Upper Gwynedd Township

Permit Coordination Requirements:

TO: DHTG.

	No Permit Required	No Permit Required Prior Approval Required	Permit Required Application on Hand	Permit Required Application Needed
Air Quality	✓			
Water Quality D. E. Fans	~~✓~~		✓ (Fans) ✓ (Outf)	~~✓~~ (Outf)
Land Protection	✓			
Community Env. Control	✓			
Occupational Health	✓			
Surface Mine Reclamation	✓			
Radiological Health	✓			

Please indicate your interest on this form and return to the Coordinator by 5/5/78

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
Norristown, Pennsylvania 19401
215 631-2402

May 10, 1978

Hunter Construction Company
215 West Moreland Road
Willow Grove, PA 19090

Attention: Mr. Lowcky J. Colovita, President

Re: Application No. 4678716
Towamencin Township
Montgomery County

Gentlemen:

This will acknowledge receipt of your application on April 20, 1978 for approval to construct six (6) storm sewer outfalls in and along the Kulpsville Branch of the Towamencin Creek, Towamencin Township, Montgomery County.

The material submitted is accepted for technical review by the staff of the Department. It is our understanding that the application will be amended to include the bridge and water main crossing of the stream.

In addition to the above, a sewerage application (No. 4678414) for the proposed project has been received by our Facilities Section from Upper Gwynedd-Towamencin Municipal Authority. No permits will be issued until processing is completed on all required applications. The permits will be issued simultaneously from this office.

You are reminded that any proposed facilities cannot be constructed without first obtaining the required permits.

Applications are normally processed within sixty (60) days. If you have not received notification of the action taken within this period, feel free to contact me for information concerning the status of the review.

Very truly yours,

Leon T. Gonshor
Regional Director

LTG:smc

cc; Dams and Encroachments
Facilities

ER-EPR-11 Rev. 7/77

Form No. 1

Application Nos.: 4678414

SUBJECT: Sewerage — CONTACT: Upper Gwynedd-Towamencin Municipal Authority, Montgomery County, 2225 Kriebel Road, Lansdale, Pa. 19446

New Proposal	X
Revised Proposal	

From: Regional Director L. Gonshor — appl: 855-8165, engr: 855-3111 — 3/14/78

~~From~~ R. Hinkle

On 3-14-78, we received an application for plan approval and/or permit to construct a sewer extension. The proposed installation involves:

55 Ext to serve Hunters Villa subdivision (in) Towamencin Township, Montgomery County (Sewage to Upper Gwynedd-Towamencin STP)

Permit Coordination Requirements: COORD REQUIREMENTS. ON-COMMENTS TO BE COORDINATED IN REVIEW

DATE: 3/14/78	No Permit Required	No Permit Required Prior Approval Required	Permit Required Application on Hand	Permit Required Application Needed
Air Quality	✓			
Water Quality (I-FACS) NJE			✓ 3/15	✓ 3/15
Land Protection	✓			
Community Env. Control	✓			
Occupational Health		✓		
Surface Mine Reclamation	✓			
Radiological Health	✓			

Please indicate your interest on this form and return to the Director by 3/23/78

ER – EP

DEPARTMENT OF ENVIRONMENTAL RESOURCES

ENVIRONMENTAL PROTECTION

START

BUREAU / PROGRAM Water Quality Management

DIVISION

COUNTY / MUNICIPALITY 46949

PROGRAM Sew

CASE NAME Upper Gwynedd Towamencin Municipal Authority

FILE P

PERMIT NO. 4678437 Hunters Meadows Subdivision

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

May 2, 1978

Mr. William T. Klages
District Conservationist
U. S. Department of Agriculture
Soil Conservation Service
1725 Markley Street
Norristown, Pennsylvania 19401

Dear Bill:

Enclosed please find sheets 2 and 7 of 7 for the Hunter Meadows Subdivision located in Towamencin Township, Montgomery County, Pa. While we have not yet submitted the Water Quality Management Permit Application to D.E.R., I would appreciate your review and comment on this plan. I have also enclosed a copy of the Erosion and Sedimentation Control Narrative and the storm water runoff calculations showing the various pipe outlet velocities.

You will notice that there is no permanent storm water detention facilities planned for this site due to its small size (12 Ac.), lack of open space available and its proximity to other present and future detention facilities. Aside from a very large detention basin located just across the street from this subdivision, I have indicated other detention facilities which occur in this same watershed on a print of the Township.

If you have any questions, I'll be more than happy to stop in to your office and discuss them.

Very truly yours,

George Cauffman III

George Cauffman III, R.S.

GC/srs

enclosures

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
1725 Markley Street, Norristown, PA 19401

RECEIVED
JUN 12 1978
RESOURCES MANAGEMENT
NORRISTOWN REGIONAL OFFICE

May 11, 1978

Mr. Maynard King
Montgomery County Conservation District
One Montgomery Plaza, Court House
Norristown, PA 19404

Dear Mr. King:

Re: Hunter Meadows Subdivision
Towamencin Township

A review was made by the Soil Conservation Service for the Montgomery County Conservation District of the Erosion and Sedimentation Control Plan for the Hunter Meadows Subdivision. This E&S Plan does not meet regulations as part of the Clean Streams Law.

Soil on this site has a permeability rate of slow to very slow with a seasonal high water table. The on-lot temporary sediment control trap will not operate as planned due to water being held for days at a time during certain seasons of the year due to the seasonal high water table.

Stormwater management needs to be calculated on this project. The amount of stormwater runoff should be limited and designed to not exceed those of predevelopment.

The method or measures to control runoff are not limited to the use of a detention pond, but other measures could be designed. This plan needs more information on the soil limitations and stormwater management.

Sincerely,

William T. Klages
District Conservationist

Enclosure

MAY 24 1978

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF ENVIRONMENTAL RESOURCES
750 E. Johnson Highway
Norristown, Pennsylvania 19401
215 631-2280

May 18, 1978

Ms. Beverly Thompson, Secretary
Box 99
655 Sumneytown Pike
Kulpsville, PA 19443

Re: Hunter Meadows Subdivision
No. 1-46949-015-4
Towamencin Township

Dear Ms. Thompson:

Please be advised that a review has been made and completed of the above referenced Planning Module for Land Development.

This revision to the Towamencin Township Official Sewage Facilities Plan meets the requirements of Chapter 71, Section 71.17 of the Pennsylvania Department of Environmental Resources Rules and Regulations.

Approval is hereby granted; and in accordance with this Chapter, the Department holds Towamencin Township responsible for implementing this revision as per the approved module.

If you have any questions, please feel free to contact this office.

Very truly yours,

Michael L. Simon

Michael L. Simon
Sanitarian
Montgomery County

CC: Samuel Colavita
Sewage Facilities Consultant
WAMIS
File

EXHIBIT "C"

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

June 5, 1978

RECEIVED
JUN 1978
NORRISTOWN REGIONAL OFFICE

Commonwealth of Pennsylvania
Department of Environmental Resources
Region I
1875 New Hope Street
Norristown, Pennsylvania 19401

Attention: Mr. Richard Hinkle, Chief
Facilities Section
Bureau of Water Quality Management

Subject: Sanitary Sewer Extension
Upper Gwynedd-Towamencin Municipal Authority
For: "Hunter Meadows"
Planned Residential Subdivision
Towamencin Township

Dear Sirs:

Transmitted with this letter is a Water Quality Management Application for sanitary sewer extension sewerage permit for the subject project for review and approval.

A list enumerating the completed application forms and supporting documents is enclosed together with duplicate sets of the pertinent forms, plans, and documents.

It should be noted that all prior planning reviews and approvals have been obtained as understood to be required; including that of Community Environmental Control for planning modules; consultation review by Montgomery County Soil and Water Conservation District for erosion and sediment control is being solicited at this same time by submission thereto of pertinent erosion and sedimentation control and narrative data.

We respectfully request that this application-for-permits be processed as expeditiously as possible. If you have any questions or comments, please don't hesitate to contact me by phone. I would welcome the opportunity for direct communication with your agency.

Very truly yours,

HERBERT H. METZ, INC.

Clifford T. Stout

Clifford T. Stout, P. E.

CTS/nes
Enclosures

HERBERT H. METZ, JR.
JACOB HOTTINGER
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June 5, 1978

Hunter Meadows Subdivision
Towamencin Township, Montgomery County
Upper Gwynedd-Towamencin Municipal Authority System

WATER QUALITY MANAGEMENT APPLICATION DOCUMENTS

Application for Water Quality Management Permit

Modular report forms 1 & 6 with check for $25.00 made payable to PADER.

Exhibit "A" - Copy of U.G.T.M.A. regulation prohibiting storm water admittance.

Exhibit "B" - Addenda to Towamencin Township Sanitary Sewer Specs. regarding stream protection.

Exhibit "C" - Copy of letter from Mr. Michael L. Simon to Ms. Beverly Thompson, Sec., dated May 18, 1978 acknowledging review and approval of subdivision planning module (No. 1-46949-015-4)

Subdivision Plan package including:

a)	Subdivision Title Plan	Sheet 1 of 7
b)	Erosion & Sediment Control Plan	Sheet 2 of 7
c)	Plan/Profiles	Sheet 3, 4, 5, 6, of 7
d)	Detail Sheet	Sheet 7 of 7

Exhibit "D" - Erosion & Sediment Control Narrative Report

Exhibit "E" & "E-1" - Storm Water Management Program

Exhibit "F" - Sanitary Sewer design analysis.

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
1725 Markley Street, Norristown, PA 19401

June 16, 1978

Mr. Maynard King
Montgomery County Conservation District
One Montgomery Plaza, Court House
Norristown, PA 19404

Dear Mr. King:

Re: Hunter Meadows Subdivision
Towamencin Township

A review of the Erosion and Sedimentation Control Plan was made by the Soil Conservation Service for Montgomery County Conservation District. The downstream flooding problem along Towamencin Creek will be increased when large areas of land are developed without a stormwater management plan. Each parcel of land is part of a larger watershed.

Adequate Soil Erosion and Sedimentation Control measures are found in this plan. Soils on this site have seasonal high water table which will give a wetness problem with basement drainage. Close inspection during construction is needed for erosion, drainage, or water management conditions; and if problems develop, action should be taken to remedy such conditions.

Sincerely,

William T. Klages
District Conservationist

Enclosure

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
HARRY I. WERT
CHARLES IACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 447
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

June 19, 1978

RECEIVED
JUN 23 1978
WATER MANAGEMENT
NORRISTOWN REGIONAL OFFICE

Mr. Daniel Lenyo
Division of Dams and Encroachments
Bureau of Water Quality Management
Department of Environmental Resources
Fulton Building, Box 2063
Harrisburg, Pennsylvania 17120

Re: Water Obstruction Permit Application
"Hunter Meadows" Subdivision (Application #46/8437)
Towamencin Township, Montgomery County

Dear Mr. Lenyo:

Pursuant to instructions from Mr. Leon Gonshor, as expressed in his June 16, 1978 letter to Mr. H. Warren Dimmig of the Upper-Gwynedd-Towamencin Municipal Authority, I am, hereby, making application for a water obstruction permit for stream encroachment at the above-captioned project.

The following plans and documents are submitted, in duplicate, with this letter:

1. Application for Water Obstruction Permit
2. Plans for subdivision/development (Sheets 1 through 7 of 7 including Erosion & Sediment Control Plan).
3. Exhibit "D" - Erosion and Sediment Control Narrative Report.
4. Exhibits "E" and "E-1" - Storm Water Management Program.

We respectfully request that this application be processed as expeditiously as possible. If you have any questions or comments, please do not hesitate to contact our office by telephone.

Very truly yours,

HERBERT H. METZ, INC.

Clifford T. Stout

Clifford T. Stout, P. E.

Enclosures
CTS/nes

HERBERT H. METZ, JR.
JACOB HOTTINGER
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Herbert H. Metz, Inc.
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P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

June 23, 1978

RECEIVED
JUN 26 1978
NORRISTOWN REGIONAL OFFICE

Mr. Craig Chester
Commonwealth of Pennsylvania
Department of Environmental Resources
Region I
1875 New Hope Street
Norristown, Pennsylvania 19401

Re: Water Quality Management Application #4678437
Hunter Meadows Subdivision
Towamencin Township
Montgomery County

Dear Mr. Chester:

Pursuant to our telephone conversation of June 21, I am forwarding the following:

1. Two (2) sets of (7 sheets) revised plans, depicting proposed water main elevations in the vicinity of sanitary sewer crossings, etc.

2. Copy of letter to Mr. Daniel Lenyo, Division of Dams and Encroachments, Harrisburg, making application for water obstruction permit.

3. Copy of letter from William Klages, District Conservationist to Mr. Maynard King, Executive Assistant, written June 16 acknowledging the adequacy of proposed erosion and sediment control measures.

If you have any questions or comments, please do not hesitate to call. I always appreciate the more personal telephone communication with your agency.

Very truly yours,

HERBERT H. METZ, INC.

Clifford T. Stout

Clifford T. Stout, P. E.

Enclosures

CTS/nes

BY DAJ DATE 5/18 SUBJECT HUNTER CONSTRUCTION SHEET NO. 1 OF 5
CHKD. By DATE STORM WATER MGT. JOB NO. 2833
BEFORE CONSTR PEAK

RATIONAL METHOD -

TOTAL TRACT AREA = 12.02 AC

RURAL ROAD PAVING = 0.3 AC (C = .9)
CULTIVATED FIELDS (CLAY SOIL) = 11.72 AC (C = .4)
$\bar{C} = (.3/12.02)(.9) + (11.72/12.02)(.40) = .41$
L = 820' ΔEL = 287-243 = 43' $\bar{S}_o = .052$

FOR CULTIVATED FIELDS; $\bar{S}_o = .052$ $V_o = 2.05$ fps (SCS NEHA FIG. 15.2)
$\therefore T_c = 820' \div 2.05$ fps = 6.7 MIN.

FOR DURATION STORM OF 6.7 MIN $I_{10} = 6.1$, $I_{25} = 7.0$, $I_{50} = 7.7$

$\therefore Q_{10} = CIA = (.41)(6.1)(12.02) = 30$ CFS
$Q_{25} =$ " 7.0 " = 35 CFS
$Q_{50} =$ " 7.7 " 38 CFS

EXHIBIT "E"

EXHIBIT "E"

BY..... DATE.....
CHKD. By..... DATE.....

SUBJECT HUNTER CONSTRUCTION
STORM WATER MGT.
AFTER CONST. PEAK

SHEET NO. 2 OF 5
JOB NO. 2833

1) NON-SEWERED PORTION · 4.81 Ac

6 LOTS × 2600 ☐ IMPERV. (ROOF, DRIVEWAY, SIDEWALKS)
= 0.36 Ac (C = .95)

LAWN AREA = 4.45 Ac (C = .35)

$\bar{C}$ = (.36/4.81)(.95) + (4.45/4.81)(.35) = .39

L = 520' Δ EL = 271 - 244 = 27' $\bar{S}_o$ = 27/520 = .052

FOR LAWN OVERLAND FLOW & $\bar{S}_o$ = .052 V_o = 1.55 fps

∴ T_c = 520/1.55 = 5.6 MIN.

FOR DURATION STORM OF 5.6 MIN. I_{10} = 6.3, I_{25} = 7.3, I_{50} = 8.0

∴ Q_{10} = (.39)(6.3)(4.81) = 11.8 CFS

Q_{25} = " 7.3 " = 13.7 CFS

Q_{50} = " " = 15.0 CFS

2) STORM SEWER SYSTEM #1 3.34 Ac

5 HOMES @ 2600 ☐ + 652 L.F. · 4 PAV. = .81 Ac IMPERV.

LAWN AREA = 2.83 Ac

$\bar{C}$ = (.81/3.34)(.95) + (2.83/3.34)(.35) = .53

L_o = 300' Δ EL 287 - 271 = 16' $\bar{S}_o$ = 16'/300 = .053 V_o = 1.55

T_c = Overland Time + Pipe Flow Time (FROM 1st INT. NEW ANAL.)

T_c = (300 ÷ 1.55) + .27 = 3.5 MIN (USE 5 MIN)

FOR STORM DURATION OF 5 MIN I_{10} = 6.5, I_{25} = 7.5, I_{50} = 8.0

∴ Q_{10} = (.53)(6.5)(3.34) = 11.5 CFS

Q_{25} = " 7.5 " = 13.3 CFS

Q_{50} = " 8.0 " = 14.2 CFS

BY BLW DATE 5/78 SUBJECT HUNTER CONSTRUCTION
CHKD. BY ..... DATE ..... STORM WATER MGT
AFTER CONSTR PEAK
SHEET NO. 3 OF 5
JOB NO. 2033

3) STORM SEW SYSTEM #2 3.98 Ac

4 HOMES @ 2600 ϕ + 600 LF 30' PAV + 1200 LF 16' PAV = 0.69A

LAWN AREA = 2.99A

C = (.69/3.98)(.95) + (2.99/3.98)(.35) = .42

L = 540' ΔEL = 287-264 = 19' S₀ = 19/540 = .035

FOR LAWN OVERLAND FLOW; S₀ = .035 K = 1 (ps)

$T_c = T_o + T_p = (540/1.3)+(60) = 7.5$ MIN.

FOR STORM DURATION OF 7.5 MIN. $I_{10} = 5.8$, $I_{25} = 6.5$, $I_{50} = 7.4$

∴ $Q_{10} = (.42)(5.8)(3.98) = 9.6$ CFS

" 6.5 " = 10.8 CFS

" 7.4 " = 14.1 CFS

SUMMARY OF PEAK FLOW CALCULATIONS

	BEFORE CONSTR	AFTER CONSTR
10 YEAR STORM	30	33
25 YEAR STORM	35	38
50 YEAR STORM	38	43

BY BLW DATE 5/78
CHKD. BY ..... DATE .....
SUBJECT HUNTER CONSTRUCTION SHEET NO. 5 OF 5
STORM WATER MANAGEMENT JOB NO. 2833
STORM SEWER STORAGE - HUNTER MEADOWS

STORAGE BASED ON VOLUME IN TWIN 27" x 43" PIPES, 8' x 2' (I.D.) JUNCTION BOXES AT EACH END AND VOLUME BETWEEN BOXES IN SAG VERTICAL CURVE OF PROPOSED SUSAN DRIVE

OUTFALL DEPTH-DISCHARGE RELATIONSHIP BASED ON 1' x 1' ORIFICE PLATE PLACED ACROSS OUTFALL PIPE (FROM HANDBOOK OF HYDRAULICS "KING"

Depth	Inlet Sto	X-2	INLET 1.2	INLET 1.1	SAG STOR	ESTORAGE	OUTFALL
2.90	0	0				0	0
	8	16		0		15	
.1	23	46	6	3		22	0.7
.2	40	80	10	6		96	
.3	59	118	13	10		141	2.0
.0	77	154	16	12		12	
.5	96	192	19	16		12	4.0
.6	113	226	22	19		61	
.7	128	256	26	22		304	5.0
.8	141	282	29	26		321	
.9	153	306	32	29		3	5.9
3.0	163	326	35	32		39	
.1	166	332	38	35		403	6.7
.2			42	38		412	
.3			45	42		419	7.3
3.40			48	45		429	
.5			51	48		431	7.9
.4			54	51		437	
.7			58	54		444	8.5
.8			59	55	0	446	
3.90					181	627	9.1
4.0					634	1080	9.3
.2					1268	1114	9.5
.4							

BY..... DATE..... SUBJECT HUNTER CONSTRUCTION
CHKD. By..... DATE..... STORM WATER MGT.
PEAK FLOW ROUTING
SHEET NO. 5 OF 5
JOB NO. 2033

BASED ON A METHOD PROPOSED BY BAKER IN PUBLIC WORKS MARCH 77, THE PEAK PRODUCING SHORT DURATION STORM HYDROGRAPHS ARE ROUTED THROUGH THE STORAGE SYSTEM (NOTE: Q INFLOW BASED ON ENTIRE WATERSHED + NOT SITE ALONE)

DURATION	FREQ	CA	T	Q INFLOW	Q OUTFLOW
5 MIN	10	1.76	6.5	11.4	9.1
	25	"	7.5	13.2	9.2
	50	"	8.0	14.0	9.3
10 MIN.	10	1.76	5.3	9.3	9.0
	25	"	6.1	10.7	9.3
	50	"	6.7	11.8	9.4

46 784 32

■ COMBINATION stormwater detention basin and neighborhood park, having a concrete channel for draining the immediate area. The basin serves a 185-acre area; the major portion of the influent is carried in two 36-inch and one 54-inch pipes, not shown.

Stormwater Detention Basin Design for Small Drainage Areas

WILLIAM R. BAKER, P.E.
Assistant Professor of Engineering,
University of Wisconsin — Extension,
Madison, Wisconsin

CONTROL and management of stormwater runoff has resulted in associated problems causing it to become an increasing source of concern for public works engineers. Excessive rainfall runoff has reached such proportions in some areas that local ordinances have been adopted limiting the rate of runoff discharge from new developments.

One highly effective method of reducing the rate of runoff is through the use of a storage or detention basin. Such a facility acts as a temporary reservoir, allowing runoff to be released at slow, predetermined rates. When a detention basin is designed, a proper balance must be achieved between available capacity of the storage reservoir and the flow characteristics of the outlet control structure. This structure is usually some type of pipe or conduit placed at an elevation that will allow complete draining of the detention basin after a rainstorm. Storage commences when the rate of inflow to the detention basin exceeds the capacity of the outlet structure and continues as long as this condition exists. The relationship can then be expressed mathematically, equating the rate of change in storage with the difference between rate of inflow and rate of outflow.

Analyzing the stormwater detention basin is somewhat more involved than the design of a standard storm sewer conduit. In the latter case, the controlling factor for selecting the conduit size is the peak or instantaneous maximum flow rate anticipated from an assigned design rainfall event. Smaller rates of flow and the total time distribution of this flow (i.e., total quantity of runoff) are not part of the design process. However, in detention basin design, the total quantity of runoff and the rate at which the runoff arrives and departs from the basin site is of paramount importance. Such a relationship is given by a hydrograph — simply a plot showing the variation of the flow rate with respect to time.

Figure 1 illustrates both an inflow and outflow hydrograph for a typical detention basin. Several factors regarding this illustration should be noted. First, the total area under each curve is the same and represents the total volume of runoff flowing into, and eventually out of, the basin. In terms of quantity, the product of the time in seconds and rate of flow in cubic feet per second is equal to the total volume of flow in cubic feet. The second and most important factor is represented by the area lying between the inflow and outflow hydrographs. This area represents the excess volume of runoff flowing into the detention area that cannot immediately be accommodated by the outlet structure. This area, then, is equivalent to the total volume of storage required for the particular detention basin when subjected to the specific rainfall event that generated the inflow hydrograph.

Also to be noted is that the rate of outflow from the detention area is not a constant value. The outflow rate is dependent upon the depth of the impounded water and hence will vary with respect to time. The effect of changing the size of the outlet structure can also be visualized from a study of Figure 1. If a smaller exit conduit were to be used, the rate of outflow would decrease, causing a downward shift in the hydrograph plot. This would indicate that a larger storage area would be required to accommodate the same rainfall event.

An inflow hydrograph can be developed by several methods, but for small drainage basins -- up to 200 acres in area — it is the author's opinion that a modified version of the "rational method" of estimating rate of runoff will yield acceptable detention basin designs. In the rational method, peak rates of runoff are determined by the equation:

$$Q = eiA$$

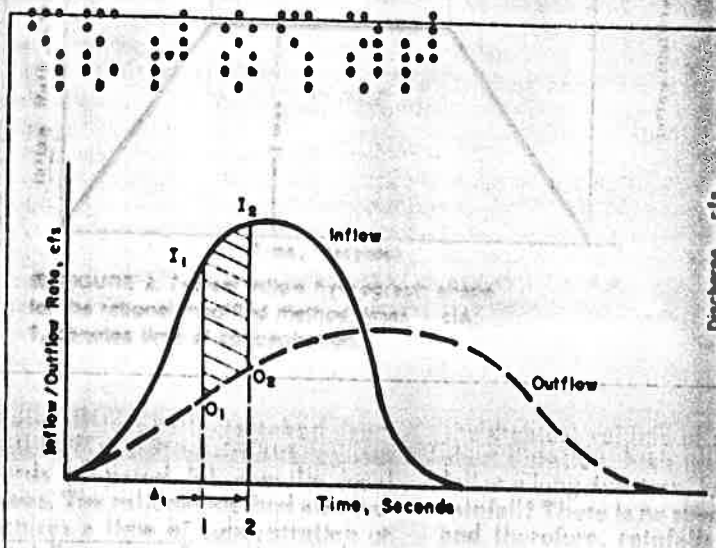
where Q = max. runoff rate, cfs;

e = a dimensionless runoff coefficient indicating the percentage of rainfall that appears as runoff;

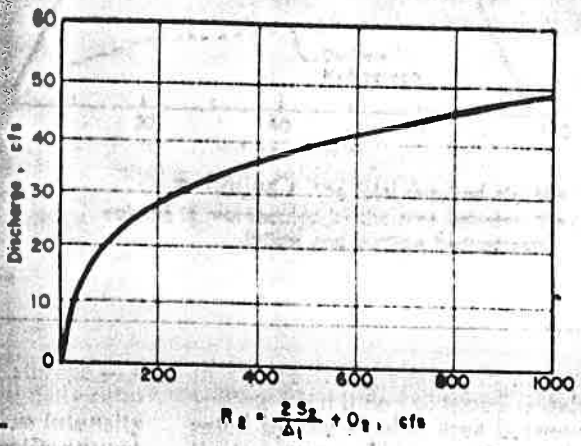
i = rainfall intensity, inches per hour;

A = size of the drainage basin, acres.

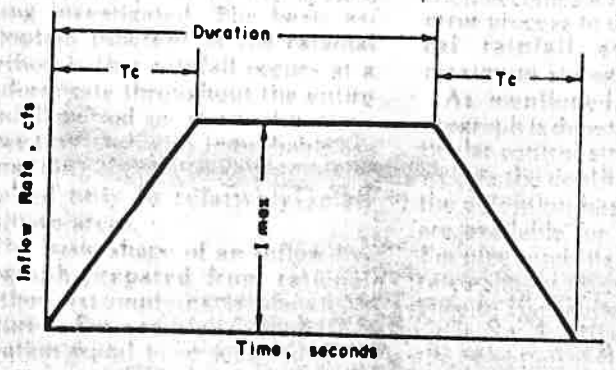
The equation is dimensionally correct because an inch per hour of rainfall on a one-acre of an impervious surface will essentially result in one cubic foot per second of runoff.



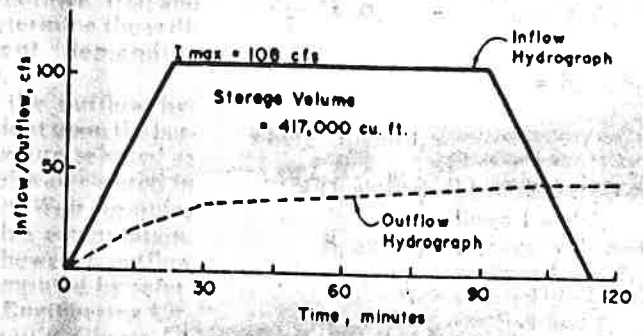
■ FIGURE 1. Typical inflow/outflow hydrograph.



■ FIGURE 3. Discharge versus R_2.



■ FIGURE 2. Typical inflow hydrograph shape for the rational modified method. Imax = cIA; T_c denotes time of concentration.



■ FIGURE 4. The total required storage volume is represented by the area between the inflow and outflow hydrographs.

Rainfall intensity is taken from intensity-duration-frequency records prepared for specific local areas. The rational method also recognizes a time of concentration or total flow time, from the most remote point within the drainage basin to the point in the system being investigated. The basic assumption inherent in the rational method is that rainfall occurs at a uniform rate throughout the entire rainfall period or storm duration. Since this is a highly improbable assumption, the method should be applied only to relatively small drainage areas.

The basic shape of an inflow hydrograph prepared from rational method assumptions is shown in Figure 2. For a rainfall event with a duration equal to or less than the time of concentration, the hydrograph will be triangular. At this point in the design process, the problem of selecting the particular rainfall duration for a desired return frequency must be confronted. The question arises: Which will require the greatest volume of storage — a short duration, high intensity rainfall or a long duration, low intensity rainfall? There is no specific answer and therefore, rainfalls of various duration must be selected and tested. The detention basin design then becomes a repetitive, trial and error process to determine the critical rainfall event demanding maximum storage.

As mentioned, the outflow hydrograph is dependent upon the particular control structure selected as well as the depth of water stored in the detention basin. Weir formulas are available for this computation. For pipe conduits, however, outflow rates should be computed by reference to Hydraulic Engineering Circular No. 5, "Hydraulic Charts for the Selection of Highway Culverts," Federal Highway Administration. The actual shape of the outflow hydrograph can be developed by an application of a technique known as reservoir routing.

Referring to the set of typical inflow-outflow hydrographs shown in Figure 1, the change in storage volume from time 1 to time 2 is indicated by the shaded area between the two curves. This quantity can be expressed by the equation:

$$\frac{I_1 + I_2}{2} \times \Delta_t - \frac{O_1 + O_2}{2} \times \Delta_t = S_2 - S_1;$$

where I_1 and I_2 = inflow rates at times 1 and 2;
O_1 and O_2 = outflow rates at times 1 and 2;
S_1 and S_2 = storage volumes at times 1 and 2;
Δ_t = elapsed time between 1 and 2,
known as the *routing time increment*.

The equation can be rewritten in the form of a "routing equation" and expressed as:

$$I_1 + I_2 + \frac{2S_1}{\Delta_t} - O_1 = \frac{2S_2}{\Delta_t} + O_2$$

The routing equation is solved by a combination of analytical and graphical methods to yield a series of outflow rates, thus generating an outflow hydrograph. To simplify the presentation of the following solution procedure, A_1 and R_2 are substituted for the bracketed elements and the foregoing equation becomes:

$$I_1 + I_2 + A_1 = R_2$$

and R_2 is known as the *routing equation element*.

Solution Procedure

The step-by-step procedure used to check the size and discharge rate from a given detention basin is summarized as follows:

1) Compute the storage volumes in cubic feet for various selected incremental depths of impoundment. To accomplish this, a specific trial-size basin must be selected with known contour. From such information, the designer will be able to compute total storage volumes for different depths of impoundment.

2) Select a specific outlet control structure — weir, pipe, etc. — and compute outflow discharge rates, or values of O, for each incremental storage depth selected in Step 1.

3) Select a routing time increment, Δ_t. When the modified rational method is used, this value can be assumed equal to the time of concentration without seriously affecting the quantitative results. It should be noted that the units of routing time must be expressed as seconds for computation purposes.

4) For each incremental depth selected in Step 1, compute a corresponding value for the routing equation element, R. From the basic routing equation, this element is defined as:

$$R = \frac{2 \times \text{Storage Volume, cu. ft.}}{\text{Routing Time, sec.}} + \text{Outflow, cfs}$$

Steps 1, 2 and 3 provide the information for calculating the series of R values.

5) Prepare a graph, plotting the values of discharge, O, from Step 2 versus the R values from Step 4.

6) Solve the routing equation for values of R_2 at the end of each routing time increment. At this point, one must keep in mind the objective of the entire process — to determine the outflow rate from the detention basin at the end of a series of selected time increments equal to the time of concentration. Now, if an R_2 value could be computed for the end of each time increment, a corresponding discharge value could be obtained from the graph prepared in Step 5. The problem then becomes one of developing a method for solving the routing equation.

Inflow values at the beginning and end of each time increment, I_1 and I_2, are determined from the rational equation and inflow hydrograph. Determination of A_1 and R_2 presents a complication because each contains a storage value and outflow value. Two factors, however, alleviate the situation of attempting to solve for four unknowns with a single equation. First is the significance of the subscript notation. Subscripts 1 and 2 refer to parameters at the beginning and end of each routing time increment. Hence storage, inflow and outflow discharge at the end of one time increment automatically become the beginning values for the next time increment. Second, and most important, is the fact that all equation elements must equal zero at the be-

Table 1 — Tabulation of Storage-Discharge Data for Computing Routing Equation Element, R, in Example Problem

Depth Above Exit Conduit Invert, ft.	Basin Storage, cu. ft.	Discharge, O in cfs	Computed R in cfs
0.5	0	3	3
1.0	1,250	5	8
1.5	7,500	10	27
2.0	23,750	17	70
2.5	55,000	24	146
3.0	106,250	31	267
3.5	182,500	36	442
4.0	272,500	41	647
4.5	362,500	46	852
5.0	452,500	50	1,056

Note: The example detention basin is rectangular in shape, approximately 600 ft. by 200 ft., with a 6-in. drop inlet at the entrance of the discharge conduit. Basin storage volumes as shown in Column 2 are computed from the detention basin geometry (data not given) for the various incremental depths given in Column 1. Discharge valves in Column 3 were determined by consulting Hydraulic Engineering Circular No. 5, Federal Highway Administration. Values of R are computed by substitution in the equation:

$$R = \frac{2S}{\Delta_t} + O; \quad \Delta_t = \text{routing time of 15 min. or 900 sec.}$$

Table 2 — Solution of the Routing Equation for Example Problem

Time, min.	Inflow Rate, I, cfs	Computed Value of A	Computed Value of R	Discharge, O in cfs
0	0	0	0	0
15	108	68	108	20
30	108	220	284	32
45	108	364	436	36
60	108	502	580	39
75	108	632	718	43
90	108	756	848	46
105	72	840	936	48
120	0	818	912	47

Notes: The maximum inflow, I, is determined from the rational method equation, $Q = ciA$, with a c of 0.75; I, 1.8 and A, 80.

Tabular values of A, R and O are obtained by solving the routing equation, $I_1 + I_2 = R_2$.

For the first time increment, 0 to 15 min., $I_1 = 0$, $I_2 = 108$, $A_1 = 0$. R_2 therefore must equal 108 and from Figure 3, the discharge at the end of the initial time increment equals 20 cfs. A_1 at the beginning of the second increment, which is also the end of the first increment, equals the first increment R_2 value less twice the discharge at the end of the first increment, or 108 − 20 − 20 = 68. R_2 for the second increment = 108 + 108 + 68 = 284; O = 32 cfs; and A_1 for the third increment = 284 − 32 − 32 = 220. The process is continued until the desired number of points on the outflow hydrograph have been achieved.

ginning of the rainfall event. The equation at the time has the form: $O + I_2 + 0 = R_2$. The R_2 value at the end of the first time increment will always equal the inflow rate at this time. Knowing this R_2 value, one can read a corresponding discharge rate from the graph prepared in Step 5.

Since the end of the first time increment and the start of the second time increment occur simultaneously, the beginning discharge rate for the second time increment can only be equal to the discharge rate at the end of the first increment. This fact enables the designer to compute the A_1 term of the routing equation for the next time increment because its value must equal the R_2 value from the previous increment less twice the discharge rate at the end of the first time increment. Proof of this can be derived from a study of the routing equation in its basic form. It must be remembered that discharge at the end of a one-time increment must equal the beginning discharge rate for the next time increment.

The process can now be treated in a step-by-step manner throughout the entire rainfall event, producing a series of discharge rates with respect to time, enabling the development of data for the construction of an outflow hydrograph.

7) Superimpose the outflow hydrograph on the inflow hydrograph and determine the area between the two plots. This area represents the required storage volume to contain the rainfall event described by the inflow hydrograph.

8) Repeat the process for different duration events until the maximum required storage volume is determined.

To illustrate the design process, the following problem and its solution are offered.

GIVEN: Runoff from an 80-acre industrial subdivision is to be diverted to a 2.75-acre detention basin with a 30-inch reinforced concrete pipe serving as the outlet control structure. The runoff coefficient is selected as 0.75 and the time of concentration for the drainage area is estimated to be 15 minutes.

FIND: The volume of required storage for a 25-year rainfall event frequency.

SOLUTION: A 100-minute duration event is used as a first trial with a corresponding intensity of 1.8 inches per hour. Appropriate depth, storage volume and discharge values are tabulated as shown in the first three columns of Table 1. The corresponding values of R are computed as shown in the fourth column, and a plot of R vs O is made as in Figure 3. The routing procedure is illustrated in Table 2, and it should be noted that the tabulated discharges represent points on the outflow hydrograph, plotted in Figure 4. The storage volume computed from the area between curves in Figure 4 is that required to detain the excess runoff from the 100-minute, 25-year frequency event. The process should be repeated for different rainfall durations in order to determine the maximum storage required for a rainfall event of this frequency.

The modified rational method represents a simple procedure for generating an inflow hydrograph. The method will yield acceptable designs results but should be applied only to small drainage areas where the basic assumptions inherent in the rational method can be expected to be valid. □□□

467437

NARRATIVE REPORT

EROSION AND SEDIMENTATION CONTROL PLAN

FOR

HUNTER CONSTRUCTION CO.

"HUNTER MEADOWS" RESIDENTIAL SUBDIVISION DEVELOPMENT

TOWAMENCIN TOWNSHIP, MONTGOMERY COUNTY, PA.

APRIL, 1978

HERBERT H. METZ, INC.

EXHIBIT "D"

46784 37

1. GENERAL DESCRIPTION OF SITE LOCATION

The project site is a 12.02 Acre tract of land situated at the Northeast corner of the intersection of Keeler Road and Quarry near the Village of Kulpsville, Towamencin Township, Montgomery County.

The site is bounded on the Southwest by undeveloped residential property and on the Southeast by farmland. The property along the Northeast side is in a pre-development stage. A large storm runoff detention basin is situated on the other side of Keeler Road.

Soils composition on the site, as identified by the Montgomery County Soils Survey, is made up of the following categories: Readington Silt Loam, Reaville Shaly Silt Loam and Rowland Silt Loam, a flood plain soil, in the immediate vicinity of a Branch of Towamencin Creek which runs near and through the tract on the Southeast side.

2. GENERAL DESCRIPTION OF STORM WATER COLLECTION AND CONTROL

The storm water pipe and inlet collection system was designed using 10-year storm frequency criteria. Inlets and storm sewers have been planned for placement at appropriate critical locations along the tract street for dispersal to a Branch of the Towamencin Creek.

Pipe outfalls at minimum slopes and outlet energy-dissipating devices are designed for release of storm water runoff at reduced velocities.

Inlet control design and individual on-lot grading/landscaping features are planned to also minimize point runoff impact.

3. GENERAL DESCRIPTION OF ACCELERATED EROSION CONTROL

As hereinafter described and as shown and noted on the Erosion and Sedimentation Control Plan, and in the following (Item #8) construction control stage sequence, the following erosion control procedures and devices shall be employed.

The streets shall be graded and crushed stone base course applied, and curbing placed as soon as possible, to prevent erosion of the sub-grade. During street grading, filter berms and filter inlets are proposed to be constructed at appropriate intervals and locations to minimize gullying and washing, and siltation in pipes and water courses. Utilization of temporary straw bale silt barriers is also proposed along adjacent roadway and established-developed areas where on-site earth movement and construction is planned.

3. continued

Graded slopes, swales and diversions, on-lot sedimentation control features and other critical disturbed areas shall be temporarily seeded following earth-moving procedures.

Rear-of-lot belt areas not significant to the progression of construction of houses and improvements and drainage controls shall be left undisturbed until lawn grading phase of finish construction. In addition, top soil storage as a protective berm may be utilized across the down-slope limit of construction in some locations.

4. GENERAL DESCRIPTION OF SEDIMENTATION CONTROL

On-lot protection during construction and grading activity will be provided by temporary controlled-flow interceptor diversion berms on individual lots.

Straw bale filter inlets and filter berms shall be employed, during specific construction phases at appropriate spaced locations across or along graded rights-of-way, such as noted on the Erosion and Sedimentation Control Plan. Stone ballast over-berm to be placed at intersections or junctures of proposed road with existing road.

Upon completion of construction, the temporary berms and filter inlets shall be removed and the remaining areas re-graded and seeded or paved.

5. SANITARY SEWERAGE FACILITIES

Public sanitary sewerage facilities are proposed to serve this development, with planned sanitary sewer extensions to connect and discharge into the existing Upper Gwynedd-Towamencin Municipal Sewer Authority System via 8" Ø gravity sewer connection-extension of existing Trunk sewer which closely follows the path of the aforementioned Towamencin Creek Branch.

Collected sewage will be conveyed by the Authority system for treatment at the Upper Gwynedd-Towamencin Municipal Sewer Authority Wastewater Treatment Plant.

6. TOPOGRAPHIC AND GEOLOGIC FEATURES

The topography shown on the plans is based on actual physical ground surveys. The soils information is taken from Soil Conservation Service and Montgomery County Soil Survey data and is indicated on the Erosion and Sedimentation Control Plan and supporting data.

7. HYDROLOGIC RUNOFF COMPUTATIONS

The Montgomery County Soil Conservation Service Erosion and Sedimentation Control Handbook and Soils Conservation Engineering Field Manual were used as references.

8. STAGING OF EARTHMOVING ACTIVITIES

a. Construct on-site temporary sediment control facilities in accordance with scheduled construction and the design criteria shown on the Control Plan. Grade and seed all exposed areas of embankments.

b. Clear and grub street rights-of-way and building sites.

c. Available topsoil shall be removed and stockpiled or windrowed (downslope from construction area where feasible); for use in finish grading.

d. Juncture portion of proposed road with existing road is to be graded and stone ballast placed, with a ballast overberm formed across the throat of the intersection as an erosion and sediment control deterrent and stabilization device for protection of the existing roadway.

e. Rough grade roadway to proposed sub-grade elevation gradient and cross-section.

f. Install storm sewers and sanitary sewers and appurtenant structures. Install all underground utilities. Direct surface runoff to completed storm drainage facilities by constructed temporary interceptor channels and dikes and filter inlets.

g. Temporarily seed all disturbed soil banks with rye grass.

h. Construct buildings, fine grade streets and place stone base course. (On-lot sedimentation control measures are to be constructed prior to improvements and house construction as noted in "a.")

i. Finish grade and establish permanent seeding as soon as possible thereafter in building construction areas. Immediately following removal of temporary erosion and sedimentation control structures, grade and permanently seed these areas, implementing permanent on-lot grading/ landscaping features planned to minimize surface runoff impact.

ER-BWQ-51 Rev. 10-74

DATE PREPARED
6-5-78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

APPLICATION FOR WATER QUALITY MANAGEMENT PERMIT

For Department Use Only

APPLICANT NAME	PROJECT LOCATION
Upper Gwynedd-Towamencin Municipal Authority	MUNICIPALITY: Towamencin Township
TELEPHONE NO. 855-8165	
MAILING ADDRESS: 2225 Kriebel Road, Lansdale, Pennsylvania 19446	COUNTY: Montgomery

HEREBY APPLIES FOR: (CHECK APPROPRIATE BLOCKS IN SPACES A, B, C AND D)

A. APPROVAL OF PLANS FOR CONSTRUCTION OF:
- [X] PUMP STATIONS; SEWERS AND APPURTENANCES
- [ ] SEWAGE TREATMENT PLANT
- [ ] MINE DRAINAGE TREATMENT PLANT
- [ ] INDUSTRIAL WASTE TREATMENT PLANT
- [ ] OUTFALL AND HEADWALL
- [ ] STREAM CROSSING [ ] IMPOUNDMENT

B. APPROVAL TO DISCHARGE:
(1) [X] TREATED [ ] UNTREATED
(2) [ ] INDUSTRIAL WASTES [ ] MINE DRAINAGE [X] SEWAGE

C. APPROVAL TO OPERATE: [ ] UNDERGROUND MINE

D. APPROVAL OF AN [ ] EROSION AND SEDIMENTATION CONTROL PLAN

(ALL DISCHARGES OF WASTES ARE PURSUANT TO "THE CLEAN STREAMS LAW")

I HEREBY CERTIFY THAT THE ACCOMPANYING REPORT AND ALL PLANS, MODULES, AND DOCUMENTS DESIGNATED THEREIN ARE ATTACHED TO THIS APPLICATION, AND MADE A PART HEREOF.

X H. Warren Dimmig
SIGNATURE OF APPLICANT OR RESPONSIBLE OFFICIAL

NAME OF APPLICANT OR RESPONSIBLE OFFICIAL:	TITLE	DATE OF APPLICATION
H. Warren Dimmig	Chairman - U.G.T.M.A.	6-5-78

ADDRESS: 2225 Kriebel Road, Lansdale, Pennsylvania 19446

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA, COUNTY OF Montgomery

I, H. Warren Dimmig BEING DULY SWORN, ACCORDING TO LAW, DEPOSE AND SAY THAT I (AM THE APPLICANT) (AM AN OFFICER OR OFFICIAL OF THE APPLICANT) (HAVE THE AUTHORITY TO MAKE THIS APPLICATION) AND THAT THE PLANS, REPORTS AND DOCUMENTS SUBMITTED AS PART OF THE APPLICATION ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

SWORN AND SUBSCRIBED TO BEFORE ME THIS 5th DAY OF June, 1978

Dorothy C. McClarken
NOTARY PUBLIC

JUN 8 1978

X H. Warren Dimmig
SIGNATURE OF APPLICANT OR RESPONSIBLE OFFICIAL

NOTARY PUBLIC
MONTGOMERY COUNTY
MY COMMISSION EXPIRES FEB 8, 1982

THE SECTION BELOW IS TO BE COMPLETED BY THE PERSON AUTHORIZED BY THE APPLICANT TO PREPARE THIS APPLICATION. NOTE: SEWERAGE, INDUSTRIAL WASTE, AND MINE DRAINAGE APPLICATIONS REQUIRE A REGISTERED PROFESSIONAL ENGINEER, EXCEPT THAT A REGISTERED SURVEYOR IS ACCEPTABLE WHERE PUBLIC HEALTH AND SAFETY ARE NOT INVOLVED.

NAME OF DESIGN PERSON AND FIRM	
Clifford T. Stout, P.E.. Herbert H. Metz, Inc.	
MAILING ADDRESS: 410 Derstine Ave., Lansdale, Pa.	TELEPHONE NO. 855-3111
AGREEMENT DATE: 6-5-78	SIGNATURE OF DESIGN ENGINEER (OR OTHER): Clifford T. Stout

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL SEAL
CLIFFORD T. STOUT
ENGINEER No. 26386-E

ER-BWQ-166.1 REV. 3/75

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED 6-5-78
DATE REVISED

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

APPLICANT Upper Gwynedd-Towamencin Municipal Authority

LOCATION OF PROJECT: MUNICIPALITY Towamencin Township COUNTY Montgomery

DESIGN ENGINEER AND FIRM Clifford T. Stout, P.E. - Herbert H. Metz, Inc.

DESIGN ENGINEERS ADDRESS 410 Derstine Avenue Lansdale, PA ZIP CODE 19446 TELEPHONE 215-855-3111

DESCRIPTION OF PROJECT Sanitary Sewer Extension Systems - Hunter Construction Company Subdivision "Hunter Meadows" - to serve 15 - planned single family residential dwelling lots

A. DOCUMENTATION REQUIRED

1. HAS A CHECK FOR $25.00, PAYABLE TO THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES, BEEN INCLUDED? (NOT REQUIRED OF STATE OR FEDERAL AGENCIES) — [X] Yes [ ] No [ ] N/A

2. HAVE 2 COPIES OF THE APPLICATION, FORM H710.046, BEEN SUBMITTED? (3 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND DELAWARE RIVER BASIN). — [X] Yes [ ] No

A. HAS THE AFFIDAVIT BEEN PROPERLY COMPLETED AND EXECUTED? — [X] Yes [ ] No

3. DOES THE APPLICATION INCLUDE THE FOLLOWING APPLICABLE MODULES:

MODULE NUMBER	TITLE	NUMBER OF PAGES	
1	GENERAL INFORMATION – SEWERAGE	9	[X] Yes
4	WASTE LOAD AND CHARACTERISTICS	3	[ ] Yes
5	GEOLOGY AND GROUND WATER INFORMATION	2	[ ] Yes
6	SEWERS AND APPURTENANCES	5	[X] Yes
7	SEWAGE PUMPING STATIONS	4	[ ] Yes
8	PUMPING FACILITIES	1	[ ] Yes
9	FLOW EQUALIZATION AND STORAGE BASINS	2	[ ] Yes
10	GRIT CHAMBERS	1	[ ] Yes
11	SCREENING AND COMMINUTING DEVICES	2	[ ] Yes
12	IMHOFF AND SEPTIC TANKS	2	[ ] Yes
13	SETTLING TANKS	2	[ ] Yes
14	EARTHEN SETTLING BASINS	2	[ ] Yes

ER-BWQ-188.1 REV. 3/78

DATE PREPARED

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

A. DOCUMENTATION REQUIRED – CONTINUED

THIS SHEET NOT APPLICABLE

MODULE NUMBER	TITLE	NUMBER OF PAGES	
15	TRICKLING FILTERS	2	☐ Yes
16	AERATION TANKS OR BASINS	3	☐ Yes
17	WASTE STABILIZATION PONDS	3	☐ Yes
18	CHEMICAL TREATMENT (INCLUDING FEEDERS)	3	☐ Yes
19	MIXING AND FLOCCULATION FACILITIES	1	☐ Yes
20	SAND FILTERS	2	☐ Yes
21	DISINFECTION	2	☐ Yes
22	SPRAY IRRIGATION	1	☐ Yes
23	PHYSICAL ABSORPTION, ION EXCHANGE, AND CONTACT UNITS	2	☐ Yes
25	DEEP WELL DISPOSAL	4	☐ Yes
26	SLUDGE TREATMENT AND DISPOSAL		
	A. SEPARATE DIGESTION TANKS AND SLUDGE THICKENING TANKS	2	☐ Yes
	B. ELUTRIATION	1	☐ Yes
	C. WET OXIDATION	1	☐ Yes
	D. SLUDGE DRYING BEDS	1	☐ Yes
	E. LAND DISPOSAL OF SLUDGE	1	☐ Yes
	F. SLUDGE BASINS	1	☐ Yes
	G. FILTERS AND CENTRIFUGES	1	☐ Yes
	H. INCINERATION	1	☐ Yes

B. REQUIRED DATA

1. THE FRONT COVER OR FLYLEAF OF EACH SET OF DRAWINGS AND SPECIFICATIONS MUST BEAR THE SIGNATURE AND SEAL OF THE REGISTERED PROFESSIONAL ENGINEER, SURVEYOR BY OR UNDER WHOM PREPARED. EACH DRAWING MUST BEAR AN IMPRINT OR REASONABLE FACSIMILE OF SUCH SEAL.

PA-BWQ-188.1 REV. 3/78

DATE PREPARED

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

B. REQUIRED DATA – CONTINUED

2. INFORMATION RELATIVE TO SPECIFIC PROGRAMS:

A. 2 COPIES OF DESIGNER'S PLANS, MODULES, AND SPECIFICATIONS (3 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND DELAWARE RIVER BASIN) — YES

B. HYDRAULIC PROFILE OR SCHEMATIC FLOW DIAGRAM FOR PROPOSED TREATMENT PLANT. — ☒ N/A

C. UNITED STATES GEOLOGICAL SURVEY TOPOGRAPHICAL MAP SHOWING EXACT POINT OF DISCHARGE AND TREATMENT PLANT OR PUMP STATION LOCATION AND/OR AREA TO SEWERS. — ☒ N/A

D. HAVE YOU APPLIED FOR A PUBLIC UTILITY COMMISSION CERTIFICATE OF PUBLIC CONVENIENCE? — ☐ Yes ☐ No ☒ N/A

(1) SPECIFY PUBLIC UTILITY COMMISSION APPLICATION NUMBER _____

(2) IS CERTIFICATE OF PUBLIC CONVENIENCE ENCLOSED? — ☐ Yes ☐ No

E. HAVE YOU APPLIED FOR APPROVAL OF STREAM ENCROACHMENT(S)? — ☒ Yes ☐ No ☐ N/A

F. HAVE YOU APPLIED FOR DEPARTMENT OF LABOR AND INDUSTRY APPROVAL FOR FEATURES AFFECTING EMPLOYEE SAFETY? — ☐ Yes ☐ No ☒ N/A

G. DO YOU HAVE AN AGREEMENT INDICATING APPROVAL TO DISCHARGE TO SEWER SYSTEM AND TREATMENT PLANT OF ANOTHER PERMITTEE? — ☐ Yes ☐ No ☒ N/A

H. HAVE YOU APPLIED FOR APPROVAL OF AIR POLUTION CONTROL FACILITIES? — ☐ Yes ☐ No ☒ N/A

I. HAVE YOU SUBMITTED A LIST WITH NAMES, ADDRESSES, AND TITLES OF ALL PARTNERS IN THE CASE OF A PARTNERSHIP OR ALL OFFICERS IN THE CASE OF A CORPORATION, UNINCORPORATED ASSOCIATION, INCORPORATED ASSOCIATION, PARTNERSHIP, OR OTHER ENTITY (NOT MUNICIPAL)? — ☐ Yes ☐ No ☒ N/A

3. SPECIFY THE FOLLOWING:

A. PLANS: Title Plans (TITLE/DESCRIPTION) NO. OF SHEETS 1 DATE 4/3/78

PLANS: Comprehensive Plan with Erosion & Sediment Control (TITLE/DESCRIPTION) NO. OF SHEETS 1 DATE 4/3/78

PLANS: Plan/Profiles & Detail Sheet (TITLE/DESCRIPTION) NO. OF SHEETS 5 DATE 4/3/78

ER-SWQ-188.1 REV. 3/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED

DATE REVISED

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

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B. REQUIRED DATA – CONTINUED

B. SPECIFICATIONS (IF APPLICABLE): Upper Gwynedd-Towamencin Municipal Authority
Reference specifications & pertinences TITLE
at filed at Pa. D.E.R. by U.G.T.M.A.

NUMBER OF VOLUMES _____ DATE _____

C. OTHER (SPECIFY TYPE AND NUMBER):

4. ARE THE PLANS:

A. CLEAR, LEGIBLE, AND DRAWN TO SCALE WITH NORTH ARROW INDICATED? [X] Yes [ ] No

B. WITHIN MAXIMUM SIZE OF 36 INCHES BY 50 INCHES? [X] Yes [ ] No

C. SEAL AND SIGNATURE OF PROFESSIONAL ENGINEER OR SURVEYOR RESPONSIBLE FOR THIS APPLICATION

1. SIGNATURE OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW) Clifford T. Stout

2. SEAL OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW)

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
CLIFFORD T. STOUT
SEAL
ENGINEER
No. 26386-E

ER-BWQ-188.1 REV. 3/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED

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WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

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CLASS OF CONSTRUCTION (Check all applicable blocks)

THIS SHEET NOT APPLICABLE

☐ NEW
☐ REPLACEMENT OF EXISTING UNIT(S)
☐ ADDITIONS AND/OR
☐ MODIFICATIONS TO EXISTING UNIT(S)

TABLE I – DESIGN LOADING DATA			Existing Facilities Design	Present Operating Load	Proposed Total Facilities Design
1. EQUIVALENT POPULATION TO BE SERVED (NO. OF PERSONS - SUBMIT CALCULATIONS)					
	A. DOMESTIC				
	B. INDUSTRIAL				
	C. TOTAL				
2. DESIGN YEAR OR PERIOD FOR OPERATING DATA					
3. RUNOFF PERIOD		(HRS)			
4. DOMESTIC WASTE FLOW DATA	A. PER CAPITA FLOW	(GPCD)			
	B. AVERAGE DAILY FLOW	(MGD)			
	C. INFILTRATION	(MGD)			
	D. RUNOFF FLOW RATE	(MGD)			
	E. MAXIMUM FLOW RATE	(MGD)			
5. INDUSTRIAL WASTE FLOW DATA	A. AVERAGE DAILY FLOW	(MGD)			
	B. MAXIMUM DAILY FLOW	(MGD)			
6. TOTAL DESIGN AVERAGE FLOW		(MGD)			

TABLE II – FACILITIES DESIGN DATA (Specify number of units)

Units	Existing	To Be Abandoned	Total Proposed	Units	Existing	To Be Abandoned	Total Proposed
1. SCREENING DEVICES				13. CHLORINE CONTACT TANK(S)			
2. GRIT CHAMBER(S)				14. DISINFECTION FACILITIES			
3. COMMINUTOR(S)				15. SEPARATE SLUDGE DIGESTORS			
4. PRE-AERATION TANKS				16. SLUDGE DRYING BEDS			
5. PRIMARY SETTLING TANKS				17. MECHANICAL SLUDGE DEWATERING			
6. IMHOFF TANK(S)				18. SLUDGE ELUTRIATION TANKS			
7. TRICKLING FILTERS				19. SLUDGE STABILIZATION TANKS			
8. INTERMEDIATE SETTLING TANKS				20. INCINERATOR(S)			
9. AERATION TANKS				21. MIXING AND FLOCCULATION TANKS			
10. FINAL SETTLING TANKS				22. OTHER (Specify)			
11. INTERMITTENT SAND FILTERS				23. OTHER (Specify)			
12. WASTE STABILIZATION POND(S)				24. OTHER (Specify)			

ER-BWQ-188.1 REV. 3/73

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED

DATE REVISED

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

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D. GENERAL INFORMATION

1. EXISTING COMBINED SEWERS MAKE UP 0 % OF THE TOTAL AREA SERVED BY THE SYSTEM.

2. ARE THE EXISTING SANITARY SEWERS SUBJECT TO EXCESSIVE INFILTRATION? [X] Yes [ ] No [ ] N/A
Some Sections

A. IF YES, SPECIFY MAJOR SOURCES OF INFILTRATION: Top brick courses in manholes in Old Inglewood Area - See Liptak report of 2/16/73 - filed with E.P.A. for correction

B. HAS A REGULATION PROHIBITING THE ADMITTANCE OF STORM WATER FROM PAVEMENTS, ROOFS, AND OTHER SOURCES BEEN ADOPTED? [X] Yes [ ] No
(IF YES, ENCLOSE COPY.) See enclosed Exhibit "A"; also refer to U.G.T.M.A. Rates, Rules & Regulations, Constr. Spec. & National Plumbing Code

C. SPECIFY STEPS TAKEN OR BEING TAKEN TO CORRECT THE INFILTRATION PROBLEM, INCLUDING DATES: [ ] N/A
See aforementioned Liptak Report of 2/16/73

3. TYPES OF INDUSTRIAL WASTES OF SPECIAL CONSIDERATION: N/A

4. WILL THE APPLICANT BE RESPONSIBLE FOR REPAIR AND MAINTENANCE OF SEWAGE FACILITIES FOR WHICH APPLICATION IS SUBMITTED? [X] Yes [ ] No

A. IF NO, EXPLAIN: Following construction inspection, testing & acceptance in Authority system

6. THE DISTANCE OF THIS PLANT TO THE NEAREST OCCUPIED DWELLING: N/A

A. PRESENT _____ FEET

B. PROPOSED _____ FEET

6. IF THE APPLICANT IS OTHER THAN A MUNICIPALITY OR MUNICIPAL AUTHORITY, HAS THE GOVERNING MUNICIPALITY OBJECTED TO THE PROPOSED SEWAGE TREATMENT PLANT? [ ] Yes [ ] No [X] N/A

EH-BWQ-188.1 REV. 3/75

DATE PREPARED

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

D. GENERAL INFORMATION – CONTINUED

THIS SHEET NOT APPLICABLE

A. IS THE LETTER FROM MUNICIPAL OFFICER, SIGNIFYING THE OPINION, APPENDED TO THIS APPLICATION? ☐ Yes ☐ No

7. ARE DUPLICATE TREATMENT UNITS PROVIDED WHERE REQUIRED? ☐ Yes ☐ No ☐ N/A

A. IF NO, EXPLAIN: _____

8. DO ANY BY-PASS STRUCTURES DISCHARGE TO WATERS OF THE COMMONWEALTH? (SPECIFY PLAN SHEET NUMBER(S) SHOWING BY-PASS STRUCTURES) ☐ Yes ☐ No

8. HAS AN AUXILIARY STANDBY POWER SOURCE BEEN PROVIDED? ☐ Yes ☐ No ☐ N/A

9. DOES ANY PIPING OR CONNECTION EXIST IN ANY PART OF THE TREATMENT WORKS WHICH MAY CAUSE CONTAMINATION OF THE POTABLE WATER SUPPLY? ☐ Yes ☐ No

10. IF A NON-POTABLE WATER SUPPLY IS PROVIDED, ARE ALL OUTLETS PERMANENTLY POSTED TO INDICATE WATER IS NOT SAFE FOR DRINKING? ☐ Yes ☐ No ☐ N/A

11. ARE FACILITIES PROVIDED FOR MEASURING THE SEWAGE FLOW? ☐ Yes ☐ No

12. SAFETY:

A. ARE FACILITIES PROVIDED TO EFFECTIVELY PROTECT THE OPERATOR AND VISITORS? ☐ Yes ☐ No

13. OUTFALL SEWER:

A. IS THE OUTFALL SEWER ADEQUATELY PROTECTED TO ENSURE ITS STRUCTURAL STABILITY AND FREEDOM FROM STOPPAGE? ☐ Yes ☐ No

B. IS AN OUTFALL HEAD WALL PROVIDED? ☐ Yes ☐ No ☐ N/A

C. DOES THE OUTFALL EXTEND TO THE LOW WATER MARK OF THE RECEIVING STREAM? ☐ Yes ☐ No ☐ N/A

14. HAVE PROVISIONS BEEN MADE TO PROTECT ALL STRUCTURES AGAINST FLOTATION? ☐ Yes ☐ No

15. IF THE PROJECT INVOLVES ADDITIONS TO AN EXISTING TREATMENT PLANT, DO THE SPECIFICATIONS INCLUDE A PROGRAM TO PREVENT BY-PASSING OF ANY UNIT TO WATERS OF THE COMMONWEALTH DURING CONSTRUCTION? ☐ Yes ☐ No ☐ N/A

A. SPECIFY VOLUME AND PAGE NUMBER OF SPECIFICATIONS: _____

16. SPECIFY NAMES OF MUNICIPALITIES AND POPULATION SERVED OR TO BE SERVED BY THIS PLANT: _____

ER-BWQ-188.1 REV. 3/75

DATE PREPARED

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

E. RECEIVING STREAM* THIS SHEET NOT APPLICABLE

1. WHAT IS THE NAME OF THE RECEIVING STREAM? _____

A. TRIBUTARY OF _____

B. TRIBUTARY OF _____

C. MAJOR DRAINAGE BASIN:

- ☐ DELAWARE
- ☐ SUSQUEHANNA
- ☐ POTOMAC
- ☐ LAKE ERIE
- ☐ GENESEE
- ☐ ALLEGHENY
- ☐ MONONGAHELA
- ☐ OHIO

2. DESCRIBE THE EXACT POINT OF DISCHARGE:

_____ DEG, _____ MIN, _____ SEC LATITUDE

_____ DEG, _____ MIN, _____ SEC LONGITUDE

A. WATERSHED AREA ABOVE POINT OF DISCHARGE IS

_____ SQUARE MILES.

3. WHAT IS THE:

A. MINIMUM 7-CONSECUTIVE-DAYS FLOW OCCURRING ONCE IN 10 YEARS?

_____ CUBIC FEET PER SECOND.

B. MINIMUM STREAM FLOW: _____

C. ABOVE FLOWS ARE BASED ON:

- ☐ MEASUREMENTS
- ☐ ESTIMATES

_____ YEARS OF RECORD

4. IS THE TREATMENT PLANT SUBJECT TO FLOODING? ☐ Yes ☐ No

5. THE PROBABILITY OF THE TREATMENT PLANT BEING OUT OF SERVICE DUE TO FLOODING IS ONCE IN _____ YEARS.

A. LIST BRIEFLY THE METHODS USED FOR FLOOD PROTECTION: _____

* *Attach U.S. Geological Survey 7.5' or 15' Quadrangle Map showing exact points of discharge.*

ER-BWQ-188.1:REV. 3/78

DATE PREPARED

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

E. RECEIVING STREAM – CONTINUED

THIS SHEET NOT APPLICABLE

6. TO THE BEST OF YOUR KNOWLEDGE, WILL THE TREATED WASTE DISCHARGE ADVERSELY AFFECT:

A. DOMESTIC WATER SUPPLY?	☐ Yes	☐ No
B. BATHING?	☐ Yes	☐ No
C. STOCK WATERING?	☐ Yes	☐ No
D. FISH AND AQUATIC LIFE?	☐ Yes	☐ No
E. INDUSTRIAL WATER SUPPLY?	☐ Yes	☐ No
F. IRRIGATION?	☐ Yes	☐ No
G. BOATING AND AESTHETICS?	☐ Yes	☐ No

7. IF ANY ITEMS IN 6 ABOVE ARE ANSWERED YES, INDICATE DISTANCE TO, LOCATION OF, AND EXTENT OF ADVERSE EFFECT:

_____

_____

_____

_____

ER-RWQ-188.6:REV. 3/75

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: 6-5-78
DATE REVISED:

WATER POLLUTION CONTROL

For Department Use Only

MODULE 6 – SEWERS AND APPURTENANCES

CLASS OF CONSTRUCTION (Check All Applicable Blocks)
[X] NEW SYSTEM
[ ] REPLACEMENT OF EXISTING SYSTEM
[X] EXTENSION(S) TO EXISTING SYSTEM

TABLE I – DESIGN FLOW AND LOADING INFORMATION

	INITIAL	DESIGN	DESIGN YEAR
1. POPULATION TO BE SERVED	52.5	59.5	1979
2. AREA TO BE SERVED	ACRES (INITIAL) 11.497		
TYPE OF AREA (Residential, Commercial, Etc.) Residential	ACRES (FUTURE) 11.497 + negl. acreage (2 edu's)		
3. A. LATERALS AND SUB MAIN SEWERS (GPCD)	400		
B. MAIN AND TRUNK SEWERS (GPCD)	N.A.		
C. INTERCEPTORS (GPCD)	N.A.		
(1) MEASURED DRY WEATHER FLOW (%)	N.A.		
(2) ESTIMATED DRY WEATHER FLOW (%)	N.A.		
D. IF ANY VALUES LESS THAN PRESCRIBED IN MANUAL EXPLAIN			

4. DESIGN FLOW DATA	GPCD	MGD
A. AVERAGE DAILY FLOW	100	.006
B. INFILTRATION		included in "A"
C. MAXIMUM INDUSTRIAL WASTE FLOW		N.A.
D. TOTAL DESIGN FLOW		.006
E. MAXIMUM FLOW RATE		(.0238)

TABLE II – GENERAL DESIGN

@ a.f. .4% - approx. 0.45MGD

PIPE DIAMETER (IN.)	MINIMUM SLOPE (%)	MAXIMUM SLOPE (%)	MAXIMUM VELOCITY (FPS)	MAXIMUM FLOW (MGD)	MAXIMUM DISTANCE BETWEEN MANHOLES (FT.) SEWERS 15 IN. OR LESS	MAXIMUM DISTANCE BETWEEN MANHOLES (FT.) SEWERS 18 IN. TO 30 IN.	TYPE OF SEWER MATERIAL	"n" VALUE
8"	0.5%	9.0	10.8	2.4*	400	N/A	ACP	.013

*Full Flow

(USE ADDITIONAL SHEETS IF NECESSARY)

TABLE III – CRITICAL DATA NO CRITICAL SECTIONS

PLAN SHEET NUMBER	MANHOLE NUMBER FROM	MANHOLE NUMBER TO	SEWER PIPE SIZE (IN.)	SEWER SLOPE (%)	POPULATION SERVED	TOTAL DESIGN FLOW (MGD)	SEWER FLOWING FULL VEL. (FPS)	SEWER FLOWING FULL CAP. (MGD)	MAXIMUM FLOW VELOCITY (FPS)

FRM-BWQ-188.6:REV. 3/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED

DATE REVISED

WATER POLLUTION CONTROL

MODULE 6 – SEWERS AND APPURTENANCES

For Department Use Only

A. GENERAL DESIGN

1. ARE THE PROPOSED SEWERS DESIGNED AS SEPARATE SANITARY SEWERS? [X] Yes [ ] No

   A. IF NO, EXPLAIN IN DETAIL, INCLUDING THE POSSIBLE EFFECTS UPON WATER COURSES.

2. ARE THE PROPOSED SEWERS DEEP ENOUGH TO SERVE ALL ADJACENT BASEMENTS? [X] Yes [ ] No

   A. IF NO, EXPLAIN.

3. ARE THERE ANY OVERFLOWS OR BYPASSES OTHER THAN FROM PUMP STATIONS? [ ] Yes [X] No

   A. IF YES, SPECIFY PLAN SHEET(S) WHERE SHOWN

4. WHERE SMALLER SEWERS JOIN LARGER ONES, HAVE THE INVERTS OF THE LARGER SEWERS BEEN LOWERED SUFFICIENTLY TO MAINTAIN THE SAME ENERGY GRADIENT? [X] Yes [ ] No [ ] N/A

5. SPECIFY THE TYPE OF LEAKAGE TEST (INFILTRATION AND/OR EXFILTRATION) AND THE LIMIT TO BE USED, PREFERABLY IN TERMS OF GALLONS PER INCH OF PIPE DIAMETER PER MILES PER DAY. (INDICATE VOLUME AND PAGE NUMBER OF SPECIFICATIONS.)

   TYPE AND LIMITS: Infiltration/Exfiltration - Not to exceed 200 gallons per inch pipe diameter per day per mile of sewer

6. HAVE PROVISIONS BEEN MADE TO PROTECT SEWERS AT VELOCITIES OF OVER 15 FEET PER SECOND? [ ] Yes [ ] No [X] N/A

   A. ARE SEWERS SECURED WITH CONCRETE ANCHORS (OR EQUAL) SPACED AS REQUIRED? [ ] Yes [ ] No [X] N/A

7. ARE MANHOLES PROVIDED AT ALL CHANGES IN SIZE, GRADE, ALIGNMENT, AND SEWER INTERSECTIONS? [X] Yes [ ] No

8. ARE DROP MANHOLES PROVIDED WHERE THE ENTRANCE SEWER INVERT IS 24 INCHES OR MORE ABOVE MANHOLE INVERT? [X] Yes [ ] No

9. ARE WATERTIGHT COVERS USED WHERE MANHOLES ARE SUBJECT TO FLOODING BY STREET RUNOFF OR HIGH WATER? [X] Yes [ ] No

ER-BWQ-188.6:REV. 3/79

DATE PREPARED

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

For Department Use Only

MODULE 6 - SEWERS AND APPURTENANCES

A. GENERAL INFORMATION - CONTINUED

10. ARE SEWERS IN STREAMS PROTECTED WITH AT LEAST 1 FOOT COVER IN ROCK AND 3 FEET COVER IN OTHER MATERIAL? ☐ Yes ☐ No ☒ N/A

11. ARE SEWERS IN STREAMS CONSTRUCTED TO REMAIN WATERTIGHT AND IN ALIGNMENT? ☐ Yes ☐ No ☒ N/A

12. DOES THE APPLICATION INVOLVE CAPPED SEWERS? ☐ Yes ☒ No

A. IF YES, SPECIFY PLAN SHEET NUMBER _____

13. HOW MANY INVERTED SIPHONS ARE INCLUDED IN THIS DESIGN? N/A

14. IF SIPHONS ARE INCLUDED, SPECIFY THE FOLLOWING N/A

	SIPHON	SIPHON	SIPHON
A. NUMBER OF BARRELS			
B. MINIMUM PIPE SIZE			
C. MINIMUM VELOCITY AT AVERAGE FLOW			

D. HAS PROVISION BEEN MADE FOR FLUSHING, RODDING, AND MAINTENANCE? ☐ Yes ☐ No

15. IS THERE ANY CONNECTION BETWEEN THE SEWER AND A PUBLIC OR PRIVATE POTABLE WATER SUPPLY OR APPURTENANCES? ☐ Yes ☒ No

16. ARE ANY WATER SUPPLY SOURCES, PUBLIC OR PRIVATE, LOCATED WITHIN 200 FEET OF THE SEWERS? ☐ Yes ☒ No

A. IF YES, SPECIFY PLAN SHEET(S) ON WHICH SOURCES ARE SHOWN _____

B. IF YES, WILL SEWERS BE ENCASED OR WATERTIGHT? ☐ Yes ☐ No

✓17. ARE SEWERS AT LEAST 10 FEET HORIZONTALLY FROM WATER LINES AND/OR AT LEAST 18 INCHES BELOW THE WATER LINE? ☒ Yes ☐ No

18. IF THE PROPOSED FACILITY WILL DISCHARGE TO THE SEWER SYSTEM AND TREATMENT PLANT OF ANOTHER MUNICIPALITY, HAVE APPROPRIATE AGREEMENTS BEEN REACHED? ☐ Yes ☐ No ☒ N/A

A. IS THE AGREEMENT A CERTIFIED AGREEMENT? ☐ Yes ☐ No ☒ N/A

B. IS THE AGREEMENT A LETTER OF INTENT? ☐ Yes ☐ No ☒ N/A

C. HAVE DUPLICATE COPIES BEEN ENCLOSED? ☐ Yes ☐ No N/A

19. DO THE EXISTING SEWERS TO WHICH THE PROPOSED SEWERS WILL CONNECT HAVE ADEQUATE CAPACITY TO CONVEY THE ADDITIONAL FLOW? ☒ Yes ☐ No ☐ N/A

PA-BWQ-188.6 REV. 3/75

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED

DATE REVISED

WATER POLLUTION CONTROL

For Department Use Only

MODULE 6 – SEWERS AND APPURTENANCES

A. GENERAL INFORMATION – CONTINUED

☐ N/A

20 ON THE PLANS, INDICATE THE PERMIT NUMBER OF EXISTING SEWER AT EACH PROPOSED POINT OF CONNECTION AND THE NAME OF THE PERMITEE. SPECIFY PLAN SHEET NUMBER(S) ON WHICH INDICATED. Permit #765513

Plan Sheets #1 & #2; Profile 5

21 WILL THERE BE A PUMP STATION INVOLVED IN RECEIVING SEWAGE FROM THE SEWER EXTENSION? ☐ Yes ☒ No ☐ N/A

A. IF YES, SPECIFY PRESENT AND DESIGN FLOWS OF PUMPING STATION.

22 RECEIVING SEWAGE TREATMENT PLANT (FILL IN FOR EXTENSION(S) TO EXISTING SYSTEM ONLY)

A. OWNER OF PLANT Upper Gwynedd-Towamencin Municipal Authority

B. NAME OF PLANT Upper Gwy.-Tow. Mun. Auth. Wastewater Treatment Plant

C. DISCHARGE DATA

	WASTE FLOW (MGD)	SOLIDS: SUSPENDED (LB/DAY)	SOLIDS: SETTLEABLE (ML/L)	BOD 5 DAY 20 C (LB/DAY)
(1) ALLOWABLE LOAD TO STREAM AUTHORIZED UNDER PRESENT PERMIT	2.5 (1)	376	None Stated	
(2) PRESENT LOAD TO STREAM FROM TREATMENT PLANT	1.043 (2)	214	0.4	185
(3) ADDITIONAL LOAD TO STREAM EXPECTED DURING THE NEXT FIVE YEARS FROM EXISTING SYSTEM	.256 (3)	48	0.4	35
(4) ADDITIONAL LOAD TO STREAM DURING THE NEXT FIVE YEARS FROM PROPOSED EXTENSION	0.006	1	0.4	1
(5) TOTAL ANTICIPATED LOAD TO STREAM IN NEXT FIVE YEARS (2+3+4)	1.305	263	0.4	221

D. TREATMENT PLANT OPERATING EFFICIENCY

	SOLIDS: SUSPENDED (%)	SOLIDS: SETTLEABLE (%)	BOD 5 DAY 20 C (%)
(1) PRESENT TREATMENT PLANT	89	98	91
(2) AFTER INITIAL LOAD FROM PROPOSED EXTENSION	89	98	91
(3) IN FIVE YEARS	89	98	91

23 WILL THE LOAD UNDER 22.B.(5) ABOVE PRODUCE AN EFFLUENT THAT WILL HAVE AN ADVERSE EFFECT UPON THE RECEIVING STREAM? ☐ Yes ☒ No

Notes (1), (2), (3) - See Supplemental Sheet 6-4a.

4678437

SUPPLEMENTARY SHEET 6-4a.

NOTES - Re: 6-4 22.C

(1) 1.5 MGD former capacity, plus 1.0 MGD current expansion capacity = 2.5 MGD

(2) Avg. Daily Flow: Obtained by averaging 9 monthly operations reports' daily recorded flows from October 1976 thru August 1977.

(3) Includes incremental contributions for projected flows of recently approved.

a) DiLucia (Country Meadows) Subdivision Permit #4677404

b) Dougherty Brothers Subdivision Permit #4677415

c) Regent Manor Subdivision Permit #4677438

and contributions for projected flows of recently submitted

a) Hunter Villa Subdivision

FR-BWQ-188.6 REV. 3/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED

DATE REVISED

WATER POLLUTION CONTROL

MODULE 6 – SEWERS AND APPURTENANCES

For Department Use Only

A. GENERAL INFORMATION – CONTINUED N/A

A. IF YES, EXPLAIN

B. IF APPLICANT IS NOT OWNER OF THE RECEIVING SEWAGE TREATMENT PLANT, INDICATE SOURCE OF INFORMATION.

TO BE COMPLETED BY THE REGIONAL SANITARY ENGINEER

1. WILL THE LOAD UNDER 22.B.(5) MEET THE PERMIT REQUIREMENTS? ☐ Yes ☐ No

   A. WILL THE LOAD UNDER 22.B.(5) CAUSE POLLUTION OF THE RECEIVING STREAM? ☐ Yes ☐ No

2. IS THERE ANY QUESTION AS TO WHETHER THE LOAD IS NOW CAUSING OR WILL CAUSE POLLUTION? ☐ Yes ☐ No

   A. IF YES, COMPLETE A POLLUTION REPORT

3. IS THE TREATMENT PLANT IN COMPLIANCE? ☐ Yes ☐ No

3710.047 REV. 5-71

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
SANITARY ENGINEERING

4678437
For Department Use Only

INTERNAL REVIEW AND RECOMMENDATIONS

REGIONAL ENGINEER'S REVIEW

NAME OF APPLICANT: Upper Gwynedd-Towamencin Municipal Authority
PROJECT LOCATION: Towamencin Township Montgomery County
APPLICATION NUMBER: 4678437

BRIEF DESCRIPTION OF PROJECT: This application requests approval for the construction of a sanitary sewer extension to serve 15 new single family dwelling units in the Hunter Meadows Subdivision in Towamencin Township, Montgomery County. This project is located east of Wuarry Road, south of Keller Road. This application is being co-ordinated with an encroachment application for the storm sewer headwall and rip-rap.

DISCUSSION (Use Additional Sheets If Necessary): Sewage from the proposed sewer extension will be conveyed to the Upper Gwynedd-Towamencin Municipal Authority sewage treatment plant via existing Upper-Gwynedd Township sewers covered under permit no. 7655013. The final effluent will be afforded secondary treatment before discharge to the Towamencin Creek. The proposed sewer extension will serve 52.5 initially and 59.5 ultimately. The soil erosion and sedimentation control plan has been reviewed and approved by the Montgomery County Conservation District. The stormwater management aspects of the project were reviewed by the hydraulic engineer and appear to be adequate.

CURRENT ESTIMATE OF COMPLETION DATE OF PROJECT (Industrial Wastes Only)

RECOMMENDATION AND ACTION

APPROVAL – RELEVANT LAWS, REGULATIONS, STANDARDS, AND POLICIES HAVE BEEN COMPLIED WITH:

Issue By Region	Issue By Central Office	Refuse	Signature	Date
☑	☐	☐	Craig E Lasta — REVIEWING ENGINEER	6/30/78
☒	☐	☐	Allard F. Hicks — FACILITIES ENGINEER	7/14/78
☒	☐	☐	C T D — REGIONAL ENGINEER	7/19/78
	☐	☐	DIV. FACILITIES ENGINEER	
	☐	☐	DIVISION DIRECTOR	
		☐	BUREAU DIRECTOR	

PERMIT CONDITIONS:

1. STANDARD –
Sewerage (1972)
1 thru 9, 11 thru 14, 21, 22, 30 and 31
Erosion Control (1973)

2. SPECIAL (Use Additional Sheets If Necessary) –

Recording of permit: Montgomery County

File 10/20/78 L.L

75 Rev. 9/76

SEWERAGE

PERMIT NO. 4678437

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES

Location of Project: County Montgomery

Township Towamencin

ACCEPTANCE OF WATER OBSTRUCTION PERMIT

Gentlemen:

We hereby acknowledge receipt of your permit issued Hunter Construction Co.

in response to our application for permit for

the construction of a Storm Water Outfall
(Kind of Structure)

in, along or across Towamencin Creek
(Name of Stream)

, at (near) Hunter Meadows Subdivision

Keeler Road and Quarry Road

We hereby accept and agree to abide by and fulfill the terms and conditions therein imposed in carrying out the construction work therein authorized.

Benjamin Cairns, III
Name of Applicant

215 West Moreland Road
Address
Willow Grove, Pennsylvania

Benjamin Cairns III 19 78

SEP 13 1978

File 10/20/28 L.B.

ER-DWQ-7(i) Rev. 9/76

RECEIVED
SEP 8 1978
WATER QUALITY MANAGEMENT
REGIONAL OFFICE

SEWERAGE

PERMIT NO. 4678437

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES

Project Location: COUNTY Montgomery

TOWNSHIP Towamencin

ACKNOWLEDGMENT OF APPRISAL OF REQUIREMENTS OF PERMIT

Gentlemen:

Acknowledgment is made that I, Benjamin Cairns, III (Name),

representing Hunter Construction Company (Contractor · Engineer) have been apprised of and

are familiar with the provisions and conditions of Permit No. _____ issued to

Hunter Construction Company

for construction and maintenance of Hunter Meadows Subdivision

at (near) Towamencin Creek (Stream)

Benjamin Cairns, 1978

SEP 13 1978

ER-RWQ-15-Rev. 4/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT NO. 4678437

A. PERMITTEE: (Name and Address)
Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

B. PROJECT LOCATION
Municipality: Towamencin Township
County: Montgomery

C. TYPE OF FACILITY (For industrial wastes; type of establishment)
sanitary sewer extension

D. NAME OF MINE, PLANT, AREA SERVED, OUTFALL NO., ETC.
Hunter Meadows Subdivision

E. THIS PERMIT APPROVES:

1. Plans For Construction Of: a. [X] Sewers and Appurtenances b. [ ] Sewage Treatment Facilities c. [ ] Industrial Wastes Treatment Facilities d. [ ] Mine Drainage Treatment Facilities e. [ ] Outfall & Headwall f. [ ] Stream Crossing g. [ ] Impoundment

2. The Discharge Of: N/A a. [ ] Treated b. [ ] Untreated c. [ ] Sewage d. [ ] Industrial Wastes

3. Discharge To: a. [ ] Surface Water N/A
b. [ ] Ground Water
Name of Stream to which discharged or drainage area in which groundwater discharge takes place or impoundment is located.

4. The Operation of a Mine [ ] N/A
Maximum Area to be Deep Mined _____ Acres

5. An Erosion and Sedimentation Control Plan [X]
Project Area is 11.497 Acres

F. THIS APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:

1. ALL CONSTRUCTION, OPERATIONS, PROCEDURES AND DISCHARGE SHALL BE IN ACCORDANCE WITH APPLICATION NO. 4678437 DATED June 12, 1978 ITS SUPPORTING DOCUMENTATION, AND AMENDMENTS DATED 6/26 & 6/28/78 SUCH APPLICATION, ITS SUPPORTING DOCUMENTATION AND AMENDMENTS ARE HEREBY MADE A PART OF THIS PERMIT.

2. CONDITIONS NUMBERED 1 thru 9, 11 thru 14, 21, 22, 30 and 31 OF THE Sewerage STANDARD CONDITIONS DATED 1972, AND CONDITIONS NUMBERED 1 thru 20 inclusive _____ OF THE EROSION CONTROL STANDARD CONDITIONS DATED 1973 WHICH CONDITIONS ARE ATTACHED AND MADE PART OF THIS PERMIT.

3. SPECIAL CONDITIONS DESIGNATED _____ WHICH ARE ATTACHED AND ARE MADE A PART OF THIS PERMIT.

G. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. IF THERE IS A CONFLICT BETWEEN THE APPLICATION OR ITS SUPPORTING DOCUMENTS AND AMENDMENTS AND THE STANDARD OR SPECIAL CONDITIONS, THE STANDARD OR SPECIAL CONDITIONS SHALL APPLY.

2. FAILURE TO COMPLY WITH THE RULES AND REGULATIONS OF THE DEPARTMENT OR WITH THE TERMS OR CONDITIONS OF THIS PERMIT SHALL VOID THE AUTHORITY GIVEN TO THE PERMITTEE BY THE ISSUANCE OF THE PERMIT.

3. THIS PERMIT IS ISSUED PURSUANT TO THE CLEAN STREAMS LAW, ACT OF JUNE 22, 1937, P.L. 1987, AMENDED 35 P.S. § 691.1 ET SEQ. AND/OR THE WATER OBSTRUCTION ACT, ACT OF JUNE 25, 1913, P.L. 955 AS AMENDED 32 P.S. § 681 ET SEQ. ISSUANCE OF THIS PERMIT SHALL NOT RELIEVE THE PERMITTEE OF ANY RESPONSIBILITY UNDER ANY OTHER LAW. This permit must be recorded in the Office of the Recorder of Deeds in Montgomery County.

DEPARTMENT OF ENVIRONMENTAL RESOURCES
PERMIT ISSUED
SEP 5 1978

DATE AUG 31 1978

BY C.T. Beechwood

C.T. Beechwood
TITLE Regional Sanitary Engineer

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
Norristown, Pennsylvania 19401
215 631-2405

August 31, 1978

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: H. Warren Dimmig
Chairman

Re: Sewerage Permit No. 4678457
Hunter Meadows Subdivision
Towamencin Township, Montgomery County

Gentlemen:

Above referenced permit is enclosed.

Please study the permit carefully and direct any questions to the Facilities Section of this office.

To become operative this permit must be recorded in the Office of the Recorder of Deeds in the county in which the discharge is located. Enclosed is a certificate and pre-addressed envelope for this purpose. Please have the Recorder of Deeds accomplish the certificate and return it within ten (10) days.

Very truly yours,

C.T. Beechwood

C.T. Beechwood
Regional Sanitary Engineer

Enclosures: Permit
Standard Conditions Relating to Sewerage
Standard Conditions Relating to Erosion Control
Recorder of Deeds Certificate with envelope
Notary Public Certificate
Occupational Health Comments

cc: Herbert H. Metz, Inc.
Ce Re 30

CTB/JAP/lm

ER-BWQ-68 Rev. 4-73

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446
Permit No. 4678437
Towamencin Township
Montgomery County

Commonwealth of Pennsylvania
Department of Environmental Resources

RECORDER OF DEEDS CERTIFICATE

I hereby certify that on SEP 14 1978 (Date)

there was recorded in Book 4342

page 376 the sewerage permit issued

to Upper Gwynedd-Towamencin Municipal Auth.

bearing date of Aug. 31, 78

Carla A. Hoie
Rec. Recorder of Deeds for

Montgomery County

ER-BWQ-68 Rev. 4-73

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Kulpsville, PA 19443
Permit No. 4678455
Towamencin Township
Montgomery County

Commonwealth of Pennsylvania
Department of Environmental Resources

RECORDER OF DEEDS CERTIFICATE

I hereby certify that on 10-26-78 (Date)

there was recorded in Book Deed 4355

page 310 the sewerage permit issued

to Upper Gwynedd - Towamencin Mun. Auth.

bearing date of 10-19-78

Loretta D. Bradbury
Dep. Recorder of Deeds for

Montgomery County

ER-BWQ-69 Rev. 4-73

STATE OF PENNSYLVANIA }
COUNTY OF MONTGOMERY } SS

On the 31st day of August in the year one thousand nine hundred and seventy eight before me, the Subscriber, a Notary Public, came the above named

C. T. Beechwood

and duly acknowledged the foregoing permit to be his act and deed and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year aforesaid.

Wilbur P. Stender
NOTARY PUBLIC

WILBUR P. STENDER, Notary Public
Norristown Boro, Montg. Co.
My Commission Expires Nov. 2, 1981

ER-EPR-1:2/74

Form No. 1

Application Nos.: 4678728

SUBJECT: HUNTER CONSTRUCTION COMPANY CONTACT: Loucky J. Colavita, President
215 W. Moreland Road
Willow Grove, PA 19090

New Proposal	
Revised Proposal	

FROM ~~TO~~
TO ~~FROM:~~ Regional Coordinator NORRISTOWN 7/18/78
Division of Dams and Encroachments
P.O. Box 2063, Harrisburg, PA 17120

On June 26, 1978, we received an application for plan approval and/or permit to construct a storm endwalls. The proposed installation involves:

To construct two (2) storm pipe outfalls with flared end sections in the Kulpsville/Hatfield Branch (and its tributary) of Towamencin Creek, Towamencin Township, Montgomery County.

4675437
USPS-Sargent - Towamencin

Permit Coordination Requirements: Chapter Radio F. Forwarded

DATE: 7/18/78	No Permit Required	No Permit Required Prior Approval Required	Permit Required Application on Hand	Permit Required Application Needed
Air Quality	✓			
Water Quality D+E Dams			D.E Dams	
Land Protection	✓			
Community Env. Control	✓			
Occupational Health	✓			
Surface Mine Reclamation	✓			
Radiological Health	✓			

Please indicate your interest on this form and return to the Coordinator by 7/20/78

OA-501 12-57 COMMONWEALTH OF PENNSYLVANIA

SUBJECT: Application No.4678437
Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

TO:

FROM:

The following are comments from the Bureau of Occupational Health relating to the above application.

Employees of private contractors are subject to regulations of the federal Occupational Safety and Health Administration whereas employees of state and local government related agencies are subject to regulations of the Commonwealth.

The contract should include a clause that all work on the project must be done in compliance with State and Federal occupational health and safety regulations.

Occupational health requirements applicable to the project are as follows.

If rock drilling machinery is used, it must be equipped with an integral water or exhaust ventilation dust suppression device.

Potential noise exposures should be evaluated and control measures and medical programs (audiometric tests) implemented as necessary.

Potential dust exposures should be evaluated and control measures and medical programs (chest X-ray examinations) implemented as necessary.

Where confined spaces (manholes, etc.) must be entered, the atmosphere must be tested for combustible gases (as a minimum) and mechanical ventilation used prior to entry and during occupancy. A worker must also be stationed outside the confined space to offer assistance should a problem occur. Procedures for confined space entry must be submitted to the Department where the employer is subject to Commonwealth regulations.

Lasers used for alignment work must be registered with the Department and any injuries resulting from the use of lasers must be reported.

Cc Re 30

1875 New Hope Street
Norristown, Pennsylvania 19401
215 631-2402

June 16, 1978

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: Mr. H. Warren Dimmig

Re: Application No. 4678437
Towamencin Township
Montgomery County

Gentlemen:

This will acknowledge receipt of your application on June 8, 1978 for approval to construct a sewer extension to serve Hunter Meadows Subdivision in Towamencin Township, Montgomery County.

The material submitted is accepted for technical review by the staff of the Department.

In addition to the above application, an encroachment application must be submitted for the two (2) storm sewer outfalls to the streams. Application forms and instructions are enclosed in the engineer's copy of this letter.

All applications must be submitted as soon as possible so that they can be processed concurrently. No permits will be issued until processing is completed on all required applications. The permits will be issued simultaneously from this office.

You are reminded that any proposed facilities cannot be constructed without first obtaining the required permits.

Very truly yours,

Leon T. Gonshor
Regional Director

cc: Facilities
Program Services
Dams & Encroachments
Herbert H. Metz, Inc.

LTG/lm

Form No. 1

Application Nos.: 4678437

New Proposal	X
Revised Proposal	

SUBJECT: Sewerage — CONTACT: Upper Gwynedd-Towamencin Municipal Authority
Towamencin Twp.
Montgomery County — 2225 Kriebel Road
Lansdale, Pa. 19446
Appl: 855-8165 Engr: 855-3111

TO: Regional Director L. GONSHOR

FROM: R. HINKLE

On 6-8-78, we received an application for plan approval and/or permit to construct a Sewer extension. The proposed installation involves:

SS Ext to serve Hunter Meadows Subdivision in Towamencin Township, Montgomery County
Outfall to Upper Gwynedd-Towamencin STP

Permit Coordination Requirements: Coord. w/ DE — Storm Sewer headwalls
Cit Comments to be incorporated in Review

	No Permit Required	No Permit Required Prior Approval Required	Permit Required Application on Hand	Permit Required Application Needed
TO DATE 6/14/78				
Air Quality	✓			
Water Quality D+E Does			✓ (12) 6/9	✓ (12) D+E 6/9
Land Protection	✓			
Community Env. Control	✓	7/18/78 - AMENDED - Coord. w/ NPDES No. 461 HUNTER Const. Co.		
Occupational Health	See note			
Surface Mine Reclamation	—			
Radiological Health	—			

Please indicate your interest on this form and return to the Director by 6/16/78

D.S.

ER-EPR-1-Rev. 7/77

Form No. 1

Application Nos.: 4678437

SUBJECT: Sewerage — CONTACT: Upper Hanover-Towamencin Municipal Authority, 2225 Kriebel Road, Lansdale, Pa. 19446

Towamencin Twp. — Montgomery County

New Proposal	X
Revised Proposal	

TO: Regional Director L. CONSHOR Appl: 855-3165 Engr: 855-3111

FROM: R. HINKLE

On 6-8-78, we received an application for plan approval and/or permit to construct a Sewer extension. The proposed installation involves:

SS Ext. to serve Hunter Meadows Subdivision in Towamencin Township, Montgomery County, owned by Upper Hanover-Towamencin STP

Permit Coordination Requirements: Corps. Re. DE — Stream Encroachment

On Comments To Be Incorporated In Permit

Date 6/14/78	No Permit Required	No Permit Required Prior Approval Required	Permit Required Application on Hand	Permit Required Application Needed
Air Quality	✓			
Water Quality DE			✓ 6/9	✓ 6/9
Land Protection	✓			
Community Env. Control	✓			
Occupational Health		✓		
Surface Mine Reclamation	—			
Radiological Health	—			

Please indicate your interest on this form and return to the Director by 6/16/78

ER – EP

START

DEPARTMENT OF ENVIRONMENTAL RESOURCES

ENVIRONMENTAL PROTECTION

START

BUREAU / PROGRAM Water Quality Management

DIVISION

COUNTY / MUNICIPALITY 46949

PROGRAM Sew

CASE NAME Upper Gwynedd-Towamencin Municipal Authority

FILE

PERMIT NO. 4678444 Ralph's Super Market

AGREEMENT BETWEEN HATFIELD TOWNSHIP,
HATFIELD TOWNSHIP MUNICIPAL AUTHORITY,
TOWAMENCIN TOWNSHIP and UPPER GWYNEDD-
TOWAMENCIN MUNICIPAL AUTHORITY

WHEREAS, there are certain areas located in Hatfield Township, along Welsh Road, including the Haines Tract, more particularly set forth in a Plan thereof made by Henry S. Conrey, Inc., dated Nov. 8, 1977 attached hereto and made a part hereof, which flow, by gravity, into the Upper Gwynedd-Towamencin Municipal Authority sewer area; and

WHEREAS, it is proposed that Hatfield Township Municipal Authority and Hatfield Township, assign this area of Hatfield Township's Sewer Capacity to Upper Gwynedd Towamencin Municipal Authority in order to facilitate gravitational flow and sewer treatment and to promptly initiate sewer coverage for the existing homes along Welsh Road, as more particularly set forth in said Plan; and

WHEREAS, all parties to the Agreement desire to spell out the procedure of facilitating the installation of sewers along Welsh Road.

NOW, THEREFORE, THIS AGREEMENT WITNESSETH, that in consideration of the mutual covenants and promises and benefits to all parties, the parties agree as follows:

1. Hatfield Township and Hatfield Township Municipal Authority agree to assign the Towamencin Watershed portion in Hatfield Township, as set forth in the plan attached hereto and made a part hereof, to Towamencin Township and Upper Gwynedd-Towamencin Municipal Authority for purposes of [illegible] and

the boundaries of the District along the Northern border of such District i
said Authority is able to provide an alternate system for the collection of
treatment of waste waters which can be connected to existing lines in
Hatfield Township. In no event, however, may the District boundaries be
amended in such manner as to delete the properties in Hatfield Township
which front on Welsh Road.

The customers to be served in this watershed shall be
residential customers only except for Ralph's Supermarket located on Welsh
Road. Any waste other than domestic shall be reviewed by the parties in
each instance to determine pre-treating and other qualifications of such
for acceptance. The parties agree that as the customers within Hatfield
Township connect to the sewer collection lines, they shall be billed
annual sewer rental by Hatfield Township Municipal Authority at such rate
as Hatfield Township Municipal Authority shall determine from time to time.
Subject to qualifications set forth below, Hatfield Township Municipal
Authority agrees to remit to Towamencin Township, on January 31st and
July 31 of each year, an amount equal to the Towamencin Township sewer
rate in effect from time to time for similar customers, plus Fifteen
Dollars per customer, in order to cover capital reduction cost relating
expenses of Towamencin Township. In no event shall the amount re-
mitted to Towamencin Township for residential customer exceed the
prevailing annual sewer rental rate charged to the Hatfield Township
Municipal Authority to its own equivalent customers.

3. The parties shall establish a mutually acceptable, uniform assessment rate, in conformity with the recommendations of their respective engineers. Hatfield Township Municipal Authority shall pay, in full, to Towamencin Township a sum equal to all assessments within Hatfield Township, as collected and remitted within one year of certification of completion of the project by the Towamencin Township Engineer, who shall be responsible for the inspection and certification of the lines, the entire assessment in full.

4. Hatfield Township Municipal Authority agrees to remit to Towamencin Township, the connection fees normally collected by Hatfield Township Municipal Authority from customers connected to the Welsh Road lines. Said sums shall be applied by Towamencin Township to the sewer construction costs, so that there can be a corresponding reduction in the appropriate assessment rate.

5. The proposed sewer lines shall be constructed, owned and maintained by Towamencin Township regardless of the location of the lines, within or immediately adjacent to the right-of-way of Welsh Road.

6. Each party shall have the right to file assessment and/or sewer rental liens against customers connected to this lines, based upon the Municipal boundaries within which the customer is located.

7. The contemplated project shall be completed within three (3) years from the date of execution of this Agreement. Contemporaneously with the execution of this Agreement, the Owners and/or Developers of the Tract, within which trunk lines A, B, and C shall be installed, shall present Towamencin Township with a letter of credit, approved by Solicitors of the parties hereto, in the sum of Seventy-Nine Thousand Nine Hundred ($79,900) Dollars, which shall be drawn on a bank doing business in Montgomery County. Said letter of credit shall secure all parties that the trunk lines A, B, and C will be completed in accordance with the plans and specifications to be prepared by the Towamencin Township Engineer. In the event that trunk lines, A, B, and C are not completed in accordance with said plans and specifications, within the three (3) year time limit established in this paragraph, Towamencin Township shall have the right to draw down on the aforementioned letter of credit to the extent necessary to complete said lines as aforesaid. The amount of the aforementioned letter of credit represents an estimate of construction costs by the Towamencin Township engineer and the Owners and/or Developers of the Tract in which the trunk lines A, B, and C are to be installed. Owner and/or Developers shall be legally liable for the completion of said lines as aforesaid, even if the actual cost for the installation of said lines exceeds the amount secured by letter of credit. Towamencin Township agrees

to continually update construction cost estimates and Owner and/or Developer agree to add to the letter of credit any amount sufficient to reflect the then current construction costs, etc.

8. Towamencin Township agrees to bear the cost of properly maintaining the proposed sewer collection lines and trunk lines and will ensure compliance with this Agreement by Owner and/or Developers of the Tract in question.

9. The parties agree that any properties served within Hatfield Township as a result of this Agreement shall be bound by those ordinances, rules and regulations of Towamencin Township and/or Upper Gwynedd-Towamencin Municipal Authority relating to quality of waste, methods of connection, inflow and infiltration, etc. Hatfield Township Municipal Authority and Hatfield Township, if necessary, shall enact or cause to be enacted such ordinances and regulations or amendments thereto as may be necessary to effectuate fully the intent of this paragraph.

10. Towamencin Township agrees to reimburse, save harmless and indemnify Hatfield Township and Hatfield Township Municipal Authority from any claim, loss, damage, or cost incurred by Hatfield Township or Hatfield Township Municipal Authority resulting from installation and maintenance of the sewer lines contemplated under this Agreement.

arbitration. In the event of a dispute, disagreement or difference of opinion concerning the provisions of this Agreement, the parties hereto agree that engineers from the respective parties shall meet in an effort to reach a mutually agreeable resolution of the dispute. Failing this, the parties agree to submit the dispute to the American Arbitration Association for decision by arbitration in accordance with appropriate rules and regulations of the American Arbitration Association. The parties agree that all administrative costs of the arbitration shall be borne equally by the parties participating in the arbitration, regardless of the ultimate outcome of the arbitration.

12. This Agreement shall be interpreted in accordance with the laws of the Commonwealth of Pennsylvania and may be modified only by a written document executed by all parties hereto.

IN WITNESS WHEREOF, the parties hereto have caused these presents to be duly executed, the day and year first above written.

HATFIELD TOWNSHIP

BY: _____

ATTEST: _____

HATFIELD TOWNSHIP MUNICIPAL AUTHORITY

BY: _____
Charles W. Sitol, III
Chairman

ATTEST: _____
Roy B. Love
Executive Director

BY:

ATTEST:

TOWAMENCIN TOWNSHIP

BY:

ATTEST:

UPPER GWYNEDD-TOWAMENCIN
MUNICIPAL AUTHORITY

BY:

ATTEST:

B;11
Gowan

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
1725 Markley Street, Norristown, PA 19401

January 10, 1978

RECEIVED
JUL 1 ^ 1978
WATER
NORRISTOWN REGIONAL OFFICE

Mr. Maynard King
Montgomery County Conservation District
One Montgomery Plaza, Court House
Norristown, PA 19404

Dear Mr. King:

Re: Ralph's Super Market
Hatfield Township

The Soil Erosion and Sedimentation Control Plan was reviewed by the Soil Conservation Service for Montgomery County Conservation District. Adequate erosion control measures, along with planned water management system for stormwater, will give effective control during and after construction. Plan content has the parts of a plan needed to control erosion as developed by the engineer. Detailed supervision of construction and maintenance needs to be a design engineer, along with township personnel responsible.

Erosion and Sedimentation Control Plan for Ralph's Super Market is adequate to control erosion both during and after construction.

Sincerely,

William T. Klages

William T. Klages
District Conservationist

WTK:ma
Enclosure

Re; 4678444

1875 New Hope Street
Norristown, Pennsylvania 19401
215 631-2402

August 22, 1978

Ralph's Supermarket
801 W. Main Street
Lansdale, PA 19446

Attention: Mr. Donald Hadrick
Manager

Re: Applications No. 46-301-204
Hatfield Township
Montgomery County

Gentlemen:

This will acknowledge receipt of your Air Quality Control and Solid Waste Management applications on August 8, 1978 for approval to construct a Comptro/Sunbeam Incinerator, Model No. A-24.

The material submitted is accepted for technical review by the staff of the Department.

In addition to the above, an application for a sewerage permit (No. 4678444) for the proposed project has been received by the Facilities Section for Upper Gwynedd Towamencin Municipal Authority. No permits will be issued until processing is completed on all required applications. The permits will be issued simultaneously from this office.

You are reminded that any proposed facilities cannot be constructed without first obtaining the required permits.

Applications are normally processed within sixty (60) days. If you have not received notification of the action taken within this period, feel free to contact me for information concerning the status of the review.

Very truly yours,

Leon T. Gonshor
Regional Director

cc: Air Quality Control
Solid Waste Management
Water Quality Management

1875 New Hope Street
Norristown, Pennsylvania 19401
215-631-2411

August 29, 1978

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, Pennsylvania 19446

Attention: H. Warren Dimmig
Chairman

Re: Sewerage Application No. 4678444
Ralph's Super Market
Towamencin and Hatfield Townships
Montgomery County

Gentlemen:

We have completed our review of the subject permit application and supporting data which we received on July 29, 1978; however, before we can complete its processing, the following revisions and/or additional information are needed:

sheet #154 old private bucket-type well no longer in use

sheet #152 Spring Brook — not active

1. The well shown on drawing No. 154 is approximately 35' from the proposed sanitary sewer. All sanitary sewers within a 50' radius of private wells and within 100' radius of public wells must be encased in concrete. Is this a public or private well? Are all water supplies within a 200' radius of the sanitary sewer located on the plans? NP well 500'

Mt. moved at Allentown Rd.

2. Drawing No. 152 indicates that the new 10" trunk line will cross under a stream along Keeler Road. Is the stream usually flowing or only during and immediately after a storm? The erosion and sedimentation control plan narrative and drawing do not address the stream crossing and details of construction.

The following questions and comments are in regard to the storm management plans and calculations which were reviewed by the Hydraulic Engineer at this office.

3. The report submitted does not indicate the basis for the sizing of detention basin outlets. In addition, calculations for the pre-development runoff flow conditions to use to compare to conditions after development were not done.

4. Where does the 24" RCP under Forty Foot Road discharge? Can the existing outlet area accommodate the proposed additional flow without erosion and/or flooding as a result?

5. The plans do not show an emergency spillway for the detention basin located along Forty Foot Road to direct water in a predetermined direction in the event of an overflow. OK

6. Was consideration given to groundwater recharge in an area of where several acres will be paved?

We request that the aforementioned revisions and supplemental information be submitted in duplicate to us within fourteen (14) days to allow us to continue processing this application. If the data is not received by this deadline or if it is incomplete or incorrect, the application will be processed on the information we presently have and our recommendations will be made accordingly, or else the application will be returned to you. If you cannot meet this deadline, we recommend that the application be withdrawn until such time as the necessary information can be prepared for resubmission.

If you have any questions, please let me know.

Very truly yours,

William B. Goman, Jr.
Sanitary Engineer
Facilities Section

WBG:efl

cc: Herbert H. Metz, Inc.
Ce Re 80

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

RECEIVED
SEP 14 1978
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

September 13, 1978

Pennsylvania Department of Environmental Resources
Water Quality Management - Facilities
1875 New Hope Street
Norristown, Pennsylvania 19401

Attention: Mr. William B. Goman, Jr.
Sanitary Engineer

Re: Sewerage Application Number 4678444
"Ralph's Super Market"
Towamencin and Hatfield Township
Montgomery County

Dear Mr. Goman:

Pursuant to our consultation by telephone yesterday and your review-comment letter of August 29, 1978 pertaining to the subject application, I am submitting herewith, following in this letter, and by revised plan sheets, exhibits and supplemental documents' enclosures, clarifying information in support of the application.

Informational response to your review comments is addressed as numbered in your August 29, 1978 letter:

1. Regarding wells located in proximity of the planned T-14 Trunk Line Sanitary Sewer extension, it should be noted that there are no active private wells located within 50 feet, nor any public wells within 100 feet of the proposed route of the trunk line sewer.

   The original design drawings for the depicted segment extension of T-14 were prepared in 1966 when the trunk line route passed through open lands of several private owners. The same overland route between Allentown Road and Welsh Road (Main Street) is now virtually entirely contained within a large composited tract planned for development. Therfore, the former private shallow well depicted on Drawings Number 154 and 155 is no longer active and has been so noted on the revised profile-plan sheets (copies enclosed). The spring house shown on profile plan sheet Number 152 is also inactive and has been so noted on that revised plan (copies enclosed). The only public well located in the area of the trunk line extension is a North Penn Water Authority well which is located off Welsh Road approximately 700 feet east of the trunk line.

2. The first section of the 10" pipe new extension of trunk line will be tunneled under an existing dual storm water pipe crossing of Keeler Road as depicted on Drawing Profile-Plan Sheet Number 152. It will not cross under the bed of the open outfall water course, and the open bed of the water course should not be disturbed. It should also be noted that the water course is an intermittent-flow one which normally has flow only during and after storm periods.

3. A more comprehensive report including pre-developed runoff and the routing techniques is enclosed.

4. The existing storm drainage facilities discharge into an existing natural watercourse tributary to the Skippack Creek. There is no proposed increase in peak discharges for high intensity short duration storms as shown in the enclosed supplemental report.

5. The detention basin along Forty Foot Road is formed entirely by excavation and does not have an enbankment to be protected by an emergency spilling. Also, the location of the basin is such that any overflow will become sheet flow over existing grade and flow directly to the low point in the state highway from where it would enter the above mentioned natural drainage course. It is the opinion of this office that a formed and directed spillway would needlessly concentrate overflow and is unnecessary at this location.

6. No consideration was given to ground water recharge. We know of no regulations or criteria governing or requiring studies of this nature. Please send us copies of such, if available and applicable.

Attention is directed to profile-plan sheet Number 152, also, with respect to a design revision to the vertical alignment of T-14 sections between M.H. 165A to M.H. 166 and M.H. 166 to M.H. 167. This design change has also been reflected in revised pertinent data on Sanitary Sewer Design Analysis, Exhibit D. (copies enclosed).

Duplicate copies of all the referenced revised plans, exhibits, etc. and supplementary supporting documents are enclosed herewith. Following favorable review of the submitted information and documents kindly insert the revised documents for the originals, and append pertinent supplementary documents, and complete the processing of the pending application.

Very truly yours,

Enclosures

HERBERT H. METZ, INC.

Herbert H. Metz, Jr., P. E.

cc: W. Dimmig
E. J. Brooks, Jr.

HHMjr/nes

RALPH'S SUPERMARKET
DRAINAGE REPORT

The subject site consists of 13.95 acres to the center of two state highways, Forty Fort Road (LR646) amd Welsh Rd. (LR198), against which it abuts. Existing State Right-of-Way is 25 feet from center on Forty Foot and 20 feet from center on Welsh Rd. Hatfield Township has asked for and will receive dedication to the ultimate Right-of-Way widths of 40 feet from center on both Forty Fort and Welsh Rds. Net area from the Ultimate Right-of-Ways is 12.513 Acres.

The proposed construction on site will consist of a 30,000 square foot Food Market with parking, access driveways and stormwater management facilities. On and along the two state highways widening, curb, and storm drainage facilities will be constructed to State and Township Requirements and Standards. One access driveway on each state highway is proposed.

Stormwater management facilities were designed to accomodate and reduce to prior conditions the peak at a 100 year storm. Routing calculations also indicate there will be no increase in peak flow off the subject tract following construction for the 10 year peak inflow as well.

The storm drainage facilities proposed will be extentions at existing facilities which drain down grade from the tract. All existing facilities were found to be adequate for the 10 year design with the exception of an existing 18" R.C.P. crossing Welsh Rd. ninety feet south of the tract.

The existing 18" R.C.P. is significantly undersized to carry the existing runoff from it's entire tributary, a portion being the subject tract, without significant ponding and head-water. Therefore, a new crossing is proposed to the existing drainage course south of Welsh Rd. into which the existing 18" R.C.P. also discharges. An easement for that purpose has been obtained from the downstream property owner. Note that the on-site stormwater management calculations show that for a 10 year storm the 10 year peak flow of the subject tract will be less than the existing peak, and, therefore no increase in peak flow downstream.

APPROVED DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER MANAGEMENT
APPLICATION NO. 4678444 6-29-78
RECEIVED U.S.
NO. OF VOLUMES 1 OF 1

The only offsite flow which enters the tract or its adjoining highway Right-of-Way is from along the gutter line from Forty Foot Road flowing south. An analysis of the existing watersheds contributing and the capacity of existing State Highway 'H' type inlets is included in the attached storm drainage calculations. (6 sheets)

Also included are a runoff analysis (2 sheets) and example stormwater routing calculations with summaries of the two proposed on-site stormwater management basing.(7 sheets)

BY..... DATE..... SUBJECT RALPH'S SUPERMARKET SHEET NO. 1 OF 6
CHKD. BY..... DATE..... PEAK RUNOFF ANALYSIS JOB NO. 2647A
10 YEAR STORM

BEFORE CONSTRUCTION

WEST DRAINAGE SHED - AREA (TO ℄'S OF WELSH RD & FORTY FOOT)
= 7.04 AC, L_H = 655'

$\bar{C}$ = IMPERVIOUS + LAWN + FIELD = $\frac{(1.0 \times .9) + (4.92 \times .4) + (1.12 \times .5)}{7.04}$

$\therefore C = 0.49$

$\bar{S} = \frac{342.8' - 330.0'}{655'} = 0.020$

FROM SCS NEH 4 - FIG 15.2; FOR $\bar{S}$ = 0.020 & SHORT GRASS V_0 = 1.0 fps
$\therefore T_c = 655' / [(1.0 fps)(60 sec/min)] = 10.9$ MIN

$\therefore$ FOR A 10 yr - 10 MIN DURATION STORM I = 5.0

$Q_{10\text{-}p} = CAI = (.49)(7.04)(5.0) = \underline{17.3 \text{ CFS}}$

EAST DRAINAGE SHED - AREA = 6.91 AC, L_H = 625'

$\bar{C}$ = IMPERVIOUS + FIELD = $\frac{(0.18 AC \times .9) + (6.73 \times .5)}{6.91} = 0.51$

$\bar{S} = \frac{342.8 - 325}{625} = .029$ FOR CULT. ST ROW V = 1.5 fps

$\therefore T_c = 625' / [(1.5 fps) \times (60 sec/min)] = 6.9$ MIN, I = 6.0

$Q_{10\text{-}p} = CAI = (.51)(6.91)(6.0) = \underline{21.2 \text{ CFS}}$

BY:.....DATE..... SUBJECT: RALPH'S SUPERMARKET SHEET NO. 5 OF 5
CHKD. By:.....DATE..... PEAK RUNOFF ANALYSIS JOB NO. 2647A
10 YR. STORM

EAST DRAINAGE SHED -

AFTER CONSTRUCTION

WEST DRAINAGE SHED -

1) CA FOR LINE 1 (EXCLUDING 4.35 Ac OFFSITE CONTRIBUTING DRAINAGE AREA - SEE 3 of 6) = 1.56

2) CA FOR LINE 2 (SEE 4 of 6) = 0.50

Σ 2.06

T_c 5 MIN ∴ FOR DURATION USE 5 MIN., ∴ I = 6.5

Q_{10p} = 2.06 x 6.5 = 13.4 CFS

3) FROM BASIN 'B' (REMAINDER OF TRACT CA) FROM 5 OF 7 FOR D = 5 MIN

Q_{10-p} = 2.3 CFS

∴ Σ WEST 10 YR PEAK OUTFLOW = 13.4 + 2.3 = 15.7 CFS

EAST DRAINAGE SHED -

1) CA FOR LINE 3 (SEE 5 OF 6) = 1.31

2) CA FOR NON-SEWERED AREA (L_H = 590') = 2.38 Ac x .4 (LAWN) = 0.95

Σ 2.26

T_c FOR EAST SHED = T_T FOR NON-SEWERED AREA

S = (340.2 - 328) / 590 LF. = .021

FROM SCS-NEHA-FIG 15.2 FOR S = .021 & SHORT GRASS V_s = 1.1 fps

∴ T_c = 590 LF / [(1.1 fps)(60 sec/min)] = 8.9 MIN.

∴ I = 5.4 IN/HR & Q_{10-p} = 2.26 x 5.4 = 12.2 CFS

3) FROM BASIN 'A' FOR 9 MIN DUR. STORM (SEE 2 OF 7)

Q_{10-p} = 3.8 CFS

∴ Σ EAST 10 YR PEAK OUTFALL = 12.2 + 3.8 = 16.0 CFS

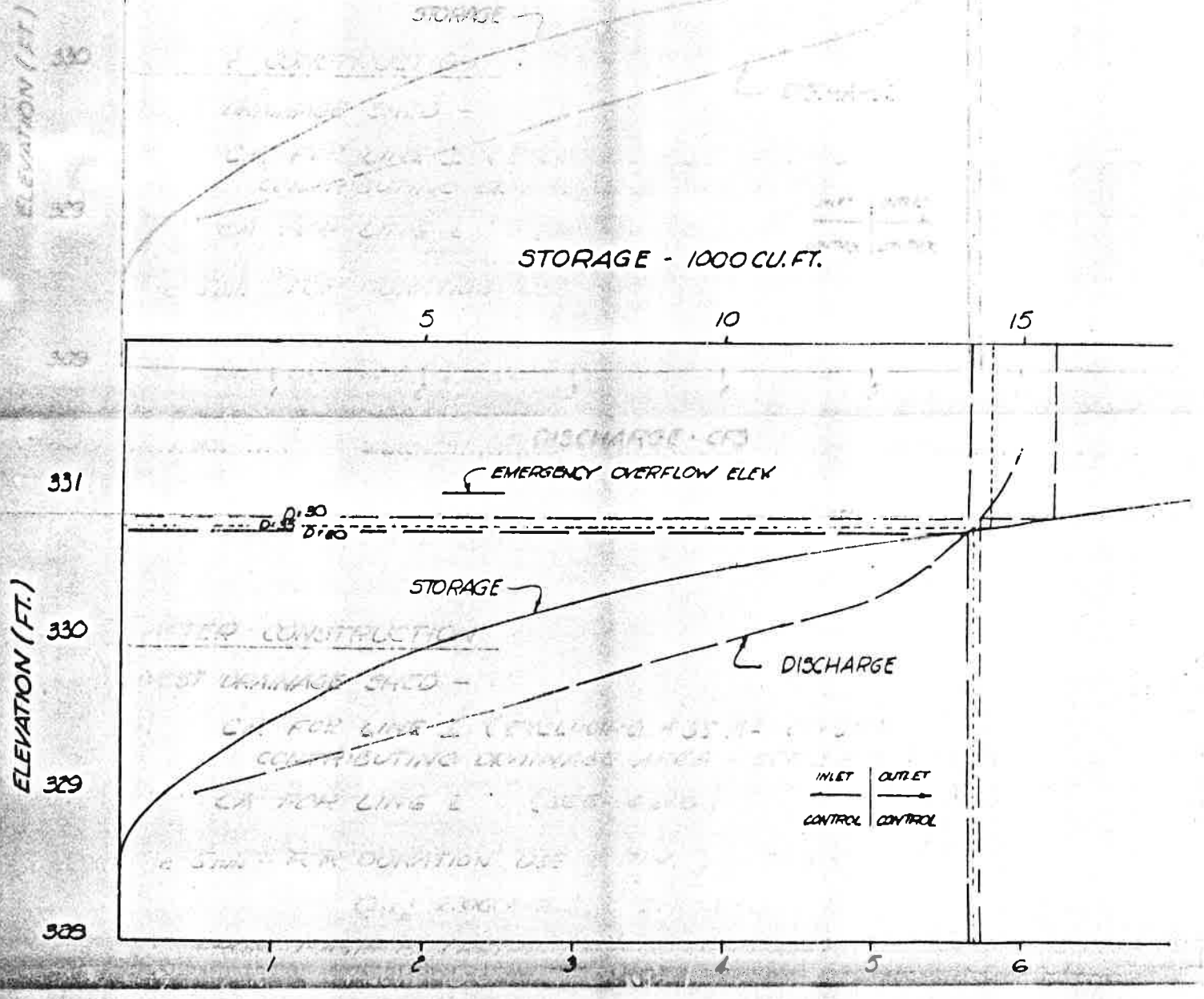
SUMMARY = 10 YR FREQ. STORM

BEFORE CONSTRUCTION SITE RUNOFF = 17.3 + 21.2 = 38.5 CFS
AFTER CONSTRUCTION = 15.7 + 16.0 = 31.7 CFS

BY BLW DATE 9-19-77 SUBJECT RALPH'S SUPERMARKET SHEET NO. 7 OF
CHKD. BY DATE BASIN 'A' - REVISED JOB NO. 6647A
12" PCP OUTFALL 100 YEAR FLOOD ROUTING

REF: "STORMWATER DETENTION BASINS FOR SMALL DRAINAGE AREAS", WILLIAM R. BAKER, PE PUBLIC WORKS, MARCH 1977

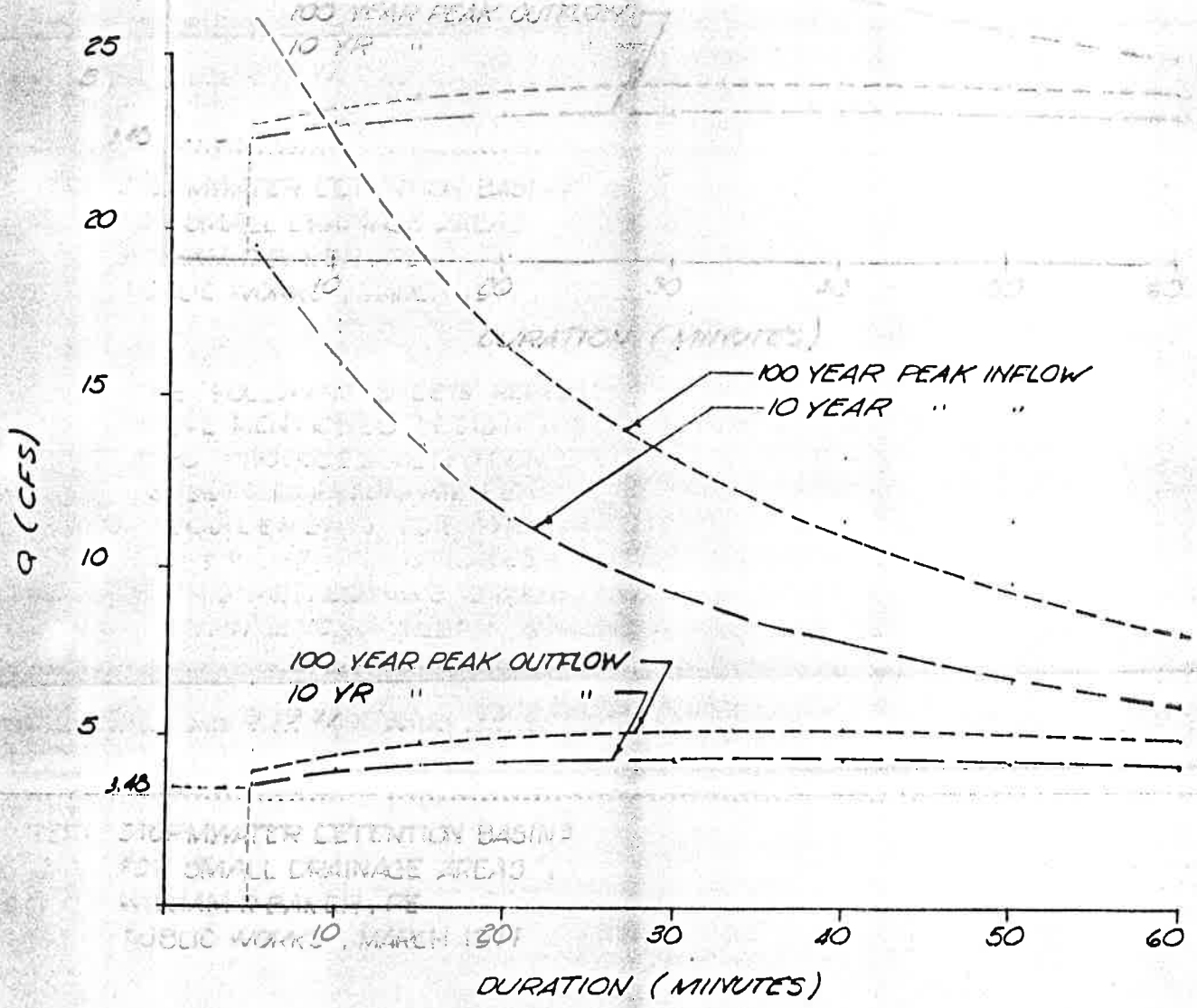
THE FOLLOWING SHEETS REPRESENT A SUMMARY OF THE ABOVE MENTIONED DESIGN METHOD FOR SIZING THE TWO PROPOSED DETENTION BASINS FOR A 100 YEAR STORM. SHEETS 1 & 4 SUMMARIZE THE PEAK DISCHARGE & STORAGE REQUIREMENTS FOR VARIOUS DURATIONS OF A 100 YEAR STORM. SHEET 7 ILLUSTRATES A TYPICAL COMPUTATION FOR ONE DURATION. THIS METHOD USES CONVENTIONAL RESERVOIR ROUTING AND A HYPOTHETICAL INLET HYDROGRAPH BASED ON PEAK DISCHARGE AND TIME OF CONCENTRATION



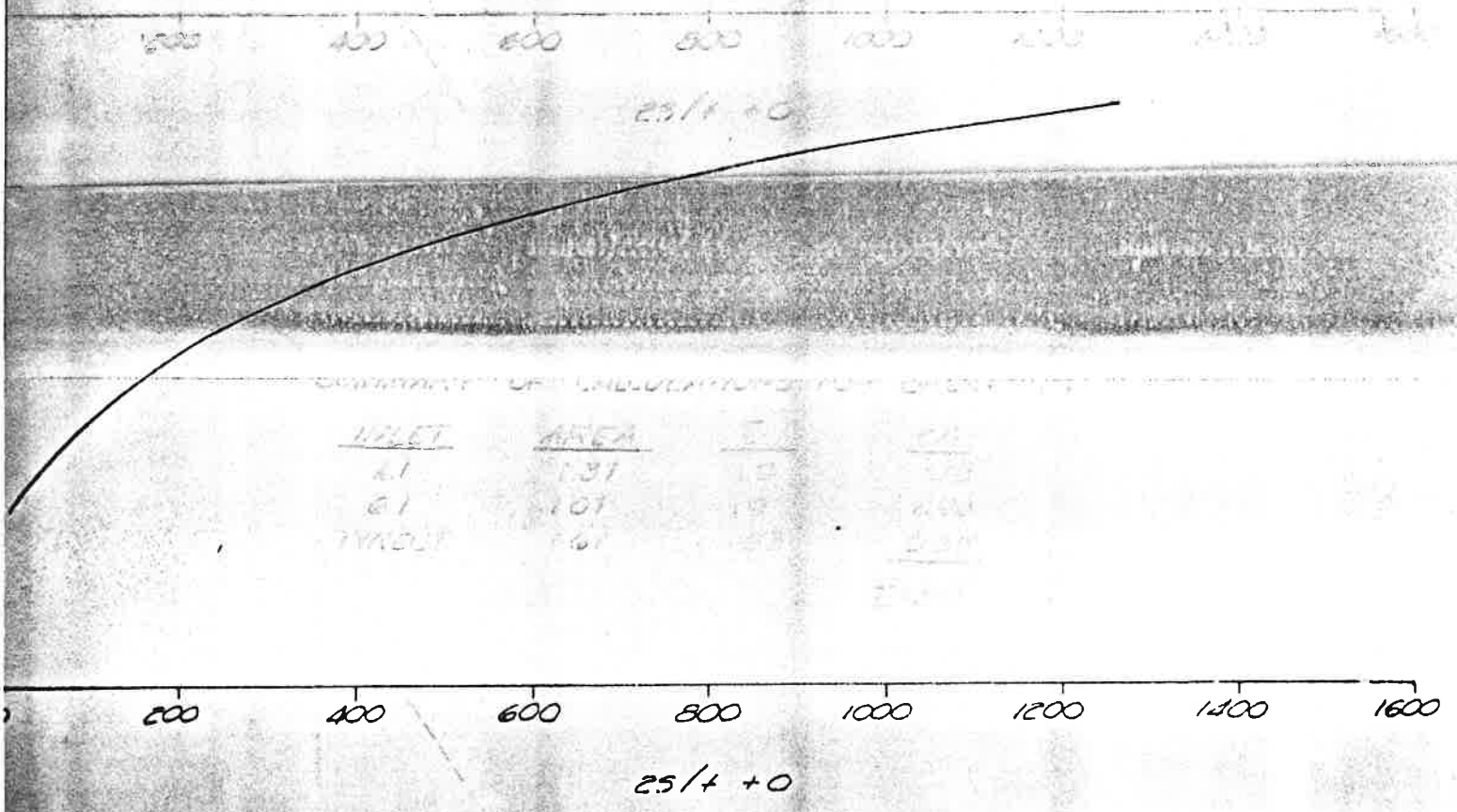
BY..... DATE..... SUBJECT RALPH'S SUPERMARKET SHEET NO. 2 OF 7
CHKD. BY..... DATE..... BASIN 'A' JOB NO.

SUMMARY OF CALCULATIONS FOR BASIN 'A'

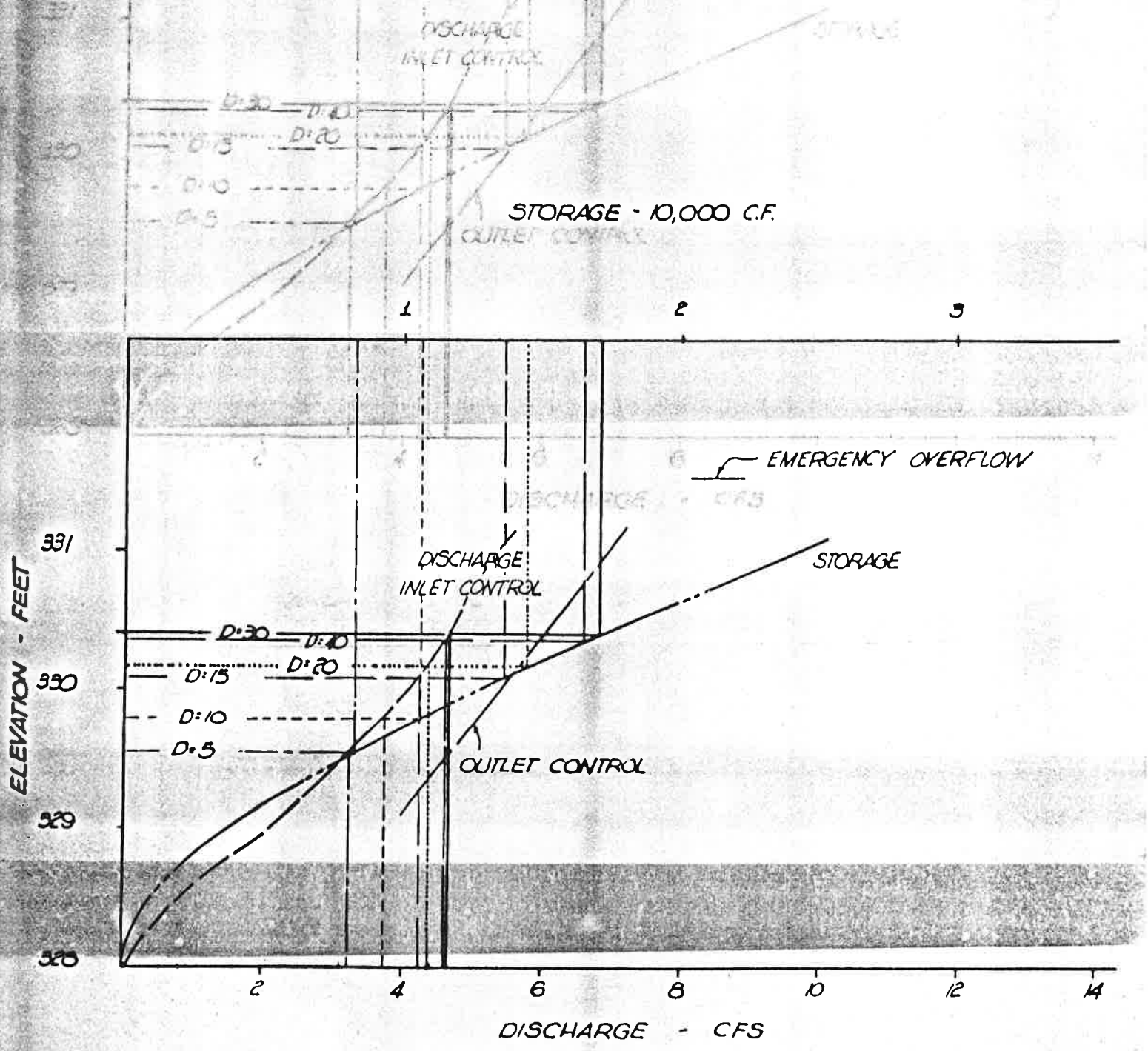
INLET	AREA	$\bar{C}$	CA
A.1	1.37	.9	1.19
6.1	1.07	.9	0.96
DIRECT	1.61	.53	0.85
			$\Sigma = 3.0$



ELEV. FT.	AREA SQ. FT.	Δ VOL CU. FT.	STORAGE	2S/t CFS	O CFS	2S/t+O
328.5	0	325	0	0	0	0
329.0	1950	1654	325	10.8	2.3	13
330.0	8050	12900	4979	166	3.6	170
331.0	18460	19882	17879	596	5.4	601
332.0	21340		37761	1259	6.6	1265



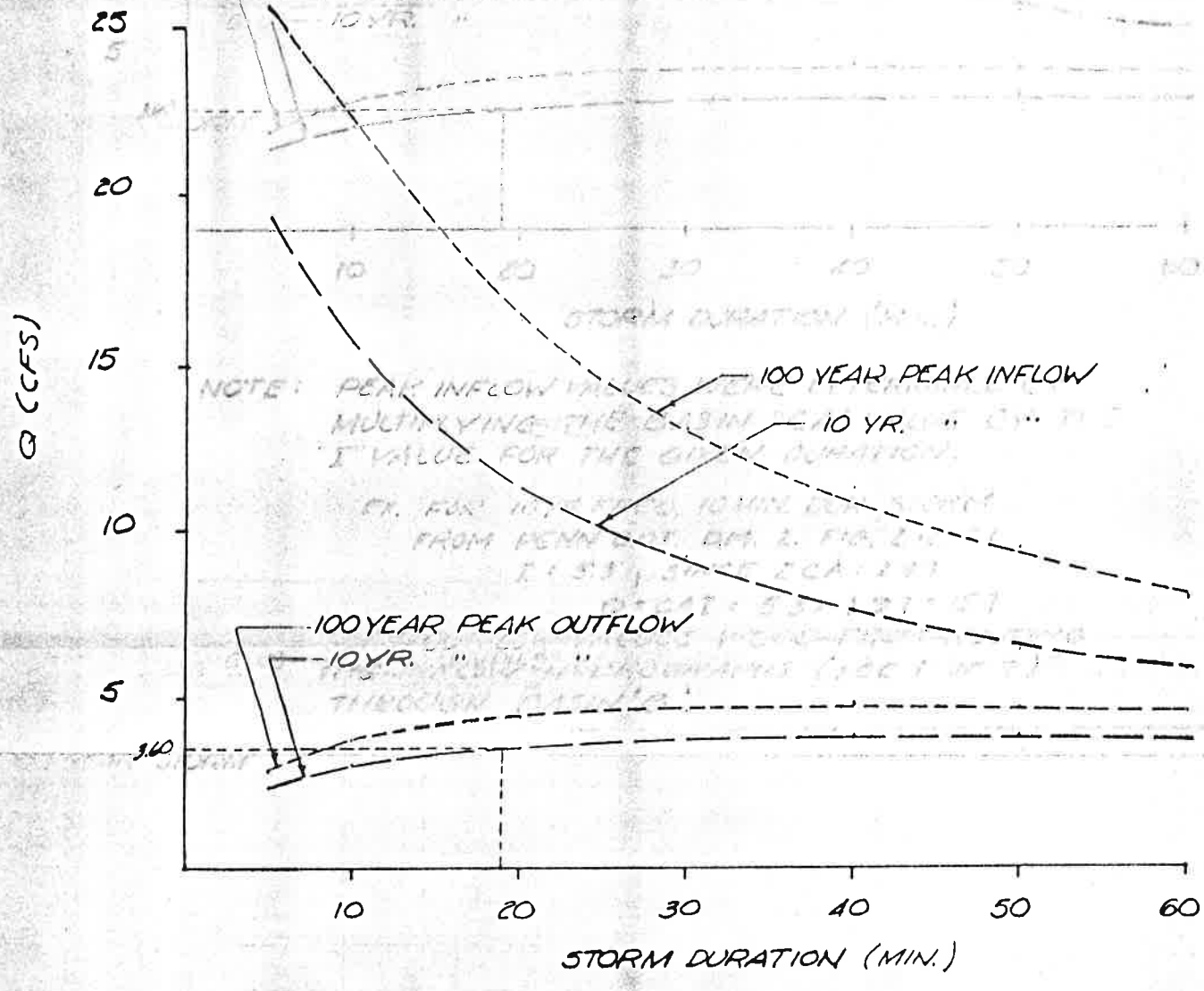
BY PW DATE 6-28 SUBJECT RALPH'S SUPERMARKET SHEET NO. 4 OF 7
CHKD. BY DATE BASIN "B" JOB NO. M2647
12"Ø PCP ELEVATION vs OUTFALL vs STORAGE
100 YEAR STORM



BY..... DATE..... SUBJECT RALPH'S SUPERMARKET SHEET NO. 5 OF 7
CHKD. BY..... DATE..... BASIN "B" JOB NO. 2647A

SUMMARY OF CALCULATIONS FOR BASIN B, AREA = 4.34 AC

INLET	AREA	C	CA
5.10	0.34	.9	0.31
5.11	0.32	.9	0.29
5.2	0.09	.9	0.08
7.1	0.93	.51	0.53
DIRECT	2.66	.66	1.76
			Σ 2.97

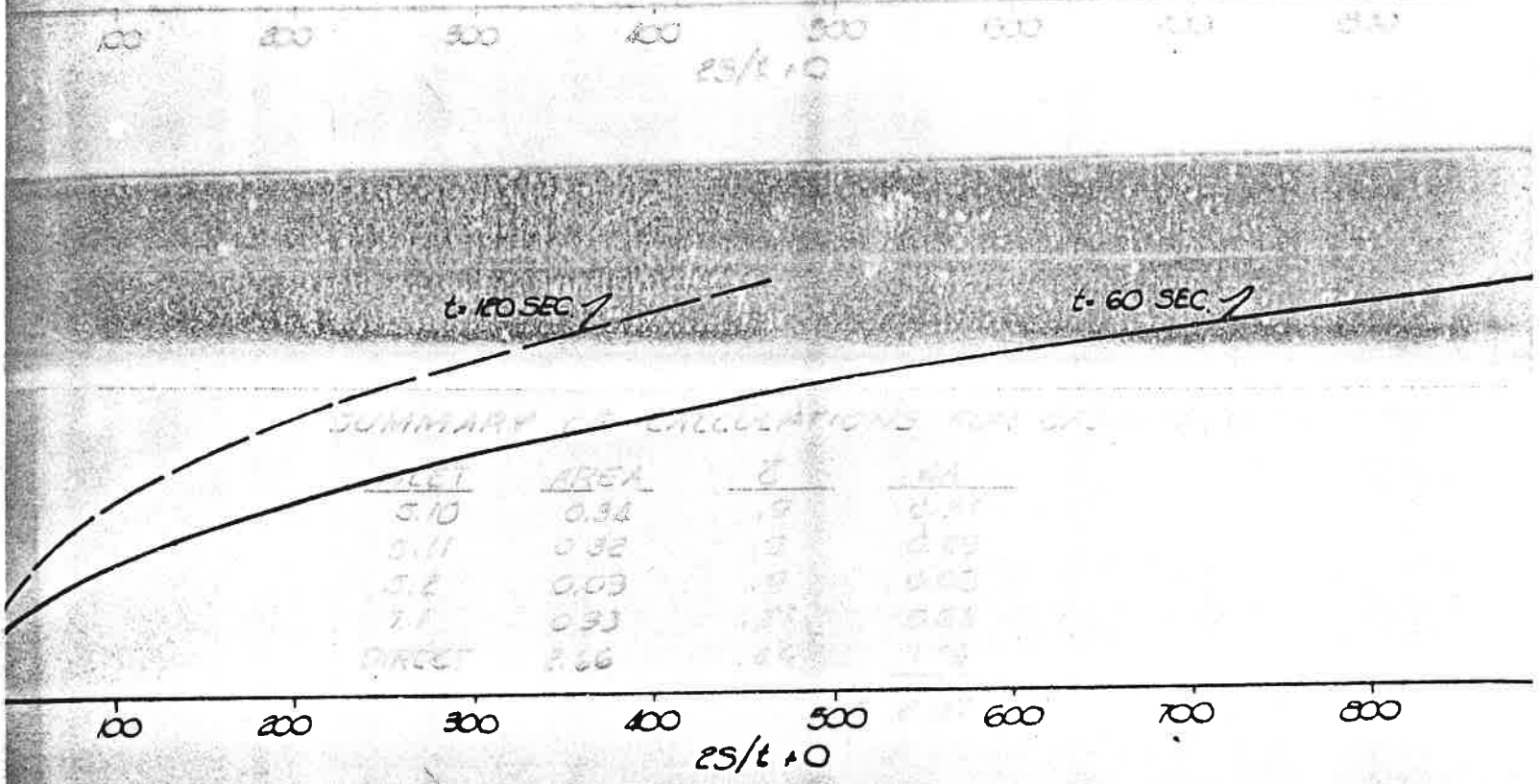


NOTE: PEAK INFLOW VALUES WERE DETERMINED BY MULTIPLYING THE BASIN "CA" VALUE BY THE "I" VALUE FOR THE GIVEN DURATION.

EX. FOR 10 YR. FREQ. 10 MIN. DUR. STORM FROM PENN. D.O.T. D.M. 2. FIG. 2.12.12.1
I = 5.3, SINCE ΣCA = 2.97
Q = CAI = 5.3 × 2.97 = 15.7

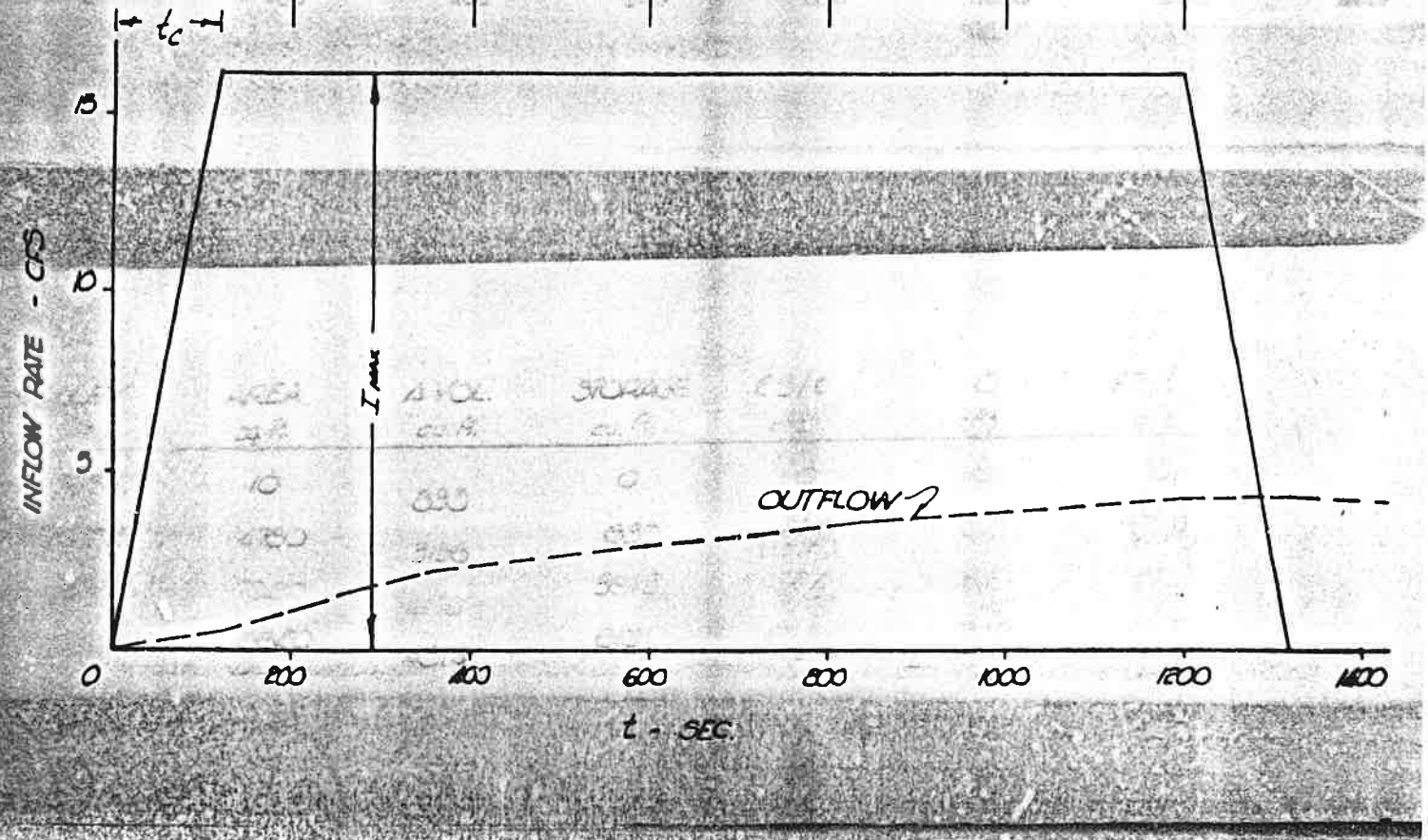
PEAK OUTFLOW VALUES WERE FROM ROUTING THE INFLOW HYDROGRAPHS (SEE 7 OF 7) THROUGH BASIN 'B'.

ELEV. Ft.	AREA sq ft.	Δ VOL. cu. ft.	STORAGE cu. ft.	2S/t cfs	O cfs	2S/t + O cfs
328.0	10	835	0	0	0	0
328.5	4780	3138	835	27.8 (13.9)	0.8	28.6 (21.9)
329.0	7900	4178	3973	132.4 (66.2)	2.1	134.5 (69.3)
329.5	8820	4819	8151	271.7 (135.4)	3.15	274.85 (139.0)
330.0	10480	5431	12970	432.3 (216.2)	4.1	436.4 (220.3)
330.5	11250	5972	18401	613.4 (306.7)	4.75	618.15 (311.45)
331.0	12650		24373	812.4 (406.2)	5.4	817.8 (411.60)



BY ..... DATE 6-29 SUBJECT RALPH'S SUPER MARKET SHEET NO. 7 OF 7
CHKD. BY ..... DATE BASIN 'B' - EXAMPLE JOB NO. M-2647
D = 20 MIN, t = 120 sec. INFLOW DESIGN HYDROGRAPH ROUTING R.D. 100
100 YR FREQ

TIME - Sec.	I	$I_1 + I_2$	$2S/t + O$	O	2O	$2S/t - O$
0	0	0	0	0	0	0
120	16.2	16.2	16.2	0.55	1.1	15.1
240	16.2	32.4	47.5	1.5	3.0	44.5
360	"	"	76.9	2.25	4.5	72.4
480	"	"	104.8	2.75	5.5	99.3
600	"	"	131.7	3.1	6.2	125.5
720	"	"	157.9	3.4	6.8	151.1
840	"	"	183.5	3.7	7.4	176.1
960	"	"	208.5	3.90	7.9	200.6
1080	"	"	233.0	4.15	8.3	224.7
1200	16.2	32.4	257.1	4.35	8.7	248.4
1320	0	16.2	264.6	4.50	8.75	255.85
1440	0	0	255.85	4.9	8.6	247.25
1560	0	0	247.25	4.25	8.5	238.75



BY..... DATE..... SUBJECT RALPH'S SUPERMARKET - SHEET NO. 6 OF .....
CHKD. BY..... DATE ..... STORM SEWER DESIGN JOB NO. 2647A
FORTY FOOT RD. - OFFSITE

NOTE: INLETS A & B ARE TYPE 'H' AND BOTH DISCHARGE ACROSS FORTY FOOT RD. THE FOLLOWING CALCULATIONS WILL ILLUSTRATE THAT FOR A 10 YR STORM THERE IS NO EFFECTIVE BYPASS. ∴ INLET C IS THE TOP OF THE SYSTE CONSIDERED FOR DESIGN

INLET (A) DRAINAGE AREA = 2.27 Ac, PRIMARILY WOODED WITH SOME LAWN. ∴ C = .4

T_c = WOODED OVERLAND FLOW + ROAD GUTTER FLOW TIMES
FOR S < 3% FROM PENN DOT DM-2 TBL. 2.12.12.2 V_{10-W} = 0.5 fps & V_{10-G} = 5.0

$$\therefore T_c = \frac{(280\ L.F.)/(0.5\ fps) + (300\ LF)/(5.0\ fps)}{60\ sec/min} = 10.3\ MIN.$$

∴ FOR STORM DURATION = 10 MIN. i = 5.3 IN/HR FOR RF = 10 yr

∴ $Q_{10-P} = CAI = (.4)(2.27)(5.3) = 4.8\ CFS$

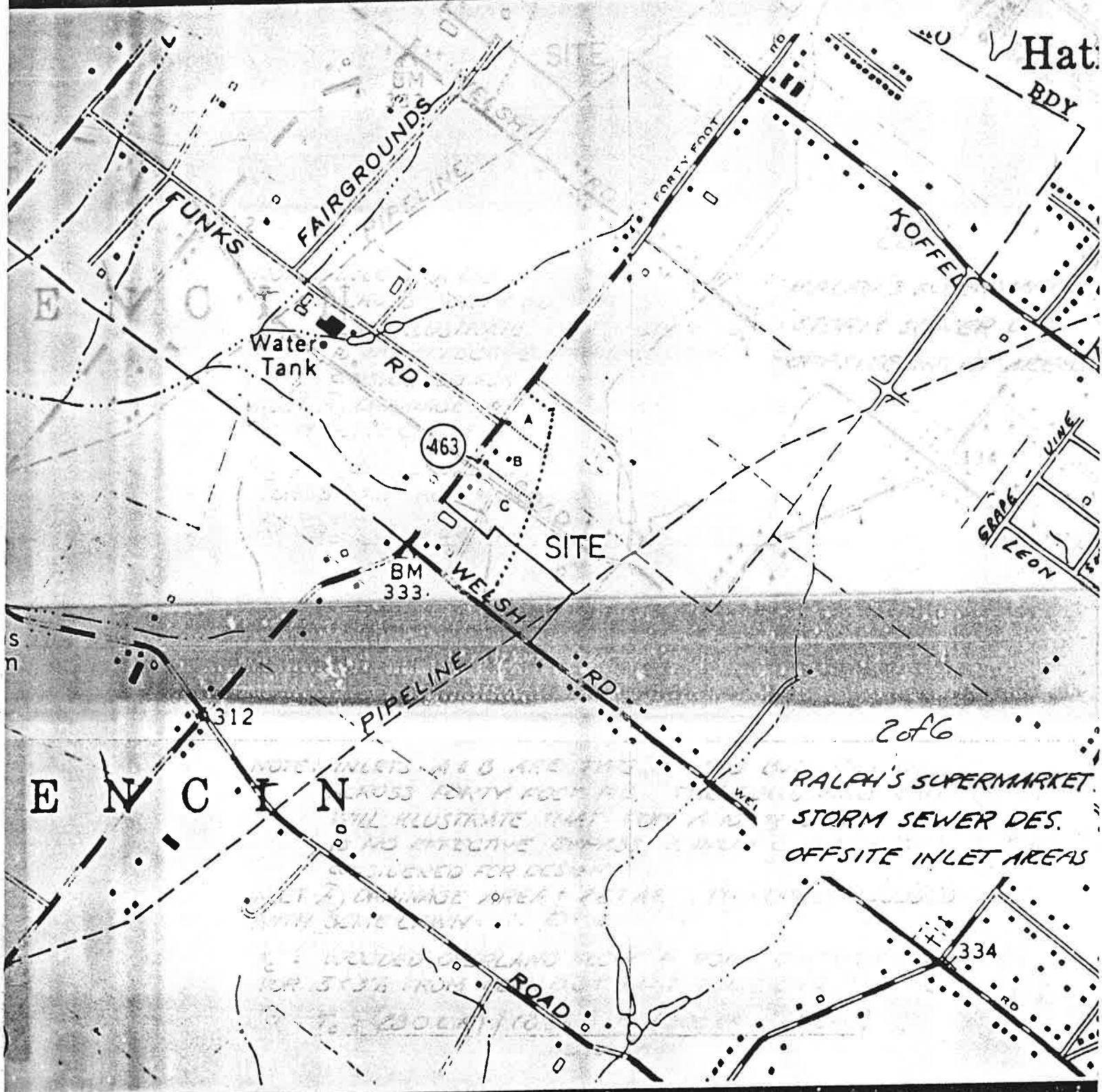
FROM LEHIGH TEST RESULTS ON 'H' INLETS FOR 2% SLOPE (LONG.) AND 12:1 SWALE X-SLOPE EFFICIENCY = 100%, NO BYPASS

INLET (B) DRAINAGE AREA = 4.02 Ac, PRIMARILY 1 ACRE LOTS IN LAWN WITH 10% ± IMPERVIOUS C = (.9)(.4) + (.1)(.9) = .45

T_c = GRASSED LAWN FLOW + ROAD GUTTER FLOW
FOR S < 3% $T_c = \frac{(100\ LF / 0.5\ fps) + (385\ LF / 5\ fps)}{60\ sec/min.} = 14.6$ M.

∴ i = 4.5 in/hr & $Q_{10-P} = (.45)(4.02)(4.5) = 8.1\ CFS$

FOR 2% SLOPE & 8.1 CFS EFFICIENCY = 96% ASSUME NO BYPAS


FAIRGROUNDS
FUNKS
Water Tank
RD
463
A
B
C
SITE
BM 333
WELSH
RD
PIPELINE
312
FORTY FOOT
KOFFEL
BDY
GRAPE - VINE
LEON
E N C I N
ROAD
334
RD
2 of 6
RALPH'S SUPERMARKET
STORM SEWER DES.
OFFSITE INLET AREAS

ΔAC_o = AC (Contrib. Surface-Flow between Inlets)
ΔAC_B = AC (Bypassing Flow From Previous Inlet)
ΔAC_i = AC (Entering Inlet)
C = Runoff Factor

SHEET NO 3 OF 6 BY M-2(A)A CHKD. BY

COMPUTATION TABLE - STORM SEWER DESIGN

	DRAINAGE AREA							TIME		RAIN-FALL INTEN-SITY	DIS-CHARGE	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS n VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL
	ΔA	C	ΔAC_o	ΔAC_B	$\Delta AC_o + \Delta AC_B$	ΣAC_i	ΣAC_i	ΔT	ΣT	I	Q							
	ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	CFS	FEET	FT/FT			IN	FPS	CFS
)	4.87	0.40	1.95	0	1.95	1.95	1.95	19.0	19.0	4.0	7.8	55	0.068	RCP	.012	24	4.6	21
	0.28	0.78	0.22	0	0.22	0.22	2.17	0.2	19.2	4.0	5.25	68	0.068	RCP	.012	24	4.5	21
											3.45	115	0.008	RCP	.012	15	4.8	5.1
						0.92					9.60							
	0.32	0.67	0.21	0	0.21	0.21	3.30	0.3	19.5	3.9	12.9	62	0.007	RCP	.012	24"	6.2	21

SEE 6 OF 6 FOR INLET 1.1 DUAL OUTFALL DISCHARGE SPLIT CALC.'S
EE 5 OF 7 FOR 10YR PEAK OUTFALL - BASIN B, CA = Q ÷ I WHERE I IS FOR DUA
OR INLET 1.0 . ∴ SINCE ΣT = 19.5 MIN.S, THAN I = 3.9 IN/HR & CA = (36) ÷ (39) = .
INLET 1.2 = INLET C FOR WATERSHED SIZE-1 ANALYSES

Δ AC_o = AC (Contrib. Surface Flow between Inlets)
Δ AC_B = AC (Bypassing Flow From Previous Inlet)
Δ AC_i = AC (Entering Inlet)
C = Runoff Factor

SHEET NO 4 OF 6 BY LA
M-2647A CHKD BY --

COMPUTATION TABLE - STORM SEWER DESIGN

DRAINAGE AREA							TIME		RAINFALL INTENSITY	DISCHARGE	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS n VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL	
ΔA	C	ΔAC_o	ΔAC_B	$\Delta AC_o + \Delta AC_B$	ΔAC_i	ΣAC_i	ΔT	ΣT	I	Q								
ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	CFS	FEET	FT/FT			IN	FPS	CFS	
0.16	0.68	0.11	–	0.11	0.09	0.09	0.4	0.4	6.5	0.6	170	.008	RCP	.012	15"	2.9	6.2	0
0.28	0.70	0.20	.02	0.22	0.11	0.20	1.14	1.18	6.5	1.66	196	.008	RCP	.012	15"	3.7	6.2	
0.22	0.67	0.18	.05	0.23	0.23	0.50	0.88	2.06	6.5	3.25	59	.026	RCP	.012	15"	6.8	11.5	

AC_o = AC (Contrib. Surface Flow between Inlets)
AC_B = AC (Bypassing Flow From Previous Inlet)
AC_i = AC (Entering Inlet)
C = Runoff Factor

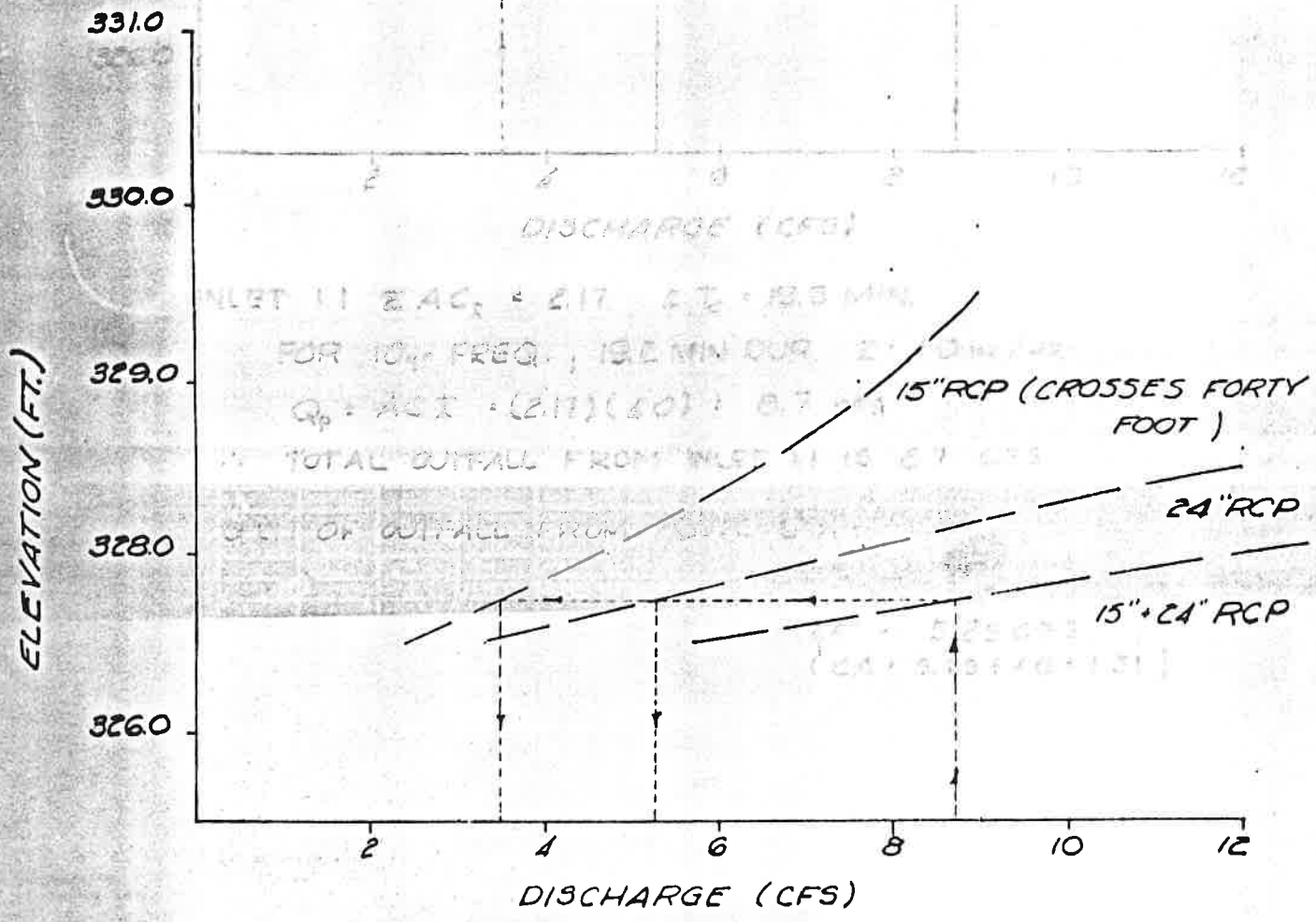
SHEET NO 5 OF 6 BY ___ DA
CHKD BY ___ DA

COMPUTATION TABLE - STORM SEWER DESIGN

DRAINAGE AREA							TIME		RAIN-FALL INTEN-SITY I	DIS-CHARGE Q	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS N VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL	RE
AA	C	AAC_B	AAC_B	$AAC_o + AAC_B$	AAC	EAC	AT	ET										
ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN / HR	C F S	FEET	FT / FT			IN	F P S	C F S	
0.47	0.60	0.28	0	0.28	0.23	0.23	0.3	0.3	6.5	1.50	120	.016	RCP	.012	18"	4.6	15.0	
					0.54	-	-	-	6.5	3.48	13	.039	RCP	.012	12"	7.1	7.6	
0.45	0.70	0.32	.05	0.37	0.29	1.06	0.3	0.6	6.5	6.89	180	.008	RCP	.012	18"	7.1	15.5	
0.45	0.52	0.23	.08	0.31	0.25	1.31	0.4	1.0	6.5	8.52	60	.013	RCP	.012	18"	8.2	17.0	

OF 7 FOR 10 YEAR PEAK OUTFALL FROM BASIN 'A'; CA_o = Q ÷ I WHERE I IS FOR A S
E DURATION IS EQUAL TO THE ET AT THE POINT OF BASIN OUTFALL INTO THE STORM
M (INLET 3.1). SINCE ET = 0.6 MIN, WHICH IS LESS THAN 5 MIN USE DUR. = 5 MIN & I = 6
I = 3.48 ÷ 6.5 = 0.54. OFFSET BETWEEN INFLOW & OUTFLOW MANHOLES IS NEGLECTED

BY..... DATE..... SUBJECT RALPH'S SUPERMARKET SHEET NO. 6 OF 6
CHKD. BY..... DATE..... STORM SEWER DESIGN JOB NO. 2241
INLET 1.1 DUAL OUTFALL SPLIT
REF: FHWA - HEC #5



INLET 1.1 $\Sigma AC_I = 2.17$ $\Sigma T_c = 19.5$ MIN.

FOR 10yr FREQ., 19.5 MIN DUR. I = 4.0 IN/HR

$Q_p = ACI = (2.17)(4.0) = 8.7$ CFS

∴ TOTAL OUTFALL FROM INLET 1.1 IS 8.7 CFS

SPLIT OF OUTFALL FROM ABOVE CHART IS:

15" – 3.45 CFS

24" – 5.25 CFS

(CA = 5.25 ÷ 4.0 = 1.31)

■ COMBINATION stormwater detention basin and neighborhood park, having a concrete channel for draining the immediate area. The basin serves a 185-acre area; the major portion of the influent is carried in two 36-inch and one 54-inch pipes, not shown.

Stormwater Detention Basin Design for Small Drainage Areas

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University of Wisconsin — Extension,
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CONTROL and management of stormwater runoff has resulted in associated problems causing it to become an increasing source of concern for public works engineers. Excessive rainfall runoff has reached such proportions in some areas that local ordinances have been adopted limiting the rate of runoff discharge from new developments.

One highly effective method of reducing the rate of runoff is through the use of a storage or detention basin. Such a facility acts as a temporary reservoir, allowing runoff to be released at slow, predetermined rates. When a detention basin is designed, a proper balance must be achieved between available capacity of the storage reservoir and the flow characteristics of the outlet control structure. This structure is usually some type of pipe or conduit placed at an elevation that will allow complete draining of the detention basin after a rainstorm. Storage commences when the rate of inflow to the detention basin exceeds the capacity of the outlet structure and continues as long as this condition exists. The relationship can then be expressed mathematically, equating the rate of change in storage with the difference between rate of inflow and rate of outflow.

Analyzing the stormwater detention basin is somewhat more involved than the design of a standard storm sewer conduit. In the latter case, the controlling factor for selecting the conduit size is the peak or instantaneous maximum flow rate anticipated from an assigned design rainfall event. Smaller rates of flow and the total time distribution of this flow (i.e., total quantity of runoff) are not part of the design process. However, in detention basin design, the total quantity of runoff and the rate at which the runoff arrives and departs from the basin site is of paramount importance. Such a relationship is given by a hydrograph -- simply a plot showing the variation of the flow rate with respect to time.

Figure 1 illustrates both an inflow and outflow hydrograph for a typical detention basin. Several factors regarding this illustration should be noted. First, the total area under each curve is the same and represents the total volume of runoff flowing into, and eventually out of, the basin. In terms of quantity, the product of the time in seconds and rate of flow in cubic feet per second is equal to the total volume of flow in cubic feet. The second and most important factor is represented by the area lying between the inflow and outflow hydrographs. This area represents the excess volume of runoff flowing into the detention area that cannot immediately be accommodated by the outlet structure. This area, then, is equivalent to the total volume of storage required for the particular detention basin when subjected to the specific rainfall event that generated the inflow hydrograph.

Also to be noted is that the rate of outflow from the detention area is not a constant value. The outflow rate is dependent upon the depth of the impounded water and hence will vary with respect to time. The effect of changing the size of the outlet structure can also be visualized from a study of Figure 1. If a smaller exit conduit were to be used, the rate of outflow would decrease, causing a downward shift in the hydrograph plot. This would indicate that a larger storage area would be required to accommodate the same rainfall event.

An inflow hydrograph can be developed by several methods, but for small drainage basins — up to 200 acres in area — it is the author's opinion that a modified version of the "rational method" of estimating rate of runoff will yield acceptable detention basin designs. In the rational method, peak rates of runoff are determined by the equation:

$$Q = ciA$$

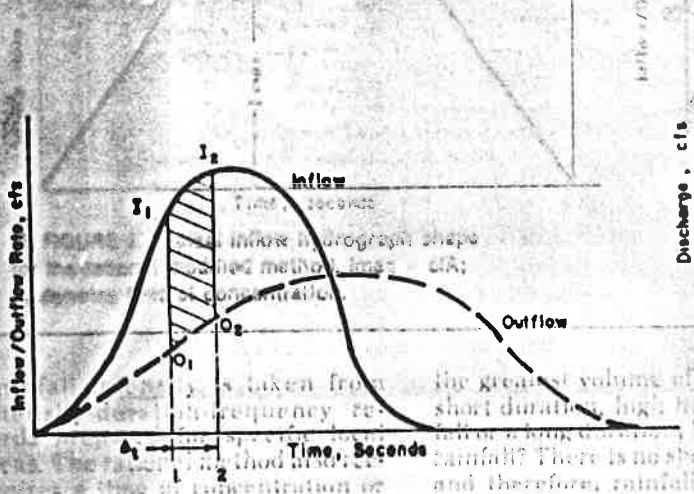
where Q = max. runoff rate, cfs;

c = a dimensionless runoff coefficient indicating the percentage of rainfall that appears as runoff;

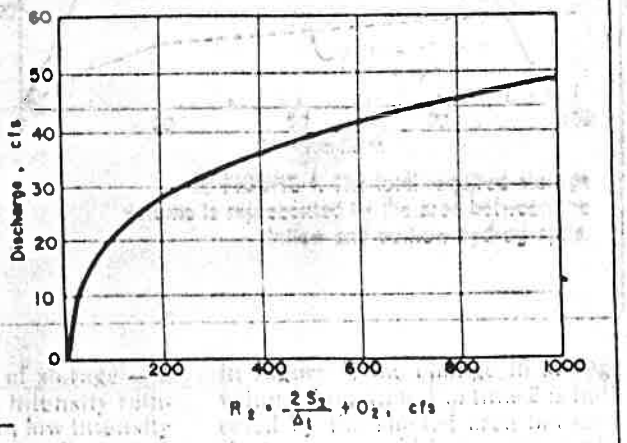
i = rainfall intensity, inches per hour;

A = size of the drainage basin, acres.

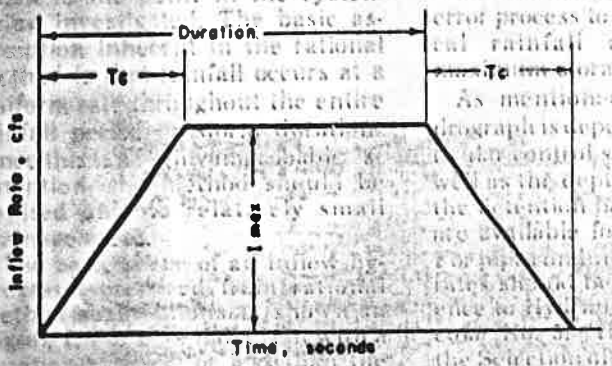
The equation is dimensionally correct because an inch per hour of rainfall on a one-acre of an impervious surface will essentially result in one cubic foot per second of runoff.



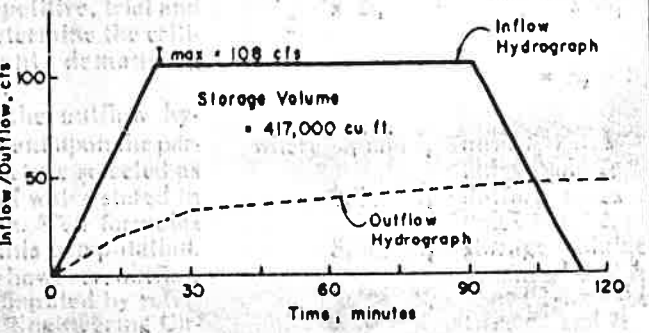
■ FIGURE 1. Typical inflow/outflow hydrograph.



■ FIGURE 3. Discharge versus R_2.



■ FIGURE 2. Typical inflow hydrograph shape for the rational modified method. $I_{max} = ciA$; T_c denotes time of concentration.



■ FIGURE 4. The total required storage volume is represented by the area between the inflow and outflow hydrographs.

Rainfall intensity is taken from intensity-duration-frequency records prepared for specific local areas. The rational method also recognizes a time of concentration or total flow time, from the most remote point within the drainage basin to the point in the system being investigated. The basic assumption inherent in the rational method is that rainfall occurs at a uniform rate throughout the entire rainfall period or storm duration. Since this is a highly improbable assumption, the method should be applied only to relatively small drainage areas.

The basic shape of an inflow hydrograph prepared from rational method assumptions is shown in Figure 2. For a rainfall event with a duration equal to or less than the time of concentration, the hydrograph will be triangular. At this point in the design process, the problem of selecting the particular rainfall duration for a desired return frequency must be confronted. The question arises: Which will require the greatest volume of storage — a short duration, high intensity rainfall or a long duration, low intensity rainfall? There is no specific answer and therefore, rainfalls of various duration must be selected and tested. The detention basin design then becomes a repetitive, trial and error process to determine the critical rainfall event demanding maximum storage.

As mentioned, the outflow hydrograph is dependent upon the particular control structure selected as well as the depth of water stored in the detention basin. Weir formulas are available for this computation. For pipe conduits, however, outflow rates should be computed by reference to Hydraulic Engineering Circular No. 5, "Hydraulic Charts for the Selection of Highway Culverts," Federal Highway Administration. The actual shape of the outflow hydrograph can be developed by an application of a technique known as reservoir routing.

Referring to the set of typical inflow-outflow hydrographs shown in Figure 1, the change in storage volume from time 1 to time 2 is indicated by the shaded area between the two curves. This quantity can be expressed by the equation:

$$\frac{I_1 + I_2}{2} \times \Delta_t - \frac{O_1 + O_2}{2} \times \Delta_t = S_2 - S_1;$$

where I_1 and I_2 = inflow rates at times 1 and 2;
O_1 and O_2 = outflow rates at times 1 and 2;
S_1 and S_2 = storage volumes at times 1 and 2;
Δ_t = elapsed time between 1 and 2,

known as the *routing time increment*.

The equation can be rewritten in the form of a "routing equation" and expressed as:

$$I_1 + I_2 + \frac{2S_1}{\Delta_t} - O_1 = \frac{2S_2}{\Delta_t} + O_2$$

The routing equation is solved by a combination of analytical and graphical methods to yield a series of outflow rates, thus generating an outflow hydrograph. To simplify the presentation of the following solution procedure, A_2 and R_2 are substituted for the bracketed elements and the foregoing equation becomes:

$$I_1 + I_2 + A_1 = R_2$$

and R_2 is known as the *routing equation element*.

Solution Procedure

The step-by-step procedure used to check the size and discharge rate from a given detention basin is summarized as follows:

1) Compute the storage volumes in cubic feet for various selected incremental depths of impoundment. To accomplish this, a specific trial-size basin must be selected with known contour. From such information, the designer will be able to compute total storage volumes for different depths of impoundment.

2) Select a specific outlet control structure — weir, pipe, etc. — and compute outflow discharge rates, or values of O, for each incremental storage depth selected in Step 1.

3) Select a routing time increment, Δ_t. When the modified rational method is used, this value can be assumed equal to the time of concentration without seriously affecting the quantitative results. It should be noted that the units of routing time must be expressed as seconds for computation purposes.

4) For each incremental depth selected in Step 1, compute a corresponding value for the routing equation element, R. From the basic routing equation, this element is defined as:

$$R = \frac{2 \times \text{Storage Volume, cu. ft.}}{\text{Routing Time, sec.}} + \text{Outflow, cfs}$$

Steps 1, 2 and 3 provide the information for calculating the series of R values.

5) Prepare a graph, plotting the values of discharge, O, from Step 2 versus the R values from Step 4.

6) Solve the routing equation for values of R_2 at the end of each routing time increment. At this point, one must keep in mind the objective of the entire process — to determine the outflow rate from the detention basin at the end of a series of selected time increments equal to the time of concentration. Now, if an R_2 value could be computed for the end of each time increment, a corresponding discharge value could be obtained from the graph prepared in Step 5. The problem then becomes one of developing a method for solving the routing equation.

Inflow values at the beginning and end of each time increment, I_1 and I_2, are determined from the rational equation and inflow hydrograph. Determination of A_1 and R_2 presents a complication because each contains a storage value and outflow value. Two factors, however, alleviate the situation of attempting to solve for four unknowns with a single equation. First is the significance of the subscript notation. Subscripts 1 and 2 refer to parameters at the beginning and end of each routing time increment. Hence storage, inflow and outflow discharge at the end of one time increment automatically become the beginning values for the next time increment. Second, and most important, is the fact that all equation elements must equal zero at the be-

Table 1 — Tabulation of Storage-Discharge Data for Computing Routing Equation Element, R, In Example Problem

Depth Above Exit Conduit Invert, ft.	Basin Storage, cu. ft.	Discharge, O in cfs	Computed R in cfs
0.5	0	3	3
1.0	1,250	5	8
1.5	7,500	10	27
2.0	23,750	17	70
2.5	55,000	24	146
3.0	106,250	31	267
3.5	182,500	36	442
4.0	272,500	41	647
4.5	362,500	46	852
5.0	452,500	50	1,056

Note: The example detention basin is rectangular in shape, approximately 600 ft. by 200 ft., with a 6-in. drop inlet at the entrance of the discharge conduit. Basin storage volumes as shown in Column 2 are computed from the detention basin geometry (data not given) for the various incremental depths given in Column 1. Discharge values in Column 3 were determined by consulting Hydraulic Engineering Circular No. 5, Federal Highway Administration. Values of R are computed by substitution in the equation:

$R = \frac{2S}{\Delta_t} + O$; Δ_t = routing time of 15 min. or 900 sec.

Table 2 — Solution of the Routing Equation for Example Problem

Time, min.	Inflow Rate, I, cfs	Computed Value of A	Computed Value of R	Discharge, O in cfs
0	0	0	0	0
15	108	68	108	20
30	108	220	284	32
45	108	364	436	36
60	108	502	580	39
75	108	632	718	43
90	108	756	848	46
105	72	840	936	48
120	0	818	912	47

Notes: The maximum inflow, I, is determined from the rational method equation, $Q = ciA$, with a c of 0.75; i, 1.8 and A, 80.

Tabular values of A, R and O are obtained by solving the routing equation, $I_1 + I_2 = R_2$.

For the first time increment, 0 to 15 min., $I_1 = 0$, $I_2 = 108$, $A_1 = 0$. R_2 therefore must equal 108 and from Figure 3, the discharge at the end of the initial time increment equals 20 cfs. A_1 at the beginning of the second increment, which is also the end of the first increment, equals the first increment R_2 value less twice the discharge at the end of the first increment, or $108 - 20 - 20 = 68$. R_2 for the second increment $= 108 + 108 + 68 = 284$, $O = 32$ cfs, and A_1 for the third increment $= 284 - 32 - 32 = 220$. The process is continued until the desired number of points on the outflow hydrograph have been achieved.

ginning of the rainfall event. The equation at the time has the form: $0 + I_2 + 0 = R_2$. The R_2 value at the end of the first time increment will always equal the inflow rate at this time. Knowing this R_2 value, one can read a corresponding discharge rate from the graph prepared in Step 5.

Since the end of the first time increment and the start of the second time increment occur simultaneously, the beginning discharge rate for the second time increment can only be equal to the discharge rate at the end of the first increment. This fact enables the designer to compute the A_1 term of the routing equation for the next time increment because its value must equal the R_2 value from the previous increment less twice the discharge rate at the end of the first time increment. Proof of this can be derived from a study of the routing equation in its basic form. It must be remembered that discharge at the end of a one-time increment must equal the beginning discharge rate for the next time increment.

The process can now be treated in a step-by-step manner throughout the entire rainfall event, producing a series of discharge rates with respect to time, enabling the development of data for the construction of an outflow hydrograph.

7) Superimpose the outflow hydrograph on the inflow hydrograph and determine the area between the two plots. This area represents the required storage volume to contain the rainfall event described by the inflow hydrograph.

8) Repeat the process for different duration events until the maximum required storage volume is determined.

To illustrate the design process, the following problem and its solution are offered.

GIVEN: Runoff from an 80-acre industrial subdivision is to be diverted to a 2.75-acre detention basin with a 30-inch reinforced concrete pipe serving as the outlet control structure. The runoff coefficient is selected as 0.75 and the time of concentration for the drainage area is estimated to be 15 minutes.

FIND: The volume of required storage for a 25-year rainfall event frequency.

SOLUTION: A 100-minute duration event is used as a first trial with a corresponding intensity of 1.8 inches per hour. Appropriate depth, storage volume and discharge values are tabulated as shown in the first three columns of Table 1. The corresponding values of R are computed as shown in the fourth column, and a plot of R vs O is made as in Figure 3. The routing procedure is illustrated in Table 2, and it should be noted that the tabulated discharges represent points on the outflow hydrograph, plotted in Figure 4. The storage volume computed from the area between curves in Figure 4 is that required to detain the excess runoff from the 100-minute, 25-year frequency event. The process should be repeated for different rainfall durations in order to determine the maximum storage required for a rainfall event of this frequency.

The modified rational method represents a simple procedure for generating an inflow hydrograph. The method will yield acceptable designs results but should be applied only to small drainage areas where the basic assumptions inherent in the rational method can be expected to be valid. □□□

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Approved by MCCD
Jan 10, 1977

July, 1977

4678444 6-29-78

NARRATIVE REPORT
FOR
EROSION AND SEDIMENTATION CONTROL
FOR
RALPH'S SUPER-MARKET
IN HATFIELD TOWNSHIP ON EASTERLY CORNER OF
WELSH ROAD (L.R. 198) & FORTY FOOT ROAD (L.R. 646)

DEPT OF ENVIRONMENTAL RESOURCES
BUREAU OF
WATER QUALITY MANAGEMENT
APPLICATION
4678444 6-29-78
REPORTS
NO. OF VOLUMES 1 OF 1

1. GENERAL DESCRIPTION OF SITE LOCATION

The project site is a 13.953 acre tract of land situated on the Easterly corner of Welsh Road (L.R. 198) and Forty Foot Road (L.R. 646) in Hatfield Township. The Tract is bounded on the Southwest by Welsh Road, on the Northwest by Forty Foot Road, on the Northeast by residential lots and agricultural land, and on the Southeast by agricultural land.

Soils composition on the site, as identified by the Montgomery County Soils Survey, include Abbottstown, Readington, and Reaville classifications. Surface slopes on the site range from 3% to 8% on land which has been utilized as farmland for open meadow and crop growth.

2. GENERAL DESCRIPTION OF STORM WATER COLLECTION AND CONTROL

The storm water pipe and inlet collection system was designed using the rational method for a 10-year storm frequency criteria. Retention basins were designed for a 100-year storm frequency to attenuate peak runoff, thus minimizing point runoff impact.

3. GENERAL DESCRIPTION OF ACCELERATED EROSION CONTROL

As hereinafter described and as shown and noted on the Site Plan, and in the following (Item #7) construction control stage sequence, the following erosion control procedures and devices shall be employed.

The streets shall be graded and crushed stone base course applied, and curbing placed as soon as possible, to prevent erosion of the sub-grade. During street grading, diversion berms, filter berms, and straw-bale structures shall be constructed to minimize gullying and washing, and siltation in pipes and water courses.

Graded slopes, swales and diversions, and other critical disturbed areas shall be temporarily seeded following earth-moving procedures. Rear-of-lot areas not significant to the progression of construction of improvements and drainage controls shall be left undisturbed until lawn grading phase of finish construction.

4. GENERAL DESCRIPTION OF SEDIMENTATION CONTROL

On-site protection during construction will be provided by temporary diversion berms channeling the runoff into permanent retention basins. Filter berms and straw bale structures shall be employed as noted on the Site Plan to retain on-site sediment.

4. (continued)

Upon completion of construction and including the establishment of a good vegetative stand, all temporary erosion control devices shall be removed. Permanent devices shall be cleared of sediment and a stabilized vegetative cover established.

5. TOPOGRAPHIC AND GEOLOGIC FEATURES

The topographical data shown on the plans as well as all elevation data is based on actual physical ground surveys. The proposed structure shall be situated on Reaville soil which is characteristically subject to seasonal high water tables. The necessary drainage facilities have been provided to direct runoff by gravity flow to the proposed storm sewer system.

6. HYDROLOGIC RUNOFF COMPUTATIONS

The Design Manual, Part 2, of the Pennsylvania Department of Transportation, Chapter 12, was used as a reference.

7. SCHEDULE OF EARTH MOVING ACTIVITIES

a. Construct proposed storm sewer in streets and place straw bale structures around inlets.

b. Install temporary diversion berms where indicated, construct detention basins, and then build the swales (which shall be immediately seeded and mulched or sodded with Kentucky Bluegrass).

c. Remove and stockpile available topsoil in the indicated areas. Topsoil and any other stockpiled fill shall be immediately seeded with rye grass to prevent erosion.

d. Clear and grade proposed parking lot entrance drives, install temporary filter berms, and place stone ballast in said driveways immediately

e. Detention basins shall be equipped with a vertically graduated indicator giving the depth of accumulated silt and debris. Contractor shall remove said silt when it reaches the depth indicated on the construction plan. Damaged and deteriorated straw bales shall be replaced when necessary to insure the effectiveness of the barrier.

tion delay or shut-down.

Refer to the Erosion and Sediment Control Handbook of Montgomery County for additional standards for seeding, mulching and construction of erosion control structures.

7. (continued)

f. 1) During construction, equipment shall be used in a manner that does not leave the site susceptible to erosion.

2) Only those areas requiring grading will be disrupted, all others to remain undisturbed.

3) Each day's earth movement shall be compacted and bladed to drain to erosion control structures.

g. All newly graded areas are to be seeded and mulched or sodded as required immediately thereafter, and a good vegetative stand established before removal of temporary erosion control structures.

h. Natural drainage shall not be obstructed during any construction delay or shut-down.

i. Refer to the Erosion and Sediment Control Handbook of Montgomery County for additional standards for seeding, mulching and construction of erosion control structures.

-3-

(continued)

Upon completion of construction and stabilization of a good vegetative stand, all temporary erosion control devices shall be removed. Permanent devices shall be cleaned of sediment and a stabilized vegetative cover established.

TOPOGRAPHIC AND GEOLOGIC FEATURES

The topographical data shown on the plans as well as elevation data is based on actual physical property survey. Proposed structure shall be situated on [illegible] as necessary drainage facilities [illegible] grading plan.

EROSION AND SEDIMENTATION CONTROL PLAN

Schedule of Earth Moving Activities

1. Construct proposed storm sewer in streets and place straw bale structures around inlets.
2. Install temporary diversion berms where indicated, construct detention basins, and then build the swales (which shall be immediately seeded and mulched or sodded with Kentucky Bluegrass).
3. Remove and stockpile available topsoil in the indicated areas. Topsoil and any other stockpiled fill shall be seeded with rye grass to prevent erosion.
4. Clear and grade proposed parking lot entrance drives, install temporary filter berms, and place stone ballast in said driveways immediately.
5. Detention basins shall be equipped with a vertically graduated indicator giving the depth of accumulated silt and debris. Contractor shall remove said silt when it reaches the depth indicated on the construction plan. Damaged and deteriorated straw bales shall be replaced when necessary to insure the effectiveness of the barrier.
6. a) During construction, equipment shall be used in a manner that does not leave the site susceptible to erosion.
   b) Only those areas requiring grading will be distrupted, all others to remain undisturbed.
   c) Each day's earth movement shall be compacted and bladed to drain to erosion control structures.
7. All newly graded areas are to be seeded and mulched or sodded as required immediately thereafter, and a good vegetative stand established before removal of temporary erosion control structures.
8. Natural drainage shall not be obstructed during any construction delay or shut-down.
9. Refer to the Erosion and Sediment Control Handbook of Montgomery County for additional standards for seeding, mulching and construction of erosion control structures.

SOILS CLASSIFICATION

AbB2 - Abbottstown silt loam, 3 to 8 percent slopes, moderately eroded.

ReB2 - Readington silt loam, 3 to 8 percent slopes, moderately eroded.

RsB2 - Reaville shaly silt loam, 3 to 8 percent slopes, moderately eroded.

SOILS LEGEND

AbA	Abbottstown Silt Loam, 0 to 3 percent slopes
AbB2	Abbottstown Silt Loam, 3 to 8 percent slopes, moderately eroded
CrA	Croton Silt Loam, 0 to 3 percent slopes
ReB2	Readington Silt Loam, 3 to 8 percent slopes, moderately eroded

Δ AC_o = AC (Contrib Surface Flow between Inlets)
Δ AC_B = AC (Bypassing Flow From Previous Inlet)
Δ AC_I = AC (Entering Inlet)
C = Runoff Factor

SHEET NO. 1 OF 4 SHEETS

COMPUTATION TABLE STORM SEWER DESIGN

DRAINAGE AREA							TIME		HGL TAIL WATER ELEV.	I.E. CHANGE	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS n VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL	
ΔA	C	$\Delta A C_o$	$\Delta A C_B$	$\Delta A C_I$	AC	ΣAC	t	Σt										
ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	FT MSL	FT	FEET	FT/FT			IN	FPS	CFS	
1.87	.475	2.31	—	2.31	2.31	2.31	3.80	3.90	4.5	15.01	55	0.015	RCP	0.012	24	6.3	7.40	
0.17	90	0.15	0.02	0.15	0.17	2.48	0.13	3.93	"	16.12	68	0.015	RCP	0.012	24	6.4	12.0	
1.27	0.69	2.94	—	2.94	0.42	0.42			6.5	2.25	14	0.0207	RCP	0.012	12	3.50	2.15	
0.43	0.77	0.33	—	0.33	0.31	3.21	0.17	4.10	6.5	20.87	62	.0008	RCP	0.012	24	6.69	—	

BOIL'S LEGEND

AbA — Abbottstown Silt Loam, 0 to 3 percent slopes
AbB2 — Abbottstown Silt Loam, 3 to 8 percent slopes, moderately eroded
GrA — Croton Silt Loam, 0 to 3 percent slopes
RaB2 — Readington Silt Loam, 3 to 8 percent slopes, moderately eroded

ΔAC_o = AC (Contrib. Surface Flow between Inlets)
ΔAC_B = AC (Bypassing Flow From Previous Inlet)
ΔAC_i = AC (Entering Inlet)
C = Runoff Factor

SHEET NO. ... OF ... BY ...
CHKD BY ...

COMPUTATION TABLE - STORM SEWER DESIGN

	DRAINAGE AREA							TIME		RAIN FALL INTENSITY	DISCHARGE	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS N VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL
	ΔA	C	ΔAC_o	ΔAC_B	$\frac{\Delta AC_o}{\Delta AC_B}$	ΔAC	ΣAC_i	Δt	Σt	I	Q							
	ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	CFS	FEET	FT/FT			IN	FPS	CFS
	0.27	0.56	0.15	—	0.15	0.12	0.12	1.57	1.57	4.3	0.78	176	0.008	RCP	0.012	15	3.5	6.2
	0.30	0.61	0.18	0.03	0.21	0.17	0.29	1.00	2.57	"	1.81	176	0.009	RCP	0.012	15	4.6	6.2
	0.21	0.67	0.14	0.04	0.18	0.15	0.47	0.76	3.33	"	2.06	59	0.026	RCP	0.012	15	7.76	12.5

AC_o = AC (Contrib. Surface Flow between Inlets)
AC_B = AC (Bypassing Flow From Previous Inlet)
AC_i = AC (Entering Inlet)
C = Runoff Factor

SHEET NO 5 OF 6 BY DAT
CHKD BY DAT

COMPUTATION TABLE - STORM SEWER DESIGN

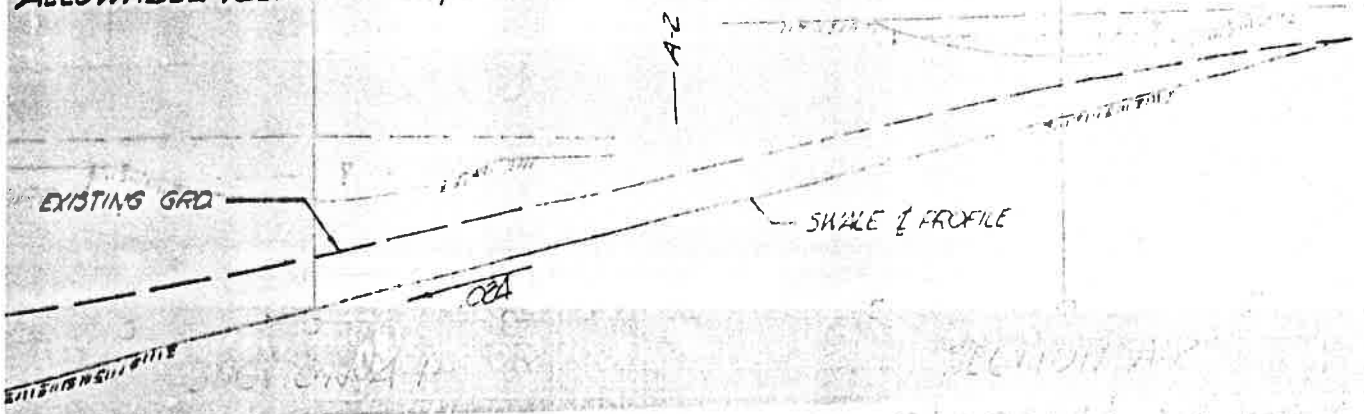
		DRAINAGE AREA					TIME		RAIN FALL INTEN. I	DIS-CHARGE Q	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS N VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL	REM
AA	C	AAC_o	AAC_B	$AAC_o + AAC_B$	AAC	ΣAC	Δt	Σt										
RES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	CFS	FEET	FT/FT			IN	FPS	CFS	
90	0.76	~~2.95~~	—	~~2.95~~	2.75	0.99	2.50	2.50	4.5	3.90	43	0.388	RCP	CCIP	12	11.40	9.50	FROM [illegible] AND [illegible]
38	0.54	0.32	—	0.32	0.28	0.28	0.32	0.42	4.5	1.82	102	0.015	RCP	0.012	12	5.34	14.00	CURB
26	0.90	0.23	0.04	0.27	0.24	1.12	0.32	0.64	6.5	7.28	196	0.015	RCP	0.012	18	6.21	14.00	
29	0.64	0.19	0.03	0.22	0.22	1.34	0.40	1.04	"	8.71	52	0.020	RCP	0.012	18	9.32	15.80	

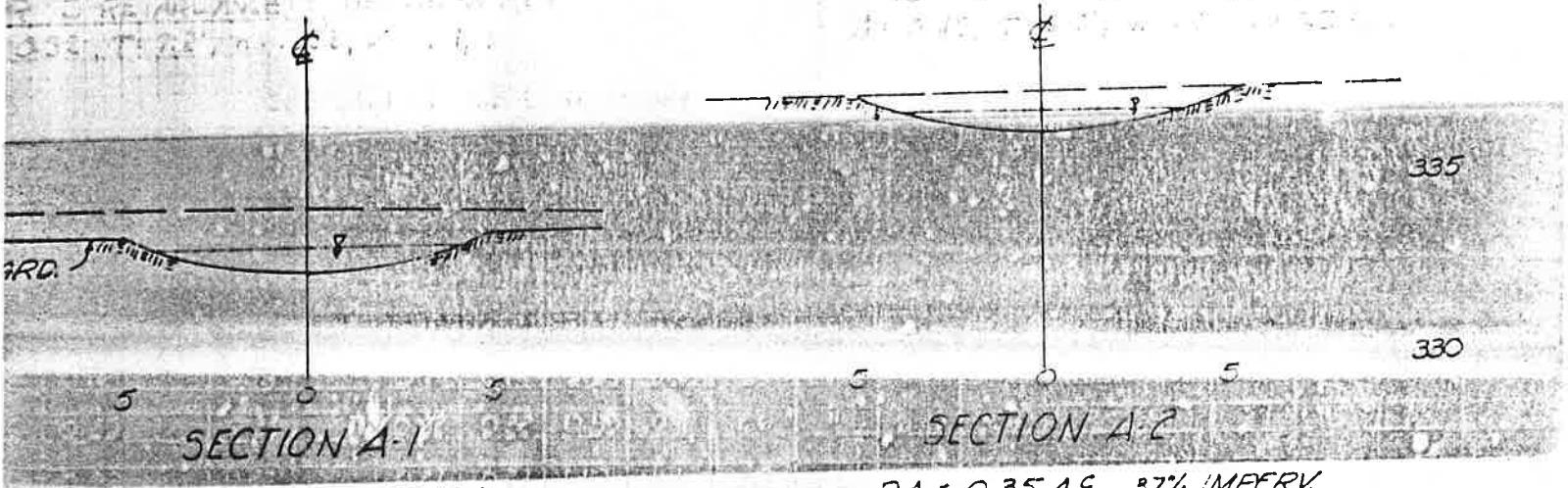
Δ AC_c = AC (Contrib. Surface Flow between Inlets)
Δ AC_B = AC (Bypassing Flow From Previous Inlet)
Δ AC_I = AC (Entering Inlet)
C = Runoff Factor

COMPUTATION TABLE - STORM SEWER DESIGN - INTERIOR COLLECTION SYSTEM

DRAINAGE AREA							TIME									
ΔA	C	ΔAC_c	ΔAC_I	ΔAC_B + ΔAC_c	ΔAC	ΣAC	t_c	t_f	Basin Factor	S	L	Q	Pipe Type	Pipe Size	Mean Velocity	Pipe Capacity
Acres		Acres	Acres	Acres	Acres	Acres	Min.	Min.								
0.23	0.9	0.23	-	0.23	0.23	0.23	2.0	2.0	6.5	1.50	30	0.010	CMP	2.024	12"	4.8	2.00
0.16	"	0.14	-	0.14	0.14	0.37	0.2	2.3	"	2.41	64	"	"	"	15"	3.1	3.60
0.16	"	0.14		0.14	0.14	0.51	0.3	2.5	"	3.32	26	"	"	"	12	3.3	3.60
0.35	"	0.32		0.32	0.32	0.83	0.1	2.6	"	5.40	26	"	"	"	18"	3.7	5.80
0.30	"	0.27		0.27	0.27	1.10	0.1	2.7	"	7.15	36	"	"	"	18"	4.0	-
0	"	0		0	0	1.10	0.2	2.9	"	7.15	240	"	"	"	21"	4.1	8.8
0.10	0.9	0.09	-	0.09	0.09	0.09	2.0	2.0	6.5	0.56	180	.0231	CMP	024	15"	2.7	5.3
0.10	0.9	0.09		0.09	0.07	0.07	-	-	6.5	0.46	22	.01	"	"	18"x11"	-	-
0.37	0.9	0.34		0.34	0.28	0.44	<5	<5	6.5	2.06	130	.0065	"	"	15"	2.3	2.9
1.14	0.9	1.03	-	1.03	1.03	1.03	0.34	0.34	6.5	6.67	140	0.0104	CMP	0.024	21"x15"	3.5	-
0.65	0.50	0.33		0.33	0.33	0.33			6.5	2.11	75	0.028	CMP	0.024	12"	4.4	3.4

TYPE - REAVILLE (K=.28)
ALLOWABLE VELOCITY 7 fps





SWALE "A" PROFILE

DA = 0.73 AC 18% IMPERVIOUS

Q_{100} = (.49)(8.9)(.73) = 3.18 cfs

FOR "C" RETARDANCE (S=.024)
d=0.69', T=8.3', n=.16, V=.8 fps

FOR "D" RETARDANCE
d=0.52', T=7.2', n=.058, V=1.3 fps

DA = 0.35 AC 37% IMPERV.

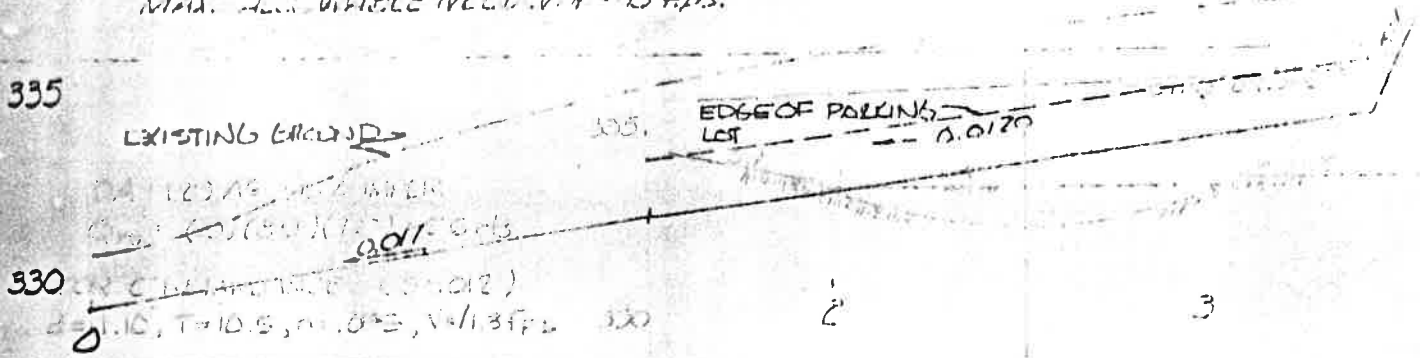
Q_{100} = (.59)(8.9)(.35) = 1.84 cfs

FOR "C" RETARDANCE (S=.024)
d=0.63', T=7.9', n=.023, V=0.55 fps

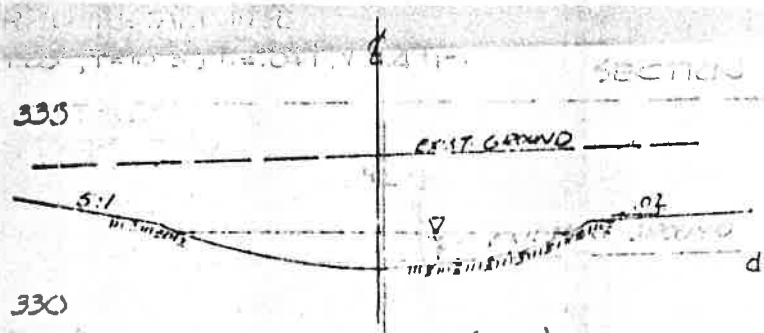
FOR "D" RETARDANCE (S=.024)
d=0.43', T=6.7', n=.041, V=2.0 fps

BY..... DATE SUBJECT Ralphs Market SHEET NO. 2 OF 2
CHKD. BY..... DATE 100 YEAR STORM Swale "B" Design Data JOB NO. 6647A

SOIL TYPE - READINGTON (k = .13)
MAX. ALLOWABLE VELOCITY = 5 fps.

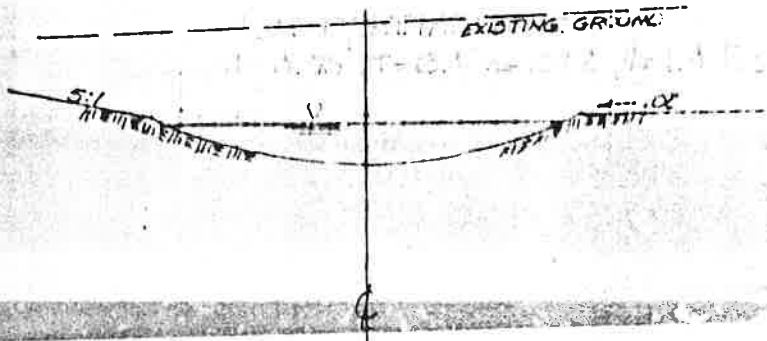


DA = 1.64 AC 95% IMPER.
Q_{100} = (.9)(5.9)(1.64) = 13.1 cfs
FOR "C" RETARDANCE (S = .017)
d = 1.0', T = 10.0, n = .070, V = 2.1 fps
FOR "D" RETARDANCE
d = 0.85, T = 9.2', n = .052, V = 2.5 fps



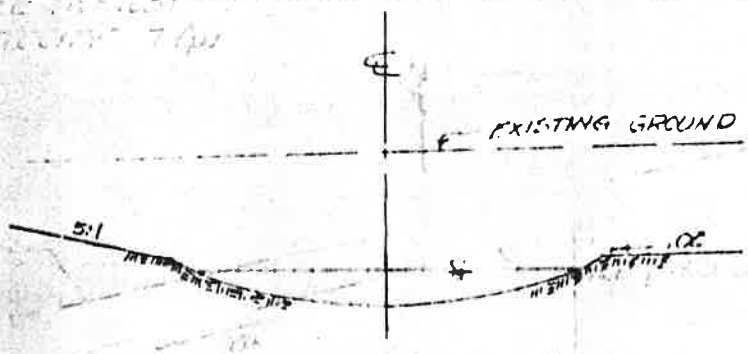
SECTION B-1 (1+0)

DA = 1.23 AC 95% IMPER.
Q_{100} = (.9)(8.9)(1.23) = 9.6 cfs
FOR "C" RETARDANCE (S = .017)
d = 1.10', T = 10.5, n = .085, V = 1.3 fps
FOR "D" RETARDANCE
d = 1.00', T = 10.3', n = .049, V = 1.4 fps



SECTION B-2 (2+00)

DA = 0.66 AC 95% IMPER.
Q_{100} = (.9)(8.9)(0.66) = 5.3 cfs
FOR "C" RETARDANCE (S = .017)
d = 1.0', T = 10.0', n = .107, V = .80 fps
FOR "D" RETARDANCE
d = 0.70', T = 8.4', n = .072, V = 1.4 fps

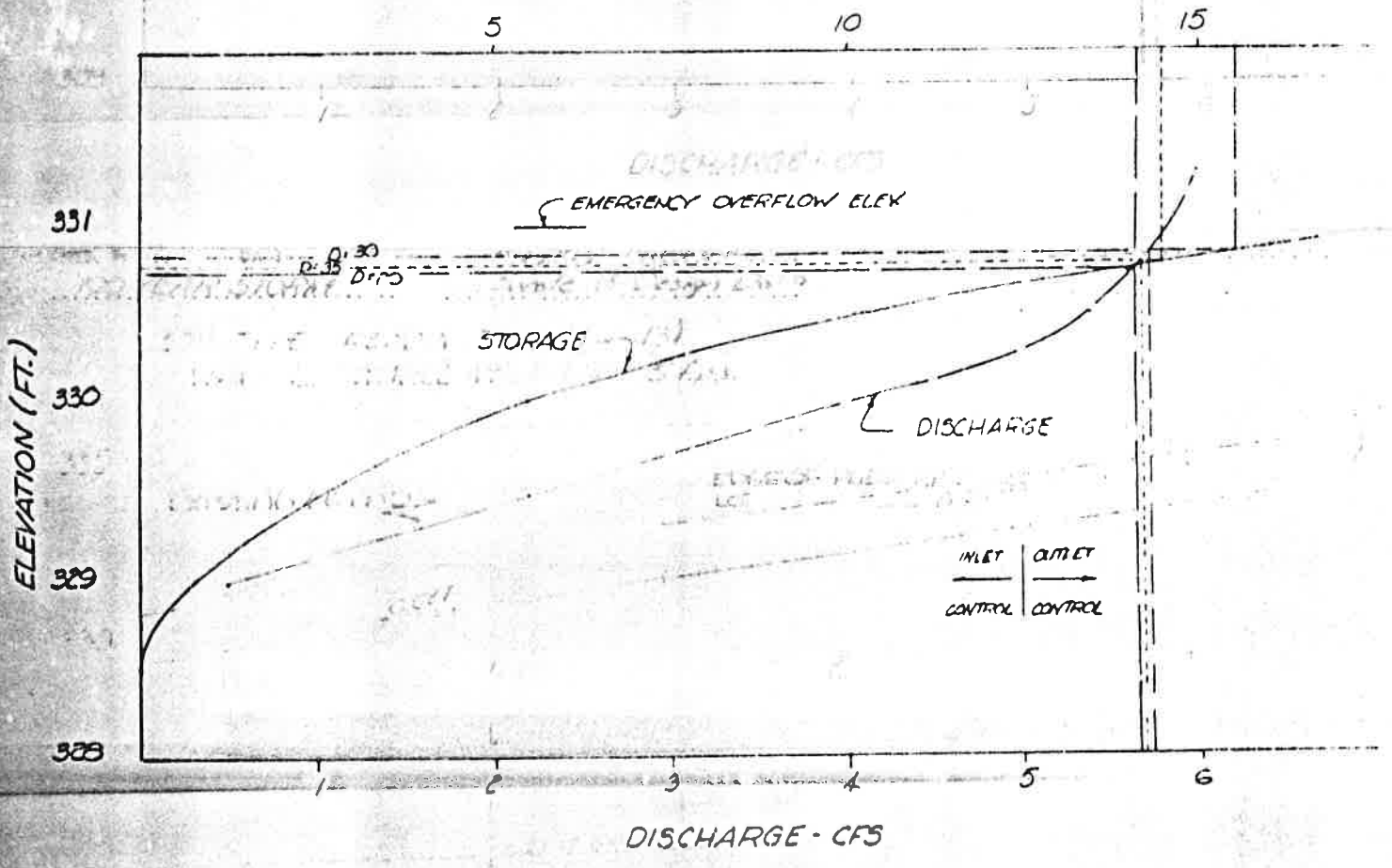


SECTION B-3 (3+0)

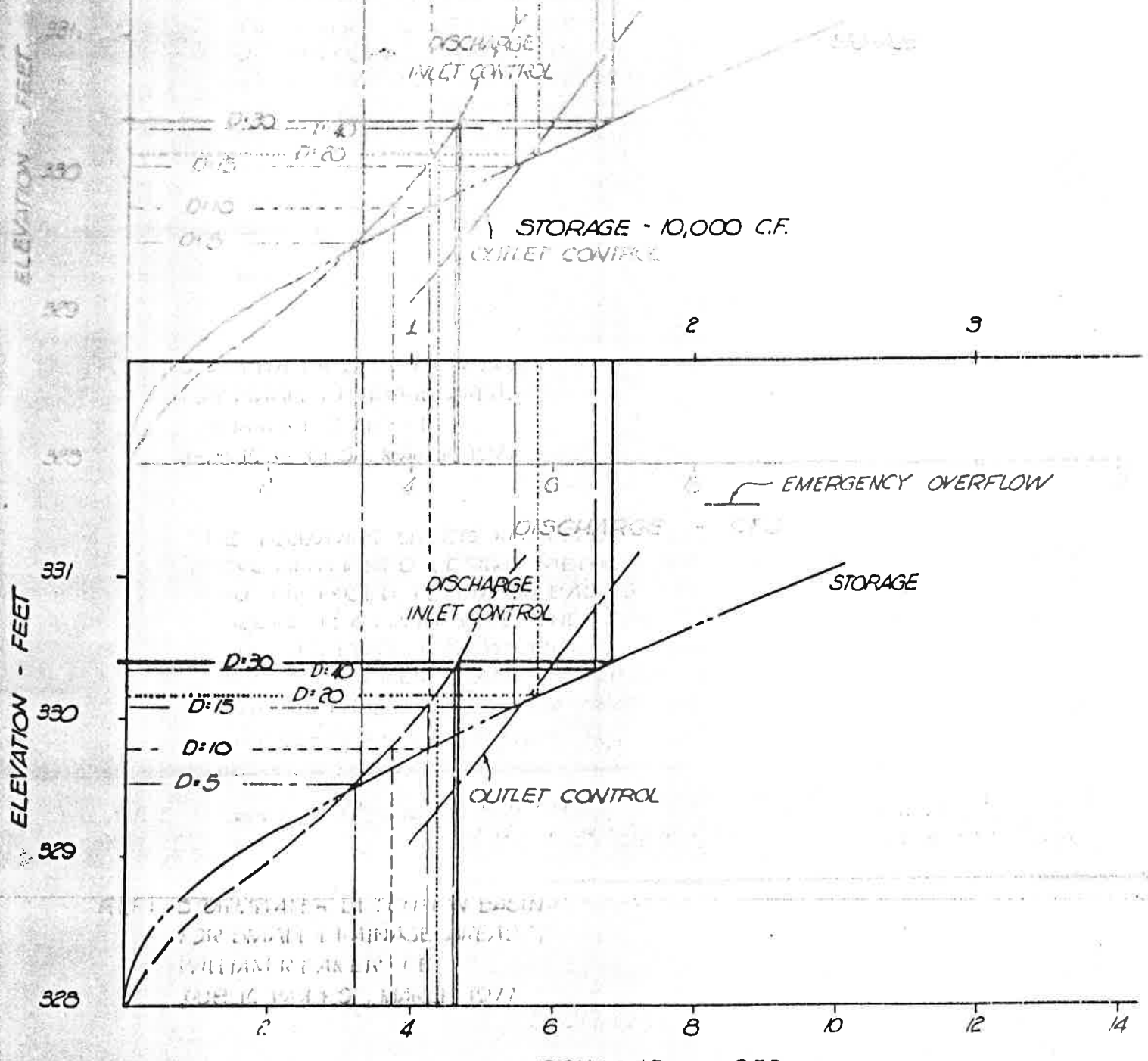
BY BLW DATE 2/19/77 SUBJECT RALPH'S SUPERMARKET SHEET NO. 1 OF 4
CHKD. BY DATE 12" PCP OUTFALL BASIN 'A' - REVISED JOB NO. 5CA17A
100 YEAR FLOOD ROUTING

REF: "STORMWATER DETENTION BASINS FOR SMALL DRAINAGE AREAS",
WILLIAM R BAKER, PE
PUBLIC WORKS, MARCH 1977

THE FOLLOWING SHEETS REPRESENT A SUMMARY OF THE ABOVE MENTIONED DESIGN METHOD FOR SIZING THE TWO PROPOSED DETENTION BASINS FOR A 100 YEAR STORM. SHEETS 1 & 2 SUMMARIZE THE PEAK DISCHARGE & STORAGE REQUIREMENTS FOR VARIOUS DURATIONS OF A 100 YEAR STORM. SHEETS 3 & 4 ILLUSTRATE A TYPICAL COMPUTATION FOR ONE DURATION. THIS METHOD USES CONVENTIONAL RESERVOIR ROUTING AND A HYPOTHETICAL INLET HYDROGRAPH BASED ON PEAK DISCHARGE AND TIME OF CONCENTRATION

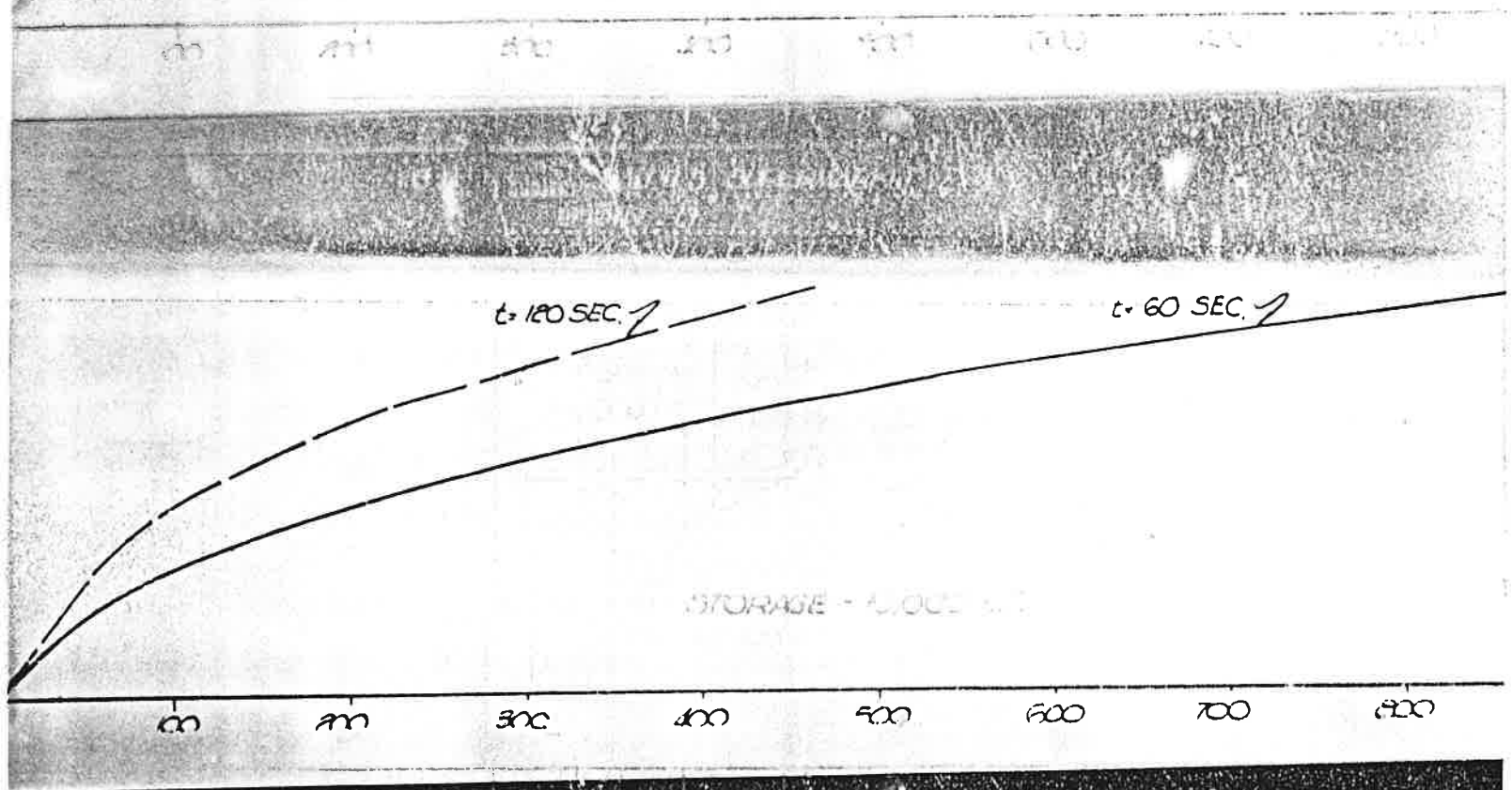


BY JW DATE 6-88 SUBJECT RALPH'S SUPERMARKET SHEET NO 2 OF 4
CHKD. By DATE BASIN B JOB NO. M2841
12"Ø PCP ELEVATION vs OUTFALL vs STORAGE
100 YEAR STORM



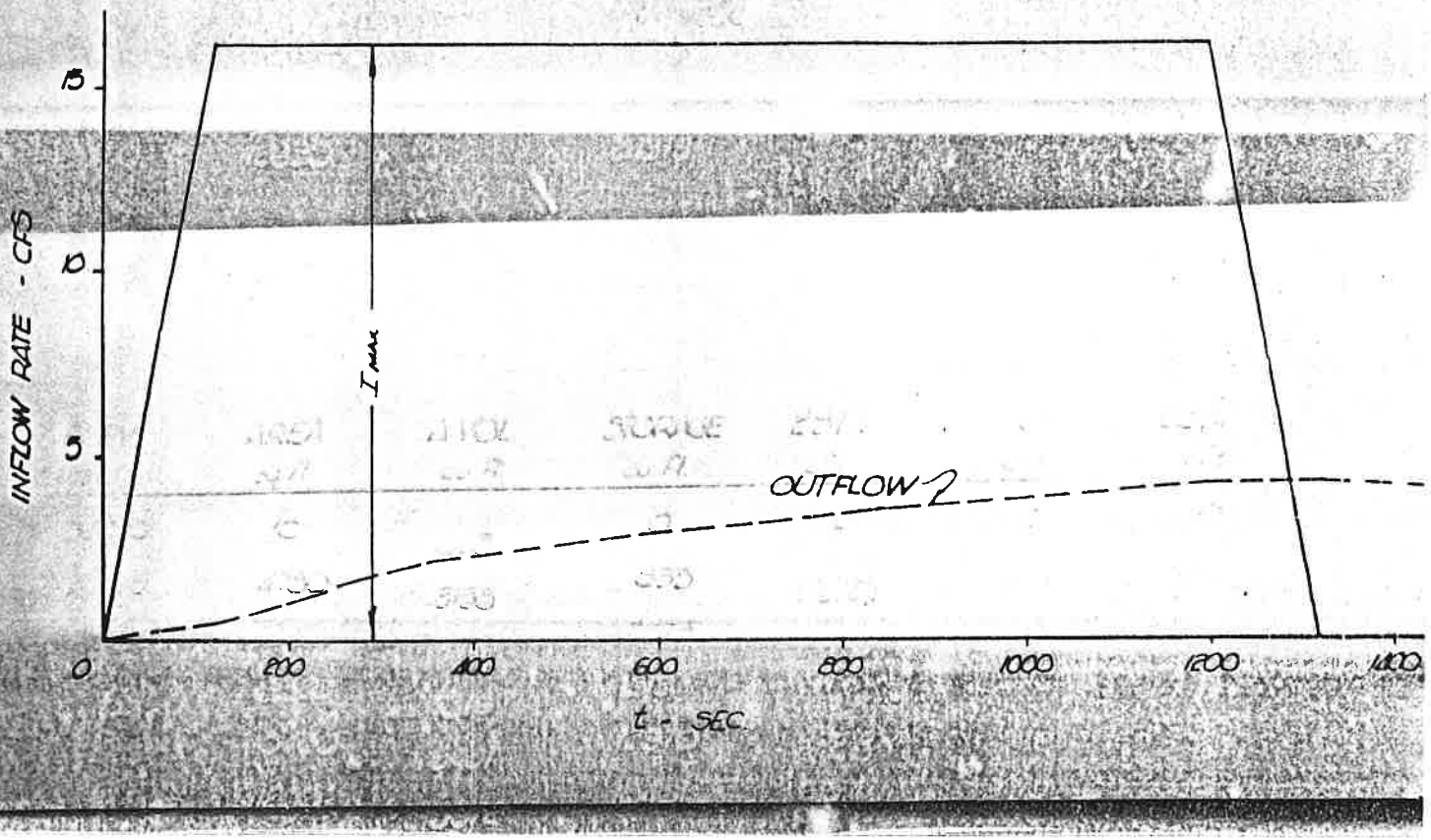
THE FOLLOWING SHEETS [illegible]
[illegible] METHOD FOR SIZING
[illegible] DETENTION BASINS [illegible]
[illegible] COMPARE THE PEAK DISCHARGE
[illegible] FOR VARIOUS DURATIONS OF
[illegible] A TYPICAL [illegible]
[illegible] PROVEN [illegible]
[illegible] INLET [illegible]

ELEV. Ft.	AREA sq ft.	Δ VOL. cu. ft.	STORAGE cu. ft.	2S/t cfs	O cfs	2S/t + O cfs
328.0	10	835	0	0	0	0
328.5	4780	3138	835	27.8 (13.9)	0.8	28.6 (21.92)
329.0	7900	4178	3973	132.4 (66.2)	2.1	134.5 (68.3)
329.5	8820	4819	8151	271.7 (135.9)	3.15	274.85 (139.0)
330.0	10480	5431	12970	432.3 (216.2)	4.1	436.4 (220.3)
330.5	11230	5972	18401	613.4 (306.7)	4.75	618.15 (311.45)
331.0	12650		24373	812.4 (406.2)	5.4	817.8 (411.60)



BY..... DATE 6-29 SUBJECT. RALPH'S SUPER MARKET SHEET NO. 4 OF
CHKD. By..... DATE BASIN 'B' JOB NO. M-2647
D = 20 MIN, t = 120 sec. INFLOW DESIGN HYDROGRAPH 12 Ø RCP

TIME - sec.	I	$I_1 + I_2$	2S/t + O	O	2O	2S/t - O
0	0	0	0	0	0	0
120	16.2	16.2	16.2	0.55	1.1	15.1
240	16.2	32.4	47.5	1.5	3.0	44.5
360	"	"	76.9	2.25	4.5	72.4
480	"	"	104.8	2.75	5.5	99.3
600	"	"	131.7	3.1	6.2	125.5
720	"	"	157.9	3.4	6.8	151.1
840	"	"	183.5	3.7	7.4	176.1
960	"	"	208.5	3.95	7.9	200.6
1080	"	"	233.0	4.15	8.3	224.7
1200	16.2	32.4	257.1	4.35	8.7	248.4
1320	0	16.2	264.6	4.38	8.75	255.85
1440	0	0	255.85	4.3	8.6	247.25
1560	0	0	247.25	4.25	8.5	238.75



ER-BWQ-51, Rev. 10-74

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED
June 22, 1978

APPLICATION FOR WATER QUALITY MANAGEMENT PERMIT

7/12/78
For Department Use Only

APPLICANT NAME	PROJECT LOCATION
Upper Gwynedd-Towamencin Municipal Authority	MUNICIPALITY: Towamencin Township, Hatfield Township
TELEPHONE NO.: 855-8165	
MAILING ADDRESS: 2225 Kriebel Road, Lansdale, PA 19446	COUNTY: Montgomery

RECEIVED
JUL 3 1978

HEREBY APPLIES FOR: (CHECK APPROPRIATE BLOCKS IN SPACES A, B, C AND D)

A. APPROVAL OF PLANS FOR CONSTRUCTION OF:
- [X] PUMP STATIONS, SEWERS AND APPURTENANCES
- [ ] SEWAGE TREATMENT PLANT
- [ ] MINE DRAINAGE TREATMENT PLANT
- [ ] INDUSTRIAL WASTE TREATMENT PLANT
- [ ] OUTFALL AND HEADWALL
- [ ] STREAM CROSSING [ ] IMPOUNDMENT

B. APPROVAL TO DISCHARGE:
(1) [X] TREATED
[ ] UNTREATED
(2) [ ] INDUSTRIAL WASTES
[ ] MINE DRAINAGE
[X] SEWAGE via exist. Auth. Plant

C. APPROVAL TO OPERATE
[ ] UNDERGROUND MINE

D. APPROVAL OF AN EROSION AND
[ ] SEDIMENTATION CONTROL PLAN

(ALL DISCHARGES OF WASTES ARE PURSUANT TO "THE CLEAN STREAMS LAW")

I HEREBY CERTIFY THAT THE ACCOMPANYING REPORT AND ALL PLANS, MODULES, AND DOCUMENTS DESIGNATED THEREIN ARE ATTACHED TO THIS APPLICATION, AND MADE A PART HEREOF.

APPLICATION NO. 4678444 — E.P.A. REGION — 6-29-78

H. Warren Dimmig
SIGNATURE OF APPLICANT OR RESPONSIBLE OFFICIAL

NAME OF APPLICANT OR RESPONSIBLE OFFICIAL:	TITLE	DATE OF APPLICATION
H. Warren Dimmig	Chairman	

ADDRESS: 2225 Kriebel Road, Lansdale, PA 19446

NO. OF VOLUMES ___ OF ___

AFFIDAVIT
COMMONWEALTH OF PENNSYLVANIA COUNTY OF Montgomery

I, H. Warren Dimmig BEING DULY SWORN, ACCORDING TO LAW, DEPOSE AND SAY THAT I (AM THE APPLICANT) (AM AN OFFICER OR OFFICIAL OF THE APPLICANT) (HAVE THE AUTHORITY TO MAKE THIS APPLICATION) AND THAT THE PLANS, REPORTS AND DOCUMENTS SUBMITTED AS PART OF THE APPLICATION ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

SWORN AND SUBSCRIBED TO BEFORE ME THIS
30 DAY OF June 19 78

NOTARY PUBLIC
Lansdale, Montg. Co., Pa.
My Commission Expires Jan. 28, 1979

H. Warren Dimmig
SIGNATURE OF APPLICANT OR RESPONSIBLE OFFICIAL

THE SECTION BELOW IS TO BE COMPLETED BY THE PERSON AUTHORIZED BY THE APPLICANT TO PREPARE THIS APPLICATION. NOTE: SEWERAGE, INDUSTRIAL WASTE, AND MINE DRAINAGE APPLICATIONS REQUIRE A REGISTERED PROFESSIONAL ENGINEER, EXCEPT THAT A REGISTERED SURVEYOR IS ACCEPTABLE WHERE PUBLIC HEALTH AND SAFETY ARE NOT INVOLVED.

NAME OF DESIGN PERSON AND FIRM	
Herbert H. Metz, Jr., P.E. Herbert H. Metz, Inc.	
MAILING ADDRESS: 410 Derstine Ave., Lansdale, PA 19446	TELEPHONE NO.: 215-855-3111
AGREEMENT DATE: 6/23/78	SIGNATURE OF DESIGN ENGINEER (OR OTHER): Herbert H. Metz, Jr., P.E.

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
HERBERT HAROLD METZ, JR.
No. 5953-E

BY..... DATE 6-29 SUBJECT RALPH'S SUPER MARKET SHEET NO. 4 OF 4
CHKD. BY..... DATE BASIN 'B' JOB NO. M-2647
D = 20 MIN, t = 120 sec. INFLOW DESIGN HYDROGRAPH 12" ø RCP

TIME - sec.	I	$I_1 + I_2$	$2S/t + O$	O	2O	$2S/t - O$
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120	16.2	16.2	16.2	0.55	1.1	15.1
240	16.2	32.4	47.5	1.5	3.0	44.5
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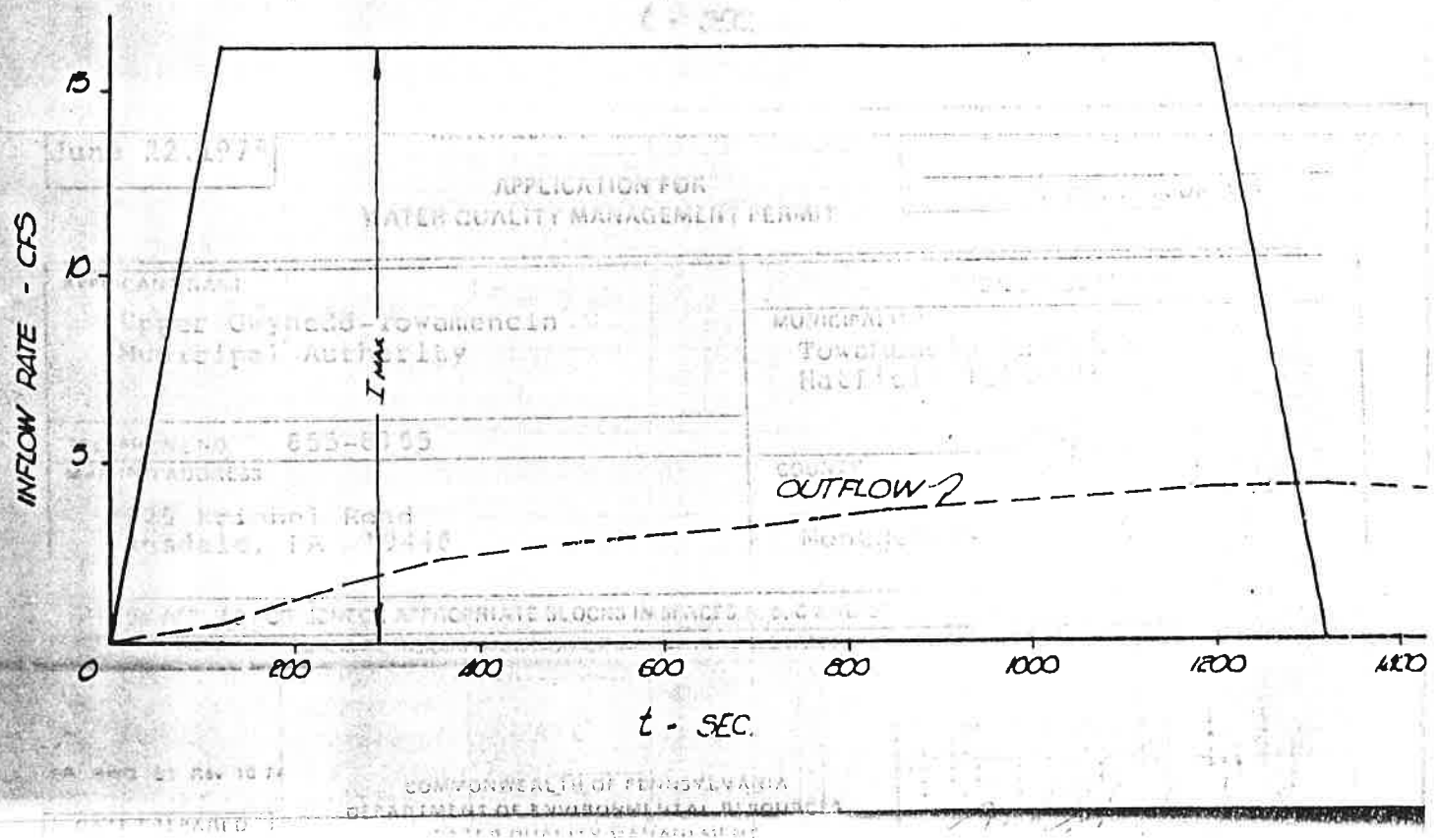

ER-BWQ-51 Rev. 10-74

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED
June 22, 1978

7/12/78
For Department Use Only

APPLICATION FOR WATER QUALITY MANAGEMENT PERMIT

APPLICANT NAME
Upper Gwynedd-Towamencin Municipal Authority

PROJECT LOCATION
MUNICIPALITY
Towamencin Township
Hatfield Township

TELEPHONE NO. 855-8165

MAILING ADDRESS
2225 Kriebel Road
Lansdale, PA 19446

COUNTY
Montgomery

RECEIVED
JUL 9 1978
DEPT. OF ENVIRONMENTAL RESOURCES

HEREBY APPLIES FOR: (CHECK APPROPRIATE BLOCKS IN SPACES A, B, C AND D)

A. APPROVAL OF PLANS FOR CONSTRUCTION OF:
- [X] PUMP STATIONS, SEWERS AND APPURTENANCES
- [ ] SEWAGE TREATMENT PLANT
- [ ] MINE DRAINAGE TREATMENT PLANT
- [ ] INDUSTRIAL WASTE TREATMENT PLANT
- [ ] OUTFALL AND HEADWALL
- [ ] STREAM CROSSING [ ] IMPOUNDMENT

B. APPROVAL TO DISCHARGE:
(1) [X] TREATED
[ ] UNTREATED
(2) [ ] INDUSTRIAL WASTES
[ ] MINE DRAINAGE
[X] SEWAGE via exist. Auth. Plant

C. APPROVAL TO OPERATE
[ ] UNDERGROUND
[ ] MINE

D. APPROVAL OF AN
[ ] EROSION AND
[ ] SEDIMENTATION
CONTROL PLAN

(ALL DISCHARGES OF WASTES ARE PURSUANT TO "THE CLEAN STREAMS LAW")

I HEREBY CERTIFY THAT THE ACCOMPANYING REPORT AND ALL PLANS, MODULES, AND DOCUMENTS DESIGNATED THEREIN ARE ATTACHED TO THIS APPLICATION, AND MADE A PART HEREOF.

APPLICATION NO. — M.C.D. REGION
4678444 6-29-78

H. Warren Dimmig
SIGNATURE OF APPLICANT OR RESPONSIBLE OFFICIAL

NAME OF APPLICANT OR RESPONSIBLE OFFICIAL:
H. Warren Dimmig

TITLE
Chairman

DATE OF APPLICATION

ADDRESS
2225 Kriebel Road, Lansdale, PA 19446

NO. OF VOLUMES 1 OF 1

AFFIDAVIT
COMMONWEALTH OF PENNSYLVANIA COUNTY OF Montgomery

I, H. Warren Dimmig BEING DULY SWORN, ACCORDING TO LAW, DEPOSE AND SAY THAT I (AM THE APPLICANT) (AM AN OFFICER OR OFFICIAL OF THE APPLICANT) (HAVE THE AUTHORITY TO MAKE THIS APPLICATION) AND THAT THE PLANS, REPORTS AND DOCUMENTS SUBMITTED AS PART OF THE APPLICATION ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

SWORN AND SUBSCRIBED TO BEFORE ME THIS
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NOTARY PUBLIC
Lansdale, Montg. Co., Pa.
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NAME OF DESIGN PERSON AND FIRM
Herbert H. Metz, Jr., P.E.
Herbert H. Metz, Inc.

MAILING ADDRESS
410 Derstine Ave.,
Lansdale, PA 19446

TELEPHONE NO
215-855-3111

AGREEMENT DATE
6/23/78

SIGNATURE OF DESIGN ENGINEER (OR OTHER)
Herbert H. Metz, Jr., P.E.

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
HERBERT HANS METZ, JR.
SEAL
No. 5953

ER-BWQ-188.1(REV. 3/75

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

MODULE 1 – GENERAL INFORMATION SEWERAGE

DATE PREPARED: June 22,1978
DATE REVISED:

For Department Use Only

APPLICANT: Upper Gwynedd-Towamencin Municipal Authority

(1) LOCATION OF PROJECT: MUNICIPALITY: Towamencin & Hatfield Twps. COUNTY: Montgomery

RECEIVED
JUN 29 1978

DESIGN ENGINEER AND FIRM:

DESIGN ENGINEERS ADDRESS: ZIP CODE: TELEPHONE:

(1) DESCRIPTION OF PROJECT: Extension of U.G.-Tow. Mun. Auth. planned T-14 Trunk Line in Towamencin Twp. approx. 3,150 L.F. from MH 165 in Keeler Rd. (T-395) to Terminal Trunk MH 174 at a point on the N.E. side of Welsh Road (L.R. 198-TR 63); also 311 L.F. 8" san. sewer extension from T-14 MH 174 N.W. along N.E. side Welsh Road fronting, and to service, Ralph's Super Market site in Hatfield Township

A. DOCUMENTATION REQUIRED

1. HAS A CHECK FOR $25.00, PAYABLE TO THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES, BEEN INCLUDED? (NOT REQUIRED OF STATE OR FEDERAL AGENCIES) — [X] Yes [ ] No [ ] N/A

2. HAVE 2 COPIES OF THE APPLICATION, FORM H710.046, BEEN SUBMITTED? (3 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND DELAWARE RIVER BASIN). — [X] Yes [ ] No

A. HAS THE AFFIDAVIT BEEN PROPERLY COMPLETED AND EXECUTED? — [X] Yes [ ] No

3. DOES THE APPLICATION INCLUDE THE FOLLOWING APPLICABLE MODULES:

MODULE NUMBER	TITLE	NUMBER OF PAGES	
1	GENERAL INFORMATION – SEWERAGE	9	[X] Yes
4	WASTE LOAD AND CHARACTERISTICS	3	[ ] Yes
5	GEOLOGY AND GROUND WATER INFORMATION	2	[ ] Yes
6	SEWERS AND APPURTENANCES	5	[X] Yes
7	SEWAGE PUMPING STATIONS	4	[ ] Yes
8	PUMPING FACILITIES	1	[ ] Yes
9	FLOW EQUALIZATION AND STORAGE BASINS	2	[ ] Yes
10	GRIT CHAMBERS	1	[ ] Yes
11	SCREENING AND COMMINUTING DEVICES	2	[ ] Yes
12	IMHOFF AND SEPTIC TANKS	2	[ ] Yes
13	SETTLING TANKS	2	[ ] Yes
14	EARTHEN SETTLING BASINS	2	[ ] Yes

(1) See attached Exhibit "E" - copy of U.G.-Tow. Mun. Auth. and Hatfield Twp. Mun. Auth. relationship-agreement re: this project

PA-DEQ-1.1 PREV 3/78

DATE PREPARED
June 22, 1978
DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

MODULE 1 – GENERAL INFORMATION

SEWERAGE

For Department Use Only

THIS SHEET NOT APPLICABLE

A. DOCUMENTATION REQUIRED – CONTINUED

MODULE NUMBER	TITLE	NUMBER OF PAGES	
15	TRICKLING FILTERS	2	☐ Yes
16	AERATION TANKS OR BASINS	3	☐ Yes
17	WASTE STABILIZATION PONDS	3	☐ Yes
18	CHEMICAL TREATMENT (INCLUDING FEEDERS)	3	☐ Yes
19	MIXING AND FLOCCULATION FACILITIES	1	☐ Yes
20	SAND FILTERS	2	☐ Yes
21	DISINFECTION	2	☐ Yes
22	SPRAY IRRIGATION	1	☐ Yes
23	PHYSICAL ABSORPTION, ION EXCHANGE, AND CONTACT UNITS	2	☐ Yes
25	DEEP WELL DISPOSAL	4	☐ Yes
26	SLUDGE TREATMENT AND DISPOSAL		
	A. SEPARATE DIGESTION TANKS AND SLUDGE THICKENING TANKS	2	☐ Yes
	B. ELUTRIATION	1	☐ Yes
	C. WET OXIDATION	1	☐ Yes
	D. SLUDGE DRYING BEDS	1	☐ Yes
	E. LAND DISPOSAL OF SLUDGE	1	☐ Yes
	F. SLUDGE BASINS	1	☐ Yes
	G. FILTERS AND CENTRIFUGES	1	☐ Yes
	H. INCINERATION	1	☐ Yes

B. REQUIRED DATA

1. THE FRONT COVER OR FLYLEAF OF EACH SET OF DRAWINGS AND SPECIFICATIONS MUST BEAR THE SIGNATURE AND SEAL OF THE REGISTERED PROFESSIONAL ENGINEER, SURVEYOR BY OR UNDER WHOM PREPARED. EACH DRAWING MUST BEAR AN IMPRINT OR REASONABLE FACSIMILE OF SUCH SEAL.

ER-BWQ-188.1 REV. 3/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: June 22,1978
DATE REVISED:

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

B. REQUIRED DATA – CONTINUED

2. INFORMATION RELATIVE TO SPECIFIC PROGRAMS:

A. 2 COPIES OF DESIGNER'S PLANS, MODULES, AND SPECIFICATIONS (3 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND DELAWARE RIVER BASIN)

B. HYDRAULIC PROFILE OR SCHEMATIC FLOW DIAGRAM FOR PROPOSED TREATMENT PLANT. ☒ N/A

C. UNITED STATES GEOLOGICAL SURVEY TOPOGRAPHICAL MAP SHOWING EXACT POINT OF DISCHARGE AND TREATMENT PLANT OR PUMP STATION LOCATION AND/OR AREA TO SEWERS. ☒ N/A

D. HAVE YOU APPLIED FOR A PUBLIC UTILITY COMMISSION CERTIFICATE OF PUBLIC CONVENIENCE? ☐ Yes ☐ No ☒ N/A

(1) SPECIFY PUBLIC UTILITY COMMISSION APPLICATION NUMBER N/A

(2) IS CERTIFICATE OF PUBLIC CONVENIENCE ENCLOSED? N/A ☐ Yes ☐ No

E. HAVE YOU APPLIED FOR APPROVAL OF STREAM ENCROACHMENT(S)? ☐ Yes ☐ No ☒ N/A

F. HAVE YOU APPLIED FOR DEPARTMENT OF LABOR AND INDUSTRY APPROVAL FOR FEATURES AFFECTING EMPLOYEE SAFETY? ☐ Yes ☐ No ☒ N/A

G. DO YOU HAVE AN AGREEMENT INDICATING APPROVAL TO DISCHARGE TO SEWER SYSTEM AND TREATMENT PLANT OF ANOTHER PERMITTEE? ☐ Yes ☐ No ☒ N/A

H. HAVE YOU APPLIED FOR APPROVAL OF AIR POLUTION CONTROL FACILITIES? ☐ Yes ☐ No ☒ N/A

I. HAVE YOU SUBMITTED A LIST WITH NAMES, ADDRESSES, AND TITLES OF ALL PARTNERS IN THE CASE OF A PARTNERSHIP OR ALL OFFICERS IN THE CASE OF A CORPORATION, UNINCORPORATED ASSOCIATION, INCORPORATED ASSOCIATION, PARTNERSHIP, OR OTHER ENTITY (NOT MUNICIPAL)? ☐ Yes ☐ No ☒ N/A

3. SPECIFY THE FOLLOWING:

A. PLANS: T-14 Trunk Line U.Gwyn.-Towamencin Mun Auth. (TITLE/DESCRIPTION) NO. OF SHEETS 4 DATE as Rev. 6/16/78

PLANS: Site Plan Ralph's Super Market (TITLE/DESCRIPTION) NO. OF SHEETS 1 DATE as last rev. 12/14/

PLANS: _____ (TITLE/DESCRIPTION) NO. OF SHEETS _____ DATE _____

ER-BWQ-188.1-REV.-3/75

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED
June 22, 1978
DATE REVISED

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

B. REQUIRED DATA – CONTINUED

B. SPECIFICATIONS (IF APPLICABLE): Upper Gwynedd-Towamencin Municipal Authority
TITLE

Reference specifications and pertinences as filed at Pa. D.E.R.
by U.G.T.M.A.

NUMBER OF VOLUMES _____ DATE _____

C. OTHER (SPECIFY TYPE AND NUMBER):

4. ARE THE PLANS:

A. CLEAR, LEGIBLE, AND DRAWN TO SCALE WITH NORTH ARROW INDICATED? [X] Yes [ ] No

B. WITHIN MAXIMUM SIZE OF 36 INCHES BY 50 INCHES? [X] Yes [ ] No

C. SEAL AND SIGNATURE OF PROFESSIONAL ENGINEER OR SURVEYOR RESPONSIBLE FOR THIS APPLICATION

1. SIGNATURE OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW) Herbert H. Metz, Jr., P.E.

2. SEAL OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW)

SEAL

ER-BWQ-188.1 REV. 3/75

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: June 22, 1978
DATE REVISED:

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

CLASS OF CONSTRUCTION (Check all applicable blocks) — THIS SHEET NOT APPLICABLE

- ☐ NEW
- ☐ REPLACEMENT OF EXISTING UNIT(S)
- ☐ ADDITIONS AND/OR
- ☐ MODIFICATIONS TO EXISTING UNIT(S)

TABLE I – DESIGN LOADING DATA			To Be Abandoned	Total Proposed	Existing Facilities Design	Present Operating Load	Proposed Total Facilities Design
1. EQUIVALENT POPULATION TO BE SERVED (NO. OF PERSONS – SUBMIT CALCULATIONS)							
	A. DOMESTIC						
	B. INDUSTRIAL						
	C. TOTAL						
2. DESIGN YEAR OR PERIOD FOR OPERATING DATA							
3. RUNOFF PERIOD		(HRS)					
4. DOMESTIC WASTE FLOW DATA	A. PER CAPITA FLOW	(GPCD)					
	B. AVERAGE DAILY FLOW	(MGD)					
	C. INFILTRATION	(MGD)					
	D. RUNOFF FLOW RATE	(MGD)					
	E. MAXIMUM FLOW RATE	(MGD)					
5. INDUSTRIAL WASTE FLOW DATA	A. AVERAGE DAILY FLOW	(MGD)					
	B. MAXIMUM DAILY FLOW	(MGD)					
6. TOTAL DESIGN AVERAGE FLOW		(MGD)					

TABLE II – FACILITIES DESIGN DATA (Specify number of units)

Units	Existing	To Be Abandoned	Total Proposed	Units	Existing	To Be Abandoned	Total Proposed
1. SCREENING DEVICES				13. CHLORINE CONTACT TANK(S)			
2. GRIT CHAMBER(S)				14. DISINFECTION FACILITIES			
3. COMMINUTOR(S)				15. SEPARATE SLUDGE DIGESTORS			
4. PRE-AERATION TANKS				16. SLUDGE DRYING BEDS			
5. PRIMARY SETTLING TANKS				17. MECHANICAL SLUDGE DEWATERING			
6. IMHOFF TANK(S)				18. SLUDGE ELUTRIATION TANKS			
7. TRICKLING FILTERS				19. SLUDGE STABILIZATION TANKS			
8. INTERMEDIATE SETTLING TANKS				20. INCINERATOR(S)			
9. AERATION TANKS				21. MIXING AND FLOCCULATION TANKS			
10. FINAL SETTLING TANKS				22. OTHER (Specify)			
11. INTERMITTENT SAND FILTERS				23. OTHER (Specify)			
12. WASTE STABILIZATION POND(S)				24. OTHER (Specify)			

DATE PREPARED: June 22, 1978
DATE REVISED:

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
(WATER QUALITY MANAGEMENT)

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

D. GENERAL INFORMATION

1. EXISTING COMBINED SEWERS MAKE UP 0 % OF THE TOTAL AREA SERVED BY THE SYSTEM.

2. ARE THE EXISTING SANITARY SEWERS SUBJECT TO EXCESSIVE INFILTRATION? [X] Yes [ ] No [ ] N/A

(1) Not in Interceptor Trunk Lines' system

A. IF YES, SPECIFY MAJOR SOURCES OF INFILTRATION: M.H. top brick courses in Old Inglewood Area - See Liptak report of 2/16/73 - filed with E.P.A. for correction

B. HAS A REGULATION PROHIBITING THE ADMITTANCE OF STORM WATER FROM PAVEMENTS, ROOFS, AND OTHER SOURCES BEEN ADOPTED? [X] Yes [ ] No
(IF YES, ENCLOSE COPY.)

See Exhibit "A" - Also refer to U.G.T.M.A. Rates, Rules & Regulations, Construction Specs. and National Plumbing Code

C. SPECIFY STEPS TAKEN OR BEING TAKEN TO CORRECT THE INFILTRATION PROBLEM, INCLUDING DATES: [ ] N/A

See Liptak report of 2/16/73 - Some M.H. repairs in Inglewood Section system accomplished in 1977.

3. TYPES OF INDUSTRIAL WASTES OF SPECIAL CONSIDERATION: None

4. WILL THE APPLICANT BE RESPONSIBLE FOR REPAIR AND MAINTENANCE OF SEWAGE FACILITIES FOR WHICH APPLICATION IS SUBMITTED? (1) [X] Yes [ ] No

A. IF NO, EXPLAIN:

5. THE DISTANCE OF THIS PLANT TO THE NEAREST OCCUPIED DWELLING:

A. PRESENT _____ FEET

B. PROPOSED N/A FEET

6. IF THE APPLICANT IS OTHER THAN A MUNICIPALITY OR MUNICIPAL AUTHORITY, HAS THE GOVERNING MUNICIPALITY OBJECTED TO THE PROPOSED SEWAGE TREATMENT PLANT? [ ] Yes [ ] No [X] N/A

(1) upon construction completion, inspection and acceptance by Authority

ER-BWQ-188.1 REV. 3/75

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: June 22, 1978
DATE REVISED:

WATER POLLUTION CONTROL

MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

THIS SHEET NOT APPLICABLE

D. GENERAL INFORMATION – CONTINUED

6. A. IS THE LETTER FROM MUNICIPAL OFFICER, SIGNIFYING THE OPINION, APPENDED TO THIS APPLICATION? ☐ Yes ☐ No

7. ARE DUPLICATE TREATMENT UNITS PROVIDED WHERE REQUIRED? ☐ Yes ☐ No ☐ N/A

A. IF NO, EXPLAIN: _____

B. DO ANY BY-PASS STRUCTURES DISCHARGE TO WATERS OF THE COMMONWEALTH? (SPECIFY PLAN SHEET NUMBER(S) SHOWING BY-PASS STRUCTURES) ☐ Yes ☐ No

8. HAS AN AUXILIARY STANDBY POWER SOURCE BEEN PROVIDED? ☐ Yes ☐ No ☐ N/A

9. DOES ANY PIPING OR CONNECTION EXIST IN ANY PART OF THE TREATMENT WORKS WHICH MAY CAUSE CONTAMINATION OF THE POTABLE WATER SUPPLY? ☐ Yes ☐ No

10. IF A NON-POTABLE WATER SUPPLY IS PROVIDED, ARE ALL OUTLETS PERMANENTLY POSTED TO INDICATE WATER IS NOT SAFE FOR DRINKING? ☐ Yes ☐ No ☐ N/A

11. ARE FACILITIES PROVIDED FOR MEASURING THE SEWAGE FLOW? ☐ Yes ☐ No

12. SAFETY:

A. ARE FACILITIES PROVIDED TO EFFECTIVELY PROTECT THE OPERATOR AND VISITORS? ☐ Yes ☐ No

13. OUTFALL SEWER:

A. IS THE OUTFALL SEWER ADEQUATELY PROTECTED TO ENSURE ITS STRUCTURAL STABILITY AND FREEDOM FROM STOPPAGE? ☐ Yes ☐ No

B. IS AN OUTFALL HEAD WALL PROVIDED? ☐ Yes ☐ No ☐ N/A

C. DOES THE OUTFALL EXTEND TO THE LOW WATER MARK OF THE RECEIVING STREAM? ☐ Yes ☐ No ☐ N/A

14. HAVE PROVISIONS BEEN MADE TO PROTECT ALL STRUCTURES AGAINST FLOTATION? ☐ Yes ☐ No

15. IF THE PROJECT INVOLVES ADDITIONS TO AN EXISTING TREATMENT PLANT, DO THE SPECIFICATIONS INCLUDE A PROGRAM TO PREVENT BY-PASSING OF ANY UNIT TO WATERS OF THE COMMONWEALTH DURING CONSTRUCTION? ☐ Yes ☐ No ☐ N/A

A. SPECIFY VOLUME AND PAGE NUMBER OF SPECIFICATIONS: _____

16. SPECIFY NAMES OF MUNICIPALITIES AND POPULATION SERVED OR TO BE SERVED BY THIS PLANT: _____

COMMONWEALTH OF PENNSYLVANIA
WATER QUALITY MANAGEMENT

ER-BWQ-188.1 REV. 3/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED
June 22, 1978
DATE REVISED

WATER POLLUTION CONTROL

MODULE 1 - GENERAL INFORMATION SEWERAGE

For Department Use Only

THIS SHEET NOT APPLICABLE

E. RECEIVING STREAM*

1. WHAT IS THE NAME OF THE RECEIVING STREAM? _____

A. TRIBUTARY OF _____

B. TRIBUTARY OF _____

C. MAJOR DRAINAGE BASIN:

- ☐ DELAWARE
- ☐ SUSQUEHANNA
- ☐ POTOMAC
- ☐ LAKE ERIE
- ☐ GENESEE
- ☐ ALLEGHENY
- ☐ MONONGAHELA
- ☐ OHIO

2. DESCRIBE THE EXACT POINT OF DISCHARGE:

_____ DEG, _____ MIN, _____ SEC LATITUDE

_____ DEG, _____ MIN, _____ SEC LONGITUDE

A. WATERSHED AREA ABOVE POINT OF DISCHARGE IS

_____ SQUARE MILES.

3. WHAT IS THE:

A. MINIMUM 7-CONSECUTIVE-DAYS FLOW OCCURRING ONCE IN 10 YEARS?

_____ CUBIC FEET PER SECOND.

B. MINIMUM STREAM FLOW: _____

C. ABOVE FLOWS ARE BASED ON:

- ☐ MEASUREMENTS
- ☐ ESTIMATES

_____ YEARS OF RECORD

4. IS THE TREATMENT PLANT SUBJECT TO FLOODING? ☐ Yes ☐ No

5. THE PROBABILITY OF THE TREATMENT PLANT BEING OUT OF SERVICE DUE TO FLOODING IS ONCE IN: _____ YEARS.

A. LIST BRIEFLY THE METHODS USED FOR FLOOD PROTECTION:

_____

_____

_____

* *Attach U.S. Geological Survey 7.5' or 15' Quadrangle Map showing exact points of discharge.*

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COMMONWEALTH OF PENNSYLVANIA
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MODULE 1 - GENERAL INFORMATION
SEWERAGE

For Department Use Only

E. RECEIVING STREAM - CONTINUED

THIS SHEET NOT APPLICABLE

6. TO THE BEST OF YOUR KNOWLEDGE, WILL THE TREATED WASTE DISCHARGE ADVERSELY AFFECT:

A. DOMESTIC WATER SUPPLY?	☐ Yes	☐ No
B. BATHING?	☐ Yes	☐ No
C. STOCK WATERING?	☐ Yes	☐ No
D. FISH AND AQUATIC LIFE?	☐ Yes	☐ No
E. INDUSTRIAL WATER SUPPLY?	☐ Yes	☐ No
F. IRRIGATION?	☐ Yes	☐ No
G. BOATING AND AESTHETICS?	☐ Yes	☐ No

7. IF ANY ITEMS IN 6 ABOVE ARE ANSWERED YES, INDICATE DISTANCE TO, LOCATION OF, AND EXTENT OF ADVERSE EFFECT:

WATER POLLUTION CONTROL
MODULE 1 - GENERAL INFORMATION
SEWERAGE

E. RECEIVING STREAM

THIS SHEET NOT APPLICABLE

1. WHAT IS THE NAME OF THE RECEIVING STREAM?

2. IS IT A TRIBUTARY OF

3. TRIBUTARY OF

MAJOR DRAINAGE BASIN: ☐ DELAWARE ☐

ER-RWQ-188.6 REV. 3/75 COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: June 22, 1978
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WATER POLLUTION CONTROL

For Department Use Only

MODULE 6 - SEWERS AND APPURTENANCES

CLASS OF CONSTRUCTION (Check All Applicable Blocks): [ ] NEW SYSTEM [ ] REPLACEMENT OF EXISTING SYSTEM [X] EXTENSION(S) TO EXISTING SYSTEM

TABLE I - DESIGN FLOW AND LOADING INFORMATION

1. POPULATION TO BE SERVED	INITIAL	DESIGN	DESIGN YEAR
	21 (1)	1498 (2)	2000

2. AREA TO BE SERVED	ACRES (INITIAL)	ACRES (FUTURE)
TYPE OF AREA (Residential, Commercial, Etc.)	12.5± Acres (1)	161+ Acres Total (2)
Shopping Center, initially (1) Mixed Residential (balance)		

3. A. LATERALS AND SUB MAIN SEWERS	(GPCD)	400
B. MAIN AND TRUNK SEWERS	(GPCD)	400 (T-14 Trunk Line & Ext.)
C. INTERCEPTORS	(GPCD)	
(1) MEASURED DRY WEATHER FLOW	(%)	
(2) ESTIMATED DRY WEATHER FLOW	(%)	
D. IF ANY VALUES LESS THAN PRESCRIBED IN MANUAL, EXPLAIN		

4. DESIGN FLOW DATA (2)	GPCD	MGD
A. AVERAGE DAILY FLOW	100	0.1498
B. INFILTRATION		incl. in "A"
C. MAXIMUM INDUSTRIAL WASTE FLOW		N/A
D. TOTAL DESIGN FLOW		0.1498
E. MAXIMUM FLOW RATE		0.5992

TABLE II - GENERAL DESIGN

PIPE DIAMETER (IN.)	MINIMUM SLOPE (%)	MAXIMUM SLOPE (%)	MAXIMUM VELOCITY (FPS)	MAXIMUM FLOW (MGD)	MAXIMUM DISTANCE BETWEEN MANHOLES (FT.) SEWERS 15 IN. OR LESS	MAXIMUM DISTANCE BETWEEN MANHOLES (FT.) SEWERS 18 IN. TO 30 IN.	TYPE OF SEWER MATERIAL	"N" VALUE
8"	0.966	2.98*	6.0*	1.36*	393		A.C.P.	.013
10"	0.50	2.8*	6.7*	2.33*	300		A.C.P.	.013

*Full Flow Cond.

(USE ADDITIONAL SHEETS IF NECESSARY)

TABLE III - CRITICAL DATA

PLAN SHEET NUMBER	MANHOLE NUMBER FROM	MANHOLE NUMBER TO	SEWER PIPE SIZE (IN.)	SEWER SLOPE (%)	POPULATION SERVED	TOTAL DESIGN FLOW (MGD)	SEWER FLOWING FULL VEL. (FPS)	SEWER FLOWING FULL CAP. (MGD)	MAXIMUM FLOW VELOCITY (FPS)
					NO CRITICAL SECTIONS				

(1) Ralph's Supermarket (6.0 EDU equiv.) See attached Supplemental Sheet #6-1.A.
(2) Projected Ult. Des. connected population ... See attached Supp. Sheet #6-1.A.

DEP-BWQ-188.6 REV. 3/75

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DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED

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WATER POLLUTION CONTROL

For Department Use Only

MODULE 6 - SEWERS AND APPURTENANCES

A. GENERAL DESIGN

1. ARE THE PROPOSED SEWERS DESIGNED AS SEPARATE SANITARY SEWERS? ☐ Yes ☒ No

   A. IF NO, EXPLAIN IN DETAIL INCLUDING THE POSSIBLE EFFECTS UPON WATER COURSES.

   N/A

2. ARE THE PROPOSED SEWERS DEEP ENOUGH TO SERVE ALL ADJACENT BASEMENTS? ☒ Yes ☐ No

   A. IF NO, EXPLAIN. N/A

3. ARE THERE ANY OVERFLOWS OR BYPASSES OTHER THAN FROM PUMP STATIONS? ☐ Yes ☒ No

   A. IF YES, SPECIFY PLAN SHEET(S) WHERE SHOWN. N/A

4. WHERE SMALLER SEWERS JOIN LARGER ONES, HAVE THE INVERTS OF THE LARGER SEWERS BEEN LOWERED SUFFICIENTLY TO MAINTAIN THE SAME ENERGY GRADIENT? ☒ Yes ☐ No ☐ N/A

5. SPECIFY THE TYPE OF LEAKAGE TEST (INFILTRATION AND/OR EXFILTRATION) AND THE LIMIT TO BE USED, PREFERABLY IN TERMS OF GALLONS PER INCH OF PIPE DIAMETER PER MILES PER DAY. (INDICATE VOLUME AND PAGE NUMBER OF SPECIFICATIONS.)

   TYPE AND LIMITS: Infiltration & exfiltration--N.T.E. 200 gal. per inch pipe dia. per mile of sewer per day (U.G.-Tow. Mun. Auth. Spec.)

6. HAVE PROVISIONS BEEN MADE TO PROTECT SEWERS AT VELOCITIES OF OVER 15 FEET PER SECOND? ☐ Yes ☐ No ☒ N/A

   A. ARE SEWERS SECURED WITH CONCRETE ANCHORS (OR EQUAL) SPACED AS REQUIRED? ☐ Yes ☐ No ☒ N/A

7. ARE MANHOLES PROVIDED AT ALL CHANGES IN SIZE, GRADE, ALIGNMENT, AND SEWER INTERSECTIONS? ☒ Yes ☐ No

8. ARE DROP MANHOLES PROVIDED WHERE THE ENTRANCE SEWER INVERT IS 24 INCHES OR MORE ABOVE MANHOLE INVERT? ☐ Yes ☐ No N/A

9. ARE WATERTIGHT COVERS USED WHERE MANHOLES ARE SUBJECT TO FLOODING BY STREET RUNOFF OR HIGH WATER? ☒ Yes ☐ No

ER-RWQ-188.6 REV. 3/78 COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: June 22, 1978
DATE REVISED:

WATER POLLUTION CONTROL

For Department Use Only

MODULE 6 - SEWERS AND APPURTENANCES

CLASS OF CONSTRUCTION (Check All Applicable Blocks): [ ] NEW SYSTEM [ ] REPLACEMENT OF EXISTING SYSTEM [X] EXTENSION(S) TO EXISTING SYSTEM

TABLE I - DESIGN FLOW AND LOADING INFORMATION

	INITIAL	DESIGN	DESIGN YEAR
1. POPULATION TO BE SERVED	21 (1)	1498 (2)	2000
2. AREA TO BE SERVED — ACRES (INITIAL)	12.5± Acres (1)		
TYPE OF AREA (Residential, Commercial, Etc.)	Shopping Center, initially (1) Mixed Residential (balance)	ACRES (FUTURE) 161+ Acres Total (2)	

3.			
A. LATERALS AND SUB MAIN SEWERS	(GPCD)	400	
B. MAIN AND TRUNK SEWERS	(GPCD)	400	(T-14 Trunk Line & Ext.)
C. INTERCEPTORS	(GPCD)		
(1) MEASURED DRY WEATHER FLOW	(%)		
(2) ESTIMATED DRY WEATHER FLOW	(%)		
D. IF ANY VALUES LESS THAN PRESCRIBED IN MANUAL, EXPLAIN			

4. DESIGN FLOW DATA (2)	GPCD	CAP. MGD
A. AVERAGE DAILY FLOW	100	0.1498
B. INFILTRATION		incl. in "A"
C. MAXIMUM INDUSTRIAL WASTE FLOW		N/A
D. TOTAL DESIGN FLOW		0.1498
E. MAXIMUM FLOW RATE		0.5992

TABLE II - GENERAL DESIGN

PIPE DIAMETER (IN.)	MINIMUM SLOPE (%)	MAXIMUM SLOPE (%)	MAXIMUM VELOCITY (FPS)	MAXIMUM FLOW (MGD)	MAXIMUM DISTANCE BETWEEN MANHOLES (FT.) SEWERS 15 IN. OR LESS	MAXIMUM DISTANCE BETWEEN MANHOLES (FT.) SEWERS 18 IN. TO 30 IN.	TYPE OF SEWER MATERIAL	"N" VALUE
8"	0.966	2.98*	6.0*	1.36*	393		A.C.P.	.013
10"	0.50	2.8*	6.7*	2.33*	300		A.C.P.	.013

*Full Flow Cond.

(USE ADDITIONAL SHEETS IF NECESSARY)

TABLE III - CRITICAL DATA

PLAN SHEET NUMBER	MANHOLE NUMBER FROM	MANHOLE NUMBER TO	SEWER PIPE SIZE (IN.)	SEWER SLOPE (%)	POPULATION SERVED	TOTAL DESIGN FLOW (MGD)	SEWER FLOWING FULL VEL. (FPS)	SEWER FLOWING FULL CAP. (MGD)	MAXIMUM FLOW VELOCITY (FPS)
NO CRITICAL SECTIONS									

(1) Ralph's Supermarket (6.0 EDU equiv.) See attached Supplemental Sheet #6-1.A.
(2) Projected Ult. Des. connected population See attached Supp. Sheet #6-1.A.

PR-BWQ-188.6 REV. 3/75

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WATER QUALITY MANAGEMENT

DATE PREPARED

DATE REVISED

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MODULE 6 – SEWERS AND APPURTENANCES

A. GENERAL DESIGN

1. ARE THE PROPOSED SEWERS DESIGNED AS SEPARATE SANITARY SEWERS? ☐ Yes ☒ No
   A. IF NO, EXPLAIN IN DETAIL, INCLUDING THE POSSIBLE EFFECTS UPON WATER COURSES.
   N/A

   Infiltration & exfiltration--N.T.E. 200 g

2. ARE THE PROPOSED SEWERS DEEP ENOUGH TO SERVE ALL ADJACENT BASEMENTS? ☒ Yes ☐ No
   A. IF NO, EXPLAIN. N/A

3. ARE THERE ANY OVERFLOWS OR BYPASSES OTHER THAN FROM PUMP STATIONS? ☐ Yes ☒ No
   A. IF YES, SPECIFY PLAN SHEET(S) WHERE SHOWN N/A

4. WHERE SMALLER SEWERS JOIN LARGER ONES, HAVE THE INVERTS OF THE LARGER SEWERS BEEN LOWERED SUFFICIENTLY TO MAINTAIN THE SAME ENERGY GRADIENT? ☒ Yes ☐ No ☐ N/A

5. SPECIFY THE TYPE OF LEAKAGE TEST (INFILTRATION AND/OR EXFILTRATION) AND THE LIMIT TO BE USED, PREFERABLY IN TERMS OF GALLONS PER INCH OF PIPE DIAMETER PER MILES PER DAY. (INDICATE VOLUME AND PAGE NUMBER OF SPECIFICATIONS.)

   TYPE AND LIMITS: Infiltration & exfiltration--N.T.E. 200 gal. per inch pipe dia. per mile of sewer per day (U.G.-Tow. Mun. Auth. Spec.)

6. HAVE PROVISIONS BEEN MADE TO PROTECT SEWERS AT VELOCITIES OF OVER 15 FEET PER SECOND? ☐ Yes ☐ No ☒ N/A
   A. ARE SEWERS SECURED WITH CONCRETE ANCHORS (OR EQUAL) SPACED AS REQUIRED? ☐ Yes ☐ No ☒ N/A

7. ARE MANHOLES PROVIDED AT ALL CHANGES IN SIZE, GRADE, ALIGNMENT, AND SEWER INTERSECTIONS? ☒ Yes ☐ No

8. ARE DROP MANHOLES PROVIDED WHERE THE ENTRANCE SEWER INVERT IS 24 INCHES OR MORE ABOVE MANHOLE INVERT? ☐ Yes ☐ No N/A

9. ARE WATERTIGHT COVERS USED WHERE MANHOLES ARE SUBJECT TO FLOODING BY STREET RUNOFF OR HIGH WATER? ☒ Yes ☐ No

SUPPLEMENTARY SHEET #6-1.A

Amplification Re: Item 6-1.1

(1) INITIAL population to be served = 21 (proposed Ralph's Supermarket)

Design data and analysis:

A. Water usage @ present market in Lansdale Boro; Based upon N.P.W.A. records for 12 months period - 4/77 to 3/78:

Average Daily = 958 g.p.d./year
Peak Month = 1,249 g.p.d. ave.
Min. Month = 723 g.p.d. (ave.)

For 2 rest rooms, assume 400 g.p.d./each = 800 g.p.d.

Apply to: Peak daily ave. = 1,249 gpd
Rest rooms = - 800
For Produce, meat, etc. wash & prep. = 449 gpd

B. Considered facilities for ave. daily sewage flow @ prop. supermarket

Rest Rooms: 3 @ 400 g.p.d. each = 1,200 gpd

Produce, meats, etc. wash & prep. operations:
(Estimate 100% increase over present market ave. peak daily)
450 g.p.d. x 2.0 = 900 gpd

Est. total ave. daily flow = 2,100 gpd

2100 g.p.d. ÷ 350 g.p.d./E.D.U. = 6.0 E.D.U.

Equiv. Pop. = 6 E.D.U. x 3.5 = 21

(2) DESIGN ultimate population to be served =1498 (Total trib. shed as dev.)

Design Data --

	Zone/Tract	Loc.	Area (Ac.)	Est. E.D.U.
1. (A)	Shopping Center (Supermarket)	Hatfield Township	12.5	6
2. (B)	Res. RB (Haines Tract)	Hatfield Township	15.5	30
3. (C)	Exist. Res. Ho.- Welsh Road	Hatf. & Tow. Twps.	20±	26
4. (D)	Planned MCR Res. (trib. part of DiLucia Tract)	Tow. Twp.	110±	364±
5. (F)	Exist. Res.-Allentown Rd.	Tow. Twp.	3±	2
		TOTALS:	161± Ac.	428± E.D.U.

Total Design Equiv. Pop. = 428 x 3.5 = 1492

Should be 1498?

COMMONWEALTH OF PENNSYLVANIA
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COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

DATE PREPARED: June 22, 1978
DATE REVISED:

For Department Use Only

MODULE 6 SEWERS AND APPURTENANCES

A. GENERAL INFORMATION - CONTINUED

20. ON THE PLANS, INDICATE THE PERMIT NUMBER FOR EXISTING SEWER AT EACH PROPOSED POINT OF CONNECTION AND THE NAME OF THE PERMITTEE. SPECIFY PLAN SHEET NUMBER(S) ON WHICH INDICATED. Permit #4675424

Plan-Profile Sheet #UG-T-64-152

21. WILL THERE BE A PUMP STATION INVOLVED IN RECEIVING SEWAGE FROM THE SEWER EXTENSION? ☐ Yes ☒ No ☐ N/A

A. IF YES, SPECIFY PRESENT AND DESIGN FLOWS OF PUMPING STATION. N/A

22. RECEIVING SEWAGE TREATMENT PLANT (FILL IN FOR EXTENSION(S) TO EXISTING SYSTEM ONLY)

A. OWNER OF PLANT Upper Gwynedd-Towamencin Municipal Authority

B. NAME OF PLANT Upper Gwy.-Tow. Mun. Auth. Wastewater Treatment Plant

C. DISCHARGE DATA

	WASTE FLOW (MGD)	SOLIDS SUSPENDED (LB/DAY)	SOLIDS SETTLEABLE (ML/L)	BOD 5 DAY 20°C (LB/DAY)
(1) ALLOWABLE LOAD TO STREAM AUTHORIZED UNDER PRESENT PERMIT	1.5 (2.5)(1)	375	None Stated	375
(2) PRESENT LOAD TO STREAM FROM TREATMENT PLANT	1.282(2)	267(3)	0.4	267(3)
(3) ADDITIONAL LOAD TO STREAM EXPECTED DURING THE NEXT FIVE YEARS FROM EXISTING SYSTEM	.2564 (4)	45	Negligible	45
(4) ADDITIONAL LOAD TO STREAM DURING THE NEXT FIVE YEARS FROM PROPOSED EXTENSION	.1498	26	Negligible	26
(5) TOTAL ANTICIPATED LOAD TO STREAM IN NEXT FIVE YEARS (2+3+4)	1.6882	338	0.4	338

D. TREATMENT PLANT OPERATING EFFICIENCY

	SOLIDS SUSPENDED (%)	SOLIDS SETTLEABLE (%)	BOD 5 DAY 20° C (%)
(1) PRESENT TREATMENT PLANT		98	
(2) AFTER INITIAL LOAD FROM PROPOSED EXTENSION	90	98	90
(3) IN FIVE YEARS	90	98	90

23. WILL THE LOAD UNDER 22.B.(5) ABOVE PRODUCE AN EFFLUENT THAT WILL HAVE AN ADVERSE EFFECT UPON THE RECEIVING STREAM? ☐ Yes ☒ No

NOTES: (1), (2), (3), - See attached Supplemental Sheet #6-4a.
(4)

ER-BWQ-1M.6 REV. 6/75

COMMONWEALTH OF PENNSYLVANIA
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WATER QUALITY MANAGEMENT

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WATER POLLUTION CONTROL

For Department Use Only

MODULE 6 - SEWERS AND APPURTENANCES

A. GENERAL INFORMATION - CONTINUED

10. ARE SEWERS IN STREAMS PROTECTED WITH AT LEAST 1 FOOT COVER PRIVATE IN ROCK AND 3 FEET COVER IN OTHER MATERIAL? ☐ Yes ☐ No ☒ N/A

11. ARE SEWERS IN STREAMS CONSTRUCTED TO REMAIN WATERTIGHT AND IN ALIGNMENT? ☐ Yes ☐ No ☒ N/A

12. DOES THE APPLICATION INVOLVE CAPPED SEWERS? ☐ Yes ☒ No

A. IF YES, SPECIFY PLAN SHEET NUMBER _____

13. HOW MANY INVERTED SIPHONS ARE INCLUDED IN THIS DESIGN? NONE

14. IF SIPHONS ARE INCLUDED, SPECIFY THE FOLLOWING:

	SIPHON	SIPHON	SIPHON
A. NUMBER OF BARRELS			
B. MINIMUM PIPE SIZE	N/A		
C. MINIMUM VELOCITY AT AVERAGE FLOW			

D. HAS PROVISION BEEN MADE FOR FLUSHING, RODDING, AND MAINTENANCE? ☐ Yes ☐ No

15. IS THERE ANY CONNECTION BETWEEN THE SEWER AND A PUBLIC OR PRIVATE POTABLE WATER SUPPLY OR APPURTENANCES? ☐ Yes ☒ No

16. ARE ANY WATER SUPPLY SOURCES, PUBLIC OR PRIVATE, LOCATED WITHIN 200 FEET OF THE SEWERS? ☐ Yes ☒ No see drawing #154

A. IF YES, SPECIFY PLAN SHEET(S) ON WHICH SOURCES ARE SHOWN N/A

B. IF YES, WILL SEWERS BE ENCASED OR WATERTIGHT? N/A ☐ Yes ☐ No

17. ARE SEWERS AT LEAST 10 FEET HORIZONTALLY FROM WATER LINES AND/OR AT LEAST 18 INCHES BELOW THE WATER LINE? ☒ Yes ☐ No

(1) 18. IF THE PROPOSED FACILITY WILL DISCHARGE TO THE SEWER SYSTEM AND TREATMENT PLANT OF ANOTHER MUNICIPALITY, HAVE APPROPRIATE AGREEMENTS BEEN REACHED? ☒ Yes & ☒ No ☐ N/A

A. IS THE AGREEMENT A CERTIFIED AGREEMENT? ☒ Yes ☐ No ☐ N/A

B. IS THE AGREEMENT A LETTER OF INTENT? ☒ Yes ☐ No ☐ N/A

C. HAVE DUPLICATE COPIES BEEN ENCLOSED? ☒ Yes ☐ No

19. DO THE EXISTING SEWERS TO WHICH THE PROPOSED SEWERS WILL CONNECT HAVE ADEQUATE CAPACITY TO CONVEY THE ADDITIONAL FLOW? ☒ Yes ☐ No ☐ N/A

(1) See attached Exhibit "E" - copy of Authorities' agreement.

SUPPLEMENTARY SHEET 6-4a

NOTES - Re: 6-4 22.C

(1) 1.5 MGD former capacity, plus 1.0 MGD current expansion capacity = 2.5 MGD

(2) Avg. Daily Flow: Obtained by averaging most recent 12 months' operations reports' daily recorded flows from June, 1977 thru May, 1978, inclusive.

(3) Values based upon anticipated average 30 day consecutive period Suspended Solids and B. O. D. Concentrations of 25 PPM each by Fall, 1978 when plant expansion is completed to 2.5 MGD hydraulic capacity and optimum good plant efficiency established. During current plant construction expansion period, it should be noted, the normal design pattern, sequence, and retention time of sewage flow through treatment process units is disrupted or abnormal due to construction schedules and procedures, and optimum plant operating efficiency is not consistently achieved.

(4) Includes incremental contributions for projected flows of recently approved and pending projects in service area:

DiLucia (Country Meadows) Subdivision Permit #4677404

Dougherty Brothers Subdivision Permit #4677415

Regent Manor Subdivision Permit #4677438

Hunter Construction Co. "Hunter Villa" Subdivision,

Applic. #4678414

Hunter Construction Co. "Hunter Meadows" Sub-division,

Pending Application

ER-BWQ-188.6 REV. 3/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

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WATER POLLUTION CONTROL

MODULE 6 – SEWERS AND APPURTENANCES

For Department Use Only

A. GENERAL INFORMATION – CONTINUED

A. IF YES, EXPLAIN: N/A

B. IF APPLICANT IS NOT OWNER OF THE RECEIVING SEWAGE TREATMENT PLANT, INDICATE SOURCE OF INFORMATION.

N/A

TO BE COMPLETED BY THE REGIONAL SANITARY ENGINEER

1. WILL THE LOAD UNDER 22.B.(5) MEET THE PERMIT REQUIREMENTS? ☐ Yes ☐ No

   A. WILL THE LOAD UNDER 22.B.(5) CAUSE POLLUTION OF THE RECEIVING STREAM? ☐ Yes ☐ No

2. IS THERE ANY QUESTION AS TO WHETHER THE LOAD IS NOW CAUSING OR WILL CAUSE POLLUTION? ☐ Yes ☐ No

   A. IF YES, COMPLETE A POLLUTION REPORT.

3. IS THE TREATMENT PLANT IN COMPLIANCE? ☐ Yes ☐ No

EXCERPT from Rules and Regulations of
TOWAMENCIN TOWNSHIP PLUMBING CODE

STORM WATER DRAINS

1101. DRAINAGE OF YARDS, AREAS AND ROOFS - All roofs and paved areas, yards, courts and court yards may be drained into the stormwater sewer system but not into the sewers intended for sewage only.

Where there is no stormwater sewer accessible, such connections may discharge into the public gutter, unless otherwise directed by the proper authorities however, in no case shall water from said sources drain over the surface of sidewalks nor be allowed to damage any neighbor's property.

EXHIBIT "A"

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF ENVIRONMENTAL RESOURCES

750 East Johnson Highway
Norristown, Pennsylvania 19401
215 631-2280

January 9, 1978

Mr. Sydney C. Brittin, Manager
Hatfield Township
School Road and Chester Street
Hatfield, Pennsylvania 19440

Re: Ralph's Market
Hatfield Township, Montgomery County

Dear Mr. Brittin:

The review has been completed of the submitted data for land development for the above referenced project.

It has been reviewed as a supplement to your Township's Official Plan, and has been found to be consistent with the requirements of the Department of Environmental Resources. Approval is hereby granted.

The developer should also be notified of the Department's decision, by your Township.

Very truly yours,

Michael C. Buck, R.S.
Sanitarian
Montgomery County

cc: File
Herbert H. Metz, Inc.

MCB:smc

EXHIBIT "B"

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P.O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

EXHIBIT "C"

May, 1978

EROSION AND SEDIMENTATION CONTROL PLAN FOR EXTENSION SANITARY SEWERAGE SYSTEM OF UPPER GWYNEDD-TOWAMENCIN MUNICIPAL AUTHORITY (T-14 Trunk Line) IN TOWAMENCIN TOWNSHIP AND SEWER CONNECTION-EXTENSION ALONG WELSH ROAD (L.R. 198 - T.R. 63) IN HATFIELD TOWNSHIP TO SERVE RALPH'S SUPER MARKET SITE

To control erosion and sedimentation during and after construction, the Contractor shall:

1. Reduce the area and duration of exposure of readily erodible soils by disturbing only the areas needed for construction, opening a maximum of only 200 feet of trench at a time, removing only those trees, shrubs and grasses that must be removed for construction, and protecting the rest to preserve their esthetic and erosion control value.

2. Disturbed soil surfaces which may remain exposed for extensive periods shall be protected from erosion by installing coverings formed from mulch; sheets of plastic; burlap or jute netting; temporary growths of fast growing grasses or sod blankets or temporary paving in construction areas to be exposed for extended periods, or to be re-vegetated.

   Mulch shall consist of hay, straw, wood chips, corn stalks, bark or any other suitable protective material. It shall be anchored to slopes with liquid asphalt, stakes, covered with netting or worked into the soil with various types of equipment to provide additional slope stability. All slopes of 2:1 and steeper shall be mulched as soon as they are rough graded.

   Mulching, seeding and sodding shall be accomplished as specified in the applicable standard set forth in the "Erosion and Sediment Control Handbook" as published by the Montgomery County (Pennsylvania) Soil and Water Conservation District.

   Temporary paving shall be as specified in the plans and construction specifications, if required or indicated.

Highways • Bridges • Sanitary, Municipal, Industrial and Subdivision Engineering • Title and Topographic Surveys • Investigations • Supervision • Reports • Studies

HERBERT H. METZ, INC.

Erosion & Sedimentation Control Plan
Page 2 of 2

3. Runoff shall be controlled by the installation of temporary diversions, berms, slope drains, flow barriers or other structures which will decrease its velocity or prevent concentration of runoff in areas of erodible soils. Diversion structures consisting of temporary compacted earth embankments, bales of straw, ditches and furrows shall be constructed to direct runoff away from stockpiles and excavated areas.

4. Sediments carried by runoff water and dewatering operations shall be trapped behind temporary barriers. The barriers shall consist of grassed embankments, sand, gravel or bales of hay or straw. Prior to removing the temporary barriers any accumulated sediments shall be spread within the right-of-way or, if suitable, used for backfill. Sediment accumulated on paved areas shall be removed from the site or used as backfill, if suitable.

5. As construction activities within an area are completed, the area shall be permanently stabilized with perennial vegetation as specified in the "Erosion and Sediment Control Handbook" of the Montgomery County (Pennsylvania) Soil and Water Conservation District.

6. If possible, construction in rights-of-way shall be planned and scheduled for the summer months when erosion is less of a hazard, and there is minimal, or no, surface runoff in furrows, swales and water courses.

7. During construction, equipment shall be used in a manner that does not leave the site susceptible to erosion. Wheel mounted equipment shall be used wherever possible.

8. No natural drainage will be obstructed or blocked during a shut-down.

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P.O. BOX 847

(UPPER GWYNEDD-TOWAMENCIN MUNICIPAL AUTHORITY. T-14 TRUNK LINE EXTENSION)

SANITARY SEWER DESIGN ANALYSIS

H.H METZ, INC., R.P.E. SHEET

MUNICIPALITY TOWAMENCIN TWP/HATFIELD TWP COUNTY MONTGOMERY

	M.H TO M.H	LENGTH (FEET)	INVERT/INVERT	FALL (FEET)	SLOPE (FT PER FT)	CONNECTIONS INCREMENT (E.D.U.s)	CONNECTIONS TOTAL (E.D.U.s)	POPULATION @ 3.5/E.D.U.	FULL FLOW MGD @ n = .013	PIPE
ROAD (8)	175 / 174	311	324.98 / 319.05	5.93	.01907	6	(6) (1)	21	0.0054	8"
NT	174 / 173	393	318.81 / 307.09	11.72	.02982	68	74	259	0.1036	
ENT	173 / 172	378	306.99 / 303.29	3.70	.0098	51	125	437.5	0.1750	
MENT	172 / 171	352	303.19 / 298.12	5.07	.0144	55	180	630	0.2520	
ENT	171 / 170	359	298.02 / 291.52	6.50	.0181	54	234	819	0.3276	
ENT	170 / 169	353 (1)	291.42 / 287.01	4.41	.0122	0	234	819	0.3276	
MENT	169 / 168	349	289.01 / 283.64	5.37	.00966	1	235	822.5	0.3290	8"
ENT	168 / 167	269	283.39 / 282.04	1.35	.0050	171	406	1421	0.5684	10"
ENT	167 / 166	300	281.94 / 273.54	8.40	.0280	20	426	1491	0.5964	10"
ENT	166		273.44							
NG	165.A	299	271.94						0.5992	10"
ER	165.A		271.92							
AD	165	82	270.92	0.98	.012					10"

NOTE: (1) ONLY IMMEDIATE LOADING / CONNECTION — THIS PROJECT.
BALANCE LOADING TRANSFERRED FROM KNOWN SITES, HOUSING & DRAFTSPERSON LOAD SHED. TR.

Sedimentation Control Plan

H710-047 REV. 5-71 COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
SANITARY ENGINEERING

For Department Use Only

INTERNAL REVIEW AND RECOMMENDATIONS

REGIONAL ENGINEER'S REVIEW

APPROVAL – RELEVANT LAWS, REGULATIONS, STANDARDS,

NAME OF APPLICANT: Upper Gwynedd-Towamencin Municipal Authority
PROJECT LOCATION: Towamencin Township, Hatfield Township, Montgomery County
APPLICATION NUMBER: 4678444

BRIEF DESCRIPTION OF PROJECT: This application requests approval for the construction of a 311 linear foot sanitary sewer extension to serve Ralph's Super Market proposed to be located along Welsh Road (in Hatfield Township) near the intersection with Forty Foot Road. This application also covers the extension of Upper Gwynedd-Towamencin M.A. Trunk Line (T-14) in Towamencin Township approximately 3,150 linear feet from Keeler Road to Welsh Road. The Trunk Line as proposed will include a 10" (CONTINUED)

DISCUSSION (Use Additional Sheets If Necessary):

Sewage from the proposed sewer extension will be conveyed to the Upper Gwynedd-Towamencin Municipal Authority Sewage Treatment Plant via existing Upper Gwynedd-Towamencin Municipal Authority sewers covered under Permit No. 4675424. The final effluent will be afforded secondary treatment before discharge to the Towamencin Creek. The proposed sewer extension will serve 21 people initially and 1,498 people ultimately. The soil erosion and sedimentation control plan has been reviewed and approved by the Montgomery County Conservation District.

The storm water management plans and calculations were reviewed and approved by the Hydraulic Engineer. Two permanent retention basins are proposed which (CONTINUED)

CURRENT ESTIMATE OF COMPLETION DATE OF PROJECT (Industrial Wastes Only)

RECOMMENDATION AND ACTION

APPROVAL – RELEVANT LAWS, REGULATIONS, STANDARDS, AND POLICIES HAVE BEEN COMPLIED WITH:

Issue By Region	Issue By Central Office	Refuse	Signature	Date
☒	☐	☐	William B. Forman Jr. REVIEWING ENGINEER	9/19/78
☑	☐	☐	FACILITIES ENGINEER	9/20/78
☒	☐	☐	REGIONAL ENGINEER	9/20/78
	☐	☐	DIV. FACILITIES ENGINEER	
	☐	☐	DIVISION DIRECTOR	
		☐	BUREAU DIRECTOR	

SANITARY SEWER DESIGN ANALYSIS

PERMIT CONDITIONS:
1. STANDARD – Sewerage (1972) 1 thru 9, 11 thru 14, 21, 22, 30, 31
Erosion Control (1973) 1 thru 20

2. SPECIAL (Use Additional Sheets If Necessary)

Recording of Permit: Montgomery County

longer active. The consultant also reports that there are no active private wells within 50 feet and no public wells within 100 feet of the proposed trunk line. This application must be coordinated with air quality control and solid waste management applications No. 46-301-204 & 400-403 for approval to construct a comptro/sunbeam incinerator.

Internal Review and Recommendations

Regional Engineer's Review
Upper Gwynedd-Towamencin Municipal Authority

Brief Description of Project:
(Continued)

A.C.P. line from proposed M.H. 168 to the connection with the existing sewer at M.H. 165A. An 8" A.C.P. line is proposed from M.H. 168 to M.H. 174 at Welsh Road in Hatfield Township.

Discussion (Continued)
are designed for a 100 year frequency storm.

A private well shown on drawing No. 154 & 155 and a springhouse on No. 152 are no longer active. The consultant also reports that there are no active private wells within 50 feet and no public wells within 100 feet of the proposed trunk line. This application must be coordinated with air quality control and solid waste management applications No. 46-301-204 & 400-403 for approval to construct a comptro/sunbeam incinerator.

ER-BWQ-15-Rev. 4/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT NO. 4678444

A. PERMITTEE: (Name and Address)
Upper Gwynedd-Towamencin Municipal Auth.
2225 Kriebel Road
Lansdale, PA 19446

B. PROJECT LOCATION
Municipality: Towamencin and Hatfield Townships
County: Montgomery

C. TYPE OF FACILITY: (For industrial wastes, type of establishment)
Sanitary Sewer Extension thru 9, 11 thru 14, 21, 22, 30, 31

D. NAME OF MINE, PLANT, AREA SERVED, OUTFALL NO., ETC.
Ralph's Super Market

E. THIS PERMIT APPROVES:

1. Plans For Construction Of: a. [XX] Non-Municipal: Sewers and Appurtenances b. [ ] Sewage Treatment Facilities c. [ ] Industrial Waste Treatment Facilities d. [ ] Mine Drainage Treatment Facilities e. [ ] Outfall & Headwall f. [ ] Stream Crossing g. [ ] Impoundment

2. The Discharge Of: a. [ ] Treated b. [ ] Untreated c. [ ] Sewage d. [ ] Industrial Wastes
N/A

3. Discharge To: a. [ ] Surface Water b. [ ] Ground Water
Name of Stream to which discharged or drainage area in which groundwater discharge takes place or impoundment is located.
N/A

4. The Operation of a Mine [ ]
Maximum Area to be Deep Mined _____ Acres
N/A

5. An Erosion and Sedimentation Control Plan [XX]
Project Area is 13.9 Acres

F. THIS APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:

1. ALL CONSTRUCTION, OPERATIONS, PROCEDURES AND DISCHARGE SHALL BE IN ACCORDANCE WITH APPLICATION NO. 4678444 DATED June 29, 1978 ITS SUPPORTING DOCUMENTATION, AND AMENDMENTS DATED Sept. 14, 1978, SUCH APPLICATION, ITS SUPPORTING DOCUMENTATION AND AMENDMENTS ARE HEREBY MADE A PART OF THIS PERMIT.

2. CONDITIONS NUMBERED 1 thru 9, 11 thru 14, 21, 22, 30, 31 OF THE sewerage STANDARD CONDITIONS DATED 1972, AND CONDITIONS NUMBERED 1 thru 20 OF THE EROSION CONTROL STANDARD CONDITIONS DATED 1973 WHICH CONDITIONS ARE ATTACHED AND MADE PART OF THIS PERMIT.

3. SPECIAL CONDITIONS DESIGNATED _____ WHICH ARE ATTACHED AND ARE MADE A PART OF THIS PERMIT.

This Permit must be recorded in the Recorder of Deeds office in Montgomery County.

Gwynedd-Towamencin Municipal Authority

G. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. IF THERE IS A CONFLICT BETWEEN THE APPLICATION OR ITS SUPPORTING DOCUMENTS AND AMENDMENTS AND THE STANDARD OR SPECIAL CONDITIONS, THE STANDARD OR SPECIAL CONDITIONS SHALL APPLY.

2. FAILURE TO COMPLY WITH THE RULES AND REGULATIONS OF THE DEPARTMENT OR WITH THE TERMS OR CONDITIONS OF THIS PERMIT SHALL VOID THE AUTHORITY GIVEN TO THE PERMITTEE BY THE ISSUANCE OF THE PERMIT.

3. THIS PERMIT IS ISSUED PURSUANT TO THE CLEAN STREAMS LAW, ACT OF JUNE 22, 1937, P.L. 1987 AS AMENDED 35 P.S. § 691.1 ET SEQ. AND/OR THE WATER OBSTRUCTION ACT, ACT OF JUNE 25, 1913, P.L. 955 AS AMENDED 32 P.S. § 681 ET SEQ. ISSUANCE OF THIS PERMIT SHALL NOT RELIEVE THE PERMITTEE OF ANY RESPONSIBILITY UNDER ANY OTHER LAW.

Designed for a 100 year frequency storm.

DEPARTMENT OF ENVIRONMENTAL RESOURCES

PERMIT ISSUED
DATE SEP 29 1978 BY C.T. Beechwood
TITLE C.T. Beechwood
Regional Sanitary Engineer

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
Norristown, Pennsylvania 19401
215 631-2405

September 22, 1978

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: Mr. H. Warren Dimmig, Chairman

Re: Sewerage Permit No. 4678444
Ralph's Super Market
Towamencin and Hatfield Townships
Montgomery County

Gentlemen:

Above referenced permit is enclosed.

Please study the permit carefully and direct any questions to the Facilities Section of this office.

To become operative this permit must be recorded in the Office of the Recorder of Deeds in the county in which the discharge is located. Enclosed is a certificate and pre-addressed envelope for this purpose. Please have the Recorder of Deeds accomplish the certificate and return it within ten (10) days.

Very truly yours,

C.T. Beechwood
Regional Sanitary Engineer

Enclosures: Permit
Standard Conditions Relating to Sewerage
Standard Conditions Relating to Erosion Control
Recorder of Deeds Certificate with envelope
Notary Public Certificate
Occupational Health Comments

cc: Herbert H. Metz, Jr., P.E. - Herbert H. Metz, Inc.
Ce Re 30

/WG:smc

ER-BWQ-68 Rev. 4-73

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Sewerage Permit No. 4678444

Towamencin and Hatfield Townships
Montgomery County

Commonwealth of Pennsylvania, Department of Environmental Resources

RECORDER OF DEEDS CERTIFICATE

I hereby certify that on OCT. 02 1978 (Date)

DEED 4348 there was recorded in Book ..... Montgomery County

page 65 the sewerage permit issued

to Upper Gwynedd-Towamencin Municipal Auth.

bearing date of Sept. 22, 1978

DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
Norristown, Pennsylvania 19401
215 631-2405

Thomas R. Meigs
Deputy Recorder of Deeds for

Montgomery County

COMMONWEALTH OF PENNSYLVANIA

ER-BWQ-69 Rev. 1/78

and duly acknowledged the foregoing permit to be his act and deed and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year aforesaid.

STATE OF PENNSYLVANIA
> SS
COUNTY OF MONTGOMERY

On the 22nd day of September in the year one thousand nine hundred and seventy eight before me, the Subscriber, a Notary Public, came the above named

C. T. Beechwood

and duly acknowledged the foregoing permit to be his act and deed and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year aforesaid.

John F. Daly Jr.
NOTARY PUBLIC

JOHN F. DALY, JR.
Notary Public, Norristown Boro, Montg. Co.
My Commission Expires August 16, 1980

Commonwealth of Pennsylvania
Department of Environmental Resources

RECORDER OF DEEDS CERTIFICATE

ER-BWQ-68 Rev. 6-73

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Sewerage Permit No. 4678

OA-501 12-67 COMMONWEALTH OF PENNSYLVANIA

July 7, 1978

SUBJECT: Application No. 4678444
Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

TO:

FROM:

The following are comments from the Bureau of Occupational Health relating to the above application.

Employees of private contractors are subject to regulations of the federal Occupational Safety and Health Administration whereas employees of state and local government related agencies are subject to regulations of the Commonwealth.

The contract should include a clause that all work on the project must be done in compliance with State and Federal occupational health and safety regulations.

Occupational health requirements applicable to the project are as follows.

If rock drilling machinery is used, it must be equipped with an integral water or exhaust ventilation dust suppression device.

Potential noise exposures should be evaluated and control measures and medical programs (audiometric tests) implemented as necessary.

Potential dust exposures should be evaluated and control measures and medical programs (chest X-ray examinations) implemented as necessary.

Where confined spaces (manholes, etc.) must be entered, the atmosphere must be tested for combustible gases (as a minimum) and mechanical ventilation used prior to entry and during occupancy. A worker must also be stationed outside the confined space to offer assistance should a problem occur. Procedures for confined space entry must be submitted to the Department where the employer is subject to Commonwealth regulations.

Lasers used for alignment work must be registered with the Department and any injuries resulting from the use of lasers must be reported.

Re 30

ER-CPH-1:2/74 Form No. 1 Application Nos.: 46-321-204

SUBJECT: Request for Comment CONTACT:

[illegible] Road South

LANSDALE PA 19446 855-9271

New Proposal	L
Revised Proposal	

FROM: LEON GONSHOR
Regional Coordinator
PHIL. BEDGIN

8/21/78

RE: Form 537 Rd. 4
Range 63
HATFIELD TWP
MONTGOMERY Co

On 8/8/78 we received an application for plan approval and/or permit to construct a _____. The proposed installation involves:

THE CONSTRUCTION OF A COMPACT SURFACE
INSINERATOR MODEL A-24 WITH WASTE
WATER BURN 390 #/HR OF TYPE 0 WASTE

Permit Coordination Requirements: Cumbd Regd. - SWM + to W.G.M.
U. Gwynedd Township Municipal, No. 01-28-444

DATE: 8/21/78	No Permit Required	No Permit Required Prior Approval Required	Permit Prepared Application on Hand	Permit Prepared Application Needed
Air Quality			8/8/78	
Water Quality				
Land Protection				
Community Env. Control	✓			
Occupational Health	✓			
Surface Mine Reclamation	✓			
Radiological Health	✓			

Application No. 4678444
Upper Gwynedd-Towamencin Municipal Authority
225 N. Tebet Road
Lansdale, PA 19446

The following [illegible] comments from the Bureau of Occupational Health relate [illegible]

Employees of private contractors are subject to regulations of the [illegible]

COMMENTS FROM REVIEWER:

ER — EP

START

DEPARTMENT OF ENVIRONMENTAL RESOURCES

ENVIRONMENTAL PROTECTION

START

BUREAU / PROGRAM Water Quality Management

DIVISION

COUNTY / MUNICIPALITY 46949

PROGRAM Sew

CASE NAME Upper Gwynedd Towamencin Municipal Authority

FILE P

PERMIT NO. 4678455 Brookside Farms Subdivision

Form No. 1

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
Norristown, Pennsylvania 19401
215 631-2402

May 18, 1978

Brookside Farms
2960 West Germantown Pike
Fairview Village, PA 19409

Attention: Mr. Joseph M. Russell

RE: Application Nos. 4678704 and 4678801
Towamencin Township, Montgomery County

Gentlemen:

I am pleased to inform you that our Water Quality Management program has completed their review of the above applications for Encroachment and Erosion and Sedimentation Control Permits.

With reference to my letter dated February 21, 1978 the permit will not be issued until approvals have been received for the sewerage permit associated with the proposed project. A sewerage application is required in the name of the municipality.

Very truly yours,

Leon T. Gonshor
Regional Director

CC: Facilities
Dams and Encroachments
Re 30

LTG:smc

ENVIRONMENTAL PROTECTION

YERKES Associates inc.

September 20, 1978

Mr. Craig Chester
Dept. of Environmental Resources
1875 New Hope St.
Norristown, PA 19401

RECEIVED
SEP 22 1978
NORRISTOWN REGIONAL OFFICE

RE: "Brookside Farms"
Towamencin Twp., Montgomery County

Dear Craig:

In response to our telephone conversation of September 12th, we are enclosing herewith two (2) copies of the utility plan which has been revised to indicate a ten foot horizontal clearance between sanitary sewer and water main. A note on the plan also specifies this.

The manholes you have referred to which were labeled 30.1 30.11 and 30.2 are part of an existing sewer and therefore no profile was provided. This is clearly indicated on profile sheet 12. The D.E.R. Permit number, however, may be incorrect. We have not been able to verify this number. The sewer was constructed as part of the subdivision for the Korman Corp. # was found for existing sewers (Developement looking into)

The last item you inquired about was the disposition of the stormwater management facilities. At the last township meeting, the township agreed to show all drainage easements. However, the township will not accept responsibility for the maintenance of any of the facilities. This will be the responsibility of the individual homeowner. The township solicitor is preparing the wording which will be entered into each Deed such that the proper easements will be provided for.

If you have any additional questions, please feel free to contact me.

Very truly yours,

YERKES ASSOCIATES, INC.

Kevin R. Momenee P.E.

Kevin R. Momenee, P.E.

KRM:jp

1875 New Hope Street
Norristown, Pennsylvania 19401
215 631-2402

September 21, 1978

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Kulpsville, PA 19443

Attention: Mr. P. Warren Dimmig
Chairman

Re: Application No. 4678456
Towamencin Township
Montgomery County

Gentlemen:

This will acknowledge receipt of your application on September 5, 1978 for approval to construct a sewer extension to serve Brookside Farms Subdivision in Towamencin Township, Montgomery County.

The material submitted is accepted for technical review by the staff of the Department.

In addition to the above, encroachment application No. 4678704 and soil erosion and sedimentation control application No. 4678801 in the name of Joseph Russell/ Brookside Farms are currently pending for this project.

No permits will be issued until processing is completed on all required applications. The permits will be issued simultaneously from this office.

You are reminded that any proposed facilities cannot be constructed without first obtaining the required permits.

Applications are normally processed within sixty (60) days. If you have not received notification of the action taken within this period, feel free to contact me for information concerning the status of the review.

Very truly yours,

Leon T. Gonshor
Regional Director

cc: Facilities
Program Services
Dams & Encroachments
Yerkes Associates, Inc.
Mr. Joseph H. Russell

LTG/lm

PFC 331

COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA FISH COMMISSION

Subject: Review of Permit Application with Recommendations (yes or no)

Date: 9/19/78

In Reply To: #4678455

To: Department of Environmental Resources — CRAIG E. CHESTER NORRISTOWN DER

From: Pennsylvania Fish Commission

Permit Applicant: U. GWYNEDD TWP. BROOKSIDE FARMS SUBDIVISION

Type of Construction: ONE SANITARY SEWER CROSSING

Location: County MONTGOMERY, Township U. GWYNEDD

Other

Stream Affected TOWAMENCIN CK Trib. To SKIPPACK CK.

Trout Stream? NO (yes or no) Stocked NO (yes or no)

Warm Water Stream YES (yes or no) Polluted YES (yes or no)

Other Fishing Pressure MEDIUM (high, medium, low, none)

Primary Species BASS, EELS, PANFISH, BAITFISH, F. SHOALT

☐ Insufficient data submitted. Project approval will be considered only after more details are provided for review.

THE FOLLOWING CONDITIONS ARE TO BE MADE PART OF ALL PERMITS:

1. Stream bed shall not be used as roadway for moving machinery from one site to another. Temporary stream crossings must be provided for equipment that must cross stream during construction. Structures are to be removed and stream bed returned to its original condition when project is completed.

2. Siltation control shall be provided for during construction and bank stabilization shall be undertaken by planting of grasses, shrubbery, or trees immediately after completion of each phase of project.

3. When channel change occurs, the stream bed shall not exceed original width, and if a greater cross sectional area is required, an elevated flood plain must be put into use.

4. All material and debris removed from stream bed shall be moved entirely out of the flood plain area.

5. A permit must be secured from the Pennsylvania Fish Commission in Harrisburg, if the use of explosives is required. P.F.C. Waterways Patrolman G.A. BUCKSOK, ROHI Collegeville, PA. 584-0255 must be notified when project is started, when explosives are to be used, and when project is completed for final inspection.

H710.046 REV. 8-71

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: February 24, 72

APPLICATION FOR WATER QUALITY MANAGEMENT PERMIT

For Department Use Only
DQW 6/7/72

BUREAU OF WATER QUALITY MANAGEMENT
DEPARTMENT OF ENVIRONMENTAL RESOURCES

APPLICANT NAME: Upper Gwynedd-Towamencin Municipal Authority

TELEPHONE NO.:

MAILING ADDRESS: R.D. # 2, Lansdale, Pa. 19446

PROJECT LOCATION
(A) MUNICIPALITY: Towamencin Township, Montgomery
APPLICATION NO.: 4672412 PLANS DUE: 3/2/72 REGION:
(B) COUNTY: REPORTS
NO. OF VOLUMES: 1 OF 2

HEREBY APPLIES FOR: (CHECK APPROPRIATE BLOCKS IN COLUMNS A, B AND C)

A. APPROVAL OF PLANS FOR CONSTRUCTION OF:
- [ ] PUMP STATIONS, SEWERS AND APPURTENANCES
- [X] SEWAGE TREATMENT PLANT
- [ ] MINE DRAINAGE TREATMENT PLANT
- [ ] INDUSTRIAL WASTE TREATMENT PLANT

B. APPROVAL TO DISCHARGE:
(1) [X] TREATED [ ] UNTREATED
(2) [ ] INDUSTRIAL WASTES [ ] MINE DRAINAGE [X] SEWAGE

C. APPROVAL TO OPERATE
- [ ] MINE
- [ ] NA

(ALL DISCHARGES OF WASTES ARE PURSUANT TO "THE CLEAN STREAMS LAW")

I HEREBY CERTIFY THAT THE COMPLETENESS REPORT AND ALL PLANS, MODULES, AND DOCUMENTS DESIGNATED THEREIN ARE ATTACHED TO THIS APPLICATION, AND MADE A PART HEREOF.

SIGNATURE OF APPLICANT OR RESPONSIBLE OFFICIAL

NAME OF APPLICANT OR RESPONSIBLE OFFICIAL: Mr. John B. Taylor, Jr.

TITLE: Chairman

DATE OF APPLICATION: Febr. 28, 1972.

ADDRESS: 1121 Wash Drive, Lansdale, Pa. 19446

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA, COUNTY OF Montgomery

I, John B. Taylor, Jr. BEING DULY SWORN, ACCORDING TO LAW, DEPOSE AND SAY THAT I (AM THE APPLICANT) (AM AN OFFICER OR OFFICIAL OF THE APPLICANT) (HAVE THE AUTHORITY TO MAKE THIS APPLICATION) AND THAT THE PLANS, REPORTS AND DOCUMENTS SUBMITTED AS PART OF THE APPLICATION ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

SWORN AND SUBSCRIBED TO BEFORE ME THIS

28 DAY OF Febr. 19 72

NOTARY PUBLIC

NOTARY PUBLIC

SIGNATURE OF APPLICANT OR RESPONSIBLE OFFICIAL

THE SECTION BELOW IS TO BE COMPLETED BY THE DESIGN ENGINEER (OR SURVEYOR) AUTHORIZED BY THE APPLICANT TO PREPARE THIS APPLICATION

NAME OF DESIGN ENGINEER (OR SURVEYOR) AND FIRM: Janos Liptak, Janos Liptak & Associates

MAILING ADDRESS: 510 Davisville Road, Willow Grove, Pa. 19090

TELEPHONE NUMBER: 215 Ol - 9 - 7244

AGREEMENT DATE: 2-28-72

SIGNATURE OF DESIGN ENGINEER (OR SURVEYOR): Janos Liptak

DESIGN ENGINEER'S (OR SURVEYOR'S) SEAL

PFC 331

COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA FISH COMMISSION
REGIONAL OFFICE

Subject: Review of Permit Application with Recommendations (yes or no)

Date: 9/19/78

In Reply To: #467845

To: Department of Environmental Resources
CRAIG E. CHESTER
NORRISTOWN DER

From: Pennsylvania Fish Commission

Permit Applicant: U. GWYNEDD TWP.
BROOKSIDE FARMS SUBDIVISION

Type of Construction: ONE SANITARY SEWER CROSSING

Location: County MONTGOMERY Township U. GWYNEDD

Other

Stream Affected TOWAMENCIN CK. Trib. To SKIPPACK CK.

Trout Stream NO (yes or no) Stocked NO (yes or no)

Warm Water Stream YES (yes or no) Polluted YES (yes or no)

Other Fishing Pressure MEDIUM (high, medium, low, rare)

Primary Species BASS, EELS, PANFISH, BAITFISH, F. SHBAIT

☐ Insufficient data submitted. Project approval will be considered only after more details are provided for review.

THE FOLLOWING CONDITIONS ARE TO BE MADE PART OF ALL PERMITS:

1. Stream bed shall not be used as roadway for moving machinery from one site to another. Temporary stream crossings must be provided for equipment that must cross stream during construction. Structures are to be removed and stream bed returned to its original condition when project is completed.

2. Siltation control shall be provided for during construction and bank stabilization shall be undertaken by planting of grasses, shrubbery, or trees immediately after completion of each phase of project.

3. When channel change occurs, the stream bed shall not exceed original width, and if a greater cross sectional area is required, an elevated flood plain must be put into use.

4. All material and debris removed from stream bed shall be moved entirely out of the flood plain area.

5. A permit must be secured from the Pennsylvania Fish Commission in Harrisburg. If the use of explosives is required: P.F.C. Waterways Patrolman G.A. Brubaker, RD#1 Collegeville, PA. 584-0255 must be notified when project is started, when explosives are to be used, and when project is completed for final inspection.

H71U.046 REV. 8-71

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: February 24, 72

APPLICATION FOR WATER QUALITY MANAGEMENT

For Department Use Only
PQW 6/7/72

BUREAU OF WATER QUALITY MANAGEMENT
APPLICATION NO. | PLANS REVIEWED

APPLICANT NAME: Upper Gwynedd-Towamencin Municipal Authority

TELEPHONE NO.:

MAILING ADDRESS: R.D. #2, Lansdale, Pa. 19446

PROJECT LOCATION
(A) MUNICIPALITY: Towamencin Township, Region
#672412 | 3/2/72

(B) COUNTY: REPORTS
Montgomery

NO. OF VOLUMES: 3 OF 5

HEREBY APPLIES FOR: (CHECK APPROPRIATE BLOCKS IN COLUMNS A, B AND C)

A. APPROVAL OF PLANS FOR CONSTRUCTION OR RELIEF	B. APPROVAL TO DISCHARGE:	C. APPROVAL TO OPERATE
☐ PUMP STATIONS; SEWERS AND APPURTENANCES	(1) ☒ TREATED ☐ UNTREATED	☐ MINE
☒ SEWAGE TREATMENT PLANT	(2) ☐ INDUSTRIAL WASTES ☐ MINE DRAINAGE ☒ SEWAGE	☐ NA
☐ MINE DRAINAGE TREATMENT PLANT		
☐ INDUSTRIAL WASTE TREATMENT PLANT		

(ALL DISCHARGES OF WASTES ARE PURSUANT TO "THE CLEAN STREAMS LAW")

I HEREBY CERTIFY THAT THE COMPLETENESS REPORT AND ALL PLANS, MODULES, AND DOCUMENTS DESIGNATED THEREIN ARE ATTACHED TO THIS APPLICATION, AND MADE A PART HEREOF.

SIGNATURE OF APPLICANT OR RESPONSIBLE OFFICIAL

NAME OF APPLICANT OR RESPONSIBLE OFFICIAL:	TITLE	DATE OF APPLICATION
Mr. John B. Taylor, Jr.	Chairman	Febr. 28, 1972.

ADDRESS: 1721 Wall Drive, Lansdale, Pa. 19446

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA, COUNTY OF Montgomery

I, John B. Taylor, Jr., BEING DULY SWORN, ACCORDING TO LAW, DEPOSE AND SAY THAT I (AM THE APPLICANT) (AM AN OFFICER OR OFFICIAL OF THE APPLICANT) (HAVE THE AUTHORITY TO MAKE THIS APPLICATION) AND THAT THE PLANS, REPORTS AND DOCUMENTS SUBMITTED AS PART OF THE APPLICATION ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

SWORN AND SUBSCRIBED TO BEFORE ME THIS

28 DAY OF Febr. 19 72

NOTARY PUBLIC

SIGNATURE OF APPLICANT OR RESPONSIBLE OFFICIAL

NOTARY PUBLIC

THE SECTION BELOW IS TO BE COMPLETED BY THE DESIGN ENGINEER (OR SURVEYOR) AUTHORIZED BY THE APPLICANT TO PREPARE THIS APPLICATION

NAME OF DESIGN ENGINEER (OR SURVEYOR) AND FIRM:
Janos Liptak
Janos Liptak & Associates

MAILING ADDRESS:
510 Davisville Road
Willow Grove, Pa. 19090

TELEPHONE NUMBER:
215
Ci. - 9 - 7244

DESIGN ENGINEER'S (OR SURVEYOR'S) SEAL

AGREEMENT DATE: 2-28-72

SIGNATURE OF DESIGN ENGINEER (OR SURVEYOR): Janos Liptak

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: 6/7/78

APPLICATION FOR WATER QUALITY MANAGEMENT PERMIT

For Department Use Only

APPLICANT NAME
Upper Gwynedd-Towamencin Municipal Authority
H. Warren Dimmig

TELEPHONE NO: 855-3686

MAILING ADDRESS
2225 Kriebel Rd.
Kulpsville, PA 19443

PROJECT LOCATION
(A) MUNICIPALITY: Towamencin Township (Brookside Farms)

(B) COUNTY: Montgomery

HEREBY APPLIES FOR (CHECK APPROPRIATE BLOCKS IN SECTION A, B, C AND D)

A. APPROVAL OF PLANS FOR CONSTRUCTION OF:
- [X] [redacted]; SEWERS AND APPURTENANCES
- [ ] SEWAGE TREATMENT PLANT
- [ ] MINE DRAINAGE TREATMENT PLANT
- [ ] INDUSTRIAL WASTE TREATMENT PLANT
- [ ] OUTFALL AND HEADWALL
- [X] STREAM CROSSING

B. APPROVAL TO DISCHARGE:
(1) [ ] TREATED [ ] UNTREATED N.A.
(2) [ ] INDUSTRIAL WASTES [ ] MINE DRAINAGE [ ] SEWAGE N.A.

C. APPROVAL TO OPERATE: N.A. [ ] UNDERGROUND MINE

D. APPROVAL OF AN [X] EROSION AND SEDIMENTATION PLAN

(ALL DISCHARGES OF WASTES ARE PURSUANT TO "THE CLEAN STREAMS LAW")

I HEREBY CERTIFY THAT THE ACCOMPANYING REPORT AND ALL PLANS, MODULES, AND DOCUMENTS DESIGNATED THEREIN ARE ATTACHED TO THIS APPLICATION, AND MADE A PART HEREOF.

H. Warren Dimmig
SIGNATURE OF APPLICANT OR RESPONSIBLE OFFICIAL

NAME OF APPLICANT OR RESPONSIBLE OFFICIAL: H. Warren Dimmig
TITLE: Chairman
DATE OF APPLICATION:

ADDRESS: 2225 Kriebel Rd., Kulpsville, PA 19443

AFFIDAVIT
COMMONWEALTH OF PENNSYLVANIA, COUNTY OF Montgomery

I, _____ BEING DULY SWORN, ACCORDING TO LAW, DEPOSE AND SAY THAT I (AM THE APPLICANT) (AM AN OFFICER OR OFFICIAL OF THE APPLICANT) (HAVE THE AUTHORITY TO MAKE THIS APPLICATION) AND THAT THE PLANS, REPORTS AND DOCUMENTS SUBMITTED AS PART OF THE APPLICATION ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

SWORN AND SUBSCRIBED TO BEFORE ME THIS _____ DAY OF _____ 19__

_____
NOTARY PUBLIC

H. Warren Dimmig
SIGNATURE OF APPLICANT OR RESPONSIBLE OFFICIAL

THIS SECTION BELOW IS TO BE COMPLETED BY THE PERSON AUTHORIZED BY THE APPLICANT TO PREPARE THIS APPLICATION. NOTE: SEWERAGE, INDUSTRIAL WASTE AND MINE DRAINAGE APPLICATIONS REQUIRE A REGISTERED PROFESSIONAL ENGINEER, EXCEPT THAT A REGISTERED SURVEYOR IS ACCEPTABLE WHERE PUBLIC HEALTH AND SAFETY ARE NOT INVOLVED.

NAME OF DESIGN ENGINEER (OR SURVEYOR) AND FIRM
Walter F. Giersch, P.E., Yerkes Associates, Inc.

MAILING ADDRESS: P.O. Box 1080, Bryn Mawr, PA 19010

TELEPHONE NUMBER: (215) 525-6200

DESIGN ENGINEER'S (OR SURVEYOR'S) SEAL

AGREEMENT DATE: 6/11/78

SIGNATURE OF DESIGN ENGINEER OR SURVEYOR: Walter F. Giersch, PE

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

ER710.046.1

DATE PREPARED: 6/7/78

DATE REVISED:

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

APPLICANT: Upper Gwynedd - Towamencin Municipal Authority

LOCATION OF PROJECT: MUNICIPALITY: Towamencin Township COUNTY: Montgomery

DESIGN ENGINEER AND FIRM: Walter F. Giersch, P.E. - Yerkes Associates, Inc.

DESIGN ENGINEERS ADDRESS: P.O. Box 1080 Bryn Mawr, PA ZIP CODE: 19010 TELEPHONE: 525-6200

DESCRIPTION OF PROJECT: sanitary sewer extension to serve 98 single family residential lots in the proposed subdivision for Joseph M. Russell Jr. "Brookside Farms".

A. DOCUMENTATION REQUIRED

1. HAS A CHECK FOR $25.00, PAYABLE TO THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES, BEEN INCLUDED? (NOT REQUIRED OF STATE OR FEDERAL AGENCIES) [X] Yes [ ] No [ ] N/A

2. HAVE 2 COPIES OF THE APPLICATION, FORM H710.046, BEEN SUBMITTED? (3 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND DELAWARE RIVER BASIN). [X] Yes [ ] No

   A. HAS THE AFFIDAVIT BEEN PROPERLY COMPLETED AND EXECUTED? [X] Yes [ ] No

3. DOES THE APPLICATION INCLUDE THE FOLLOWING APPLICABLE MODULES:

MODULE NUMBER	TITLE	NUMBER OF PAGES	
1	GENERAL INFORMATION – SEWERAGE	9	[X] Yes
4	WASTE LOAD AND CHARACTERISTICS	3	[ ] Yes
5	GEOLOGY AND GROUND WATER INFORMATION	2	[ ] Yes
6	SEWERS AND APPURTENANCES	5	[X] Yes
7	SEWAGE PUMPING STATIONS	4	[ ] Yes
8	PUMPING FACILITIES	1	[ ] Yes
9	FLOW EQUALIZATION AND STORAGE BASINS	2	[ ] Yes
10	GRIT CHAMBERS	1	[ ] Yes
11	SCREENING AND COMMINUTING DEVICES	2	[ ] Yes
12	IMHOFF AND SEPTIC TANKS	2	[ ] Yes
13	SETTLING TANKS	2	[ ] Yes
14	EARTHEN SETTLING BASINS	2	[ ] Yes

ER710.046.1

DATE PREPARED 6/7/78

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

MODULE 1 — GENERAL INFORMATION

SEWERAGE

For Department Use Only

A. DOCUMENTATION REQUIRED — CONTINUED

MODULE NUMBER	TITLE	NUMBER OF PAGES	
15	TRICKLING FILTERS	2	☐ Yes
16	AERATION TANKS OR BASINS	3	☐ Yes
17	WASTE STABILIZATION PONDS	3	☐ Yes
18	CHEMICAL TREATMENT (INCLUDING FEEDERS)	3	☐ Yes
19	MIXING AND FLOCCULATION FACILITIES	1	☐ Yes
20	SAND FILTERS	2	☐ Yes
21	DISINFECTION	2	☑ Yes
22	SPRAY IRRIGATION	1	☐ Yes
23	PHYSICAL ADSORPTION, ION EXCHANGE, AND CONTACT UNITS	2	☐ Yes
25	DEEP WELL DISPOSAL	4	☐ Yes
26	SLUDGE TREATMENT AND DISPOSAL		
	A. SEPARATE DIGESTION TANKS AND SLUDGE THICKENING TANKS	2	☐ Yes
	B. ELUTRIATION	1	☐ Yes
	C. WET OXIDATION	1	☐ Yes
	D. SLUDGE DRYING BEDS	1	☐ Yes
	E. LAND DISPOSAL OF SLUDGE	1	☐ Yes
	F. SLUDGE BASINS	1	☐ Yes
	G. FILTERS AND CENTRIFUGES	1	☐ Yes
	H. INCINERATION	1	☐ Yes
28	Stream crossing	3	

B. REQUIRED DATA

1. THE FRONT COVER OR FLYLEAF OF EACH SET OF DRAWINGS AND SPECIFICATIONS MUST BEAR THE SIGNATURE AND SEAL OF THE REGISTERED PROFESSIONAL ENGINEER, SURVEYOR BY OR UNDER WHOM PREPARED. EACH DRAWING MUST BEAR AN IMPRINT OR REASONABLE FACSIMILE OF SUCH SEAL.

E9710.046.1

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED 6/7/78
DATE REVISED

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

B. REQUIRED DATA – CONTINUED

2. INFORMATION RELATIVE TO SPECIFIC PROGRAMS:

A. 2 COPIES OF DESIGNER'S PLANS, MODULES, AND SPECIFICATIONS (3 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND DELAWARE RIVER BASIN)

B. HYDRAULIC PROFILE OR SCHEMATIC FLOW DIAGRAM FOR PROPOSED TREATMENT PLANT. ☒ N/A

C. UNITED STATES GEOLOGICAL SURVEY TOPOGRAPHICAL MAP SHOWING EXACT POINT OF DISCHARGE AND TREATMENT PLANT OR PUMP STATION LOCATION AND/OR AREA TO SEWERS. ☐ N/A

D. HAVE YOU APPLIED FOR A PUBLIC UTILITY COMMISSION CERTIFICATE OF PUBLIC CONVENIENCE? ☐ Yes ☐ No ☒ N/A

(1) SPECIFY PUBLIC UTILITY COMMISSION APPLICATION NUMBER _____

(2) IS CERTIFICATE OF PUBLIC CONVENIENCE ENCLOSED? ☐ Yes ☐ No

E. HAVE YOU APPLIED FOR APPROVAL OF STREAM ENCROACHMENT(S)? ☒ Yes ☐ No ☐ N/A

F. HAVE YOU APPLIED FOR DEPARTMENT OF LABOR AND INDUSTRY APPROVAL FOR FEATURES AFFECTING EMPLOYEE SAFETY? ☐ Yes ☐ No ☒ N/A

G. DO YOU HAVE AN AGREEMENT INDICATING APPROVAL TO DISCHARGE TO SEWER SYSTEM AND TREATMENT PLANT OF ANOTHER PERMITTEE? ☒ Yes ☐ No ☐ N/A

H. HAVE YOU APPLIED FOR APPROVAL OF AIR POLUTION CONTROL FACILITIES? ☐ Yes ☐ No ☒ N/A

I. HAVE YOU SUBMITTED A LIST WITH NAMES, ADDRESSES, AND TITLES OF ALL PARTNERS IN THE CASE OF A PARTNERSHIP OR ALL OFFICERS IN THE CASE OF A CORPORATION, UNINCORPORATED ASSOCIATION, INCORPORATED ASSOCIATION, PARTNERSHIP, OR OTHER ENTITY (NOT MUNICIPAL)? ☐ Yes ☐ No ☒ N/A

Brookside Farms
Subdivision for Joseph M. Russell

3. SPECIFY THE FOLLOWING:

A. PLANS: Utility and E & S Plan (TITLE/DESCRIPTION) NO. OF SHEETS 2 DATE Jan. 31, 1978 Rev. 5/15/78

PLANS: Profile (TITLE/DESCRIPTION) NO. OF SHEETS 10 DATE Jan. 31, 1978 Rev. 5/15/78

PLANS: _____ (TITLE/DESCRIPTION) NO. OF SHEETS _____ DATE _____

ER710.046.1

DATE PREPARED 6/7/78

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

B. REQUIRED DATA – CONTINUED

B. SPECIFICATIONS (IF APPLICABLE): Upper Gwynedd-Towamencin Municipal Authority
Reference specifications and pertinences as filed at Pa. D.E.R. by U.G.T.M.A.
TITLE

NUMBER OF VOLUMES _____ DATE _____

C. OTHER (SPECIFY TYPE AND NUMBER):

4. ARE THE PLANS:

A. CLEAR, LEGIBLE, AND DRAWN TO SCALE WITH NORTH ARROW INDICATED? [X] Yes [ ] No

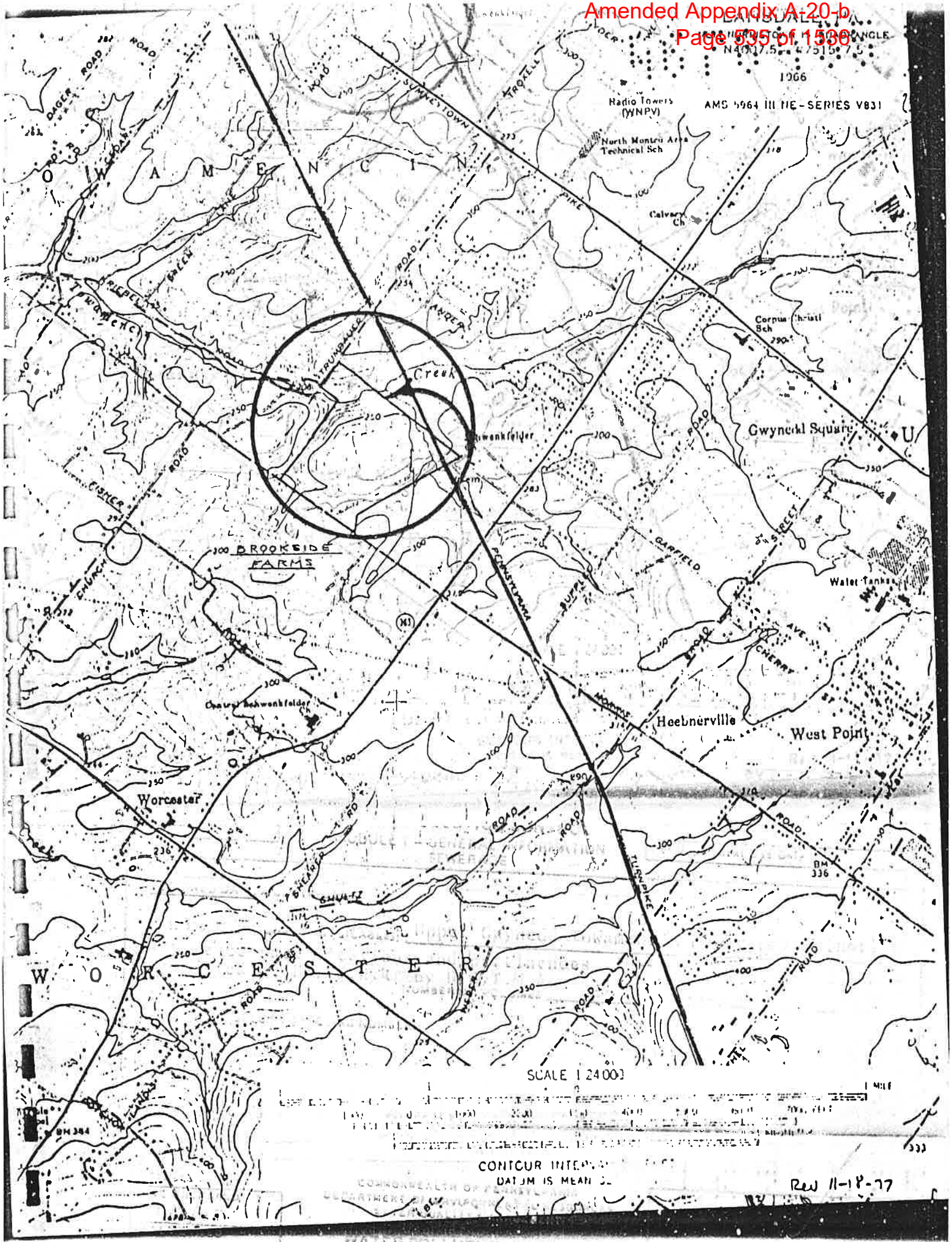
B. WITHIN MAXIMUM SIZE OF 36 INCHES BY 50 INCHES? [X] Yes [ ] No

C. SEAL AND SIGNATURE OF PROFESSIONAL ENGINEER OR SURVEYOR RESPONSIBLE FOR THIS APPLICATION

1. SIGNATURE OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW) Kalla F. Gresch, P.E.

2. SEAL OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW)

SEAL


1966
AMS 5964 III NE-SERIES V831
Radio Towers (WNPV)
North Montco Area Technical Sch
Calvary Ch
Corpus Christi Sch
Gwynedd Square
Schwenkfelder
Brookside Farms
Heebnerville
West Point
Worcester
Water Tanks
SCALE 1:24000
CONTOUR INTERVAL
DATUM IS MEAN
Rev 11-18-77

ER710.046.1

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED 6/7/78
DATE REVISED

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

CLASS OF CONSTRUCTION (Check all applicable blocks)

- ☐ NEW
- ☐ REPLACEMENT OF EXISTING UNIT(S)
- ☐ ADDITIONS AND/OR
- ☐ MODIFICATIONS TO EXISTING UNIT(S)

TABLE I – DESIGN LOADING DATA			Existing Facilities Design	Present Operating Load	Proposed Total Facilities Design
1. EQUIVALENT POPULATION TO BE SERVED (NO. OF PERSONS – SUBMIT CALCULATIONS)					
	A. DOMESTIC				
	B. INDUSTRIAL				
	C. TOTAL				
2. DESIGN YEAR OR PERIOD FOR OPERATING DATA					
3. RUNOFF PERIOD		(HRS)			
4. DOMESTIC WASTE FLOW DATA	A. PER CAPITA FLOW	(GPCD)			
	B. AVERAGE DAILY FLOW	(MGD)			
	C. INFILTRATION	(MGD)			
	D. RUNOFF FLOW RATE	(MGD)			
	E. MAXIMUM FLOW RATE	(MGD)			
5. INDUSTRIAL WASTE FLOW DATA	A. AVERAGE DAILY FLOW	(MGD)			
	B. MAXIMUM DAILY FLOW	(MGD)			
6. TOTAL DESIGN AVERAGE FLOW		(MGD)			

TABLE II – FACILITIES DESIGN DATA (Specify number of units)

Units	Existing	To Be Abandoned	Total Proposed	Units	Existing	To Be Abandoned	Total Proposed
1. SCREENING DEVICES				13. CHLORINE CONTACT TANK(S)			
2. GRIT CHAMBER(S)				14. DISINFECTION FACILITIES			
3. COMMINUTOR(S)				15. SEPARATE SLUDGE DIGESTORS			
4. PRE-AERATION TANKS				16. SLUDGE DRYING BEDS			
5. PRIMARY SETTLING TANKS				17. MECHANICAL SLUDGE DEWATERING			
6. IMHOFF TANK(S)				18. SLUDGE ELUTRIATION TANKS			
7. TRICKLING FILTERS				19. SLUDGE STABILIZATION TANKS			
8. INTERMEDIATE SETTLING TANKS				20. INCINERATOR(S)			
9. AERATION TANKS				21. MIXING AND FLOCCULATION TANKS			
10. FINAL SETTLING TANKS				22. OTHER (Specify)			
11. INTERMITTENT SAND FILTERS				23. OTHER (Specify)			
12. WASTE STABILIZATION POND(S)				24. OTHER (Specify)			

N.A.

FR710.046.1

DATE PREPARED 6/7/78
DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

D. GENERAL INFORMATION

1. EXISTING COMBINED SEWERS MAKE UP 0 % OF THE TOTAL AREA SERVED BY THE SYSTEM.

2. ARE THE EXISTING SANITARY SEWERS SUBJECT TO EXCESSIVE INFILTRATION? ☐ Yes ☒ No ☐ N/A

   A. IF YES, SPECIFY MAJOR SOURCES OF INFILTRATION: _____

   TYPES OF INDUSTRIAL WASTES OF SPECIAL CONSIDERATION: None

   B. HAS A REGULATION PROHIBITING THE ADMITTANCE OF STORM WATER FROM PAVEMENTS, ROOFS, AND OTHER SOURCES BEEN ADOPTED? (IF YES, ENCLOSE COPY.) ☒ Yes ☐ No

   (See attached excerpt copy)

   C. SPECIFY STEPS TAKEN OR BEING TAKEN TO CORRECT THE INFILTRATION PROBLEM, INCLUDING DATES: ☒ N/A

3. TYPES OF INDUSTRIAL WASTES OF SPECIAL CONSIDERATION: None

4. WILL THE APPLICANT BE RESPONSIBLE FOR REPAIR AND MAINTENANCE OF SEWAGE FACILITIES FOR WHICH APPLICATION IS SUBMITTED? ☒ Yes ☐ No

   A. IF NO, EXPLAIN: _____

5. THE DISTANCE OF THIS PLANT TO THE NEAREST OCCUPIED DWELLING: NA

   A. PRESENT _____ FEET

   B. PROPOSED _____ FEET

6. IF THE APPLICANT IS OTHER THAN A MUNICIPALITY OR MUNICIPAL AUTHORITY, HAS THE GOVERNING MUNICIPALITY OBJECTED TO THE PROPOSED SEWAGE TREATMENT PLANT? ☐ Yes ☐ No ☒ N/A

EXCERPT from Rules and Regulations of
TOWAMENCIN TOWNSHIP PLUMBING CODE

STORM WATER DRAINS

1101. DRAINAGE OF YARDS, AREAS AND ROOFS - All roofs and paved areas, yards, courts and court yards may be drained into the stormwater sewer system but not into the sewers intended for sewage only.

Where there is no stormwater sewer accessible, such connections may discharge into the public gutter, unless otherwise directed by the proper authorities however, in no case shall water from said sources drain over the surface of sidewalks nor be allowed to damage any neighbor's property.

ER710 046.1

DATE PREPARED 6/7/78

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

D. GENERAL INFORMATION – CONTINUED

A. IS THE LETTER FROM MUNICIPAL OFFICER, SIGNIFYING THE OPINION, APPENDED TO THIS APPLICATION?	☐ Yes	☐ No	
7. ARE DUPLICATE TREATMENT UNITS PROVIDED WHERE REQUIRED?	☐ Yes	☐ No	☒ N/A
A. IF NO, EXPLAIN:			
B. DO ANY BY-PASS STRUCTURES DISCHARGE TO WATERS OF THE COMMONWEALTH? (SPECIFY PLAN SHEET NUMBER(S) SHOWING BY-PASS STRUCTURES)	☐ Yes	☐ No	
8. HAS AN AUXILIARY STANDBY POWER SOURCE BEEN PROVIDED?	☐ Yes	☐ No	☒ N/A
9. DOES ANY PIPING OR CONNECTION EXIST IN ANY PART OF THE TREATMENT WORKS WHICH MAY CAUSE CONTAMINATION OF THE POTABLE WATER SUPPLY?	☐ Yes	☐ No	N.A.
10. IF A NON-POTABLE WATER SUPPLY IS PROVIDED, ARE ALL OUTLETS PERMANENTLY POSTED TO INDICATE WATER IS NOT SAFE FOR DRINKING?	☐ Yes	☐ No	☒ N/A
11. ARE FACILITIES PROVIDED FOR MEASURING THE SEWAGE FLOW?	☐ Yes	☐ No	N.A.
12. SAFETY:			
A. ARE FACILITIES PROVIDED TO EFFECTIVELY PROTECT THE OPERATOR AND VISITORS?	☐ Yes	☐ No	N.A.
13. OUTFALL SEWER:			N.A.
A. IS THE OUTFALL SEWER ADEQUATELY PROTECTED TO ENSURE ITS STRUCTURAL STABILITY AND FREEDOM FROM STOPPAGE?	☐ Yes	☐ No	
B. IS AN OUTFALL HEAD WALL PROVIDED?	☐ Yes	☐ No	☐ N/A
C. DOES THE OUTFALL EXTEND TO THE LOW WATER MARK OF THE RECEIVING STREAM?	☐ Yes	☐ No	☐ N/A
14. HAVE PROVISIONS BEEN MADE TO PROTECT ALL STRUCTURES AGAINST FLOTATION?	☐ Yes	☐ No	N.A.
15. IF THE PROJECT INVOLVES ADDITIONS TO AN EXISTING TREATMENT PLANT, DO THE SPECIFICATIONS INCLUDE A PROGRAM TO PREVENT BY-PASSING OF ANY UNIT TO WATERS OF THE COMMONWEALTH DURING CONSTRUCTION?	☐ Yes	☐ No	☒ N/A
A. SPECIFY VOLUME AND PAGE NUMBER OF SPECIFICATIONS:			
16. SPECIFY NAMES OF MUNICIPALITIES AND POPULATION SERVED OR TO BE SERVED BY THIS PLANT:			N.A.

ER710.046 1

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED 6/7/78
DATE REVISED

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

E. RECEIVING STREAM* N.A.

1. WHAT IS THE NAME OF THE RECEIVING STREAM? _____

A. TRIBUTARY OF _____

B. TRIBUTARY OF _____

C. MAJOR DRAINAGE BASIN: ☐ DELAWARE ☐ SUSQUEHANNA ☐ POTOMAC ☐ LAKE ERIE ☐ GENESEE ☐ ALLEGHENY ☐ MONONGAHELA ☐ OHIO

2. DESCRIBE THE EXACT POINT OF DISCHARGE:

_____ DEG, _____ MIN, _____ SEC LATITUDE

_____ DEG, _____ MIN, _____ SEC LONGITUDE

A. WATERSHED AREA ABOVE POINT OF DISCHARGE IS

_____ SQUARE MILES.

3. WHAT IS THE:

A. MINIMUM 7-CONSECUTIVE-DAYS FLOW OCCURRING ONCE IN 10 YEARS?

_____ CUBIC FEET PER SECOND.

B. MINIMUM STREAM FLOW: _____

C. ABOVE FLOWS ARE BASED ON: ☐ MEASUREMENTS ☐ ESTIMATES _____ YEARS OF RECORD

4. IS THE TREATMENT PLANT SUBJECT TO FLOODING? ☐ Yes ☐ No

5. THE PROBABILITY OF THE TREATMENT PLANT BEING OUT OF SERVICE DUE TO FLOODING IS ONCE IN _____ YEARS.

A. LIST BRIEFLY THE METHODS USED FOR FLOOD PROTECTION: _____

_____

_____

_____

* *Attach U.S. Geological Survey 7.5' or 15' Quadrangle Map showing exact points of discharge.*

ER710.046.6

DATE PREPARED 6/7/78

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

MODULE 6 – SEWERS AND APPURTENANCES

For Department Use Only

A. GENERAL DESIGN

1. ARE THE PROPOSED SEWERS DESIGNED A SEPARATE SANITARY SEWERS? [X] Yes [ ] No

   A. IF NO, EXPLAIN IN DETAIL, INCLUDING THE POSSIBLE EFFECTS UPON WATER COURSES.

2. ARE THE PROPOSED SEWERS DEEP ENOUGH TO SERVE ALL ADJACENT BASEMENTS? [ ] Yes [X] No

   A. IF NO, EXPLAIN. basement service for downhill lots would create excessively deep sewers, therefore no sewage operating devices will be located below first floor of these lots. Some downhill and most uphill lots will have basement service.

3. ARE THERE ANY OVERFLOWS OR BYPASSES OTHER THAN FROM PUMP STATIONS? [ ] Yes [X] No

   A. IF YES, SPECIFY PLAN SHEET(S) WHERE SHOWN.

4. WHERE SMALLER SEWERS JOIN LARGER ONES, HAVE THE INVERTS OF THE LARGER SEWERS BEEN LOWERED SUFFICIENTLY TO MAINTAIN THE SAME ENERGY GRADIENT? [X] Yes [ ] No [ ] N/A

5. SPECIFY THE TYPE OF LEAKAGE TEST (INFILTRATION AND/OR EXFILTRATION) AND THE LIMIT TO BE USED, PREFERABLY IN TERMS OF GALLONS PER INCH OF PIPE DIAMETER PER MILES PER DAY. (INDICATE VOLUME AND PAGE NUMBER OF SPECIFICATIONS.)

   TYPE AND LIMITS: Infiltration and exfiltration not to exceed 200 gal. per inch pipe diameter per mile of sewer per day. (U.G.-Tow. Mun Auth. Spec.)

6. HAVE PROVISIONS BEEN MADE TO PROTECT SEWERS AT VELOCITIES OF OVER 15 FEET PER SECOND? [ ] Yes [ ] No [X] N/A

   A. ARE SEWERS SECURED WITH CONCRETE ANCHORS (OR EQUAL) SPACED AS REQUIRED? [ ] Yes [ ] No [ ] N/A

7. ARE MANHOLES PROVIDED AT ALL CHANGES IN SIZE, GRADE, ALIGNMENT, AND SEWER INTERSECTIONS? [X] Yes [ ] No

8. ARE DROP MANHOLES PROVIDED WHERE THE ENTRANCE SEWER INVERT IS 24 INCHES OR MORE ABOVE MANHOLE INVERT? [X] Yes [ ] No

9. ARE WATERTIGHT COVERS USED WHERE MANHOLES ARE SUBJECT TO FLOODING BY STREET RUNOFF OR HIGH WATER? [X] Yes [ ] No

ER710 048 6

DATE PREPARED 6/7/78

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

For Department Use Only

MODULE 6 – SEWERS AND APPURTENANCES

CLASS OF CONSTRUCTION (Check All Applicable Blocks)

☐ NEW SYSTEM ☒ EXTENSION(S) TO EXISTING SYSTEM
☐ REPLACEMENT OF EXISTING SYSTEM

TABLE I – DESIGN FLOW AND LOADING INFORMATION

1. POPULATION TO BE SERVED: 343 Total	INITIAL: 343	DESIGN: 343	DESIGN YEAR: 1982
2. AREA TO BE SERVED: 94.4 Ac.	ACRES (INITIAL): 94.4		
TYPE OF AREA (Residential, Commercial, Etc.): Residential	ACRES (FUTURE): 0		

3

A. LATERALS AND SUB-MAIN SEWERS (GPCD)		100
B. MAIN AND TRUNK SEWERS (GPCD)		250 (12" & above)
C. INTERCEPTORS (GPCD)		NA
(1) MEASURED DRY-WEATHER FLOW (%)		-
(2) ESTIMATED DRY WEATHER FLOW (%)		

D. IF ANY VALUES LESS THAN PRESCRIBED IN MANUAL, EXPLAIN:
NA

4

DESIGN FLOW DATA	GPCD	MGD
A. AVERAGE DAILY FLOW	100	0.034300
B. INFILTRATION		included in 'A'
C. MAXIMUM INDUSTRIAL WASTE FLOW		None
D. TOTAL DESIGN FLOW		0.034300
E. MAXIMUM FLOW RATE		0.137200

TABLE II – GENERAL DESIGN

PIPE DIAMETER (IN.)	MINIMUM SLOPE (%)	MAXIMUM SLOPE (%)	MAXIMUM VELOCITY (FPS) Full	MAXIMUM FLOW TO (MGD) CAP.	MAXIMUM DISTANCE BETWEEN MANHOLES (Ft.) SEWERS 18 IN. OR LESS	SEWERS 18 IN. TO 30 IN.	TYPE OF SEWER MATERIAL	"N" VALUE
8	0.5	7.75	2.58	0.55	305	-	ACP	0.013

(USE ADDITIONAL SHEETS IF NECESSARY)

TABLE III – CRITICAL DATA

PLAN SHEET NUMBER	MANHOLE NUMBER FROM	MANHOLE NUMBER TO	SEWER PIPE SIZE (IN.)	SEWER SLOPE (%)	POPULATION SERVED	TOTAL DESIGN FLOW (MGD)	SEWER FLOWING FULL VEL. (FPS)	SEWER FLOWING FULL CAP. (MGD)	MAXIMUM FLOW VELOCITY (FPS)

ER710.046.1

DATE PREPARED 6/7/78

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1—GENERAL INFORMATION
SEWERAGE

For Department Use Only

E. RECEIVING STREAM – CONTINUED

6. TO THE BEST OF YOUR KNOWLEDGE, WILL THE TREATED WASTE DISCHARGE ADVERSELY AFFECT:

A. DOMESTIC WATER SUPPLY?	☐ Yes	☐ No
B. BATHING?	☐ Yes	☐ No
C. STOCK WATERING?	☐ Yes	☐ No
D. FISH AND AQUATIC LIFE?	☐ Yes	☐ No
E. INDUSTRIAL WATER SUPPLY?	☐ Yes	☐ No
F. IRRIGATION?	☐ Yes	☐ No
G. BOATING AND AESTHETICS?	☐ Yes	☐ No

7. IF ANY ITEMS IN 6 ABOVE ARE ANSWERED YES, INDICATE DISTANCE TO, LOCATION OF, AND EXTENT OF ADVERSE EFFECT.

ER710 046.6

DATE PREPARED 6/7/78

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

For Department Use Only

MODULE 6 – SEWERS AND APPURTENANCES

A. GENERAL INFORMATION – CONTINUED

10. ARE SEWERS IN STREAMS PROTECTED WITH AT LEAST 1 FOOT COVER IN ROCK AND 3 FEET COVER IN OTHER MATERIAL? ☐ Yes ☒ No ☐ N/A

2 Ft. is max. available otherwise will miss connection Sheet 13 of 1

11. ARE SEWERS IN STREAMS CONSTRUCTED TO REMAIN WATERTIGHT AND IN ALIGNMENT? ☒ Yes ☐ No ☐ N/A

12. DOES THE APPLICATION INVOLVE CAPPED SEWERS? ☐ Yes ☒ No

A. IF YES, SPECIFY PLAN SHEET NUMBER. _____

13. HOW MANY INVERTED SIPHONS ARE INCLUDED IN THIS DESIGN? None

14. IF SIPHONS ARE INCLUDED, SPECIFY THE FOLLOWING: N.A.

	SIPHON:	SIPHON:	SIPHON:
A. NUMBER OF BARRELS			
B. MINIMUM PIPE SIZE			
C. MINIMUM VELOCITY AT AVERAGE FLOW			

D. HAS PROVISION BEEN MADE FOR FLUSHING, RODDING, AND MAINTENANCE? ☐ Yes ☐ No ☐ N/A

15. IS THERE ANY CONNECTION BETWEEN THE SEWER AND A PUBLIC OR PRIVATE POTABLE WATER SUPPLY OR APPURTENANCES? ☐ Yes ☒ No

16. ARE ANY WATER SUPPLY SOURCES, PUBLIC OR PRIVATE, LOCATED WITHIN 200 FEET OF THE SEWERS? ☐ Yes ☒ No

A. IF YES, SPECIFY PLAN SHEET(S) ON WHICH SOURCES ARE SHOWN. _____

B. IF YES, WILL SEWERS BE ENCASED OR WATERTIGHT? ☐ Yes ☐ No

17. ARE SEWERS AT LEAST 10 FEET HORIZONTALLY FROM WATER LINES AND/OR AT LEAST 18 INCHES BELOW THE WATER LINE? ☒ Yes ☐ No

18. IF THE PROPOSED FACILITY WILL DISCHARGE TO THE SEWER SYSTEM AND TREATMENT PLANT OF ANOTHER MUNICIPALITY, HAVE APPROPRIATE AGREEMENTS BEEN REACHED? ☒ Yes ☐ No ☐ N/A

A. IS THE AGREEMENT A CERTIFIED AGREEMENT? ☒ Yes ☐ No ☐ N/A

B. IS THE AGREEMENT A LETTER OF INTENT? ☐ Yes ☐ No ☒ N/A

C. HAVE DUPLICATE COPIES BEEN ENCLOSED? ☐ Yes ☒ No

19. DO THE EXISTING SEWERS TO WHICH THE PROPOSED SEWERS WILL CONNECT HAVE ADEQUATE CAPACITY TO CONVEY THE ADDITIONAL FLOW? ☒ Yes ☐ No ☐ N/A

ER710.046.6

DATE PREPARED

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

For Department Use Only

MODULE 6 – SEWERS AND APPURTENANCES

A. GENERAL INFORMATION – CONTINUED

20. ON THE PLANS, INDICATE THE PERMIT NUMBER OF EXISTING SEWER AT EACH PROPOSED POINT OF CONNECTION AND THE NAME OF THE PERMITEE; SPECIFY PLAN SHEET NUMBER(S) ON WHICH INDICATED: Pa. D.E.R. Permit #765513 ☐ N/A

21. WILL THERE BE A PUMP STATION INVOLVED IN RECEIVING SEWAGE FROM THE SEWER EXTENSION? ☐ Yes ☒ No ☐ N/A

A. IF YES, SPECIFY PRESENT AND DESIGN FLOWS OF PUMPING STATION.

22. RECEIVING SEWAGE TREATMENT PLANT (FILL IN FOR EXTENSION(S) TO EXISTING SYSTEM ONLY)

A. OWNER OF PLANT Upper Gwynedd - Towamencin Municipal Authority

B. NAME OF PLANT Upper Gwynedd-Towamencin Municipal Authority S.T.P.

C. DISCHARGE DATA

	WASTE FLOW (MGD)	SOLIDS: SUSPENDED (#/DAY)	SOLIDS: SETTLEABLE (ML/L)	BOD 5 DAY 20°C (#/DAY)
(1) ALLOWABLE LOAD TO STREAM AUTHORIZED UNDER PRESENT PERMIT	1.5 (2.5)(1)	375	None Stated	375
(2) PRESENT LOAD TO STREAM FROM TREATMENT PLANT	1.282 (2)	267 (3)	0.4	267 (3)
(3) ADDITIONAL LOAD TO STREAM EXPECTED DURING THE NEXT FIVE YEARS FROM EXISTING SYSTEM	0.4062 (4)	71	Negligible	71
(4) ADDITIONAL LOAD TO STREAM DURING THE NEXT FIVE YEARS FROM PROPOSED EXTENSION	0.0343	6	Negligible	6
(5) TOTAL ANTICIPATED LOAD TO STREAM IN NEXT FIVE YEARS (2+3+4)	1.7225	344	0.4	344

D. TREATMENT PLANT OPERATING EFFICIENCY

	SOLIDS: SUSPENDED (%)	SOLIDS: SETTLEABLE (%)	BOD 5 DAY 20°C (%)
(1) PRESENT TREATMENT PLANT		98	
(2) AFTER INITIAL LOAD FROM PROPOSED EXTENSION	90	98	90
(3) IN FIVE YEARS	90	98	90

23. WILL THE LOAD UNDER 22.D (5) ABOVE PRODUCE AN EFFLUENT THAT WILL HAVE AN ADVERSE EFFECT UPON THE RECEIVING STREAM? ☐ Yes ☒ No

Notes: (1), (2), (3), (4): See attached Supplemental Sheet #6-4a.

4679455

SUPPLEMENTARY SHEET 6-4a.

NOTES- Re: 6-4 22.C

(1) 1.5 MGD former capacity, plus 1.0 MGD current expansion capacity = 2.5 MGD

(2) Avg. Daily Flow: Obtained by averaging most recent 12 months daily recorded flows from June 1977 thru May 1978, inclusive.

(3) Values based upon anticipated average 30 day consec. period effluent Susp. Solids and B.O.D. concentrations of 25 ppm each by Fall 1978 when plant expansion is completed to 2.5 MGD hydraulic capacity and optimum good plant efficiency established. During current plant construction expansion period, it should be noted, the normal design pattern, sequence, and retention time of sewage flow through treatment process units is disrupted or abnormal due to construction schedules and procedures, and optimum plant operating efficiency is not consistently achieved.

(4) Includes incremental contributions for projected flows of recently approved and pending projects in service area:

DiLucia (Country Meadows) Subdivision Permit #4677404

Dougherty Brothers Subdivision Permit #4677415

Regent Manor Subdivision Permit #4677438

Hunter Construction Company "Hunter Meadows" Subdivision, pending Application

"Ralph's Market"/U.G.-Tow. Muncipal Authority T-14 Line Ext., pending application.

H710.046:1

DATE PREPARED
Febr. 21, 1972.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH
SANITARY ENGINEERING

WATER POLLUTION CONTROL
SEWERAGE
MODULE 1 – GENERAL INFORMATION

DW 7/6/72
For Department of Health Use Only

DESIGN ENGINEER AND FIRM JAMES LIPTAK AND ASSOCIATES

ADDRESS 510 Davisville Road Willow Grove, Pa. ZIP CODE 19090 TELEPHONE 01-9-7244

APPLICANT UPPER GWYNEDD - TOWAMENCIN MUNICIPAL AUTHORITY

LOCATION OF PROJECT: MUNICIPALITY KULPSVILLE COUNTY MONTGOMERY

DESCRIPTION OF PROJECT EXPANDING THE CAPACITY OF THE EXISTING 1.0 MGD PLANT TO 2.17 MGD. ADDING NEW FACILITIES TO TREAT ADDITIONAL 1.17 MGD FLOW.

A. DOCUMENTATION REQUIRED

1. HAS A CHECK FOR $25.00, PAYABLE TO THE PENNSYLVANIA DEPARTMENT OF HEALTH, BEEN INCLUDED? (NOT REQUIRED OF STATE OR FEDERAL AGENCIES) — [X] Yes [ ] No [ ] N/A

2. HAVE 2 COPIES OF THE APPLICATION, FORM H710.046, BEEN SUBMITTED? (3 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND DELAWARE RIVER BASIN). — [X] Yes [ ] No

   A. HAS THE AFFIDAVIT BEEN PROPERLY COMPLETED AND EXECUTED? — [X] Yes [ ] No

3. DOES THE APPLICATION INCLUDE THE FOLLOWING APPLICABLE MODULES:

MODULE NUMBER	TITLE	NUMBER OF PAGES	
1	GENERAL INFORMATION---SEWERAGE	9	[X] Yes
4	WASTE LOAD AND CHARACTERISTICS	3	[X] Yes
5	GEOLOGY AND GROUND WATER INFORMATION	2	[ ] Yes
6	SEWERS AND APPURTENANCES	5	[ ] Yes
7	SEWAGE PUMPING STATIONS	4	[X] Yes
8	PUMPING FACILITIES	1	[X] Yes
9	FLOW EQUALIZATION AND STORAGE BASINS	2	[ ] Yes
10	GRIT CHAMBERS	1	[ ] Yes
11	SCREENING AND COMMINUTING DEVICES	2	[X] Yes
12	IMHOFF AND SEPTIC TANKS	2	[ ] Yes
13	SETTLING TANKS	2	[X] Yes
14	TRICKLING FILTER BASINS	2	[ ] Yes

H710.046.1

DATE PREPARED
FEB. 21, 1972

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH
SANITARY ENGINEERING

WATER POLLUTION CONTROL SEWERAGE

MODULE 1 – GENERAL INFORMATION

DBW 7/6/72
For Department of Health Use Only

A. DOCUMENTATION REQUIRED – CONTINUED

MODULE NUMBER	TITLE	NUMBER OF PAGES	
15	TRICKLING FILTERS	2	☒ Yes
16	AERATION TANKS OR BASINS	3	☒ Yes
17	WASTE STABILIZATION PONDS	3	☐ Yes
18	CHEMICAL TREATMENT (INCLUDING FEEDERS)	3	☒ Yes
19	MIXING AND FLOCCULATION FACILITIES	1	☐ Yes
20	SAND FILTERS	2	☒ Yes
21	DISINFECTION	2	☒ Yes
22	SPRAY IRRIGATION	1	☐ Yes
23	PHYSICAL ABSORPTION, ION EXCHANGE, AND CONTACT UNITS	2	☐ Yes
25	DEEP WELL DISPOSAL	4	☐ Yes
26	SLUDGE TREATMENT AND DISPOSAL		
	A. SEPARATE DIGESTION TANKS AND SLUDGE THICKENING TANKS	2	☒ Yes
	B. ELUTRIATION	1	☐ Yes
	C. WET OXIDATION	1	☐ Yes
	D. SLUDGE DRYING BEDS	1	☐ Yes
	E. LAND DISPOSAL OF SLUDGE	1	☐ Yes
	F. SLUDGE LAGOONS	1	☐ Yes
	G. FILTERS AND CENTRIFUGES	1	☒ Yes
	H. INCINERATION	1	☒ Yes

B. REQUIRED DATA

1. THE FRONT COVER OR FLYLEAF OF EACH SET OF DRAWINGS AND SPECIFICATIONS MUST BEAR THE SIGNATURE AND SEAL OF THE REGISTERED PROFESSIONAL ENGINEER, SURVEYOR OR OTHER UNDER WHOM PREPARED. EACH DRAWING MUST BEAR AN IMPRINT OR REASONABLE FACSIMILE OF SUCH SEAL.

H710.040.1

DATE PREPARED
FEB. 21, 1972

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH
SANITARY ENGINEERING

WATER POLLUTION CONTROL
SEWERAGE
MODULE 1 - GENERAL INFORMATION

For Department of Health Use Only

B. REQUIRED DATA - CONTINUED

2. INFORMATION RELATIVE TO SPECIFIC PROGRAM

A. 2 COPIES OF DESIGNER'S PLANS, MODULES, AND SPECIFICATIONS (3 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND DELAWARE RIVER BASIN)

B. HYDRAULIC PROFILE OR SCHEMATIC FLOW DIAGRAM FOR PROPOSED TREATMENT PLANT

C. UNITED STATES GEOLOGICAL SURVEY TOPOGRAPHICAL MAP SHOWING EXACT POINT OF DISCHARGE AND TREATMENT PLANT OR PUMP STATION LOCATION AND/OR AREA TO SEWER

D. HAVE YOU APPLIED FOR A PUBLIC UTILITY COMMISSION CERTIFICATE OF PUBLIC CONVENIENCE? ☐ Yes ☒ No ☐ N/A

(1) SPECIFY PUBLIC UTILITY COMMISSION APPLICATION NUMBER _____

(2) IS CERTIFICATE OF PUBLIC CONVENIENCE ENCLOSED? ☐ Yes ☐ No

E. HAVE YOU APPLIED FOR WATER AND POWER RESOURCES BOARD APPROVAL FOR STREAM ENCROACHMENT? ☒ Yes ☐ No ☐ N/A

F. HAVE YOU APPLIED TO DEPARTMENT OF LABOR AND INDUSTRY FOR THE SAFETY OF EMPLOYEE SAFETY? ☒ Yes ☐ No ☐ N/A

G. DO YOU HAVE AN AGREEMENT INDICATING APPROVAL TO DISCHARGE TO SEWER SYSTEM AND TREATMENT PLANT OF ANOTHER PERMITTEE? ☐ Yes ☐ No ☒ N/A

H. HAVE YOU APPLIED FOR AIR POLLUTION CONTROL COMMISSION APPROVAL FOR PLANT REQUIRING AIR POLLUTION CONTROL? ☐ Yes ☐ No ☒ N/A

I. IF YOU ARE (SUBMIT LIST WITH NAMES, ADDRESSES, AND TITLES OF ALL PARTNERS IN THE CASE OF A PARTNERSHIP OR ALL OFFICERS IN THE CASE OF A CORPORATION OR INCORPORATED ASSOCIATION, INCORPORATED ASSOCIATION, PARTNERSHIP, OR OTHER ENTITY (NOT MUNICIPAL) ☐ Yes ☐ No ☒ N/A

J. SPECIFY AS: UPPER GWYNEDD-TOWAMENCIN MUNICIPAL AUTHORITY TREATMENT PLANT EXPANSION

A. PLANS STAGE 1 NO. OF SHEETS 44 DATE FEB. 1972

PLANS STAGE 2 NO. OF SHEETS 32 DATE FEB. 1972

PLANS _____ NO. OF SHEETS _____ DATE _____
TITLE OF DESCRIPTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH
SANITARY ENGINEERING

FWWR-11-1—(ENC) SM—1-61

Lansdale, Pa.,

May 25, 19 72

To the Commonwealth of Pennsylvania

Department of Forests and Waters

Water and Power Resources Board:

In compliance with the provisions of an Act of the General Assembly of the Commonwealth of Pennsylvania, entitled, "An act providing for the regulation of dams, or other structures or obstructions, as defined herein, in, along, across or projecting into all streams and bodies of water wholly or partly within, or forming part of the boundary of, this Commonwealth; vesting certain powers and duties in the Water Supply Commission of Pennsylvania, for this purpose; and providing penalties for the violation of the provisions hereof," approved the 25th day of June, A. D. 1913, as amended by Act No. 137, approved May 6, 1937, and "The Administrative Code" which empowers the Water and Power Resources Board to exercise certain powers and perform certain duties by law vested in and imposed upon the Water Supply Commission of Pennsylvania.

Upper Gwynedd-Towamencin Municipal Authority
(Here state name of person or persons, partnership, association, corporation, county, city, borough, town, or township)

Kriebel Road, Lansdale, RD#2 Pennsylvania (Towamencin Township)

hereby makes application for the consent or permit of the Water and Power Resources Board to construct, ~~xx xx xx xx xx xx xx xx xx xx~~ addition to, ~~xx xx xx xx xx xx~~ Exist. 21" RCP (Equiv.) Wastewater Treatment Plant outfall with 2-20" (RCP)

in, ~~xx xx xx xx xx xx~~ To edge of Towamencin Creek
(Here state name of stream or other body of water)

at a point opposite the Upper Gwynedd-Towamencin Municipal Authority
(Here give location, by distance from mouth of stream, county, township, or municipal boundary, also give city town, or township and county in which located)

Treatment Plant, Kriebel Road, Towamencin Township: at Junction of East and West Branches of Towamencin Creek.

WATER POLLUTION CONTROL

WR2412

for the purpose of Additional subsurface discharge for proposed
(Here state fully the purpose, necessity and description of the proposed obstruction.)
Treatment Plant expansion as filed with Pennsylvania Department of
Environmental Resources.

in accordance with the complete maps, plans, profiles, and specifications filed with this application and made a part hereof.

This application, unless made by Federal, State, County, or municipal agency, must be accompanied by a fee of Three Dollars ($30.00) in the form of a certified check or money order, payable to The Commonwealth of Pennsylvania.

Chairman, John B. Taylor

SEAL:

(Address) Kriebel Road, Lansdale

Mailed copy 5/24/72 J. Kopp

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
24 NORTH WOOD STREET
LANSDALE, PENNSYLVANIA
19446

RECEIVED
MAY 25 1972

Copy

May 23, 1972

PROJECT Upper Gwynedd-Towamencin Municipal Authority

TO Pa. Dept. of Forests & Water

Attention Vaden R. Butler, Chief

We are sending you ☒ enclosed herewith ☐ under separate cover the following:

No. of Prints	Drawing No.	Title and Remarks

☐ FOR APPROVAL ☐ FOR CORRECTION, RESUBMIT

☐ APPROVED ☒ FOR YOUR USE

☐ APPROVED AS NOTED ☐ FOR DISTRIBUTION

Remarks: Enclosed is one (1) copy of Application for permission to construct two (2) additional 20" outfall pipes for the expansion of the existing wastewater treatment plant on Towamencin Creek.

By Ralph A. Wert, P.E.
Herbert H. Metz, Inc.

RAW/met

Enclosure

Copy: Liptak

3710-046.1

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH
SANITARY ENGINEERING

DATE PREPARED: Febr. 21, 1972

WATER POLLUTION CONTROL
SEWERAGE
MODULE 1 - GENERAL INFORMATION

DQW 7/6/72
For Department of Health Use Only

B. REQUIRED DATA - CONTINUED

UPPER CHYNEDD-TOWAMENCIN MUNICIPAL AUTHORITY
TREATMENT PLANT EXPANSION

B. SPECIFICATIONS (IF APPLICABLE): STAGE 1 / — / STAGE 2
TITLE

STAGE 1 / 4
STAGE 2
NUMBER OF VOLUMES 6
10

DATE FEBRUARY 1972

C. OTHER (SPECIFY TYPE AND NUMBER):

4. ARE THE PLANS:

A. CLEAR, LEGIBLE, AND DRAWN TO SCALE WITH NORTH ARROW INDICATED? [X] Yes [ ] No

B. WITHIN MAXIMUM SIZE OF 36 INCHES BY 50 INCHES? [X] Yes [ ] No

C. SEAL AND SIGNATURE OF PROFESSIONAL ENGINEER OR SURVEYOR RESPONSIBLE FOR THIS APPLICATION

1. SIGNATURE OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW) James Lipták

2. SEAL OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW)

SEAL

RECEIVED
MAY 8 1972

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS

TO CONSIDER CAPACITY INCREASE OF SEWAGE TREATMENT
CURBING

WATER POLLUTION CONTROL

0.663	6.195
1.064	9.150
0.281	1.480
For Department of Health Use Only	
0.421	2.220
	6.500

	Existing Facilities Design	Design Capacity	Proposed Total Facilities Design
		ONE DOUBLE	
	8,200	6889	41,300
	1,800	2,810	14,800
	10,000	9,699	56,100
			1490
	24	24	24
	70+30=100	70	100
AVERAGE DAILY FLOW (MGD)	0.574	0.532	4.130
	0.246	1.078	0.890
	1.230	0.665	6.195
	1.640	1.064	9.150
AVERAGE DAILY FLOW (MGD)	0.180	0.281	1.480
MAXIMUM DAILY FLOW (MGD)	0.270	0.421	2.220
TOTAL AVERAGE FLOW (MGD)	1.000		6.500

TABLE D FACILITIES DESIGN DATA (Specify number of units)

Units	Existing	To Be Abandoned	Total Proposed	Units	Existing	To Be Abandoned	Total Proposed
1 SCREENING DEVICES	1	-	1	13 CHLORINE CONTACT TANK(S)	ONE DOUBLE	-	1 4
2 GRIT CHAMBERS	-	-	-	14 DISINFECTION FACILITIES	1	-	- 1
3 COMMINUTORS	1	-	1 1	15 SEPARATE SLUDGE DIGESTORS	-	-	-
4 AERATION TANKS	2	-	2 4	16 SLUDGE DRYING BEDS	-	-	-
5 FINAL SETTLING	2	-	2 -	17 MECHANICAL SLUDGE DEWATERING	2	-	- 1
6 IMHOFF TANKS	-	-	-	18 SLUDGE EQUALIZATION TANKS	-	-	-
7 TRICKLING FILTERS	2	-	- 2	19 SLUDGE STABILIZATION TANKS	-	-	-
8 INTERMEDIATE SETTLING TANKS	-	-	-	20 INCINERATORS	-	-	ABOLISH OF 3 MUST WEAR
9 SEPARATE TANKS	-	-	- 4	21 MIXING AND FLOCCULATION TANKS	-	-	-
10 FINAL SETTLING TANKS	3	-	1 4	22 OTHER (Specify) RAPID SAND FILTER			36 64
11 INTERMITTENT SAND FILTERS	-	-	-	23 OTHER (Specify) FLOCK SEPARATOR			- 4
12 WASTE STABILIZATION PONDS	-	-	-	24 OTHER (Specify) SLUDGE THICKENER	2		- 2

CONSULTATION
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH
SANITARY ENGINEERING
WATER POLLUTION CONTROL

APRIL #

T. Glenn Burger

F	H	I
		(Enlarge on Side II ...
5.5		
5.2		WEEKLY AVERAGE
6.0	6.0	
5.6	0.3	
5.4	1.6	
5.7	0.8	
6.0	0.2	
6.0	0.2	WEEKLY AVERAGE
6.0	0.2	
5.5	0.3	
5.6	0.0	
5.5		
	0.0	
8.4	0.5	WEEKLY AVERAGE
7.0	0.6	
7.8	0.6	
7.1	0.7	
7.5	0.4	
8.9	0.2	
8.7	0.2	WEEKLY AVERAGE
8.5	0.2	
8.6	0.7	
8.0	0.7	

OPERATOR: T. Glenn Burger

APPROVED BY:

H	I
Cl_2 res. ppm	REMARKS (Enlarge on reverse side if necessary)
1.4	
1.0	WEEKLY AVERAGE = 1
1.4	Flow Thru
0.4	
1.8	
1.2	
3.0	
0.4	
0.3	Flow Thru
0.5	WEEKLY AVERAGE =
1.0	
1.4	WEEKLY AVERAGE =
3.2	
1.4	
0.8	
2.2	WEEKLY AVERAGE =
1.4	
3.2	
3.0	
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1.8	
1.0	Flow Thru

E				F			G
		PPM		DISSOLVED OXYGEN PPM			Chlor. TIME
				(a) P.P.	(b) Up Stream	(c) Down Stream	
		240	5.5	9.0			
				8.0			
				8.3			
				8.6			
				8.6			
				7.8			
				8.2			
				7.4			
				5.7			
				5.8			
		194	3.7	4.8			
				4.8			
				3.0			
				3.9			
7.5	7.5	210	5.1	8.6			
		230	2.5				
		640	35.7				

BEAVER BROOK

Chlorination treatment unit prior to chlorination

N MUNICIPAL AUTHORITY — June

D	E		F			G	H	I
SUSPENDED SOLIDS ppm (One Sample/Week)	B.O.D. ppm		DISSOLVED OXYGEN ppm			RELAT. STAB. # %	Cl_2 Res. ppm F.E.	REMARKS (Enlarge on side if needed)
	F.E.	Raw	F.E.	(a) F.E.	(b) Up Stream	(c) Down Stream		
								WEEKLY AVERAGE =
							1.0	
							0.8	
							0.4	
							2.2	
							1.0	WEEKLY AVERAGE =
							2.2	
							1.4	
3	6	289	12.7				1.6	
								WEEKLY AVERAGE =
210	29	466.2	28.8					
							0.1	
							0.1	WEEKLY AVERAGE =
							0.1	
								Heavy Flood.
							0.1	
							0.2	
							0.2	WEEKLY AVERAGE
							0.2	
							0.2	
315	22	420	122				0.6	Heavy load of

TREATMENT UNIT prior to chlorination

APPROVED BY: _____

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AVERAGE =

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prior to chlorination

ER – EP

START

DEPARTMENT OF ENVIRONMENTAL RESOURCES

ENVIRONMENTAL PROTECTION

START

BUREAU/PROGRAM Water Quality Management

DIVISION

COUNTY/MUNICIPALITY 46949

PROGRAM Sew

CASE NAME Upper Gwynedd Towamencin Municipal Authority

FILE P

PERMIT NO. 4679414 Rolling Meadow Estates

COMMONWEALTH of PENNSYLVANIA

DEPARTMENT OF ENVIRONMENTAL RESOURCES

OCT 30 1978

750 E. Johnson Highway
Norristown, Pennsylvania 19401
215 631-2036

October 26, 1978

Ms Beverly Thompson
P.O. Box 99
655 Sunneytown Pike
Kulpsville, PA 19443

Re: Rolling Hills Estate
No. 1-46949-016-4
Towamencin Township

Dear Ms Thompson:

Please be advised that a review has been made and completed of the above referenced Planning Module for Land Development.

This supplement to the Towamencin Township's Official Sewage Facilities Plan meets the requirements of Chapter 71, Section 71.17 of the Pennsylvania Department of Environmental Resources Rules and Regulations.

Approval is hereby granted; and in accordance with this Chapter, the Department holds Towamencin Township responsible for implementing this supplement as per the approved module.

This planning approval does not relieve the project sponsor of the responsibility to secure a Department permit for the construction and operation of the proposed facility.

If you have any questions, please feel free to contact this office.

Very truly yours,

Michael L. Simon
Sanitarian
Montgomery County

CC: Sewage Facilities Consultant
File
WAMIS
Mr. William E. Nash

MLS/lm

EXHIBIT "B"

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

DECEMBER 1978

BRIEF NARRATIVE DESCRIPTION OF PROJECT

33-LOT RESIDENTIAL SUBDIVISION DEVELOPMENT
Towamencin Township, Montgomery County, Pa.

"Rolling Meadows Estates"

SITE:

The project site is a 32.6 Acre tract of land situated on the Southeast side of Keeler Road (T-395) 320 feet Southeast from the intersection of Tennis Circle, Towamencin Township, Montgomery County, Pennsylvania, and extending between Keeler Road and Troxell Road (Pa. L.R. #46047).

DEVELOPMENT DESCRIPTION:

The planned residential subdivision is a 33 lot single family dwelling development designed under requirements and permitted criterial for the R-175 Residential Zoning Classification for Towamencin Township. It is designed to be served by a layout of interior streets having access via Keeler Road, Troxell Road and adjoining tract street, Susan Drive. Permanent cartway pavement, curbs and sidewalks will be constructed on all streets.

FACILITIES:

The project will be constructed using erosion and sediment control structures and procedures. Storm water management facilities will be constructed as required by the various agencies having jurisdiction.

A collection system of gravity sanitary sewers is designed to collect sewage from the planned dwelling lots for discharge via an existing collection system designated as Upper Gwynedd-Towamencin Municipal Authority "T"-trunk line, by gravity, to the Authority Waste Water Treatment Plan for treatment.

North Penn Water Authority will install and provide public water supply for the project.

Soils composition on the site, as identified by the Montgomery County Soils Survey, is made up of the following categories:

Klinesville Shally Silt Loam
Readington Silt Loam
Reaville Silt Loam
Bowmansville Silt Loam along the three stream branches.

EXHIBIT "C"

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

March 5, 1979

RECEIVED
MAR 7 1979
NORRISTOWN

Mr. Richard Hinkle, Chief
Facilities Section - Bureau of Water Quality Management
Pennsylvania Department of Environmental Resources
1875 New Hope Street
Norristown, Pennsylvania 19401

Re: Water Quality Management Application
Rolling Meadows Estates Subdivision
Towamencin Township, Montgomery County
(Upper Gwynedd-Towamencin Municipal Authority
Sewerage System)

Dear Mr. Hinkle:

I am submitting with this letter a Water Quality Management Application for the subject project, with duplicate copies of the following supporting Modules and documents:

1. Modules 1 and 6.
2. Sanitary Sewer Design Analysis.
3. Planning Module Application approval.
4. An Erosion and Sedimentation Narrative.
5. Towamencin Township Plumbing Code Regulation.
6. A set of plans and profiles showing proposed water line locations. These water lines also appear on the construction improvement plans sheets 2 and 3. A typical section showing the relationships between sanitary sewers and water mains has been added to the plan and profile sheets.
7. Storm Water Management Calculations including:
   a) before development versus after development runoff comparison,
   b) pipe sizes (inlet tabulation for each series of catch basins and associated culverts (numbers corresponding to each storm water structure appear on the plans for ease of correlation between documents and plans);

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS

c) tabulation of recommended Rock Basin Energy Dissipators to be constructed at each outfall.

At this time, I have also submitted E. & S. plans and data to the Soil Conservation Service for review and approval.

May I also advise you that I am simultaneously making application to the Division of Dams and Encroachments in Harrisburg for approval for encroachment in, across and adjacent to Towamencin Creek and tributary water course, which pass through the tract, principally pertinent to a designed bridge-culvert for the tributary crossing of Buckboard Way, a proposed tract street.

I trust these plans, supporting documents and calculations are complete and in order for approval and issuance of permit.

Very truly yours,

HERBERT H. METZ, INC.

Herbert H. Metz, Jr., P.E.

Enclosures

HHMjr/jis

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P.O. BOX 647

1875 New Hope Street
Norristown, Pennsylvania 19401
(215) 631-2402

March 14, 1979

Upper Gwynedd-Towamencin Municipal Authority
1[illegible] Drive
Lansdale, PA 19446

Attention: [illegible]
Engineer

Re: Application No. 1679414
Towamencin Township
Montgomery County

Gentlemen:

This will acknowledge receipt of your application on March 7, 1979 for approval to construct a sewer extension to serve the Hollins Meadows Estates Subdivision in Towamencin Township, Montgomery County.

The material submitted is accepted for technical review by the staff of the Department.

In addition to the above, an application No. 1679703 in the name of William E. Nash, has been received by the Division of Dams and Encroachments. No permits will be issued until processing is completed on all required applications. The permits will be issued simultaneously from this office.

You are reminded that any proposed facilities cannot be constructed without first obtaining the required permits.

Applications are normally processed within sixty (60) days. If you have not received notification of the action taken within this period, feel free to contact us for information concerning the status of the review.

Very truly yours,

Leon T. Lonshor
Regional Director

LTL/lk

cc: Facilities
Program Services
Dams & Encroachments
Mr. Herbert H. Metz, Jr., P.E.
No. 1679703

1875 New Hope Street
Norristown, Pennsylvania 19401
(215) 631-2402

April 4, 1979

Mr. William T. Nash, Developer
Rolling Meadows
1% Laurel Lane
Lansdale, PA 19446

Re: Application No. 4679753
Towamencin Township
Montgomery County

Dear Mr. Nash:

This will acknowledge receipt of your application on March 1, 1979 for approval to provide required sanitary sewerage extensions and connections to the existing system and stormwater management and control for the "Rolling Meadows Estates" development in two (2) tributaries of Towamencin Creek, in Towamencin Township, Montgomery County.

The material submitted is accepted for technical review by the staff of the Department.

In addition to the above, an application (No. 4679414) for a sewer permit for the proposed project has been received by our Facilities Section from Upper Gwynedd-Towamencin Municipal Authority. No permits will be issued until processing is completed on all required applications. The permits will be issued simultaneously from this office.

You are reminded that any proposed facilities cannot be constructed without first obtaining the required permits.

Applications are normally processed within sixty (60) days. If you have not received notification of the action taken within this period, feel free to contact me for information concerning the status of the review.

Very truly yours,

Leon T. Gossler
Regional Director

LTG/lr

cc: Dams & Encroachments
Facilities (2)
Towamencin Township
4679414

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
1725 Markley Street, Norristown, PA 19401

April 12, 1979

Mr. Maynard King
Montgomery County Conservation District
One Montgomery Plaza, Court House
Norristown, PA 19404

Dear Mr. King:

Re: Rolling Meadows Estates (William Nash Subdivision) - Towamencin Township

The Soil Conservation Service has reviewed the Erosion and Sediment Control Plan for this development. The plan, as revised in April, appears adequate to control erosion and sedimentation during and after construction.

As requested in the attached letter from Mr. Clifford T. Stout, would you please forward a copy of your approval letter to Mr. Daniel Lanyo, Division of Dams and Encroachments.

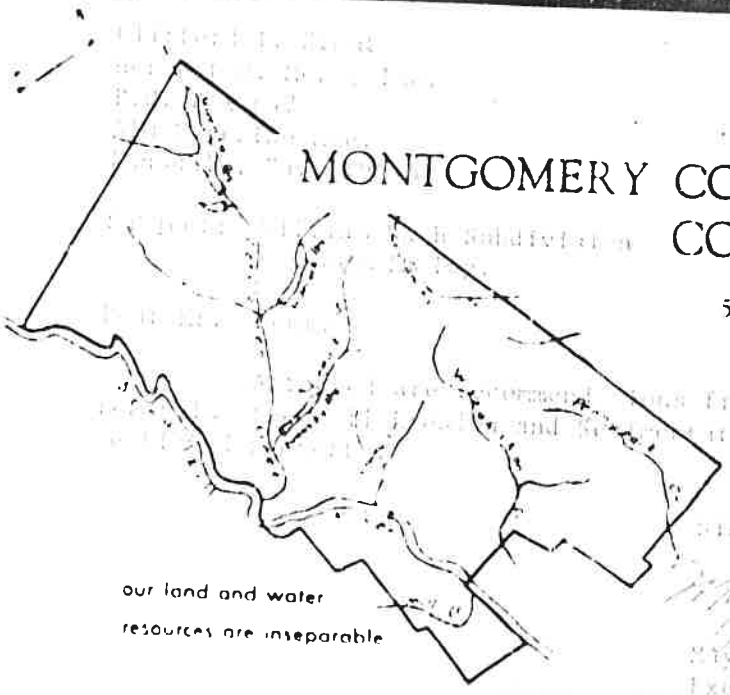
Sincerely,

Edward J Brzostek

Edward J. Brzostek
District Conservationist

Enclosure

MTR FILE



MONTGOMERY COUNTY CONSERVATION DISTRICT

5th Floor, Court House, Norristown, Pa. 19404
Phone: 275-5000 (Ext. 257)

April 16, 1979

Clifford T. Stout
Herbert H. Metz, Inc.
P.O. Box 647
410 Derstine Ave.
Lansdale, Pa. 19446

Subject: William Nash Subdivision
Towamencin Twp.

Dear Mr. Stout:

Attached are recommendations from the Soil Conservation Service regarding the Soil Erosion and Sedimentation Control Plan for the above mentioned property.

Sincerely,

Maynard King
Executive Assistant

MK:dvs

CC: Towamencin Twp. Engineer

RECEIVED
APR 12 1979

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

Date April 12, 1979

PROJECT "Rolling Meadows Estates"

TO Department of Environmental Resources
Norristown, Pennsylvania

Attention Mr. Gary Emmanuel

We are sending you ☒ enclosed herewith ☐ under separate cover the following:

No. of Prints	Drawing No.	Title and Remarks
2	2 of 12	Construction Improvement Plan

☐ FOR APPROVAL
☐ APPROVED
☐ APPROVED AS NOTED
☐ FOR CORRECTION, RESUBMIT
☐ FOR YOUR USE
☐ FOR DISTRIBUTION

Remarks: Gary:

Here are two (2) prints showing the revisions to the detention basin you requested in the conversation with Mr. George Cauffman, III, R.S. of our office this morning. If you have any other questions, feel free to call our office. Thank you for your patience.

By Richard B. Lobko
Herbert H. Metz, Inc.
Richard B. Lobko
Designer

RBL/nes

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P.O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

RECEIVED
MAY 16 1979
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

Date 5-11-79

PROJECT Rolling Meadows Estates

TO DER - Water Quality Management

Attention William Gowin

We are sending you ☑ enclosed herewith ☐ under separate cover the following:

No. of Prints	Drawing No.	Title and Remarks
2 &	11, 12	Plan & Profile & Detail Sheet

☑ FOR APPROVAL
☐ APPROVED
☐ APPROVED AS NOTED
☐ FOR CORRECTION, RESUBMIT
☐ FOR YOUR USE
☐ FOR DISTRIBUTION

Remarks.

Dear Bill,

Please accept the drawing and 2 copies of the letter of approval from Montgomery County Conservation Service Thanic you for your phone call

By Richard Kotto
Herbert H. Metz, Inc.

COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA FISH COMMISSION

RECEIVED
AUG 15 1979
ENVIRONMENTAL RESOURCES
NORRISTOWN REGIONAL OFFICE

Subject: Review of Permit Application with Recommendations

Date: 7/27/79

In Reply To: #46794141

To: Department of Environmental Resources

From: Pennsylvania Fish Commission — Wm. B. GOMAN, JR./SAN. ENG. NORRISTOWN DER

Permit Applicant: U. Montg. Co. - Towamencin Mun. Authority

Type of Construction: ~~Storm~~ Sewer X's

Location: County Montgomery Township Towamencin

Other

Stream Affected Unnamed Trib. Trib. To Towamencin Ck.

Trout Stream N/C (yes or no) Stocked N/C (yes or no)

Warm Water Stream Yes (yes or no) Polluted Yes (yes or no)

Other Fishing Pressure Low (high, med., low, none)

Primary Species Fish Bait, Bait Fish, Panfish, Sm Bass

☐ Insufficient data submitted. Project approval will be considered only after more details are provided for review.

THE FOLLOWING CONDITIONS ARE TO BE MADE PART OF ALL PERMITS:

1. Stream bed shall not be used as roadway for moving machinery from one site to another. Temporary stream crossings must be provided for equipment that must cross stream during construction. Structures are to be removed and stream bed returned to its original condition when project is completed.
2. Siltation control shall be provided for during construction and bank stabilization shall be undertaken by planting of grasses, shrubbery, or trees immediately after completion of each phase of project.
3. When channel change occurs, the stream bed shall not exceed original width, and if a greater cross sectional area is required, an elevated flood plain must be put into use.
4. All material and debris removed from stream bed shall be moved entirely out of the flood plain area.
5. A permit must be secured from the Pennsylvania Fish Commission in Harrisburg, if the use of explosives is required; P.F.C. Waterways Patrolman G. A. Bowersox must be notified when project is started, when explosives are to be used, and when project is completed for final inspection. 84-0235

COMMENTS:

Geo. A. Bowersox (Waterways Patrolman) Approved Yes (yes or no) Date 7/27/79

for Ron Fibbott (Chief, Fisheries Environmental Services) Approved Yes (yes or no) Date 8/9/79

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

467944 3-7-79

December 1978

EROSION AND SEDIMENTATION CONTROL PLAN FOR EXTENSION SANITARY SEWERAGE SYSTEM INCLUDING SEWER STREAM CROSSINGS, STORM SEWER OUTFALL FACILITIES AND STREAM CULVERTS, TO SERVE RESIDENTIAL LOT SUBDIVISION: ROLLING MEADOWS ESTATES, TOWAMENCIN TWP., MONTG. CO., PA.

To control erosion and sedimentation during and after construction, the Contractor shall:

1. Reduce the area and duration of exposure of readily erodible soils by disturbing only the areas needed for construction, opening a maximum of only 200 feet of trench at a time, removing only those trees, shrubs and grasses that must be removed for construction, and protecting the rest to preserve their esthetic and erosion control value.

2. Exposed soil surface shall be protected from erosion by installing coverings formed from mulch; sheets of plastic; burlap or jute netting; temporary growths of fast growing grasses or sod blankets or temporary paving in construction areas to be exposed for extended periods, or to be re-vegetated within 20 days of excavation.

   Mulch shall consist of hay, straw, wood chips, corn stalks, bark of any other suitable protective material. It shall be anchored to slopes with liquid asphalt, stakes, covered with netting or worked into the soil with various types of equipment to provide additional slope stability. All slopes of 2:1 and steeper shall be mulched as soon as they are rough graded.

   Mulching, seeding and sodding shall be accomplished as specified in the applicable standard set forth in the "Erosion and Sediment Control Handbook" as published by the Montgomery County (Pennsylvania) Soil and Conservation District.

   Temporary paving shall be as specified in the plans and construction specifications, if required or indicated.

3. Runoff shall be controlled by the installation of temporary diversions, berms, slopes, drains, flow barriers or other structures which will decrease its velocity or prevent concentration of runoff in areas of erodible soils. Diversion structures consisting of temporary compacted earth embankments,

bales of straw, ditches and furrows shall be constructed to direct runoff away from stockpiles and excavated areas.

4. Sediments carried by runoff water and dewatering operations shall be trapped behind temporary barriers. The barriers shall consist of grassed embankments, sand, gravel or bales of hay or straw. Prior to removing the temporary barriers any accumulated sediments shall be spread within the right-of-way or, if suitable, used for backfill. Sediment accumulated of paved areas shall be removed from the site or used as backfill, if suitable.

5. As construction activities within the area are completed, the area shall be permanently stabilized with perennial vegetation as specified in the "Erosion and Sediment Control Handbook" of the Montgomery County (Pennsylvania) Soil and Water Conservation District.

6. If possible, construction in rights-of-way shall be planned and scheduled for the summer months when erosion is less of a hazard, and there is minimal, or no, surface runoff in furrows, swales, and water courses.

7. During construction, equipment shall be used in a manner that does not leave the site susceptible to erosion. Wheel mounted equipment shall be used whenever possible.

8. When stream crossings are required, temporary crushed stone dams shall be constructed downstream of the crossing site to trap sediment. Sediment shall be removed from behind the dam when the sediment buildup reaches 25% of the height of the dam. Stream crossings shall be scheduled so that they are made during times of low stream flow and shall be completed as rapidly as possible, once begun.

Specific construction procedures and safeguards shall be implemented for the construction of planned sewer stream crossings and stream storm water culverts. These shall include, in addition to a downstream temporary crushed stone dam, a parallel water course diversion channel for continuous stream flow around the stream crossing work area if required by flows at time of construction, and operation, stabilization and restoration as outlined above. Construction plan and procedures for this sewer stream crossing are more fully described on attached "Exhibit A", Which depicts a representative sewer stream crossing by plan and profile with construction schedule.

Hydrologic Runoff Computations

The Montgomery County Soil Conservation Service Erosion and Sedimentation Control Handbook and Soils Conservation Engineering Field Manual were used as references.

Staging of Earthmoving Activities

A. Construct on-site temporary sediment control facilities in accordance with scheduled construction and the design criteria shown on the Control Plan. Grade and seed all exposed areas of embankments within twenty (20) days.

B. Clear and grub street rights-of-way and building sites.

C. Available topsoil shall be removed and stockpiled or windrowed (downslope from the construction area where feasible); for use in finish grading.

D. Juncture portion of proposed roads with existing road is to be graded and stone ballast placed, with a ballast overberm formed across the throat of the intersection as an erosion and sediment control deterrent and stabilization device for protection of the existing roadway. Construct Jan Drive stream crossing, placing stone filter dam as shown on the Construction Improvement Plan.

E. Rough grade roadways to be proposed sub-grade elevation gradient and cross-section.

F. Construct stormwater detention basins, including areas to be rip-rapped as shown on the Construction Improvement Plan, and place temporary straw bale barriers around outlet control pipes to catch any sediment. During construction, basin shall be cleared of sediment when it attains a depth of six inches. Install storm sewers and sanitary sewers and appurtenant structures. Install all underground utilities. Direct surface runoff to completed storm drainage facilities by constructed temporary interceptor channels and dikes and filter inlets. All storm facilities shall be constructed from their lower ends to their upper reaches, starting with rip-rap at the outfall.

G. Temporarily seed all disturbed soil banks with rye grass within twenty (20) days of disturbance.

H. Construct buildings, fine grade streets and place stone base course. (On-lot sedimentation control measures are to be constructed prior to improvements and house construction as noted in "A").

I. Finish grade and establish permanent seeding as soon as possible thereafter in building construction areas. Immediately following removal of temporary erosion and sedimentation control structures, grade and permanently seed these areas, implementing permanent on-lot grading/landscaping features planned to minimize surface runoff impact.

J. Construction phasing not to exceed twenty-five (25) acres at any given time.

HERBERT H. METZ, INC.

Erosion and Sedimentation Control Plan
Page 3 of 4

9. A temporary stream crossing haul route shall be provided for equipment use in the construction of sanitary sewer crossing in the stream bed.

10. No natural drainage will be obstructed or blocked during a shut-down.

NOTE: Planned water course encroachments or crossings of tributaries to the Towamencin Creek in the "Rolling Meadows Estates" Sub-division Development consist of the following:

A. Sanitary Sewerage

1) Two (2) 8" pipe collector sewer crossings.

2) Two (2) 6" pipe house sewer lateral crossings. (Typical construction plan, details, schedule shown on Exhibits "A" and "B")

B. Storm Sewerage

1) Four (4) storm sewer pipe outfalls having designed stone basin energy dissipators to reduce discharge velocity to less than 3 f.p.s. (Design plan and criteria shown on Exhibit "C")

2) One (1) reinforced concrete bridge box culvert at tract street (Buckboard Way) crossing of tributary water course.

3) One (1) Dual storm sewer pipe arch extension of existing Keeler Road storm sewer crossing to accommodate road widening improvements and slope management.

4679414

API 4679414 3-7-79
NO. OF VOL. 2 3

STORM WATER MANAGEMENT REPORT

ROLLING MEADOWS ESTATES

TOWAMENCIN TOWNSHIP
MONTGOMERY COUNTY, PENNSYLVANIA

API 4679414 3-7-79
NO. OF VOL. 2 3

BY:

HERBERT H. METZ
CONSULTING ENGINEERS
LANSDALE, PENNSYLVANIA

DECEMBER 1978

EXHIBIT #2

INTRODUCTION

This report summaries the analysis and design of Storm Water Management facilities prepared for a thirty-three (33±) acre Land Development proposal by William E. Nash.

The proposed land development, known as "Rolling Meadows Estates" is located between Troxell Road (L.R. 46043) and Keeler Road, Northeast of Sunneytown Pike and Southwest of Welsh Road (Pa. T.R. 63), in Towamencin Township, Montgomery County, Pennsylvania.

The subject tract consists of moderately rolling terrain containing former cultivated farm fields and wooded area. The entire tract flows into a branch of the Towamencin Creek via two (2) separate tributarys. The tranch leaves the site on the Southwest side of the tract.

Development of the tract will be thirty-three (33) single-family (fee simple) residential homes conforming in all respects to Towamencin Township R-175 Zoning Requirements. Minimum lot size is 30,000 square feet with many lots in excess of that requirement.

The average lot will contain ten per cent (10%) impervious area consisting of roof area, walks, and driveways. Lots will be graded in accordance with the Erosion and Sedimentation Plan to drain towards either drainage courses or public streets.

All but two (2) lots will front on new streets to be constructed as part of this land development; (one lot on existing Keeler Road and one on existing Troxell Road). The new streets will be constructed to Township specifications for ultimate public dedication. New street widths will be fifty (50) feet a right of way, which includes thirty (30) feet of cartway paving, concrete curbs and 4 feet wide sidewalks. Existing Troxell Road and Keeler Road will have curbing constructed at half-cartway widths of twenty-six (26) feet and sixteen (16) feet, respectively.

467414

Areas not paved will be maintained lawn area.

The permanent storm water management facilities consist of street gutters and drainage swales which will collect surface water runoff and direct it towards either the underground conveyance system or directly to storm water detention facilities.

The detention facilities will function to decrease the peak discharge after construction runoff from short duration, high intensity storms.

46704.14

METHODS OF ANALYSIS

Analysis and design of the storm water management facilities may be separated into two (2) basic phases, hydrologic and hydraulic.

The hydrologic analysis is by the conventional Rational Method which assumes that peak runoff on any given watershed for any given storm of assumed constant intensity will not occur until flow is arriving at the point of interest from all points on the watershed.

Since for any design frequency storm the average or assumed constant intensity decreases with longer durations, the shortest duration storm for which the entire shed contributes to the point of interest is the storm duration used to generate the peak flow. This is by the Rational formula Q = CIA where C is a runoff coefficient, I is the intensity for the chosen duration in inches per hour and A is area in acres. The intensity of the storm is chosen by equating the duration with the longest travel time which is known as the time of concentration and may be estimated for any point of interest.

The hydraulic analysis of the design utilizes the derived peak flows for a 10-year storm at the points of interest to size the storm water interception and conveyance systems. Inlet efficiency curves are used to determine the amount of flow intercepted within the gutter area of streets or swales to aid in placement.

The Manning equation is used to determine the capacity of the storm water conveyance systems to pass the 10-year peak flows. The 'n' factor of the Manning equation is either taken from those listed in PennDOT's design handbooks for pipes and lined channels or derived using TP-61 of the Soil Conservation Service for grass-lined channels.

The detention is achieved from basically three (3) detention systems. One, a permanent detention basin located on Lots 13 and 14

with an 8' ø discharge pipe; two, a pipe storage system on Buckboard Way using twin 57' x 38' CAAPA and two modified dual type "C" inlets with an 8" x 8" orifice plate restricting the outflow into a 15" CAAP; and third, a combination pipe storage system incorporating roadway storage in the sag of the vertical curve on Carriage Way. This system utilizes a 12" x 12" orifice plate restricting the flow from the twin 57" x 38" CAAPA.

The design of the detention systems involves the more complicated procedure of developing an inlet hydrograph and routing it through the retention system and outlet system. The result is an outlet hydrograph with an attenuated peak.

Derivation of inlet hydrograph is by a method published in Public Works, March 1977, page 75 by William R. Baker, P.E. The method is a variation of the rational method and compatible with the design of the storm water conveyance systems. Routing of the derived inlet hydrographs is by a conventional reservoir routing technique.

Each retention system was analyzed for a series of durations for a ten-year design storm to determine the peak storage requirement and peak design discharge.

The entire site was broken up into four (4) individual water sheds naturally divided by the creek and its tributarys. Each individual water shed was then compared on a before development and after development basis to illustrate the attenuated peak for the shed. The peak after development was then totaled from each shed and compared to the before development total.

CONCLUSION

The proposed design of the storm water interception and conveyance system is summarized on the design charts in the appendix. The design was for a ten-year storm as required by Towamencin Township.

The attenuation of post-development peak flows is compared at the Southwesterly tract Boundary where the Towamencin Branch leaves the site. The post-development time of concentration was determined to be approximately ten (10) minutes, therefore, the ten-year development storm flows were for ten (10) minute duration storms. Coincidentally, the pre-development time of concentration was also ten (10) minutes. The ten (10) minute duration storms were routed through the detention systems. The peak flow from each detention system plus the unrestricted flow from each watershed was then added to determine the total peak discharge from each drainage shed.

The total post-development discharge was then obtained by adding the discharge from each individual shed. In the summary sheet in the appendix is shown the comparison. The post-development flow is minutely larger than the pre-development flow. However, it is reduced from the undetained post-development discharge.

Due to the accuracy of our methods and the comparison of the increase in discharge to the entire site, adequate detention is achieved in the three systems.

Δ AC_o = AC (Combined Surface Flow between Inlets)
Δ AC_B = AC (Bypassing Flow From Previous Inlet)
Δ AC_I = AC (Entering Inlet)
C = Runoff Factor

COMPUTATION TABLE - STORM SEWER DESIGN

SUSAN DRI

SHEET NO ____ OF ____ BY ____ CHKD BY ____

DRAINAGE AREA							TIME										
AA		ΔA·C	ΔA·C	ΣA·C + ΔA·C	ΣAC	ΣA	t'	t	RAIN FALL INTEN.	DISCHARGE Q	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS n VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL
ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	CFS	FEET	FT/FT				FPS	CFS
2.4	.5	1.24	-	1.24	1.24	1.24	2	2	6.5	8.06	26	.060	CAAP	.012	15"	9.6	10.0
.4	.5	.33	-	.33	1.57	1.57	2.05	2.05	6.5	10.21	120	.043	CAAP	.012	15"	12.1	14.0
										10.21	26	.005	CAAPA	.015	22x16	4.0	12
										10.21							
.2	.5	.15	-	.15	.15	.15	2	2	6.5	.98	26	.010	CAAP	.012	15"	3.7	7.0
.3	.5	.34	-	.34	.50	.74	2.2	2.2	6.5	3.60	240	.073	CAAP	.012	15"	9.8	19
										5.6							

Δ

Di
in

the calculation of post-development peak flows is compared at the
the Tewantin Boundary where the Tewantineth Branch leaves the site
the Tewantineth Branch flow of concentration was determined to be
Therefore, the ten-year developed

CONCLUSION

Δ AC_o = AC (Carried Surface Flow between Inlets)
Δ AC_B = AC (Bypassing Flow From Previous Inlet)
Δ AC_I = AC (Entering Inlet)
C = Runoff Factor

CARRIAGE W

COMPUTATION TABLE - STORM SEWER DESIGN

SHEET NO. ____ OF ____

CHKD B

STA	DRAINAGE AREA							TIME		RAIN FALL INTEN SITY I	DIS CHARGE Q	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS n VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FULL
	Δ A		Δ AC	Σ AC	Σ AC	Δ AC	Σ AC	Δ T	Σ T									
	ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	CFS	FEET	FT/FT			INCHES	FPS	CFS
						.15	.15		1	6.5	.21	100	.01			12"		
16	6	.10	.21	.11	.10	.24	.24	2	1.5	6.5	1.59	152	.013	CAAP	.012	15"	3.69	6.1
						.63	.63		2.6	6.5	5.73	105	.026	CAAP	.012	15"	4.73	7.7
										6.5	14.[illegible]	[illegible]						Twin Pipe
									2.6	6.5	15.[illegible]					15"		Twin Pipe
					Scattered outlet Q =						12.2	148	.077	CAAP	.012	15"	17.8	25
											1.3	4	.01	CAAP	.12	24"	3.2	1.5
											13.5							

Δ AC_o = AC (Control Surface Flow Between Inlets)
Δ AC_B = AC (Bypassing Flow From Previous Inlet)
Δ AC_I = AC (Entering Inlet)
C = Runoff Factor

BUCKBOARD WA

SHEET NO. ____ OF ____ BY ____
CHKD BY ____

COMPUTATION TABLE - STORM SEWER DESIGN

DRAINAGE AREA							TIME		RAIN FALL INTENSITY	DIS CHARGE	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNING VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING F.U.
ΔA		ΔA c	ΔA b	ΔAc + ΔAb	ΔA	ΣA	AT	ST		Q							
ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	INCHES	CFS	FEET	FT/FT				FPS	CFS
.32	E	.26	-	.26	.21	.47	1.5	1.7	6.5	6.03	72	.0236	CAAP	.012	15"	8.76	10.5
.17	E	.14	-	.14	.03	.13	.1	1.6	6.5	7.4	115	.079	CAAP	.012	15"	16.42	19
.14	E	.06	.1	.11	.14	1.37	1	1.7	6.5	8.91	26	.010	CAAP	.012	15"	3.71	7
.22	E	.22	.21	.43	.43	.43			6.5	2.86	26	.010	CAAPA	.012	12"x38" Twin Pipes For Ste. 8"x5" Orifice Plate Controlled		
.5	E	.26	.21	.37	.5	.5	1	1.2	6.5	5.27							
				Controlled Outlet						3.4	50	.010	CAAPA	.014	12"x15"	4.5	6.0
										3.4							Cont

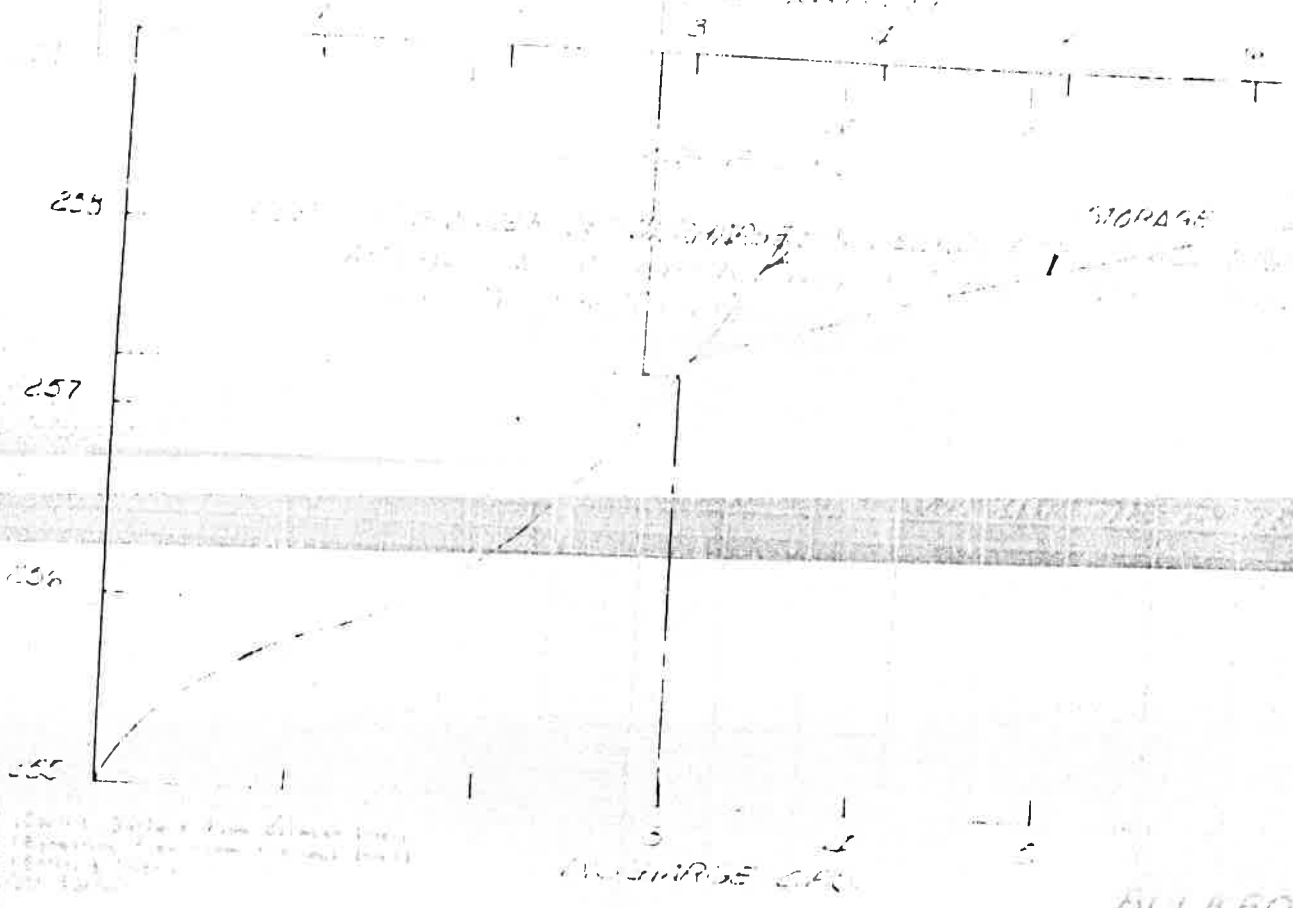
DATE
CKD. By DATE
ELEV VS. TOTAL VOL. STORAGE

SUBJECT WILLIAM E. VAN
ARLING MEADOWS
BASIN A

SHEET NO.
JOB NO. 19
10 yr Fre

ELEV	AREA	ΔVOL	STORAGE	Q
255	0		0	0
253	12	400	400	16
257	22	1760	2160	28
259	30	2920	5146	35

DEPTH (ft)	Q section	Q outlet (cfs)
5	2.5	3.8
6	6.1	3.0
7	4.5	3.0
8	3.5	2.9



REF: STORMWATER DETENTION BASIN DESIGN FOR SMALL DRAINAGE AREAS, William K. Ford, U.S. Public Works, March, 1977

DATE
CKD. BY DATE
SUBJECT WILLIAM E. NASH
ROLLING MEADOWS ESTATES
BUCKBOARD WAY
SHEET NO. 2
JOB NO. 197

ELEV		x 2	Inlet 5.0	Inlet 5.1		
3550		0	0	0	0	0
	5		4			
			8	2	14	0.2
		86		6		
		134		10	106	
224	92			14	150	
		238	4	18	218	
				22		
		334		26	382	0.51
15		528		30	592	
			40	34	450	0.46
		1064	44	38	520	
		1200	48	42	546	4.1
		1330	52	46	590	
23		1386	56	50	630	4.4
		1456		54	665	
		1592	64	58	700	3.60
			68	62	714	3.55
			72	66	720	3.93
27			76	70	719	4.14
			80	74	710	4.15
1			84	78	694	4.04
			88	82	654	4.00
			92	86	592	3.92
58			96	90	506	3.77
			100	94	392	3.5

At A: Q = 3.9 cfs
At Sta. 720 = Q = [illegible]
At Elev 258.35 = [illegible]

5		3.4
10		3.9
20		3.44

DATE

CHD. By DATE

SUBJECT

SHEET NO.

JOB NO.

DATE
BY: DATE
SUBJECT WILLIAM & NEAL
ROLLING MEADOWS ESTATES
SHEET NO.
JOB NO. 97914

SUB-SHED 1

HISTORIC

AFTER

Total Unrestricted After Flow
9.54A*(.43)(5.3) = 21.7CFS
Total Flow From Basin 1 3CFS
Total Post After Flow 24.7CFS

SUB-SHED 2

AFTER

ALLEY

SUB-SHED 3

AFTER

Total After Flow = 13 CFS
Flow into Detention System = 12.5CFS
12.5CFS

Total AFTER Flow = 13CFS
Additional Flow from outside Shed = 12

120 Total Post After Flow

BY ..... DATE .....
CKD. BY ..... DATE .....
Sub-Shed 4

SUBJECT WILLIAM C. VAN ARSDALE
ROLLING MEADOWS ESTATES
Before vs. After

SHEET NO. .....
JOB NO. 76-94-EF

SUB SHED 4
BEFORE

Total Sub-shed Area 10.38 Ac

Woods Area (2-35) 2.2 Ac
Grass Area (2-A) 2.44 Ac
Cultivated Area (2-C) 4.13 Ac
Farm Area (2-D) .11 Ac

Tc 10 min
I 5.8

Cave .41 Q = CAI = 25.5 CFS

AFTER

Woods Area (2-35) 2 Ac
Grass Area (2-A) 3.61 Ac
Farm Area (2-D) 1.77 Ac

Cave .47
Q = CAI = 26.2 CFS

Uncontrolled Free Flow = 7.9 CFS
Flow into Drainage System 4 = 7.26 CFS
Flow into Detention System 3 = 12.6 CFS
Total = 27.8 CFS

SUMMARY

DE Shed	Total Q Before	Total Q After
2	2.5	2.4
3	4.3	4.5
4	15.1	17
4	2.5	24.4
	69.6 CFS	27.9 CFS

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: Dec. 28, 1978

APPLICATION FOR WATER QUALITY MANAGEMENT PERMIT

For Department Use Only

APPLICANT NAME
Upper Gwynedd-Towamencin Municipal Authority

TELEPHONE NO. 215-855-8165

MAILING ADDRESS
2225 Kriebel Road
Lansdale, Pennsylvania 19446

PROJECT LOCATION
(A) MUNICIPALITY: Towamencin Township
(B) COUNTY: Montgomery

HEREBY APPLIES FOR: (CHECK APPROPRIATE BLOCKS IN SECTION A, B, C AND D)

A. APPROVAL OF PLANS FOR CONSTRUCTION OF:
- [X] PUMP STATIONS, SEWERS AND APPURTENANCES
- [ ] SEWAGE TREATMENT PLANT
- [ ] MINE DRAINAGE TREATMENT PLANT
- [ ] INDUSTRIAL WASTE TREATMENT PLANT
- [X] OUTFALL AND HEADWALL
- [ ] STREAM CROSSING

B. APPROVAL TO DISCHARGE:
(1) [X] TREATED [ ] UNTREATED
(2) [ ] INDUSTRIAL WASTES [ ] MINE DRAINAGE [ ] SEWAGE
(1) via exist. Auth. Plant

C. APPROVAL TO OPERATE:
[ ] UNDERGROUND MINE

D. APPROVAL OF AN
[ ] EROSION AND SEDIMENTATION PLAN

(ALL DISCHARGES OF WASTES ARE PURSUANT TO "THE CLEAN STREAMS LAW")

I HEREBY CERTIFY THAT THE ACCOMPANYING REPORT AND ALL PLANS, MODULES, AND DOCUMENTS DESIGNATED HEREIN ARE ATTACHED TO THIS APPLICATION, AND MADE A PART HEREOF.

4679414 3-7-79 X H. Warren Dimmig
SIGNATURE OF APPLICANT OR RESPONSIBLE OFFICIAL

NAME OF APPLICANT OR RESPONSIBLE OFFICIAL: H. Warren Dimmig
TITLE: Chairman
DATE OF APPLICATION:
ADDRESS: 2225 Kriebel Road, Lansdale, M. R., Pennsylvania 19446

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA, COUNTY OF Montgomery

H. Warren Dimmig BEING DULY SWORN, ACCORDING TO LAW, DEPOSE AND SAY (THAT I AM THE APPLICANT) (AM AN OFFICER OR OFFICIAL OF THE APPLICANT) (HAVE THE AUTHORITY TO MAKE THIS APPLICATION) AND THAT THE PLANS, REPORTS AND DOCUMENTS SUBMITTED AS PART OF THE APPLICATION ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

SWORN AND SUBSCRIBED TO BEFORE ME THIS 5th DAY OF March 19 79

Evelyn A. Weed
NOTARY PUBLIC

X H. Warren Dimmig
SIGNATURE OF APPLICANT OR RESPONSIBLE OFFICIAL

SECTION BELOW IS TO BE COMPLETED BY THE PERSON AUTHORIZED BY THE APPLICANT TO PREPARE THIS APPLICATION. NOTE: SEWAGE, INDUSTRIAL WASTE, AND MINE DRAINAGE APPLICATIONS REQUIRE A REGISTERED PROFESSIONAL ENGINEER, EXCEPT THAT A REGISTERED SURVEYOR IS ACCEPTABLE WHERE PUBLIC HEALTH AND SAFETY ARE NOT INVOLVED.

NAME OF DESIGN ENGINEER OR SURVEYOR AND FIRM
Herbert H. Metz, Jr., P. E.
Herbert H. Metz, Incorporated

MAILING ADDRESS
410 Derstine Avenue
Lansdale, Pennsylvania 19446

TELEPHONE NUMBER: (215)855-311

DESIGN ENGINEER'S (OR SURVEYOR'S) SEAL

DATE: 12/15

SIGNATURE OF DESIGN ENGINEER OR SURVEYOR: Herbert H. Metz, Jr., P.E.

DATE PREPARED
Dec. 28, 1978

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

APPLICATION FOR WATER QUALITY MANAGEMENT PERMIT

*For Department Use Only

APPLICANT NAME
Upper Gwynedd-Towamencin Municipal Authority

TELEPHONE NO. 215-855-8165

MAILING ADDRESS
2225 Kriebel Road
Lansdale, Pennsylvania 19446

PROJECT LOCATION
(A) MUNICIPALITY
Towamencin Township

(B) COUNTY
Montgomery

HEREBY APPLIES FOR (CHECK APPROPRIATE BLOCKS IN SECTION A, B, C AND D)

A APPROVAL OF PLANS FOR CONSTRUCTION
- [X] PUMP STATIONS, SEWERS AND APPURTENANCES
- [ ] SEWAGE TREATMENT PLANT
- [ ] MINE DRAINAGE TREATMENT PLANT
- [ ] INDUSTRIAL WASTE TREATMENT PLANT
- [X] OUTFALL AND HEADWALL
- [ ] STREAM CROSSING

B APPROVAL TO DISCHARGE
(1) [X] TREATED [ ] UNTREATED
(2) [ ] INDUSTRIAL WASTES [ ] MINE DRAINAGE [ ] SEWAGE
(1) via exist. Auth. Plant

C APPROVAL TO OPERATE
[ ] UNDERGROUND MINE

D APPROVAL OF AN
[ ] EROSION AND SEDIMENTATION PLAN

(ALL DISCHARGES OF WASTES ARE PURSUANT TO "THE CLEAN STREAMS LAW")

I HEREBY CERTIFY THAT THE ACCOMPANYING REPORT AND ALL PLANS, MODULES, AND DOCUMENTS DESIGNATED HEREIN ARE ATTACHED TO THIS APPLICATION, AND MADE A PART HEREOF.

4679414 3-7-79

NAME OF APPLICANT OR RESPONSIBLE OFFICIAL
H. Warren Dimmig

SIGNATURE OF APPLICANT OR RESPONSIBLE OFFICIAL
H. Warren Dimmig

TITLE
Chairman

DATE OF APPLICATION

ADDRESS
2225 Kriebel Road, Lansdale, M. R., Pennsylvania 19446

COMMONWEALTH OF PENNSYLVANIA, COUNTY OF Montgomery

H. Warren Dimmig BEING DULY SWORN, ACCORDING TO LAW, DEPOSE AND SAY THAT I AM THE APPLICANT (I AM AN OFFICER OR OFFICIAL OF THE APPLICANT) (HAVE THE AUTHORITY TO MAKE THIS APPLICATION) AND THAT THE PLANS, REPORTS AND DOCUMENTS SUBMITTED AS PART OF THE APPLICATION ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

SWORN AND SUBSCRIBED TO BEFORE ME THIS 5th DAY OF March, 19 79

Notary Public

SIGNATURE OF APPLICANT OR RESPONSIBLE OFFICIAL
H. Warren Dimmig

THE SECTION BELOW IS TO BE COMPLETED BY THE PERSON AUTHORIZED BY THE APPLICANT TO PREPARE THIS APPLICATION. NOTE: SEWAGE, INDUSTRIAL WASTE, AND MINE DRAINAGE APPLICATIONS REQUIRE A REGISTERED PROFESSIONAL ENGINEER EXCEPT THAT A REGISTERED SURVEYOR IS ACCEPTABLE WHERE PUBLIC HEALTH AND SAFETY ARE NOT INVOLVED

NAME OF DESIGN ENGINEER (OR SURVEYOR) AND FIRM
Herbert H. Metz, Jr., P. E.
Herbert H. Metz, Incorporated

MAILING ADDRESS
410 Derstine Avenue
Lansdale, Pennsylvania 19446

TELEPHONE NUMBER
(215) 855-3111

AGREEMENT DATE
12/75

SIGNATURE OF DESIGN ENGINEER (OR SURVEYOR)
Herbert H. Metz, Jr., P.E.

DESIGN ENGINEER'S (OR SURVEYOR'S) SEAL
No. 5953-E
PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

ER-BWQ-1 (REV. 3/78)

DATE PREPARED: Dec. 28, 1978
DATE REVISED:

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

APPLICANT: Upper Gwynedd-Towamencin Municipal Authority

LOCATION OF PROJECT: MUNICIPALITY: Towamencin Township COUNTY: Montgomery

DESIGN ENGINEER AND FIRM: Herbert H. Metz, Jr., P. E. - H. H. Metz, Inc.

DESIGN ENGINEERS ADDRESS: 410 Derstine Avenue, Lansdale, Penna. ZIP CODE: 19446 TELEPHONE: (215) 855-3111

DESCRIPTION OF PROJECT: Extensions to gravity Sanitary Sewer Sytem to service a planned 33-Lot single dwelling subdivision tract of William E. Nash, known as Rolling Meadows Estates, on the existing T-trunk and T-14 trunk line systems of the Authority in sub-shed area between Troxell and Keeler Roads.

A. DOCUMENTATION REQUIRED

1. HAS A CHECK FOR $25.00, PAYABLE TO THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES, BEEN INCLUDED? (NOT REQUIRED OF STATE OR FEDERAL AGENCIES) — [X] Yes [ ] No [ ] N/A

2. HAVE 2 COPIES OF THE APPLICATION, FORM H710.046, BEEN SUBMITTED? (3 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND DELAWARE RIVER BASIN). — [X] Yes [ ] No

A. HAS THE AFFIDAVIT BEEN PROPERLY COMPLETED AND EXECUTED? — [X] Yes [ ] No

3. DOES THE APPLICATION INCLUDE THE FOLLOWING APPLICABLE MODULES:

MODULE NUMBER	TITLE	NUMBER OF PAGES	
1	GENERAL INFORMATION – SEWERAGE	9	[X] Yes ✓
4	WASTE LOAD AND CHARACTERISTICS	3	[ ] Yes
5	GEOLOGY AND GROUND WATER INFORMATION	2	[ ] Yes
6	SEWERS AND APPURTENANCES	5	[X] Yes ✓
7	SEWAGE PUMPING STATIONS	4	[ ] Yes
8	PUMPING FACILITIES	1	[ ] Yes
9	FLOW EQUALIZATION AND STORAGE BASINS	2	[ ] Yes
10	GRIT CHAMBERS	1	[ ] Yes
11	SCREENING AND COMMINUTING DEVICES	2	[ ] Yes
12	IMHOFF AND SEPTIC TANKS	2	[ ] Yes
13	SETTLING TANKS	2	[ ] Yes
14	EARTHEN SETTLING BASINS	2	[ ] Yes

ER-BWQ-188.1 REV. 3/78

DATE PREPARED

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

(This sheet not applicable)

A. DOCUMENTATION REQUIRED – CONTINUED

MODULE NUMBER	TITLE	NUMBER OF PAGES	
15	TRICKLING FILTERS	2	☐ Yes
16	AERATION TANKS OR BARINS	3	☐ Yes
17	WASTE STABILIZATION PONDS	3	☐ Yes
18	CHEMICAL TREATMENT (INCLUDING FEEDERS)	3	☐ Yes
19	MIXING AND FLOCCULATION FACILITIES	1	☐ Yes
20	SAND FILTERS	2	☐ Yes
21	DISINFECTION	2	☐ Yes
22	SPRAY IRRIGATION	1	☐ Yes
23	PHYSICAL ABSORPTION, ION EXCHANGE, AND CONTACT UNITS	2	☐ Yes
25	DEEP WELL DISPOSAL	4	☐ Yes
26	SLUDGE TREATMENT AND DISPOSAL		
	A. SEPARATE DIGESTION TANKS AND SLUDGE THICKENING TANKS	2	☐ Yes
	B. ELUTRIATION	1	☐ Yes
	C. WET OXIDATION	1	☐ Yes
	D. SLUDGE DRYING BEDS	1	☐ Yes
	E. LAND DISPOSAL OF SLUDGE	1	☐ Yes
	F. SLUDGE BASINS	1	☐ Yes
	G. FILTERS AND CENTRIFUGES	1	☐ Yes
	H. INCINERATION	1	☐ Yes

B. REQUIRED DATA

1. THE FRONT COVER OR FLYLEAF OF EACH SET OF DRAWINGS AND SPECIFICATIONS MUST BEAR THE SIGNATURE AND SEAL OF THE REGISTERED PROFESSIONAL ENGINEER, SURVEYOR BY OR UNDER WHOM PREPARED. EACH DRAWING MUST BEAR AN IMPRINT OR REASONABLE FACSIMILE OF SUCH SEAL.

ER-NWQ-1.1 (REV. 3/78)

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: Dec. 28, 1978
DATE REVISED:

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

3. REQUIRED DATA – CONTINUED

2. INFORMATION RELATIVE TO SPECIFIC PROGRAMS:

A. 2 COPIES OF DESIGNER'S PLANS, MODULES, AND SPECIFICATIONS (3 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND DELAWARE RIVER BASIN)

B. HYDRAULIC PROFILE OR SCHEMATIC FLOW DIAGRAM FOR PROPOSED TREATMENT PLANT. [X] N/A

C. UNITED STATES GEOLOGICAL SURVEY TOPOGRAPHICAL MAP SHOWING EXACT POINT OF DISCHARGE AND TREATMENT PLANT OR PUMP STATION LOCATION AND/OR AREA TO SEWERS. [X] N/A

D. HAVE YOU APPLIED FOR A PUBLIC UTILITY COMMISSION CERTIFICATE OF PUBLIC CONVENIENCE? [ ] Yes [ ] No [X] N/A

(1) SPECIFY PUBLIC UTILITY COMMISSION APPLICATION NUMBER N/A

(2) IS CERTIFICATE OF PUBLIC CONVENIENCE ENCLOSED? N/A [ ] Yes [X] No

E. HAVE YOU APPLIED FOR APPROVAL OF STREAM ENCROACHMENT(S)? * [X] Yes [ ] No [ ] N/A
*(Appended in conjunction with this application)

F. HAVE YOU APPLIED FOR DEPARTMENT OF LABOR AND INDUSTRY APPROVAL FOR FEATURES AFFECTING EMPLOYEE SAFETY? [ ] Yes [ ] No [X] N/A

G. DO YOU HAVE AN AGREEMENT INDICATING APPROVAL TO DISCHARGE TO SEWER SYSTEM AND TREATMENT PLANT OF ANOTHER PERMITTEE? [ ] Yes [ ] No [X] N/A

H. HAVE YOU APPLIED FOR APPROVAL OF AIR POLLUTION CONTROL FACILITIES? [ ] Yes [ ] No [X] N/A

I. HAVE YOU SUBMITTED A LIST WITH NAMES, ADDRESSES, AND TITLES OF ALL PARTNERS IN THE CASE OF A PARTNERSHIP OR ALL OFFICERS IN THE CASE OF A CORPORATION, UNINCORPORATED ASSOCIATION, INCORPORATED ASSOCIATION, PARTNERSHIP, OR OTHER ENTITY (NOT MUNICIPAL)? [ ] Yes [ ] No [X] N/A

3. SPECIFY THE FOLLOWING:

	TITLE/DESCRIPTION	NO. OF SHEETS	DATE
A. PLANS:	Sub-div. (Title)Plan	1	Dec. 1, 1978
PLANS:	Construction Improvement Plans	2	Dec. 1, 1978
PLANS:	Roads and Easements Plan/Profiles	8	Dec. 1, 1978
	Construction Details	1	Dec. 1, 1978

ER-BWQ-188.1-REV. 3/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: Dec. 1, 1978
DATE REVISED:

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

B. REQUIRED DATA – CONTINUED

B. SPECIFICATIONS (IF APPLICABLE): Upper Gwynedd-Towamencin Municipal Authority
Reference specification and pertinences as filed at Penna. D.E.R.
by Upper Gwynedd-Towamencin Municipal Authority
TITLE
NUMBER OF VOLUMES _____ DATE _____

C. OTHER (SPECIFY TYPE AND NUMBER):

4. ARE THE PLANS:

A. CLEAR, LEGIBLE, AND DRAWN TO SCALE WITH NORTH ARROW INDICATED? [X] Yes [ ] No

B. WITHIN MAXIMUM SIZE OF 36 INCHES BY 50 INCHES? [X] Yes [ ] No

C. SEAL AND SIGNATURE OF PROFESSIONAL ENGINEER OR SURVEYOR RESPONSIBLE FOR THIS APPLICATION

1. SIGNATURE OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW) Herbert H. Metz, Jr., P. E.

2. SEAL OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW)

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COMMONWEALTH OF PENNSYLVANIA
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WATER QUALITY MANAGEMENT

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DATE REVISED

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

CLASS OF CONSTRUCTION (Check all applicable blocks)

(This sheet not applicable)

☐ NEW
☐ REPLACEMENT OF EXISTING UNIT(S)
☐ ADDITIONS AND/OR
☐ MODIFICATIONS TO EXISTING UNIT(S)

TABLE I – DESIGN LOADING DATA		Existing Facilities Design	Present Operating Load	Proposed Total Facilities Design
1. EQUIVALENT POPULATION TO BE SERVED (NO. OF PERSONS – SUBMIT CALCULATIONS)				
	A. DOMESTIC			
	B. INDUSTRIAL			
	C. TOTAL			
2. DESIGN YEAR OR PERIOD FOR OPERATING DATA				
3. RUNOFF PERIOD	(HRS)			
4. DOMESTIC WASTE FLOW DATA	A. PER CAPITA FLOW (GPCD)			
	B. AVERAGE DAILY FLOW (MGD)			
	C. INFILTRATION (MGD)			
	D. RUNOFF FLOW RATE (MGD)			
	E. MAXIMUM FLOW RATE (MGD)			
5. INDUSTRIAL WASTE FLOW DATA	A. AVERAGE DAILY FLOW (MGD)			
	B. MAXIMUM DAILY FLOW (MGD)			
6. TOTAL DESIGN AVERAGE FLOW (MGD)				

TABLE II – FACILITIES DESIGN DATA (Specify number of units)

Units	Existing	To Be Abandoned	Total Proposed	Units	Existing	To Be Abandoned	Total Proposed
1. SCREENING DEVICES				13. CHLORINE CONTACT TANK(S)			
2. GRIT CHAMBER(S)				14. DISINFECTION FACILITIES			
3. COMMINUTOR(S)				15. SEPARATE SLUDGE DIGESTORS			
4. PRE-AERATION TANKS				16. SLUDGE DRYING BEDS			
5. PRIMARY SETTLING TANKS				17. MECHANICAL SLUDGE DEWATERING			
6. IMHOFF TANK(S)				18. SLUDGE ELUTRIATION TANKS			
7. TRICKLING FILTERS				19. SLUDGE STABILIZATION TANKS			
8. INTERMEDIATE SETTLING TANKS				20. INCINERATOR(S)			
9. AERATION TANKS				21. MIXING AND FLOCCULATION TANKS			
10. FINAL SETTLING TANKS				22. OTHER (Specify)			
11. INTERMITTENT SAND FILTERS				23. OTHER (Specify)			
12. WASTE STABILIZATION POND(S)				24. OTHER (Specify)			

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O. GENERAL INFORMATION

1. EXISTING COMBINED SEWERS MAKE UP 0 % OF THE TOTAL AREA SERVED BY THE SYSTEM.

2. ARE THE EXISTING SANITARY SEWERS SUBJECT TO EXCESSIVE INFILTRATION? ☐ Yes ☒ No ☐ N/A

A. IF YES, SPECIFY MAJOR SOURCES OF INFILTRATION:

B. HAS A REGULATION PROHIBITING THE ADMITTANCE OF STORM WATER FROM PAVEMENTS, ROOFS, AND OTHER SOURCES BEEN ADOPTED? ☒ Yes ☐ No
(IF YES, ENCLOSE COPY.) See Exhibit "A" - Also refer to U. Gwynedd-Towamencin Muncipal Authority Rates, Rules and Regulations, Construction specifications and National Plumbing Code.

C. SPECIFY STEPS TAKEN OR BEING TAKEN TO CORRECT THE INFILTRATION PROBLEM, INCLUDING DATES: ☐ N/A
See Liptak Report of February 16, 1973 - filed with E.P.A. for correction. M. H. repairs in original Inglewood Development Area system accomplished in 1977-78.

3. TYPES OF INDUSTRIAL WASTES OF SPECIAL CONSIDERATION: None N/A

4. WILL THE APPLICANT BE RESPONSIBLE FOR REPAIR AND MAINTENANCE OF SEWAGE FACILITIES FOR WHICH APPLICATION IS SUBMITTED? ☒ Yes ☐ No
(1) Upon completion, testing, and acceptance
A. IF NO, EXPLAIN:

5. THE DISTANCE OF THIS PLANT TO THE NEAREST OCCUPIED DWELLING:
A. PRESENT _____ FEET
B. PROPOSED N/A FEET

6. IF THE APPLICANT IS OTHER THAN A MUNICIPALITY OR MUNICIPAL AUTHORITY, HAS THE GOVERNING MUNICIPALITY OBJECTED TO THE PROPOSED SEWAGE TREATMENT PLANT? ☐ Yes ☐ No ☒ N/A

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D. GENERAL INFORMATION – CONTINUED (This Sheet not applicable)

12. A. IS THE LETTER FROM MUNICIPAL OFFICER, SIGNIFYING THE OPINION, APPENDED TO THIS APPLICATION? ☐ Yes ☐ No

7. ARE DUPLICATE TREATMENT UNITS PROVIDED WHERE REQUIRED? ☐ Yes ☐ No ☐ N/A

A. IF NO, EXPLAIN: _____

13. OUTFALL SEWER

B. DO ANY BY-PASS STRUCTURES DISCHARGE TO WATERS OF THE COMMONWEALTH? (SPECIFY PLAN SHEET NUMBER(S) SHOWING BY-PASS STRUCTURES) ☐ Yes ☐ No

8. HAS AN AUXILIARY/STANDBY POWER SOURCE BEEN PROVIDED? ☐ Yes ☐ No ☐ N/A

9. DOES ANY CROSS CONNECTION EXIST IN ANY PART OF THE TREATMENT WORKS WHICH MAY CAUSE CONTAMINATION OF THE POTABLE WATER SUPPLY? ☐ Yes ☐ No

10. IF A NON-POTABLE WATER SUPPLY IS PROVIDED, ARE ALL OUTLETS PERMANENTLY POSTED TO INDICATE WATER IS NOT SAFE FOR DRINKING? ☐ Yes ☐ No ☐ N/A

11. ARE FACILITIES PROVIDED FOR MEASURING THE SEWAGE FLOW? ☐ Yes ☐ No

12. SAFETY:

A. ARE FACILITIES PROVIDED TO EFFECTIVELY PROTECT THE OPERATOR AND VISITORS? ☐ Yes ☐ No

13. OUTFALL SEWER:

A. IS THE OUTFALL SEWER ADEQUATELY PROTECTED TO ENSURE ITS STRUCTURAL STABILITY AND FREEDOM FROM STOPPAGE? ☐ Yes ☐ No

B. IS AN OUTFALL HEAD WALL PROVIDED? ☐ Yes ☐ No ☐ N/A

C. DOES THE OUTFALL EXTEND TO THE LOW WATER MARK OF THE RECEIVING STREAM? ☐ Yes ☐ No ☐ N/A

14. HAVE PROVISIONS BEEN MADE TO PROTECT ALL STRUCTURES AGAINST FLOTATION? ☐ Yes ☐ No

15. IF THE PROJECT INVOLVES ADDITIONS TO AN EXISTING TREATMENT PLANT, DO THE SPECIFICATIONS INCLUDE A PROGRAM TO PREVENT BY-PASSING OF ANY UNIT TO WATERS OF THE COMMONWEALTH DURING CONSTRUCTION? ☐ Yes ☐ No ☐ N/A

A. SPECIFY VOLUME AND PAGE NUMBER OF SPECIFICATIONS: _____

16. SPECIFY NAMES OF MUNICIPALITIES AND POPULATION SERVED OR TO BE SERVED BY THIS PLANT: _____

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(This Sheet is not applicable)

3. WHAT IS THE:

E. RECEIVING STREAM*

1. WHAT IS THE NAME OF THE RECEIVING STREAM? _____

A. TRIBUTARY OF _____

B. TRIBUTARY OF _____

C. ABOVE FLOWS ARE BASED ON:
☐ MEASUREMENTS
☐ ESTIMATES
_____ YEARS OF RECORD

C. MAJOR DRAINAGE BASIN:
☐ DELAWARE
☐ SUSQUEHANNA
☐ POTOMAC
☐ LAKE ERIE
☐ GENESEE
☐ ALLEGHENY
☐ MONONGAHELA
☐ OHIO

4. IS THE TREATMENT PLANT SUBJECT TO FLOODING?
☐ Yes ☐ No

2. DESCRIBE THE EXACT POINT OF DISCHARGE:

_____ DEG, _____ MIN, _____ SEC LATITUDE

_____ DEG, _____ MIN, _____ SEC LONGITUDE

A. WATERSHED AREA ABOVE POINT OF DISCHARGE IS

_____ SQUARE MILES.

3. WHAT IS THE:

A. MINIMUM 7-CONSECUTIVE-DAYS FLOW OCCURRING ONCE IN 10 YEARS?

_____ CUBIC FEET PER SECOND.

B. MINIMUM STREAM FLOW: _____

C. ABOVE FLOWS ARE BASED ON:
☐ MEASUREMENTS
☐ ESTIMATES
_____ YEARS OF RECORD

4. IS THE TREATMENT PLANT SUBJECT TO FLOODING?
☐ Yes ☐ No

5. THE PROBABILITY OF THE TREATMENT PLANT BEING OUT OF SERVICE DUE TO FLOODING IS ONCE IN _____ YEARS.

A. LIST BRIEFLY THE METHODS USED FOR FLOOD PROTECTION: _____

* Attach U.S. Geological Survey 7.5' or 15' Quadrangle Map showing exact points of discharge.

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E. RECEIVING STREAM – CONTINUED (This Sheet Not applicable)

6. TO THE BEST OF YOUR KNOWLEDGE, WILL THE TREATED WASTE DISCHARGE ADVERSELY AFFECT:

A. DOMESTIC WATER SUPPLY?	☐ Yes	☐ No
B. BATHING?	☐ Yes	☐ No
C. STOCK WATERING?	☐ Yes	☐ No
D. FISH AND AQUATIC LIFE?	☐ Yes	☐ No
E. INDUSTRIAL WATER SUPPLY?	☐ Yes	☐ No
F. IRRIGATION?	☐ Yes	☐ No
G. BOATING AND AESTHETICS?	☐ Yes	☐ No

7. IF ANY ITEMS IN 6 ABOVE ARE ANSWERED YES, INDICATE DISTANCE TO, LOCATION OF, AND EXTENT OF ADVERSE EFFECT:

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MODULE 6 – SEWERS AND APPURTENANCES

CLASS OF CONSTRUCTION (Check All Applicable Blocks)

- [ ] NEW SYSTEM
- [ ] REPLACEMENT OF EXISTING SYSTEM
- [X] EXTENSION(S) TO EXISTING SYSTEM

TABLE I – DESIGN FLOW AND LOADING INFORMATION

		INITIAL	DESIGN	DESIGN YEAR
1. POPULATION TO BE SERVED (TABLE II – GENERAL DESIGN)		115	115	1980
2. AREA TO BE SERVED	ACRES (INITIAL)	32.65		
TYPE OF AREA (Residential, Commercial, Etc.) Residential	ACRES (FUTURE)	(Same)	32.65	
3. A. LATERALS AND SUB-MAIN SEWERS	(GPCD)	400		
B. MAIN AND TRUNK SEWERS	(GPCD)	N/A		
C. INTERCEPTORS	(GPCD)	N/A		
(1) MEASURED DRY-WEATHER FLOW	(%)	N/A		
(2) ESTIMATED DRY-WEATHER FLOW	(%)	N/A		

D. IF ANY VALUES LESS THAN PRESCRIBED IN MANUAL, EXPLAIN: None

4. DESIGN FLOW DATA	GPCD	MGD
A. AVERAGE DAILY FLOW	100	.0115
B. INFILTRATION		incl. in A
C. MAXIMUM INDUSTRIAL WASTE FLOW		N/A
D. TOTAL DESIGN FLOW		.0115
E. MAXIMUM FLOW RATE		.0460

TABLE II – GENERAL DESIGN

PIPE DIAMETER (IN.)	MINIMUM SLOPE (%)	MAXIMUM SLOPE (%)	MAXIMUM VELOCITY (FPS)	MAXIMUM FLOW (MGD)	MAXIMUM DISTANCE BETWEEN MANHOLES (Ft.) SEWERS 15 IN. OR LESS	SEWERS 18 IN. TO 30 IN.	TYPE OF SEWER MATERIAL	"N" VALUE
8"	0.44	10.48	11.5 (1)	2.55 (1)	368 (2)		A. C. P.	.013

(1) Full Flow Condition
(2) Prop. New Ext. System

(USE ADDITIONAL SHEETS IF NECESSARY)

TABLE III – CRITICAL DATA

PLAN SHEET NUMBER	MANHOLE NUMBER FROM	MANHOLE NUMBER TO	SEWER PIPE SIZE (IN.)	SEWER SLOPE (%)	POPULATION SERVED	TOTAL DESIGN FLOW (MGD)	SEWER FLOWING FULL VEL. (FPS)	SEWER FLOWING FULL CAP. (MGD)	MAXIMUM FLOW VELOCITY (FPS)
(No critical section)									

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MODULE 6 – SEWERS AND APPURTENANCES

For Department Use Only

A. GENERAL DESIGN

1. ARE THE PROPOSED SEWERS DESIGNED AS SEPARATE SANITARY SEWERS? [X] Yes [ ] No

A. IF NO, EXPLAIN IN DETAIL, INCLUDING THE POSSIBLE EFFECTS UPON WATER COURSES.

N/A

2. ARE THE PROPOSED SEWERS DEEP ENOUGH TO SERVE ALL ADJACENT BASEMENTS? [X] Yes [ ] No

A. IF NO, EXPLAIN. N/A

3. ARE THERE ANY OVERFLOWS OR BYPASSES OTHER THAN FROM PUMP STATIONS? [ ] Yes [X] No

A. IF YES, SPECIFY PLAN SHEET(S) WHERE SHOWN. N/A

4. WHERE SMALLER SEWERS JOIN LARGER ONES, HAVE THE INVERTS OF THE LARGER SEWERS BEEN LOWERED SUFFICIENTLY TO MAINTAIN THE SAME ENERGY GRADIENT? [X] Yes [ ] No [ ] N/A

5. SPECIFY THE TYPE OF LEAKAGE TEST (INFILTRATION AND/OR EXFILTRATION) AND THE LIMIT TO BE USED, PREFERABLY IN TERMS OF GALLONS PER INCH OF PIPE DIAMETER PER MILES PER DAY. (INDICATE VOLUME AND PAGE NUMBER OF SPECIFICATIONS.)

TYPE AND LIMITS: Infiltration and Exfiltration ... N.T.E. 200 gal. per inch pipe diameter, per mile, per day, (Upper Gwynedd-Towamencin Authority Specifications)

6. HAVE PROVISIONS BEEN MADE TO PROTECT SEWERS AT VELOCITIES OF OVER 15 FEET PER SECOND? [ ] Yes [ ] No [X] N/A

6A. ARE SEWERS SECURED WITH CONCRETE ANCHORS (OR EQUAL) SPACED AS REQUIRED? [ ] Yes [ ] No [X] N/A

7. ARE MANHOLES PROVIDED AT ALL CHANGES IN SIZE, GRADE, ALIGNMENT, AND SEWER INTERSECTIONS? [X] Yes [ ] No

8. ARE DROP MANHOLES PROVIDED WHERE THE ENTRANCE SEWER INVERT IS 24 INCHES OR MORE ABOVE MANHOLE INVERT? [ ] Yes [ ] No N/A

9. ARE WATERTIGHT COVERS USED WHERE MANHOLES ARE SUBJECT TO FLOODING BY STREET RUNOFF OF HIGH WATER? [X] Yes [ ] No

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MODULE 6 – SEWERS AND APPURTENANCES

A. GENERAL INFORMATION – CONTINUED

10. ARE SEWERS IN STREAMS PROTECTED WITH AT LEAST 1 FOOT COVER IN ROCK AND 3 FEET COVER IN OTHER MATERIAL? (1) [X] Yes [ ] No [ ] N/A

(1) Conc. encasement provided at Stream crossings w/less than 3 feet cover in rock crossings

11. ARE SEWERS IN STREAMS CONSTRUCTED TO REMAIN WATERTIGHT AND IN ALIGNMENT? [X] Yes [ ] No [ ] N/A

12. DOES THE APPLICATION INVOLVE CAPPED SEWERS? [ ] Yes [X] No

A. IF YES, SPECIFY PLAN SHEET NUMBER. N/A

13. HOW MANY INVERTED SIPHONS ARE INCLUDED IN THIS DESIGN? None

14. IF SIPHONS ARE INCLUDED, SPECIFY THE FOLLOWING:

	SIPHON:	SIPHON:	SIPHON:
A. NUMBER OF BARRELS			
B. MINIMUM PIPE SIZE	N/A		
C. MINIMUM VELOCITY AT AVERAGE FLOW			

D. HAS PROVISION BEEN MADE FOR FLUSHING, RODDING, AND MAINTENANCE? [ ] Yes [ ] No

15. IS THERE ANY CONNECTION BETWEEN THE SEWER AND A PUBLIC OR PRIVATE POTABLE WATER SUPPLY OR APPURTENANCES? [ ] Yes [X] No

16. ARE ANY WATER SUPPLY SOURCES, PUBLIC OR PRIVATE, LOCATED WITHIN 200 FEET OF THE SEWERS? [ ] Yes [X] No

A. IF YES, SPECIFY PLAN SHEET(S) ON WHICH SOURCES ARE SHOWN. N/A

B. IF YES, WILL SEWERS BE ENCASED OR WATERTIGHT? N/A [ ] Yes [ ] No

17. ARE SEWERS AT LEAST 10 FEET HORIZONTALLY FROM WATER LINES AND/OR AT LEAST 18 INCHES BELOW THE WATER LINE? [X] Yes [ ] No

18. IF THE PROPOSED FACILITY WILL DISCHARGE TO THE SEWER SYSTEM AND TREATMENT PLANT OF ANOTHER MUNICIPALITY, HAVE APPROPRIATE AGREEMENTS BEEN REACHED? [ ] Yes [ ] No [X] N/A

A. IS THE AGREEMENT A CERTIFIED AGREEMENT? [ ] Yes [ ] No [X] N/A

B. IS THE AGREEMENT A LETTER OF INTENT? [ ] Yes [ ] No [X] N/A

C. HAVE DUPLICATE COPIES BEEN ENCLOSED? N/A [ ] Yes [ ] No

19. DO THE EXISTING SEWERS TO WHICH THE PROPOSED SEWERS WILL CONNECT HAVE ADEQUATE CAPACITY TO CONVEY THE ADDITIONAL FLOW? [X] Yes [ ] No [ ] N/A

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MODULE 6 – SEWERS AND APPURTENANCES

A. GENERAL INFORMATION – CONTINUED

20. ON THE PLANS, INDICATE THE PERMIT NUMBER OF EXISTING SEWER AT EACH PROPOSED POINT OF CONNECTION AND THE NAME OF THE PERMITEE; SPECIFY PLAN SHEET NUMBER(S) ON WHICH INDICATED: Plan Sheets No. 1, 2, and 3 ☐ N/A

21. WILL THERE BE A PUMP STATION INVOLVED IN RECEIVING SEWAGE FROM THE SEWER EXTENSION? ☐ Yes ☒ No ☐ N/A

A. IF YES, SPECIFY PRESENT AND DESIGN FLOWS OF PUMPING STATION. N/A

22. RECEIVING SEWAGE TREATMENT PLANT (FILL IN FOR EXTENSION(S) TO EXISTING SYSTEM ONLY)

A. OWNER OF PLANT Upper Gwynedd-Towamencin Municipal Authority

B. NAME OF PLANT U.G.-Tow. Mun. Authority Wastewater Treatment Plant

C. DISCHARGE DATA

	WASTE FLOW (MGD)	SOLIDS SUSPENDED (#/DAY)	SOLIDS SETTLEABLE (ML/L)	BOD 5 DAY 20°C (#/DAY)
(1) ALLOWABLE LOAD TO STREAM AUTHORIZED UNDER PRESENT PERMIT	1.5 (2.5)(1)	375	None Stated	375
(2) PRESENT LOAD TO STREAM FROM TREATMENT PLANT	1.455(2)	303(3)	0.3	303(3)
(3) ADDITIONAL LOAD TO STREAM EXPECTED DURING THE NEXT FIVE YEARS FROM EXISTING SYSTEM	0.4556 (4)	95	Negligible	95
(4) ADDITIONAL LOAD TO STREAM DURING THE NEXT FIVE YEARS FROM PROPOSED EXTENSION	0.0115	2	Negligible	2
(5) TOTAL ANTICIPATED LOAD TO STREAM IN NEXT FIVE YEARS (2+3+4)	1.9201	400	0.3	400

D. TREATMENT PLANT OPERATING EFFICIENCY

	SOLIDS SUSPENDED (%)	SOLIDS SETTLEABLE (%)	BOD 5 DAY 20° C (%)
(1) PRESENT TREATMENT PLANT	87	98	90
(2) AFTER INITIAL LOAD FROM PROPOSED EXTENSION	90	98	90
(3) IN FIVE YEARS	90	98	90

23. WILL THE LOAD UNDER 22.B.(5) ABOVE PHODUCE AN EFFLUENT THAT WILL HAVE AN ADVERSE EFFECT UPON THE RECEIVING STREAM? ☐ Yes ☒ No

Notes: (1), (2), (3), (4) - See attached Supplemental Sheet #6-4a

4673414

SUPPLEMENTARY SHEET 6-4a.

NOTES - Re: 6-4 22.C

(1) 1.5 MGD former capacity, plus 1.0 MGD current expansion capacity = 2.5 MGD

(2) Avg. Daily Flow: Obtained by averaging most recent 12 months daily recorded flows from November 1977 thru October1978, inclusive.

(3) Values based upon anticipated average 30 day consec. period effluent Susp. Solids and B.O.D. concentrations of 25 ppm each by Spring 1978 when plan expansion is completed to 2.5 MGD hydraulic capacity and optimum plant efficiency established. During recent and current plan construction expansion period, it should be noted, the normal design pattern, sequence, and retention time of sewage flow through treatment process units is disrupted or abnormal due to construction schedules and procedures, and optimum plant operating efficiency is not consistently achieved.

(4) Includes incremental contributions for projected flows of recently approved and pending projects in Towamencin Township service area:

DiLucia (Country Meadows) Subdivision Permit #4677404

Dougherty Brothers Subdivision Permit #4677415

Regent Manor Subdivision Permit #4677438

Hunter Construction Company "Hunter Meadows" Subdivision, Permit #4678437

"Ralph's Market"/U.G.-Tow. Muncipal Authority T-14 Line Ext., Permit #4678444

"Brookside Farms" Subdivision, Permit #4678445

Kirkpatrick Subdivision, pending application.

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A. GENERAL INFORMATION – CONTINUED

A. IF YES, EXPLAIN N/A

B. IF APPLICANT IS NOT OWNER OF THE RECEIVING SEWAGE TREATMENT PLANT, INDICATE SOURCE OF INFORMATION.

N/A

TO BE COMPLETED BY THE REGIONAL SANITARY ENGINEER

1. WILL THE LOAD UNDER 22.B.(5) MEET THE PERMIT REQUIREMENTS? ☐ Yes ☐ No

   A. WILL THE LOAD UNDER 22.B.(5) CAUSE POLLUTION OF THE RECEIVING STREAM? ☐ Yes ☐ No

2. IS THERE ANY QUESTION AS TO WHETHER THE LOAD IS NOW CAUSING OR WILL CAUSE POLLUTION? ☐ Yes ☐ No

   A. IF YES, COMPLETE A POLLUTION REPORT.

3. IS THE TREATMENT PLANT IN COMPLIANCE? ☐ Yes ☐ No

SUPPLEMENTARY SHEET 6-4B

NOTES - Re: 6-4 22.C

(1) 1.5 MGD former capacity, plus 1.0 MGD current expansion capacity = 2.5 MGD

(2) Avg. Daily Flow: Obtained by averaging most recent 12 months daily recorded flows from November 1977 thru October 1978 inclusive.

(3) Values based upon analyses of [illegible] Solids and [illegible] each by Spring 1979 when [illegible]

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Module 28 - Sewer Stream Crossing - Outfall and Headwall

A. General Design

1. In cases other than political subdivisions, has a fee in the amount of $30.00 in the form of a check or money order payable to the Commonwealth of Pennsylvania been enclosed? (This fee is in addition to the $25.00 fee required for sewerage applications). [X] Yes [ ] No

2. Are sewers in streams protected with at least 1 foot of cover in rock and 3 feet cover in other material? [X] Yes [ ] No [ ] N/A

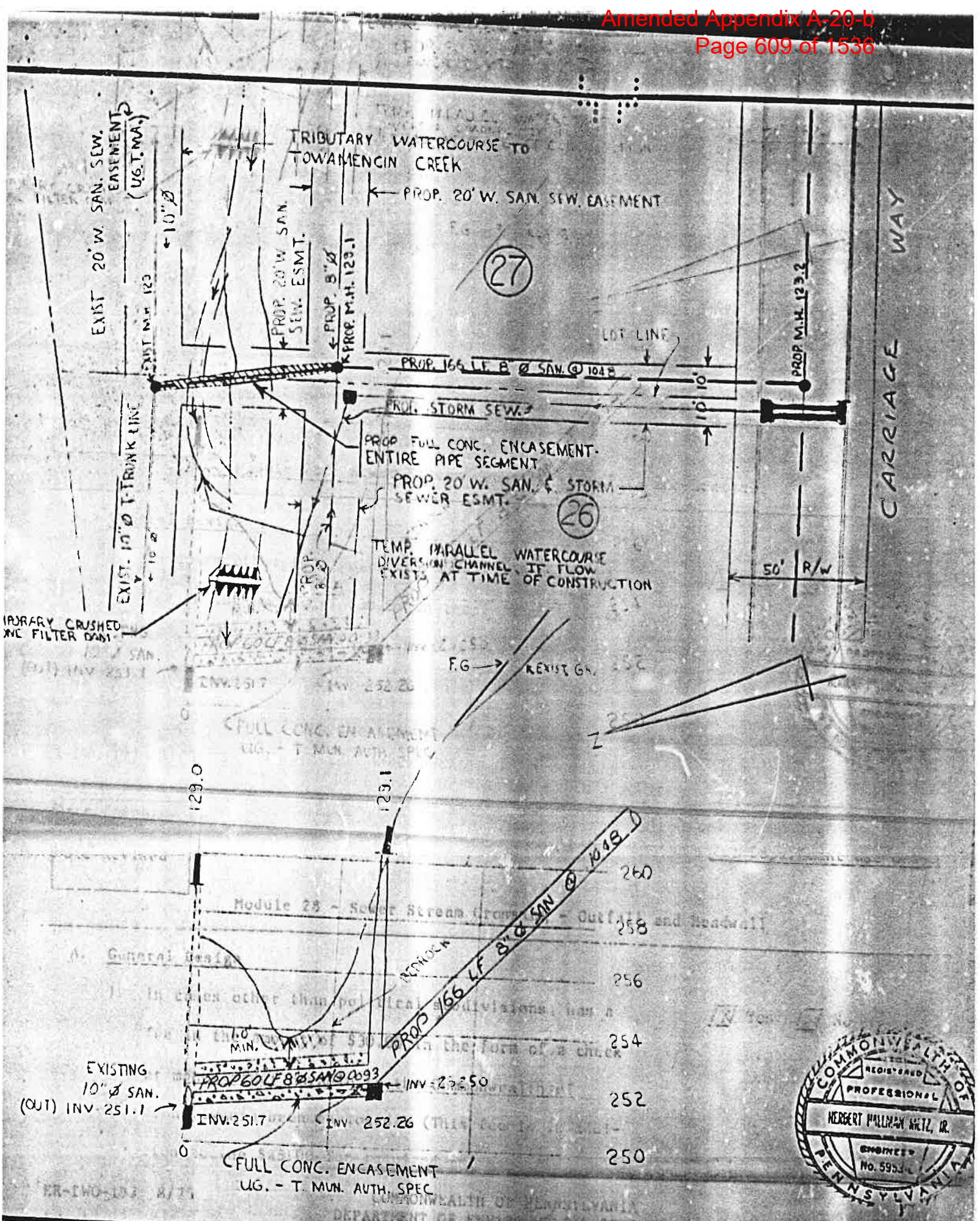
3. Have plans been made to minimize disturbing or uprooting trees and vegetation along the stream bank and in the vicinity of the stream? [X] Yes [ ] No

4. Is the sewer along the stream located a sufficient distance from the bank of the stream to provide for possible increase in the width of the stream? [X] Yes [ ] No [ ] N/A

5. Has the sewer system been designed to minimize the number of stream crossings? [X] Yes [ ] No [ ] N/A

6. Is the stream crossing designed to cross the stream as nearly perpendicular to the stream flow as possible? [X] Yes [ ] No [ ] N/A

7. Are the proposed sewer outfalls, headwalls, manholes, gateboxes, or other structures so located that they do not interfere with the free discharge of flood flows of the stream? [X] Yes [ ] No [ ] N/A


TRIBUTARY WATERCOURSE TO TOWAMENCIN CREEK
PROP. 20' W. SAN. SEW. EASEMENT
EXIST 20' W. SAN. SEW. EASEMENT (U.G.T.MA.)
EXIST MH 123
10"Ø
PROP. 20' W. SAN. SEW. ESMT.
PROP. 8"Ø
PROP. M.H. 123.1
27
LOT LINE
PROP. 166 L.F. 8 Ø SAN. @ 1048
PROP M.H. 123.2
CARRIAGE WAY
PROP. STORM SEW.
PROP FULL CONC. ENCASEMENT. ENTIRE PIPE SEGMENT
PROP. 20' W. SAN. & STORM SEWER ESMT.
26
EXIST. 15"Ø T-TRUNK LINE
TEMP. PARALLEL WATERCOURSE DIVERSION CHANNEL IF FLOW EXISTS AT TIME OF CONSTRUCTION
50' R/W
TEMPORARY CRUSHED STONE FILTER DAM
F.G.
EXIST. GR.
129.0
129.1
260
258
256
254
252
250
PROP 166 LF 8" Ø SAN @ 1048
EXISTING
10" Ø SAN.
(OUT) INV. 251.1
PROP 60 LF 8" Ø SAN @ 093
INV. 252.50
INV. 251.7
INV. 252.26
1.0 MIN.
FULL CONC. ENCASEMENT
UG. - T. MUN. AUTH. SPEC
COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
HERBERT HALLMAN METZ, JR.
ENGINEER
No. 5953

SEWER WATERCOURSE - CROSSING CONSTRUCTION CONTROL SEQUENCE

1. Construct temporary stone filter dam, as depicted, 50± feet down stream from sewer crossing location to trap silt and sediment. A straw bale sediment barrier may be substituted if construction is accomplished during dry weather period. See attached Exhibit "B" for detail.

2. Construct initial 25± feet sewer segment out of M.H. 129, and concrete encasement. When concrete encasement is adequately "set", backfill and consolidate trench per U.G.T.M.A. specs.

3. If existing watercourse of significant flow at the time of construction then construct a parallel watercourse diversion, as shown, to provide for continuous watercourse flow around sewer crossing site.

4. Construct balance of sewer section to M.H. 129.1. Place concrete encasement for natural watercourse crossing segment. As soon as concrete encasement is adequately set, backfill stream-bed segment with suitable material in compacted layers providing a stable, non- erodible surface condition conforming to original stream channel cross-section.

5. Backfill balance of sewer trench in accord with U.G.T.M.A. specifications. Restore stream embankments to original cross-section, fine grade and seed with fastgrowing perennial vegetation to stabilize. Protect embankment planting with mulch or jute netting.

6. Finish grade backfilled sewer trench and other disturbed areas, and seed and mulch.

7. When stream embankment vegetation is established:
   a. Remove silt from behind filter dam and dispose of same out of stream and flood plain area.
   b. Remove temporary dam structure material, clean channel.
   c. If watercourse diversion was used, backfill and grade temporary diversion channel: seed and mulch re-graded surface area.

TOWAMENCIN TWP.-MONTGOMERY COUNTY - PA.

(TYPICAL) LOCATION PLAN AND PROFILE, CONSTRUCTION SCHEDULE
SAN. SEWER-WATERCOURSE CROSSING
THIS FACILITY: REF. PLAN SHEETS 3 AND 10
ROLLING MEADOWS ESTATES

date: DEC. 1978
ref.
job
sheet: EXHIBIT "A"

Herbert H. Metz, Inc.
CIVIL ENGINEERS AND SURVEYORS
410 DERSTINE AVE. LANSDALE, PA.

scale: 1" = 40'
drawn by
checked by
file

General Design - Continued

8. Have provisions been made to control siltation of readily erodible soils during construction, during suspension of operation for an appreciable length of time, and after construction, by the methods of temporary vegetation, or seeding and mulch or by accelerating the establishment of permanent vegetation? [X] Yes [ ] No

9. Have provisions been made to retard the rate of runoff from the construction site and control disposal of runoff? [X] Yes [ ] No

10. Have provisions been made to trap sediment resulting from construction in temporary or permanent silt holding basins, including pump discharges resulting from dewatering operations? [X] Yes [ ] No

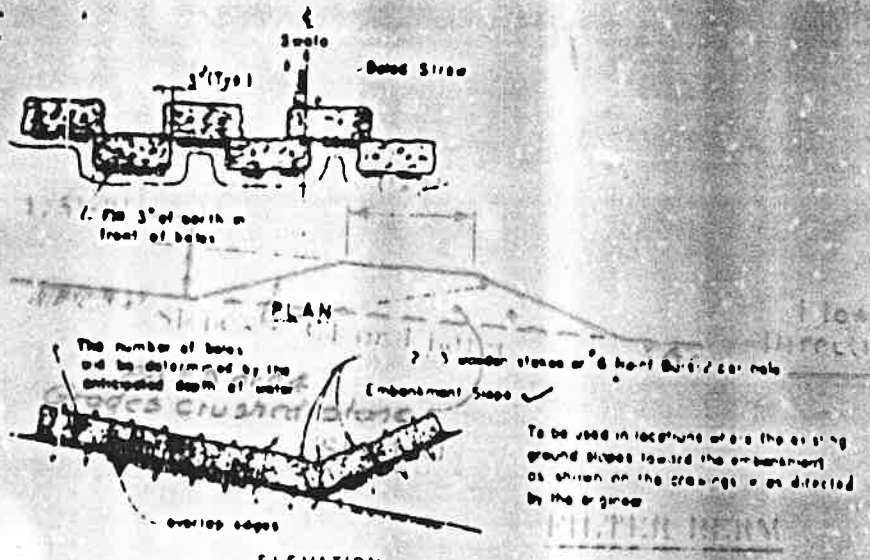
11. Have provisions been made to minimize turbidity by prohibiting the dumping of soil and debris into streams and/or on banks of streams, pumping silt-laden water into the stream and the operating of equipment in the streams? [X] Yes [ ] No

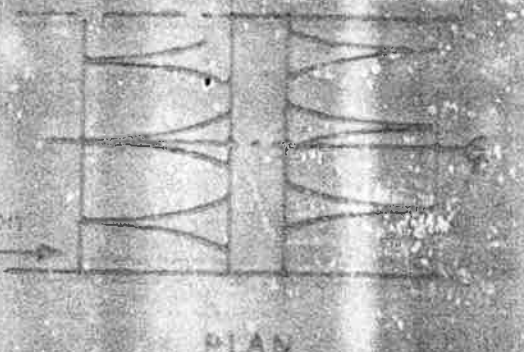
12. Have provisions been made to remove all cofferdams and stream crossings for equipment that must cross the stream during construction, including a provision to return the stream bed to its original condition when the project is completed? [X] Yes [ ] No

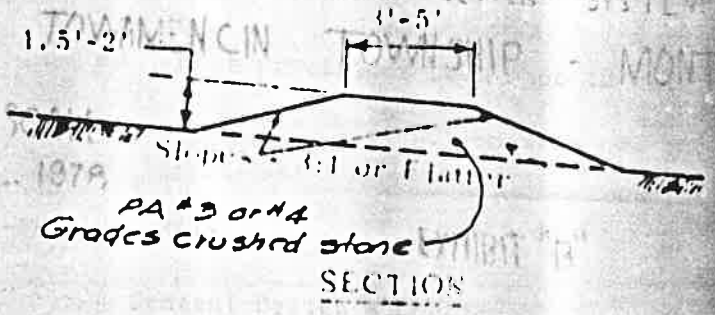
13. Have provisions been made to deposit all material and debris removed from the stream bed out of the flood plain area? [X] Yes [ ] No

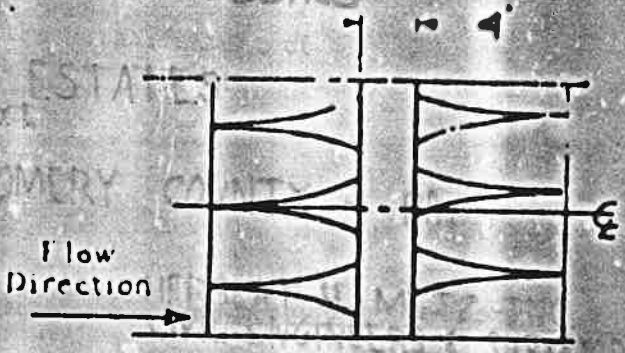
14. Is the design coordinated with the Pennsylvania Fish Commission to take into account any comments or suggestions which the Fish Commission may have concerning the stream crossing? [ ] Yes [X] No [ ] N/A

EXHIBIT "B"









FILTER BERM

SEDIMENTATION CONTROL
FACILITIES

SANITARY SEWER STREAM CROSSING

ROLLING MEADOWS ESTATES
SAN. SEWER SYSTEM EXT.

TOWAMENCIN TOWNSHIP - MONTGOMERY COUNTY - PA.

NO SCALE
DEC. 1978

HERBERT H. METZ INC.
CIVIL ENGINEERS & SURVEYORS

(-BM)-197 8/75

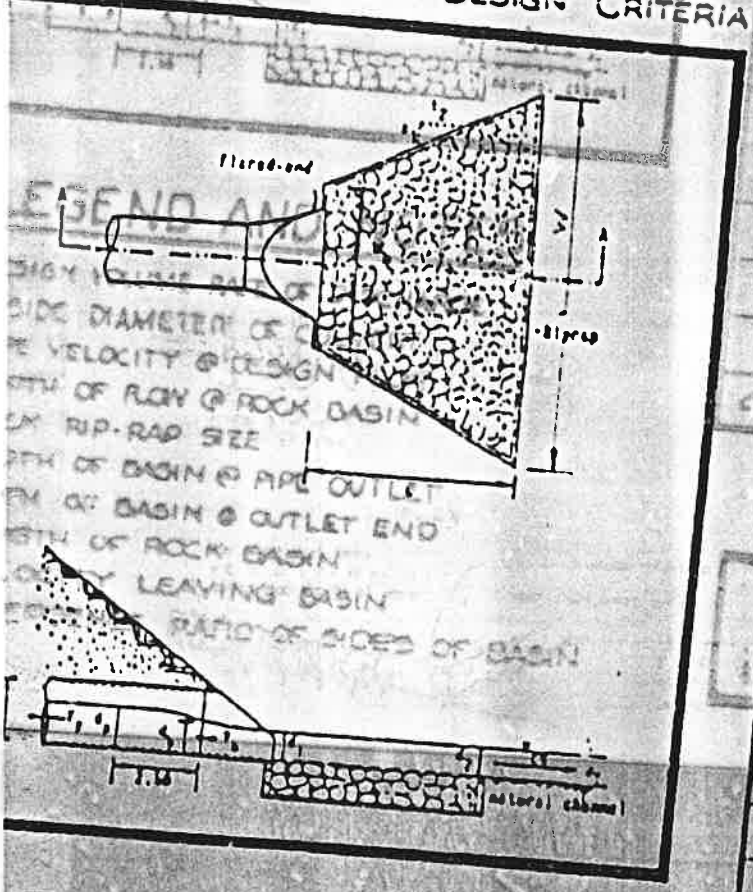
EXHIBIT "B"

General Design - Continued

3. Have provisions been made to control

...ORM WATER MANAGEMENT DESIGN CRITERIA

EXHIBIT "C"



PIPE OUTFALL LOCATION	I	II	III	
ϕ	28" x 20"	15"	28" x 20"	
Q_o	10.21 CFS	3.0 CFS	12.2 CFS	3
W_b	6'	4'	6'	
V_p	4.0 FPS	5.5 FPS	4.0 FPS	4
V/V_p	0.5	0.5	0.5	
V	2.0 FPS	2.75 FPS	2.0 FPS	2.
$Q/Q^{2.5}$	$9.2/5.65 = 1.81$	$3/2 = 1.5$	$12.2/5.65 = 2.16$	$3 1/2$
$d/D_{max.}$	0.25	0.25	0.25	0.
d_1	$0.25 \times 2' = 0.50$	$0.25 \times 1.25' = 0.31$	$0.25 \times 2' = 0.50$	$0.25 \times$ =0
D/d	4	3	4	
d	$24"/4 = 6'$	$15"/3 = 5"$	$24"/4 = 6'$	$15"/4$
L/D	7.6	7.45	7.5	7.6
L	$7.6 \times 2 = 15.2$	$7.45 \times 1.25 = 9.3$	$7.5 \times 2' = 15'$	7.6×1.25
L/L_b	1:3	1:3	1:3	1:3
W	16'	10.2'	16'	10.5
COMMENTS				

LEGEND AND NOTES

SIGN VOLUME RATE OF DISCHARGE
SIDE DIAMETER OF CULVERT
E VELOCITY @ DESIGN FLOW
PTH OF FLOW @ ROCK BASIN
CK RIP-RAP SIZE
PTH OF BASIN @ PIPE OUTLET
TH OF BASIN @ OUTLET END
NGTH OF ROCK BASIN
OCITY LEAVING BASIN
ERGENCE RATIO OF SIDES OF BASIN

Rolling Meadows Estates Res. Sub-Div.
Towamencin Twp. - Montg. Co. - Pa.

Herbert H. Metz, Inc.
CIVIL ENGINEERS AND SURVEYORS
318 BERGSTEIN AVE. LANSDALE, PA.

ER-BWQ-68:REV. 3/76

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES

APPLICATION FOR ENCROACHMENT PERMIT

December 28, 1978

In compliance with the provisions of an Act of the General Assembly of the Commonwealth of Pennsylvania, entitled, "An act providing for the regulation of Dams or other structures or obstructions, as defined herein, in, along, across or projecting into all streams and bodies of water wholly or partly within, or forming part of the boundary of, this Commonwealth; vesting certain powers and duties in the Water Supply Commission of Pennsylvania, for this purpose; and providing penalties for the violation of the provisions hereof," approved the 25th day of June, A.D. 1913, as amended by Act No. 137, approved May 6, 1937, and "The Administrative Code" which empowers the Department of Environmental Resources to exercise certain powers and perform certain duties by law vested in and imposed upon the Water Supply Commission of Pennsylvania, and the Water and Power Resources Board.

William E. Nash, Developer
(Here state name of person or persons, partnership, association, corporation, county, city, borough, town, or township.)

hereby makes application for the consent or permit of the Department of Environmental Resources to construct, or to make a change in, or addition to, or to maintain Four (4) Sanitary Sewer Crossings, four (4) storm sewerage controlled-flow outfall facilities, one (1) bridge-culvert structure, and one (1) dual storm sewer extension in, along, or across two (2) tributaries of Towamencin Creek at several locations in a planned residential sub-division tract known as Rolling Meadows Estates,
(Here state name of stream or other body of water.)

at a point approximately 4000 feet upstream (Northeast) from the Towamencin Creek crossing point at Sumneytown Pike in Towamencin Township, Montgomery County, Pa.
(Here give location, by distance from mouth of stream, county, township, or municipal boundary; also give city, town or township and county in which located.)

for the purpose of providing required sanitary sewerage extensions and connections to the existing Upper Gwynedd-Towamencin Municipal Authority sewer system, and storm water management and control for the planned 33-lot Rolling Meadows Estates' development
(Here state fully the purpose, necessity, and description of the proposed obstruction.)

(Continued on other side)

46-29-14

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in accordance with the complete maps, plans, profiles, and specifications filed with this application and made a part hereof.

X .....
Signature and Title

SEAL:

If privately owned, the individual owner, or each member of a partnership, should sign the application. If owned by a corporation, it should be signed by the president, the corporate seal affixed and attested by the secretary, and, if owned by a city, borough, township or county, it should be signed by the Chief officer, Supervisors or Commissioners, the seal affixed and attested by the clerk.

WITNESS:

X .....

(Address).....

.....

NOTE: This application, together with all maps, plans, profiles and specifications, and all papers, information and data filed in connection therewith, will remain on file in the office of the Department.

NOTE: Submit this application in single copy only, WITH DUPLICATE SET OF PLANS. All references to Department of Forests and Waters and/or the Water and Power Resources Board in this Document may be interchangeably known by its successor, Department of Environmental Resources.

3110-047 REV. 5-71

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
SANITARY ENGINEERING

INTERNAL REVIEW AND RECOMMENDATIONS

For Department Use Only

REGIONAL ENGINEER'S REVIEW

NAME OF APPLICANT: Upper Gwynedd-Towamencin Municipal Authority

PROJECT LOCATION: Towamencin Township Montgomery County

APPLICATION NUMBER: 4679414

BRIEF DESCRIPTION OF PROJECT: This application requests approval for the construction of a sanitary sewer extension to serve Rolling Meadows Estates Subdivision which is proposed between Keeler Road and Troxell Road and adjacent to Hunter Meadows Subdivision. Two sanitary sewer stream crossings are proposed; one on lot No. 8 and one between lots 26 and 27. The streams involved are both tributaries of Towamencin Creek. An application has also been sent to D/E in Harrisburg for approval to construct a bridge-culvert. Information concerning (CONTINUED)

DISCUSSION (Use Additional Sheets If Necessary): Sewage from the proposed sewer extension will be conveyed to the Upper Gwynedd-Towamencin Municipal Authority Sewage Treatment Plant via existing Upper Gwynedd-Towamencin Municipal Authority sewers covered under Permit Nos. 4675424, 4678437 and 76S513. The final effluent will be afforded secondary treatment before discharge to the Towamencin Creek. The proposed sewer extension will serve 115 people initially and 115 people ultimately. The soil erosion and sedimentation control plan has been reviewed and approved by the Montgomery County Conservation District.

PERMIT CONDITIONS:

CURRENT ESTIMATE OF COMPLETION DATE OF PROJECT (Industrial Wastes Only)

RECOMMENDATION AND ACTION

APPROVAL – RELEVANT LAWS, REGULATIONS, STANDARDS, AND POLICIES HAVE BEEN COMPLIED WITH:

Issue By Region	Issue By Central Office	Refuse	Signature	Date
☒	☐	☐	REVIEWING ENGINEER: William A. Brosius Jr.	5/16/79
☐	☐	☐	FACILITIES ENGINEER: Richard J. Burke	5/16/79
☒	☐	☐	REGIONAL ENGINEER: C.T. Jensen	5/21/79
	☐	☐	DIV. FACILITIES ENGINEER	
	☐	☐	DIVISION DIRECTOR	
		☐	BUREAU DIRECTOR	

PERMIT CONDITIONS:

1. STANDARD – Sewerage (1972) 1 thru 9, 11 thru 14, 21, 22, 30, 31, 32
Erosion Control (1973) 1 thru 20

2. SPECIAL (Use Additional Sheets If Necessary) –
I-PA Fish Commission

Recording of Permit: Montgomery County

4679414

Regional Engineer's Review
Upper Gwynedd-Towamencin Municipal Authority

Brief Description of Project:
Continued

the sanitary sewer stream crossings was sent to the PA Fish Commission on March 8, 1979. No response was received within 30 days. Special Conditions concerning the stream crossings will be made part of the permit when issued.

Issuance of the sewage permit must be coordinated with encroachment permit application No. 4679703.

REGIONAL ENGINEER'S REVIEW

NAME OF APPLICANT Upper Gwynedd-Towamencin Municipal Authority PROJECT LOCATION Towamencin Township Montgomery County APPLICATION NUMBER 467

BRIEF DESCRIPTION OF PROJECT: This application requests approval for the construction of a sanitary sewer extension to serve Rolling Meadows Estates Subdivision which is proposed between Keelen Road and Troxell Road and adjacent to Hunter Meadows Subdivision. Two sanitary sewer stream crossings are proposed one between lots 26 and 27, The streams involved are both tributaries of Towamencin Creek. An application has also been made to [illegible] approval to construct a bridge-culvert [illegible]

Sewage [illegible] conveyed to the Upper Gwynedd-Towamencin [illegible] existing Upper Gwynedd-Towamencin [illegible]

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
SANITARY ENGINEERING

ER-BWQ-15-Rev. 4/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT NO. 4679414

A. PERMITTEE: (Name and Address)

Upper Gwynedd-Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

B. PROJECT LOCATION

Municipality: Towamencin Township
County: Montgomery

C. TYPE OF FACILITY (For industrial wastes; type of establishment)

Sanitary Sewer Extension

D. NAME OF MINE, PLANT, AREA SERVED, OUTFALL NO., ETC.

Rolling Meadows Estates Subdivision

E. THIS PERMIT APPROVES:

1. Plans For Construction Of: a. [XX] Sewers and Appurtenances b. [ ] Sewage Treatment Facilities c. [ ] Industrial Wastes Treatment Facilities d. [ ] Mine Drainage Treatment Facilities e. [ ] Outfall & Headwall f. [X] Stream Crossing g. [ ] Impoundment

2. The Discharge Of: N/A a. [ ] Treated b. [ ] Untreated c. [ ] Sewage d. [ ] Industrial Wastes

3. Discharge To: a. [ ] Surface Water b. [ ] Ground Water
Name of Stream to which discharged or drainage area in which groundwater discharge takes place or impoundment is located: N/A

4. The Operation of a Mine [ ]
Maximum Area to be Deep Mined: N/A Acres

5. An Erosion and Sedimentation Control Plan [XX]
Project Area is 32.65 Acres

F. THIS APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:

1. ALL CONSTRUCTION, OPERATIONS, PROCEDURES AND DISCHARGE SHALL BE IN ACCORDANCE WITH APPLICATION NO. 4679414 DATED March 7, 1979 ITS SUPPORTING DOCUMENTATION, AND AMENDMENTS DATED 4/12/79, 5/11/79. SUCH APPLICATION, ITS SUPPORTING DOCUMENTATION AND AMENDMENTS ARE HEREBY MADE A PART OF THIS PERMIT.

2. CONDITIONS NUMBERED 1 thru 9, 11 thru 14, 21, 22, 30, 31, 32 OF THE sewerage STANDARD CONDITIONS DATED 1972, AND CONDITIONS NUMBERED 1 thru 20 OF THE EROSION CONTROL STANDARD CONDITIONS DATED 1973 WHICH CONDITIONS ARE ATTACHED AND MADE PART OF THIS PERMIT.

3. SPECIAL CONDITIONS DESIGNATED I WHICH ARE ATTACHED AND ARE MADE A PART OF THIS PERMIT.

This Permit must be recorded in the Recorder of Deeds office in Montgomery County.

G. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. IF THERE IS A CONFLICT BETWEEN THE APPLICATION ON ITS SUPPORTING DOCUMENTS AND AMENDMENTS AND THE STANDARD OR SPECIAL CONDITIONS, THE STANDARD OR SPECIAL CONDITIONS SHALL APPLY.
2. FAILURE TO COMPLY WITH THE RULES AND REGULATIONS OF THE DEPARTMENT OR WITH THE TERMS OR CONDITIONS OF THIS PERMIT SHALL VOID THE AUTHORITY GIVEN TO THE PERMITTEE BY THE ISSUANCE OF THE PERMIT.
3. THIS PERMIT IS ISSUED PURSUANT TO THE CLEAN STREAMS LAW, ACT OF JUNE 22, 1937, P.L. 1987 AS AMENDED 35 P.S. § 691.1 ET SEQ. AND/OR THE WATER OBSTRUCTION ACT, ACT OF JUNE 25, 1913, P.L. 555 AS AMENDED 32 P.S. § 681 ET SEQ. ISSUANCE OF THIS PERMIT SHALL NOT RELIEVE THE PERMITTEE OF ANY RESPONSIBILITY UNDER ANY OTHER LAW

PERMIT ISSUED
DATE OCT 5 1979

DEPARTMENT OF ENVIRONMENTAL RESOURCES
BY C.T. Beechwood
C.T. Beechwood, P.E.
TITLE Regional Water Quality Manager

Regional Engineer's Review

Sewerage Permit No. 4679414
Upper Gwynedd-Towamencin Municipal Authority

This permit is subject to the following Special Condition(s):

I. The stream bed shall not be used as a roadway for moving machinery from one site to another. Temporary stream crossings must be provided for equipment that must cross the stream during construction. Structures are to be removed and the stream bed returned to its original condition when the project is completed.

Siltation control shall be provided during construction and bank stabilization shall be undertaken by planting of grasses, shrubbery, or trees immediately after completion of each phase of the project.

When channel changes occur, the stream bed shall not exceed the original width and if a greater cross sectional area is required, an elevated flood plain must be put into use.

All material and debris removal from the stream bed shall be moved entirely out of the flood plain area.

A permit must be secured from the Pennsylvania Fish Commission in Harrisburg, if the use of explosives is required: P.F.C. Waterways Patrolman, Guy Bowersox, 1198 Old Evansburg Road, R.D. No. 1, Collegeville, PA 19426 must be notified when the project is started, when explosives are to be used, and when the project is completed for final inspection.

Upper Gwynedd-Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Municipality: Towamencin Township
County: Montgomery

C. TYPE OF FACILITY (For Industrial Wastes, type of establishment)
Sanitary Sewer Extension

D. NAME OF MINE, PLANT AREA SERVED, OUTFALL NO., ETC.
Rolling Meadows Estates Subdivision

1. Plans For Construction Of:
a. [X] Sewers and Appurtenances
b. [ ] Sewage Treatment Facilities
c. [ ] Industrial Waste Treatment Facilities
d. [ ] Mine Drainage Treatment Facilities
e. [ ] Outfall & Headwall
f. [X] Pumping Stations
g. [ ]

EP 3WQ 18 (Rev 4/78)

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF ENVIRONMENTAL RESOURCES

1875 New Hope Street
Norristown, Pennsylvania 19401
(215) 631-2405

October 5, 1979

Upper Gwynedd-Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: Mr. H. Warren Dimmig
Chairman

Re: Sewerage Permit No. 4679414
Rolling Meadows Estates Subdivision
Towamencin Township, Montgomery County

Gentlemen:

Above referenced permit is enclosed.

Please study the permit carefully and direct any questions to the Facilities Section of this office.

To become operative this permit must be recorded in the Office of the Recorder of Deeds in the county in which the discharge is located. Enclosed is a certificate and pre-addressed envelope for this purpose. Please have the Recorder of Deeds accomplish the certificate and return it within ten (10) days.

Very truly yours,

C.T. Beechwood, P.E.
Regional Water Quality Manager

Enclosures: Permit
Standard Conditions Relating to Sewerage
Standard Conditions Relating to Erosion Control
Recorder of Deeds Certificate with envelope
Notary Public Certificate

cc: Herbert H. Metz, Jr., P.E.
Herbert H. Metz, Incorporated
PA Fish Commission (Attn: Guy Bowersox)
Ce Re 30
Pa Fish Commission

CTB:WG:smc

ER-BWQ-68 Rev. 4-73

Upper Gwynedd-Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Sewerage Permit No. 4679414

Towamencin Township
Montgomery County

I hereby certify that on . . . . . there was recorded in Book . Deed 4464 page . 211 . . . . . Commonwealth of Pennsylvania Department of Environmental Resources the sewerage permit issued to . . Upper Gwynedd-Towamencin Mun Auth . bearing date of . . . . . RECORDER OF DEEDS CERTIFICATE

I hereby certify that on . . October 18, 1979 (Date) Recorder of Deeds for there was recorded in Book . . Deed 4464 . . . . . County page . 211 . . . . . the sewerage permit issued to . . Upper Gwynedd-Towamencin Mun Auth . bearing date of . . . 10-5-79 . . . . . .

DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
Norristown, Pennsylvania 19401
(215) 631-2403

October 5, 1979

Upper Gwynedd-Towamencin
Municipal Authority
2225 Kriebel Road

Attention: Mr. N. Warren Dimmig

Loretta D. Bradbury
Recorder of Deeds for

Montgomery . . County

COMMONWEALTH OF PENNSYLVA

ER-BWQ-69 Rev. 1/78

and duly acknowledged the foregoing permit to be his act and deed and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year aforesaid.

STATE OF PENNSYLVANIA
> SS
COUNTY OF MONTGOMERY

On the fifth day of October in the year one thousand nine hundred and seventy nine before me, the Subscriber, a Notary Public, came the above named

C. T. Beechwood

and duly acknowledged the foregoing permit to be his act and deed and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year aforesaid.

John F. Daly Jr.
NOTARY PUBLIC

JOHN F. DALY, JR.
Notary Public, Norristown Boro, Montg. Co.
My Commission Expires August 16, 1980

Sewerage Permit No. 4679[illegible]

Towamencin Township
Montgomery County

Commonwealth of Pennsylvania
Department of Environmental Resources

Recorded on this

ER-BWQ-68 Rev. 4-73

2225 Kriebel Road

R-EPR-1: Rev. 7/77

Form No. 1

BG

SUBJECT: SEWERAGE CONTACT: UPPER GWYNEDD-TOWAMENCIN MUNICIPAL AUTHORITY

Application Nos.: 4679414

Towamencin Twp. 2225 KRIEBEL ROAD

MONTGOMERY COUNTY ~~KULPSVILLE~~, Lansdale PA. 19443

New Proposal	X
Revised Proposal	

APPL: ~~855-3686~~ 855-8165 ENGR: ~~525-6200~~ 855-3111

FROM: Regional Director L. CONSHOR

FROM: R. HINKLE 3/15/79

On 3-7-79, we received an application for plan approval and/or permit to construct a sewer extension. The proposed installation involves:

SS EXT TO SERVE Rolling Meadows Estates Subdivision IN Towamencin Township, MONTGOMERY COUNTY

SEWAGE TO Upper Gwynedd-Towamencin STP

3.5 Acres ± Enc. permit applied for

#4679703 - William E. Kash, Developer

Permit Coordination Requirements: 125 Laurel Lane Lansdale, Pa 19446

COORD in DEP App. & "Approval" of SWM.

DATE: 3/19/79

	No Permit Required	No Permit Required Prior Approval Required	Permit Required Application on Hand	Permit Required Application Needed
Air Quality	✓			
Water Quality	✓		✓ 3/19	
Land Protection	✓			
Community Env. Control	✓			
Occupational Health	✓			
Surface Mine Reclamation				
Radiological Health				
D + E	✓ OK Harry Emmanuel 5/16/79		✓ 3/19	

RECEIVED
MAR 9 1979
Regional Office WR

Please indicate your interest on this form and return to the Director by 3/14/79

ER – EP

START

DEPARTMENT OF ENVIRONMENTAL RESOURCES

BUREAU / PROGRAM Water Quality Management

DIVISION

ENVIRONMENTAL PROTECTION

COUNTY / MUNICIPALITY 46007

PROGRAM SEW

START

CASE NAME Upper Gwynedd - Towamencin

FILE P

BUREAU / PROGRAM Water Quality Management

DIVISION

COUNTY / MUNICIPALITY 46007

PROGRAM SEW

CASE NAME Upper - Gwynedd - Towamencin

FILE P

PERMIT NO. 4679469 Meadow View Subdivision

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P.O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

November 30, 1979

Mr. Daniel Lenyo,
Division of Dams and Waterways
Management
Pennsylvania Department of Environmental
Resources
Fulton Building
Harrisburg, Pennsylvania

Re: Encroachment Permit Application
HUNTER CONSTRUCTION COMPANY
"MEADOWVIEW" SUBDIVISION
Troxell Road at Snyder Road
Towamencin Township, Montgomery County

Dear Mr. Lenyo:

Enclosed please find a completed application for issuance of an Encroachment Permit along with duplicate sets of design plans and supporting documents with regard to the above-captioned subdivision.

Items submitted (in duplicate) are as follows:

1. Subdivision Plan package including:
   a. Cover Sheet
   b. Title Plan
   c. Comprehensive On-site improvements
   d. Erosion and Sediment Control
   e. Landscaping
   f. Sanitary Sewer Facilities Only
   g. Storm Sewer Facilities Only
   h. Public Water Facilities Only
   i. Plan/Profiles
   j. Miscellaneous Construction Details
2. Sanitary Sewer Design Analysis
3. Erosion and Sediment Control Narrative Report
4. Stormwater Management Report including collection/ conveyance system analysis and photographic exhibits.

Consultation and review by the Montgomery County Soil Conservation Service for erosion and sediment control and Pennsylvania Department of Environmental Resources for Water Quality Management is being solicited simultaneously with this application.

Highways • Bridges • Sanitary, Municipal, Industrial and Subdivision Engineering • Title and Topographic Surveys • Investigations • Supervision • Reports • Studies

Herbert H. Metz, Inc.

Clifford T. Stout, P.E.

Conservation District
Pennsylvania Department of Environmental Resources

CTS/nes

Mr. Daniel Lenyo
November 30, 1979
Page Number Two (2)

We respectfully request that this application-for-permits be processed as expeditiously as possible. If you or your agency have any questions or comments regarding this project, please do not hesitate to contact me by telephone.

Sincerely,

HERBERT H. METZ, INC.

Clifford T. Stout

Clifford T. Stout, P.E.

cc: Soils Conservation District
Pennsylvania Department of Environmental Resources

CTS/nes

Herbert H. Metz, Inc.

CHARLES TACCONELLI

LANSDALE, PENNSYLVANIA

November 30, 1979

Mr. Daniel Lenyo,
Division of Dams and Waterways
Management
Pennsylvania Department of Environmental
Resources
Fulton Building

HERBERT H. METZ, JR.
JACOB MOTTINGER
CLIFFORD T. STOUT
STUART L. WEST

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P.O. BOX 647
410 DELAWARE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

November 29, 1979

Mr. Ed. Brzostek, District Conservationist
U.S. Department of Agriculture
Soils Conservation Service
1725 Markley Street
Norristown, Pennsylvania 19401

RE: HUNTER CONSTRUCTION COMPANY
"MEADOW VIEW" Subdivision
Troxell Road at Snyder Road
Towamencin Township, Montgomery County

Dear Mr. Brzostek:

Enclosed please find duplicate sets of design plans and supporting documents with regard to the above - captioned subdivision for your review and approval. Application is simultaneously being made to P.A.D.E.R. for a Water Quality Management Permit (see enclosed correspondence).

Items submitted (in duplicate) are as follows:

1. Subdivision Plan package including:
   a. Cover Sheet
   b. Title Plan
   c. Comprehensive On-site Improvements
   d. Erosion and Sediment Control
   e. Landscaping
   f. Sanitary Sewer Facilities Only
   g. Storm Sewer Facilities Only
   h. Public Water Facilities Only
   i. Plan/Profiles
   j. Miscellaneous Construction Details
2. Sanitary Sewer Design Analysis
3. Erosion and Sediment Control Narrative Report
4. Stormwater Management Report including collection/conveyance system analysis and photographic exhibits.

We respectfully request review of this package as speedily as possible. If any questions arise please feel free to call me.

Sincerely,

HERBERT H. METZ, INC.

Clifford T. Stout

Clifford T. Stout, P.E.

CTS/amt

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
419 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

RECEIVED
DEC 3 1979
WATER RESOURCES

"MEADOW VIEW" SUBDIVISION

HUNTER CONSTRUCTION COMPANY

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Planning Module Approval Letter

Sanitary Sewer Design Analysis

Erosion and Sediment Control Narrative

Stormwater Management Report

November 29, 1979

Mr. Ed. Brzostek, District Conservationist
U.S. Department of Agriculture
Soils Conservation Service
1725 Markley Street
Norristown, Pennsylvania 19401

RE: HUNTER CONSTRUCTION COMPANY

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone 855-3111
855-1686

RECEIVED
DEC 3 1979
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

November 29, 1979

Mr. Richard Hinkle, Chief
Facilities Section
Penna. Department of Environmental Resources, Region I
1875 New Hope Street
Norristown, Pennsylvania 19401

RE: Water Quality Management Permit Application
HUNTER CONSTRUCTION COMPANY
"MEADOW VIEW" SUBDIVISION
Troxell Road at Snyder Road
Towamencin Township, Montgomery County

Dear Mr. Hinkle:

Enclosed please find a completed application for issuance of a Water Quality Management Permit along with duplicate sets of design plans and supporting documents with regard to the above - captioned subdivision; enclosed also herewith is a check for $25.00 made payable to PADER for review of same.

Items submitted (in duplicate) are as follows:

1. Subdivision Plan package including:
   a. Cover Sheet
   b. Title Plan
   c. Comprehensive On-site Improvements
   d. Erosion and Sediment Control
   e. Landscaping
   f. Sanitary Sewer Facilities Only
   g. Storm Sewer Facilities Only
   h. Public Water Facilities Only
   i. Plan/Profiles
   j. Miscellaneous Construction Details
2. Water Quality Management Modules 1 and 6.
3. Excerpt from U.G.T.M.A. Specifications prohibting stormwater admittance.
4. Copy of letter from Alvin Revell, Sanitarian, to Ms. Beverly Thompson, Towamencir. Township Secretary, acknowledging review and approval of subdivision planning modules (Code No. 1-46949-023-4).
5. Sanitary Sewer Design Analysis
6. Erosion and Sediment Control Narrative Report

Herbert H. Metz, Inc.

Sincerely,

HERBERT H. METZ, INC.

Clifford T. Stout

7. Stormwater Management Report including collection/ conveyance system analysis and photographic exhibits.

cc: Soils Conservation District
CTS/at

It should be noted that all prior planning reviews and approvals have been obtained as understood to be required; including that of Community Environmental Control for planning modules. Consultation and review by the Montgomery County Soil Conservation Service for erosion and sediment control is being solicited simultaneously with this appliction.

We respectfully request that this application-for-permits be processed as expeditiously as possible. If you or your agency have any questions or comments regarding this project, please do not hesitate to ccntact me by telephone.

Sincerely,

HERBERT H. METZ, INC.

Clifford T. Stout

Clifford T. Stout, P.E.

cc: Soils Conservation District
CTS/at

Herbert H. Metz, Inc.

BARRY L. WERT
CHARLES TACCONELLI

610 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

DEC 3

November 29, 1979

Mr. Richard Hinkle, Chief
Facilities Section
Penna. Department of Environmental Resources, Region I
1875 New Hope Street

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P.O. BOX ...

Phone 855-3181

VL

1875 New Hope Street
Norristown, Pennsylvania 19401
215 631-2402

December 13, 1979

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: Mr. H. Warren Dimmig
Chairman

Re: Application No. 4679469
Towamencin Township
Montgomery County

Gentlemen:

This will acknowledge receipt of your application on December 3, 1979 for approval to construct a sewer extension to serve Meadow View Subdivision in Towamencin Township, Montgomery County.

The material submitted is accepted for technical review and has been assigned to Vincent Luciani (631-2411) of our staff.

You are reminded that any proposed facilities cannot be constructed without first obtaining the required permits.

Applications are normally processed within sixty (60) days. If you have not received notification of the action taken within this period, feel free to contact me for information concerning the status of this review.

Very truly yours,

Leon T. Gonshor
Regional Director

LTG:smc

cc: Program Services
Facilities
Herbert L. Metz, Inc.
(Attn: Mr. Clifford T. Stout, P.E.)
RM91

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
P. O. Box 2357, Harrisburg, PA 17120
717-787-6826

December 18, 1979

In reply refer to
RM-DWM
46-05

Mr. Clifford T. Stout, P.E.
Herbert H. Metz, Inc.
P.O. Box 647
410 Derstine Avenue
Lansdale, PA 19446

Dear Mr. Stout:

This is in reference to Application No. 46-05 of Hunter Construction Company for a permit to construct two storm water outfall headwalls in the headwaters of Tributaries to Towamencin Creek in Meadow View Subdivision, in Towamencin Township, Montgomery County.

Please be advised that a review of the application and plans indicates that the proposed work does not require a permit from this Division in accordance with Chapter 105 of the Rules and Regulations. Accordingly the application is returned herewith.

Sincerely yours,

Daniel Lenyo, Chief
Division of Obstructions
and Flood Plain Management

Enc.

1575 New Hope Street
Norristown, Pennsylvania 19401
215 631-2402

December 23, 1979

Upper Gwynedd - Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: Mr. B. Warren Dinnig

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

January 7, 1980

RECEIVED
JAN 10 1980
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

Mr. Vincent Luciani
Facilitites Section
P.A. Department of Environmental Resources
1875 New Hope Street
Norristown, Penna. 19401

RE: Application No. 4679469
Towamencin Township
Montgomery County

"MEADOW VIEW" SUBIDIVISION

CTS/pl

Dear Vince:

For your file, I am enclosing, with this letter, two (2) copies of correspondence from the office of Daniel Lenyo indicating that a permit for storm water outfall headwalls associated with the above-captioned site is not required.

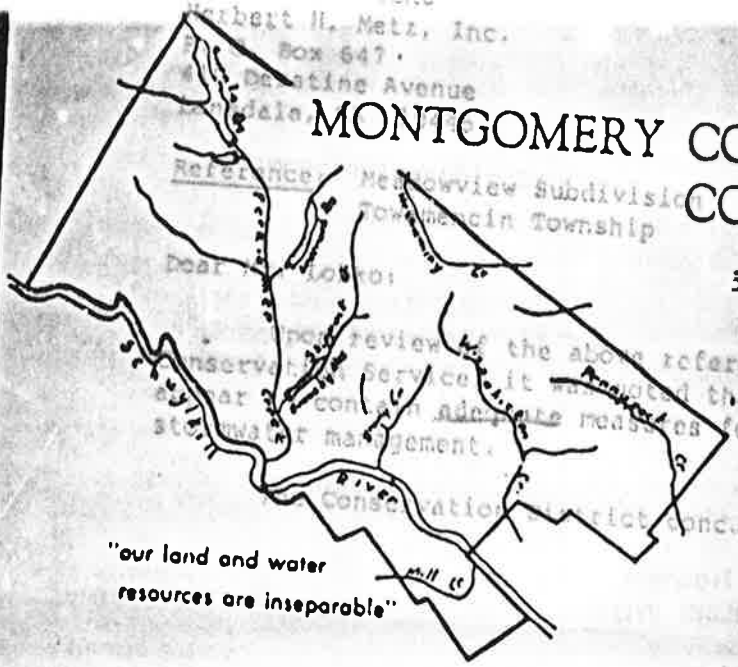
Sincerely,

HERBERT H. METZ, INC.

Clifford T. Stout, P.E.

CTS/pl

Enclosure



MONTGOMERY COUNTY CONSERVATION DISTRICT

5th Floor, Court House, Norristown, Pa. 19404
Phone: 275-5000 (Ext. 257)

"our land and water resources are inseparable"

January 16, 1980

Richard B. Lobko
Herbert H. Metz, Inc.
P. O. Box 647
410 Derstine Avenue
Lansdale, PA 19446

Reference: Meadowview Subdivision
Towamencin Township

Dear Mr. Lobko:

Upon review of the above referenced subdivision by the U. S. Soil Conservation Service, it was noted that the Plans, as revised January 8th, appear to contain adequate measures for erosion and sediment control and stormwater management.

The Conservation District concurs with the findings of the SCS.

Sincerely,

Maynard A. King
Executive Director

MAK:mbb

cc: Towamencin Township Engineer

• HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

January 18, 1980

RECEIVED
JAN 21 1980
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

Mr. Vincent Luciani
Facilities Section
P.A. Department of Environmental Resources
1875 New Hope Street
Norristown, Penna. 19401

RE: Application No. 4679469
Towamencin Township
Montgomery County
"MEADOW VIEW" SUBDIVISION

Dear Vince:

For your file, I am enclosing, with this letter, two (2) copies of the letter of approval we received from Maynard A. King regarding the above mentioned project.

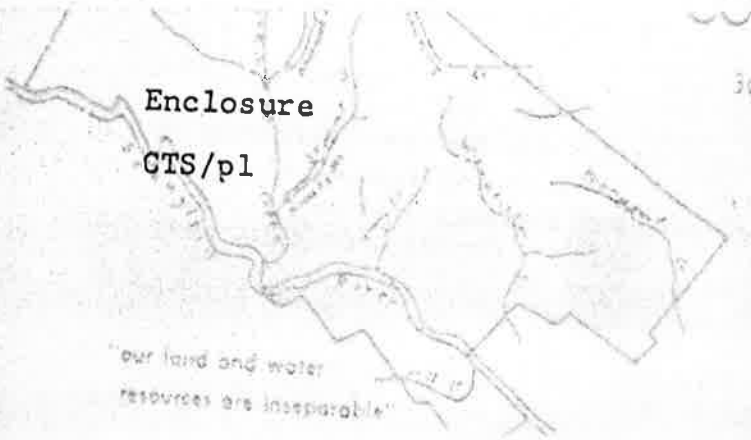
Sincerely,

HERBERT H. METZ, INC.

Clifford T. Stout, P.E.

Enclosure

CTS/pl



HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P.O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

215-822-3111
855-1466

RECEIVED
DEC 5 1979
WATER QUALITY
NORRISTOWN PA

"MEADOW VIEW" SUBDIVISION

HUNTER CONSTRUCTION COMPANY

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Sanitary Sewer Design Analysis

Erosion and Sediment Control Narrative

Stormwater Management Report

RECEIVED
DEPT. OF ENVIRONMENTAL RESOURCES
BUREAU OF
WATER QUALITY MANAGEMENT
APPLICATION NO.
4679467 12-3-79
REPORTS
NO. OF VOLUMES 1 OF 2

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P.O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

November 29, 1979

Mr. Ed. Brzostek, District Conservationist
U.S. Department of Agriculture
Soils Conservation Service
1725 Markley Street
Norristown, Pennsylvania 19401

RE: HUNTER CONSTRUCTION COMPANY
"MEADOW VIEW" Subdivision
Troxell Road at Snyder Road
Towamencin Township, Montgomery County

Dear Mr. Brzostek:

Enclosed please find duplicate sets of design plans and supporting documents with regard to the above - captioned subdivision for your review and approval. Application is simultaneously being made to P.A.D.E.R. for a Water Quality Management Permit (see enclosed correspondence).

Items submitted (in duplicate) are as follows:

1. Subdivision Plan package including:
   a. Cover Sheet
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4. Stormwater Management Report including collection/conveyance system analysis and photographic exhibits.

We respectfully request review of this package as speedily as possible. If any questions arise please feel free to call me.

Sincerely,

HERBERT H. METZ, INC.

Clifford T. Stout

CTS/amt

Clifford T. Stout, P.E.

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P.O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

November 30, 1979

Mr. Daniel Lenyo,
Division of Dams and Waterways
Management
Pennsylvania Department of Environmental
Resources
Fulton Building
Harrisburg, Pennsylvania

Re: Encroachment Permit Application
HUNTER CONSTRUCTION COMPANY
"MEADOWVIEW" SUBDIVISION
Troxell Road at Snyder Road
Towamencin Township, Montgomery County

Dear Mr. Lenyo:

Enclosed please find a completed application for issuance of an Encroachment Permit along with duplicate sets of design plans and supporting documents with regard to the above-captioned subdivision.

Items submitted (in duplicate) are as follows:

1. Subdivision Plan package including:
   a. Cover Sheet
   b. Title Plan
   c. Comprehensive On-site improvements
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Consultation and review by the Montgomery County Soil Conservation Service for erosion and sediment control and Pennsylvania Department of Environmental Resources for Water Quality Management is being solicited simultaneously with this application.

Herbert H. Metz, Inc.

Clifford T. Stout, P.E.

Soils Conservation District
Pennsylvania Department of Environmental Resources

4879469

CTS/nes

Mr. Daniel Lenyo
November 30, 1979
Page Number Two (2)

We respectfully request that this application-for-permits be processed as expeditiously as possible. If you or your agency have any questions or comments regarding this project, please do not hesitate to contact me by telephone.

Sincerely,

HERBERT H. METZ, INC.

Clifford T. Stout

Clifford T. Stout, P.E.

cc: Soils Conservation District
Pennsylvania Department of Environmental Resources

CTS/nes

Herbert H. Metz, Inc.
LANSDALE, PENNSYLVANIA
19446

November 30, 1979

Mr. Daniel Lenyo
Division of Dams and Waterways
Management
Pennsylvania Department of Environmental
Resources
Fulton Building
Harrisburg, Pennsylvania

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY I. WERT

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P.O. BOX 447
Phone: 634-2111

ER-SWQ-168.1(REV. 3/78)

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED 11-30-79
DATE REVISED
(3 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND DELAWARE RIVER BASIN)

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

APPLICANT UPPER GWYNEDD - TOWAMENCIN MUNICIPAL (SEWER) AUTHORITY

LOCATION OF PROJECT: MUNICIPALITY TOWAMENCIN TWP. COUNTY MONTGOMERY

DESIGN ENGINEER AND FIRM CLIFFORD T. STOUT, P.E. HERBERT H. METZ, INC.

DESIGN ENGINEERS ADDRESS 410 DELSTINE AVE. LANSDALE, PA. ZIP CODE 19446 TELEPHONE 215-855-3111

DESCRIPTION OF PROJECT SAN. SEWER EXTENSION TO SERVE PLANNED 38-LOT SINGLE-FAMILY DWELLING SUBDIVISION ("MEADOW VIEW" - Hunter Constr. Co.) AT THE INTERSECTION OF TROXELL ROAD (L.R. 46047) AND SNYDER ROAD.

A. DOCUMENTATION REQUIRED

1. HAS A CHECK FOR $25.00, PAYABLE TO THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES, BEEN INCLUDED? (NOT REQUIRED OF STATE OR FEDERAL AGENCIES) ☐ Yes ☒ No ☐ N/A

2. HAVE 2 COPIES OF THE APPLICATION, FORM H710.046, BEEN SUBMITTED? (3 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND DELAWARE RIVER BASIN). ☒ Yes ☐ No

A. HAS THE AFFIDAVIT BEEN PROPERLY COMPLETED AND EXECUTED? ☒ Yes ☐ No

3. DOES THE APPLICATION INCLUDE THE FOLLOWING APPLICABLE MODULES:

MODULE NUMBER	TITLE	NUMBER OF PAGES	
1	GENERAL INFORMATION – SEWERAGE	9	☒ Yes
4	WASTE LOAD AND CHARACTERISTICS	3	☐ Yes
5	GEOLOGY AND GROUND WATER INFORMATION	2	☐ Yes
6	SEWERS AND APPURTENANCES	5	☒ Yes
7	SEWAGE PUMPING STATIONS	4	☐ Yes
8	PUMPING FACILITIES	1	☐ Yes
9	FLOW EQUALIZATION AND STORAGE BASINS	2	☐ Yes
10	GRIT CHAMBERS	1	☐ Yes
11	SCREENING AND COMMINUTING DEVICES	2	☐ Yes
12	IMHOFF AND SEPTIC TANKS	2	☐ Yes
13	SETTLING TANKS	2	☐ Yes
14	EARTHEN SETTLING BASINS	2	☐ Yes

RR-BWQ-188.1(REV. 9/78

DATE PREPARED 11.30.79

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1 -- GENERAL INFORMATION
SEWERAGE

For Department Use Only

A. DOCUMENTATION REQUIRED – CONTINUED

MODULE NUMBER	TITLE	NUMBER OF PAGES	
15	TRICKLING FILTERS	2	☐ Yes
16	AERATION TANKS OR BASINS	3	☐ Yes
17	WASTE STABILIZATION PONDS	3	☐ Yes
18	CHEMICAL TREATMENT (INCLUDING FEEDERS)	3	☐ Yes
19	MIXING AND FLOCCULATION FACILITIES	1	☐ Yes
20	SAND FILTERS	2	☐ Yes
21	DISINFECTION	2	☐ Yes
22	SPRAY IRRIGATION	1	☐ Yes
23	PHYSICAL ABSORPTION, ION EXCHANGE, AND CONTACT UNITS	2	☐ Yes
25	DEEP WELL DISPOSAL	4	☐ Yes
26	SLUDGE TREATMENT AND DISPOSAL		
	A. SEPARATE DIGESTION TANKS AND SLUDGE THICKENING TANKS	2	☐ Yes
	B. ELUTRIATION	1	☐ Yes
	C. WET OXIDATION	1	☐ Yes
	D. SLUDGE DRYING BEDS	1	☐ Yes
	E. LAND DISPOSAL OF SLUDGE	1	☐ Yes
	F. SLUDGE BASINS	1	☐ Yes
	G. FILTERS AND CENTRIFUGES	1	☐ Yes
	H. INCINERATION	1	☐ Yes

B. REQUIRED DATA

1. THE FRONT COVER OR FLYLEAF OF EACH SET OF DRAWINGS AND SPECIFICATIONS MUST BEAR THE SIGNATURE AND SEAL OF THE REGISTERED PROFESSIONAL ENGINEER, SURVEYOR BY OR UNDER WHOM PREPARED. EACH DRAWING MUST BEAR AN IMPRINT OR REASONABLE FACSIMILE OF SUCH SEAL.

THIS SHEET NOT APPLICABLE

ER-SWG-168.1(REV. 3/78)

DATE PREPARED 11.30.79
DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

NUMBER 079409
For Department Use Only

B. REQUIRED DATA – CONTINUED

2. INFORMATION RELATIVE TO SPECIFIC PROGRAMS:

A. 2 COPIES OF DESIGNER'S PLANS, MODULES, AND SPECIFICATIONS (3 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND DELAWARE RIVER BASIN) — ☐ Yes ☐ No ☒ N/A

B. HYDRAULIC PROFILE OR SCHEMATIC FLOW DIAGRAM FOR PROPOSED TREATMENT PLANT. — ☐ Yes ☐ No ☒ N/A

C. UNITED STATES GEOLOGICAL SURVEY TOPOGRAPHICAL MAP SHOWING EXACT POINT OF DISCHARGE AND TREATMENT PLANT OR PUMP STATION LOCATION AND/OR AREA TO SEWERS. — ☐ Yes ☐ No ☒ N/A

D. HAVE YOU APPLIED FOR A PUBLIC UTILITY COMMISSION CERTIFICATE OF PUBLIC CONVENIENCE? — ☐ Yes ☐ No ☒ N/A

(1) SPECIFY PUBLIC UTILITY COMMISSION APPLICATION NUMBER _____

(2) IS CERTIFICATE OF PUBLIC CONVENIENCE ENCLOSED? — ☒ Yes ☐ No

E. HAVE YOU APPLIED FOR APPROVAL OF STREAM ENCROACHMENT(S)? TWO OUTFALLS — ☒ Yes ☐ No ☐ N/A

F. HAVE YOU APPLIED FOR DEPARTMENT OF LABOR AND INDUSTRY APPROVAL FOR FEATURES AFFECTING EMPLOYEE SAFETY? — ☐ Yes ☐ No ☒ N/A

G. DO YOU HAVE AN AGREEMENT INDICATING APPROVAL TO DISCHARGE TO SEWER SYSTEM AND TREATMENT PLANT OF ANOTHER PERMITTEE? — ☐ Yes ☐ No ☒ N/A

H. HAVE YOU APPLIED FOR APPROVAL OF AIR POLUTION CONTROL FACILITIES? — ☐ Yes ☐ No ☒ N/A

I. HAVE YOU SUBMITTED A LIST WITH NAMES, ADDRESSES, AND TITLES OF ALL PARTNERS IN THE CASE OF A PARTNERSHIP OR ALL OFFICERS IN THE CASE OF A CORPORATION, UNINCORPORATED ASSOCIATION, INCORPORATED ASSOCIATION, PARTNERSHIP, OR OTHER ENTITY (NOT MUNICIPAL)? — ☐ Yes ☐ No ☒ N/A

3. SPECIFY THE FOLLOWING:

	TITLE/DESCRIPTION	NO. OF SHEETS	DATE
A. PLANS:	SUBDIVISION - TITLE	1	JUNE 4, 1979
PLANS:	Constr. Impr. Plans	7	"
PLANS:	Plan / Profiles	11	"

ER-SWG-188.1(REV. 3/78

DATE PREPARED: 11.30.79
DATE REVISED:

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

B. REQUIRED DATA – CONTINUED

B. SPECIFICATIONS (IF APPLICABLE): Upper Gwynedd - Towamencin Mun. Auth.
Ref. Specs. as filed with P.A.D.E.R.
TITLE

NUMBER OF VOLUMES _____ DATE _____

C. OTHER (SPECIFY TYPE AND NUMBER):

4. ARE THE PLANS:

A. CLEAR, LEGIBLE, AND DRAWN TO SCALE WITH NORTH ARROW INDICATED? [X] Yes [ ] No

B. WITHIN MAXIMUM SIZE OF 36 INCHES BY 60 INCHES? [X] Yes [ ] No

C. SEAL AND SIGNATURE OF PROFESSIONAL ENGINEER OR SURVEYOR RESPONSIBLE FOR THIS APPLICATION

1. SIGNATURE OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW) Clifford T. Stout P.E. 26386-E

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL CLIFFORD T. STOUT ENGINEER No. 26386-E

2. SEAL OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW)

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL CLIFFORD T. STOUT ENGINEER No. 26386-E

EB-BWQ-188.1-REV. 3/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: 11-30-79
DATE REVISED:

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

CLASS OF CONSTRUCTION (Check all applicable blocks)

- ☐ NEW
- ☐ REPLACEMENT OF EXISTING UNIT(S)
- ☐ ADDITIONS AND/OR
- ☐ MODIFICATIONS TO EXISTING UNIT(S)

TABLE I – DESIGN LOADING DATA

		Existing Facilities Design	Present Operating Load	Proposed Total Facilities Design
1. EQUIVALENT POPULATION TO BE SERVED (NO. OF PERSONS – SUBMIT CALCULATIONS)				
	A. DOMESTIC			
	B. INDUSTRIAL			
	C. TOTAL			
2. DESIGN YEAR OR PERIOD FOR OPERATING DATA				
3. RUNOFF PERIOD	(HRS)			
4. DOMESTIC WASTE FLOW DATA	A. PER CAPITA FLOW (GPCD)			
	B. AVERAGE DAILY FLOW (MGD)			
	C. INFILTRATION (MGD)			
	D. RUNOFF FLOW RATE (MGD)			
	E. MAXIMUM FLOW RATE (MGD)			
5. INDUSTRIAL WASTE FLOW DATA	A. AVERAGE DAILY FLOW (MGD)			
	B. MAXIMUM DAILY FLOW (MGD)			
6. TOTAL DESIGN AVERAGE FLOW (MGD)				

TABLE II – FACILITIES DESIGN DATA (Specify number of units)

Units	Existing	To Be Abandoned	Total Proposed	Units	Existing	To Be Abandoned	Total Proposed
1. SCREENING DEVICES				13. CHLORINE CONTACT TANK(S)			
2. GRIT CHAMBER(S)				14. DISINFECTION FACILITIES			
3. COMMINUTOR(S)				15. SEPARATE SLUDGE DIGESTORS			
4. PRE-AERATION TANKS				16. SLUDGE DRYING BEDS			
5. PRIMARY SETTLING TANKS				17. MECHANICAL SLUDGE DEWATERING			
6. IMHOFF TANK(S)				18. SLUDGE ELUTRIATION TANKS			
7. TRICKLING FILTERS				19. SLUDGE STABILIZATION TANKS			
8. INTERMEDIATE SETTLING TANKS				20. INCINERATOR(S)			
9. AERATION TANKS				21. MIXING AND FLOCCULATION TANKS			
10. FINAL SETTLING TANKS				22. OTHER (Specify)			
11. INTERMITTENT SAND FILTERS				23. OTHER (Specify)			
12. WASTE STABILIZATION POND(S)				24. OTHER (Specify)			

THIS SHEET NOT APPLICABLE

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COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: 11-30-79
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WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

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D. GENERAL INFORMATION

1. EXISTING COMBINED SEWERS MAKE UP 0 % OF THE TOTAL AREA SERVED BY THE SYSTEM.

2. ARE THE EXISTING SANITARY SEWERS SUBJECT TO EXCESSIVE INFILTRATION? ☐ Yes ☒ No ☐ N/A

A. IF YES, SPECIFY MAJOR SOURCES OF INFILTRATION:

B. HAS A REGULATION PROHIBITING THE ADMITTANCE OF STORM WATER FROM PAVEMENTS, ROOFS, AND OTHER SOURCES BEEN ADOPTED? ☒ Yes ☐ No
(IF YES, ENCLOSE COPY.) Refer to U.G.T.M.A. Rates, Rules and Regulations, Constr. Specs. and Nat'l Plumbing Code

C. SPECIFY STEPS TAKEN OR BEING TAKEN TO CORRECT THE INFILTRATION PROBLEM, INCLUDING DATES: ☐ N/A

3. TYPES OF INDUSTRIAL WASTES OF SPECIAL CONSIDERATION:

4. WILL THE APPLICANT BE RESPONSIBLE FOR REPAIR AND MAINTENANCE OF SEWAGE FACILITIES FOR WHICH APPLICATION IS SUBMITTED? ☒ Yes * ☐ No

A. IF NO, EXPLAIN: * Upon completion, testing, and acceptance into Auth. system

5. THE DISTANCE OF THIS PLANT TO THE NEAREST OCCUPIED DWELLING: N/A

A. PRESENT _____ FEET

B. PROPOSED _____ FEET

6. IF THE APPLICANT IS OTHER THAN A MUNICIPALITY OR MUNICIPAL AUTHORITY, HAS THE GOVERNING MUNICIPALITY OBJECTED TO THE PROPOSED SEWAGE TREATMENT PLANT? ☐ Yes ☐ No ☒ N/A

SW-166.1(REV. 3/78)

DATE PREPARED: 11·30·79

DATE REVISED:

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

D. GENERAL INFORMATION – CONTINUED

A. IS THE LETTER FROM MUNICIPAL OFFICER, SIGNIFYING THE OPINION, APPENDED TO THIS APPLICATION? ☐ Yes ☐ No

7. ARE DUPLICATE TREATMENT UNITS PROVIDED WHERE REQUIRED? ☐ Yes ☐ No ☐ N/A

A. IF NO, EXPLAIN: _____

B. DO ANY BY-PASS STRUCTURES DISCHARGE TO WATERS OF THE COMMONWEALTH? (SPECIFY PLAN SHEET NUMBER(S) SHOWING BY-PASS STRUCTURES) ☐ Yes ☐ No

8. HAS AN AUXILIARY STANDBY POWER SOURCE BEEN PROVIDED? ☐ Yes ☐ No ☐ N/A

9. DOES ANY PIPING OR CONNECTION EXIST IN ANY PART OF THE TREATMENT WORKS WHICH MAY CAUSE CONTAMINATION OF THE POTABLE WATER SUPPLY? ☐ Yes ☐ No

10. IF A NON-POTABLE WATER SUPPLY IS PROVIDED, ARE ALL OUTLETS PERMANENTLY POSTED TO INDICATE WATER IS NOT SAFE FOR DRINKING? ☐ Yes ☐ No ☐ N/A

11. ARE FACILITIES PROVIDED FOR MEASURING THE SEWAGE FLOW? ☐ Yes ☐ No

12. SAFETY:

A. ARE FACILITIES PROVIDED TO EFFECTIVELY PROTECT THE OPERATOR AND VISITORS? ☐ Yes ☐ No

13. OUTFALL SEWER:

A. IS THE OUTFALL SEWER ADEQUATELY PROTECTED TO ENSURE ITS STRUCTURAL STABILITY AND FREEDOM FROM STOPPAGE? ☐ Yes ☐ No

B. IS AN OUTFALL HEAD WALL PROVIDED? ☐ Yes ☐ No ☐ N/A

C. DOES THE OUTFALL EXTEND TO THE LOW WATER MARK OF THE RECEIVING STREAM? ☐ Yes ☐ No ☐ N/A

14. HAVE PROVISIONS BEEN MADE TO PROTECT ALL STRUCTURES AGAINST FLOTATION? ☐ Yes ☐ No

15. IF THE PROJECT INVOLVES ADDITIONS TO AN EXISTING TREATMENT PLANT, DO THE SPECIFICATIONS INCLUDE A PROGRAM TO PREVENT BY-PASSING OF ANY UNIT TO WATERS OF THE COMMONWEALTH DURING CONSTRUCTION? ☐ Yes ☐ No ☐ N/A

A. SPECIFY VOLUME AND PAGE NUMBER OF SPECIFICATIONS: _____

16. SPECIFY NAMES OF MUNICIPALITIES AND POPULATION SERVED OR TO BE SERVED BY THIS PLANT: _____

THIS SHEET NOT APPLICABLE

ER-BWQ-188.1 (REV. 3/78)

DATE PREPARED: 11-30-79
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COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
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WATER POLLUTION CONTROL
MODULE 1 -- GENERAL INFORMATION
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E. RECEIVING STREAM*

1. WHAT IS THE NAME OF THE RECEIVING STREAM? _____

A. TRIBUTARY OF _____

B. TRIBUTARY OF _____

C. MAJOR DRAINAGE BASIN:

☐ DELAWARE
☐ SUSQUEHANNA
☐ POTOMAC
☐ LAKE ERIE
☐ GENESEE
☐ ALLEGHENY
☐ MONONGAHELA
☐ OHIO

_____ YEARS OF RECORD

2. DESCRIBE THE EXACT POINT OF DISCHARGE:

_____ DEG, _____ MIN, _____ SEC LATITUDE

_____ DEG, _____ MIN, _____ SEC LONGITUDE

A. WATERSHED AREA ABOVE POINT OF DISCHARGE IS

_____ SQUARE MILES.

3. WHAT IS THE:

A. MINIMUM 7-CONSECUTIVE-DAYS FLOW OCCURRING ONCE IN 10 YEARS?

_____ CUBIC FEET PER SECOND.

B. MINIMUM STREAM FLOW: _____

C. ABOVE FLOWS ARE BASED ON:

☐ MEASUREMENTS
☐ ESTIMATES

_____ YEARS OF RECORD

4. IS THE TREATMENT PLANT SUBJECT TO FLOODING? ☐ Yes ☐ No

5. THE PROBABILITY OF THE TREATMENT PLANT BEING OUT OF SERVICE DUE TO FLOODING IS ONCE IN _____ YEARS.

A. LIST BRIEFLY THE METHODS USED FOR FLOOD PROTECTION: _____

* Attach U.S. Geological Survey 7.5' or 15' Quadrangle Map showing exact points of discharge.

THIS SHEET NOT APPLICABLE

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DATE PREPARED
11-30-79

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
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E. RECEIVING STREAM – CONTINUED

6. TO THE BEST OF YOUR KNOWLEDGE, WILL THE TREATED WASTE DISCHARGE ADVERSELY AFFECT:

A. DOMESTIC WATER SUPPLY? ☐ Yes ☐ No

B. BATHING? ☐ Yes ☐ No

C. STOCK WATERING? ☐ Yes ☐ No

D. FISH AND AQUATIC LIFE? ☐ Yes ☐ No

E. INDUSTRIAL WATER SUPPLY? ☐ Yes ☐ No

F. IRRIGATION? ☐ Yes ☐ No

G. BOATING AND AESTHETICS? ☐ Yes ☐ No

7. IF ANY ITEMS IN 6 ABOVE ARE ANSWERED YES, INDICATE DISTANCE TO, LOCATION OF, AND EXTENT OF ADVERSE EFFECT:

THIS SHEET NOT APPLICABLE

E. RECEIVING STREAM

1. WHAT IS THE NAME OF THE RECEIVING STREAM?

A. TRIBUTARY OF

B. TRIBUTARY OF

C. MAJOR DRAINAGE BASIN: ☐ DELAWARE ☐ SUSQUEHANNA ☐ POTOMAC ☐ LAKE ERIE ☐ GENESEE ☐ ALLEGHENY ☐ MONONGAHELA ☐ OHIO

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COMMONWEALTH OF PENNSYLVANIA
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WATER POLLUTION CONTROL
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THIS SHEET NOT APPLICABLE

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COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: 11-30-79
DATE REVISED:

WATER POLLUTION CONTROL

For Department Use Only

MODULE 6 – SEWERS AND APPURTENANCES

CLASS OF CONSTRUCTION (Check All Applicable Blocks)

- [ ] NEW SYSTEM
- [ ] REPLACEMENT OF EXISTING SYSTEM
- [X] EXTENSION(S) TO EXISTING SYSTEM

TABLE I – DESIGN FLOW AND LOADING INFORMATION

1. POPULATION TO BE SERVED: 41 E.D.U.	INITIAL: 143.5	DESIGN: 143.5	DESIGN YEAR: 1980
2. AREA TO BE SERVED: Residential	ACRES (INITIAL): 22.2 ± AC		
TYPE OF AREA (Residential, Commercial, Etc.):	ACRES (FUTURE): 22.2 ± AC		

3.

A. LATERALS AND SUB-MAIN SEWERS (GPCD)		400
B. MAIN AND TRUNK SEWERS (GPCD)		N/A
C. INTERCEPTORS (GPCD)		N/A
(1) MEASURED DRY-WEATHER FLOW (%)		N/A
(2) ESTIMATED DRY-WEATHER FLOW (%)		N/A

D. IF ANY VALUES LESS THAN PRESCRIBED IN MANUAL, EXPLAIN:

4.

DESIGN FLOW DATA	GPCD	MGD
A. AVERAGE DAILY FLOW	100	0.01435
B. INFILTRATION		incl. in "A"
C. MAXIMUM INDUSTRIAL WASTE FLOW		N/A
D. TOTAL DESIGN FLOW		0.01435
E. MAXIMUM FLOW RATE		0.0574

TABLE II – GENERAL DESIGN

PIPE DIAMETER (IN.)	MINIMUM SLOPE (%)	MAXIMUM SLOPE (%)	MAXIMUM VELOCITY (FPS)	MAXIMUM FLOW (MGD)	MAXIMUM DISTANCE BETWEEN MANHOLES (Ft.) SEWERS 15 IN. OR LESS	MAXIMUM DISTANCE BETWEEN MANHOLES (Ft.) SEWERS 18 IN. TO 30 IN.	TYPE OF SEWER MATERIAL	"N" VALUE
8"	0.0050	0.0388	6.8	1.56	380	N/A	A.C.P.	0.013

(USE ADDITIONAL SHEETS IF NECESSARY)

TABLE III – CRITICAL DATA

PLAN SHEET NUMBER	MANHOLE NUMBER FROM	MANHOLE NUMBER TO	SEWER PIPE SIZE (IN.)	SEWER SLOPE (%)	POPULATION SERVED	TOTAL DESIGN FLOW (MGD)	SEWER FLOWING FULL VEL. (FPS)	SEWER FLOWING FULL CAP. (MGD)	MAXIMUM FLOW VELOCITY (FPS)
				NO CRITICAL SECTIONS					

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DATE PREPARED 11-30-79
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DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
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COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
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WATER POLLUTION CONTROL

MODULE 6 – SEWERS AND APPURTENANCES

For Department Use Only

A. GENERAL DESIGN

1. ARE THE PROPOSED SEWERS DESIGNED AS SEPARATE SANITARY SEWERS? [X] Yes [ ] No

   A. IF NO, EXPLAIN IN DETAIL, INCLUDING THE POSSIBLE EFFECTS UPON WATER COURSES.

2. ARE THE PROPOSED SEWERS DEEP ENOUGH TO SERVE ALL ADJACENT BASEMENTS? [X] Yes [ ] No

   A. IF NO, EXPLAIN. Basements are optional

3. ARE THERE ANY OVERFLOWS OR BYPASSES OTHER THAN FROM PUMP STATIONS? [ ] Yes [X] No

   A. IF YES, SPECIFY PLAN SHEET(S) WHERE SHOWN.

4. WHERE SMALLER SEWERS JOIN LARGER ONES, HAVE THE INVERTS OF THE LARGER SEWERS BEEN LOWERED SUFFICIENTLY TO MAINTAIN THE SAME ENERGY GRADIENT? [ ] Yes [ ] No [X] N/A

5. SPECIFY THE TYPE OF LEAKAGE TEST (INFILTRATION AND/OR EXFILTRATION) AND THE LIMIT TO BE USED, PREFERABLY IN TERMS OF GALLONS PER INCH OF PIPE DIAMETER PER MILES PER DAY. (INDICATE VOLUME AND PAGE NUMBER OF SPECIFICATIONS.)

   TYPE AND LIMITS: Infiltration / Exfiltration — not to exceed 200 gal per inch of pipe diameter per mile per day (U.G.T.M.A. Spec.)

6. HAVE PROVISIONS BEEN MADE TO PROTECT SEWERS AT VELOCITIES OF OVER 15 FEET PER SECOND? [ ] Yes [ ] No [X] N/A

   A. ARE SEWERS SECURED WITH CONCRETE ANCHORS (OR EQUAL) SPACED AS REQUIRED? [ ] Yes [ ] No [X] N/A

7. ARE MANHOLES PROVIDED AT ALL CHANGES IN SIZE, GRADE, ALIGNMENT, AND SEWER INTERSECTIONS? [X] Yes [ ] No

8. ARE DROP MANHOLES PROVIDED WHERE THE ENTRANCE SEWER INVERT IS 24 INCHES OR MORE ABOVE MANHOLE INVERT? [ ] Yes [ ] No N/A

9. ARE WATERTIGHT COVERS USED WHERE MANHOLES ARE SUBJECT TO FLOODING BY STREET RUNOFF OF HIGH WATER? [ ] Yes [ ] No N/A

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COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

MODULE 6 – SEWERS AND APPURTENANCES

For Department Use Only

A. GENERAL INFORMATION – CONTINUED

10. ARE SEWERS IN STREAMS PROTECTED WITH AT LEAST 1 FOOT COVER IN ROCK AND 3 FEET COVER IN OTHER MATERIAL? ☐ Yes ☐ No ☒ N/A

11. ARE SEWERS IN STREAMS CONSTRUCTED TO REMAIN WATERTIGHT AND IN ALIGNMENT? ☐ Yes ☐ No ☒ N/A

12. DOES THE APPLICATION INVOLVE CAPPED SEWERS? ☐ Yes ☒ No

A. IF YES, SPECIFY PLAN SHEET NUMBER. _____

13. HOW MANY INVERTED SIPHONS ARE INCLUDED IN THIS DESIGN? None

14. IF SIPHONS ARE INCLUDED, SPECIFY THE FOLLOWING: N/A

	SIPHON:	SIPHON:	SIPHON:
A. NUMBER OF BARRELS			
B. MINIMUM PIPE SIZE			
C. MINIMUM VELOCITY AT AVERAGE FLOW			

D. HAS PROVISION BEEN MADE FOR FLUSHING, RODDING, AND MAINTENANCE? ☐ Yes ☐ No

15. IS THERE ANY CONNECTION BETWEEN THE SEWER AND A PUBLIC OR PRIVATE POTABLE WATER SUPPLY OR APPURTENANCES? ☐ Yes ☒ No

16. ARE ANY WATER SUPPLY SOURCES, PUBLIC OR PRIVATE, LOCATED WITHIN 200 FEET OF THE SEWERS? ☐ Yes ☒ No

A. IF YES, SPECIFY PLAN SHEET(S) ON WHICH SOURCES ARE SHOWN. _____

B. IF YES, WILL SEWERS BE ENCASED OR WATERTIGHT? ☐ Yes ☐ No

17. ARE SEWERS AT LEAST 10 FEET HORIZONTALLY FROM WATER LINES AND/OR AT LEAST 18 INCHES BELOW THE WATER LINE? ☒ Yes ☐ No

18. IF THE PROPOSED FACILITY WILL DISCHARGE TO THE SEWER SYSTEM AND TREATMENT PLANT OF ANOTHER MUNICIPALITY, HAVE APPROPRIATE AGREEMENTS BEEN REACHED? ☐ Yes ☐ No ☒ N/A

A. IS THE AGREEMENT A CERTIFIED AGREEMENT? ☐ Yes ☐ No ☐ N/A

B. IS THE AGREEMENT A LETTER OF INTENT? ☐ Yes ☐ No ☐ N/A

C. HAVE DUPLICATE COPIES BEEN ENCLOSED? ☐ Yes ☐ No

19. DO THE EXISTING SEWERS TO WHICH THE PROPOSED SEWERS WILL CONNECT HAVE ADEQUATE CAPACITY TO CONVEY THE ADDITIONAL FLOW? ☒ Yes ☐ No ☐ N/A

SWQ-188.6 REV. 3/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

DATE PREPARED: 11.30.79
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ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

MODULE 6 – SEWERS AND APPURTENANCES

A. GENERAL INFORMATION – CONTINUED

20. ON THE PLANS, INDICATE THE PERMIT NUMBER OF EXISTING SEWER AT EACH PROPOSED POINT OF CONNECTION AND THE NAME OF THE PERMITEE; SPECIFY PLAN SHEET NUMBER(S) ON WHICH INDICATED: 765513, 467241 - U.G.T.M.A. SEE PLAN SHEET NO. 2 OF 19, NO. 8 OF 19; 4679414 - PLAN SHEET 11 of 19 ☐ N/A

21. WILL THERE BE A PUMP STATION INVOLVED IN RECEIVING SEWAGE FROM THE SEWER EXTENSION? ☐ Yes ☒ No ☐ N/A

A. IF YES, SPECIFY PRESENT AND DESIGN FLOWS OF PUMPING STATION. _____

22. RECEIVING SEWAGE TREATMENT PLANT (FILL IN FOR EXTENSION(S) TO EXISTING SYSTEM ONLY)

A. OWNER OF PLANT Upper Gwynedd-Towamencin Municipal Authority (UGTMA)

B. NAME OF PLANT UGTMA Wastewater Treatment Plant

C. DISCHARGE DATA

	WASTE FLOW (MGD)	SOLIDS SUSPENDED (#/DAY)	SOLIDS SETTLEABLE (ML/L)	BOD 5 DAY 20°C (#/DAY)
(1) ALLOWABLE LOAD TO STREAM AUTHORIZED UNDER PRESENT PERMIT	1.5 / 2.5 (1)	375	None stated	90 / 3
(2) PRESENT LOAD TO STREAM FROM TREATMENT PLANT	1.637 (2)	341 (3)	0.4	341
(3) ADDITIONAL LOAD TO STREAM EXPECTED DURING THE NEXT FIVE YEARS FROM EXISTING SYSTEM	0.5217 (4)	107	Negl.	107
(4) ADDITIONAL LOAD TO STREAM DURING THE NEXT FIVE YEARS FROM PROPOSED EXTENSION	0.01435	3	Negl.	3
(5) TOTAL ANTICIPATED LOAD TO STREAM IN NEXT FIVE YEARS (2+3+4)	2.1731	451	0.4	451

D. TREATMENT PLANT OPERATING EFFICIENCY

	SOLIDS SUSPENDED (%)	SOLIDS SETTLEABLE (%)	BOD 5 DAY 20° C (%)
(1) PRESENT TREATMENT PLANT	NO REPRESENTATIVE DATA - PLANT EXPANSION IN PROGRESS		
(2) AFTER INITIAL LOAD FROM PROPOSED EXTENSION	90	98	90
(3) IN FIVE YEARS	90	98	90

23. WILL THE LOAD UNDER 22.B.(5) ABOVE PRODUCE AN EFFLUENT THAT WILL HAVE AN ADVERSE EFFECT UPON THE RECEIVING STREAM? ☐ Yes ☒ No

Notes: (1), (2), (3) (4) refer to supplementary sheet 6.4a.

supplementary sheet 6-4A

Notes - Re: 6-4 22.C

(1) 1.5 MGD former capacity, plus 1.0 MGD current expansion capacity = 2.5 MGD.

(2) Avg. Daily Flow: Obtained by averaging most recent 12 daily recorded flows from May 1978 through April 1979, inclusive.

(3) Values based upon anticipated average 30 day consec. period effluent Susp. Solids and B.O.D. concentrations of 25 ppm each by Spring 1978 when plan expansion is completed to 2.5 MGD hydraulic capacity and optimum plant efficiency established. During recent and current plan construction expansion period, it should be noted, the normal design pattern, sequence, and retention time of sewage flow through treatment process units is disrupted or abnormal due to construction schedules and procedures, and optimum plant operating efficiency is not consistently achieved.

(4) Includes incremental contributions for projected flows of recently approved and pending projects in Towamencin Township service area:

DiLucia (Country Meadows) Subdivision Permit #4677404

Dougherty Brothers Subdivision Permit #4677415

Regent Manor Subdivision Permit #4677438

Hunter Construction Company "Hunter Meadows"Subdivision, Permit #4678437

"Ralph's Market"/U.G. Tow. Municipal Authority T-14 Line Ext., Permit #467844

Brookside Famrs Subdivision, Permit #46/8445

Kirkpatrick Subdivision, pending application.

"Rolling Meadows Estates" Subdivision, pending approval.

Stony Creek Village (Upper Gwynedd Township), pending approval.

Nash Section III, pending approval.

Merrill T. Denslow Subdivision, pending application.

"Meadow View" Subdivision, subject application, contributing increment

ER-BWQ-188.6 (REV. 3/78)

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED 11.30.79
DATE REVISED

WATER POLLUTION CONTROL

MODULE 6 – SEWERS AND APPURTENANCES

For Department Use Only

A. GENERAL INFORMATION – CONTINUED

A. IF YES, EXPLAIN _____

B. IF APPLICANT IS NOT OWNER OF THE RECEIVING SEWAGE TREATMENT PLANT, INDICATE SOURCE OF INFORMATION.

_____

_____

_____

TO BE COMPLETED BY THE REGIONAL SANITARY ENGINEER

1. WILL THE LOAD UNDER 22.B.(5) MEET THE PERMIT REQUIREMENTS? ☐ Yes ☐ No

   A. WILL THE LOAD UNDER 22.B.(5) CAUSE POLLUTION OF THE RECEIVING STREAM? ☐ Yes ☐ No

2. IS THERE ANY QUESTION AS TO WHETHER THE LOAD IS NOW CAUSING OR WILL CAUSE POLLUTION? ☐ Yes ☐ No

   A. IF YES, COMPLETE A POLLUTION REPORT.

3. IS THE TREATMENT PLANT IN COMPLIANCE? ☐ Yes ☐ No

6-5

(1) 1.5 MGD former capacity, plus 1.0 MGD current expansion capacity = 2.5 MGD.

(2) Avg. Daily Flow: Obtained by averaging most recent 12 daily recorded flows from May 1978 through April 1979, inclusive.

(3) Values based upon anticipated average 30 day consec. period effluent Susp. Solids and B.O.D. concentrations of 25 ppm each by Spring 1978 when plan expansion is completed to 2.5 MGD hydraulic capacity and optimum plant efficiency established. During recent and current plant construction expansion period, it should be noted, the normal design pattern, sequence, and retention time of sewage flow through treatment process units is disrupted or abnormal due to construction schedules and procedures, and optimum plant operation is not

Notes - Re: 6-4 22.C

EXCERPT from Rules and Regulations of
TOWAMENCIN TOWNSHIP PLUMBING CODE

STORM WATER DRAINS

1101. DRAINAGE OF YARDS, AREAS AND ROOFS - All roofs and paved areas, yards, courts and court yards may be drained into the stormwater sewer system but not into the sewers intended for sewage only.

Where there is no stormwater sewer accessible, such connections may discharge into the public gutter, unless otherwise directed by the proper authorities however, in no case shall water from said sources drain over the surface of sidewalks nor be allowed to damage any neighbor's property.

COMMONWEALTH OF PENNSYLVANIA
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WATER QUALITY MANAGEMENT

MODULE 6 – SEWERS AND APPURTENANCES

For Department Use Only

A. GENERAL INFORMATION – CONTINUED

4. IF YES, EXPLAIN

5. IF APPLICANT IS NOT OWNER OF THE RECEIVING SEWAGE TREATMENT PLANT, INDICATE SOURCE OF INFORMATION.

DATE PREPARED 11-30-79

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
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WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

46-79-69

750 E. Johnson Highway
Norristown, Pennsylvania 19401
215 631-2030

July 16, 1979

Ms. Beverly Thompson, Secretary
Towamencin Township
Box 99
655 Sumneytown Pike
Kulpsville, PA 19443

Re: Hunter Construction Subdivision
Code No. 1-46949-023-4
Towamencin Township

Dear Ms. Thompson:

Please be advised that a review has been made and completed of the above referenced Planning Module for Land Development.

This supplement to the Towamencin Township's Official Sewage Facilities Plan meets the requirements of Chapter 71, Section 71.17 of the Pennsylvania Department of Environmental Resources Rules and Regulations.

Approval is hereby granted; and in accordance with this Chapter, the Department holds Towamencin Township responsible for implementing this supplement as per the approved module.

This planning approval does not relieve the project sponsor of the responsibility to secure a Department permit for the construction and operation of the proposed facility.

If you have any questions, please feel free to contact this office.

Very truly yours,

Alvin Revell
Sanitarian
Montgomery County

CC: Sewage Facilities Consultant
File
WAMIS
Herbert H. Metz, Inc.
163

SANITARY SEWER DESIGN ANALYSIS

DOW VIEW SUBDIVISION — MUNICIPALITY TOWAMENCIN TOWNSHIP — COUNTY MONTGOMERY — SHEE

M.H. to M.H.	LENGTH (FEET)	INVERT/INVERT	FALL FEET)	SLOPE (FT PER FT.)	CONNECTIONS INCREM'T	CONNECTIONS TOTAL	POPULATION @ 3.5 per conn.	FULL FLOW MGD @ 400gpcd	PIPE 8"ϕ n = 0.013
R. 129.11 / 129.10	188	306.75 / 304.85	1.90	0.0101	3	3	10.5	0.0042	
129.10 / 129.9	189	304.75 / 300.85	3.90	0.0206	3	6	21.0	0.0084	
129.9 / 129.8	246	300.75 / 293.75	7.00	0.0285	4	10	35.0	0.0140	
129.81 / 129.8	151	294.50 / 293.75	0.75	0.0050	3	3	10.5	0.0042	
129.8 / 129.7	216	293.65 / 292.55	1.10	0.0051	0	13	45.5	0.0182	
129.71 / 129.7	196	293.55 / 292.55	1.00	0.0051	3	3	10.5	0.0042	
129.7 / 129.6	156	292.45 / 291.65	0.80	0.0051	2	18			
129.6 / 129.5	247	291.55 / 290.10	1.45	0.0059	2	20	63.0	0.0252	
129.5 / 129.4	307	290.00 / 278.10	11.90	0.0388	2	22	70.0	0.0280	
129.4 / EXIST. 129.3	254	278.00 / 275.00	3.00	0.0118	0	22	77.0	0.0308	
THROUGH PREVIOUSLY APPROVED 8"ϕ SAN. EXTENSION "ROLLING MEADOWS ESTATES"							77.0	0.0308	
122A13 / 122A12	176	304.00 / 302.10	1.90	0.0108	4	4	14.0	0.0056	
122A12 / 122A11	286	302.00 / 296.60	5.40	0.0189	4	8	28.0	0.0112	
122A11 / 122A10	165	296.50 / 295.60	0.90	0.0055	3	11	38.5	0.0154	
122A10.1 / 122A10	261	303.00 / 295.60	7.40	0.0284	6	6	21.0	0.0084	
122A10 / 122A9	246	295.50 / 291.10	4.40	0.0179	2	19			
122A9 / 122A8	233	291.00 / 286.10	4.90	0.0210	0	19	66.5	0.0266	
122A8 / 122A7	124	286.00 / 284.80	1.20	0.0090	0	19			
122A7 / 122A6	235	284.70 / 280.40	4.30	0.0183	0	19			
122A6 / 122A5	300	280.30 / 273.10	7.20	0.0189	0	19			
122A5 / 122A4	225	273.00 / 269.90	3.10	0.0138	0	19			
122A4 / EXIST. 122A3	330	269.80 / 257.28	12.52	0.0379	0	19	66.5	0.0266	
THROUGH EXISTING 8"ϕ SAN. EXTENSION									

TOTAL CONNECT. = 41

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855-1686

M-2903

DEPT. OF ENVIR. NMENT. RESOURCES
BUREAU OF
WATER QUALITY
4679469 12-3-79
NO. OF VOLUMES 2 OF 2

NARRATIVE REPORT
EROSION AND SEDIMENT CONTROL PLAN

Prepared for

"MEADOW VIEW" SUBDIVISION

a development to be constructed by

HUNTER CONSTRUCTION COMPANY

in

Towamencin Township

Montgomery County

Pennsylvania

DEPT. OF ENVIRONMENTAL RESOURCES
BUREAU OF
WATER QUALITY MANAGEMENT
APPLICATION NO.
4679469 12-3-79
REPORTS
NO. OF VOLUMES 2 OF 2

MAY 1979

1. GENERAL DESCRIPTION OF THE SITE LOCATION

The project site is a 25.3 (net area) Acre tract of land situated at the Easterly corner of the intersection of Troxell Road (Pa. L.R. 46047) and Synder Road (Township Road #378) in Towamencin Township, Montgomery County.

The site is bounded on the Southwest and Northwest by the aforementioned roads, by a small stretch of farmland to the Northeast and by single-family residences to the Southeast.

Soils composition on the site, as identified by the Montgomery County Soils survey, is made up of the following categories: Penn Silt Loam, Readington Silt Loam, and Reaville Shaly Silt Loam.

2. GENERAL DESCRIPTION OF STORMWATER COLLECTION AND CONTROL

The stormwater pipe and inlet collection system was designed using the rational method and following 10-year design storm frequency criteria. Inlets and storm sewers have been planned for placement at appropriate critical locations along tract streets for conveyance to (1) a tributary watercourse leading to the Lansdale Branch of the Towamencin Creek and (2) existing storm sewer facilities constructed under Troxell Road leading to the Kulpsville Branch of the Towamencin Creek.

Pipe outfalls at minimum slopes and outlet energy-dissipting devices are designed for release of stormwater runoff at reduced velocities.

If stormwater detention is required (to reduce "localized" increases in runoff) it will be provided by using oversized storm pipes in combination with street (cartway area) storage controlled by restricted orifice plates installed on downstream sides of appropriate inlets. Placing of permanent on-lot detention facilities will be avoided due to inherent maintenance problems as the Township does not wish to be responsible for them.

3. GENERAL DESCRIPTION OF ACCELERATED EROSION CONTROL MEASURES

As hereinafter described and as shown and noted on the Erosion and Sedimentation Control Plan, and in the following (Item #8) construction control stage sequence, the following erosion control procedures and devices shall be employed.

The streets shall be graded and crushed stone base course applied, and curbing placed as soon as possible, to prevent erosion of the sub-grade. During street grading, filter berms and filter inlets are proposed to be constructed at appropriate intervals and locations to minimize gullying and washing, and siltation in pipes and water courses. Utilization of temporary straw bale silt barriers is also proposed along adjacent roadway and established - developed areas where on-site earth movement and construction is planned.

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3. Continued

Graded slopes, swales or diversions, on-lot sedimentation control features and other critical disturbed areas shall be temporarily seeded following earth-moving procedures.

Rear-of-lot belt areas not significant to the progression of construction of houses and improvements and drainage controls shall be left undisturbed until lawn grading phase of finish construction. In addition, top soil storage as a protective berm may be utilized across the down-slope limit of construction in some locations.

4. GENERAL DESCRIPTION OF SEDIMENTATION CONTROL

On-lot protection during construction and grading activity will be provided by temporary controlled-flow interceptor diversion berms on individual lots.

Straw bale filter inlets and filter berms shall be employed, during specific construction phases at appropriate spaced locations across or along graded rights-of-way, such as noted on the Erosion and Sedimentation Control Plan. Stone ballast over-berm to be placed at the intersection of the proposed road with the existing road.

Upon completion of construction, the temporary berms and filter inlets shall be removed and the reamining areas re-graded and seeded or paved.

5. SANITARY SEWERAGE FACILITIES

Public sanitary sewerage facilties are proposed to serve this development, with planned sanitary sewer extensions to connect and discharge into the existing Upper Gwynedd-Towamencin Municipal Sewer Authority System via 8" ø gravity sewer connection-extensions of existing T-Trunk sewer (12" ø and 10" ø at proposed juncture points).

Collected sewage will be conveyed by the Authority System for treatment at the Upper Gwynedd-Towamencin Municipal Sewer Authority Wastewater Treatment Plant.

6. TOPOGRAPHIC AND GEOLOGIC FEATURES

The topography shown on the plans is based on actual physical ground surveys. The soils information is taken from Soil Conservation Service and Montgomery County Soil Survey data and is indicated on the Erosion and Sedimentation Control Plan and supporting data.

7. HYDROLOGIC RUNOFF COMPUTATIONS

The Montgomery County Soil Conservation Service Erosion and Sedimentation Control Handbook and Soils Conservation Engineering Field Manual were used as references.

8. STAGING OF EARTHMOVING ACTIVITIES

A. Construct on-site temporary sediment control facilities (including on-lot berms, if applicable) in accordance with scheduled construction and the design criteria shown on the Control Plan. Grade and seed all exposed areas of embankments.

B. Clear and grub street rights of way and building sites.

C. Available topsoil shall be removed and stockpiled or windrowed (downslope from construction area where feasible); for use in finish grading.

D. Juncture portion of proposed road with existing road is to be graded and stone ballast placed, with a ballast overberm formed across the throat of the intersection as an erosion and sediment control deterrent and stablization device for protection of the existing roadway.

E. Rough grade roadways to the proposed sub-grade elevation gradient and cross-section.

F. Install storm sewers (including sediment controls at appropriate inlets) and sanitary sewers and appurtenant structures. Install all underground utilities. Direct surface runoff to completed storm drainage facilities by constructing temporary interceptor channels and dikes.

G. Temporarily seed all disturbed soil banks with rye grass.

H. Construct buildings, fine grade streets and place stone base course. (On-lot sedimentation control measures are to have been constructed prior to improvements and house construction as noted in "A").

I. Finish grade and establish permanent seeding as soon as possible thereafter in buiding construction areas. Immediately following removal of temporary erosion and sedimentation control structures, grade and permanently seed these areas, implementing permanent on-lot grading/landscaping features planned to minimize surface runoff impact.

J. Continued

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M-2903

STORMWATER MANAGEMENT REPORT

Prepared For

"MEADOW VIEW" SUBDIVISION

a development to be constructed by

H U N T E R C O N S T R U C T I O N C O M P A N Y

MAY 1979

Towamencin Township

Montgomery County

Pennsylvania

BEFORE DEVELOPMENT vs AFTER DEVELOPMENT
STORMWATER RUNOFF COMPARISON

EXISTING CONDITIONS

The subject site is a 26.7± Acre tract of ground situated at the Easterly corner of the intersection of Troxell Road (Pa. L.R. 46047) and Snyder Road (Township Road #378) in Towamencin Township, Montgomery County.

The site can be described as having gentle to moderate slopes throughout. Existing soil types present on the site are of a clay and/or silt nature which is predominant throughout this area. Approximately 4.2 Acres or seventeen per cent (17%) of the site is vegetated with grass (lawn area) and sparce woodland. The remaining eighty-three per cent (83%) or 21.1 acres is bare, as exhibited by the enclosed photographs, positions of which are detailed on the enclosed photo index map (Refer also to topographical survey).

This remaining, fallow acreage has been subjected to parching by the sun and has been left cracked and dried (see Photographs G, J, K, L for close-up); a condition which is very susceptible to erosion. Further evidence of this susceptibility can be verified by examining photographs R and S which show straw bales that were placed on the subject site by the Township (when doing work on the shoulder area of Snyder Road) in the hopes of containing sediment which would have been carried off-site by spring rain showers. Even with these (minimal) prevention procedures much silt has still been deposited in the shoulder swale area of Snyder Road.

Further examination of the site and the accompanying photographs provides evidence that soybeans and corn were, at one time, the main crops grown on this parcel (See photograph F).

Therefore, based on site examination and given the fact that predominantly clay soil is present with corn, soybeans, or no vegetation on it, an estimated coefficient of runoff for the now-fallow area of the tract can be estimated at 0.55*. Comparing this figure with the coefficient used for the grass/woodland (Woodland = 0.30*), and based on areas covered by each, a "weighted coefficient of runoff (for the tract as a whole before development) can be computed to approximate 0.50.

*Values interpolated from P.D.T. Table 2.12.12.1 Rev. 10-74

PROPOSED DEVELOPMENT

The subject tract is proposed to be developed into thirty-eight (38) single-family residential dwelling units each having a minimum lot area of 20,000 square feet, under the R-125 Residential Zoning Criteria of Towamencin Township.

PROPOSED DEVELOPMENT (continued)

Each proposed lot will support a dwelling unit with an average square foot coverate of 1,950, including all roof overhangs and concrete patios. Each unit will be served by its own paved driveway, the average square footage of which should approximate 840 square feet. Therefore, the average "impervious" area per lot approximates 0.064 acres; for all thirty-eight (38) lots, total "impervious" area approximates 2.44 acres.

Access to lots is provided via cul-de-sac streets having a total length of 2,300± feet. Each street is designed with a 30-foot-wide cartway with curb and a 4-foot-wide walk each side. The total "impervious" area associated with these interior roadway improvements approximates 2.60 acres.

The remainder of the tract's area will be vegetated.

Proposed vegetation on the site will consist of "street tree" plantings at forty foot (40') intervals, both sides (by Township Ordinance) and lawn area throughout. Of course, each future homeowner will most likely be planting additional trees and shrubs to further enchance his lot. Obvious benefits with regard to control of erosion and sediment will be realized because of the proposed vegetation.

Based on the above presented facts, and again comparing coefficients of runoff for grass/lawn area ($C_{lawn} = 0.35$) vs. impervious area ($C_{imp.} = 0.95$) a "weighted" coefficient of runoff (for the tract as a whole after development) can be computed to approximate 0.47. (This weighted coefficient is a conservative value since none of the existing wooded area, which may remain after construction, was taken into account).

By comparing the computed "weighted" runoff coefficients for "before development" vs. "after development" conditions it can be seen that, basically, because of the proposed vegetative cover, storm water runoff should not increase, but could be expected to decrease for after development conditions.

Such expectations can only be verified by a closer examination of the construction improvements, particularly the proposed storm-water collection, conveyance and control system detailed in the following pages.

STORMWATER COLLECTION, CONVEYANCE AND CONTROL

In analyzing the subject 26.7 acre site for proposed drainage facilities it was necessary to include the offsite area to the Southeast that is also tributary to the existing basins associated with the site. (Refer to Storm Drainage Facilities Plan, Sheet 6 of 17).

The area within the boundaries of the site that will be controlled by proposed drainage facilities approximates 22.3 acres. If the previously described acreage (6.6 acres to the Southeast) is also included, the total controllable acreage totals 28.9 acres. Of this total area 21.2 acres are tributary to proposed detention facilities. Only 4.3 acres will not be served by storm sewer facilitites, most of the area being lands that are to be retained by Jacob L. Feusner. The character of this portion of the tract is mostly woods with an existing dwelling; no development is planned.

The total controllable (by storm drainage facilities) acreage is divided into two (2) separate drainage areas; one area being tributary to the East toward an existing ditch, and the second being tributary to the West to existing PennDOT controlled drainage facilities under Troxell Road, L. R. 46047, near its intersection with Snyder Road. The Eastward tributary area approximates 11.9 acres; the Westward tributary area approximates 17.0 acres. Times of concentration (t_c) for each area are 12 min. and 14 min., respectively.

The proposed housing and roadway improvements do not appreciably alter the bounds of these existing areas, but do modify them to some extent. The proposed on-lot grading and vertical alignment of proposed roadways causes a westward shift in part of the main ridge line causing more area to be tributary to the East. The altered Eastward area increases to approximate 13.0 acres while the area tributary to the West is decreased to approximate 15.9 acres.

These area changes also account for altered drainage path lengths which affect the times of concentration for each shed. Futher affect on the times of concentration is brought about by the "intrusion" into the drainage area, of roadways and storm drainage pipes which act as "cut-offs" for stormwater runoff; enabling it to reach its point of influence quicker.

The final result is a time of concentration for each of the two areas of 10.5 min. (Time refers to point of discharge to existing watercourses; time of concentration to point of influence for each detention facility is 10 min.)

From this point it is necessary to treat each area as a separate entity; to analyze and perform calculations for stormwater collection, conveyance and control on an individual basis.

EASTWARD "E" TRIBUTARY DRAINAGE SYSTEM

BEFORE DEVELOPMENT :

A = 13.9 Acres
C = 0.44
AC = 6.12
} Uncontained area

t_c = 12 min.

i_2 = 3.4 in/hr.
i_5 = 4.3 in/hr
i_{10} = 4.95 in/hr.
i_{25} = 6.0 in/hr.
i_{50} = 6.95 in/hr.

Q_2 = 20.8 cfs
Q_5 = 26.3 cfs
Q_{10} = 30.3 cfs
Q_{25} = 36.7 cfs
Q_{50} = 42.5 cfs

AFTER DEVELOPMENT :

A = 13.0 Acres
C = 0.43
AC = 5.56
} Contained (tributary to detention facility) area

A = 2.0 Acres
C = 0.47
AC = 0.94
} Uncontained area

ΣAC = 6.50
t_c = 10.5 min.

i_2 = 3.6 in/hr.
i_5 = 4.5 in/hr.
i_{10} = 5.25 in/hr.
i_{25} = 6.35 in/hr.
i_{50} = 7.35 in/hr.

Q_2 = 23.4 cfs
Q_5 = 29.3 cfs
Q_{10} = 34.1 cfs
Q_{25} = 41.3 cfs
Q_{50} = 47.8 cfs

BY.....CTS.....DATE.MAY.1979
CHKD. BY.....DATE.....

SUBJECT. HUNTER CONSTRUCTION CO.
"MEADOW VIEW" SUBDIVISION
TROXELL ROAD @ SNYDER ROAD

SHEET NO.....
JOB NO. 2903

WESTWARD "W" TRIBUTARY DRAINAGE SYSTEM

BEFORE DEVELOPMENT :

A = 17.0 Acres
C = 0.54
AC = 9.17
t_c = 14 min.

Uncontained area

i_2 = 3.2 in/hr.
i_5 = 4.0 in/hr.
i_{10} = 4.6 in/hr
i_{25} = 5.6 in/hr
i_{50} = 6.3 in/hr.

Q_2 = 29.3 cfs
Q_5 = 36.7 cfs
Q_{10} = 42.2 cfs
Q_{25} = 51.4 cfs
Q_{50} = 57.8 cfs

AFTER DEVELOPMENT :

A = 8.2 Acres
C = 0.44
AC = 3.64

Contained (tributary to detention facility) area

A = 7.7 Acres
C = 0.50
AC = 3.87

Uncontained area

ΣAC = 7.51
t_c = 10.5 min

i_2 = 3.6 in/hr.
i_5 = 4.5 in/hr
i_{10} = 5.25 in/hr
i_{25} = 6.35 in/hr.
i_{50} = 7.35 in/hr.

Q_2 = 27.0
Q_5 = 33.8
Q_{10} = 39.4
Q_{25} = 47.7
Q_{50} = 55.2

SWM - 5

CHKD. BY.....DATE.....
MEADOW VIEW SUBDIVISION
TROXELL ROAD @ SNYDER ROAD
JOB NO. 2903

EASTWARD "E" TRIBUTARY DRAINAGE SYSTEM

BY CTS DATE MAY 1979
CHKD. BY ..... DATE .....
SUBJECT HUNTER CONSTRUCTION CO. "MEADOW VIEW" SUBDIVISION TROXELL ROAD @ SNYDER ROAD.
SHEET NO. .....
JOB NO. 290

BY COMPARING THE "BEFORE DEVELOPMENT" VERSUS THE "AFTER DEVELOPMENT" STORMWATER RUNOFF RATES FOR EACH TRIBUTARY AREA AND COMBINING THOSE FIGURES, AN ANALYSIS FOR THE SITE AS A WHOLE IS CREATED.

RUNOFF RATES FOR TOTAL SITE*

	BEFORE DEVELOPMENT (CFS)	AFTER DEVELOPMENT WITHOUT DETENTION (CFS)	AFTER DEVELOPMENT UNCONTAINED (CFS)	AFTER DEVELOPMENT MAX. ALLOWABLE W/ DETENTION CFS
Q_2	50.1	50.4	17.3	50.1 - 17.3 = 32.8
Q_5	63.0	63.1	21.6	63.0 - 21.6 = 41.4
Q_{10}	72.5	73.5	25.2	72.5 - 25.2 = 47.3
Q_{25}	88.1	89.0	30.6	88.1 - 30.6 = 57.5
Q_{50}	100.3	103.0	35.6	100.3 - 35.6 = 64.7

* Does not include non-tributary area in vicinity of land to be retained by J.L. Feusner.

** Quantities refer to combined outlet flow rates for both detention facilities.

IN THE FOLLOWING PAGES ANALYSES (See "Stormwater Detention Basin Design for Small Drainage Areas" by Wm. R. Baker, P.E., Public Works, Mar. 1977.) FOR BOTH THE EASTWARD AND WESTWARD DETENTION FACILITIES ARE PERFORMED.

EACH AREA WAS ANALYZED SEPARATELY AND THEIR RESULTS COMBINED TO ILLUSTRATE THE TOTAL EFFECT ON DOWNSTREAM PROPERTIES.

BY ..... DATE MAY 1979
CHKD. BY ..... DATE .....
SUBJECT HUNTER CONSTRUCTION CO. "MEADOW VIEW" SUBDIVISION TROXELL ROAD @ SNYDER ROAD
SHEET NO. .....
JOB NO. 290

BY CTS DATE MAY 1979
CHKD. BY DATE

SUBJECT HUNTER CONSTRUCTION CO.
"MEADOW VIEW" SUBDIVISION
TROXELL ROAD @ SNYDER ROAD

SHEET NO.
JOB NO. 2903

EASTWARD "E" STORMWATER DETENTION FACILITY

INFLOW : "AFTER DEVELOPMENT" VALUES (See "Contained Area")

A = 13.0 Acres
C = 0.43
AC = 5.56
t_c = 10 min.

I_2 = 3.7 in/hr.	Q_2 = 20.6 cfs
I_5 = 4.6 in/hr.	Q_5 = 25.6 cfs
I_{10} = 5.35 in/hr	Q_{10} = 29.8 cfs
I_{25} = 6.45 in/hr.	Q_{25} = 35.9 cfs
I_{50} = 7.5 in/hr	Q_{50} = 41.7 cfs

OUTFLOW CONDITION:

78 L.F. 27"ϕ C.A.A.P. AND 36 L.F. 42"x 29" C.A.A.P.A.
A 22" DIA. ORIFICE PLATE IS TO BE PLACED ON THE DOWNSTREAM SIDE OF INLET E2 (the exit portal of the detention facility). THIS CONSTRICTED ORIFICE PLATE CREATES A BACKWATER (STORAGE) CONDITION IN UPSTREAM PIPES, ETC.

STORAGE:

COMBINATION OF OVERSIZED STORM SEWER PIPES, INLET BOXES, AND ROADWAY SURFACE STORAGE

ORIFICE PLATE:

FUNCTIONS ACCORDING TO THE EQUATION:

$$Q = CA\sqrt{2gH}$$

where C ≈ 0.6 (orifice coefficient)
A is cross-sectional area of orifice (Ft^2)
H is head (over orifice invert) in feet
g is gravity = 32.2 Ft./sec

Values of Q for various values of H are tabulated in the "OUTFLOW RATE" Column in the storage volume tabulation on the following page.

BY G.T.S. DATE MAY 1979 SUBJECT HUNTER CONSTRUCTION CO.
CHKD. BY DATE "MEADOW VIEW" SUBDIVISION
TROXELL ROAD @ SNYDER ROAD
SHEET NO. JOB NO. 2903

STORAGE VOLUME TABULATION

EASTWARD "E" TRIBUTARY DRAINAGE SYSTEM

ELEVATION	PIPE VOLUME			INLET VOLUME			ROADWAY (cul-de-sac)	TOTAL AVAILABLE STORAGE VOLUME	OUTFLOW RATE [1]	REMARKS
	DUAL 90 L.F. 77"×52" C.A.A.P.A.	49 L.F. 71"×47" C.A.A.P.A.	187 L.F. 10"ϕ C.A.A.P.	E2 (14'L×5'W)	E2.1 (14'L×2'W)	E3 (6'L×5'W)				
	CU.FT.	CU.FT.	CU.FT.	CU.FT.	CU.FT.	CU.FT.	CU.FT.	CU.FT.	C.F.S.	
292.5	0	0	0	0	0	0	0	0	0	
.75	11	0		18	7			36	12.03	
293.0	67	1		35	14			117	13.89	
.25	187	30		53	21	2		293	15.53	
.5	380	86		70	28	9		573	17.01	
.75	634	151		88	35	17		925	18.38	
294.0	914	223		105	42	24		1308	19.65	
.25	1208	299		123	49	32		1711	20.84	
.5	1505	371		140	56	39		2111	21.97	
.75	1799	441		158	63	47		2508	23.04	
295.0	2085	517		175	70	54		2901	24.06	
.25	2366	583		193	77	62		3281	25.04	
.5	2630	642		210	84	69		3635	25.99	
.75	2869	695		228	91	77		3960	26.90	
296.0	3086	744	6	245	98	84		4263	27.78	
.25	3285	788	15	263	105	92		4548	28.64	
.5	3469	829	24	280	112	99		4813	29.47	
.75	3631	861	35	298	119	107		5051	30.28	
297.0	3746	862	52	315	126	114		5215	31.06	
.25	3812		73	333	133	122		5335	31.83	
.5	3834		89	350	140	129		5404	32.58	
.75			103	368	147	137		5451	33.31	
298.0			117	385	154	144		5496	34.03	
.25			139	403	161	152	3	5554	34.73	
.5			157		168	159	20	5603	35.42	
.75			171		175	167	265	5877	36.09	
299.0			182		182	174	700	6337	36.76	

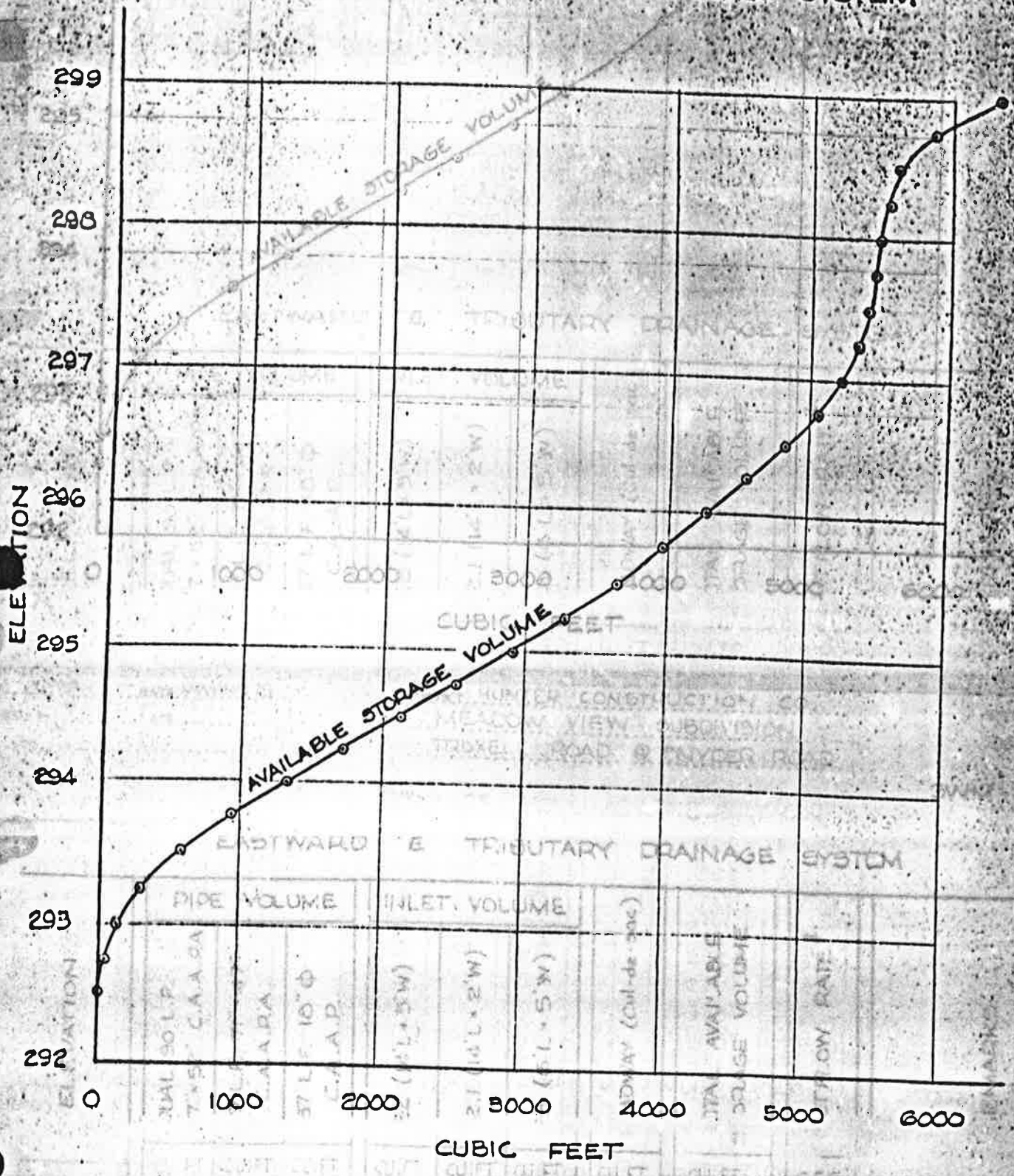
1. Outflow rates have been calculated for a circular 23" diameter opening functioning under "orifice flow" conditions.

BY.....DATE MAY 1979
CHKD. BY.....DATE.....

SUBJECT HUNTER CONSTRUCTION CO.
"MEADOW VIEW" SUBDIVISION
TROXELL ROAD @ SNYDER ROAD

SHEET NO.....
JOB NO. 2903

EASTWARD "E" TRIBUTARY DRAINAGE SYSTEM



BY.....DATE MAY 1979
CHKD. BY.....DATE.....

SUBJECT HUNTER CONSTRUCTION CO.
"MEADOW VIEW" SUBDIVISION
TROXELL ROAD @ SNYDER ROAD

STORAGE VOLUME TABULATION

SWM-9

BY CTB DATE MAY 1979
CHKD. BY DATE

PROJECT HUNTER CONSTRUCTION CO.
"MEADOW VIEW" SUBDIVISION
TROXELL ROAD @ SNYDER ROAD

SHEET NO.
JOB NO. 2903

EASTWARD "E" STORMWATER DETENTION FACILITY

2-YR. FREQUENCY DESIGN STORM

10 MIN. (600 sec.) DURATION

DURATION 600.00 ENTI
MAX. INFLOW 20.60 GSBC
CLX
TIME INTERVAL 60.00 GSBD
60.00 ***
2.06 ***
1.76 ***
120.00 ***
4.12 ***
4.03 ***
180.00 ***
6.18 ***
5.94 ***
240.00 ***
8.24 ***
7.65 ***
300.00 ***
10.30 ***
9.32 ***
360.00 ***
12.36 ***
10.65 ***
420.00 ***
14.42 ***
12.10 ***
480.00 ***
16.48 ***
13.22 ***
540.00 ***
16.54 ***
14.30 ***
600.00 ***
MAX. INFLOW ▲ 20.60 ***
15.26 ***
660.00 ***
18.54 ***
16.04 ***
720.00 ***
16.48 ***
MAX. OUTFLOW ■ 16.38 ***
780.00 ***
14.42 ***
16.15 ***
840.00 ***
12.36 ***
15.65 ***
900.00 ***
10.30 ***
14.67 ***

15 MIN. (900 sec.) DURATION

960.00 ENTI
20.60 GSBC
CLX
60.00 GSBD
60.00 ***
2.06 ***
1.76 ***
120.00 ***
4.12 ***
4.03 ***
180.00 ***
6.18 ***
5.94 ***
240.00 ***
8.24 ***
7.65 ***
300.00 ***
10.30 ***
9.32 ***
360.00 ***
12.36 ***
10.65 ***
420.00 ***
14.42 ***
12.10 ***
480.00 ***
16.48 ***
13.22 ***
540.00 ***
16.54 ***
14.30 ***
600.00 ***
▲ 20.60 ***
15.26 ***
660.00 ***
20.60 ***
16.22 ***
720.00 ***
20.60 ***
17.81 ***
780.00 ***
20.60 ***
17.66 ***
840.00 ***
20.60 ***
18.19 ***
900.00 ***
▲ 20.60 ***
18.63 ***
960.00 ***
18.54 ***
■ 18.80 ***
1020.00 ***
16.48 ***
18.57 ***
1080.00 ***
14.42 ***
16.30 ***
1140.00 ***
12.36 ***
17.17 ***
1200.00 ***
10.30 ***
16.11 ***

20 MIN. (1200 sec.) DURATION

1200.00 ENTI
20.60 GSBC
CLX
60.00 GSBD
60.00 ***
2.06 ***
1.76 ***
120.00 ***
4.12 ***
4.03 ***
180.00 ***
6.18 ***
5.94 ***
240.00 ***
8.24 ***
7.65 ***
300.00 ***
10.30 ***
9.32 ***
360.00 ***
12.36 ***
10.65 ***
420.00 ***
14.42 ***
12.10 ***
480.00 ***
16.48 ***
13.22 ***
540.00 ***
18.54 ***
14.30 ***
600.00 ***
▲ 20.60 ***
15.26 ***
660.00 ***
20.60 ***
16.22 ***
720.00 ***
20.60 ***
17.81 ***
780.00 ***
20.60 ***
17.66 ***
840.00 ***
20.60 ***
18.19 ***
900.00 ***
20.60 ***
19.63 ***
960.00 ***
20.60 ***
19.33 ***
1020.00 ***
20.60 ***
20.26 ***
1080.00 ***
20.60 ***
19.52 ***
1140.00 ***
20.60 ***
19.77 ***
1200.00 ***
▲ 20.60 ***
■ 19.27 ***
1260.00 ***
18.54 ***
19.52 ***
1320.00 ***
16.48 ***
18.40 ***
1380.00 ***
14.42 ***
16.65 ***
1440.00 ***
12.36 ***
14.73 ***
1500.00 ***
10.30 ***
12.57 ***

BY..... DATE.....
CHKD. BY..... DATE.....
SUBJECT.....
SHEET NO.....
JOB NO.....

EASTWARD 'E' STORMWATER DETENTION FACILITY
5-YR. FREQUENCY DESIGN STORM

10 MIN.

600.00	ENT:
25.60	GSBC
	CLX
60.00	GSBC
60.00	***
2.56	***
2.18	***
120.00	***
5.12	***
5.01	***
180.00	***
7.68	***
7.21	***
240.00	***
10.24	***
9.01	***
300.00	***
12.80	***
10.76	***
360.00	***
15.36	***
12.36	***
420.00	***
17.92	***
13.79	***
480.00	***
20.48	***
14.82	***
540.00	***
23.04	***
16.07	***
600.00	***
▲25.60	***
17.56	***
660.00	***
23.04	***
18.75	***
720.00	***
20.48	***
■19.32	***
780.00	***
17.92	***
19.38	***
840.00	***
15.36	***
18.82	***
900.00	***
12.80	***
17.96	***

15 MIN.

900.00	ENT:
25.60	GSBC
	CLX
60.00	GSBC
60.00	***
2.56	***
2.18	***
120.00	***
5.12	***
5.01	***
180.00	***
7.68	***
7.21	***
240.00	***
10.24	***
9.01	***
300.00	***
12.80	***
10.76	***
360.00	***
15.36	***
12.36	***
420.00	***
17.92	***
13.79	***
480.00	***
20.48	***
14.82	***
540.00	***
23.04	***
16.07	***
600.00	***
▲25.60	***
17.56	***
660.00	***
25.60	***
18.82	***
720.00	***
25.60	***
20.21	***
780.00	***
25.60	***
21.18	***
840.00	***
25.60	***
21.56	***
900.00	***
▲25.60	***
22.64	***

960.00	***
25.04	***
■22.54	***
1020.00	***
20.48	***
22.73	***
1080.00	***
17.92	***
22.03	***
1140.00	***
15.36	***
21.10	***
1200.00	***
12.80	***
19.83	***

20 MIN.

1200.00	ENT:
25.60	GSBC
	CLX
60.00	GSBC
60.00	***
2.56	***
2.18	***
120.00	***
5.12	***
5.01	***
180.00	***
7.68	***
7.21	***
240.00	***
10.24	***
9.01	***
300.00	***
12.80	***
10.76	***
360.00	***
15.36	***
12.36	***
420.00	***
17.92	***
13.79	***
480.00	***
20.48	***
14.82	***
540.00	***
23.04	***
16.07	***
600.00	***
▲25.60	***
17.56	***
660.00	***
25.60	***
18.82	***
720.00	***
25.60	***
20.21	***
780.00	***
25.60	***
21.18	***
840.00	***
25.60	***
21.56	***
900.00	***
25.60	***
22.64	***

960.00	***
25.60	***
23.17	***
1020.00	***
25.60	***
23.61	***
1080.00	***
25.60	***
23.97	***
1140.00	***
25.60	***
24.27	***
1200.00	***
▲25.60	***
■24.51	***
1260.00	***
23.04	***
24.47	***
1320.00	***
20.48	***
23.58	***
1380.00	***
17.92	***
23.12	***
1440.00	***
15.36	***
21.55	***
1500.00	***
12.80	***
20.52	***

PROJECT HUNTER CONSTRUCTION CO.
"MEADOW VIEW" SUBDIVISION
TROXELL ROAD & SNYDER ROAD

BY..... DATE.....
CHKD. BY..... DATE.....
SUBJECT.....
SHEET NO....
JOB NO.....

EASTWARD "E" STORMWATER DETENTION FACILITY
10-YR. FREQUENCY DESIGN STORM

10 MIN.

600.00	ENTT
29.60	CSEC
	CLX
60.00	CSED
60.00	***
2.98	***
2.54	***
120.00	***
5.96	***
5.83	***
180.00	***
8.94	***
7.94	***
240.00	***
11.92	***
10.18	***
300.00	***
14.90	***
11.94	***
360.00	***
17.88	***
13.46	***
420.00	***
20.86	***
14.73	***
480.00	***
23.84	***
16.11	***
540.00	***
26.82	***
17.77	***
600.00	***
▲ 29.80	***
19.68	***
660.00	***
26.82	***
21.24	***
720.00	***
23.84	***
21.38	***
780.00	***
20.86	***
■ 22.85	***
840.00	***
17.88	***
21.56	***
900.00	***
14.90	***
20.63	***

15 MIN.

900.00	ENTT
29.80	CSEC
	CLX
60.00	CSED
60.00	***
2.98	***
2.54	***
120.00	***
5.96	***
5.83	***
180.00	***
8.94	***
7.94	***
240.00	***
11.92	***
10.16	***
300.00	***
14.90	***
11.94	***
360.00	***
17.86	***
13.46	***
420.00	***
20.86	***
14.73	***
480.00	***
23.84	***
16.11	***
540.00	***
26.82	***
17.77	***
600.00	***
▲ 29.80	***
19.66	***
660.00	***
29.80	***
21.51	***
720.00	***
23.80	***
23.01	***
780.00	***
29.80	***
24.24	***
840.00	***
29.80	***
25.24	***
900.00	***
▲ 29.80	***
26.83	***

960.00	***
26.82	***
■ 26.43	***
1020.00	***
23.84	***
26.24	***
1080.00	***
20.86	***
25.56	***
1140.00	***
17.88	***
24.42	***
1200.00	***
14.90	***
22.59	***

20 MIN.

1200.00	ENTT
25.60	CSEC
	CLX
60.00	CSED
60.00	***
2.98	***
2.54	***
120.00	***
5.96	***
5.83	***
180.00	***
8.94	***
7.94	***
240.00	***
11.92	***
10.16	***
300.00	***
14.90	***
11.94	***
360.00	***
17.86	***
13.46	***
420.00	***
20.86	***
14.73	***
480.00	***
23.84	***
16.11	***
540.00	***
26.82	***
17.77	***
600.00	***
▲ 29.80	***
19.66	***
660.00	***
29.80	***
21.51	***
720.00	***
23.80	***
23.01	***
780.00	***
29.80	***
24.24	***
840.00	***
29.80	***
25.24	***
900.00	***
29.80	***
26.83	***

960.00	***
29.80	***
26.65	***
1020.00	***
29.80	***
27.25	***
1080.00	***
29.80	***
27.72	***
1140.00	***
29.80	***
27.52	***
1200.00	***
▲ 29.80	***
■ 28.30	***
1260.00	***
26.82	***
■ 26.30	***
1320.00	***
23.84	***
27.25	***
1380.00	***
28.86	***
25.61	***
1440.00	***
17.88	***
23.49	***
1500.00	***
14.90	***
21.38	***

JOB NO.

EASTWARD "E" STORMWATER DETENTION FACILITY

25-YR. FREQUENCY DESIGN STORM

10 MIN.

600.00 ENT†
35.90 GSBC
CLX
60.00 GSBD
60.00 ***
3.55 ***
3.06 ***
120.00 ***
7.18 ***
6.99 ***
180.00 ***
10.77 ***
9.04 ***
240.00 ***
14.36 ***
11.33 ***
300.00 ***
17.95 ***
13.21 ***
360.00 ***
21.54 ***
14.71 ***
420.00 ***
25.13 ***
16.27 ***
480.00 ***
28.72 ***
18.13 ***
540.00 ***
32.31 ***
20.42 ***
600.00 ***
▲35.90 ***
22.90 ***
660.00 ***
32.31 ***
24.53 ***
720.00 ***
28.72 ***
25.90 ***
780.00 ***
25.13 ***
■26.08 ***
840.00 ***
21.54 ***
25.60 ***
900.00 ***
17.95 ***
24.53 ***

15 MIN.

900.00 ENT†
35.90 GSBC
CLX
60.00 GSBD
60.00 ***
3.59 ***
3.06 ***
120.00 ***
7.18 ***
6.99 ***
180.00 ***
10.77 ***
9.04 ***
240.00 ***
14.36 ***
11.33 ***
300.00 ***
17.95 ***
13.21 ***
360.00 ***
21.54 ***
14.71 ***
420.00 ***
25.13 ***
16.27 ***
480.00 ***
28.72 ***
18.13 ***
540.00 ***
32.31 ***
20.42 ***
600.00 ***
▲35.90 ***
22.90 ***
660.00 ***
35.90 ***
25.24 ***
720.00 ***
35.90 ***
27.11 ***
780.00 ***
35.90 ***
28.68 ***
840.00 ***
35.90 ***
31.72 ***
900.00 ***
▲35.90 ***
■34.11 ***

360.00 ***
32.31 ***
■34.11 ***
1020.00 ***
28.72 ***
32.85 ***
1080.00 ***
25.13 ***
29.65 ***
1140.00 ***
21.54 ***
28.85 ***
1200.00 ***
17.95 ***
25.53 ***

20 MIN.

1200.00 ENT†
35.90 GSBC
CLX
60.00 GSBD
60.00 ***
3.55 ***
3.06 ***
120.00 ***
7.18 ***
6.99 ***
180.00 ***
10.77 ***
9.04 ***
240.00 ***
14.36 ***
11.33 ***
300.00 ***
17.95 ***
13.21 ***
360.00 ***
21.54 ***
14.71 ***
420.00 ***
25.13 ***
16.27 ***
480.00 ***
28.72 ***
18.13 ***
540.00 ***
32.31 ***
20.42 ***
600.00 ***
▲35.90 ***
22.90 ***
660.00 ***
35.90 ***
25.24 ***
720.00 ***
35.90 ***
27.11 ***
780.00 ***
35.90 ***
28.68 ***
840.00 ***
35.90 ***
31.72 ***
900.00 ***
35.90 ***
34.11 ***

960.00 ***
35.90 ***
34.37 ***
1020.00 ***
35.90 ***
34.59 ***
1080.00 ***
35.90 ***
34.76 ***
1140.00 ***
35.90 ***
34.86 ***
1200.00 ***
▲35.90 ***
■34.35 ***
1260.00 ***
35.90 ***
34.88 ***
1320.00 ***
28.72 ***
34.34 ***
1380.00 ***
25.13 ***
30.58 ***
1440.00 ***
21.54 ***
26.56 ***
1500.00 ***
17.95 ***
25.53 ***

BY..... DATE.....
CHKD. BY..... DATE.....
SUBJECT.....
SHEET NO.....
JOB NO.....

EASTWARD "E" STORMWATER DETENTION FACILITY
50-YR. FREQUENCY DESIGN STORM

10 MIN.		15 MIN.		20 MIN.	
600.00	ENT	900.00	ENT	1200.00	ENT
41.70	GSEC	41.70	GSEC	41.70	GSEC
	CLX		CLX		CLX
60.00	GSBC	60.00	GSBC	60.00	GSBC
60.00	***	60.00	***	60.00	***
4.17	***	4.17	***	4.17	***
3.56	***	3.56	***	3.56	***
120.00	***	120.00	***	120.00	***
8.34	***	8.34	***	8.34	***
7.66	***	7.66	***	7.66	***
180.00	***	180.00	***	180.00	***
12.51	***	12.51	***	12.51	***
10.18	***	10.18	***	10.18	***
240.00	***	240.00	***	240.00	***
16.68	***	16.68	***	16.68	***
12.37	***	12.37	***	12.37	***
300.00	***	300.00	***	300.00	***
20.85	***	20.85	***	20.85	***
14.23	***	14.23	***	14.23	***
■ 360.00	***	360.00	***	360.00	***
25.02	***	25.02	***	25.02	***
15.80	***	▲ 15.80	***	15.80	***
420.00	***	420.00	***	420.00	***
29.19	***	29.19	***	29.19	***
17.35	***	17.35	***	17.35	***
480.00	***	480.00	***	480.00	***
33.35	***	33.35	***	33.35	***
20.27	***	20.27	***	20.27	***
540.00	***	540.00	***	540.00	***
37.53	***	37.53	***	37.53	***
23.02	***	23.02	***	23.02	***
600.00	***	600.00	***	600.00	***
▲ 41.70	***	▲ 41.70	***	▲ 41.70	***
25.98	***	25.98	***	25.98	***
660.00	***	660.00	***	660.00	***
27.53	***	41.70	***	41.70	***
28.15	***	28.66	***	28.66	***
720.00	***	720.00	***	720.00	***
33.30	***	41.70	***	41.70	***
30.63	***	34.40	***	34.40	***
780.00	***	780.00	***	780.00	***
29.19	***	41.70	***	41.70	***
■ 31.06	***	35.16	***	35.16	***
840.00	***	840.00	***	840.00	***
25.02	***	▲ 41.70	***	▲ 41.70	***
29.70	***	■ 238.25 *	***	■ 238.25 **	***
900.00	***				
20.85	***				
27.33	***				

** OVERFLOWS

* NORMALLY PEAKS AT 960 sec, THEREFORE FACILITY BARELY OVERFLOWS.

BY CTS DATE MAY 1979
CHKD. BY DATE
SUBJECT HUNTER CONSTRUCTION CO. "MEADOW VIEW" SUBDIVISION TROXELL ROAD @ SNYDER ROAD
SHEET NO.
JOB NO. 290

WESTWARD "W" STORMWATER DETENTION FACILITY

INFLOW: "AFTER DEVELOPMENT" VALUES (See "Contained Area")

A = 8.2 Acres
C = 0.44
AC = 3.64
t_c = 10 min.

I_2 = 3.7 in/hr.	Q_2 = 13.5
I_5 = 4.6 in/hr.	Q_5 = 16.7
I_{10} = 5.35 in/hr.	Q_{10} = 19.5
I_{25} = 6.45 in/hr	Q_{25} = 23.5
I_{50} = 7.5 in/hr.	Q_{50} = 27.3

OUTFLOW CONDITION:

324 L.F. 21"Φ C.A.A.P. OUTLET PIPE

AN 18" DIA. ORIFICE PLATE IS TO BE PLACED ON THE DOWNSTREAM SIDE OF INLET W4 (the exit portal of the detention facility). THIS CONSTRICTED ORIFICE PLATE CREATES A BACKWATER (STORAGE) CONDITION IN UPSTREAM PIPES, ETC.

STORAGE:

COMBINATION OF OVERSIZED STORM SEWER PIPES, INLET BOXES, AND ROADWAY SURFACE STORAGE.

ORIFICE PLATE:

FUNCTIONS ACCORDING TO THE EQUATION:

$$Q = CA\sqrt{2gH}$$

where C ≈ 0.6 (orifice coefficient)
A is cross-sectional area of orifice (ft^2)
H is head (over orifice invert) in feet
g = gravity = 32.2 ft/sec

Values of Q for various values of H are tabulated in the "OUTFLOW RATE" Column of the storage volume tabulation on the following page.

BY CTS DATE MAY 1979
CHKD. BY ..... DATE .....

SUBJECT HUNTER CONSTRUCTION
"MEADOW VIEW" SUBDIVISION
TROXELL ROAD @ SNYDER ROAD

SHEET NO. .....
JOB NO. 2903

STORAGE VOLUME TABULATION

WESTWARD "W" TRIBUTARY DRAINAGE SYSTEM

ELEVATION	PIPE VOLUME					INLET VOLUME				ROADWAY (Sag, Vert.)	TOTAL AVAILABLE STORAGE VOLUME	OUTFLOW RATE [2]	REMARKS
	20 L.F. 71"x47" C.A.P.A.	127 L.F. 71"x47" C.A.P.A.	308 L.F. 15"Φ C.A.P.	262 L.F. 15"Φ C.A.P.	73 L.F. 15"Φ C.A.P.	W4 (10.25'L x 6'W)	W4.1 (6'L x 2'W)	W4.11 (4'L x 2'W)	W5 (6.5'L x 4'W)				
	CU.FT.	CU.FT.	CU.FT.	CU.FT.	CU.FT.	CU.FT	CU.FT.	CU.FT.	CU.FT.	CU.FT.	CU.FT.	C.F.S.	
298.0	0	0	0	0	0	0	0	0	0	0	0	0	
.25	6	9				15	1				31	4.74	
.5	28	58				31	7				124	6.70	
.75	53	169				46	10				278	6.21	
299.0	82	328				62	13		7		492	9.48	
.25	112	506				77	16		13		724	10.60	
.5	145	698				92	19		20		974	11.61	
.75	170	888				108	22		26		1214	12.54	
300.00	202	1076				123	25		33		1459	13.41	
.25	230	1259				138	28		39		1694	14.22	
.5	255	1441		8		154	31		46		1935	14.99	
.75	278	1601		20		169	34		52		2154	15.72	
301.0	298	1746		39		185	37		59		2364	16.42	
.25	316	1876		64		200	40		65		2561	17.09	
.5	334	1996		91		215	43		72		2751	17.74	
.75	350	2106	12	117		231	46		78		2940	18.36	
302.0	352	2188	21	143		246	48		85		3084	18.96	
.25		2230	37	168		261	52		91		3191	19.54	
.5		2235	59	193		277	55		98		3269	20.11	
.75			81	218		292	58		104		3340	20.66	
303.0			117	243		308	61		111		3427	21.20	
.25			151	265		323	64	2	117		3509	21.72	
.5			182	280	3	338	67	4	124		3585	22.23	
.75			212	295	9	354	70	6	130		3663	22.73	
304.0			239	310	18	359	71	8	137	50	3779	23.22	
.25			265	322	32			10	144	250	4040	23.70	
.5			290		45			12	150	1000	4836	24.17	

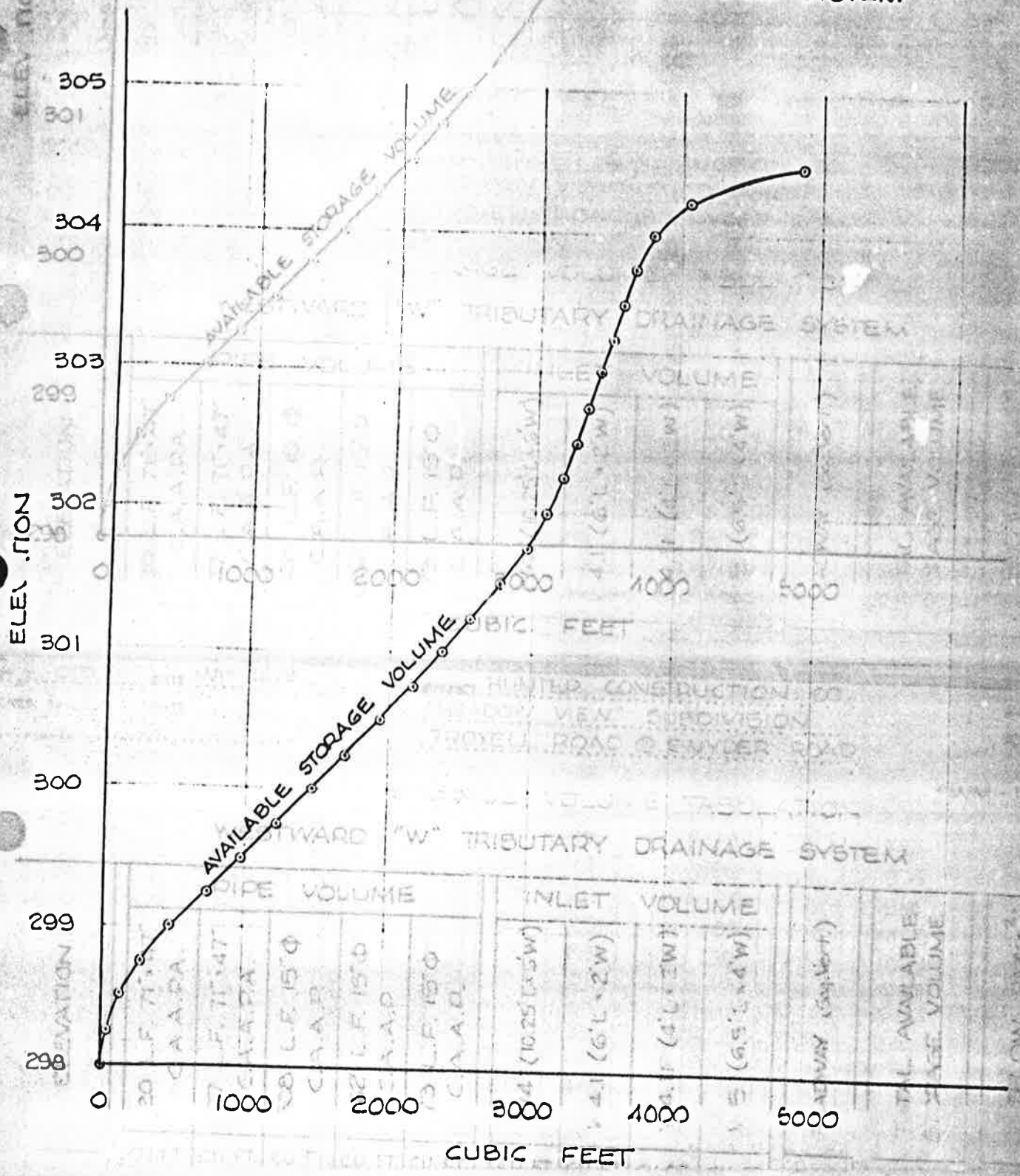
2. Outflow rates have been calculated for a circular 19" diameter opening functioning under "orifice flow" conditions.

BY CTB DATE MAY 1979
CHKD. By DATE

SUBJECT HUNTER CONSTRUCTION CO.
"MEADOW VIEW" SUBDIVISION
TROXELL ROAD @ SNYDER ROAD

SHEET NO.
JOB NO. 2903

WESTWARD "W" TRIBUTARY DRAINAGE SYSTEM



BY CTB DATE MAY 1979
CHKD. By DATE
SUBJECT HUNTER CONSTRUCTION CO.
"MEADOW VIEW" SUBDIVISION
TROXELL ROAD @ SNYDER ROAD
SHEET NO.
JOB NO. 2903

STORAGE VOLUME TABULATION

SWM - 17

PROJECT HUNTER CONSTRUCTION CO.
"MEADOW VIEW" SUBDIVISION
TROXELL ROAD @ SNYDER ROAD
JOB NO. 290

WESTWARD "W" STORMWATER DETENTION FACILITY

2-YR. FREQUENCY DESIGN STORM

10 MIN. (600 sec.) DURATION

DURATION 600.00 ENT
MAX. INFLOW 13.50 GSBD
CLK
TIME INTERVAL 60.00 GSBD
60.00 ***
1.35 ***
1.11 ***
120.00 ***
2.70 ***
2.61 ***
180.00 ***
4.05 ***
3.86 ***
240.00 ***
5.40 ***
4.99 ***
300.00 ***
6.75 ***
5.63 ***
360.00 ***
8.10 ***
6.91 ***
420.00 ***
9.45 ***
7.76 ***
480.00 ***
10.80 ***
8.63 ***
540.00 ***
12.15 ***
9.43 ***
600.00 ***
MAX. INFLOW ▲ 13.50 ***
10.15 ***
660.00 ***
12.15 ***
10.76 ***
720.00 ***
10.80 ***
MAX. OUTFLOW ■ 10.66 ***
780.00 ***
9.45 ***
10.71 ***
840.00 ***
8.10 ***
10.32 ***
900.00 ***
6.75 ***
9.73 ***

15 MIN. (900 sec.) DURATION

900.00 ENT
13.50 GSBD
CLK
60.00 GSBD
60.00 ***
1.35 ***
1.11 ***
120.00 ***
2.70 ***
2.61 ***
180.00 ***
4.05 ***
3.86 ***
240.00 ***
5.40 ***
4.99 ***
300.00 ***
6.75 ***
5.93 ***
360.00 ***
8.10 ***
6.91 ***
420.00 ***
9.45 ***
7.76 ***
480.00 ***
10.80 ***
8.63 ***
540.00 ***
12.15 ***
9.43 ***
600.00 ***
▲ 13.50 ***
10.16 ***
660.00 ***
13.50 ***
10.84 ***
720.00 ***
13.50 ***
11.38 ***
780.00 ***
13.50 ***
11.81 ***
840.00 ***
13.50 ***
12.15 ***
900.00 ***
▲ 13.50 ***
12.42 ***

960.00 ***
12.15 ***
■ 12.50 ***
1020.00 ***
10.80 ***
12.33 ***
1080.00 ***
9.45 ***
11.36 ***
1140.00 ***
8.10 ***
11.33 ***
1200.00 ***
6.75 ***
10.46 ***

20 MIN. (1200 sec.) DURATION

1200.00 ENT
13.50 GSBD
CLK
60.00 GSBD
60.00 ***
1.35 ***
1.11 ***
120.00 ***
2.70 ***
2.61 ***
180.00 ***
4.05 ***
3.86 ***
240.00 ***
5.40 ***
4.99 ***
300.00 ***
6.75 ***
5.93 ***
360.00 ***
8.10 ***
6.91 ***
420.00 ***
9.45 ***
7.76 ***
480.00 ***
10.80 ***
8.63 ***
540.00 ***
12.15 ***
9.43 ***
600.00 ***
▲ 13.50 ***
10.16 ***
660.00 ***
13.50 ***
10.84 ***
720.00 ***
13.50 ***
11.38 ***
780.00 ***
13.50 ***
11.81 ***
840.00 ***
13.50 ***
12.15 ***
900.00 ***
13.50 ***
12.42 ***

960.00 ***
13.50 ***
12.64 ***
1020.00 ***
13.50 ***
12.81 ***
1080.00 ***
13.50 ***
12.93 ***
1140.00 ***
13.50 ***
13.00 ***
1200.00 ***
▲ 13.50 ***
■ 13.15 ***
1260.00 ***
12.15 ***
13.09 ***
1320.00 ***
10.80 ***
12.76 ***
1380.00 ***
9.45 ***
12.23 ***
1440.00 ***
8.10 ***
11.53 ***
1500.00 ***
6.75 ***
10.70 ***

WESTWARD "W" STORMWATER DETENTION FACILITY
5-YR. FREQUENCY DESIGN STORM

10 MIN.

600.00	ENT†
16.78	GSEC
	CLR
60.00	GSEC
60.00	***
1.67	***
1.37	***
120.00	***
3.34	***
3.23	***
180.00	***
5.01	***
4.76	***
240.00	***
6.68	***
5.60	***
300.00	***
8.35	***
6.93	***
360.00	***
10.02	***
7.95	***
420.00	***
11.69	***
8.93	***
480.00	***
13.36	***
9.83	***
540.00	***
15.03	***
10.72	***
600.00	***
▲ 16.78	***
11.76	***
660.00	***
15.03	***
12.55	***
720.00	***
13.36	***
■ 12.91	***
780.00	***
11.69	***
12.84	***
840.00	***
10.02	***
12.43	***
900.00	***
8.35	***
11.75	***

15 MIN.

900.00	ENT†
16.70	GSEC
	CLR
60.00	GSEC
60.00	***
1.67	***
1.37	***
120.00	***
3.34	***
3.23	***
180.00	***
5.01	***
4.76	***
240.00	***
6.66	***
5.60	***
300.00	***
8.35	***
6.93	***
360.00	***
10.02	***
7.95	***
420.00	***
11.69	***
8.93	***
480.00	***
13.36	***
9.83	***
540.00	***
15.03	***
10.72	***
600.00	***
▲ 16.70	***
11.76	***
660.00	***
16.70	***
12.76	***
720.00	***
16.70	***
13.56	***
780.00	***
16.70	***
14.15	***
840.00	***
16.78	***
14.70	***
900.00	***
▲ 16.70	***
15.11	***

960.00	***
15.03	***
■ 15.26	***
1020.00	***
13.36	***
15.04	***
1080.00	***
11.69	***
14.53	***
1140.00	***
10.02	***
13.79	***
1200.00	***
8.35	***
12.86	***

20 MIN.

1200.00	ENT†
16.70	GSEC
	CLR
60.00	GSEC
60.00	***
1.67	***
1.37	***
120.00	***
3.34	***
3.23	***
180.00	***
5.01	***
4.76	***
240.00	***
6.66	***
5.60	***
300.00	***
8.35	***
6.93	***
360.00	***
10.02	***
7.95	***
420.00	***
11.69	***
8.93	***
480.00	***
13.36	***
9.83	***
540.00	***
15.03	***
10.72	***
600.00	***
▲ 16.70	***
11.76	***
660.00	***
16.70	***
12.76	***
720.00	***
16.70	***
13.56	***
780.00	***
16.70	***
14.15	***
840.00	***
16.70	***
14.70	***
900.00	***
16.70	***
15.11	***

960.00	***
16.70	***
15.43	***
1020.00	***
16.70	***
15.69	***
1080.00	***
16.70	***
15.87	***
1140.00	***
16.70	***
16.18	***
1200.00	***
▲ 16.70	***
■ 16.33	***
1260.00	***
15.03	***
16.20	***
1320.00	***
13.36	***
15.64	***
1380.00	***
11.69	***
15.01	***
1440.00	***
10.02	***
14.17	***
1500.00	***
8.35	***
13.13	***

BY..... DATE.....
CHKD. BY..... DATE.....
SUBJECT.....
SHEET NO.....
JOB NO.....

WESTWARD "W" STORMWATER DETENTION FACILITY

10-YR. FREQUENCY DESIGN STORM

10 MIN.

600.00 ENTT
19.50 GSBC
CLX
60.00 GSBD
60.00 ***
1.95 ***
1.60 ***
120.00 ***
3.90 ***
3.78 ***
180.00 ***
5.85 ***
5.14 ***
240.00 ***
7.80 ***
6.44 ***
300.00 ***
9.75 ***
7.61 ***
360.00 ***
11.70 ***
8.75 ***
420.00 ***
13.65 ***
9.79 ***
480.00 ***
15.60 ***
10.77 ***
540.00 ***
17.55 ***
11.94 ***
600.00 ***
▲19.50 ***
13.28 ***
660.00 ***
17.55 ***
14.34 ***
720.00 ***
15.60 ***
■14.79 ***
780.00 ***
13.65 ***
14.76 ***
840.00 ***
11.70 ***
14.34 ***
900.00 ***
9.75 ***
13.66 ***

15 MIN.

900.00 ENTT
19.50 GSBC
CLX
60.00 GSBD
60.00 ***
1.95 ***
1.60 ***
120.00 ***
3.90 ***
3.78 ***
180.00 ***
5.85 ***
5.14 ***
240.00 ***
7.80 ***
6.44 ***
300.00 ***
9.75 ***
7.61 ***
360.00 ***
11.70 ***
8.75 ***
420.00 ***
13.65 ***
9.79 ***
480.00 ***
15.60 ***
10.77 ***
540.00 ***
17.55 ***
11.94 ***
600.00 ***
▲19.50 ***
13.28 ***
660.00 ***
19.50 ***
14.54 ***
720.00 ***
19.50 ***
15.54 ***
780.00 ***
15.50 ***
16.62 ***
840.00 ***
19.50 ***
17.01 ***
900.00 ***
▲19.56 ***
17.27 ***

960.00 ***
17.55 ***
■17.56 ***
1020.00 ***
15.60 ***
17.33 ***
1080.00 ***
13.65 ***
17.02 ***
1140.00 ***
11.70 ***
16.03 ***
1200.00 ***
9.75 ***
14.83 ***

20 MIN.

1200.00 ENTT
19.50 GSBC
CLX
60.00 GSBD
60.00 ***
1.95 ***
1.60 ***
120.00 ***
3.90 ***
3.78 ***
180.00 ***
5.85 ***
5.14 ***
240.00 ***
7.80 ***
6.44 ***
300.00 ***
▲19.50 ***
■16.75 ***
7.31 ***
360.00 ***
17.55 ***
10.70 ***
8.75 ***
420.00 ***
15.60 ***
10.25 ***
480.00 ***
13.65 ***
17.56 ***
10.77 ***
540.00 ***
11.70 ***
17.08 ***
600.00 ***
9.75 ***
▲15.50 ***
13.29 ***
660.00 ***
19.50 ***
14.54 ***
720.00 ***
19.50 ***
15.54 ***
780.00 ***
13.50 ***
16.62 ***
840.00 ***
19.50 ***
17.01 ***
900.00 ***
19.50 ***
17.27 ***

960.00 ***
19.50 ***
17.65 ***
1020.00 ***
19.50 ***
18.01 ***
1080.00 ***
19.50 ***
18.28 ***
1140.00 ***
19.50 ***
18.53 ***
1200.00 ***
▲19.50 ***
■18.75 ***
1260.00 ***
17.55 ***
18.78 ***
1320.00 ***
15.60 ***
18.25 ***
1380.00 ***
13.65 ***
17.56 ***
1440.00 ***
11.70 ***
17.08 ***
1500.00 ***
9.75 ***
15.32 ***

WESTWARD "W" STORMWATER DETENTION FACILITY
25-YR. FREQUENCY DESIGN STORM

10 MIN.

600.00 ENTT
23.50 GSBC
CLK
60.00 GSBD
60.00 ***
2.35 ***
1.93 ***
120.00 ***
4.70 ***
4.55 ***
180.00 ***
7.05 ***
5.68 ***
240.00 ***
9.40 ***
7.26 ***
300.00 ***
11.75 ***
8.58 ***
360.00 ***
14.10 ***
9.76 ***
420.00 ***
16.45 ***
10.87 ***
480.00 ***
18.80 ***
12.24 ***
540.00 ***
21.15 ***
13.81 ***
600.00 ***
▲ 23.50 ***
15.53 ***
660.00 ***
21.15 ***
17.31 ***
720.00 ***
18.80 ***
17.34 ***
780.00 ***
16.45 ***
■ 17.40 ***
840.00 ***
14.10 ***
17.07 ***
900.00 ***
11.75 ***
16.24 ***

15 MIN.

900.00 ENTT
23.50 GSBC
CLK
60.00 GSBD
60.00 ***
2.35 ***
1.93 ***
120.00 ***
4.70 ***
4.55 ***
180.00 ***
7.05 ***
5.68 ***
240.00 ***
9.40 ***
7.26 ***
300.00 ***
11.75 ***
8.58 ***
360.00 ***
14.10 ***
9.76 ***
420.00 ***
16.45 ***
10.87 ***
480.00 ***
18.80 ***
12.24 ***
540.00 ***
21.15 ***
13.81 ***
600.00 ***
▲ 23.50 ***
15.53 ***
660.00 ***
23.50 ***
17.07 ***
720.00 ***
23.50 ***
18.15 ***
780.00 ***
23.50 ***
19.42 ***
840.00 ***
23.50 ***
20.77 ***
900.00 ***
▲ 23.50 ***
21.69 ***

960.00 ***
21.15 ***
■ 21.94 ***
1020.00 ***
18.80 ***
21.26 ***
1080.00 ***
16.45 ***
20.03 ***
1140.00 ***
14.10 ***
18.72 ***
1200.00 ***
11.75 ***
17.64 ***

20 MIN.

1200.00 ENTT
23.50 GSBC
CLK
60.00 GSBD
60.00 ***
2.35 ***
1.93 ***
120.00 ***
4.70 ***
4.55 ***
180.00 ***
7.05 ***
5.68 ***
240.00 ***
9.40 ***
7.26 ***
300.00 ***
11.75 ***
8.58 ***
360.00 ***
14.10 ***
9.76 ***
420.00 ***
16.45 ***
10.87 ***
480.00 ***
18.80 ***
12.24 ***
540.00 ***
21.15 ***
13.81 ***
600.00 ***
▲ 23.50 ***
15.53 ***
660.00 ***
23.50 ***
17.07 ***
720.00 ***
23.50 ***
18.15 ***
780.00 ***
23.50 ***
19.42 ***
840.00 ***
23.50 ***
20.77 ***
900.00 ***
23.50 ***
21.69 ***

960.00 ***
23.50 ***
22.38 ***
1020.00 ***
23.50 ***
22.71 ***
1080.00 ***
23.50 ***
22.89 ***
1140.00 ***
23.50 ***
23.07 ***
1200.00 ***
▲ 23.50 ***
■ 23.14 ***
1260.00 ***
21.15 ***
22.35 ***
1320.00 ***
18.80 ***
22.05 ***
1380.00 ***
16.45 ***
20.58 ***
1440.00 ***
14.10 ***
19.13 ***
1500.00 ***
11.75 ***
17.96 ***

BY..... DATE.....
CHKD. BY..... DATE.....
SUBJECT.....
SHEET NO.....
JOB NO.....

WESTWARD "W" STORMWATER DETENTION FACILITY
50-YR. FREQUENCY DESIGN STORM

10 MIN.

600.00 ENTT
27.30 GSEC
CLK
60.00 GSBD
60.00 ***
2.73 ***
2.24 ***
120.00 ***
5.46 ***
5.00 ***
180.00 ***
8.19 ***
6.41 ***
240.00 ***
10.92 ***
7.96 ***
300.00 ***
13.65 ***
9.35 ***
360.00 ***
16.38 ***
10.54 ***
420.00 ***
19.11 ***
12.00 ***
480.00 ***
21.84 ***
13.72 ***
540.00 ***
24.57 ***
15.64 ***
600.00 ***
▲ 27.30 ***
17.54 ***
660.00 ***
24.57 ***
19.28 ***
720.00 ***
21.84 ***
■ 20.55 ***
780.00 ***
19.11 ***
20.53 ***
840.00 ***
16.38 ***
19.59 ***
900.00 ***
13.65 ***
16.45 ***

15 MIN.

900.00 ENTT
27.30 GSEC
CLK
60.00 GSBD
60.00 ***
2.73 ***
2.24 ***
120.00 ***
5.46 ***
5.00 ***
180.00 ***
8.19 ***
6.41 ***
240.00 ***
10.92 ***
7.96 ***
300.00 ***
13.65 ***
9.35 ***
360.00 ***
16.38 ***
10.54 ***
420.00 ***
19.11 ***
12.00 ***
480.00 ***
21.84 ***
13.72 ***
540.00 ***
24.57 ***
15.64 ***
600.00 ***
▲ 27.30 ***
17.54 ***
660.00 ***
27.30 ***
19.69 ***
720.00 ***
27.30 ***
22.26 ***
780.00 ***
27.30 ***
23.37 ***
840.00 ***
27.30 ***
23.73 ***
900.00 ***
▲ 27.30 ***
23.85 ***

960.00 ***
24.57 ***
■ 23.58 ***
1020.00 ***
21.84 ***
23.90 ***
1080.00 ***
19.11 ***
23.78 ***
1140.00 ***
16.38 ***
23.31 ***
1200.00 ***
13.65 ***
20.62 ***

20 MIN.

1200.00 ENTT
27.30 GSEC
CLK
60.00 GSBD
60.00 ***
2.73 ***
2.24 ***
120.00 ***
5.46 ***
5.00 ***
180.00 ***
8.19 ***
6.41 ***
240.00 ***
10.92 ***
7.96 ***
300.00 ***
13.65 ***
9.35 ***
360.00 ***
16.38 ***
10.54 ***
420.00 ***
19.11 ***
12.00 ***
480.00 ***
21.84 ***
13.72 ***
540.00 ***
24.57 ***
15.64 ***
600.00 ***
▲ 27.30 ***
17.54 ***
660.00 ***
27.30 ***
19.69 ***
720.00 ***
27.30 ***
22.26 ***
780.00 ***
27.30 ***
23.37 ***
840.00 ***
27.30 ***
23.73 ***
900.00 ***
27.30 ***
23.85 ***

960.00 ***
27.30 ***
23.97 ***
1020.00 ***
27.30 ***
24.05 ***
1080.00 ***
27.30 ***
■ 176.45* ***
1140.00 ***
▲ 27.30 ***

* WOULD NORMALLY PEAK AT 1200 SEC, THEREFORE SYSTEM BARELY OVERFLOWS.

BY..... DATE.....
CHKD. BY..... DATE.....

SUBJECT HUNTER CONSTRUCTION
"MEADOW VIEW" SUBDIVISION
TROXELL ROAD @ SNYDER ROAD

SHEET NO.....
JOB NO. 29(

SUMMARY TABULATION
COMBINED DETENTION FACILITIES

DESIGN STORM		AFTER DEVELOPMENT STORMWATER RUNOFF RATES - CFS			
FREQ. (YR.)	DUR. (MIN.)	WITH DETENTION			MAXIMUM ALLOWABLE (See Page SWM-6)
		EAST TRIB.	WEST TRIB.	TOTAL.	
2	10	16.3	10.9	27.2	32.8
	15	18.8	12.5	31.3	
	20	19.9	13.1	≈ 33.0	
		barely overflows	barely overflows		
5	10	19.3	12.9	32.2	41.4
	15	22.9	15.3	38.2	
	20	24.5	16.3	40.8	
10	10	22.0	14.8	36.8	47.3
	15	26.4	17.5	43.9	
	20	28.3	18.8	47.1	
25	10	26.1	17.4	43.5	57.5
	15	34.1	21.9	56.0	
	20	34.9	23.1	58.0	
50	10	31.1	20.5	51.6	64.7
	15	barely overflows	23.9	≈ 61	
	20	overflows	barely overflows		

CONCLUSIONS: THE PROPOSED DETENTION SYSTEMS PROVIDE AVAILABLE STORAGE CAPACITY TO CONTROL THE INCREASED STORMWATER (Due to development) FOR A VARIETY OF STORM FREQUENCIES.

STORM SEWER
DESIGN ANALYSIS
TABULATIONS

COMBINED DETENTION FACILITIES

DESIGN STORM		AFTER DEVELOPMENT STORMWATER RUNOFF RATES - CFS WITH DETENTION			
FREQ. (YR.)	DUR. (MIN.)	EAST TRIB.	WEST TRIB.	TOTAL	MAXIMUM ALLOWABLE (See Page SWM-6)
2	10	16.3	10.9	27.2	32.8
	15	10.6	12.5	31.3	
	20				

$\sum AC_o$ = AC (Contrib. Surface Flow between Inlets)
$\sum AC_B$ = AC (Bypassing Flow From Previous Inlet)
$\sum AC_i$ = AC (Entering Inlet)
C = Runoff Factor

COMPUTATION TABLE - STORM SEWER DESIGN

SHEET NO ____ OF ____ BY CTS
CHKD. BY ____

DRAINAGE AREA							TIME		RAIN-FALL INTEN-SITY	DIS-CHARGE	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS N VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL	
AA	C	$\sum AC_o$	$\sum AC_B$	$\sum AC_o + \sum AC_B$	$\sum AC_i$	$\sum AC_i$	ΔT	ΣT	I	Q								
ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	CFS	FEET	FT/FT			IN	FPS	CFS	
0.81	0.44	0.36	N/A	0.36	0.28		6.5											
1.45	0.41	0.61	N/A	0.61	0.39	0.28	7.5	6.5	6.05	1.7	26	.0096	CAAP	0.012	15	4.6	6.9	4
2.32	0.47	0.15	0.30	0.45	0.39	0.67	1.5	7.5	5.8	3.9	50	.0210	CAAP	0.012	15	7.6	10.1	4
2.02	0.41	0.83	0.06	0.89	0.58	1.06	9.0	7.5	5.8	6.2	144	.0201	CAAP	0.012	15	8.6	9.9	4
						1.64		9.0	5.52	9.1	201	.0189	CAAP	0.012	15	9.0	9.6	4
0.69	0.45	0.76	N/A	0.76	0.47		5.0											
						0.47		5.0	6.5	3.1	30	.0100	CAAP	0.012	15	5.6	7.0	4
0.9	0.42	0.75	0.31	1.06	0.66		9.0											
1.15	0.40	0.85	0.40	1.25	1.00	2.77	10.0	9.5	5.45	15.1	187	.0155	CAAP	0.016	21	7.7	16.1	4 F
						3.77		10.0	5.35	20.2	49	.0051	CMAPA	0.021	71x47	N/A	N/A	PART 6 P STO

	47	0.71	0.54	1.25	1.25		5.0															
	N/A	0	0	0	N/A	5.56		10.0	5.35	29.8	78	.0160	CAAP	0.017	27	8.9	30.9					
						5.56		10.0	5.35	29.8	36	.0057	CAAPA	0.019	42x29	4.6	29.9					

Δ AC_o = AC (Contrib. Surface Flow between Inlets)
Δ AC_B = AC (Bypassing Flow From Previous Inlet)
Δ AC_i = AC (Entering Inlet)
C = Runoff Factor

COMPUTATION TABLE - STORM SEWER DESIGN

SHEET NO ____ OF _____ BY CT

CHKD. BY ____

DRAINAGE AREA							TIME		RAIN-FALL INTEN-SITY	DIS-CHARGE	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS N VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL	
ΔA	C	ΔAC_o	ΔAC_B	$\Delta AC_o + \Delta AC_B$	ΔAC_i	ΣAC_i	ΔT	ΣT	I	Q								
ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	CFS	FEET	FT/FT			IN	FPS	CFS	
1.26	0.43	0.54	0.29	0.83	0.54		6.0											
						0.54		6.0	6.2	3.4	2@90	.0100	CAAPA	0.021	77x52	N/A	N/A	
.50	0.47	0.71	0.54	1.25	1.25		5.0											
0	N/A	0	0	0	N/A	5.56		10.0	5.35	29.8	78	.0160	CAAP	0.017	27	8.9	30.9	
						5.56		10.0	5.35	29.8	36	.0057	CAAPA	0.019	42x29	4.6	29.9	

1 Sump

C_o = AC (Contrib. Surface Flow between Inlets)
C_e = AC (Bypassing Flow From Previous Inlet)
C_i = AC (Entering Inlet)
C = Runoff Factor

COMPUTATION TABLE - STORM SEWER DESIGN

SHEET NO. ____ OF ____ BY CTS DATE
CHKD BY ____ DATE

	DRAINAGE AREA						TIME												
	C	ΣAC_o	ΣAC_e	$\Sigma AC_o + \Sigma AC_e$	ΣAC_i	ΣAC_i	ΔT	ΣT	RAIN-FALL INTEN-SITY I	DIS-CHARGE Q	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS N VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL	REM
		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	CFS	FEET	FT/FT			IN	F.P.S	C.F.S	
7	0.47	0.27	N/A	0.27	0.27		2.0											
	0.47	0.43	0	0.43	0.30	0.27	5.0	2.0	6.5	1.7	308	.0094	CAAP	0.012	15	4.5	6.8	4 FT. C
						0.57		5.0	6.5	3.7	127	.0051	CAAPA	0.021	71x47	N/A	N/A	PART. S
																		4 FT. C
																		STORAG
	0.41	0.82	N/A	0.82	0.57		9.0											
	0.41	0.71	N/A	0.71	0.50	0.57	8.0	9.0	5.5	3.1	75	.0226	CAAP	0.012	15	7.1	10.0	4 FT. O
						1.07												PART. S
								9.0	5.5	5.9	262	.0103	CAAP	0.012	15	6.5	7.1	4 FT. O
																		STORAG
	0.47	0.82	0.38	1.20	1.20		8.0											
						1.20		8.0	5.7	6.8	20	.0050	CAAPA	0.021	71x47	N/A	N/A	6 FT. O
	0.47	0.59	0.21	0.80	0.80		5.0											
						3.64		10.0	5.35	19.5	324	.0278	CAAP	0.016	21	10.3	21.5	6 FT. O.M
																		DET. OUT

1. Sump Co

C_o = AC (Contrib. Surface Flow between Inlets)
C_e = AC (Bypassing Flow From Previous Inlet)
C_i = AC (Entering Inlet)
C = Runoff Factor

Δ AC_o = AC (Contrib. Surface Flow between Inlets)
Δ AC_B = AC (Bypassing Flow From Previous Inlet)
Δ AC_i = AC (Entering Inlet)
C = Runoff Factor

SHEET NO. ____ OF ____ BY CT

COMPUTATION TABLE - STORM SEWER DESIGN

CHKD BY ____

DRAINAGE AREA							TIME		RAIN-FALL INTEN-SITY	DIS-CHARGE	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS N VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL	
ΔA	C	ΔAC_o	ΔAC_B	$\Delta AC_o + \Delta AC_B$	ΔAC_i	ΣAC_i	Δt	Σt	I	Q								
ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	C.F.S	FEET	FT/FT			IN	F.P.S	C.F.S	
1.93	0.44	0.85	N/A	0.85	0.78		7.0											4
						0.78		7.0	5.9	4.6	258	.0302	CAAP	0.012	15	8.3	12.2	CO
1.05	0.50	0.55	0.07	0.60	0.60		5.0											4
						1.38		7.5	5.8	8.0	198	.0167	CAAP	0.014	18	7.7	12.7	CO
0.84	0.50	0.42	0	0.42	0.42		5.0											
						5.44		10.5	5.25	28.6	41	.0146	CAAP	0.017	27	10.5	28.7	4
1.34	0.50	0.67	N/A	0.67	0.67		4											
						0.67		4	6.5	4.4	74	.0122	CAAP	0.012	15	6.5	7.7	4
0.37	0.52	0.19	N/A	0.19	0.17		1											
						0.84		4	6.5	5.5	382	.0191	CAAP	0.012	15	8.2	9.7	4
1.34	0.55	0.74	0.02	0.76	0.43		5											
						1.27		5	6.5	8.3	164	.0116	CAAP	0.014	18	6.8	10.6	4
0.86	0.55	0.47	0.33	0.80	0.80		5											
						2.07		6	6.2	12.8	31	.0161	CAAP	0.016	21	7.8	16.7	4

1 S

Δ AC_o = AC (Contrib. Surface Flow between Inlets)
Δ AC_B = AC (Bypassing Flow From Previous Inlet)
Δ AC_i = AC (Entering Inlet)

Δ AC_a = AC (Contrib. Surface Flow between Inlets)
Δ AC_B = AC (Bypassing Flow From Previous Inlet)
Δ AC_i = AC (Entering Inlet)
C = Runoff Factor

COMPUTATION TABLE - STORM SEWER DESIGN

SHEET NO ____ OF ____ BY CT
CHKD. BY ____

DRAINAGE AREA							TIME		RAIN-FALL INTEN-SITY	DIS-CHARGE	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS N VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL	
ΔA	C	ΔAC_a	ΔAC_B	$\Delta AC_a + \Delta AC_B$	ΔAC_i	ΣAC_i	ΔT	ΣT	I	Q								
ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	CFS	FEET	FT/FT			IN	FPS	CFS	
0	N/A	0	0	0	0		0											
						7.51		10.5	5.25	39.4	85	.0059	CAAPA	0.019	49x33	4.8	40.2	S
0.39	0.63	0.24	N/A	0.24	0.24		6											
						0.24		6	6.2	1.5	120±	.025±	CMP	0.024	18"Φ	2.1	4.0	E

Δ AC_a = AC (Contrib. Surface Flow between Inlets)
Δ AC_B = AC (Bypassing Flow From Previous Inlet)
Δ AC_i = AC (Entering Inlet)
C = Runoff Factor

COMPUTATION TABLE - STORM SEWER DESIGN

ER-BWQ-61 Rev. 10-74

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED
11-30-79

APPLICATION FOR WATER QUALITY MANAGEMENT PERMIT

For Department Use Only

APPLICANT NAME
Upper Gwynedd-Towamencin Municipal Authority

TELEPHONE NO.

MAILING ADDRESS
2225 Kriebel Road
Lansdale, Pennsylvania

PROJECT LOCATION

MUNICIPALITY
Towamencin Township

COUNTY
Montgomery

HEREBY APPLIES FOR: (CHECK APPROPRIATE BLOCKS IN SPACES A, B, C AND D)

A. APPROVAL OF PLANS FOR CONSTRUCTION OF:
- [X] EXTENSIONS: SEWERS AND APPURTENANCES
- [ ] SEWAGE TREATMENT PLANT
- [ ] MINE DRAINAGE TREATMENT PLANT
- [ ] INDUSTRIAL WASTE TREATMENT PLANT
- [X] OUTFALL AND HEADWALL
- [ ] STREAM CROSSING [ ] IMPOUNDMENT

B. APPROVAL TO DISCHARGE:
(1) [X] TREATED
[ ] UNTREATED

(2) [ ] INDUSTRIAL WASTES
[ ] MINE DRAINAGE
[ ] SEWAGE
(1) via exist. Auth. Plant

C. APPROVAL TO OPERATE
UNDERGROUND MINE [ ]

D. APPROVAL OF AN EROSION AND SEDIMENTATION CONTROL PLAN [ ]

(ALL DISCHARGES OF WASTES ARE PURSUANT TO "THE CLEAN STREAMS LAW")

I HEREBY CERTIFY THAT THE ACCOMPANYING REPORT AND ALL PLANS, MODULES, AND DOCUMENTS DESIGNATED THEREIN ARE ATTACHED TO THIS APPLICATION, AND MADE A PART HEREOF

X H. Warren Dimmig
SIGNATURE OF APPLICANT OR RESPONSIBLE OFFICIAL

NAME OF APPLICANT OR RESPONSIBLE OFFICIAL:	TITLE	DATE OF APPLICATION
H. Warren Dimmig	Chairman	11-30-79

ADDRESS
2225 Kriebel Road, Lansdale, M.R., Pennsylvania 19446

AFFIDAVIT
COMMONWEALTH OF PENNSYLVANIA, COUNTY OF Montgomery

I, H. Warren Dimmig BEING DULY SWORN, ACCORDING TO LAW, DEPOSE AND SAY THAT I (AM THE APPLICANT) (AM AN OFFICER OR OFFICIAL OF THE APPLICANT) (HAVE THE AUTHORITY TO MAKE THIS APPLICATION) AND THAT THE PLANS, REPORTS AND DOCUMENTS SUBMITTED AS PART OF THE APPLICATION ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

SWORN AND SUBSCRIBED TO BEFORE ME THIS
30th DAY OF NOV. 19 79

Notary Public
Lansdale Borough, Montgomery County
My Commission Expires Aug. 16, 1982

X H. Warren Dimmig
SIGNATURE OF APPLICANT OR RESPONSIBLE OFFICIAL

SECTION TO BE COMPLETED BY THE PERSON AUTHORIZED BY THE APPLICANT TO PREPARE THIS APPLICATION. NOTE: SEWERAGE, INDUSTRIAL WASTE, AND MINE DRAINAGE APPLICATIONS REQUIRE A REGISTERED PROFESSIONAL ENGINEER, EXCEPT THAT A REGISTERED SURVEYOR IS ACCEPTABLE WHERE PUBLIC HEALTH AND SAFETY ARE NOT INVOLVED.

NAME OF DESIGN PERSON AND FIRM
Clifford T. Stout, P.E.
HERBERT H. METZ, INCORPORATED

MAILING ADDRESS
410 Derstine Avenue, P.O. Box 647
Lansdale, Pennsylvania 19446

TELEPHONE NO.
(215) 855-3111

AGREEMENT DATE
11-30-79

SIGNATURE OF DESIGN ENGINEER (OR OTHER)
Clifford T. Stout, P.E. 26386-E

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL SEAL
CLIFFORD T. STOUT
ENGINEER No. 26386-E

ER-BWQ-188.1 REV. 3/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: 11-30-79
DATE REVISED:

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

APPLICANT: UPPER GWYNEDD - TOWAMENCIN MUNICIPAL (SEWER) AUTHORITY

LOCATION OF PROJECT: MUNICIPALITY: TOWAMENCIN TWP. COUNTY: MONTGOMERY

DESIGN ENGINEER AND FIRM: CLIFFORD T. STOUT, P.E., HERBERT H. METZ, INC.

DESIGN ENGINEERS ADDRESS: 410 DERSTINE AVE. LANSDALE, PA. ZIP CODE: 19446 TELEPHONE: 215-855-3111

DESCRIPTION OF PROJECT: SAN. SEWER EXTENSION TO SERVE PLANNED 38-LOT SINGLE-FAMILY DWELLING SUBDIVISION ("MEADOW VIEW" - Hunter Constr. Co.) AT THE INTERSECTION OF TROXELL ROAD (L.R. 46047) AND SNYDER ROAD.

A. DOCUMENTATION REQUIRED

1. HAS A CHECK FOR $25.00, PAYABLE TO THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES, BEEN INCLUDED? (NOT REQUIRED OF STATE OR FEDERAL AGENCIES) — [X] Yes [ ] No [ ] N/A

2. HAVE 2 COPIES OF THE APPLICATION, FORM H710.046, BEEN SUBMITTED? (3 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND DELAWARE RIVER BASIN). — [X] Yes [ ] No

A. HAS THE AFFIDAVIT BEEN PROPERLY COMPLETED AND EXECUTED? — [X] Yes [ ] No

3. DOES THE APPLICATION INCLUDE THE FOLLOWING APPLICABLE MODULES:

MODULE NUMBER	TITLE	NUMBER OF PAGES	
1	GENERAL INFORMATION – SEWERAGE	9	[X] Yes
4	WASTE LOAD AND CHARACTERISTICS	3	[ ] Yes
5	GEOLOGY AND GROUND WATER INFORMATION	2	[ ] Yes
6	SEWERS AND APPURTENANCES	8	[X] Yes
7	SEWAGE PUMPING STATIONS	4	[ ] Yes
8	PUMPING FACILITIES	1	[ ] Yes
9	FLOW EQUALIZATION AND STORAGE BASINS	2	[ ] Yes
10	GRIT CHAMBERS	1	[ ] Yes
11	SCREENING AND COMMINUTING DEVICES	2	[ ] Yes
12	IMHOFF AND SEPTIC TANKS	2	[ ] Yes
13	SETTLING TANKS	2	[ ] Yes
14	EARTHEN SETTLING BASINS	2	[ ] Yes

ER-BWQ-188.1 REV. 3/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: 11.30.79
DATE REVISED:

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

A. DOCUMENTATION REQUIRED – CONTINUED

MODULE NUMBER	TITLE	NUMBER OF PAGES	
15	TRICKLING FILTERS	2	☐ Yes
16	AERATION TANKS OR BASINS	3	☐ Yes
17	WASTE STABILIZATION PONDS	3	☐ Yes
18	CHEMICAL TREATMENT (INCLUDING FEEDERS)	3	☐ Yes
19	MIXING AND FLOCCULATION FACILITIES	1	☐ Yes
20	SAND FILTERS	2	☐ Yes
21	DISINFECTION	2	☐ Yes
22	SPRAY IRRIGATION	1	☐ Yes
23	PHYSICAL ABSORPTION, ION EXCHANGE, AND CONTACT UNITS	2	☐ Yes
25	DEEP WELL DISPOSAL	4	☐ Yes
26	SLUDGE TREATMENT AND DISPOSAL		
	A. SEPARATE DIGESTION TANKS AND SLUDGE THICKENING TANKS	2	☐ Yes
	B. ELUTRIATION	1	☐ Yes
	C. WET OXIDATION	1	☐ Yes
	D. SLUDGE DRYING BEDS	1	☐ Yes
	E. LAND DISPOSAL OF SLUDGE	1	☐ Yes
	F. SLUDGE BASINS	1	☐ Yes
	G. FILTERS AND CENTRIFUGES	1	☐ Yes
	H. INCINERATION	1	☐ Yes

APPLICANT: UPPER GWYNEDD-TOWAMENCIN MUNICIPAL (SEWER) AUTHORITY

LOCATION OF PROJECT: MUNICIPALITY: TOWAMENCIN TWP. COUNTY: MONTGOMERY

DESIGN ENGINEER AND FIRM: ROBERT E. STOUT, P.E. HERBERT H. METZ, INC.

DESIGN ENGINEERS ADDRESS: 410 DESTINE AVE. LANSDALE, PA. ZIP CODE: 19446 TELEPHONE: 215-855-3111

DESCRIPTION OF PROJECT: SAN SEWER EXTENSION TO SERVE PLANNED 38 LOT SINGLE-FAMILY DWELLING SUBDIVISION LOCATED AT INTERSECTION OF TROXELL ROAD & SUMNEYTOWN PIKE

B. REQUIRED DATA

1. THE FRONT COVER OR FLYLEAF OF EACH SET OF DRAWINGS AND SPECIFICATIONS MUST BEAR THE SIGNATURE AND SEAL OF THE REGISTERED PROFESSIONAL ENGINEER, SURVEYOR BY OR UNDER WHOM PREPARED. EACH DRAWING MUST BEAR AN IMPRINT OR REASONABLE FACSIMILE OF SUCH SEAL.

THIS SHEET NOT APPLICABLE

ER-SWG-188.1(REV. 3/78)

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: 11.30.79
DATE REVISED:

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

NUMBER: 0 7 9 1 0 3

For Department Use Only

B. REQUIRED DATA – CONTINUED

2. INFORMATION RELATIVE TO SPECIFIC PROGRAMS:

A. 2 COPIES OF DESIGNER'S PLANS, MODULES, AND SPECIFICATIONS (3 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND DELAWARE RIVER BASIN) — ☐ Yes ☐ No ☒ N/A

B. HYDRAULIC PROFILE OR SCHEMATIC FLOW DIAGRAM FOR PROPOSED TREATMENT PLANT. — ☐ Yes ☐ No ☒ N/A

C. UNITED STATES GEOLOGICAL SURVEY TOPOGRAPHICAL MAP SHOWING EXACT POINT OF DISCHARGE AND TREATMENT PLANT OR PUMP STATION LOCATION AND/OR AREA TO SEWERS. — ☐ Yes ☐ No ☒ N/A

D. HAVE YOU APPLIED FOR A PUBLIC UTILITY COMMISSION CERTIFICATE OF PUBLIC CONVENIENCE? — ☐ Yes ☐ No ☒ N/A

(1) SPECIFY PUBLIC UTILITY COMMISSION APPLICATION NUMBER _____

(2) IS CERTIFICATE OF PUBLIC CONVENIENCE ENCLOSED? — ☐ Yes ☐ No

E. HAVE YOU APPLIED FOR APPROVAL OF STREAM ENCROACHMENT(S)? TWO OUTFALLS — ☒ Yes ☐ No ☐ N/A

F. HAVE YOU APPLIED FOR DEPARTMENT OF LABOR AND INDUSTRY APPROVAL FOR FEATURES AFFECTING EMPLOYEE SAFETY? — ☐ Yes ☐ No ☒ N/A

G. DO YOU HAVE AN AGREEMENT INDICATING APPROVAL TO DISCHARGE TO SEWER SYSTEM AND TREATMENT PLANT OF ANOTHER PERMITTEE? — ☐ Yes ☐ No ☒ N/A

H. HAVE YOU APPLIED FOR APPROVAL OF AIR POLUTION CONTROL FACILITIES? — ☐ Yes ☐ No ☒ N/A

I. HAVE YOU SUBMITTED A LIST WITH NAMES, ADDRESSES, AND TITLES OF ALL PARTNERS IN THE CASE OF A PARTNERSHIP OR ALL OFFICERS IN THE CASE OF A CORPORATION, UNINCORPORATED ASSOCIATION, INCORPORATED ASSOCIATION, PARTNERSHIP, OR OTHER ENTITY (NOT MUNICIPAL)? — ☐ Yes ☐ No ☒ N/A

3. SPECIFY THE FOLLOWING:

A. PLANS: SUBDIVISION - TITLE (TITLE/DESCRIPTION) NO. OF SHEETS 1 DATE JUNE 4, 1979

PLANS: Constr. Impr. Plans (TITLE/DESCRIPTION) NO. OF SHEETS 7 DATE — "

PLANS: Plan / Profiles (TITLE/DESCRIPTION) NO. OF SHEETS 11 DATE — "

ER-SWG-166.1(REV. 3/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: 11.30.79
DATE REVISED:

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

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B. REQUIRED DATA – CONTINUED

B. SPECIFICATIONS (IF APPLICABLE): Upper Gwynedd - Towamencin Mun. Auth.
Ref. Specs. as filed with P.A.D.E.R.
TITLE

NUMBER OF VOLUMES _____ DATE _____

C. OTHER (SPECIFY TYPE AND NUMBER):

4. ARE THE PLANS:

A. CLEAR, LEGIBLE, AND DRAWN TO SCALE WITH NORTH ARROW INDICATED? [X] Yes [ ] No

B. WITHIN MAXIMUM SIZE OF 36 INCHES BY 50 INCHES? [X] Yes [ ] No

C. SEAL AND SIGNATURE OF PROFESSIONAL ENGINEER OR SURVEYOR RESPONSIBLE FOR THIS APPLICATION

1. SIGNATURE OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW) Clifford J. Stout P.E. 26386-E

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
CLIFFORD J. STOUT
ENGINEER
No. 26386-E

2. SEAL OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW)

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
CLIFFORD J. STOUT
ENGINEER
No. 26386-E

ER-SWG-166.1(REV. 3/78
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
DATE PREPARED 11.30.79
WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE
For Department Use Only

ER-WQ-168.1 REV. 3/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: 11-30-79
DATE REVISED:

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

CLASS OF CONSTRUCTION (Check all applicable blocks)

- ☐ NEW
- ☐ REPLACEMENT OF EXISTING UNIT(S)
- ☐ ADDITIONS AND/OR MODIFICATIONS TO EXISTING UNIT(S)

TABLE I – DESIGN LOADING DATA

			Existing Facilities Design	Present Operating Load	Proposed Total Facilities To Be Design
1. EQUIVALENT POPULATION TO BE SERVED (NO. OF PERSONS – SUBMIT CALCULATIONS)					
	A. DOMESTIC				
	B. INDUSTRIAL				
	C. TOTAL				
2. DESIGN YEAR OR PERIOD FOR OPERATING DATA					
3. RUNOFF PERIOD		(HRS)			
4. DOMESTIC WASTE FLOW DATA	A. PER CAPITA FLOW	(GPCD)			
	B. AVERAGE DAILY FLOW	(MGD)			
	C. INFILTRATION	(MGD)			
	D. RUNOFF FLOW RATE	(MGD)			
	E. MAXIMUM FLOW RATE	(MGD)			
5. INDUSTRIAL WASTE FLOW DATA	A. AVERAGE DAILY FLOW	(MGD)			
	B. MAXIMUM DAILY FLOW	(MGD)			
6. TOTAL DESIGN AVERAGE FLOW		(MGD)			

TABLE II – FACILITIES DESIGN DATA (Specify number of units)

Units	Existing	To Be Abandoned	Total Proposed	Units	Existing	To Be Abandoned	Total Proposed
1. SCREENING DEVICES				13. CHLORINE CONTACT TANK(S)			
2. GRIT CHAMBER(S)				14. DISINFECTION FACILITIES			
3. COMMINUTOR(S)				15. SEPARATE SLUDGE DIGESTORS			
4. PRE-AERATION TANKS				16. SLUDGE DRYING BEDS			
5. PRIMARY SETTLING TANKS				17. MECHANICAL SLUDGE DEWATERING			
6. IMHOFF TANK(S)				18. SLUDGE ELUTRIATION TANKS			
7. TRICKLING FILTERS				19. SLUDGE STABILIZATION TANKS			
8. INTERMEDIATE SETTLING TANKS				20. INCINERATOR(S)			
9. AERATION TANKS				21. MIXING AND FLOCCULATION TANKS			
10. FINAL SETTLING TANKS				22. OTHER (Specify)			
11. INTERMITTENT SAND FILTERS				23. OTHER (Specify)			
12. WASTE STABILIZATION POND(S)				24. OTHER (Specify)			

THIS SHEET NOT APPLICABLE

ER-BWQ-188.1 REV. 3/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: 11-30-79
DATE REVISED:

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

D. GENERAL INFORMATION

1. EXISTING COMBINED SEWERS MAKE UP 0 % OF THE TOTAL AREA SERVED BY THE SYSTEM.

2. ARE THE EXISTING SANITARY SEWERS SUBJECT TO EXCESSIVE INFILTRATION? ☐ Yes ☒ No ☐ N/A

A. IF YES, SPECIFY MAJOR SOURCES OF INFILTRATION:

3. TYPES OF INDUSTRIAL WASTES OF SPECIAL CONSIDERATION:

B. HAS A REGULATION PROHIBITING THE ADMITTANCE OF STORM WATER FROM PAVEMENTS, ROOFS, AND OTHER SOURCES BEEN ADOPTED? ☒ Yes ☐ No
(IF YES, ENCLOSE COPY.) Refer to U.G.T.M.A. Rules, Rules and Regulations, Constr. Specs. and Nat'l Plumbing Code

C. SPECIFY STEPS TAKEN OR BEING TAKEN TO CORRECT THE INFILTRATION PROBLEM, INCLUDING DATES: ☐ N/A

4. WILL THE APPLICANT BE RESPONSIBLE FOR REPAIR AND MAINTENANCE OF SEWAGE FACILITIES FOR WHICH APPLICATION IS SUBMITTED? ☒ Yes * ☐ No

* Upon completion, testing, and acceptance into Auth. system

A. IF NO, EXPLAIN:

5. THE DISTANCE OF THIS PLANT TO THE NEAREST OCCUPIED DWELLING: N/A

A. PRESENT _____ FEET

B. PROPOSED _____ FEET

6. IF THE APPLICANT IS OTHER THAN A MUNICIPALITY OR MUNICIPAL AUTHORITY, HAS THE GOVERNING MUNICIPALITY OBJECTED TO THE PROPOSED SEWAGE TREATMENT PLANT? ☐ Yes ☐ No ☒ N/A

ER-BWQ-188.1 REV. 3/78 COMMONWEALTH OF PENNSYLVANIA
DATE PREPARED 11-30-79
DATE REVISED
WATER QUALITY MANAGEMENT
WATER POLLUTION CONTROL

ER-BWQ-188.1(REV. 3/78

DATE PREPARED 11-30-79

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

D. GENERAL INFORMATION – CONTINUED

A. IS THE LETTER FROM MUNICIPAL OFFICER, SIGNIFYING THE OPINION, APPENDED TO THIS APPLICATION? ☐ Yes ☐ No

7. ARE DUPLICATE TREATMENT UNITS PROVIDED WHERE REQUIRED? ☐ Yes ☐ No ☐ N/A

A. IF NO, EXPLAIN: _____

8. OUTFALL SEWER:

A. IS THE OUTFALL SEWER ADEQUATELY PROTECTED TO ENSURE ITS STRUCTURAL STABILITY AND FREEDOM FROM STOPPAGE? ☐ Yes ☐ No

B. DO ANY BY-PASS STRUCTURES DISCHARGE TO WATERS OF THE COMMONWEALTH? (SPECIFY PLAN SHEET NUMBER(S) SHOWING BY-PASS STRUCTURES) ☐ Yes ☐ No

9. HAS AN AUXILIARY STANDBY POWER SOURCE BEEN PROVIDED? ☐ Yes ☐ No ☐ N/A

9. DOES ANY PIPING OR CONNECTION EXIST IN ANY PART OF THE TREATMENT WORKS WHICH MAY CAUSE CONTAMINATION OF THE POTABLE WATER SUPPLY? ☐ Yes ☐ No

10. IF A NON-POTABLE WATER SUPPLY IS PROVIDED, ARE ALL OUTLETS PERMANENTLY POSTED TO INDICATE WATER IS NOT SAFE FOR DRINKING? ☐ Yes ☐ No ☐ N/A

11. ARE FACILITIES PROVIDED FOR MEASURING THE SEWAGE FLOW? ☐ Yes ☐ No

12. SAFETY:

A. ARE FACILITIES PROVIDED TO EFFECTIVELY PROTECT THE OPERATOR AND VISITORS? ☐ Yes ☐ No

13. OUTFALL SEWER:

A. IS THE OUTFALL SEWER ADEQUATELY PROTECTED TO ENSURE ITS STRUCTURAL STABILITY AND FREEDOM FROM STOPPAGE? ☐ Yes ☐ No

B. IS AN OUTFALL HEAD WALL PROVIDED? ☐ Yes ☐ No ☐ N/A

C. DOES THE OUTFALL EXTEND TO THE LOW WATER MARK OF THE RECEIVING STREAM? ☐ Yes ☐ No ☐ N/A

14. HAVE PROVISIONS BEEN MADE TO PROTECT ALL STRUCTURES AGAINST FLOTATION? ☐ Yes ☐ No

15. IF THE PROJECT INVOLVES ADDITIONS TO AN EXISTING TREATMENT PLANT, DO THE SPECIFICATIONS INCLUDE A PROGRAM TO PREVENT BY-PASSING OF ANY UNIT TO WATERS OF THE COMMONWEALTH DURING CONSTRUCTION? ☐ Yes ☐ No ☐ N/A

A. SPECIFY VOLUME AND PAGE NUMBER OF SPECIFICATIONS: _____

16. SPECIFY NAMES OF MUNICIPALITIES AND POPULATION SERVED OR TO BE SERVED BY THIS PLANT: _____

THIS SHEET NOT APPLICABLE

ER-BWQ-188.1 REV. 3/79

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED 11-30-79
DATE REVISED

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

B. RECEIVING STREAM*

1. WHAT IS THE NAME OF THE RECEIVING STREAM? _____

A. TRIBUTARY OF _____

B. TRIBUTARY OF _____

C. MAJOR DRAINAGE BASIN:
- ☐ DELAWARE
- ☐ SUSQUEHANNA
- ☐ POTOMAC
- ☐ LAKE ERIE
- ☐ GENESEE
- ☐ ALLEGHENY
- ☐ MONONGAHELA
- ☐ OHIO

2. DESCRIBE THE EXACT POINT OF DISCHARGE:

_____ DEG, _____ MIN, _____ SEC LATITUDE

_____ DEG, _____ MIN, _____ SEC LONGITUDE

A. WATERSHED AREA ABOVE POINT OF DISCHARGE IS

_____ SQUARE MILES.

3. WHAT IS THE:

A. MINIMUM 7-CONSECUTIVE-DAYS FLOW OCCURRING ONCE IN 10 YEARS?

_____ CUBIC FEET PER SECOND.

B. MINIMUM STREAM FLOW: _____

C. ABOVE FLOWS ARE BASED ON:
- ☐ MEASUREMENTS
- ☐ ESTIMATES

_____ YEARS OF RECORD

4. IS THE TREATMENT PLANT SUBJECT TO FLOODING? ☐ Yes ☐ No

5. THE PROBABILITY OF THE TREATMENT PLANT BEING OUT OF SERVICE DUE TO FLOODING IS ONCE IN _____ YEARS.

A. LIST BRIEFLY THE METHODS USED FOR FLOOD PROTECTION: _____

* Attach U.S. Geological Survey 7.5' or 15' Quadrangle Map showing exact points of discharge.

THIS SHEET NOT APPLICABLE

ER-BWQ-188.1 REV. 9/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED 11-30-79
DATE REVISED

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

E. RECEIVING STREAM – CONTINUED

6. TO THE BEST OF YOUR KNOWLEDGE, WILL THE TREATED WASTE DISCHARGE ADVERSELY AFFECT:

A. DOMESTIC WATER SUPPLY?	☐ Yes	☐ No
B. BATHING?	☐ Yes	☐ No
C. STOCK WATERING?	☐ Yes	☐ No
D. FISH AND AQUATIC LIFE?	☐ Yes	☐ No
E. INDUSTRIAL WATER SUPPLY?	☐ Yes	☐ No
F. IRRIGATION?	☐ Yes	☐ No
G. BOATING AND AESTHETICS?	☐ Yes	☐ No

7. IF ANY ITEMS IN 6 ABOVE ARE ANSWERED YES, INDICATE DISTANCE TO, LOCATION OF, AND EXTENT OF ADVERSE EFFECT:

1-7 THIS SHEET NOT APPLICABLE

1-8 THIS SHEET NOT APPLICABLE

ER-BWQ-155.0 REV. 3/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

DATE PREPARED: 11-30-79
DATE REVISED:

For Department Use Only

MODULE 6 – SEWERS AND APPURTENANCES

CLASS OF CONSTRUCTION (Check All Applicable Blocks)
☐ NEW SYSTEM
☐ REPLACEMENT OF EXISTING SYSTEM
☒ EXTENSION(S) TO EXISTING SYSTEM

TABLE I – DESIGN FLOW AND LOADING INFORMATION

1. POPULATION TO BE SERVED: 41 E.D.U.	INITIAL: 143.5	DESIGN: 164	DESIGN YEAR: 1980
2. AREA TO BE SERVED: Residential	ACRES (INITIAL): 22.2 ± Ac		
TYPE OF AREA (Residential, Commercial, Etc.)	ACRES (FUTURE): 22.2 ± Ac		

3.

A. LATERALS AND SUB-MAIN SEWERS	(GPCD)	400
B. MAIN AND TRUNK SEWERS	(GPCD)	N/A
C. INTERCEPTORS	(GPCD)	N/A
(1) MEASURED DRY-WEATHER FLOW	(%)	N/A
(2) ESTIMATED DRY-WEATHER FLOW	(%)	N/A

D. IF ANY VALUES LESS THAN PRESCRIBED IN MANUAL, EXPLAIN:

4.

DESIGN FLOW DATA	GPCD	MGD
A. AVERAGE DAILY FLOW	100	0.01435
B. INFILTRATION		incl. in "A"
C. MAXIMUM INDUSTRIAL WASTE FLOW		N/A
D. TOTAL DESIGN FLOW		0.01435
E. MAXIMUM FLOW RATE		0.0574

TABLE II – GENERAL DESIGN

PIPE DIAMETER (IN.)	MINIMUM SLOPE (%)	MAXIMUM SLOPE (%)	MAXIMUM VELOCITY (FPS)	MAXIMUM FLOW (MGD)	MAXIMUM DISTANCE BETWEEN MANHOLES (Ft.) SEWERS 18 IN. OR LESS	MAXIMUM DISTANCE BETWEEN MANHOLES (Ft.) SEWERS 18 IN. TO 30 IN.	TYPE OF SEWER MATERIAL	"N" VALUE
8"	0.0050	0.0388	6.8	1.56	380	N/A	A.C.P.	0.013

(USE ADDITIONAL SHEETS IF NECESSARY)

TABLE III – CRITICAL DATA

PLAN SHEET NUMBER	MANHOLE NUMBER FROM	MANHOLE NUMBER TO	SEWER PIPE SIZE (IN.)	SEWER SLOPE (%)	POPULATION SERVED	TOTAL DESIGN FLOW (MGD)	SEWER FLOWING FULL VEL. (FPS)	SEWER FLOWING FULL CAP. (MGD)	MAXIMUM FLOW VELOCITY (FPS)
				NO CRITICAL SECTIONS					

ER-BWQ-155.1 (REV. 3/78)
DATE PREPARED: 11-30-79
DATE REVISED:
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER POLLUTION CONTROL

ER-SWG-166.6 REV. 3/79

DATE PREPARED 11.30.79

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

MODULE 6 – SEWERS AND APPURTENANCES

For Department Use Only

A. GENERAL DESIGN

1. ARE THE PROPOSED SEWERS DESIGNED AS SEPARATE SANITARY SEWERS? [X] Yes [ ] No

   A. IF NO, EXPLAIN IN DETAIL, INCLUDING THE POSSIBLE EFFECTS UPON WATER COURSES.

2. ARE THE PROPOSED SEWERS DEEP ENOUGH TO SERVE ALL ADJACENT BASEMENTS? [X] Yes [ ] No

   A. IF NO, EXPLAIN. Basements are optional

3. ARE THERE ANY OVERFLOWS OR BYPASSES OTHER THAN FROM PUMP STATIONS? [ ] Yes [X] No

   A. IF YES, SPECIFY PLAN SHEET(S) WHERE SHOWN.

4. WHERE SMALLER SEWERS JOIN LARGER ONES, HAVE THE INVERTS OF THE LARGER SEWERS BEEN LOWERED SUFFICIENTLY TO MAINTAIN THE SAME ENERGY GRADIENT? [ ] Yes [ ] No [X] N/A

5. SPECIFY THE TYPE OF LEAKAGE TEST (INFILTRATION AND/OR EXFILTRATION) AND THE LIMIT TO BE USED, PREFERABLY IN TERMS OF GALLONS PER INCH OF PIPE DIAMETER PER MILES PER DAY. (INDICATE VOLUME AND PAGE NUMBER OF SPECIFICATIONS.)

   TYPE AND LIMITS: Infiltration / Exfiltration — not to exceed 200 gal per inch of pipe diameter per mile per day (U.G.T.M.A. Spec.)

6. HAVE PROVISIONS BEEN MADE TO PROTECT SEWERS AT VELOCITIES OF OVER 15 FEET PER SECOND? [ ] Yes [ ] No [X] N/A

   A. ARE SEWERS SECURED WITH CONCRETE ANCHORS (OR EQUAL) SPACED AS REQUIRED? [ ] Yes [ ] No [X] N/A

7. ARE MANHOLES PROVIDED AT ALL CHANGES IN SIZE, GRADE, ALIGNMENT, AND SEWER INTERSECTIONS? [X] Yes [ ] No

8. ARE DROP MANHOLES PROVIDED WHERE THE ENTRANCE SEWER INVERT IS 24 INCHES OR MORE ABOVE MANHOLE INVERT? [ ] Yes [ ] No N/A

9. ARE WATERTIGHT COVERS USED WHERE MANHOLES ARE SUBJECT TO FLOODING BY STREET RUNOFF OF HIGH WATER? [ ] Yes [ ] No N/A

ER-BWQ-188.6 REV. 9/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

MODULE 6 – SEWERS AND APPURTENANCES

DATE PREPARED	For Department Use Only
11.30.79	
DATE REVISED	

A. GENERAL INFORMATION – CONTINUED

10. ARE SEWERS IN STREAMS PROTECTED WITH AT LEAST 1 FOOT COVER IN ROCK AND 3 FEET COVER IN OTHER MATERIAL? ☐ Yes ☐ No ☒ N/A

11. ARE SEWERS IN STREAMS CONSTRUCTED TO REMAIN WATERTIGHT AND IN ALIGNMENT? ☐ Yes ☐ No ☒ N/A

12. DOES THE APPLICATION INVOLVE CAPPED SEWERS? ☐ Yes ☒ No

A. IF YES, SPECIFY PLAN SHEET NUMBER. _____

13. HOW MANY INVERTED SIPHONS ARE INCLUDED IN THIS DESIGN? None

14. IF SIPHONS ARE INCLUDED, SPECIFY THE FOLLOWING: N/A

	SIPHON:	SIPHON:	SIPHON:
A. NUMBER OF BARRELS			
B. MINIMUM PIPE SIZE			
C. MINIMUM VELOCITY AT AVERAGE FLOW			

D. HAS PROVISION BEEN MADE FOR FLUSHING, RODDING, AND MAINTENANCE? ☐ Yes ☐ No

15. IS THERE ANY CONNECTION BETWEEN THE SEWER AND A PUBLIC OR PRIVATE POTABLE WATER SUPPLY OR APPURTENANCES? ☐ Yes ☒ No

16. ARE ANY WATER SUPPLY SOURCES, PUBLIC OR PRIVATE, LOCATED WITHIN 200 FEET OF THE SEWERS? ☐ Yes ☒ No

A. IF YES, SPECIFY PLAN SHEET(S) ON WHICH SOURCES ARE SHOWN. _____

B. IF YES, WILL SEWERS BE ENCASED OR WATERTIGHT? ☐ Yes ☐ No

17. ARE SEWERS AT LEAST 10 FEET HORIZONTALLY FROM WATER LINES AND/OR AT LEAST 18 INCHES BELOW THE WATER LINE? ☒ Yes ☐ No

18. IF THE PROPOSED FACILITY WILL DISCHARGE TO THE SEWER SYSTEM AND TREATMENT PLANT OF ANOTHER MUNICIPALITY, HAVE APPROPRIATE AGREEMENTS BEEN REACHED? ☐ Yes ☐ No ☒ N/A

A. IS THE AGREEMENT A CERTIFIED AGREEMENT? ☐ Yes ☐ No ☐ N/A

B. IS THE AGREEMENT A LETTER OF INTENT? ☐ Yes ☐ No ☐ N/A

C. HAVE DUPLICATE COPIES BEEN ENCLOSED? ☐ Yes ☐ No

19. DO THE EXISTING SEWERS TO WHICH THE PROPOSED SEWERS WILL CONNECT HAVE ADEQUATE CAPACITY TO CONVEY THE ADDITIONAL FLOW? ☒ Yes ☐ No ☐ N/A

EWR-188.6 REV. 9/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

DATE PREPARED: 11.30.79
DATE REVISED: 12.3.79

For Department Use Only

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DEC 7 1979

MODULE 6 – SEWERS AND APPURTENANCES

A. GENERAL INFORMATION – CONTINUED

20. ON THE PLANS, INDICATE THE PERMIT NUMBER OF EXISTING SEWER AT EACH PROPOSED POINT OF CONNECTION AND THE NAME OF THE PERMITEE; SPECIFY PLAN SHEET NUMBER(S) ON WHICH INDICATED: 765513, 4672418 – U.G.T.M.A. ☐ N/A
SEE PLAN SHEET NO. 2 OF 19, NO. 8 OF 19; 4679414 PLAN SHEET 11 OF 19

21. WILL THERE BE A PUMP STATION INVOLVED IN RECEIVING SEWAGE FROM THE SEWER EXTENSION? ☐ Yes ☒ No ☐ N/A

A. IF YES, SPECIFY PRESENT AND DESIGN FLOWS OF PUMPING STATION.

22. RECEIVING SEWAGE TREATMENT PLANT (FILL IN FOR EXTENSION(S) TO EXISTING SYSTEM ONLY)

A. OWNER OF PLANT: Upper Gwynedd-Towamencin Municipal Authority (UGTMA)

B. NAME OF PLANT: UGTMA Wastewater Treatment Plant

C. DISCHARGE DATA

	WASTE FLOW (MGD)	SOLIDS: SUSPENDED (#/DAY)	SOLIDS: SETTLEABLE (ML/L)	BOD 5 DAY 20°C (#/DAY)
(1) ALLOWABLE LOAD TO STREAM AUTHORIZED UNDER PRESENT PERMIT	1.5 / 2.5 (1)	375	None stated	3
(2) PRESENT LOAD TO STREAM FROM TREATMENT PLANT	1.637 (2)	341 (3)	0.4	341
(3) ADDITIONAL LOAD TO STREAM EXPECTED DURING THE NEXT FIVE YEARS FROM EXISTING SYSTEM	0.5217 (4)	107	Negl.	107
(4) ADDITIONAL LOAD TO STREAM DURING THE NEXT FIVE YEARS FROM PROPOSED EXTENSION	0.01435	3	Negl.	3
(5) TOTAL ANTICIPATED LOAD TO STREAM IN NEXT FIVE YEARS (2+3+4)	2.1731	451	0.4	451

D. TREATMENT PLANT OPERATING EFFICIENCY

	SOLIDS: SUSPENDED (%)	SOLIDS: SETTLEABLE (%)	BOD 5 DAY 20° C (%)
(1) PRESENT TREATMENT PLANT	NO REPRESENTATIVE DATA - PLANT EXPANSION IN PROGRESS		
(2) AFTER INITIAL LOAD FROM PROPOSED EXTENSION	90	98	90
(3) IN FIVE YEARS	90	98	90

23. WILL THE LOAD UNDER 22.B (5) ABOVE PRODUCE AN EFFLUENT THAT WILL HAVE AN ADVERSE EFFECT UPON THE RECEIVING STREAM? ☐ Yes ☒ No

Notes: (1), (2), (3), (4) refer to supplementary sheet 6.4a.

supplementary sheet 6-4A

Notes - Re: 6-4 22.C

(1) 1.5 MGD former capacity, plus 1.0 MGD current expansion capacity = 2.5 MGD.

(2) Avg. Daily Flow: Obtained by averaging most recent 12 daily recorded flows from May 1978 through April 1979, inclusive.

(3) Values based upon anticipated average 30 day consec. period effluent Susp. Solids and B.O.D. concentrations of 25 ppm each by Spring 1978 when plan expansion is completed to 2.5 MGD hydraulic capacity and optimum plant efficiency established. During recent and current plan construction expansion period, it should be noted, the normal design pattern, sequence, and retention time of sewage flow through treatment process units is disrupted or abnormal due to construction schedules and procedures, and optimum plant operating efficiency is not consistently achieved.

(4) Includes incremental contributions for projected flows of recently approved and pending projects in Towamencin Township service area:

DiLucia (Country Meadows) Subdivision Permit #4677404

Dougherty Brothers Subdivision Permit #4677415

Regent Manor Subdivision Permit #4677438

Hunter Construction Company "Hunter Meadows"Subdivision, Permit #4678437

"Ralph's Market"/U.G. Tow. Municipal Authority T-14 Line Ext., Permit #467844

Brookside Famrs Subdivision, Permit #46/8445

Kirkpatrick Subdivision, pending application.

"Rolling Meadows Estates" Subdivision, pending approval.

Stony Creek Village (Upper Gwynedd Township), pending approval.

Nash Section III, pending approval.

Merrill T. Denslow Subdivision, pending application.

"Meadow View" Subdivision, subject application, contributing increment

ER-BWQ-188.6 REV. 9/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED 11-30-79
DATE REVISED

WATER POLLUTION CONTROL

MODULE 6 – SEWERS AND APPURTENANCES

For Department Use Only

A. GENERAL INFORMATION – CONTINUED

A. IF YES, EXPLAIN _____

2. IS THE TREATMENT PLANT IN COMPLIANCE? ☐ Yes ☐ No

B. IF APPLICANT IS NOT OWNER OF THE RECEIVING SEWAGE TREATMENT PLANT, INDICATE SOURCE OF INFORMATION.

_____

_____

_____

TO BE COMPLETED BY THE REGIONAL SANITARY ENGINEER

1. WILL THE LOAD UNDER 22.B.(8) MEET THE PERMIT REQUIREMENTS? ☐ Yes ☐ No

A. WILL THE LOAD UNDER 22.B.(8) CAUSE POLLUTION OF THE RECEIVING STREAM? ☐ Yes ☐ No

2. IS THERE ANY QUESTION AS TO WHETHER THE LOAD IS NOW CAUSING OR WILL CAUSE POLLUTION? ☐ Yes ☐ No

A. IF YES, COMPLETE A POLLUTION REPORT.

3. IS THE TREATMENT PLANT IN COMPLIANCE? ☐ Yes ☐ No

(2) Ave. Daily Flow: Obtained by averaging most recent 12 daily recorded flows from May 1978 through April 1979, inclusive.

(3) Values based upon anticipated average 30 day consec. period effluent Susp. Solids and B.O.D. concentrations of 25 ppm each by Spring 1978 when plan expansion is completed to 2.5 MGD hydraulic capacity and optimum plant efficiency established. During recent and current plan construction expansion period, it should be noted, the normal design pattern, sequence, and retention time of sewage flow through treatment process units is disrupted or abnormal due to construction and procedures and optimum treatment efficiency is not obtainably achieved.

supplementary sheet 6-4A

Note: Ref. 6-4 22.C

(1) 1.5 MGD former capacity, plus 1.0 MGD current expansion

EXCERPT from Rules and Regulations of
TOWAMENCIN TOWNSHIP PLUMBING CODE

STORM WATER DRAINS

1101. DRAINAGE OF YARDS, AREAS AND ROOFS - All roofs and paved areas, yards, courts and court yards may be drained into the stormwater sewer system but not into the sewers intended for sewage only.

Where there is no stormwater sewer accessible, such connections may discharge into the public gutter, unless otherwise directed by the proper authorities however, in no case shall water from said sources drain over the surface of sidewalks nor be allowed to damage any neighbor's property.

MODULE 6 – SEWERS AND APPURTENANCES

A. GENERAL INFORMATION – CONTINUED

A. IF YES, EXPLAIN

B. IF APPLICANT IS NOT OWNER OF THE RECEIVING SEWAGE TREATMENT PLANT, INDICATE SOURCE OF INFORMATION.

DATE PREPARED 11-30-79
DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

46949

750 E. Johnson Highway
Norristown, Pennsylvania 19401
215 631-2036

July 16, 1979

Ms. Beverly Thompson, Secretary
Towamencin Township
Box 99
655 Sumneytown Pike
Kulpsville, PA 19443

Re: Hunter Construction Subdivision
Code No. 1-46949-023-4
Towamencin Township

Dear Ms. Thompson:

Please be advised that a review has been made and completed of the above referenced Planning Module for Land Development.

This supplement to the Towamencin Township's Official Sewage Facilities Plan meets the requirements of Chapter 71, Section 71.17 of the Pennsylvania Department of Environmental Resources Rules and Regulations.

Approval is hereby granted; and in accordance with this Chapter, the Department holds Towamencin Township responsible for implementing this supplement as per the approved module.

This planning approval does not relieve the project sponsor of the responsibility to secure a Department permit for the construction and operation of the proposed facility.

If you have any questions, please feel free to contact this office.

Very truly yours,

Alvin Nevell
Sanitarian
Montgomery County

CC: Sewage Facilities Consultant
File
WWMS
Herbert H. Metz, Inc.
IG3

SANITARY SEWER DESIGN ANALYSIS

SHEET

ROW VIEW SUBDIVISION — MUNICIPALITY TOWAMENCIN TOWNSHIP — COUNTY MONTGOMERY

M.H. to M.H.	LENGTH (FEET)	INVERT/INVERT	FALL (FEET)	SLOPE (FT. PER FT.)	CONNECTIONS INCREM'T	CONNECTIONS TOTAL	POPULATION @ 3.5 per conn.	FULL FLOW MGD @ 400 gpcd	PIPE 8"ϕ n = 0.013
129.11 / 129.10	188	306.75 / 304.85	1.90	0.0101	3	3	10.5	0.0042	
129.10 / 129.9	189	304.75 / 300.85	3.90	0.0206	3	6	21.0	0.0084	
129.9 / 129.8	246	300.75 / 293.75	7.00	0.0285	4	10	35.0	0.0140	
129.81 / 129.8	151	294.50 / 293.75	0.75	0.0050	3	3	10.5	0.0042	
129.8 / 129.7	216	293.65 / 292.55	1.10	0.0051	0	13	45.5	0.0182	
129.71 / 129.7	196	293.55 / 292.55	1.00	0.0051	3	3	10.5	0.0042	
129.7 / 129.6	156	292.45 / 291.65	0.80	0.0051	2	18	63.0	0.0252	
129.6 / 129.5	247	291.55 / 290.10	1.45	0.0059	2	20	70.0	0.0280	
129.5 / 129.4	307	290.00 / 278.10	11.90	0.0388	2	22	77.0	0.0308	
129.4 / EXIST. 129.3	254	278.00 / 275.00	3.00	0.0118	0	22	77.0	0.0308	

THROUGH PREVIOUSLY APPROVED 8"ϕ SAN. EXTENSION "ROLLING MEADOWS ESTATES"

122A13 / 122A12	176	304.00 / 302.10	1.90	0.0108	4	4	14.0	0.0056	
122A12 / 122A11	286	302.00 / 296.60	5.40	0.0189	4	8	28.0	0.0112	
122A11 / 122A10	165	296.50 / 295.60	0.90	0.0055	3	11	38.5	0.0154	
122A10.1 / 122A10	261	303.00 / 295.60	7.40	0.0284	6	6	21.0	0.0084	
122A10 / 122A9	246	295.50 / 291.10	4.40	0.0179	2	19	66.5	0.0266	
122A9 / 122A8	233	291.00 / 286.10	4.90	0.0210	0	19			
122A8 / 122A7	184	286.00 / 284.60	1.20	0.0090	0	19			
122A7 / 122A6	235	284.70 / 280.40	4.30	0.0183	0	19			
122A6 / 122A5	300	280.30 / 273.10	7.20	0.0189	0	19			
122A5 / 122A4	225	273.00 / 269.90	3.10	0.0138	0	19			
122A4 / EXIST. 122A3	330	269.80 / 257.28	12.52	0.0379	0	19	66.5	0.0266	

THROUGH EXISTING 8"ϕ SAN EXTENSION

TOTAL CONNECT. = 41

3710.047 REV. 5-71

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
SANITARY ENGINEERING

For Department Use Only

INTERNAL REVIEW AND RECOMMENDATIONS

REGIONAL ENGINEER'S REVIEW

NAME OF APPLICANT: Upper Gwynedd-Towamencin Municipal Authority

PROJECT LOCATION: Towamencin Township, Montgomery County

APPLICATION NUMBER: 4679469

BRIEF DESCRIPTION OF PROJECT: This application requests permission for the construction of a sanitary sewer extension to serve a 38 lot single family dwelling subdivision called "Meadow View."

Issue By Region	Issue By Central Office	Refuse
☒	☐	☐

FACILITIES ENGINEER: Richard L. Hunter 1/22/80

DISCUSSION (Use Additional Sheets If Necessary): Sewage from the proposed sewer extension will be conveyed to the UGTMA Wastewater Treatment Plant vis existing Upper Gwynedd-Towamencin Municipal Authority (UGTMA) sewers covered under Permit Nos. 765513, 4672412, and 4679414. The final effluent will be afforded secondary treatment before discharge to the Towamencin Creek. The proposed sewer extension will serve 143.5 people initially and ultimately. The soil erosion and sedimentation control plan has been reviewed and approved by the Montgomery County Conservation District.

CURRENT ESTIMATE OF COMPLETION DATE OF PROJECT (Industrial Wastes Only)

RECOMMENDATION AND ACTION

APPROVAL – RELEVANT LAWS, REGULATIONS, STANDARDS, AND POLICIES HAVE BEEN COMPLIED WITH:

Issue By Region	Issue By Central Office	Refuse	Signature	Date
☒	☐	☐	REVIEWING ENGINEER: David Hale	1-22-80
☒	☐	☐	FACILITIES ENGINEER: Richard L. Hunter	1/22/80
☒	☐	☐	REGIONAL ENGINEER: C. F. Sandmel	1-22-80
	☐	☐	DIV. FACILITIES ENGINEER	
	☐	☐	DIVISION DIRECTOR	
		☐	BUREAU DIRECTOR	

PERMIT CONDITIONS:

1. STANDARD - Sewerage 1972
1 thru 9, 11 thru 14, 21, 22, 30 and 31
Erosion Control (1973) 1 thru 20

2. SPECIAL (Use Additional Sheets If Necessary) -

Recording of Permit: Montgomery County

ER-BWQ-15-Rev. 4/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT NO. 4679469

A. PERMITTEE: (Name and Address)

Upper Gwynedd-Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

B. PROJECT LOCATION

Municipality: Towamencin Township

County: Montgomery

C. TYPE OF FACILITY (For industrial wastes: type of establishment)

Sanitary Sewer Extension

D. NAME OF MINE, PLANT, AREA SERVED, OUTFALL NO., ETC.

Meadow View Subdivision

E. THIS PERMIT APPROVES:

1. Plans For Construction Of: a. [X] Pump Stations, Sewers and Appurtenances b. [ ] Sewage Treatment Facilities c. [ ] Industrial Wastes Treatment Facilities d. [ ] Mine Drainage Treatment Facilities e. [ ] Outfall & Headwall f. [ ] Stream Crossing g. [ ] Impoundment

2. N/A The Discharge Of: a. [ ] Treated b. [ ] Untreated c. [ ] Sewage d. [ ] Industrial Wastes

3. Discharge To: N/A a. [ ] Surface Water b. [ ] Ground Water
Name of Stream to which discharged or drainage area in which groundwater discharge takes place or impoundment is located.

4. The Operation of a Mine [ ]
N/A Maximum Area to be Deep Mined: _____ Acres

5. An Erosion and Sedimentation Control Plan [ ]
Project Area is 22.2± Acres

F. THIS APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:

1. ALL CONSTRUCTION, OPERATIONS, PROCEDURES AND DISCHARGE SHALL BE IN ACCORDANCE WITH APPLICATION NO. 4679469 DATED 11-30-79 AND AMENDMENTS DATED _____ ITS SUPPORTING DOCUMENTATION, SUCH APPLICATION, ITS SUPPORTING DOCUMENTATION AND AMENDMENTS ARE HEREBY MADE A PART OF THIS PERMIT.

2. CONDITIONS NUMBERED 1 thru 9, 11 thru 14, 21, 22, 30 and 31 OF THE Sewerage AND CONDITIONS NUMBERED 1 thru 20 STANDARD CONDITIONS DATED 1972 AND EROSION CONTROL STANDARD CONDITIONS DATED 1973 WHICH CONDITIONS ARE ATTACHED AND MADE PART OF THIS PERMIT.

3. SPECIAL CONDITIONS DESIGNATED _____ WHICH ARE ATTACHED AND ARE MADE A PART OF THIS PERMIT.

This permit must be recorded in the Recorder of Deeds Office in Montgomery County.

G. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. IF THERE IS A CONFLICT BETWEEN THE APPLICATION ON ITS SUPPORTING DOCUMENTS AND AMENDMENTS AND THE STANDARD OR SPECIAL CONDITIONS, THE STANDARD OR SPECIAL CONDITIONS SHALL APPLY.

2. FAILURE TO COMPLY WITH THE RULES AND REGULATIONS OF THE DEPARTMENT OR WITH THE TERMS OR CONDITIONS OF THIS PERMIT SHALL VOID THE AUTHORITY GIVEN TO THE PERMITTEE BY THE ISSUANCE OF THE PERMIT.

3. THIS PERMIT IS ISSUED PURSUANT TO THE CLEAN STREAMS LAW, ACT OF JUNE 22, 1937, P.L. 1987 AS AMENDED 35 P.S. § 691.1 ET SEQ. AND/OR THE WATER OBSTRUCTION ACT, ACT OF JUNE 25, 1913, P.L. 955 AS AMENDED 32 P.S. § 681 ET SEQ. ISSUANCE OF THIS PERMIT SHALL NOT RELIEVE THE PERMITTEE OF ANY RESPONSIBILITY UNDER ANY OTHER LAW

PERMIT ISSUED
DATE 1-22-80

DEPARTMENT OF ENVIRONMENTAL RESOURCES
BY C. T. Beechwood
C. T. Beechwood, P.E.
TITLE Regional Water Quality Manager

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
Norristown, Pennsylvania 19401
(215) 631-2405

January 22, 1980

Upper Gwynedd-Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: H. Warren Dimming
Chairman

Re: Sewerage Permit No. 4679469
Meadow View Subdivision
Towamencin Township
Montgomery County

Gentlemen:

Above referenced permit is enclosed.

Please study the permit carefully and direct any questions to the Facilities Section of this office.

To become operative this permit must be recorded in the Office of the Recorder of Deeds in the county in which the discharge is located. Enclosed is a certificate and pre-addressed envelope for this purpose. Please have the Recorder of Deeds accomplish the certificate and return it within ten (10) days.

Very truly yours,

C.T. Beechwood, P.E.
Regional Water Quality Manager

Enclosures: Permit
Standard Conditions Relating to Sewerage
Standard Conditions Relating to Erosion Control
Recorder of Deeds Certificate with envelope
Notary Public Certificate

cc: Herbert H. Metz, Inc.
Re 30

CTB/DH:vs

ER-BWQ-15-Rev. 4/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT NO. 4679469

A. PERMITTEE: (Name and Address)
Upper Gwynedd-Towamencin

B. PROJECT LOCATION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
Norristown, PA 19401
215 631-2405

February 15, 1983

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: Mr. H. Warren Dimmig
Chairman

Re: Sewerage Permit No. 4682438
Meadow View Subdivision
Towamencin Township
Montgomery County

Gentlemen:

Referenced permit is enclosed.

Please study the permit carefully and direct any questions to the Permits Section of this office at 215 631-2411.

To become operative this permit must be recorded in the Office of the Recorder of Deeds in the county in which the discharge is located. Enclosed is a certificate and pre-addressed envelope for this purpose. Please have the Recorder of Deeds accomplish the certificate and return it within ten (10) days.

We will cancel permit No. 4679469 issued on January 22, 1980, which covered the sanitary sewer system for the Meadow View Subdivision, as the subject permit supercedes our prior approval.

Very truly yours,

C. T. BEECHWOOD, P.E.
Regional Water Quality Manager

CTB:MF:hw

Enclosures: Permit
Standard Conditions Relating to Sewerage
Standard Conditions Relating to Erosion Control
Recorder of Deeds Certificate
Notary Public Certificate

cc: Herbert H. Metz, Inc.
Permits & Compliance
Re 30 T48

ER-BWQ-68 Rev. 4-73

Upper Gwynedd-Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Permit No. 4679469

Towamencin Township
Montgomery County

Commonwealth of Pennsylvania
Department of Environmental Resources

RECORDER OF DEEDS CERTIFICATE

I hereby certify that on . . Feb. 1, 1980 . . . . . (Date)

there was recorded in Book . . . 4497 . . . . . Montgomery . . . . . County

page . 531 . . . . . the sewerage permit issued

to . Upper Gwynedd-Towamencin Mun. Auth . . . . . .

bearing date of . 1-22-80 . . . . . .

Loretta A. Bradbury
~~Recorder of Deeds for~~
Rec. clerk
Montgomery . . . County

COMMONWEALTH OF PENNSYLVANIA

ER-BWQ-69 Rev. 1/78

and duly acknowledged the foregoing permit to be his act and deed and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year aforesaid.

STATE OF PENNSYLVANIA
COUNTY OF MONTGOMERY } SS

On the 22 day of January in the year one thousand nine hundred and eighty before me, the Subscriber, a Notary Public, came the above named

C.T. Beechwood

and duly acknowledged the foregoing permit to be his act and deed and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year aforesaid.

Wilbur P. Stender
NOTARY PUBLIC

WILBUR P. STENDER, Notary Public
Norristown Boro, Montg. Co.
My Commission Expires Nov. 2, 1981

Permit No. 4579469

Towamencin Township
Montgomery County

Commonwealth of Pennsylvania
Department of Environmental Resources

RECORDER OF DEEDS CERTIFICATE

ER-BWQ-68 Rev. 4-73

Upper Gwynedd-Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

ER-EPR-1: Rev. 7/77

Form No. 1

SUBJECT: Sewerage CONTACT: Upper Gwynedd-Towamencin Reg. Towamencin Mun. Montgomery County 2325 Kriebel Road Lansdale 19446

Application Nos.: 467946

New Proposal	X
Revised Proposal	

FROM:

Regional Director L. GONSHOR

R. HINKLE 12/13/79

On 12-3-79, we received an application for plan approval and/or permit to construct a sewer extension. The proposed installation involves:

SS Ext to serve Meadow View Subdivision in Towamencin Township, Montgomery County

Sewage to Upper Gwynedd-Towamencin ST

Permit Coordination Requirements: * Note. D+E Permit Appl Submitted 11/30/79 to Hoover. Being retained. Dam permit not req'd. (NONE)

DATE: 12/13/79

TO:

	No Permit Required	No Permit Required Prior Approval Required	Permit Required Application on Hand	Permit Required Application Needed
Air Quality	✓			
Water Quality			✓ SER * 12/14/79	
Land Protection	✓			
Community Env. Control	✓			
Occupational Health	✓			
Surface Mine Reclamation	✓			
Radiological Health	✓			
D+E	✓			

Please indicate your interest on this form and return to the Director by 12/11/79

DEC 12 1979

Regional Office - 1

ER — EP

START

DEPARTMENT OF ENVIRONMENTAL RESOURCES

BUREAU / PROGRAM Water Quality Management

ENVIRONMENTAL PROTECTION

DIVISION

COUNTY / MUNICIPALITY 46007

PROGRAM SEW

START

CASE NAME Upper-Gwynedd-Towamensin

FILE P

PERMIT NO. 4679470 Merill Denslow Tract

BUREAU / PROGRAM Water Quality Management

DIVISION

COUNTY / MUNICIPALITY 46007

PROGRAM SEW

CASE NAME Upper-Gwynedd-Towamensin

FILE P

PERMIT NO. 4679470 Merill Denslow Tract

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 447
210 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

November 4, 1979

RECEIVED

DEC 6 1979

ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

Mr. Richard Hinkle, Chief
Facilities Section
Penna. Department of Environmental Resources, Region I
1875 New Hipe Street
Norristown, Pennsylvania 19401

RE: Water Quality Management Permit Application
Merrill and Denslow Subdivision
Sumneytown Pike
Towamencin Township, Montgomery County

Dear Mr. Hinkle:

Enclosed please find a completed application for issuance of a Water Quality Management Permit along with duplicate sets of design plans and supporting documents with regard to the above - captioned subdivision; enclosed also herewith is a check for $25.00 made payable to PADER for review of same.

Items submitted (in duplicate) are as follows:

1. Subdivision Plan package including:
   a. Cover Sheet
   b. Title Plan
   c. Construction Improvement Plans
   d. Plan and Profiles
   e. Landscaping & Erosion & Sediment Control Plan
   f. Miscellanous Detail Sheet
2. Water Quality Management Modules 1 and 6.
3. Excerpt from U.G.T.M.A. Specifications prohibting stormwater admittance.
4. Copy of letter from Alvin Revell, Sanitarian, to Ms. Beverly Thompson, Towamencin Township Secretary, acknowledging review and approval of subdivision planning modules (Code No. 1-46949-021-4).
5. Sanitary Sewer Design Analysis
6. Erosion and Sediment Control Narrative Report
7. Stormwater Management Report including collection/conveyance system analysis.

It should be noted that all prior planning reviews and approvals have been obtained as understood to be required; including that of Community Environmental Control for planning modules. Consultation and review by the Montgomery County Soil Conservation Service for erosion and sediment control is

Herbert H. Metz, Inc.

being solicited simultaneously with this application.

We respectfully request that this application-for-permits be processed as expeditiously as possible. If you or your agency have any questions or comments regarding this project, please do not hesitate to contact me by telephone.

Sincerely,

HERBERT H. METZ, INC.

Richard B. Lobko

Richard B. Lobko

RBL/at

BARRY E. WERT
CHARLES FACCONELLI

410 BERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

November 4, 1978

RECEIVED
DEC 7 1978

Mr. Richard Hinkle, Chief
Facilities Section
Penna. Department of Environmental Resources, Region 3
1875 New Hope Street
Norristown, Pennsylvania 19401

RE: Water Quality Management Permit Application

Herbert H. Metz, Inc.

CLIFFORD F. SHOUP

P.O. BOX 247

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
1725 Markley Street, Norristown, PA 19401

December 20, 1979

Mr. Maynard King
Montgomery County Conservation District
One Montgomery Plaza, Court House
Norristown, PA 19404

Dear Mr. King:

Enclos Re: Merrill T. Denslow
9-Lot Subdivision
Towamencin Township

The Soil Conservation Service has reviewed the Erosion and Sediment Control Plan for this subdivision. The plan appears adequate to control erosion and sediment during and after construction.

The Stormwater Management Report was also reviewed. Calculations appear to be correct. There will be a slight increase in peak runoff of 0.66 C.F.S. from this project.

This plan is recommended to Montgomery County Conservation District for approval.

Sincerely,

Edward J. Brzostek

Edward J. Brzostek
District Conservationist

Enclosure

December 20, 1978

Mr. H. Warren Plank
Chairman

Re: Application No. 4679478
Montgomery County

Gentlemen:

This will acknowledge receipt of your application on December 6, 1978 for approval to construct a sewer extension to serve the Merrill Meadow Subdivision in Montgomery Township, Montgomery County.

The material submitted is accepted for technical review and has been assigned to Vincent Lucland (631-3611) of our staff.

You are reminded that any proposed facilities cannot be constructed without first obtaining the required permits.

Applications are normally processed within sixty (60) days. If you have not received notification of the action taken within this period, feel free to contact me for information concerning the status of the review.

Very truly yours,

Leon T. Gonzon
Regional Director

cc: Mr. H. Metz, Jr., P.E.
Program Services
Facilities
No 4172

RALPH A. WERT, P.E., P.L.S.
HERBERT H. METZ, JR., P.E., P.L.S.
JOHN R. HUNT, P.E.
BARRY L. WERT, P.E., P.L.S.
JEFFREY A. WERT, P.E., P.L.S.

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P.O. BOX 447
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

ORDER-RECEIVED
NORRISTOWN
DEC 24 1984

November 7, 1984

Mr. Richard L. Hinkle
Chief Permits Section
Regional Office - Norristown
Department of Environmental Resources
Commonwealth of Pennsylvania
1875 New Hope Street
Norristown, Pennsylvania 19401

RECEIVED
NOV 9 1984
MONTGOMERY COUNTY
PLANNING COMMISSION

Re: Sewerage Permit #4679470
Merrill T. Denslow Subdivision
Towamencin Township
Montgomery County
(Issued January 24, 1980)

Dear Mr. Hinkle:

The captioned Sewerage Permit was issued in January, 1980 upon application by the Upper Gwynedd-Towamencin Municipal Authority supporting a planned nine (9)-lot residential subdivision for land of Merrill T. Denslow, Jr.

Please be advised that the permitted project has not been developed on the site. The owner, Denslow, has submitted for approvals, a revised plan of residential lot development for his tract which proposes no interior road and just six (6) lots in place of the original nine (9) lots.

Public water and sanitary sewerage services are still proposed for the revised single-dwelling lots plan, with sewerage service via an extension to the Upper Gwynedd-Towamencin Municipal Authority system.

Extension by 8-inch sanitary sewer in Sumneytown Pike, from an existing manhole at Kriebel Road on the Towamencin Township system to the site, is still planned. Service for the revised six (6)-lot subdivision is proposed by lateral connection to the Pike sewer extension or a planned 8-inch sewer extension connection thereto in an easement for private access road and utilities on-site.

Two (2) sets of pertinent design plans for the revised subdivision and sewerage facilities are transmitted with this letter for review, approval, and processing for permit amendement.

Very truly yours,

Herbert H. Metz, Jr., P.E., P.L.S.

HHM:bac
Enclosures
cc: Towamencin Township
U.G.T.M.A.
Montgomery County Planning Commission

MONTGOMERY COUNTY PLANNING COMMISSION
court house ■ norristown, pennsylvania 19404 ■ 215-278-3722
Offices: One Montgomery Plaza, Swede and Airy Streets, Norristown

September 25, 1984

Ms. Cecile M. Daniel, Manager
Towamencin Township
P.O. Box 303
1655 Sumneytown Pike
Kulpsville, PA 19443

Re: MCPC No. 78-361
Lands of Merrill Denslow
(6 lots comprising 8.62 acres)
Situate: Along Sumneytown Pk. near
Kreibel Rd. intersection,
Towamencin Township

Dear Ms. Daniel:

This Commission has reviewed the above-referenced subdivision in accordance with Section 502 of Act 247, "The Pennsylvania Municipalities Planning Code," as requested by Mrs. Beverly G. Maginnis, Assistant Township Manager, on September 13, 1984, and forwards this letter as a report of our review and recommendations.

Background

The applicant is proposing six lots for this site, two of which front on Sumneytown Pike and the remaining four are rear lots with access to be provided via a private road. This Commission has reviewed previous subdivision proposals for this site with reports dated August 10, 1978 and April 24, 1984. Our primary concern in both previous reports was minimizing the number of access points along this section of Sumneytown Pke. This remains as a major concern given the increased reliance on Sumneytown Pike as an important east-west traffic route in this area.

Recommendation

We recommend that the proposed subdivision be approved with only temporary access from Sumneytown Pike, and future access from the southwest end of the property.

RECEIVED
NOV 1984
MONTGOMERY COUNTY
PLANNING COMMISSION

Ms. Cecile M. Danici, Manager September 25, 1984

Discussion

We note that limiting the number of access points to Sumneytown Pike is of most concern in this proposed subdivision. We would prefer to see a public road as previously proposed for this site, but if the economic situation does not warrant a public street in the opinion of the Township, we can support a private road as preferable to individual driveways.

We recommend that the regulations for private roads in R-200 districts, as outlined in Section 503.15 of the Subdivision Code, be used here and included on both the final plan and each deed as per Section 503.15.f.

As noted in our two previous reports, we recommend that access to this site eventually be provided from the southwest side of the property and not from Sumneytown Pike. Although we understand that there is no intention to develop the adjacent property at this time, we strongly believe the present subdivision plan should be evaluated in light of its relationship to and potential effect on Sumneytown Pike and the surrounding part of the Township. Therefore, we have enclosed a sketch plan (labeled Figure 1) for the block surrounding this site to illustrate how access could eventually be provided. We suggest that this can be accomplished in the following way:

(1) The proposed private road can be built now, with the first section (along Lot 2) as a temporary street, extending all the way to the rear of the property and ending in a temporary turn-around area.

(2) As such time as the adjacent property is subdivided, access is provided from the southwest with the temporary section of the drive to become an emergency vehicle easement only. The temporary turn-around is replaced with a permanent cul-de-sac at the edge of Lot 3 as shown on the attached sketch plan (labeled Figure 2).

(3) The required right-of-way for the private road should be provided along the length of the property at this time, with the front yard setbacks measured from the edge of the easement. Both the temporary and future turn-around areas should also be reserved at this time to prevent any development within these areas. At the time that access is provided, this private road can remain private or become a public road.

We also recommend that access to Lot 2 be provided from the private road instead of from Sumneytown Pike.

Should the governing body approve a final plat of this proposal, the applicant must present the plan to our office for seal and signature prior to recording with the Recorder of Deeds office. A paper copy bearing the municipal seal and signature of approval must be supplied for our files.

Ms. Cecile M. Daniel, Manager

September 25, 1984

cc: Terence P. Strobaugh, Chm., Twp. PC
John Chambers, Twp. Engr.
Mrs. Beverly G. Maginnis, Ass't. Twp. Mgr.
Michael Stefonick, MCPC Board Member

In accordance with policies established by the Montgomery County Planning Commission a file of this correspondence will be available to any interested party requesting to examine it or to obtain a copy of it, provided that such a request will not be honored until at least 10 days have elapsed from the date of this letter.

Should there be any further questions, please do not hesitate to contact me.

Yours truly,

Robert A. Lambe
Design Planner

RAL/mp

Attachments: Two Sketch Plans

cc: Terence P. Strobaugh, Chm., Twp. PC
John Chambers, Twp. Engr.
Mrs. Beverly G. Maginnis, Ass't. Twp. Mgr.
Michael Stefonick, MCPC Board Member

Ms. Cecile M. Daniel, Manager September 25, 1984

Discussion

We note that limiting the number of access points to Sunneytown Pike is of most concern in this proposed subdivision. We would prefer to see a public road as previously proposed for this site, but if the economic situation does not warrant a public street in the opinion of the Township, we can support a private road as preferable to individual driveways.

We recommend that the regulations for private roads in R-200 [illegible]
[illegible] the final plan and each deed as per Section [illegible]

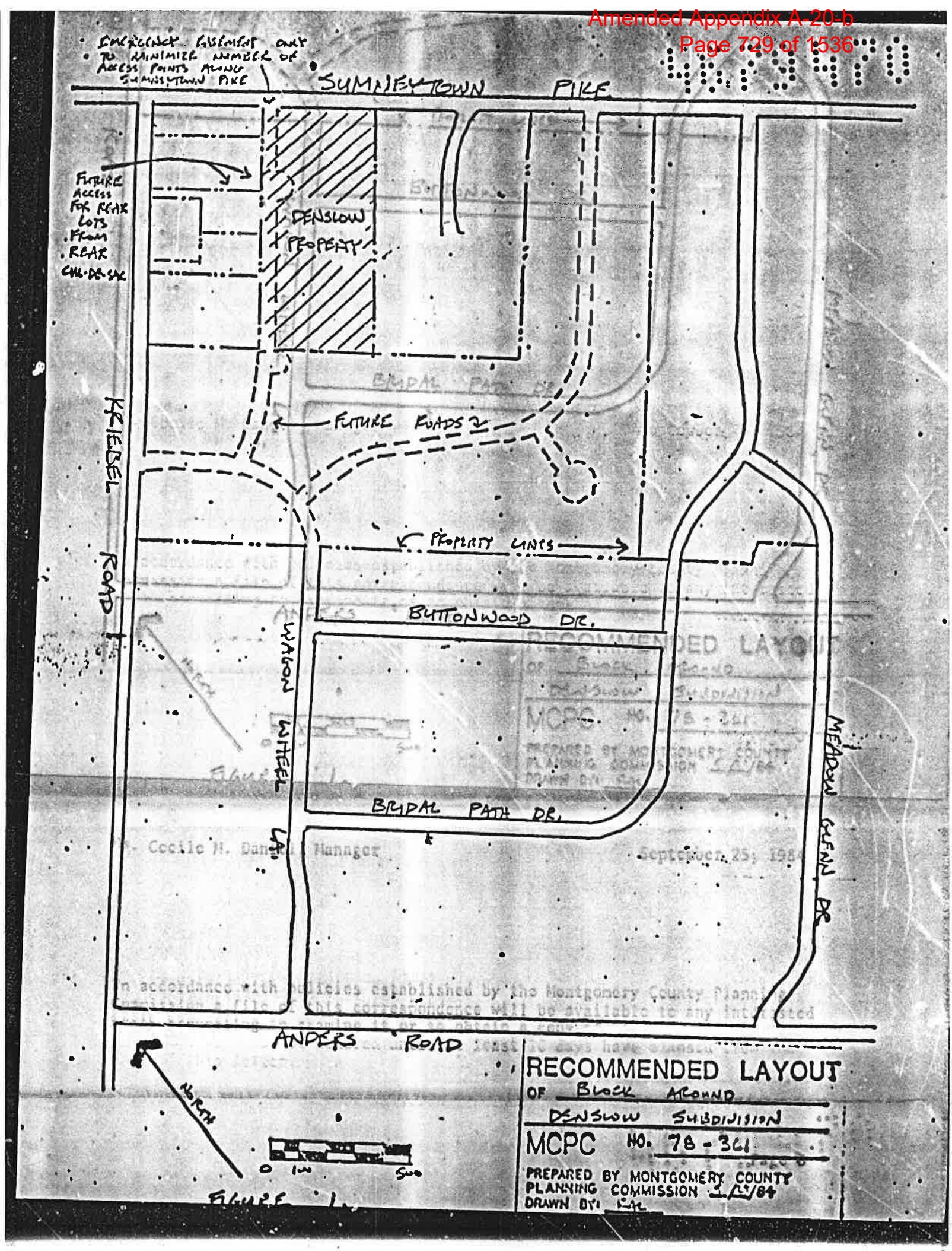

• EMERGENCY EASEMENT ONLY
• TO MINIMIZE NUMBER OF ACCESS POINTS ALONG SUMMITTOWN PIKE
SUMMITTOWN PIKE
FUTURE ACCESS FOR REAR LOTS FROM REAR CUL-DE-SAC
DENSLOW PROPERTY
FUTURE ROADS
PROPERTY LINES
KREBEL ROAD
WAGON WHEEL LA.
BUTTONWOOD DR.
BRIDAL PATH DR.
MEADOW GLEN DR.
ANDERS ROAD
NORTH
0 1" 5'00
RECOMMENDED LAYOUT
OF BLOCK AROUND
DENSLOW SUBDIVISION
MCPC NO. 78-361
PREPARED BY MONTGOMERY COUNTY PLANNING COMMISSION 1/84
DRAWN BY: LAL

FIGURE 1

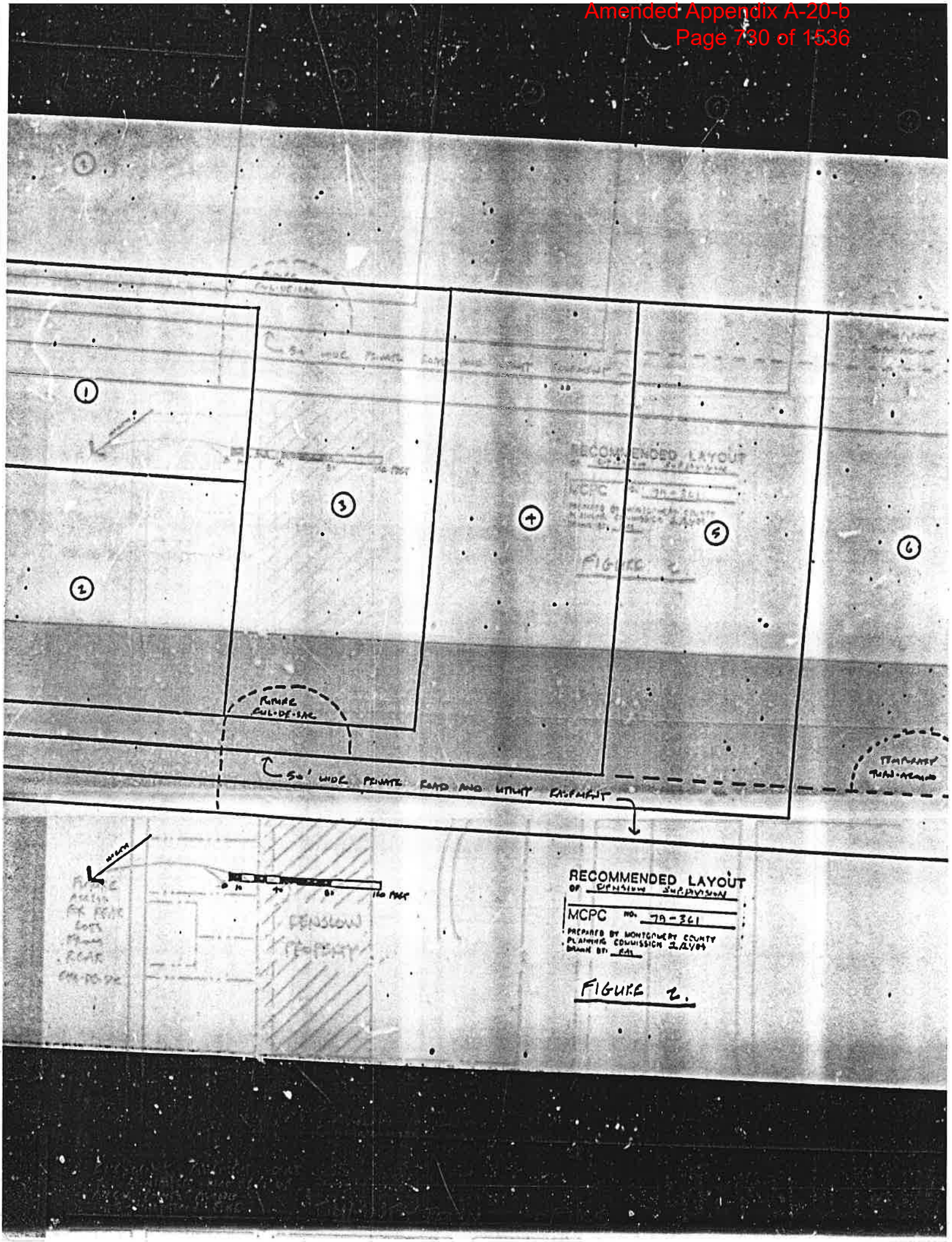

1
2
3
4
5
6
FUTURE CUL-DE-SAC
50' UNDR PRIVATE ROAD AND UTILITY EASEMENT
TEMPORARY TURN-AROUND
RECOMMENDED LAYOUT
OF PENSION SUBDIVISION
MCPC NO. 79-361
PREPARED BY MONTGOMERY COUNTY PLANNING COMMISSION 2/21/84
DRAWN BY: RM
PENSION PROPERTY

FIGURE 2.

4679470

BOARD OF SUPERVISORS
TOWAMENCIN TOWNSHIP
1655 Sumneytown Pike
Box 303, Kulpsville, PA 19443-0303
Phone: (215) 368-7602
Cecile M. Daniel
Manager

Supervisors:
Joseph L. Stack — Chr.
Thomas J. Cieslelka — V. Chr.
Colin M. Hannings

DER-RECEIVED
NORRISTOWN,
DEC 18 1984

December 17, 1984

Mr. Dan Bontempo
Department of Environmental Resources
1875 New Hope Street
Norristown, PA 19401

Re: Towamencin Township
Merrill Denslow Subdivision

Per a request from Herbert Metz, received a letter on November 9, 1984 concerning the Merrill Denslow subdivision sewer permit #4679470.

Very truly yours,

Cecile M. Daniel
Township Manager

CMD/bgm

HERBERT H. METZ, INC.
Civil Engineers & Surveyors
P. O. Box 647 410 Derstine Avenue
LANSDALE, PENNSYLVANIA 19446

855-3111 855-1686

RECEIVED DER NORRISTOWN DEC 17 1984

LETTER OF TRANSMITTAL

DATE: Dec. 14, 1984 JOB NO.: M-2805

ATTENTION:

RE: * Sewerage Permit #4679470
Merrill Denslow Tract
via Upper Gwynedd-Towamencin
Municipal Auth.
Towamencin Twp, Mtg. Co.
* (to be amended)

TO Richard L. Hinkle, Chief, Permits Section
Pa. D.E.R.
1875 New Hope Street
Norristown, Pa. 19401

WE ARE SENDING YOU ☐ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☒ Plans ☐ Samples ☐ Specifications
☒ Copy of letter ☐ Change order ☒ Copy Permit #4679470

COPIES	DATE	NO.	DESCRIPTION
2	as rev. 11-2-84	#1, 2, 3	Sets 3-plan sheets re: (Revised for) 6-Lot Sub-div., Merrill Denslow
1	11-7-84		Prior Transmittal letter of/for above
1	1-24-80		W.Q.M. Permit #4679470 for prior (9-lot) Sub-div. same Denslow tract. (NOT IMPLEMENTED)

THESE ARE TRANSMITTED as checked below:

☒ For approval ☐ Approved as submitted ☐ Resubmit ____ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit ____ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return ____ corrected prints
☐ For review and comment ☒ for approval as/for amended Permit.
☐ FOR BIDS DUE _____ 19____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS Dear Rich,

Enclosures represent documents originally submitted on 11/7/84 to your office. Per your request, as original submission cannot be located, I am re-submitting same.

Please expedite resolution of this matter to validate as amended Permit. for current status.

The Amended (6-Lot) Sub-division is scheduled for final review/approval at Towamencin Twp. Planning Commission meeting Dec. 26, and W.Q.M. Permit resolution is one condition for Twp approval.

COPY TO M. Denslow.

thank you.

SIGNED: Herbert H. Metz

PRODUCT 340-2 (NEBS) Inc., Boston, Mass. 01471

If enclosures are not as noted, kindly notify us at once.

1875 New Hope Street
Norristown, PA 19401
215 270-1922

December 21, 1984

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: Kenneth Finger

Re: Upper Gwynedd-Towamencin
Municipal Authority
Towamencin Township
Montgomery County

Gentlemen:

On November 9, 1984 we received from Herbert H. Metz, Inc. on behalf of the Upper Gwynedd-Towamencin Municipal Authority a request to revise the proposed project approved by the subject permit. Revised modules and plans were submitted on December 18, 1984 relative to the Soil and Erosion Plan.

The permit issued January 24, 1980 was for the construction of a sanitary sewer extension to serve a planned 9-lot single dwelling subdivision for land for Merrill T. Denslow, Jr.

The amendment was made to change the 9-lots single dwelling subdivision to 6-lots single dwelling subdivision.

Sewage from the proposed sewer extension will be conveyed to the Upper Gwynedd-Towamencin Municipal Authority Sewage Treatment Plant via existing Upper Gwynedd-Towamencin Municipal Authority sewers covered under Permit No. 7669053.

As a result of our review of the revised documents, we find the proposed changes acceptable and you are hereby notified that Permit No. 4679470 is amended subject to the provisions and conditions therein.

Very truly yours,

JOSEPH A. FEOLA
Regional Water Quality Manager

JAF:MB

cc: Herbert H. Metz, Inc.
Permits & Compliance
Re 30 44336.6

plan MONTGOMERY COUNTY PLANNING COMMISSION

DER-RECEIVED NORRISTOWN DEC 24 1984

Subject: Merrill Dendow Sub-division Date: 12/17/84

To: Dan Contempo

From: Robert D Hurley, Enviromatal Planner

Enclosed you will find a copy of the letter we received from Merrill Dendow. Should you have any any questions, please feel free to contact me 215-278-3733

4679470

DEPT. OF ENVIRONMENTAL RESOURCES
BUREAU OF
WATER QUALITY MANAGEMENT
APPLICATION NO. 4679470 | PLANS RECD. REGION 12-6-79
REPORTS
NO. OF VOLUMES 2 OF 3

STORMWATER MANAGEMENT REPORT

Merill T. Denslow

TOWAMENCIN TOWNSHIP
MONTGOMERY COUNTY, PENNSYLVANIA

plan
MONTGOMERY COUNTY PLANNING COMMISSION

Prepared by:

Herbert H. Metz, Inc.
Consulting Engineers
Lansdale, Pennsylvania

INTRODUCTION

This report summarizes the analysis and design of Stormwater Management Facilities prepared for a 8.6± Acre land development proposal by Merill T. Denslow.

The proposed land Development is located on Sumneytown Pike (County Highway), west of Valley Forge Road (LR-463) and east of Troxell Road (LR46043) in Towamencin Township, Montgomery County, Pennsylvania.

The subject tract consists of lightly rolling terrain containing mostly wooded area.

The entire site drains to the north westerly boundary of the tract and the water leaves the site via a small swale.

Development of the tract will be seven (7) single-family (fee-simple) residential homes conforming in all respects to Towamencin Township R-175 Zoning Requirements. The minimum lot size is 30,000 square feet with many lots in excess of that requirement.

The average lot will contain ten per cent (10%) impervious area consisting of roof area, walks, and driveways. Lots will be graded in accordance with the Erosion and Sedimentation Control Plan to drain towards either drainage courses or public streets.

All but one lot will front on the proposed street to be constructed as part of this Land Development. The proposed street will be constructed to Township Specifications for ultimate public dedication. The proposed street width will be fifty (50) feet wide at right of way which includes a thirty (30) feet wide paved cartway, sidewalks, and concrete curbs. Areas not paved will be maintained in lawn area.

The permanent storm water management facilities consist of street gutters and drainage swales which will collect surface water runoff and direct it towards either the underground conveyance system and/or directly to storm water detention facilities.

The detention facilities will function so as not increase the peak discharge appreciably from short duration, high intensity storms, based on before construction/after construction runoff comparisons.

BUREAU OF
WATER QUALITY
APPLICATION NO.
#6294-70
DATE
12-6-29

METHODS OF ANALYSIS

Analysis and design of the storm water management facilities may be separated into two (2) basic phases, hydrologic and hydraulic.

The hydrologic analysis is by the conventional Rational Method which assumes that peak runoff on any given watershed for any given storm of assumed constant intensity will not occur until flow is arriving at the point of interest from all points on the watershed.

Since for any design frequency storm the average or assumed constant intensity decreases with longer durations, the shortest duration storm for which the entire shed contributes to the point of interest is the storm duration used to generate the peak flow. This is by the Rational formular Q = CIA where C is a runoff coefficient, I is the intensity for the chosen duration in inches per hour and A is the area in acres. The intensity of the storm is chosen by equating the duration with the longest travel time which is know as the time of concentration and may be estimated for any point of interest.

The hydraulic analysis of the design utilizes the derived peak flows for a 10-year storm at the point of interest to size the storm water interception and conveyance systems. Inlet efficiency curves are used to determine the amount of flow intercepted within the gutter area of streets or swales to aid in placement.

The Manning equation is used to determine the capacity of the storm water conveyance systems to pass the 10-year peak flows. The 'n' factor of the Manning equation is either taken from those listed in PennDOT's design handbooks for pipes and lined channels or derived using TP-61 of the Soil Conservation Service for grass-lined channels.

Detention is achieved from a pipe storage system utilizing a 49" x 33" CAAPA emptying into an 18" CMP which restricts the out flow.

The design of the detention system involves a procedure of developing an inlet hydrograph and routing it through the detention system and outlet system. The result is an outlet hydrograph with an attenuated peak.

Derivation of the inlet hydrograph is by the method published in Public Works, March 1977, page 75 by William R. Baker, P. E. The method is a variation of the rational method and is comparible with the design of the storm water conveyance systems. Routing of the derived inlet hydrograph is by a conventional reservoir routing technique.

The detention system was analyzed for a series of durations for a ten-year design storm to determine the peak storage requirement and the peak design discharge.

The entire site was compared on a before development va. after development basis tc determine the amount of detention required. Then the peak outfall was determined and total detention in the basin was determined. The total detention achieved is then compared to the detention required.

CONCLUSION

The proposed design of the storm water collection and conveyance system is summarized on the design charts in the appendix. The design was for a ten-year storm as required by Towamencin Township.

The pre-development time of concentration was determined to approximately 15 minutes, therefore, the ten-year pre-development storm flow was considered to be 15 minute duration. The after development time of concentration was determined to be 12 minutes and a 12 minute duration storm was used. The peak detention achieved was compared to the detention required. In this comparison, a slight increase (less than 1 CFS) of 3% in after development runoff was determined.

Therefore, considering the configuration of the tract which limits the area of the site which could feasibly be used for detention facilities, our results were deemed adequate and the increase was considered negligible.

APPENDIX

CONCLUSION

The proposed design of the storm water collection and conveyance system is summarized on the design charts in the appendix. The design was for a ten-year storm as required by Towamencin Township.

The pre-development time of concentration was determined to approximately 15 minutes, therefore, the ten-year pre-development [illegible] was considered to be 13 minute duration. The [illegible] time of [illegible]

HERBERT H. METZ, INC.
410 Derstine Avenue
LANSDALE, PENNSYLVANIA 19446
Phone 855-3111

JOB 2805 Merill T. Denslow
SHEET NO. 1 OF
CALCULATED BY AMN DATE
CHECKED BY DATE
SCALE None 10 year Frequency

BEFORE VS. AFTER CALCULATIONS

BEFORE

Total Tract Area = 8.6 Acres
Grassed Area (C=.35) = 4.15 Acres
Wooded Area (C=.3) = 3.94 Acres
Impervious Area (C=.9) = .55 Acres

Time of Concentration=15 min.

I_{10}, 15 min Dur=5.1

$C_{(Aug)}$ = .37

Q = CAI
= .37 (8.6) (5.1)
= 16.22 CFS

AFTER

Total Tract Area = 8.6 Acres
Grassed Area (C=.35) = 3.68 Acres
Wooded Area (C=.3) = 2.92 Acres
Impervious Area (C=.9) =2.0 Acres

Time of Concentration=12 min.

I_{10}, 12 min Dur=5.3

$C_{(Aug)}$ = .46

Q = CAI
= (.46) (8.6) (5.3)
= 20.97 CFS

SUMMARY

Total Peak Before Q = 16.22
Total Peak After Q = 20.97
Total Retention Required = 4.75 CFS

Peak Flow into Detention System = 19.20 CFS
Peak Folw out of Detention System = 15.17 CFS
Total Detention Achieved = 4.09 CFS

Total After Development increase in Runoff = .66 CFS
= 3%

FORM 204-1 Available from NCSS Inc., Groton, Mass 01450

HERBERT H. METZ, INC.
410 Derstine Avenue
LANSDALE, PENNSYLVANIA 19446
Phone 855-3111

JOB 2805 Denslow
SHEET NO. 2 OF 6
CALCULATED BY AMN DATE
CHECKED BY DATE
SCALE DETENTION CALCULATIONS

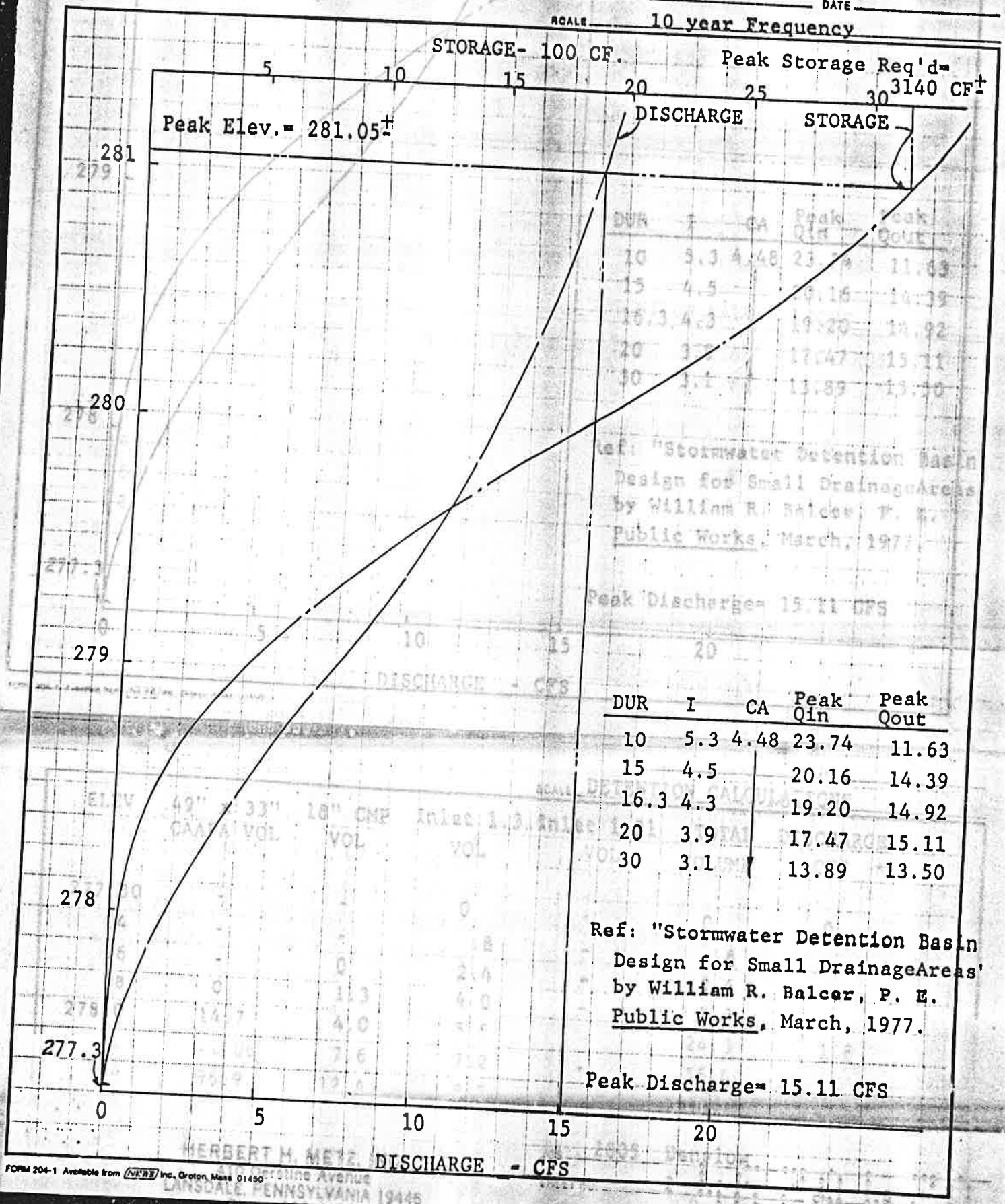
ELEV	49" x 33" CAAPA VOL	18" CMP VOL	Inlet 1.3 VOL	Inlet 1.31 VOL	TOTAL VOLUME	DISCHARGE CFS *
277.30	-	-	0	-	0	0
.4	-	-	.8	-	.8	
.6	-	0	2.4	-	2.4	
.8	0	1.3	4.0	-	5.3	
278.0	14.7	4.0	5.6	-	24.3	1.8
.2	41.06	7.6	7.2	-	56.4	
.4	96.9	12.4	8.8	-	118.1	
.6	184.	10.4	10.4	-	212.6	
.8	305.	25.5	12.0	-	342.5	
279.	457.	35.6	13.6	-	506.2	6.8
.2	642.	45.4	15.2	-	702.6	
.4	871.	55.0	16.8	-	942.8	
.6	1123.	63.9	18.4	-	1205.3	
.8	1398.	72.8	20.	0	1490.8	
280.	1685.	82.8	21.6	1.1	1790.5	12.
.2	1984.	91.2	23.2	4.3	2102.7	
.4	2271.	99.1	24.8	7.5	2407.4	
.6	2531.	105.7	26.4	10.7	2673.8	
.8	2757.	110.5	28.	13.9	2903.4	
281.	2953.	113.8	29.6	17.1	3113.5	15
.2	3114.	115.7	31.2	20.3	3281.2	
.4	3240.	116.6	32.8	23.5	3412.9	16

* Discharge is for 18" CMP with Inlet Control.

FORM 204-1 Available from (M-S) Inc., Groton, Mass 01450

HERBERT H. METZ, INC.
410 Derstine Avenue
LANSDALE, PENNSYLVANIA 19446
Phone 855-3111

JOB 2805 Denslow
SHEET NO. 3 OF 4
CALCULATED BY AMN DATE
CHECKED BY DATE
SCALE 10 year Frequency



DUR	I	CA	Peak Qin	Peak Qout
10	5.3	4.48	23.74	11.63
15	4.5		20.16	14.39
16.3	4.3		19.20	14.92
20	3.9		17.47	15.11
30	3.1		13.89	13.50

Ref: "Stormwater Detention Basin Design for Small DrainageAreas' by William R. Balcer, P. E. Public Works, March, 1977.

Peak Discharge= 15.11 CFS

FORM 204-1 Available from NEPB Inc. Groton, Mass 01450

Herbert

ΔAC_o = AC (Contrib. Surface Flow between Inlets)
ΔAC_B = AC (Bypassing Flow From Previous Inlet)
ΔAC_i = AC (Entering Inlet)
C = Runoff Factor

COMPUTATION TABLE - STORM SEWER DESIGN

SHEET NO. ____ OF ____ BY ____
CHKD. BY ____

STA.	DRAINAGE AREA							TIME		RAINFALL INTENSITY I	DISCHARGE Q	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS N VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL
	ΔA	C	ΔAC_o	ΔAC_B	$\Delta AC_o + \Delta AC_B$	ΔAC_i	ΣAC_i	ΔT	ΣT									
	ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	CFS	FEET	FT/FT			IN	FPS	CFS
	1.8	.42	.76	-	.76	.46	.46	10	10	5.3	2.44	200	.0125	CMP	.012	15	6.0	8.2
	4.1	.40	1.6	.30	1.9	1.9	2.36	16	16	4.3	10.15	26	.015	CMP	.012	18	9.2	14
	.5	.85	.43	-	.43	.43	2.79	.05	16	4.3	12	142	.040	CMP	.012	18	13	27
	-	-	-	-	-	-	2.79	.11	16.1	4.3	12	66	.037	CMP	.012	18	13	21
	2.57	.45	1.16	-	1.16	.88	.88	15	15	4.4	3.87	26	.015	CMP	.012	15	7	14
	.22	.85	.19	-	.19	.19	1.07	.1	15.1	4.4	4.71	416	.005	CMPA	.012	49x33	4	80
	1.55	.40	.62	-	.62	.62	4.48	.2	16.3	4.3	19.3	220	.45	CMP	.012	18	14	24
	-	-	-	-	-	-	4.48	.2	16.5	4.2	18.82	130	.005	CMPA	.012	35x24	7	35
	4.5	.38	1.71	-	1.71	1.71	6.19	.3	16.8	4.2	26	56	.005	CMPA	.012	35x24	8	35
							6.19	.1	16.9	4.2	26							

(1) 49"x33" CMP to be used for Stormwater Detention- See Calc Sheets 1, 2, 3.

(2) Flow into existing 42x29 CMPA @Kriebel Road

4679470

NARRATIVE REPORT
EROSION AND SEDIMENT CONTROL PLAN
prepared for
MERRILL T. DENSLOW SUBDIVISION
in
TOWAMENCIN TOWNSHIP
MONTGOMERY COUNTY
PENNSYLVANIA
NOVEMBER 1979

DEPT. OF ENVIRONMENTAL RESOURCES
BUREAU OF
WATER QUALITY MANAGEMENT
APPLICATION NO. PA
4679470 12-6-79
REPORTS
NO. OF VOLUMES 3 OF 3

NARRATIVE REPORT
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WATER QUALITY MANAGEMENT
APPLICATION NO. PA
4679470 12-6-79
REPORTS
NO. OF VOLUMES 3 OF 3

Herbert H. Metz, Inc.

46-84-70

1) GENERAL DESCRIPTION OF THE SITE LOCATION

The project site is an 8.6 acre tract of land situated on Sumneytown Pike (County highway), West of Valley Forge Road (L. R. 463) and East of Troxell Road (L. R. 46043) in Towamencin Township, Montgomery County.

The site is bounded by Sumneytown Pike to the North, single - family residential districts to the East and West, and an agricultural district to the South.

Soils composition on the site, as identified by the Montgomery County Soils survey, is made up of Readington Silt Loams and Reaville Shaly Silt Loam.

2) GENERAL DESCRIPTION OF STORMWATER COLLECTION AND CONTROL

The stormwater pipe and inlet collection system was designed using the rational method and following 10-year design storm frequency criteria. Inlets and storm sewers have been planned for placement at appropriate critical locations along the tract street for conveyance to a tributary watercourse leading to the Kulpsville Branch of the Towamencin Creek.

Pipe outfalls at minimum slopes and outlet energy-dissipating devices are designed for release of stormwater runoff at reduced velocities.

Stormwater detention is provided by using an oversized 49" x 33" CAAPA emptying into an 18" CAAP which restricts the outflow. Placing of permanent on-lot detention facilities will be avoided due to ingerent maintence problems as the township does not wish to be responsible for them.

3) GENERAL DESCRIPTION OF ACCELERATED EROSION CONTROL MEASURES

As hereinafter described and as shown and noted on the Erosion and Sedimentation Control Plan, and in the following (Item #8) construction control stage sequence, the following erosion control procedures and devices shall be employed.

The street shall be graded and crushed stone base course applied, and curbing placed as soon as possible, to prevent erosion of the sub-grade. During street grading, filter berms and filter inlets are proposed to be constructed at appropriate intervals and locations to minimize gullying and washing, and siltation in pipes and water courses. Utilization of temporary straw balc silt barriers is also proposed along the adjacent road-way and established - developed areas where on - site earth move-ment and construction is planned.

Graded slopes, swales or diversions, on-lot sedimentation control features and other critical disturbed areas shall be temporarily seeded following earth-moving procedures.

Continued

Rear-of-lot belt areas not significant to the progression of construction of houses and improvements and drainage controls shall be left undisturbed until lawn grading phase of finish construction. In addition, top soil storage as a protective berm may be utilized across the down-slope limit of construction in some locations.

4) GENERAL DESCRIPTION OF SEDIMENTATION CONTROL

On-lot protection during construction and grading activity will be provided by temporary controlled-flow interceptor diversion berms on individual lots.

Straw bale filter inlets and filter berms shall be employed, during specific construction phases at appropriate spaced locations across or along graded rights-of-way, such as noted on the Erosion and Sedimentation Control Plan. Stone ballast over-berm to be placed at the intersection of the proposed road with Sumneytown Pike.

Upon completion of construction, the temporary berms and filter inlets shall be removed and the remaining areas re-graded and seeded or paved.

5) SANITARY SEWERAGE FACILITIES

Public sanitary sewerage facilties are proposed to serve this development, with a planned sanitary sewer extension to connect and discharge into the existing Upper Gwynedd-Towamencin Municipal Sewer Authority System via an 8" ϕ gravity sewer connection.

Collected sewage will be conveyed by the Authority System for treatment at the Upper Gwynedd-Towamencin Municipal Sewer Authority Wastewater Treatment Plant.

6) TOPOGRAPHIC AND GEOLOGIC FEATURES

The topography shown on the plans is based on actual physical ground surveys. The soils information is taken from Soil Conservation Service and Montgomery County Soil Survey data and is indicated on the Erosion and Sedimentation Control Plan and supporting data.

7) HYDROLOGIC RUNOFF COMPUTATIONS

The Montgomery County Soil Conservation Service Erosion and Sedimentation Control Handbook and Soils Conservation Engineering Field Manual were used as references.

8) STAGING OF EARTHMOVING ACTIVITIES

A. Construct on-site temporary sediment control facilities (including on-lot berms, if applicable) in accordance with scheduled construction and the design criteria shown on the Control Plan. Grade and seed all exposed areas of embankments.

B. Clear and grub street right of way and building sites.

C. Available topsoil shall be removed and stockpiled or windrowed (downslope from construction area where feasible); for use in finish grading.

D. Juncture portion of proposed road with Summeytown Pike is to be graded and stone ballast placed, with a ballast overberm formed across the throat of the intersection as an erosion and sediment control deterrent and stablization device for protection of the existing roadway.

E. Rough grade roadway to the proposed sub-grade elevation gradient and cross-section.

F. Install storm sewers (including sediment controls at appropriate inlets) and sanitary sewers and appurtenant structures. Install all underground utilities. Direct surface runoff to completed storm drainage facilities by constructing temporary interceptor channels and dikes.

G. Temporarily seed all disturbed soil banks with rye grass.

H. Construct buildings, fine grade street and place stone base course. (On-lot sedimentation control measures are to have been constructed prior to improvements and house construction as noted in "A").

I. Finish grade and establish permanent seeding as soon as possible thereafter in buiding construction areas. Immediately following removal of temporary erosion and sedimentation control structures, grade and permanently seed these areas, implementing permanent on-lot grading/landscaping features planned to minimize surface runoff impact.

EH-3WQ-81 Rev. 74

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: Nov. 30, 1979

APPLICATION FOR WATER QUALITY MANAGEMENT PERMIT

For Department Use Only

APPLICANT NAME
Upper Gwynedd-Towamencin Municipal Authority

TELEPHONE NO. (215) 855-8165

MAILING ADDRESS
2225 Kriebel Road
Lansdale, Pennsylvania

PROJECT LOCATION

(A) MUNICIPALITY
Towamencin Township

(B) COUNTY
Montgomery

RECEIVED
DEC 6 1979
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

HEREBY APPLIES FOR: (CHECK APPROPRIATE BLOCKS IN SECTION A, B, C AND D)

A. APPROVAL OF PLANS FOR CONSTRUCTION OF:
- [X] SEWERS AND APPURTENANCES
- [ ] SEWAGE TREATMENT PLANT
- [ ] MINE DRAINAGE TREATMENT PLANT
- [ ] INDUSTRIAL WASTE TREATMENT PLANT
- [ ] OUTFALL AND HEADWALL
- [ ] STREAM CROSSING

B. APPROVAL TO DISCHARGE:
(1) [ ] TREATED [ ] UNTREATED
(2) [ ] INDUSTRIAL WASTES [ ] MINE DRAINAGE [ ] SEWAGE

C. APPROVAL TO OPERATE:
[ ] UNDERGROUND MINE

D. APPROVAL OF AN
[ ] EROSION AND SEDIMENTATION PLAN

DEPT. OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

ALL DISCHARGES OF WASTES ARE PURSUANT TO "THE CLEAN STREAMS LAW")

I HEREBY CERTIFY THAT THE ACCOMPANYING REPORT AND ALL PLANS, MODULES, AND DOCUMENTS DESIGNATED HEREIN ARE ATTACHED TO THIS APPLICATION, AND MADE A PART HEREOF.

APPLICATION 4679470 12-6-79

REPORTS

SIGNATURE OF APPLICANT OR RESPONSIBLE OFFICIAL: H. Warren Dimmig

NAME OF APPLICANT OR RESPONSIBLE OFFICIAL: H. Warren Dimmig

TITLE: Chairman

DATE OF APPLICATION: 12-5-79

ADDRESS: 2225 Kriebel Road, Lansdale, M.R., Pennsylvania 19446

NO. OF VOLUMES 1 OF 3

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA, COUNTY OF Montgomery

I, H. Warren Dimmig, BEING DULY SWORN, ACCORDING TO LAW, DEPOSE AND SAY THAT (I AM THE APPLICANT) (AM AN OFFICER OR OFFICIAL OF THE APPLICANT) (HAVE THE AUTHORITY TO MAKE THIS APPLICATION) AND THAT THE PLANS, REPORTS AND DOCUMENTS SUBMITTED AS PART OF THE APPLICATION ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

SWORN AND SUBSCRIBED TO BEFORE ME THIS 5th DAY OF DEC. 19 79

NOTARY PUBLIC

SIGNATURE OF APPLICANT OR RESPONSIBLE OFFICIAL: H. Warren Dimmig

NOTE: THIS SECTION BELOW IS TO BE COMPLETED BY THE PERSON AUTHORIZED BY THE APPLICANT TO PREPARE THIS APPLICATION. NOTE: SEWERAGE, INDUSTRIAL WASTE, AND MINE DRAINAGE APPLICATIONS REQUIRE A REGISTERED PROFESSIONAL ENGINEER, EXCEPT THAT A REGISTERED SURVEYOR IS ACCEPTABLE WHERE PUBLIC HEALTH AND SAFETY ARE NOT INVOLVED.

NAME OF DESIGN ENGINEER (OR SURVEYOR) AND FIRM
H. Metz Jr. P.E.
Herbert H. Metz, Incorporated

MAILING ADDRESS
410 Derstine Avenue
Lansdale, Pennsylvania

TELEPHONE NUMBER
(215-) 855-3111

AGREEMENT DATE
Jan. 1979

SIGNATURE OF DESIGN ENGINEER (OR SURVEYOR)

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER'S OR SURVEYOR'S SEAL
HERBERT WILLIAM METZ, JR.
ENGINEER
No. 5953-E

Herbert H. Metz, Inc.

ER-WQ-188.1 REV. 3/78

DATE PREPARED: Nov. 30, 1979
DATE REVISED:

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

APPLICANT: Upper Gwynedd-Towamencin Municipal Authority

LOCATION OF PROJECT: MUNICIPALITY: Towamencin Township COUNTY: Montgomery

DESIGN ENGINEER AND FIRM: Herbert H. Metz, Jr. P.E., Herbert H. Metz, Inc.

DESIGN ENGINEERS ADDRESS: 410 Derstine Avenue, Lansdale, Pa. ZIP CODE: 19446 TELEPHONE: (215) 855-3111

DESCRIPTION OF PROJECT: A planned 9-Lot single dwelling subdivision tract of Merill Denslow on the existing Trunk Line System of the Authority in Subshed Area at the intersection of Kriebel Road and Sumneytown Pike.

A. DOCUMENTATION REQUIRED

1. HAS A CHECK FOR $25.00, PAYABLE TO THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES, BEEN INCLUDED? (NOT REQUIRED OF STATE OR FEDERAL AGENCIES) — [X] Yes [ ] No [ ] N/A
2. HAVE 2 COPIES OF THE APPLICATION, FORM H710.046, BEEN SUBMITTED? (3 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND DELAWARE RIVER BASIN). — [X] Yes [ ] No

A. HAS THE AFFIDAVIT BEEN PROPERLY COMPLETED AND EXECUTED? — [X] Yes [ ] No

B. DOES THE APPLICATION INCLUDE THE FOLLOWING APPLICABLE MODULES:

MODULE NUMBER	TITLE	NUMBER OF PAGES	
1	GENERAL INFORMATION – SEWERAGE	9	[X] Yes
4	WASTE LOAD AND CHARACTERISTICS	3	[ ] Yes
5	GEOLOGY AND GROUND WATER INFORMATION	2	[ ] Yes
6	SEWERS AND APPURTENANCES	5	[X] Yes
7	SEWAGE PUMPING STATIONS	4	[ ] Yes
8	PUMPING FACILITIES	1	[ ] Yes
9	FLOW EQUALIZATION AND STORAGE BASINS	2	[ ] Yes
10	GRIT CHAMBERS	1	[ ] Yes
11	SCREENING AND COMMINUTING DEVICES	2	[ ] Yes
12	IMHOFF AND SEPTIC TANKS	2	[ ] Yes
13	SETTLING TANKS	2	[ ] Yes
14	EARTHEN SETTLING BASINS	2	[ ] Yes

ER-BWQ-188.1(REV. 8/78)

DATE PREPARED
Nov. 30, 1979
DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

A. DOCUMENTATION REQUIRED – CONTINUED THIS SHEET NOT APPLICABLE ☐ Yes

MODULE NUMBER	TITLE	NUMBER OF PAGES	
15	TRICKLING FILTERS	2	☐ Yes
16	AERATION TANKS OR BASINS	3	☐ Yes
17	WASTE STABILIZATION PONDS	3	☐ Yes
18	CHEMICAL TREATMENT (INCLUDING FEEDERS)	3	☐ Yes
19	MIXING AND FLOCCULATION FACILITIES	1	☐ Yes
20	SAND FILTERS	2	☐ Yes
21	DISINFECTION	2	☐ Yes
22	SPRAY IRRIGATION	1	☐ Yes
23	PHYSICAL ABSORPTION, ION EXCHANGE, AND CONTACT UNITS	2	☐ Yes
25	DEEP WELL DISPOSAL	4	☐ Yes
26	SLUDGE TREATMENT AND DISPOSAL		
	A. SEPARATE DIGESTION TANKS AND SLUDGE THICKENING TANKS	2	☐ Yes
	B. ELUTRIATION	1	☐ Yes
	C. WET OXIDATION	1	☐ Yes
	D. SLUDGE DRYING BEDS	1	☐ Yes
	E. LAND DISPOSAL OF SLUDGE	1	☐ Yes
	F. SLUDGE BASINS	1	☐ Yes
	G. FILTERS AND CENTRIFUGES	1	☐ Yes
	H. INCINERATION	1	☐ Yes

B. REQUIRED DATA

1. THE FRONT COVER OR FLYLEAF OF EACH SET OF DRAWINGS AND SPECIFICATIONS MUST BEAR THE SIGNATURE AND SEAL OF THE REGISTERED PROFESSIONAL ENGINEER, SURVEYOR BY OR UNDER WHOM PREPARED. EACH DRAWING MUST BEAR AN IMPRINT OR REASONABLE FACSIMILE OF SUCH SEAL.

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WATER QUALITY MANAGEMENT

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B. REQUIRED DATA – CONTINUED

2. INFORMATION RELATIVE TO SPECIFIC PROGRAMS:

A. 2 COPIES OF DESIGNER'S PLANS, MODULES, AND SPECIFICATIONS (2 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND DELAWARE RIVER BASIN) (appended)

B. HYDRAULIC PROFILE OR SCHEMATIC FLOW DIAGRAM FOR PROPOSED TREATMENT PLANT. ☒ N/A

C. UNITED STATES GEOLOGICAL SURVEY TOPOGRAPHICAL MAP SHOWING EXACT POINT OF DISCHARGE AND TREATMENT PLANT OR PUMP STATION LOCATION AND/OR AREA TO SEWERS. ☒ N/A

D. HAVE YOU APPLIED FOR A PUBLIC UTILITY COMMISSION CERTIFICATE OF PUBLIC CONVENIENCE? ☐ Yes ☐ No ☒ N/A

(1) SPECIFY PUBLIC UTILITY COMMISSION APPLICATION NUMBER n/a

(2) IS CERTIFICATE OF PUBLIC CONVENIENCE ENCLOSED? ☐ Yes ☐ No N/A

E. HAVE YOU APPLIED FOR APPROVAL OF STREAM ENCROACHMENT(S)? ☐ Yes ☐ No ☒ N/A

F. HAVE YOU APPLIED FOR DEPARTMENT OF LABOR AND INDUSTRY APPROVAL FOR FEATURES AFFECTING EMPLOYEE SAFETY? ☐ Yes ☐ No ☒ N/A

G. DO YOU HAVE AN AGREEMENT INDICATING APPROVAL TO DISCHARGE TO SEWER SYSTEM AND TREATMENT PLANT OF ANOTHER PERMITTEE? ☐ Yes ☐ No ☒ N/A

H. HAVE YOU APPLIED FOR APPROVAL OF AIR POLUTION CONTROL FACILITIES? ☐ Yes ☐ No ☒ N/A

I. HAVE YOU SUBMITTED A LIST WITH NAMES, ADDRESSES, AND TITLES OF ALL PARTNERS IN THE CASE OF A PARTNERSHIP OR ALL OFFICERS IN THE CASE OF A CORPORATION, UNINCORPORATED ASSOCIATION, INCORPORATED ASSOCIATION, PARTNERSHIP, OR OTHER ENTITY (NOT MUNICIPAL)? ☐ Yes ☐ No ☒ N/A

3. SPECIFY THE FOLLOWING:

A. PLANS: Subdivision — TITLE/DESCRIPTION — NO. OF SHEETS: 1 — DATE: 7/12/78

PLANS: Construction Improvement Plans — TITLE/DESCRIPTION — NO. OF SHEETS: 2 — DATE: 5/15/79

PLANS: Plan/Profiles, etc. — TITLE/DESCRIPTION — NO. OF SHEETS: 4 — DATE: 5/15/79

last.rev. 11/26/79

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B. REQUIRED DATA – CONTINUED

3. SPECIFICATIONS (IF APPLICABLE): Upper Gwynedd-Towamencin Municipal Authority
Reference specificationa and pertinences TITLE
as filed at Penna. D.E.R. by U.G.-T.M.A.
NUMBER OF VOLUMES _____ DATE _____

4. OTHER (SPECIFY TYPE AND NUMBER):

4. ARE THE PLANS:

A. CLEAR, LEGIBLE, AND DRAWN TO SCALE WITH NORTH ARROW INDICATED? ☒ Yes ☐ No

B. WITHIN MAXIMUM SIZE OF 36 INCHES BY 60 INCHES? ☒ Yes ☐ No

C. SEAL AND SIGNATURE OF PROFESSIONAL ENGINEER OR SURVEYOR RESPONSIBLE FOR THIS APPLICATION

1. SIGNATURE OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW) Richard H. Dietz, P.E.

2. SEAL OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW)

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
SEAL

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MODULE 1 – GENERAL INFORMATION SEWERAGE

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This sheet not applicable

CLASS OF CONSTRUCTION (Check all applicable blocks)

- ☐ NEW
- ☐ REPLACEMENT OF EXISTING UNIT(S)
- ☐ ADDITIONS AND/OR MODIFICATIONS TO EXISTING UNIT(S)

TABLE I -- DESIGN LOADING DATA

			Existing Facilities Design	Present Operating Load	Proposed Total Facilities Design
1. EQUIVALENT POPULATION TO BE SERVED (NO. OF PERSONS – SUBMIT CALCULATIONS)					
	A. DOMESTIC				
	B. INDUSTRIAL				
	C. TOTAL				
2. DESIGN YEAR OR PERIOD FOR OPERATING DATA					
3. RUNOFF PERIOD		(HRS)			
4. DOMESTIC WASTE FLOW DATA	A. PER CAPITA FLOW	(GPCD)			
	B. AVERAGE DAILY FLOW	(MGD)			
	C. INFILTRATION	(MGD)			
	D. RUNOFF FLOW RATE	(MGD)			
	E. MAXIMUM FLOW RATE	(MGD)			
5. INDUSTRIAL WASTE FLOW DATA	A. AVERAGE DAILY FLOW	(MGD)			
	B. MAXIMUM DAILY FLOW	(MGD)			
6. TOTAL DESIGN AVERAGE FLOW		(MGD)			

TABLE II – FACILITIES DESIGN DATA (Specify number of units)

Units	Existing	To Be Abandoned	Total Proposed	Units	Existing	To Be Abandoned	Total Proposed
1. SCREENING DEVICES				13. CHLORINE CONTACT TANK(S)			
2. GRIT CHAMBER(S)				14. DISINFECTION FACILITIES			
3. COMMINUTOR(S)				15. SEPARATE SLUDGE DIGESTORS			
4. PRE-AERATION TANKS				16. SLUDGE DRYING BEDS			
5. PRIMARY SETTLING TANKS				17. MECHANICAL SLUDGE DEWATERING			
6. IMHOFF TANK(S)				18. SLUDGE ELUTRIATION TANKS			
7. TRICKLING FILTERS				19. SLUDGE STABILIZATION TANKS			
8. INTERMEDIATE SETTLING TANKS				20. INCINERATOR(S)			
9. AERATION TANKS				21. MIXING AND FLOCCULATION TANKS			
10. FINAL SETTLING TANKS				22. OTHER (Specify)			
11. INTERMITTENT SAND FILTERS				23. OTHER (Specify)			
12. WASTE STABILIZATION POND(S)				24. OTHER (Specify)			

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MODULE 1 – GENERAL INFORMATION SEWERAGE

For Department Use Only

D. GENERAL INFORMATION

1. EXISTING COMBINED SEWERS MAKE UP 0 % OF THE TOTAL AREA SERVED BY THE SYSTEM.

2. ARE THE EXISTING SANITARY SEWERS SUBJECT TO EXCESSIVE INFILTRATION? ☐ Yes ☒ No ☐ N/A

A. IF YES, SPECIFY MAJOR SOURCES OF INFILTRATION:

3. TYPES OF INDUSTRIAL WASTES OF SPECIAL CONSIDERATION: N/A

4. WILL THE APPLICANT BE RESPONSIBLE FOR REPAIR AND MAINTENANCE OF SEWAGE FACILITIES FOR WHICH APPLICATION IS SUBMITTED? **☒ Yes ☐ No

A. IF NO, EXPLAIN:

**Upon completion, testing, and acceptance.

5. THE DISTANCE OF THIS PLANT TO THE NEAREST OCCUPIED DWELLING:

A. PRESENT _____ FEET

B. PROPOSED N/A FEET

6. IF THE APPLICANT IS OTHER THAN A MUNICIPALITY OR MUNICIPAL AUTHORITY, HAS THE GOVERNING MUNICIPALITY OBJECTED TO THE PROPOSED SEWAGE TREATMENT PLANT? ☐ Yes ☐ No ☒ N/A

B. HAS A REGULATION PROHIBITING THE ADMITTANCE OF STORM WATER FROM PAVEMENTS, ROOFS, AND OTHER SOURCES BEEN ADOPTED? (IF YES, ENCLOSE COPY.) ☒ Yes ☐ No

Refer U.G.-T.M.A. Rates, Rules and Regulations, Construction Specifications and National Plumbing Code

C. SPECIFY STEPS TAKEN OR BEING TAKEN TO CORRECT THE INFILTRATION PROBLEM, INCLUDING DATES: ☐ N/A

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WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION SEWERAGE

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D. GENERAL INFORMATION – CONTINUED

THIS SHEET NOT APPLICABLE

A. IS THE LETTER FROM MUNICIPAL OFFICER, SIGNIFYING THE OPINION, APPENDED TO THIS APPLICATION? ☐ Yes ☐ No

7. ARE DUPLICATE TREATMENT UNITS PROVIDED WHERE REQUIRED? ☐ Yes ☐ No ☐ N/A

A. IF NO, EXPLAIN: _____

B. DO ANY BY-PASS STRUCTURES DISCHARGE TO WATERS OF THE COMMONWEALTH? (SPECIFY PLAN SHEET NUMBER(S) SHOWING BY-PASS STRUCTURES) ☐ Yes ☐ No

8. HAS AN AUXILIARY STANDBY POWER SOURCE BEEN PROVIDED? ☐ Yes ☐ No ☐ N/A

9. DOES ANY PIPING OR CONNECTION EXIST IN ANY PART OF THE TREATMENT WORKS WHICH MAY CAUSE CONTAMINATION OF THE POTABLE WATER SUPPLY? ☐ Yes ☐ No

10. IF A NON-POTABLE WATER SUPPLY IS PROVIDED, ARE ALL OUTLETS PERMANENTLY POSTED TO INDICATE WATER IS NOT SAFE FOR DRINKING? ☐ Yes ☐ No ☐ N/A

11. ARE FACILITIES PROVIDED FOR MEASURING THE SEWAGE FLOW? ☐ Yes ☐ No

12. SAFETY:

A. ARE FACILITIES PROVIDED TO EFFECTIVELY PROTECT THE OPERATOR AND VISITORS? ☐ Yes ☐ No

13. OUTFALL SEWER:

A. IS THE OUTFALL SEWER ADEQUATELY PROTECTED TO ENSURE ITS STRUCTURAL STABILITY AND FREEDOM FROM STOPPAGE? ☐ Yes ☐ No

B. IS AN OUTFALL HEAD WALL PROVIDED? ☐ Yes ☐ No ☐ N/A

C. DOES THE OUTFALL EXTEND TO THE LOW WATER MARK OF THE RECEIVING STREAM? ☐ Yes ☐ No ☐ N/A

14. HAVE PROVISIONS BEEN MADE TO PROTECT ALL STRUCTURES AGAINST FLOTATION? ☐ Yes ☐ No

15. IF THE PROJECT INVOLVES ADDITIONS TO AN EXISTING TREATMENT PLANT, DO THE SPECIFICATIONS INCLUDE A PROGRAM TO PREVENT BY PASSING OF ANY UNIT TO WATERS OF THE COMMONWEALTH DURING CONSTRUCTION? ☐ Yes ☐ No ☐ N/A

A. SPECIFY VOLUME AND PAGE NUMBER OF SPECIFICATIONS: _____

SPECIFY NAMES OF MUNICIPALITIES AND POPULATION SERVED OR TO BE SERVED BY THIS PLANT: _____

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E. RECEIVING STREAM*

THIS SHEET NOT APPLICABLE

1. WHAT IS THE NAME OF THE RECEIVING STREAM? _____

   A. TRIBUTARY OF _____

   B. TRIBUTARY OF _____

2. MAJOR DRAINAGE BASIN:

   ☐ DELAWARE
   ☐ SUSQUEHANNA
   ☐ POTOMAC
   ☐ LAKE ERIE
   ☐ GENESEE
   ☐ ALLEGHENY
   ☐ MONONGAHELA
   ☐ OHIO

3. DESCRIBE THE EXACT POINT OF DISCHARGE:

   _____ DEG. _____ MIN. _____ SEC LATITUDE

   _____ DEG. _____ MIN. _____ SEC LONGITUDE

   A. WATERSHED AREA ABOVE POINT OF DISCHARGE IS

   _____ SQUARE MILES.

4. WHAT IS THE:

   A. MINIMUM 7-CONSECUTIVE-DAYS FLOW OCCURRING ONCE IN 10 YEARS?

   _____ CUBIC FEET PER SECOND.

   B. MINIMUM STREAM FLOW: _____

   C. ABOVE FLOWS ARE BASED ON:

   ☐ MEASUREMENTS
   ☐ ESTIMATES

   _____ YEARS OF RECORD

5. IS THE TREATMENT PLANT SUBJECT TO FLOODING? ☐ Yes ☐ No

6. THE PROBABILITY OF THE TREATMENT PLANT BEING OUT OF SERVICE DUE TO FLOODING IS ONCE IN _____ YEARS.

   A. LIST BRIEFLY THE METHODS USED FOR FLOOD PROTECTION: _____

* Attach U.S. Geological Survey 7.5' or 15' Quadrangle Map showing exact points of discharge

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WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
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SEWERAGE

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E. RECEIVING STREAM - CONTINUED

THIS SHEET NOT APPLICABLE

6. TO THE BEST OF YOUR KNOWLEDGE, WILL THE TREATED WASTE DISCHARGE ADVERSELY AFFECT:

A. DOMESTIC WATER SUPPLY?	☐ Yes	☐ No
B. BATHING?	☐ Yes	☐ No
C. STOCK WATERING?	☐ Yes	☐ No
D. FISH AND AQUATIC LIFE?	☐ Yes	☐ No
E. INDUSTRIAL WATER SUPPLY?	☐ Yes	☐ No
F. IRRIGATION?	☐ Yes	☐ No
G. BOATING AND AESTHETICS?	☐ Yes	☐ No

7. IF ANY ITEMS IN 6 ABOVE ARE ANSWERED YES, INDICATE DISTANCE TO, LOCATION OF, AND EXTENT OF ADVERSE EFFECT:

_____

_____

_____

_____

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MODULE 6 – SEWERS AND APPURTENANCES

CLASS OF CONSTRUCTION (Check All Applicable Blocks)

- [ ] NEW SYSTEM
- [ ] REPLACEMENT OF EXISTING SYSTEM
- [X] EXTENSION(S) TO EXISTING SYSTEM

TABLE I – DESIGN FLOW AND LOADING INFORMATION

		INITIAL	DESIGN	DESIGN YEAR
1. POPULATION TO BE SERVED		9 E.D.U.	31.5	31.5	1980
2. AREA TO BE SERVED		Residential	ACRES (INITIAL)	8.6 Acres	
TYPE OF AREA (Residential, Commercial, Etc.)		Residential	ACRES (FUTURE)	8.6 Acres	
A. LATERALS AND SUB-MAIN SEWERS	(GPCD)	400			
B. MAIN AND TRUNK SEWERS	(GPCD)	N/A			
C. INTERCEPTORS	(GPCD)	N/A			
(1) MEASURED DRY-WEATHER FLOW	(%)	N/A			
(2) ESTIMATED DRY-WEATHER FLOW	(%)	N/A			

D. IF ANY VALUES LESS THAN PRESCRIBED IN MANUAL, EXPLAIN: N/A

DESIGN FLOW DATA	(GPCD)	MGD
A. AVERAGE DAILY FLOW	100	.00315
B. INFILTRATION		incl. in "A"
C. MAXIMUM INDUSTRIAL WASTE FLOW		N/A
D. TOTAL DESIGN FLOW		.00315
E. MAXIMUM FLOW RATE		.01260

TABLE II – GENERAL DESIGN

PIPE DIAMETER (IN.)	MINIMUM SLOPE (%)	MAXIMUM SLOPE (%)	MAXIMUM VELOCITY (FPS) (1)	MAXIMUM FLOW (MGD) (1)	MAXIMUM DISTANCE BETWEEN MANHOLES (Ft.) SEWERS 18 IN. OR LESS	SEWERS 18 IN. TO 30 IN.	TYPE OF SEWER MATERIAL	"N" VALUE
8"	.0067	.0377	6.8	2.4	270 (2)		ACP	.012

(1) Full Flow
(2) Prop. Extension System

(USE ADDITIONAL SHEETS IF NECESSARY)

TABLE III – CRITICAL DATA

PLAN SHEET NUMBER	MANHOLE NUMBER FROM	MANHOLE NUMBER TO	SEWER PIPE SIZE (IN.)	SEWER SLOPE (%)	POPULATION SERVED	TOTAL DESIGN FLOW (MGD)	SEWER FLOWING FULL VEL. (FPS)	SEWER FLOWING FULL CAP. (MGD)	MAXIMUM FLOW VELOCITY (FPS)
NO CRITICAL SECTION									

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MODULE 6 – SEWERS AND APPURTENANCES

For Department Use Only

A. GENERAL DESIGN

1. ARE THE PROPOSED SEWERS DESIGNED AS SEPARATE SANITARY SEWERS? [X] Yes [ ] No
   A. IF NO, EXPLAIN IN DETAIL, INCLUDING THE POSSIBLE EFFECTS UPON WATER COURSES.
   N/A

2. ARE THE PROPOSED SEWERS DEEP ENOUGH TO SERVE ALL ADJACENT BASEMENTS? [X] Yes [ ] No
   A. IF NO, EXPLAIN.
   N/A

3. ARE THERE ANY OVERFLOWS OR BYPASSES OTHER THAN FROM PUMP STATIONS? [ ] Yes [X] No
   A. IF YES, SPECIFY PLAN SHEET(S) WHERE SHOWN.
   N/A

4. WHERE SMALLER SEWERS JOIN LARGER ONES, HAVE THE INVERTS OF THE LARGER SEWERS BEEN LOWERED SUFFICIENTLY TO MAINTAIN THE SAME ENERGY GRADIENT? [ ] Yes [ ] No [X] N/A

5. SPECIFY THE TYPE OF LEAKAGE TEST (INFILTRATION AND/OR EXFILTRATION) AND THE LIMIT TO BE USED, PREFERABLY IN TERMS OF GALLONS PER INCH OF PIPE DIAMETER PER MILES PER DAY. (INDICATE VOLUME AND PAGE NUMBER OF SPECIFICATIONS.)
   TYPE AND LIMITS: Infiltration and Enfiltration ... N.T.E. 200/gal/ per inch pipe diameter/per mile/per day (UGTMA Spec.)

6. HAVE PROVISIONS BEEN MADE TO PROTECT SEWERS AT VELOCITIES OF OVER 15 FEET PER SECOND? [ ] Yes [ ] No [X] N/A
   A. ARE SEWERS SECURED WITH CONCRETE ANCHORS (OR EQUAL) SPACED AS REQUIRED? [ ] Yes [ ] No [X] N/A

7. ARE MANHOLES PROVIDED AT ALL CHANGES IN SIZE, GRADE, ALIGNMENT, AND SEWER INTERSECTIONS? [X] Yes [ ] No

8. ARE DROP MANHOLES PROVIDED WHERE THE ENTRANCE SEWER INVERT IS 24 INCHES OR MORE ABOVE MANHOLE INVERT? [ ] Yes [ ] No N/A

9. ARE WATERTIGHT COVERS USED WHERE MANHOLES ARE SUBJECT TO FLOODING BY STREET RUNOFF OR HIGH WATER? [ ] Yes [ ] No N/A

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MODULE 6 – SEWERS AND APPURTENANCES

A. GENERAL INFORMATION – CONTINUED

10. ARE SEWERS IN STREAMS PROTECTED WITH AT LEAST 1 FOOT COVER IN ROCK AND 3 FEET COVER IN OTHER MATERIAL? ☐ Yes ☐ No ☒ N/A

11. ARE SEWERS IN STREAMS CONSTRUCTED TO REMAIN WATERTIGHT AND FREE IN ALIGNMENT? ☐ Yes ☐ No ☒ N/A

12. DOES THE APPLICATION INVOLVE CAPPED SEWERS? ☐ Yes ☒ No

A. IF YES, SPECIFY PLAN SHEET NUMBER N/A

13. HOW MANY INVERTED SIPHONS ARE INCLUDED IN THIS DESIGN? None

14. IF SIPHONS ARE INCLUDED, SPECIFY THE FOLLOWING:

	SIPHON:	SIPHON:	SIPHON:
A. NUMBER OF BARRELS			
B. MINIMUM PIPE SIZE	N/A		
C. MINIMUM VELOCITY AT AVERAGE FLOW			

D. HAS PROVISION BEEN MADE FOR FLUSHING, RODDING, AND MAINTENANCE? ☐ Yes ☐ No

15. IS THERE ANY CONNECTION BETWEEN THE SEWER AND A PUBLIC OR PRIVATE POTABLE WATER SUPPLY OR APPURTENANCE? ☐ Yes ☒ No

16. ARE ANY WATER SUPPLY SOURCES, PUBLIC OR PRIVATE, LOCATED WITHIN 200 FEET OF THE SEWERS? ☐ Yes ☒ No

A. IF YES, SPECIFY PLAN SHEET(S) ON WHICH SOURCES ARE SHOWN N/A

B. IF YES, WILL SEWERS BE ENCASED OR WATERTIGHT? ☐ Yes ☐ No N/A

17. ARE SEWERS AT LEAST 10 FEET HORIZONTALLY FROM WATER LINES AND/OR AT LEAST 18 INCHES BELOW THE WATER LINE? ☒ Yes ☐ No

18. IF THE PROPOSED FACILITY WILL DISCHARGE TO THE SEWER SYSTEM AND TREATMENT PLANT OF ANOTHER MUNICIPALITY, HAVE APPROPRIATE AGREEMENTS BEEN REACHED? ☐ Yes ☐ No ☒ N/A

A. IS THE AGREEMENT A CERTIFIED AGREEMENT? ☐ Yes ☐ No ☒ N/A

B. IS THE AGREEMENT A LETTER OF INTENT? ☐ Yes ☐ No ☒ N/A

C. HAVE DUPLICATE COPIES BEEN ENCLOSED? ☐ Yes ☐ No N/A

19. DO THE EXISTING SEWERS TO WHICH THE PROPOSED SEWERS WILL CONNECT HAVE ADEQUATE CAPACITY TO CONVEY THE ADDITIONAL FLOW? ☒ Yes ☐ No ☐ N/A

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MODULE 6 – SEWERS AND APPURTENANCES

A. GENERAL INFORMATION – CONTINUED

20. ON THE PLANS, INDICATE THE PERMIT NUMBER OF EXISTING SEWER AT EACH PROPOSED POINT OF CONNECTION AND THE NAME OF THE PERMITEE; SPECIFY PLAN SHEET NUMBER(S) ON WHICH INDICATED: Plan Sheets #2 and #4 ☐ N/A

21. WILL THERE BE A PUMP STATION INVOLVED IN RECEIVING SEWAGE FROM THE SEWER EXTENSION? ☐ Yes ☒ No ☐ N/A

A. IF YES, SPECIFY PRESENT AND DESIGN FLOWS OF PUMPING STATION. N/A

22. RECEIVING SEWAGE TREATMENT PLANT (FILL IN FOR EXTENSION(S) TO EXISTING SYSTEM ONLY)

A. OWNER OF PLANT Upper Gwynedd Towamencin Muncipal Authority

B. NAME OF PLANT UGTMA Wastewater Treatment Plant

C. DISCHARGE DATA

	WASTE FLOW (MGD)	SOLIDS: SUSPENDED (#/DAY)	SOLIDS: SETTLEABLE (ML/L)	BOD 5 DAY 20°C (#/DAY)
(1) ALLOWABLE LOAD TO STREAM AUTHORIZED UNDER PRESENT PERMIT	1.5 2.5 (1)	375	none stated	375
(2) PRESENT LOAD TO STREAM FROM TREATMENT PLANT	1.682	(2) 351 (3)	0.4	351 (3)
(3) ADDITIONAL LOAD TO STREAM EXPECTED DURING THE NEXT FIVE YEARS FROM EXISTING SYSTEM	.5185 (4)	107	Negligible	107
(4) ADDITIONAL LOAD TO STREAM DURING THE NEXT FIVE YEARS FROM PROPOSED EXTENSION	(5) .00315	Negligible	Negligible	Negligible
(5) TOTAL ANTICIPATED LOAD TO STREAM IN NEXT FIVE YEARS (2+3+4)	2.204	458	0.4	458

D. TREATMENT PLANT OPERATING EFFICIENCY

	SOLIDS: SUSPENDED (%)	SOLIDS: SETTLEABLE (%)	BOD 5 DAY 20°C (%)
(1) PRESENT TREATMENT PLANT (3)	No Representative data - Plant expansion in progress.		
(2) AFTER INITIAL LOAD FROM PROPOSED EXTENSION	90	98	90
(3) IN FIVE YEARS	90	98	90

23. WILL THE LOAD UNDER 22.B.(5) ABOVE PRODUCE AN EFFLUENT THAT WILL HAVE AN ADVERSE EFFECT UPON THE RECEIVING STREAM? ☐ Yes ☒ No

(Notes (1), (2), (3), (4), (5) See attached supplemental sheet #6-4A)

November 30, 1979

Supplementary Sheet 6-4A

Notes - Re: 6-4 22.C

(1) 1.5 MGD former capacity, plus 1.0 MGD current expansion capcity = 2.5 MGD.

(2) Avg. Daily Flow: Obtained by averaging most recent 12 daily recorded flows from Aug.1978 through July 1979, inclusive.

(3) Values based upon anticipated average 30 day consec. period effluent Susp. Solids and B.O.D. concentrations of 25 ppm each by Fall, 1979 when plan expansion is completed to 2.5 MGD hydraulic capacity and optimum plant efficiency established. During recent and current plan construction expansion period, it should be noted, the normal design pattern, sequence, and retention time of sewage flow through treatment process units is disrupted or abnormal due to construction schedules and procedures, and optimum plant operating efficiency is not consistently achieved.

(4) Includes incremental contributions for projected flows of recently approved and pending projects in U. G. T. M. A. service area:

DiLucia (Country Meadows) Subdivision Permit #4677404

Dougherty Brothers Subdivision Permit #4677415

Regent Manor Subdivision Permit #4677438

Hunter Construction Company "Hunter Meadows" Subdivision, Permit #4678437

"Ralph's Market"/U.G. Tow. Municipal Authority T-14 Line Ext., Permit #467844

Brookside Farms Subdivision, Permit #4678445

Kirkpatrick Subdivision, Permit #4678459

"Rolling Meadows Estates" Subdivision, Permit #4679414

Stony Creek Village (Upper Gwynedd Township), pending approval.

Nash Section III, Permit #4679446

(5) Subject Denslow, contributing increment.

EP-BWQ-188.C(REV. 3/78)

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: Nov. 30, 1979
DATE REVISED:

WATER POLLUTION CONTROL

MODULE 6 -- SEWERS AND APPURTENANCES

For Department Use Only

A. GENERAL INFORMATION - CONTINUED

A. IF YES; EXPLAIN: N/A

B. IF APPLICANT IS NOT OWNER OF THE RECEIVING SEWAGE TREATMENT PLANT, INDICATE SOURCE OF INFORMATION.

N/A

TO BE COMPLETED BY THE REGIONAL SANITARY ENGINEER

1. WILL THE LOAD UNDER 22.B.(5) MEET THE PERMIT REQUIREMENTS? ☐ Yes ☐ No

   A. WILL THE LOAD UNDER 22.B.(5) CAUSE POLLUTION OF THE RECEIVING STREAM? ☐ Yes ☐ No

2. IS THERE ANY QUESTION AS TO WHETHER THE LOAD IS NOW CAUSING OR WILL CAUSE POLLUTION? ☐ Yes ☐ No

   A. IF YES, COMPLETE A POLLUTION REPORT.

3. IS THE TREATMENT PLANT IN COMPLIANCE? ☐ Yes ☐ No

EXCERPT from Rules and Regulations of
TOWAMENCIN TOWNSHIP PLUMBING CODE

P 0 4 7 0

STORM WATER DRAINS

1101. DRAINAGE OF YARDS, AREAS AND ROOFS - All roofs and paved areas, yards, courts and court yards may be drained into the stormwater sewer system but not into the sewers intended for sewage only. Where there is no storm-water sewer accessible, such connections may discharge into the public gutter, unless otherwise directed by the proper authorities however, in no case shall water from said sources drain over the surface of side walks nor be allowed to damage any neighbors property.

EXHIBIT "A"

MODULE 8 - SEWERS AND APPURTENANCES

For Department Use Only

A. GENERAL INFORMATION - CONTINUED

4. IF YES, EXPLAIN: N/A

5. IF APPLICANT IS NOT OWNER OF THE RECEIVING SEWAGE TREATMENT PLANT, INDICATE SOURCE OF INFORMATION:

N/A

EXHIBIT "A"

NOV. 30, 1979

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

46794-71

750 E. Johnson Highway
Norristown, Pennsylvania 19401
215 631-2036

July 16, 1979

Ms. Beverly Thompson, Secretary
Towamencin Township
Box 99
655 Sumneytown Pike
Kulpsville, PA 19443

Re: Merle P. Denslow
Code No. 1-46949-021-4
Towamencin Township

Dear Ms. Thompson:

Please be advised that a review has been made and completed of the above referenced Planning Module for Land Development.

This supplement to the Towamencin Township's Official Sewage Facilities Plan meets the requirements of Chapter 71, Section 71.17 of the Pennsylvania Department of Environmental Resources Rules and Regulations.

Approval is hereby granted; and in accordance with this Chapter, the Department holds Towamencin Township responsible for implementing this supplement as per the approved module.

This planning approval does not relieve the project sponsor of the responsibility to secure a Department permit for the construction and operation of the proposed facility.

If you have any questions, please feel free to contact this office.

Very truly yours,

Alvin Revell
Sanitarian
Montgomery County

CC: Sewage Facilities Consultant
File
WAMIS
Herbert H. Metz, Inc.
I62

SANITARY SEWER DESIGN ANALYSIS

SHEET

ERRELL T. DENSLOW — MUNICIPALITY TOWAMENCIN TOWNSHIP — COUNTY MONTGOMERY

M.H. to M.H.	LENGTH (FEET)	INVERT/INVERT	FALL FEET)	SLOPE (F.T PER FT.)	CONNECTIONS INCREM'T	CONNECTIONS TOTAL	POPULATION 3.5 persons/E.D.U.	FULL FLOW M.G.D.@ 100 gpcd	PIPE 8"ϕ n = 0.013
M.H. 341.23 TO M.H. 341.22	264	286.20/283.90	2.30	.0087	4	4	14	.0056	
M.H. 341.22 TO M.H. 341.21	266	283.80/282.00	1.80	.0068	3	7	24.5	.0098	
M.H. 341.21 TO M.H. 341.20	244	281.90/276.96	5.54	.0227	1	8	28	.0112	
M.H. 341.30 TO M.H. 341.20	270	286.30/276.93	10.05	.0372	1	9	31.5	.0126	
M.H 341.20 TO M.H 341.10	215	276.10/269.50	6.60	.0307	0	9	31.5	.0126	
M.H. 341.10 TO M.H 341.00	215	269.40/266.14	3.26	.0152	0	9	31.5	.0126	

H710.047 REV. 5-71

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
SANITARY ENGINEERING

4679470
For Department Use Only

INTERNAL REVIEW AND RECOMMENDATIONS

REGIONAL ENGINEER'S REVIEW

NAME OF APPLICANT: Upper Gwynedd-Towamencin Municipal Authority

PROJECT LOCATION: Towamencin Township Montgomery County

APPLICATION NUMBER: 4679470

BRIEF DESCRIPTION OF PROJECT: This application requests permission for the construction of a sanitary sewer extension to serve a planned 9-Lot single dwelling subdivision tract of Merill Denslow on the existing trunk line system of the Authority at the intersection of Kriebel Rd. and Sumneytown Pike in Towamencin Township, Montgomery County.

DISCUSSION (Use Additional Sheets If Necessary): Sewage from the proposed sewer extension will be conveyed to the Upper Gwynedd-Towamencin Municipal Authority Sewage Treatment Plant via existing Upper Gwynedd-Towamencin Municipal Authority sewers covered under Permit No. 7665053. The final effluent will be afforded secondary treatment before discharge to the Towamencin Creek. The proposed sewer extension will serve 31.5 people initially and ultimately. The soil erosion and sedimentation control plan has been reviewed and approved by the Montgomery County Conservation District.

CURRENT ESTIMATE OF COMPLETION DATE OF PROJECT (Industrial Wastes Only)

RECOMMENDATION AND ACTION

APPROVAL – RELEVANT LAWS, REGULATIONS, STANDARDS, AND POLICIES HAVE BEEN COMPLIED WITH:

Issue By Region	Issue By Central Office	Refuse	Signature	Date
☒	☐	☐	David Hale REVIEWING ENGINEER	1-23-80
☒	☐	☐	Richard L Hunter FACILITIES ENGINEER	1/24/80
☒	☐	☐	C F Leuchauer REGIONAL ENGINEER	1/24/80
	☐	☐	DIV. FACILITIES ENGINEER	
	☐	☐	DIVISION DIRECTOR	
		☐	BUREAU DIRECTOR	

PERMIT CONDITIONS:

1. STANDARD – Sewerage 1972
1 thru 9, 11 thru 14, 21, 22, 30, 31.
Erosion Control (1973) 1 thru 20

2. SPECIAL (Use Additional Sheets If Necessary) –

Recording of Permit: Montgomery County

ER-BWQ-15-Rev. 4/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT

NO. 4679470

A. PERMITTEE: (Name and Address)

Upper Gwynedd-Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

B. PROJECT LOCATION

Municipality: Towamencin Township

County: Montgomery

C. TYPE OF FACILITY (For industrial wastes; type of establishment)

Sanitary Sewer Extension

D. NAME OF MINE, PLANT, AREA SERVED, OUTFALL NO., ETC.

Merill Denslow Tract

E. THIS PERMIT APPROVES:

1. Plans For Construction Of: a. [X] Sewers and Appurtenances b. [ ] Sewage Treatment Facilities c. [ ] Industrial Wastes Treatment Facilities d. [ ] Mine Drainage Treatment Facilities e. [ ] Outfall & Headwall f. [ ] Stream Crossing g. [ ] Impoundment

2. N/A The Discharge Of: a. [ ] Treated b. [ ] Untreated c. [ ] Sewage d. [ ] Industrial Wastes

3. Discharge To: N/A a. [ ] Surface Water b. [ ] Ground Water
Name of Stream to which discharged or drainage area in which groundwater discharge takes place or impoundment is located.

4. The Operation of a Mine [ ]
N/A Maximum Area to be Deep Mined _____ Acres

5. An Erosion and Sedimentation Control Plan [X]
Project Area is 8.6 Acres

F. THIS APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:

1. ALL CONSTRUCTION, OPERATIONS, PROCEDURES AND DISCHARGE SHALL BE IN ACCORDANCE WITH APPLICATION NO. 4679470 DATED December 5, 1979 ITS SUPPORTING DOCUMENTATION, AND AMENDMENTS DATED _____, SUCH APPLICATION, ITS SUPPORTING DOCUMENTATION AND AMENDMENTS ARE HEREBY MADE A PART OF THIS PERMIT.

2. CONDITIONS NUMBERED 1 thru 9, 11 thru 14, 21, 22, 30 and 31 THE Sewerage STANDARD CONDITIONS DATED 1972 OF AND CONDITIONS NUMBERED 1 thru 20, EROSION CONTROL STANDARD CONDITIONS DATED 1973 OF THE WHICH CONDITIONS ARE ATTACHED AND MADE PART OF THIS PERMIT.

3. SPECIAL CONDITIONS DESIGNATED _____ WHICH ARE ATTACHED AND ARE MADE A PART OF THIS PERMIT.

This permit must be recorded in the Recorder of Deeds Office in Montgomery County.

G. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. IF THERE IS A CONFLICT BETWEEN THE APPLICATION ON ITS SUPPORTING DOCUMENTS AND AMENDMENTS AND THE STANDARD OR SPECIAL CONDITIONS, THE STANDARD OR SPECIAL CONDITIONS SHALL APPLY.

2. FAILURE TO COMPLY WITH THE RULES AND REGULATIONS OF THE DEPARTMENT OR WITH THE TERMS OR CONDITIONS OF THIS PERMIT SHALL VOID THE AUTHORITY GIVEN TO THE PERMITTEE BY THE ISSUANCE OF THE PERMIT.

3. THIS PERMIT IS ISSUED PURSUANT TO THE CLEAN STREAMS LAW, ACT OF JUNE 22, 1937, P.L. 1987 AS AMENDED 35 P.S. § 691.1 ET SEQ. AND/OR THE WATER OBSTRUCTION ACT, ACT OF JUNE 25, 1913, P.L. 555 AS AMENDED 32 P.S. § 681 ET SEQ. ISSUANCE OF THIS PERMIT SHALL NOT RELIEVE THE PERMITTEE OF ANY RESPONSIBILITY UNDER ANY OTHER LAW

PERMIT ISSUED

DATE 1-24-80

DEPARTMENT OF ENVIRONMENTAL RESOURCES

BY C. T. Beechwood

C.T. Beechwood, P.E.

TITLE Regional Water Quality Manager

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
Norristown, Pennsylvania 19401
(215) 631-2405

January 24, 1980

Upper Gwynedd-Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: Mr. H. Warren Dimmig
Chairman

Re: Sewerage Permit No. 4679470
Merill Denslow Tract,
Towamencin Township,
Montgomery County

Gentlemen:

Above referenced permit is enclosed.

Please study the permit carefully and direct any questions to the Facilities Section of this office.

To become operative this permit must be recorded in the Office of the Recorder of Deeds in the county in which the discharge is located. Enclosed is a certificate and pre-addressed envelope for this purpose. Please have the Recorder of Deeds accomplish the certificate and return it within ten (10) days.

Very truly yours,

C.T. Beechwood, P.E.
Regional Water Quality Manager

Enclosures: Permit
Standard Conditions Relating to Sewerage
Standard Conditions Relating to Erosion Control
Recorder of Deeds Certificate with envelope
Notary Public Certificate

cc: H. Metz Jr. P.E.
Re 30

CTB/VL:vs

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT
WATER QUALITY MANAGEMENT PERMIT NO. 4679470

ER-BWQ-68 Rev. 4-73

Upper Gwynedd-Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Permit No. 4679470

Towamencin Township
Montgomery County

Commonwealth of Pennsylvania
Department of Environmental Resources

RECORDER OF DEEDS CERTIFICATE

I hereby certify that on . . . Feb. 1, 1980 . . . .
(Date)

there was recorded in Book . 4497 . Montgomery . . . County . . .

page . . 529 . . . . . the sewerage permit issued

to . Upper Gwynedd - Towamencin Mun. Auth .

bearing date of . . 1-24-80 . . . . . .

Loretta D. Bradbury
Rec. Clerk
Recorder of Deeds for
Montgomery . . . County

ER-BWQ-69 Rev. 1/78

and duly acknowledged the foregoing permit to be his act and deed and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year aforesaid.

STATE OF PENNSYLVANIA
COUNTY OF MONTGOMERY } SS

On the 24th day of January in the year one thousand nine hundred and eighty before me, the Subscriber, a Notary Public, came the above named

C.T. Beechwood

and duly acknowledged the foregoing permit to be his act and deed and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year aforesaid.

Wilbur P. Stender
NOTARY PUBLIC

WILBUR P. STENDER, Notary Public
Norristown Boro, Montg. Co.
My Commission Expires Nov. 2, 1981

Lansdale, PA 19446

Permit No. 4679474

Towamencin Township
Montgomery County

Commonwealth of Pennsylvania
Department of Environmental Resources

RECORDER OF DEEDS CERTIFICATE

ER-BWQ-68 Rev. 4-73

Upper Gwynedd-Towamencin

ER-EPR-1: Rev. 7/77 Form No. 1

Application Nos.: 4679470

SUBJECT: SEWERAGE CONTACT: UPPER GWYNEDD-TOWAMENCIN MUNICIPAL AUTHORITY

2225 KRIEBEL ROAD

MONTGOMERY COUNTY KULPSVILLE, PA. 19443

APPL: 855-~~3686~~ 8145 ENGR: ~~525-6200~~ 855-3111

New Proposal	X
Revised Proposal	

From (Regional Director) L. CONSHOR

R. HINKLE 12/11/79

On 12-6-79, we received an application for plan approval and/or permit to construct sewer extension. The proposed installation involves:

SS EXT TO SERVE the Merrill T. Denlow Subdivision IN Towamencin Twp, MONTGOMERY COUNTY

SEWAGE TO Upper Gwynedd-Towamencin STP

Permit Coordination Requirements: None

DATE To: 12/24/79	No Permit Required	No Permit Required Prior Approval Required	Permit Required Application on Hand	Permit Required Application Needed
Air Quality	✓			
Water Quality			✓ SEK 12/7/79	
Land Protection	✓			
Community Env. Control	✓			
Occupational Health	✓			
Surface Mine Reclamation	✓			
Radiological Health	✓			
DWM	✓			

ER-BWQ-69 Rev. 1/78

Please indicate your interest on this form and return to the Director by 12/14/79

ER – EP

START

DEPARTMENT OF ENVIRONMENTAL RESOURCES

ENVIRONMENTAL PROTECTION

START

BUREAU / PROGRAM Water Quality Management

DIVISION

CASE NAME Upper Gwynedd Towamencin Municipal Authority

FILE P

PERMIT NO. 4680417 Grist Mill Subdivision Sect T.

ER-EP-1: Rev. 7/80

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

April 16, 1980

Department of Environmental Resources
Water Quality Management
1875 New Hope Street
Norristown, Penna.

RE: Upper Gwynedd-Towamencin Municipal Authority
Grist Mill Run, Section I
Water Quality Management Application

Gentlemen:

Pursuant to your requirements, we are forwarding to you for your review and approval two (2) copies of the following:

1. Water Quality Management Application Form ER-BWQ-51, Rev. 1974 as executed by the Authority.
2. Water Pollution Control Modules 1 and 6.
3. Excerpt from Rules and Regulations of the Towamencin Township Plumbing Code regarding Stormwater Drainage (Exhibit A)
4. Approval letter of Revision to the Towamencin Township Official Sewage Facilities Plan (Exhibit B).
5. Erosion and Sediment Control Narrative and Stormwater Management Report (Exhibit C).
6. Sanitary Sewer Design Analysis (Exhibit D).
7. Design Plans for Construction.
8. Filing Fee of $25.00.

Please call should you have any questions or require additional information.

Sincerely,

HERBERT H. METZ, INC.

Barry L. Wert, P.E.

RECEIVED
APR 16 1980
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGION

BLW/bt

1875 New Hope Street
Norristown, Pennsylvania 19401
215 631-2402

April 21, 1980

Upper Gwynedd-Towamencin Municipal Authority
2225 Triebel Road
Lansdale, PA 19446

Attention: Mr. H. Warren Dimmig

Re: Application No. 4680417
Towamencin Township
Montgomery County

Gentlemen:

This will acknowledge receipt of your application on April 17, 1980 for approval to construct a sewer extension to serve Grist Mill Run, Section I, in Towamencin Township, Montgomery County.

The material submitted is accepted for technical review and has been assigned to David Hale, Sanitary Engineer (631-2411) of our staff.

You are reminded that any proposed facilities cannot be constructed without first obtaining the required permits.

Applications are normally processed within sixty (60) days. If you have not received notification of the action taken within this period, feel free to contact me for information concerning the status of the review.

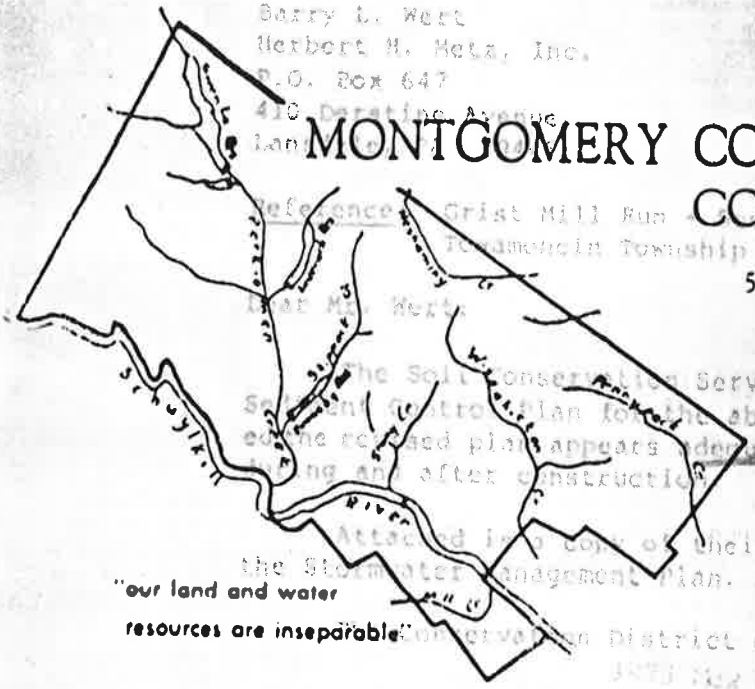
Very truly yours,

Leon T. Gonshor
Regional Director

cc: Program Services
Facilities
Herbert H. Metz, Jr., P.E.
2CD10

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647



MONTGOMERY COUNTY CONSERVATION DISTRICT

5th Floor, Court House, Norristown, Pa. 19404
Phone: 275-5000 (Ext. 257)

August 8, 1980

Barry L. Wert
Herbert H. Metz, Inc.
P.O. Box 647
410 Derstine Avenue
Lansdale, PA 19446

Reference: Grist Mill Run - Section I
Towamencin Township

Dear Mr. Wert:

The Soil Conservation Service has reviewed the Erosion and Sediment Control Plan for the above referenced subdivision. They noted the revised plan appears adequate to control erosion and sediment during and after construction.

Attached is a copy of their reply with recommendations concerning the Stormwater Management Plan.

The Conservation District concurs with the findings of the SCS.

Sincerely yours,

Maynard A. King
Executive Director

MAK:mbb

Enclosure

cc: Towamencin Township Engineer

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P.O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1696

Date 8-12-80

PROJECT Grist Mill Run - Section 1

TO DER

RECEIVED
AUG 14 1980
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

Attention Greg Newell

We are sending you ☒ enclosed herewith ☐ under separate cover the following:

No. of Prints	Drawing No.	Title and Remarks
		MCCD EIS Review

☐ FOR APPROVAL
☐ APPROVED
☐ APPROVED AS NOTED
☐ FOR CORRECTION, RESUBMIT
☐ FOR YOUR USE
☐ FOR DISTRICT

Remarks:

They neglected to send me a copy of the SCS comments referred to I hope this is adequate. If not I will have a copy sent to you

By Herbert H. Metz, Inc.

MONTGOMERY COUNTY CONSERVATION DISTRICT

Highways • Bridges • Sanitary Municipal

DEPT. OF ENVIRONMENTAL RESOURCES
Prepared for
4/12/80
"GRIST MILL RUN"
4680417
REPORTS
SECTION I
NO. OF VOLUMES 1 ... 1
by

EROSION AND SEDIMENT CONTROL NARRATIVE

AND

STORM WATER MANAGEMENT REPORT

DEPT. OF ENVIRONMENTAL RESOURCES
Prepared for
4/12/80
"GRIST MILL RUN"
4680417
REPORTS
SECTION I
NO. OF VOLUMES 1 ... 1
by

Herbert H. Metz, Inc.
Consulting Engineers
[illegible] DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Date 8.12.80

July 1979

Revised March 1980

PROJECT Grist Mill Run Section I

TO PEC

Attention Mary Neal

RECEIVED
AUG 14 1980

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD F. STOUT

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P.O. BOX 647

EXHIBIT C

GENERAL DESCRIPTION OF PROJECT

This report summarizes the concepts, analyses, and design of erosion and sediment control and stormwater management facilities for a 23.1 acre land development by Anthony M. DiLucia.

The proposed land development, known as Grist Mill Run, is located 1,500 feet, more or less, in a Southeasterly direction from the intersection of Forty Foot Road (L.R. 198) and Allentown Road (L.R. 46043), Towamencin Township, Montgomery County, Pennsylvania.

The site consists of formerly cultivated moderately to gently sloped terrain drained by a tributary to the Towamencin Creek.

Development of the tract will be fifty-four (54) single family, fee simple, residential homes conforming in all respects to Towamencin Township M.R.C. (Mixed Residential Cluster) Zoning. Minimum lot size is 12,000 square feet, exclusive of open space.

All lots will front on new streets to be constructed as part of this land development. The new streets will be constructed to Township specifications for future public dedication. Areas not paved or building area will be maintained lawn area.

Open space to be dedicated to the Township is part of a larger network. Bike paths will be constructed as part of this land development.

PROJECT SOILS

The soil descriptions and locations found on this site are taken from the Montgomery County Soil survey of 1969 and are shown on the Erosion and Sediment Control Plan. They consist primarily of Reaville Shaly Silt Loam. Also, approximately thirty per cent (30%) of the site is Penn Silt Loams, Readington Silt Loam. A small portion of the site is Bowmansville Silt Loam. These soils are moderately deep, moderately or poorly drained and except for Bowmansville, have a favorable slope and depth to bedrock for residential development.

The major limitation of these soils is the seasonally high water table which mandates foundation underdrains or sump pumps in basements. Poor percolation necessitates proper lawn grading. The use of these soils, except Bowmansville, for topsoil or road-fill is considered fair or good.

Reaville, in particular, must be worked with carefully. The soil, of removed from its original location, is unstable and subject to frost heave and severe erosion.

EROSION AND SEDIMENT CONTROL

During the construction process, certain procedures and facilities outlined in the appendix and on the Erosion and Sediment Control Plan are for the prevention and control of accelerated erosion and the resultant off-site sedimentation.

Scheduling of earthmoving activites to minimize bare earth exposure for any period of time, especially summer months, is necessary. This is accomplished by containing surface cover disruption to as small an area as possible. The appendix contains a schedule for this site.

In addition to minimizing disruption of the vegetative cover, certain facilities must be constructed where disruption is required. Construction of swales and roads will intercept some overland runoff before it enters a building area. Runoff from roads under construction is conveyed to a filter where a large portion of the sediment it may contain is filtered out. Swales will have velocity retarding and filtering structures to help control erosion and sedimentation that may occur. Certain areas may have temporary diversion and filter berms to intercept sediment-laden flow from reaching off-site lands.

Temporary and permanent seeding of disrupted areas and stockpiled soil is necessary to provide an erosion retarding vegetation cover.

PROJECT SOILS

STORMWATER MANAGEMENT

Stormwater runoff will be collected by the loop street, Militia Drive, and two cul-de-sacs. A new storm drainage system will convey the runoff to the retention facility. Flow from the retention facility is discharged to a tributary of the Towamencin Creek via a new 31" C.M.P. culvert under Allentown Road. An existing silted pond will be drained, excavated and filled. Underdrain will be placed in the pond and through an existing dry watercourse to lower the seasonal high water table.

Analysis and design of the stormwater management facilities may be separated into two (2) basic phases, hydrologic and hydraulic. The hydrologic analyis is by the conventional Rational Method which assumes that peak runoff on any given watershed for any given storm of assumed constant intensity will not occur until flow is arriving at the point of interest from all points on the watershed.

Since for any design frequency storm the average or assumed constant intensity decreases with longer durations, the shortest duration storm for which the entire shed contributes to the point of interest is the storm duration used to generate the peak flow. This is by the Rational formula $Q = CIA$ where C is a runoff coefficient, I is the intensity for the chosen duration in inches/hour and A is the area in acres. Generally the intesity of the storm is chosen by equating the duration with the longest travel time possible for the watershed in question. This travel time is known as the time of concentration and may be estimated for any point of interest.

The hydraulic analysis of the design utilizes the derived peak flows for a ten (10) year storm at the points of interest to size the storm water interception and conveyance systems. Inlet efficiency curves are used to determine the amount of flow intercepted within the gutter area of the streets or swales and to aid in inlet placement.

The Manning equation is used to determine the capacity of the storm water conveyance systems to pass the ten (10) year peak flows. The "n" factor of the Manning equation is either taken from those listed in PennDOT's design handbooks for pipes and lined channels or derived using TP-61 of the Soil Conservation Service for grass-lined channels.

Storm water Management to control the ten (10) year frequency peak runoff discharge is accomplished by sizing the replacement culvert under Allentown Road to accomodate only the existing ten (10) year peak flow. Excavation of a bowl depression behind the culvert is sized using the "FAA" method to allow sufficient storage to attenuate developed peak flow to pre-development peak discharge.

The existing condition is an 18" RCP culvert unable to pass the pre-development peak runoff. Since there is insufficient existing storage upstream of the culvert, the pre-development ten (10) year frequency storms flood the road.

The storm water storage method proposed above will allow the existing ten (10) year frequency peak discharge to pass without flooding the road which is required PennDOT design criteria, but will store the increased peak flow behind the culvert, thereby not subjecting downstream owners to an increase in the ten (10) year peak flow.

A P P E N D I X

A P P E N D I X

peak flows for a ten (10) year storm at the points of interest to size the storm water interception and conveyance systems. Inlet effictency curves are used to determine the amount of flow intercepted within the gutter area of the streets or swales and to aid in inlet placement.

The Manning equation is used to determine the

The hydraulic analysis of the design utilizes the

SCHEDULE OF EARTHMOVING ACTIVITIES FOR EROSION AND SEDIMENT CONTROL

1. Construct off site sanitary and storm sewer facilities. Grade, sod or seed, and mulch.
2. Excavate for new road(s). Stockpile topsoil separately from lower horizon soils and seed for a temporary vegetative cover.
3. Simultaneous with above, place filter berm across entrance from Broad Street with runaround area for construction vehicles. Fill areas above natural grade will also require a downslope interception berm with a filter outlet.
4. Install utilities, sanitary and storm sewage facilities. Surround each inlet with filter material. Install curb.
5. Finish road grade, install base and binder course.
6. Strip topsoil and excavate for building sites. Use materials to form down slope interception, diversion, and filter berms. Seed with temporary vegetation for cover.
7. Following completion of buildings, grade around each structure and all disturbed areas. Dismantle temporary diversion berms and use materials in final grading, seed and mulch for a permanent vegetative cover. If weather is unsuitable for growing permanent vegetation, use mulches and soil stabilizations to protect surface till permanent vegetation is established.
8. Remove filter material from inlets following establishment of a good permanent vegetative cover. Clean and repair all permanent water conveyance and storm sewerage structures.

GENERAL EROSION AND SEDIMENT CONTROL PROCEDURES

1. All vegetated areas in undisturbed sections will remain for erosion protection. Contractors and equipment will be restrained from venturing into all rear yard areas not be graded. Disturbed areas will remain exposed for the shortest time possible. No altering of the existing contours, vegetation, etc. in the rear yard except for the proposed grass lined swale, right of way portions, and special lot grading areas as shown on the Construction Improvement Plans will take place.

2. As much as possible, excavated or disturbed areas of ground will be seeded with temporary fast growing grasses, such as annual rye, to contain any accelerated erosion. Where needed, adjustments to the seedbed fertility levels will be made in addition to any temporary cover protection that may be required until the new vegetative cover is established.

3. Implementation of any vegetative measures will be done in accordance with the procedures as set down in the Montgomery County "Handbook" for Erosion and Sediment Control. If temporary covers are needed to help establish the stand of plantings, small grain straw or hay will be used as directed and anchored, if needed, until growth persists. If a lack of growth in temporary plantings in critical areas is encountered, then a soil analysis will be made to determine what additives are required, and this will be done as directed in the analysis and "Handbook". Plantings will be maintained as needed to keep erosion at tolerable levels.

4. Dust will be kept within tolerable limits by either the use of chemical agents, such as calcium chloride to suppress the dust in the roadbeds, or by sprinkling the areas contributing to air-dust pollution with water, when available.

5. If possible, construction in rights-of-way shall be planned and scheduled for the summer months when erosion is less of a hazard, and there is minimal, or no, surface runoff in furrows, swales, and water courses.

6. The stone sub-bases of the streets will be connected into the storm water inlets to maintain road stability and contain the seasonal high water tables.

7. Permanent seeded cover varieties will be planted over all non-paved surface areas as directed in the "Handbook" and during optimum planting seasons.

8. Grading away from the wall sections of the homes will be at a minimum slope of two per cent (2%) or more towards curbs, driveways, sidewalks and side yard swales and berms which will carry the runoff safely and effectively without erosion or surface damage to a proper point of collection.

9. When the houses are ready for final grading, top soil will be

SCHEDULE OF EARTHMOVING ACTIVITIES FOR EROSION AND SEDIMENT CONTROL

redistributed and permanent grass seed planted. If required, an adjustment to the soil fertility will be made as suggested in the "Handbook" to insure adequate growth of the permanent vegetative cover plantings.

10. At this time, the rear yard areas will be graded, by removing the existing vegetation, distributing the top soil as required, and planting the permanent grass seed types.

11. Refer to the Erosion and Sediment Control Handbook of Montgomery County for additional standards for seeding, mulching and construction of erosion control structures.

Herbert H. Metz, Inc.

GENERAL EROSION AND SEDIMENT CONTROL PROCEDURES

1. All vegetated areas in undisturbed

MONTGOMERY COUNTY SOIL AND WATER CONSERVATION DISTRICT

STANDARD

TEMPORARY COVER FOR CRITICAL AREAS

DEFINITION: Stabilizing sediment producing and severely eroded areas by establishing temporary annual grasses or small grains.

PURPOSE: To provide short term rapid cover for the control of surface runoff and erosion until permanent vegetation or other stabilization materials can be established.

WHERE APPLICABLE: On all sediment producing areas where the period of exposure will be more than two (2) months, but less than twelve (12) months; such as construction sites, eroding areas within urban and industrial areas, and certain cut and fill slopes.

SPECIFICATIONS

1. Site Preparation

   a. Install needed surface water control measures.
   b. Perform all cultural operations at right angles to the slope.
   c. Apply uniformly 2 tons of ground limestone per acre (100 lbs. per 1,000 sq. ft.) or according to soil test.
   d. Apply uniformly a 10-10-10 fertilizer, or equivalent, according to soil test or at the rate of 400 lbs. per acre (10 lbs. per 1,000 sq. ft.).
   e. Work in lime and fertilizer to a depth of 4 inches using any suitable equipment.

2. Establishment

   a. Select species according to recommended seeding dates from table on pages 11 and 12.

   b. Apply seed uniformly according to the rate indicated in the table, by broadcasting, drilling or hydraulic application.

c. Cover ryegrass and field bromegrass grass seeds with 1/4 inch of soil with suitable equipment. Cover rye or oats with about 2 inches of soil. Cover sudangrass with about 1 inch of soil.

Adapted from U.S.D.A. Soil Conservation Service Standard and Specifications for Critical Area Planting #342.

MONTGOMERY COUNTY SOIL AND WATER CONSERVATION DISTRICT

TEMPORARY COVER FOR CRITICAL AREAS

Adapted from U.S.D.A. Soil Conservation Service Standard and Specifications for Critical Area Planting #342.

DEFINITION: Establishing temporary annual grasses or small grains.

PURPOSE: To provide short term rapid cover for the control of surface runoff and erosion until permanent vegetation or other stabilization materials can be established.

WHERE APPLICABLE: On all sediment producing areas where the period of exposure will be more than two (2) months, but less than twelve (12) months; such as construction areas, cut and fill slopes,

MONTGOMERY COUNTY SOIL AND WATER CONSERVATION DISTRICT

STANDARD

MONTGOMERY COUNTY SOIL AND WATER CONSERVATION DISTRICT

STANDARD

PERMANENT GRASS AND LEGUME COVER FOR CRITICAL AREAS ON PREPARED SEEDBED

DEFINITION: Stabilizing sediment producing and severly eroded areas by establishing permanent grass and/or legume cover.

PURPOSE: To provide permanent vegetative cover to control surface run-off and erosion.

WHERE APPLICABLE: On all sediment producing areas where it is feasible to prepare seedbed and where the period of exposure will be more than twelve (12) months; such as construction sites, and eroding areas within urban and industrial areas.

SPECIFICATIONS

1. Site Preparation

   a. Install needed surface water control measures.
   b. Perform all cultural operations at right angles to the slope.
   c. Apply lime according to soil test or at the rate of 3 tons ground limestone per acre (150 lbs. per 1,000 sq. ft.).
   d. Apply fertilizer according to soil test or work in deeply 1,000 lbs. of 0-20-20 or equivalent per acre (25 lbs. per 1,000 sq. ft.) and at the time of seeding work into the surface 1,000 lbs. of 10-10-10 or equivalent per acre (25 lbs. per 1,000 sq. ft.).

2. Establishment

   a. Smooth and firm seedbed with cultipacker, or other similar equipment, prior to seeding.
   b. Select species according to recommended seeding data from the Table on pages 15 through 18.
   c. Apply seed uniformly according to rate indicated in the Table, by broadcasting, drilling or hydraulic application.

d. Cover grass and legume seeds with 1/4 inch of soil, with suitable equipment.
e. Use sodding, suitable mats, netting, or mulch anchoring methods where there is a heavy concentration of water and it is important to get a quick vegetative cover to prevent gullying.

3. Maintenance

a. Lime according to soil test every 5 years.
b. Where grasses predominate, broadcast annually, or as needed, 600 lbs. of 10-10-10 or equivalent per acre (14 lbs. per 1,000 sq. ft.).
c. Where legumes predominate, broadcast every 3 years, or as needed, 300 lbs. of 0-20-20 or equivalent per acre (7 lbs. per 1,000 sq. ft.).

4. Management

a. For forage, harvest the first crop when the grass is in the boot stage or the legume is in early bloom. Harvest successive crops before grass begins jointing or when grass is in the boot stage.
b. For wildlife, delay mowing until nesting period ends (about July 15). Remove heavy concentrations of residue after mowing to prevent smothering.
c. For all other uses, mow as needed to control weeds, improve appearance, or to maintain stand of desired vegetation.

Adapted from U.S.D.A. Soil Conservation Service Standard and Specifications for Critical Area Planting #342.

PERMANENT SEEDINGS FOR CRITICAL AREAS

Type of Cover and Species or Mixture 5/	Percent by Weight	Seeding Rates in Lbs. per 1,000 sq. ft.	per acre
1. Ky 31 Tall Fescue Redtop	88 12	1 - 2	40
2. Ky 31 Tall Fescue Creeping Red Fescue Redtop	38 50 12	1 - 2	40
3. Reed Canarygrass Redtop	83 17	1 - 2	30
4. Ky 31 Tall Fescue Birdsfoot Trefoil 1/	75 25	1 - 2	40
5. Ky 31 Tall Fescue or Creeping Red Fescue or Ryegrass Crownvetch 1/	75 25	1 - 2	40
6. Ky 31 Tall Fescue Birdsfoot Trefoil 1/ Crownvetch 1/	55 25 20	1 - 2	40
7. Ky 31 Tall Fescue or Reed Canarygrass or Smoothbrome Grass Alfalfa 1/ 2/	45 55	1/2 - 1	22

ON PREPARED SEEDBED

Recommended Seeding Dates	Adaptation to Soil-Site Conditions					
	Shallow Well Drained	Mod. Deep Well Drained	Deep Well Drained	Mod. Well Drained	Somewhat Poorly to Poorly Drained	
Mar. 1 to June 15 4/						
Apr. 1 to June 15 4/ July 25 to Sept. 15	X	X	X	X	X	
Mar. 1 to May 20 4/ July 25 to Sept. 15	X	X	X	X	X	
Mar. 1 to June 15 4/ July 25 to Sept. 15	X	X	X	X	X	
Mar. 1 to June 15 4/	X	X	X	X	X	
Mar. 1 to May 30 4/ July 25 to Sept. 15	X	X	X	X		
Mar. 1 to June 15 4/	X	X	X	X		
Apr. 1 to June 15 4/ July 25 to Sept. 15	X	X	X	X		

PERMANENT COVER 3/

(Continued on Following Page)

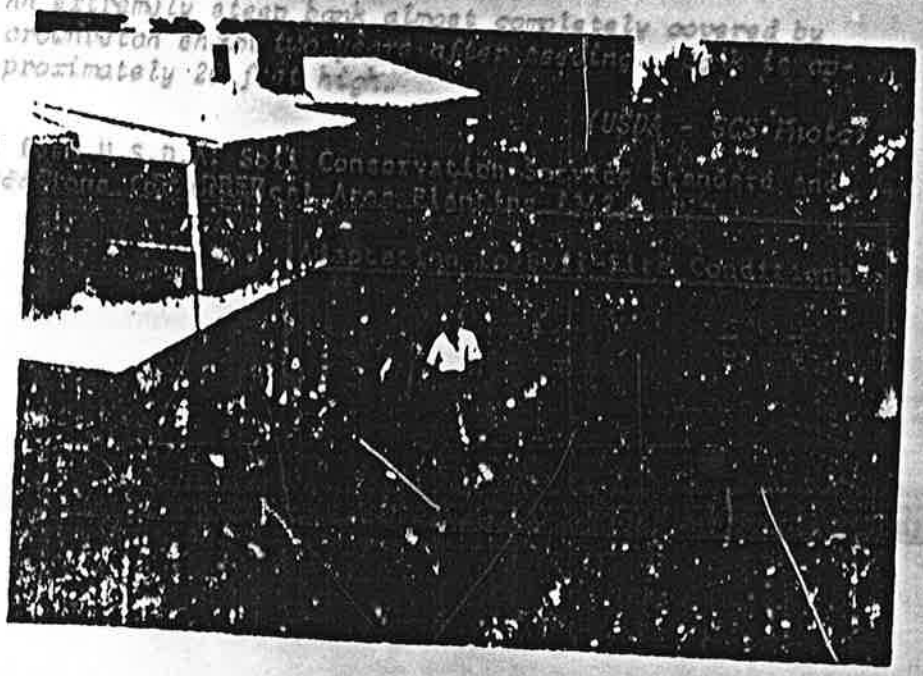
3. Maintenance

a. Lime according to soil test every five years or apply 2 tons of ground limestone per acre every 3 to 5 years as needed (100 lbs. per 1,000 sq. ft.).

b. Where grasses predominate, broadcast annually or as needed 600 lbs. of 10-10-10 or equivalent per acre (14 lbs. per 1,000 sq. ft.).

c. Where legumes predominate, broadcast every 3 years or as needed 300 lbs. of 0-20-20 or equivalent per acre (7 lbs. per 1,000 sq. ft.).

d. Mow sufficiently often to control weeds and rank growth of grasses.



An extremely steep bank almost completely covered by crownvetch shown two years after seeding. Bank is approximately 20 feet high.

(USDA - SCS Photo)

Adapted form U.S.D.A. Soil Conservation Service Standard and Specifications for Critical Area Planting #342.

PERMANENT SEEDINGS FOR CRITICAL AREAS

PERMANENT COVER

Type of Cover and Species or Mixture	Percent by Weight	Seeding Rates in Lbs. per 1,000 sq. ft.	per acre
1. Ky 31 Tall Fescue	100	1 - 2	45
2. Ky 31 Tall Fescue Redtop	88 12	1 - 2	40
3. Ky 31 Tall Fescue Creeping Red Fescue Redtop	38 50 12	1 - 2	40
4. Ky 31 Tall Fescue Birdsfoot Trefoil 1/	75 25	1 - 2	40
5. Ky 31 Tall Fescue or Ryegrass and Crownvetch 1/	60 40	1 - 2	50

3. Maintenance

UNPREPARED SEEDBED WITH MULCH

Recommended Seeding Dates	Adaptation to Soil-Site Conditions				
	Shallow Well Drained	Mod. Deep Well Drained	Deep Well Drained	Mod. Well Drained	Somewhat Poorly to Poorly Drained
Mar. 1 to Oct. 15 Nov. 15 to Mar. 1	X	X	X	X	X
Mar. 1 to Oct. 15 Nov. 15 to Mar. 1	X	X	X	X	X
Mar. 1 to Oct. 15 Nov. 15 to Mar. 1	X	X	X	X	X
Mar. 1 to July 25 Nov. 15 to Mar. 1	X	X	X	X	X
Mar. 1 to July 25 Nov. 15 to Mar. 1	X	X	X	X	

NOTES: 1/ Inoculate legume seeds - use 4 times the normal rate when hydroseeding.

MONTGOMERY COUNTY SOIL AND WATER CONSERVATION DISTRICT

STANDARD

SODDING

DEFINITION: Stabilizing sediment producing and severely eroded areas by establishing vegetative cover.

PURPOSE: To stabilize the area to reduce damages from sediment and surface runoff where there is a heavy concentration of water and it is important to get quick vegetative cover to prevent gullying.

WHERE APPLICABLE: On all sediment producing areas such as gullied areas, cut and fill slopes, eroding areas within urban, industrial or agricultural areas.

SPECIFICATIONS

1. Site preparation

   a. Install needed water control measures.

   b. Apply lime according to soil test or at the rate of 3 tons of ground limestone per acre (150 lbs. per 1,000 sq. ft.).

   c. Apply fertilizer according to soil test or work in deeply 1,000 lbs. of 0-20-20 (35 lbs. per 1,000 sq. ft.). Apply and work in to a depth of 1 inch 1,000 lbs. of 10-10-10 per acre (25 lbs. per 1,000 sq. ft.).

   d. Loosen soil surface to a depth of 1 inch with a shallow tillage tool and dampen before laying sod.

2. Selection

   a. Select sod grown from certified seed of adapted varieties and under cultural practices conducive to high quality sod that will be free of any serious thatch, weeds, insects, diseases, and other pest problems.

   b. Select species and varieties best suited for the sites to be planted and purpose for which turf is to be used. Use only

varities tested and approved by State Experiment Stations.

c. Select sod at least one year old and no older than three years. Cultivated turfgrass is usually considered ready for harvest when a cut portion of sod 3 feet in length and about 1-1/2 feet in width will support its own weight. The most common age of sod when cut is 15 to 24 months.

d. Select sod cuts of a width and length suited to the equipment and job. Generally, sod cuts are from 12 to 24 inches wide with 12 inches being the most common width. Length of cuts vary from 4 to 8 feet. Sod may be cut and rolled or folded in the middle and stacked on pallets. Folded sod is cut shorter than rolled sod--about 3 to 4 feet in length. Sod should be cut with a 1/2 to 1 inch layer of soil. About 80 percent of all rhizomes are in the top 3/4 inch of soil. The thinner the sod is cut (1/2 to 3/4 inch), the more quickly it will knit to the site soil.

e. Deliver sod to the site as soon as practical after lifting. During hot weather, delivery should be made within 6 hours and may be extended to 48 hours during cool seasons. It is generally unwise to move sod during July and August. If moved during this period, sod may need to be cut 1-1/4 inches thick, and it will require intensive care.

3. Establishment

a. Lay strips of sod at right angles to direction of slope or flow of water starting at the lowest elevation. Wedge the edges and ends of the sod strips together and tamp or roll. Stagger joints. Make the top of the sod strips flush with the top of the undisturbed ground.

b. Use wire staples, fine mesh wire, or wood pins and binder twine on very steep slopes to hold sod in place until secured by plant growth.

c. Irrigate sodded area if unfavorable weather or other conditions prevail. It may also be desirable to irrigate area from which sod is to be removed prior to lifting.

DEFINITION: Stabilizing sediment producing and severely eroded areas by establishing vegetative cover.

PURPOSE: To stabilize the area to reduce damages from sediment and surface runoff where there is a heavy concentration of water and it is important to get quick vegetative cover to prevent gullying.

WHERE APPLICABLE: On all sediment producing areas such as gullies areas, cut and fill slopes, eroding areas within urban, industrial or agricultural areas.

SPECIFICATIONS

Site preparation

4. Management and Maintenance

a. Lime according to soil test every 5 years.

b. Topdress annually or as needed with a 10-10-10 fertilizer at the rate of 600 lbs. per acre (14 lbs. per 1,000 sq. ft.)

c. Mow once or twice a year to reduce undesirable growth.

Adapted from U.S.D.A. Soil Conservation Service Standard and Specifications for Critical Area Planting #342.

Adapted from U.S.D.A. Soil Conservation Service Standard and Specifications for Critical Area Planting #342.

MONTGOMERY COUNTY SOIL AND WATER CONSERVATION DISTRICT

STANDARD

MULCHING

DEFINITION: Applying plant residues or other suitable materials, not produced on the site, to the surface of the soil.

PURPOSE: To reduce surface runoff and erosion, prevent surface compaction or crusting, conserve moisture, aid in establishing plant cover, and control weeds.

WHERE APPLICABLE: On any area subject to erosion or which has unfavorable conditions for plant establishment and growth. The practice may be used alone or in conjunction with other structural and vegetative conservation practices such as waterways, ponds, or critical area planting.

SPECIFICATIONS

1. Application

   a. For areas subject to critical erosion install temporary erosion control devices such as furrows, diversions, etc., within or adjacent to area to be mulched.

   b. Select the type of mulch and application rate from TABLE 1. which will best meet the use and performance requirements.

   c. Determine anchoring requirements if needed and select a method of anchoring from TABLE 2. which will best meet the specific job requirements.

Adapted from U.S.D.A. Soil Conservation Service Standard and Specifications for Mulching #484.

TEMPORARY SEEDINGS FOR

Species Or Mixture	Percent by Weight	Seeding Rates in Lbs. per 1,000 sq. ft.	Seeding Rates in Lbs. per acre
1. Annual Ryegrass	100	1	20 to 40
2. Field Bromegrass	100	1	20 to 40
3. Spring Oats	100	2.5	96
4. Sudangrass	100	1	30 to 40
5. Winter Rye	100	3.5	140
6. Annual Ryegrass Spring Oats	25 75	2	85

MULCHING

DEFINITION: Applying plant residues or other suitable materials produced on the site, to the surface of the soil.

PURPOSE: To reduce surface runoff and erosion, prevent surface compaction or crusting, conserve moisture, aid in establishing plant cover, and control weeds.

APPLICABILITY: On any area subject to erosion or which has unfavorable conditions for plant establishment and growth. This practice may be used alone or in conjunction with other erosion practices such as waterways, seeps, or critical area planting.

CRITICAL AREAS

Recommended Seeding Dates	Adaptation to Soil-Site Conditions				
	Shallow Well Drained	Mod. Deep Well Drained	Deep Well Drained	Mod. Well Drained	Somewhat Poorly to Poorly Drained
Mar. 1 to June 15	X	X	X	X	X
Mar. 1 to June 15 Aug. 15 to Sept. 15	X	X	X	X	X
Mar. 1 to June 15 Aug. 15 to Sept. 15	X	X	X	X	
Mar. 1 to June 15	X	X	X	X	X
May 15 to Aug. 15	X	X	X	X	
Aug. 15 to Oct. 15	X	X	X	X	X
Mar. 1 to June 15	X	X	X	X	X

TABLE 1. Part A. GUIDE TO MULCH MATERIALS.

Mulch Material	Quality Standards	Application Rates per 1000 sq. ft.	Application Rates per acre	Depth of Application
Asphalt Emulsion	SS-1 SS-K	14-28 gal.	600 - 1200 gal.	-
Bagasse - Shredded, Sugar Cane	Air-dried, well-shredded.	200-400 cu. ft., 14 - 28 bales	-	2" - 4"
Cocoa Bean or Peanut Hulls	Air-dried, free from excessive fine materials.	200-400 cu. ft.	-	2" - 4"
Compost or Manure	Well shredded, free from excessive coarse material.	400-600 lbs.	8-10 tons	-
Cornstalks, Shredded or Chopped	Air-dried, shredded into 8" to 12" lengths	150-300 lbs.	4-6 tons	-
Gravel, Crushed Stone or Slag	Washed - Size 2B or 3A.	9 cu. yds.	-	3"
Hay or Straw	Air-dried, free from undesirable seeds and coarse materials.	75-100 lbs. 2 - 3 bales	1.5 - 2.5 tons 90-120 bales	Lightly cover 75% to 90% of surface.

RATES AND USES

Remarks
Use as a film on seeded areas without additional mulch. Requires special equipment to apply. Application rate critical—too much prevents seedings from penetrating and too little prevents erosion control.
Most effective as a mulch around ornamentals, trees, shrubs and small fruits. Excellent for erosion control. Resistant to wind blowing. Packaged in 100 lb. bales. Decomposes slowly.
Most effective as a mulch around ornamentals. Excellent moisture conserver. Decomposes in about one year. Subject to wind blowing. Packaged in 50 lb. bags.
Use strawy manure where erosion control is needed. May create problem with weeds. Excellent moisture conserver. Resistant to wind blowing.
Effective for erosion control, relatively slow to decompose. Excellent for mulch on crop fields. Has about same value as a cover crop. Resistant to wind blowing.
Excellent mulch for short slopes and around woody plants and ornamentals. Use 2B where subject to foot traffic. (Approx. 2000 lbs./cu. yd.).
Use straw where mulch effect is to be maintained for more than 3 months. Subject to wind blowing unless kept moist or tied down. Most common and widely used mulching material. Good for erosion control in critical areas.

(Continued on Following Page)

TABLE 1. Part A. (Continued) GUIDE TO MULCH MATERIALS

Mulch Material	Quality Standards	Application Rates per 1000 sq. ft.	Application Rates per acre	Depth of Application
Peat Moss	Dried, compressed, free from coarse materials.	200-400 cu. ft.	-	2" - 4"
Pine Straw or Needles	Air-dried, free from coarse objectionable material.	50-90 lbs.	1-2 tons	-
Sawdust, Green or Composted	Free from objectionable coarse material.	83-500 cu. ft.	-	1" - 7"
Tanbark	Air-dried, nontoxic.	300-400 cu. ft.	-	3" - 4"
Wood Chips or Shavings	Green or air-dried. Free from objectionable coarse materials	500-900 lbs.	10-20 tons	2" - 7"

RATES AND USES

Remarks

Use at 2 ton/acre where erosion control is desired. Resistant to wind blowing. Decomposes slowly.

Most effective as a mulch around ornamentals, small fruits, and other nursery stock. Special application rates: Fruit trees 5-7"; Blueberries 6"; Vegetables and Flowers 2-3"; Blackberries and Raspberries 4-7"; Strawberries 3". Most resistant to wind blowing. Requires 30-35 lbs. N/ton to prevent N deficiency while decaying mulch. One cu. ft. weighs 18 to 24 lbs.

Effective mulch around ornamentals. More resistant to wind blowing than peat moss. Excellent moisture holding capacity. Packaged in 50 lb. bags (approx. 2 cu. ft.)

RATES AND USES

Remarks

Most effective as a mulch around ornamentals. Subject to wind blowing unless kept wet. Packaged in 100 lb. bales (6 cu. ft.). Excellent moisture holding capacity.

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Use at 2 ton/acre where erosion control is desired. Resistant to wind blowing. Decomposes slowly.

Most effective as a mulch around ornamentals, small fruits, and other nursery stock. Special application rates: Fruit trees 5-7"; Blueberries 6"; Vegetables and Flowers 2-3"; Blackberries and Raspberries 4-7"; Strawberries 3". Most resistant to wind blowing. Requires 30-35 lbs. N/ton to prevent N deficiency while decaying mulch. One cu. ft. weighs 18 to 24 lbs.

Effective mulch around ornamentals. More resistant to wind blowing than peat moss. Excellent moisture holding capacity. Packaged in 50 lb. bags (approx. 2 cu. ft.)

Has about the same use and application as sawdust, but requires less N/ton (10-12 lbs.). Resistant to wind blowing. Decomposes slowly.

TABLE 1. Part A. (Continued) GUIDE TO MULCH MATERIALS

Mulch Material	Quality Standards	Application Rates per 1000 sq. ft.	Application Rates per acre	Depth of Application
Peat, compressed,		200-600 cu. ft.		

(Continued on Following Page)

Wood Fiber Cellulose (Partly digested wood fibers)	Dyed Green. No growth organism inhibiting factors. Air-Dried. 20% fibers 3.7 mm or longer.	25-30 lbs.	1,000 - 1,500 lbs.	-

TABLE 1. Part A. (Continued) GUIDE TO MULCH MATERIALS

Mulch Material	Quality Standards	Application Rates per 1000 sq. ft.	Application Rates per acre	Depth of Application
Wood Excelsior	Green or air-dried burred wood fibers .024" x .031" x 4"	90 lbs. (1 bale)	2 tons	-
Wood Fiber Cellulose (Partly digested wood fibers)	Dyed Green. No growth organism inhibiting factors. Air-Dried. 20% fibers 3.7 mm or longer.	25-30 lbs.	1,000 - 1,500 lbs.	-

RATES AND USES

Remarks

Most effective as a mulch around ornamentals.
blowing
Excellent moisture holding capacity.

When used for erosion control on critical areas double application rate. Apply with hydro-mulcher. No tie-down required. Packaged in 100 lb. bags.

NOTE: 1/ All mulches will provide some degree of (1) erosion control, (2) moisture conservation, (3) weed control, and (4) reduction of soil crusting.

RATES AND USES

Remarks 1/

Effective for erosion control. Tie-down usually not required. Decomposes slowly. Subject to some wind blowing. Packaged in 80-90 lb. bales.

When used for erosion control on critical areas double application rate. Apply with hydro-mulcher. No tie-down required. Packaged in 100 lb. bags.

NOTE: 1/ All mulches will provide some degree of (1) erosion control, (2) moisture conservation, (3) weed control, and (4) reduction of soil crusting.

TABLE 1. Part A. (Continued) GUIDE TO MULCH MATERIALS

Mulch Material	Quality Standards	Application Rates per 1000 sq. ft.	Application Rates per acre	Depth of Application
Wood Excelsior	Green or	90 lbs.		

TABLE 1. Part B. GUIDE TO MULCH MATERIALS,

Mulch Material Mats and Netting	Quality Standards	Unit Size	Unit & Weight
Twisted Kraft Paper Yarn	Plain weave, warp 7/in. filling 4/in. selvage edge with polypropylene filament.	45" x 250 yds.	Roll 100 lbs.
Twisted Kraft Paper Yarn	Fungicide treated warp 1.1 pairs/in. filling 2.5/in.	45" x 250 yds.	Roll 80 lbs.
Jute, Twisted Yarn	Undyed, unbleached plain weave, warp 78 ends/yd., weft 41 ends/yd.	48" x 50 yds. or 48" x 75 yds.	Roll 60 lbs. 90 lbs.
Excelsior Wood Fiber Mats	Interlocking web of excelsior fibers with a mulch net backing on one side only.	36" x 30 yds.	Roll
Glass Fiber	1/4" thick, 7/16" dia. holes on 1" centers.	72 " x 30 yds.	Roll 56 lbs.
Plastic	2-4 mils.		(Variable

RATES AND USES

Remarks 1/

RATES AND USES

Area Covered Per Unit	Remarks
312-1/2 sq. yds.	Use to hold seed and aid in germination without mulch. Tie down according to manufacturing specifications.
312-1/2 sq. yds.	Use over bare soil or sod to prevent erosion and hold seed. Good for waterways, critical slopes, and critical ditch bottoms. Tie down with staples as per manufacturing specifications.
60 sq. yds. 100 sq. yds.	Use without additional mulch. Tie down as per manufacturing specifications. Effective for erosion control on critical areas.
16-1/2 sq. yds.	Use without additional mulch. Tie down as per manufacturing specifications.
100 sq. yds.	Use without additional mulch. Tie down with T Bars as per manufacturing specifications.
up to 50' wide).	Use black for weed control; use white for seeding establishment without organic mulch. Release plastic after seeding is established. Effective moisture conservation and weed control for small fruits.

TABLE 2. MULCH ANCHORING GUIDE

Anchoring Method or Material	Kind of Mulch to be Anchored
A. Manual	
1. Peg and twine	Hay or straw, shredded sugar cane or corn stalks, Pine straw.
2. Mulch netting	Hay or straw, shredded sugar cane or corn stalks, pine straw, compost, wood shavings, tanbark.
3. Soil and stones	Plastic
4. Slit	Hay or straw, Corn stalks
B. Mechanical	
1. Asphalt spray	Cocoa beans or peanut hulls, compost, wood chips, wood shavings, hay or straw, shredded sugar cane or corn stalks.
2. Pick chain	Hay or straw, corn stalks, manure, compost, pine straw.
3. Mulch Anchoring Tool or disk (smooth or notched).	Hay or straw, manure, corn stalks, pine straw.

MULCH ANCHORING GUIDE

HOW TO APPLY
After mulching, divide area into blocks approximately 1 sq. yd. in size. Drive 4 - 6 pegs per block to within 2 to 3 inches of soil surface. Secure mulch to soil surface by stretching twine between pegs in a criss-cross pattern on each block. Secure twine around each peg with two or more turns. Drive pegs flush with soil where mowing and maintenance is planned.
Staple light-weight paper, jute, wood fiber, or plastic nettings to soil surface according to manufacturer's recommendations.
Plow a single furrow along edge of area to be covered with plastic, fold about 6 inches of the plastic into the furrow and plow furrow slice back over the plastic. Use stones to hold plastic down in other places as needed.
Cut mulch into soil surface with a square-edged spade. Make cuts in contour rows spaced 18 inches apart.
Apply with suitable spray equipment using the following rates: asphalt emulsion 0.04 gallons per square yard; liquid asphalt (rapid, medium, or slow setting) 0.10 gallons per square yard.
Use on slopes steeper than 3 to 1. Pull across slopes with suitable power equipment.
Apply mulch and pull a mulch anchoring tool over mulch. When a disk (smooth) is used, set in the straight position and pull across the slope with suitable power equipment. Mulch material should be "tucked" into the soil surface about 3 inches.

Δ AC_o = AC (Contrib. Surface Flow between Inlets)
Δ AC_b = AC (Bypassing Flow From Previous Inlet)
Δ AC_i = AC (Entering Inlet)
C = Runoff Factor

GRIST MILL RUN

COMPUTATION TABLE - STORM SEWER DESIGN

SHEET NO 1 OF 4

CHKD

		DRAINAGE AREA					TIME		RAIN-FALL INTEN-SITY I	DIS-CHARGE Q	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS N VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL
Δ A	C	ΔAC_o	ΔAC_b	$\Delta AC_o + \Delta AC_b$	ΔAC_i	ΣAC_i	Δ T	Σ T									
ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	C F S	FEET	FT/FT			IN	F P S	C F S
0.42	.9																
0.78	.35																
1.2	0.57	0.65	-	0.65	0.45	0.45	-	9.2	5.8	2.6	312	.0153	CMP	.012	15"Φ	6.1	8.5
0.25	.9																
0.44	.35																
0.69	0.55	0.38	-	0.38	0.31	0.31	-	-	6.5	2.0	41	.0176	CMP	.012	15"Φ	5.8	9.0
0.3	.9																
1.6	.35																
1.9	0.44	0.84	0.20	1.04	0.53	.35	0.9	9.1	5.5	7.4	205	.0153	CMP	.014	18"Φ	7.4	12.0
0.10	.9																
0.30	.35																
0.40	0.48	0.20	0.45	0.65	0.47	1.82	0.5	9.6	5.4	9.8	160	.0153	CMP	.016	21"Φ	7.1	16.7
2.2	.9																
2.08	.35																
2.28	0.74	0.21	0.18	0.39	0.32	2.14	0.4	10.0	5.3	11.3	276	.0120	CMP	.016	21"Φ	7.9	14.0
2.11	.35																
2.29	.35																
2.60	0.50	0.20	0.07	0.27	0.25	2.39	0.6	10.6	5.2	12.4	28	0.010	CMP	.017	24"Φ	6.1	18.0
1.47	.9																
.49	.35																
.96	0.62	0.60	0.07	0.67	0.48	2.87	0.10	10.7	5.2	14.9	44	0.015	CMP	.017	24"Φ	7.5	22.0
.10	.9																
.10	.35																
.20	.42	0.71	0.15	0.90	3.60	3.77	0.10	10.8	5.2	19.6	28	0.015	CMP	.018	33"Φ	6.7	23.0

MULCH ANCHORING GUIDE

HOW TO APPLY

...divide area into blocks...

AC_o = AC (Contrib Surface Flow between Inlets)
AC_B = AC (Bypassing Flow From Previous Inlet)
AC_i = AC (Entering Inlet)
C = Runoff Factor

Herbert

SHEET NO 2 OF 4 ---- BY ----

COMPUTATION TABLE - STORM SEWER DESIGN

CHKD BY ----

		DRAINAGE AREA					TIME		RAIN FALL INTENSITY I	DIS-CHARGE Q	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS n VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL
	C	AC_C	AC_b	$AC_o + AC_B$	ΣAC	ΣAC_i	AT	ET									
		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	C.F.S	FEET	FT/FT			IN	F.P.S	C.F.S
	.9						15.0										
	.35																
.3	.55	1.17	-	4.07	4.01	4.07		15.0	4.5	18.3	175	.019	CMP	.017	24"	6.7	24.0
	.9																
	.35																
	.55	0.42	-	0.42	0.42	0.42	5.0	5.0	6.3	1.4	24	.0216	CMP	.012	15"		10.3
	.9																
	.35																
	.60	0.62	-	0.62	0.62	4.91	0.4	15.4	4.5	22.1	22	.020	CMP	.017	24"	8.6	24.5
	.9																
	.35																
	.59	0.4	-	0.64	0.4	4.12	0.1	15.5	4.5	23.2	158	.02	CMP	.017	24"	9.3	25.7
	.9																
	.35																
	.46	0.34	-	2.24	0.11	5.76	0.3	15.8	4.5	23.7	233	.022	CMP	.017	27"	9.5	35.2
	.9																
	.35																
	.41	0.71	0.13	0.84	0.31	5.57	0.4	16.2	4.4	24.5	103	.015	CMP	018	30"	9.2	44.1

AC_o = AC (Contrib Surface Flow between Inlets)
AC_i = AC (Entering Inlet)
Runoff Factor
DUST MIL ECON
COMPUTATION TABLE - STORM SEWER DESIGN

AC_o = AC (Contrib. Surface Flow between Inlets)
AC_B = AC (Bypassing Flow From Previous Inlet)
AC_i = AC (Entering Inlet)
C = Runoff Factor

GRIST MILL RUN

COMPUTATION TABLE - STORM SEWER DESIGN

SHEET NO 3 OF 4 BY

CHKD BY

DRAINAGE AREA							TIME		RAIN-FALL INTEN-SITY	DIS-CHARGE	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS N VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL
	C	AAC_o	AAC_B	$AAC_o + AAC_B$	AAC_i	EAC_i	ΔT	ΣT	I	Q							
ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	CFS	FEET	FT/FT			IN	FPS	CFS
.23	.9																
.19	.35																
.42	0.66	0.27	–	0.27	0.22	0.22	–	5.0	6.5	1.4	42	.0143	CMP	.012	15"Ø	5.0	8.5
.24	.9																
.13	.35																
.77	0.52	0.40	–	0.40	0.33	0.55	0.1	5.1	6.5	2.3	195	0.021	CMP	.012	15"Ø	6.5	10.0
.13	.9																
	.35																
.2	0.47	0.17	0.12	0.83	0.83	1.00	0.5	5.6	6.4	9.2	122	0.03	CMP	.012	15"Ø	11.2	12.0
.3	.9																
.5	.35																
	0.46	0.26	0.63	1.39	0.67	7.68	0.2	16.4	4.4	33.8	116	.0104	CMP	.018	42"Ø	5.8	35.0
.1	.9																
	.35																
.1	0.46	0.28	–	0.28	0.28	7.96	.35	16.75	4.3	34.2	130	.0162	CMP	.018	42"Ø	7.1	44.0
.1	.9																
.2	.35																
.1	0.48	0.38	–	0.38	0.16	0.22	0.3	17.0	4.3	33.4	95	0.01	CMP	.018	51"Ø	7.1	66.0

LICALLY CORRUGATED CMP OR HELICALLY CORRUGATED ALUMINUM.

- AC (Contrib. Surface Flow between Inlets)
- AC (Bypassing Flow From Previous Inlet)
- AC (Entering Inlet)
- Runoff Factor

GRIST MILL RUN

COMPUTATION TABLE - STORM SEWER DESIGN

SHEET NO. 4 OF 4 BY ---------- CHKD BY ----------

C	DRAINAGE AREA ΣAC_0 ACRES	ΣAC_B ACRES	$\Sigma AC_0 + \Sigma AC_B$ ACRES	ΣAC_1 ACRES	ΣAC_1 ACRES	TIME t MIN	TIME tf MIN	RAIN-FALL INTEN-SITY I IN/HR	DIS-CHARGE Q CFS	LENGTH OF PIPE FEET	SLOPE OF PIPE FT/FT	TYPE OF PIPE *	MANNINGS N VALUE	SIZE OF PIPE IN	MEAN VELOCITY FPS	PIPE CAPACITY FLOWING FULL CFS	
.9																	
.35																	
.45	0.25	0.10	0.35	0.35	0.35	—	5	6.5	2.3	22	.01	CMP	.012	15"Φ	5.5	6.6	3 UN
.9																	
.35																	
.66	0.11	07	0.18	0.18	0.53	—	5	6.5	3.4	42	.01	CMP	.012	15"Φ	6.1	6.6	to B
0.41	0.95	-	-	-	0.95	-	-	5.3	5.6	—	—	—	—	—	—	—	OVE FLO
.9																	
.35																	
.23	0.38	-	0.38	0.32	0.32		5.0	6.5	2.4	250	.033	CMP	.012	15"Φ	7.8	12.6	
.9																	
.35																	
.71	0.16	.06	0.22	0.21	0.53	.5	5.5	6.5	3.45	100	.033	CMP	.012	15"Φ	7.8	12.5	.01
.9																	
.9	0.03	—	0.03	0.03	0.56	.2	5.7	6.3	3.5	14	0.01	CMP	.012	15"Φ	5.8	7.0	
.9																	
.70	0.13	—	0.13	0.13	0.69	.2	5.9	6.3	4.4	—	—	—	—	—	—		

.LY CORRUGATED CMP OR HELICALLY CORRUGATED ALUMINUM.

HERBERT H. METZ, INC.
410 Derstine Avenue
LANSDALE, PENNSYLVANIA 19446
Phone 855-3111

JOB GRIST MILL RUN 1
SHEET NO 1 OF 3
CALCULATED BY DATE
CHECKED BY DATE
SCALE

SUMMARY OF RUNOFF AND ROUTING CALCULATIONS

A. BEFORE DEVELOPMENT

1) TOTAL AREA FLOWING TO POND IS 39.52 Ac
2) FOR MOSTLY CULTIVATED FIELDS C = 0.40
3) TRAVEL TIME FOR OVERLAND FLOW IS DETERMINED FROM SCS-NEH
FIG 15.2 WHERE $S_1 = \frac{\Delta EL}{L} = \frac{334.5 - 321.4}{630} = 0.021$
$V_{CSR} = 1.3$ fps, $T_{C_1} = \frac{630}{1.3(60)}$ fps $= 8.1$ MIN.
PLUS 1030' GRASSED WATERWAY
$S_2 = \frac{321.4 - 302}{1030} = 0.0188$
$V_{GW} = 2.1$ fps, $T_{C_2} = \frac{1030}{60(2.1)} = 8.1$ MIN
$T_C = 8.1 + 8.1 = 16.2$ MIN,
4) $Q = CIA$ WHERE $I = 4.3$ FOR 16.2 MIN DURATION STORM FOR A 10 YR FREQUENCY STORM.
$\therefore Q_P = (.4)(4.3)(39.52) = 68.0$ cfs

B. POST DEVELOPMENT

1) AREA INTERCEPTED INTO BASIN IS 32.60 Ac;
IMPERVIOUS = 5.56 Ac; LAWN = 27.04 Ac
2) FOR IMPERVIOUS AREA, C = 0.90; FOR LAWN AREA, C = 0.35
$C = [(5.56).9 + (27.04).35] = 0.44$; $CA = 14.4$

GRIST MILL RUN

COMPUTATION TABLE - STORM SEWER DESIGN

SHEET NO 4 OF 4

DRAINAGE AREA | TIME

HERBERT H. METZ, INC.
410 Derstine Avenue
LANSDALE, PENNSYLVANIA 19446
Phone 855-3111

JOB GRIST MILL RUN 1
SHEET NO. 2 OF 3
CALCULATED BY JAW DATE 8.24.79
CHECKED BY DATE
SCALE

ELEVATION VS. STORAGE, OUTFALL

ELEVATION (FT)	AREA (FT^2)	① STORAGE (FT^3)	② OUTFALL cfs
296.5± (INV.)	5	0	0
297.0	640	112	2.15
.25 i	1352	170	5.0
297.5	2064	390	8.7
.75 i	3296	453	13.0
298.0	4528	659	18.0
.25 i	5640	856	24.0
298.5	6752	1042	29.0
.75 i	7688	1213	34.0
299.0	8624	1370	39.0
.25 i	9248	1500	43.0
299.5	9872	1605	46.0
.75 i	10608	1719	50.0
300.0	11344	1842	55.0
.25 i	12216	1976	57.0
300.5	13088	2122	60.0
.75 i	13968	2268	64.0
301.0	14848	2415	67.0
		21,613 ft^3	

SUMMARY OF RUNOFF AND ROUTING CALCULATIONS

A. BEFORE DEVELOPMENT

1) TOTAL AREA FLOWING TO POND IS 39.52 AC
2) FOR MOSTLY CULTIVATED FIELDS C = 0.40
3) TRAVEL TIME FOR OVERLAND FLOW IS DETERMINED FROM SCS TR-55 FIG 15.2 WHERE $S = \frac{\Delta EL}{L} = \frac{331.5 - 317.4}{630} = 0.021$

① $V = 1.3\ \Delta ELEV\ (a + b + \sqrt{ab})$

② BASED ON U.S.C. #5 "HEADWATER CHARTS FOR C.M. PIPE ARCH CULVERTS

BY..... DATE 7.23.71
CHKD. BY..... DATE.....
HOBGAN RUN

SUBJECT STORMWATER RETENTION CALCS.
SUMMARY; METHOD AFTER F.A.A.
"DRAINAGE OF AIRPORTS"

SHEET NO. 3
JOB NO.....

(A) $CA = 14.4$ $T_c = 11.2$ MIN Qout ALLOWABLE = 63

DURATION (10 YR) MIN	SEC	I*	VOL. IN. (FT³)	VOL. OUT (FT³)	STORAGE
5	300	6.5	27495	18900	8595
10	600	5.3	44,835	37,800	7035
15	900	4.5	57,105	56,700	405
20	1200	3.8	64,295	64,295	0
25	1500	3.5	74,025	64,295	0
30	1800	3.1	76680	64,295	0

TOTAL STORAGE AVAILABLE:

21,612 CU. FT.

* I FROM FREQUENCY - DURATION CHARTS FOR PHILADELPHIA - T.P. # 25, UNITED STATES WEATHER BUREAU.

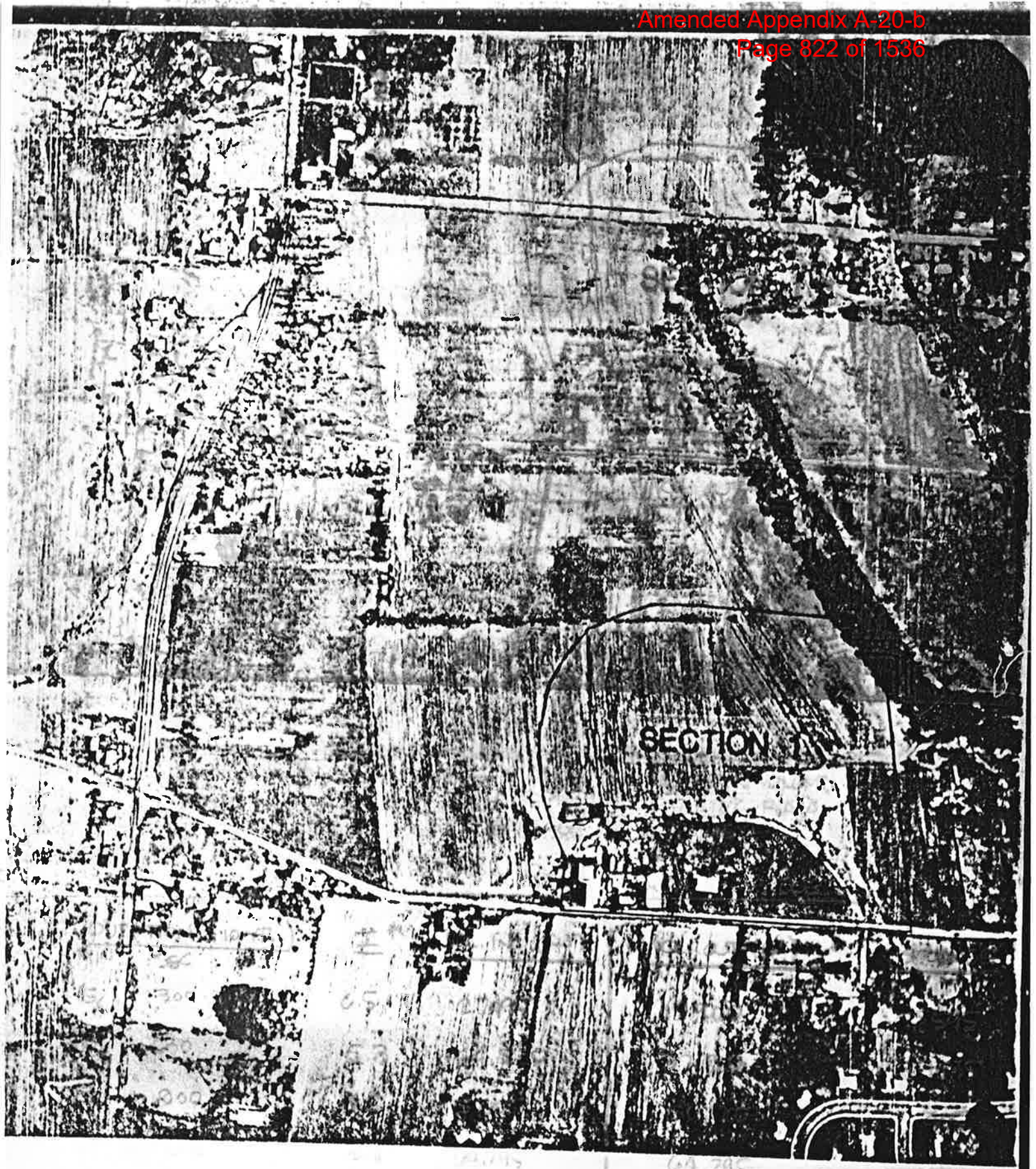
(B)

TOTAL STORAGE AVAILABLE:

21,612 CU. FT.

HERBERT H. METZ, INC.
410 Derstine Avenue
LANSDALE, PENNSYLVANIA 19446
Phone 855-3111

JOB GRIST MILL RUN 1
SHEET NO. 2 OF 3
CALCULATED BY JDN DATE 8.24.71
CHECKED BY DATE



BY ..... DATE 7:23:71

CHKD. BY ..... DATE .....

MODIFIED RUN

GRIST MILL RUN STORMWATER RETENTION VOLUME
SUMMARY METHOD AFTER F.A.A.
SECTION I "AC OF AIRPORTS"

SHEET NO.

JOB NO.

(A) CA = 14.4 EXISTING LAND USE Qout ALLOWABLE = 63

SANITARY SEWER DESIGN ANALYSIS

SHE

MILL RUN — MUNICIPALITY TOWAMENCIN TWP — COUNTY MONTGOMERY

MH TO / MH	LENGTH (FEET)	INVERT/INVERT	FALL (FEET)	SLOPE (FT PER FT)	CONNECTIONS INCREM'T	CONNECTIONS TOTAL	POPULATION @3.5/E.D.U.	FULL FLOW MGD @400gpcd	PIPE n=.013
E KSA.57		322.00							
KSA.56	195	316.45	5.55	0.0300	5	5	17.5	0.007	8"Φ
E KSA.56		36.35							
KSA.55	219	311.90	4.45	0.0203	3	8	28.0	0.0112	8"Φ
E KSA.551		316.00							
KSA.55	106	311.90	4.10	0.0387	2	2	7.0	0.0028	8"Φ
KSA.55		311.80				(10)			
KSA.54	174	307.31	4.49	0.0258	2	12	42.0	0.0168	8"Φ
KSA.54		307.21							
KSA.53	235	302.51	4.70	0.0200	3	15	52.5	0.0210	8"Φ
KSA.53		302.41							
KSA.52	88	300.65	1.76	0.0200	0	15	52.5	0.0210	8"Φ
KSA.522		310.35							
KSA.521	249	305.37	4.98	0.0200	4	4	14.0	0.0056	8"Φ
KSA.521		305.27							
KSA.52	132	300.65	4.62	0.0350	3	7	24.5	0.0098	8"Φ
KSA.52		300.55				(22)			
KSA.51	180	298.75	1.80	0.0100	2	24	84.0	0.0336	8"Φ
KSA.51		298.65							
KSA.5	175	297.26	1.39	0.0079	3	27	94.5	0.0378	8"Φ

EXH

SANITARY SEWER DESIGN ANALYSIS

SHEET

Hill Run — MUNICIPALITY TOWAMENCIN TWP. — COUNTY MONTGOMERY

M.H. TO M.H.	LENGTH (FEET)	INVERT/INVERT	FALL (FEET)	SLOPE (FT PER FT)	CONNECTIONS INCREM'T	CONNECTIONS TOTAL	POPULATION @3.5/E.D.U.	FULL FLOW MGD @ 400 gpcd	PIPE n = .013
65A.10		321.50							
65A.9	173	315.60	5.90	0.0341	4	4	14.0	0.0056	8" ϕ
5A.9		315.50							
165A.8	396	309.10	6.40	0.0162	9	13	45.5	0.0182	8" ϕ
65A.8		309.00							
165A.7	163	306.10	2.90	0.0178	4	17	59.5	0.0238	8" ϕ
65A.7		306.00							
165A.6	147	303.60	2.40	0.0163	3	20	70.0	0.0280	8" ϕ
5A.6		303.50							
65A.5	337	297.26	6.24	0.0185	6	26	91.0	0.0364	8" ϕ
A.5		297.16				(53)			
5A.4	182	295.43	1.73	0.0095	1	54	189.0	0.0756	8" ϕ
5A.4		295.33							
65A.3	94	294.70	0.63	0.0067	0	54	189.0	0.0756	8" ϕ

EXHIB

ER-BWQ-51 Rev. 10-74

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED
2-29-80

RECEIVED
APR 3 0 1980
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE
For Department Use Only

APPLICATION FOR WATER QUALITY MANAGEMENT PERMIT

APPLICANT NAME
Upper Gwynedd-Towamencin Municipal Authority

TELEPHONE NO. (215) 855-8165

MAILING ADDRESS
2225 Kriebel Road
Lansdale, Pennsylvania 19446

PROJECT LOCATION

MUNICIPALITY
Towamencin

COUNTY
Montgomery

HEREBY APPLIES FOR (CHECK APPROPRIATE BLOCKS IN SPACES A, B, C AND D)

A. APPROVAL OF PLANS FOR CONSTRUCTION OF
- [X] SEWERS AND APPURTENANCES
- [ ] SEWAGE TREATMENT PLANT
- [ ] MINE DRAINAGE TREATMENT PLANT
- [ ] INDUSTRIAL WASTE TREATMENT PLANT
- [ ] OUTFALL AND HEADWALL
- [ ] STREAM CROSSING
- [ ] IMPOUNDMENT

B. APPROVAL TO DISCHARGE:
(1) [ ] TREATED
[ ] UNTREATED
(2) [ ] INDUSTRIAL WASTES
[ ] MINE DRAINAGE
[ ] SEWAGE

C. APPROVAL TO OPERATE
[ ] UNDERGROUND MINE

D. APPROVAL OF AN
[ ] EROSION AND SEDIMENTATION CONTROL PLAN

(ALL DISCHARGES OF WASTES ARE PURSUANT TO "THE CLEAN STREAMS LAW")

I HEREBY CERTIFY THAT THE ACCOMPANYING REPORT AND ALL PLANS, MODULES, AND DOCUMENTS DESIGNATED THEREIN ARE ATTACHED TO THIS APPLICATION, AND MADE A PART HEREOF.

SIGNATURE OF APPLICANT OR RESPONSIBLE OFFICIAL

NAME OF APPLICANT OR RESPONSIBLE OFFICIAL
H. Warren Dimmig

TITLE
Chairman, Upper Gwynedd Towamencin Mun. Auth.

DATE OF APPLICATION

ADDRESS
2225 Kriebel Road, Lansdale, Pennsylvania 19446

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA, COUNTY OF Montgomery

I, H. Warren Dimmig, BEING DULY SWORN, ACCORDING TO LAW, DEPOSE AND SAY THAT I (AM THE APPLICANT) I AM AN OFFICER OR OFFICIAL OF THE APPLICANT) (HAVE THE AUTHORITY TO MAKE THIS APPLICATION) AND THAT THE PLANS, REPORTS AND DOCUMENTS SUBMITTED AS PART OF THE APPLICATION ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

SWORN AND SUBSCRIBED TO BEFORE ME THIS 20th DAY OF March 1980

Notary Public
My Commission Expires Apr. 15, 1982
Member, Pennsylvania Association of Notaries

SIGNATURE OF APPLICANT OR RESPONSIBLE OFFICIAL

THIS SECTION RECOMMENDED TO BE COMPLETED BY THE PERSON AUTHORIZED BY THE APPLICANT TO PREPARE THIS APPLICATION. NOTE: SEWERAGE, INDUSTRIAL WASTE, AND MINE DRAINAGE APPLICATIONS REQUIRE A REGISTERED PROFESSIONAL ENGINEER, EXCEPT THAT A REGISTERED SURVEYOR IS ACCEPTABLE WHERE PUBLIC HEALTH AND SAFETY ARE NOT INVOLVED

NAME OF DESIGN PERSON AND FIRM
Herbert H. Metz, Jr., P.E.
HERBERT H. METZ, INCORPORATED

MAILING ADDRESS
410 Derstine Avenue
Lansdale, Penna. 19446

TELEPHONE NO.
(215) 855-3111

AGREEMENT DATE
May 1979

SIGNATURE OF DESIGN ENGINEER (OR OTHER)

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
HERBERT H. METZ, JR.
No. 5953-E

EN-BWQ-188.1(REV. 3/75)

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: 2-29-80
DATE REVISED:

WATER POLLUTION CONTROL
MODULE 1 – GENERAL INFORMATION
SEWERAGE

For Department Use Only

THIS SHEET NOT APPLICABLE

A. DOCUMENTATION REQUIRED – CONTINUED

MODULE NUMBER	TITLE	NUMBER OF PAGES	
15	TRICKLING FILTERS	2	☐ Yes
16	AERATION TANKS OR BASINS	3	☐ Yes
17	WASTE STABILIZATION PONDS	3	☐ Yes
18	CHEMICAL TREATMENT (INCLUDING FEEDERS)	3	☐ Yes
19	MIXING AND FLOCCULATION FACILITIES	1	☐ Yes
20	SAND FILTERS	2	☐ Yes
21	DISINFECTION	2	☐ Yes
22	SPRAY IRRIGATION	1	☐ Yes
23	PHYSICAL ABSORPTION, ION EXCHANGE, AND CONTACT UNITS	2	☐ Yes
25	DEEP WELL DISPOSAL	4	☐ Yes
26	SLUDGE TREATMENT AND DISPOSAL		
	A. SEPARATE DIGESTION TANKS AND SLUDGE THICKENING TANKS	2	☐ Yes
	B. ELUTRIATION	1	☐ Yes
	C. WET OXIDATION	1	☐ Yes
	D. SLUDGE DRYING BEDS	1	☐ Yes
	E. LAND DISPOSAL OF SLUDGE	1	☐ Yes
	F. SLUDGE BASINS	1	☐ Yes
	G. FILTERS AND CENTRIFUGES	1	☐ Yes
	H. INCINERATION	1	☐ Yes

B. REQUIRED DATA

1. THE FRONT COVER OR FLYLEAF OF EACH SET OF DRAWINGS AND SPECIFICATIONS MUST BEAR THE SIGNATURE AND SEAL OF THE REGISTERED PROFESSIONAL ENGINEER, SURVEYOR BY OR UNDER WHOM PREPARED. EACH DRAWING MUST BEAR AN IMPRINT OR REASONABLE FACSIMILE OF SUCH SEAL.

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MODULE 1 – GENERAL INFORMATION SEWERAGE

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APPLICANT Upper Gwynedd - Towamencin Municipal Authority

LOCATION OF PROJECT: MUNICIPALITY Towamencin Township COUNTY Montgomery

DESIGN ENGINEER AND FIRM Herbert H. Metz, Jr., P.E. HERBERT H. METZ, INC.

DESIGN ENGINEERS ADDRESS 410 Derstine Avenue Lansdale, Penna. ZIP CODE 19446 TELEPHONE (215) 855-3111

DESCRIPTION OF PROJECT Extension to existing Authority gravity sanitary sewer system, comprising 8" diam. sewer sub-mains and lateral connections thereto to service a planned 54-lot single dwelling residential Section No.1 of Grist Mill Run Development of Anthony M. DiLucia, Inc. along Northeast side of Allentown Rd.(L.R.46043), near Keeler Road.

A. DOCUMENTATION REQUIRED

1. HAS A CHECK FOR $25.00, PAYABLE TO THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES, BEEN INCLUDED? (NOT REQUIRED OF STATE OR FEDERAL AGENCIES) ☐ Yes ☐ No ☐ N/A

2. HAVE 2 COPIES OF THE APPLICATION, FORM H710.046, BEEN SUBMITTED? (3 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND DELAWARE RIVER BASIN). ☒ Yes ☐ No

   A. HAS THE AFFIDAVIT BEEN PROPERLY COMPLETED AND EXECUTED? ☒ Yes ☐ No

3. DOES THE APPLICATION INCLUDE THE FOLLOWING APPLICABLE MODULES:

MODULE NUMBER	TITLE	NUMBER OF PAGES	
1	GENERAL INFORMATION – SEWERAGE	9	☒ Yes
4	WASTE LOAD AND CHARACTERISTICS	3	☐ Yes
5	GEOLOGY AND GROUND WATER INFORMATION	2	☐ Yes
6	SEWERS AND APPURTENANCES	6	☒ Yes
7	SEWAGE PUMPING STATIONS	4	☐ Yes
8	PUMPING FACILITIES	1	☐ Yes
9	FLOW EQUALIZATION AND STORAGE BASINS	2	☐ Yes
10	GRIT CHAMBERS	1	☐ Yes
11	SCREENING AND COMMINUTING DEVICES	2	☐ Yes
12	IMHOFF AND SEPTIC TANKS	2	☐ Yes
13	SETTLING TANKS	2	☐ Yes
14	EARTHEN SETTLING BASINS	2	☐ Yes

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B. REQUIRED DATA – CONTINUED

B. SPECIFICATIONS (IF APPLICABLE): Upper Gwynedd-Towamencin Municipal Authority Ref: Specifications and Pertinences as filed at Pa. D. E. R. by Authority

1. SIGNATURE OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW) _____ TITLE _____ NUMBER OF VOLUMES _____ DATE _____

C. OTHER (SPECIFY TYPE AND NUMBER):

4. ARE THE PLANS:

A. CLEAR, LEGIBLE, AND DRAWN TO SCALE WITH NORTH ARROW INDICATED? [X] Yes [ ] No

B. WITHIN MAXIMUM SIZE OF 36 INCHES BY 60 INCHES? [X] Yes [ ] No

C. SEAL AND SIGNATURE OF PROFESSIONAL ENGINEER OR SURVEYOR RESPONSIBLE FOR THIS APPLICATION

1. SIGNATURE OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW) Herbert H. Metz, Jr., P.E.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL HERBERT HALLMAN METZ, JR. SEAL ENGINEER No. 5953-E

2. SEAL OF PROFESSIONAL ENGINEER (OR SURVEYOR WHERE PERMITTED BY LAW)

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL HERBERT HALLMAN METZ, JR. SEAL ENGINEER No. 5953-E

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B. REQUIRED DATA – CONTINUED

2. INFORMATION RELATIVE TO SPECIFIC PROGRAMS:

A. 2 COPIES OF DESIGNER'S PLANS, MODULES, AND SPECIFICATIONS (3 COPIES REQUIRED FOR PROJECTS IN ALLEGHENY COUNTY AND DELAWARE RIVER BASIN) — [X] Yes (by owner) [ ] (appended) [ ] No [ ] N/A

B. HYDRAULIC PROFILE OR SCHEMATIC FLOW DIAGRAM FOR PROPOSED TREATMENT PLANT. — [ ] Yes [ ] No [X] N/A

C. UNITED STATES GEOLOGICAL SURVEY TOPOGRAPHICAL MAP SHOWING EXACT POINT OF DISCHARGE AND TREATMENT PLANT OR PUMP STATION LOCATION AND/OR AREA TO SEWERS. — [ ] Yes [ ] No [X] N/A

D. HAVE YOU APPLIED FOR A PUBLIC UTILITY COMMISSION CERTIFICATE OF PUBLIC CONVENIENCE? — [ ] Yes [ ] No [X] N/A

(1) SPECIFY PUBLIC UTILITY COMMISSION APPLICATION

NUMBER N/A

(2) IS CERTIFICATE OF PUBLIC CONVENIENCE ENCLOSED? N/A — [ ] Yes [X] No

E. HAVE YOU APPLIED FOR APPROVAL OF STREAM ENCROACHMENT(S)? — [X] Yes [ ] No [ ] N/A

PLANS: Subdivision and Construction Improvements (by owner) NO. OF SHEETS 14 DATE 7-18-79
TITLE/DESCRIPTION

F. HAVE YOU APPLIED FOR DEPARTMENT OF LABOR AND INDUSTRY APPROVAL FOR FEATURES AFFECTING EMPLOYEE SAFETY? — [ ] Yes [ ] No [X] N/A

PLANS: _____ NO. OF SHEETS _____ DATE _____
TITLE/DESCRIPTION

G. DO YOU HAVE AN AGREEMENT INDICATING APPROVAL TO DISCHARGE TO SEWER SYSTEM AND TREATMENT PLANT OF ANOTHER PERMITTEE? — [ ] Yes [ ] No [X] N/A

H. HAVE YOU APPLIED FOR APPROVAL OF AIR POLUTION CONTROL FACILITIES? — [ ] Yes [ ] No [X] N/A

I. HAVE YOU SUBMITTED A LIST WITH NAMES, ADDRESSES, AND TITLES OF ALL PARTNERS IN THE CASE OF A PARTNERSHIP OR ALL OFFICERS IN THE CASE OF A CORPORATION, UNINCORPORATED ASSOCIATION, INCORPORATED ASSOCIATION, PARTNERSHIP, OR OTHER ENTITY (NOT MUNICIPAL)? — [ ] Yes [ ] No [X] N/A

NUMBER OF VOLUMES _____ DATE _____

3. SPECIFY THE FOLLOWING:

A. PLANS: Subdivision and Construction Improvements NO. OF SHEETS 14 DATE 7-18-79
TITLE/DESCRIPTION

PLANS: _____ NO. OF SHEETS _____ DATE _____
TITLE/DESCRIPTION

PLANS: _____ NO. OF SHEETS _____ DATE _____
TITLE/DESCRIPTION

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D. GENERAL INFORMATION

1. EXISTING COMBINED SEWERS MAKE UP 0 % OF THE TOTAL AREA SERVED BY THE SYSTEM.

2. ARE THE EXISTING SANITARY SEWERS SUBJECT TO EXCESSIVE INFILTRATION? ☐ Yes ☒ No ☐ N/A

A. IF YES, SPECIFY MAJOR SOURCES OF INFILTRATION:

3. TYPES OF INDUSTRIAL WASTES OF SPECIAL CONSIDERATION: None

B. HAS A REGULATION PROHIBITING THE ADMITTANCE OF STORM WATER FROM PAVEMENTS, ROOFS, AND OTHER SOURCES BEEN ADOPTED? ☒ Yes ☐ No
(IF YES, ENCLOSE COPY.) See Exhibit "A", appended herewith

A. IF NO, EXPLAIN:

C. SPECIFY STEPS TAKEN OR BEING TAKEN TO CORRECT THE INFILTRATION PROBLEM, INCLUDING DATES: ☒ N/A

5. THE DISTANCE OF THIS PLANT TO THE NEAREST OCCUPIED DWELLING

A. PRESENT FEET

N/A

B. PROPOSED FEET

6. IF THE APPLICANT IS OTHER THAN A MUNICIPALITY OR MUNICIPAL AUTHORITY, HAS THE GOVERNING MUNICIPALITY OBJECTED TO THE PROPOSED SEWAGE TREATMENT PLANT? ☐ Yes ☐ No ☒ N/A

3. TYPES OF INDUSTRIAL WASTES OF SPECIAL CONSIDERATION: None

4. WILL THE APPLICANT BE RESPONSIBLE FOR REPAIR AND MAINTENANCE OF SEWAGE FACILITIES FOR WHICH APPLICATION IS SUBMITTED? (1) ☒ Yes ☐ No

(1) Upon completion, inspection, testing and acceptance by the Authority

A. IF NO, EXPLAIN:

A. 2 COPIES OF DESIGNER'S PLANS, MODULES, AND SPECIFICATIONS (appended)

5. THE DISTANCE OF THIS PLANT TO THE NEAREST OCCUPIED DWELLING:

A. PRESENT FEET

B. PROPOSED FEET

N/A

6. IF THE APPLICANT IS OTHER THAN A MUNICIPALITY OR MUNICIPAL AUTHORITY, HAS THE GOVERNING MUNICIPALITY OBJECTED TO THE PROPOSED SEWAGE TREATMENT PLANT? ☐ Yes ☐ No ☒ N/A

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CLASS OF CONSTRUCTION (Check all applicable blocks)

THIS SHEET NOT APPLICABLE

☐ NEW
☐ REPLACEMENT OF EXISTING UNIT(S)
☐ ADDITIONS AND/OR
☐ MODIFICATIONS TO EXISTING UNIT(S)

TABLE I – DESIGN LOADING DATA

			Existing Facilities Design	Present Operating Load	Proposed Total Facilities Design
1. EQUIVALENT POPULATION TO BE SERVED (NO. OF PERSONS – SUBMIT CALCULATIONS)					
	A. DOMESTIC				
	B. INDUSTRIAL				
	C. TOTAL				
2. DESIGN YEAR OR PERIOD FOR OPERATING DATA					
3. RUNOFF PERIOD		(HRS)			
4. DOMESTIC WASTE FLOW DATA	A. PER CAPITA FLOW	(GPCD)			
	B. AVERAGE DAILY FLOW	(MGD)			
	C. INFILTRATION	(MGD)			
	D. RUNOFF FLOW RATE	(MGD)			
	E. MAXIMUM FLOW RATE	(MGD)			
5. INDUSTRIAL WASTE FLOW DATA	A. AVERAGE DAILY FLOW	(MGD)			
	B. MAXIMUM DAILY FLOW	(MGD)			
6. TOTAL DESIGN AVERAGE FLOW		(MGD)			

TABLE II – FACILITIES DESIGN DATA (Specify number of units)

Units	Existing	To Be Abandoned	Total Proposed	Units	Existing	To Be Abandoned	Total Proposed
1. SCREENING DEVICES				13. CHLORINE CONTACT TANK(S)			
2. GRIT CHAMBER(S)				14. DISINFECTION FACILITIES			
3. COMMINUTOR(S)				15. SEPARATE SLUDGE DIGESTORS			
4. PRE-AERATION TANKS				16. SLUDGE DRYING BEDS			
5. PRIMARY SETTLING TANKS				17. MECHANICAL SLUDGE DEWATERING			
6. IMHOFF TANK(S)				18. SLUDGE ELUTRIATION TANKS	☐ YES	☒ NO	☐ N/A
7. TRICKLING FILTERS				19. SLUDGE STABILIZATION TANKS			
8. INTERMEDIATE SETTLING TANKS				20. INCINERATOR(S)			
9. AERATION TANKS				21. MIXING AND FLOCCULATION TANKS			
10. FINAL SETTLING TANKS				22. OTHER (Specify)			
11. INTERMITTENT SAND FILTERS				23. OTHER (Specify)			
12. WASTE STABILIZATION POND(S)				24. OTHER (Specify)			

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E. RECEIVING STREAM* THIS SHEET NOT APPLICABLE

1. WHAT IS THE NAME OF THE RECEIVING STREAM? _____

A. TRIBUTARY OF _____

B. TRIBUTARY OF _____

C. MAJOR DRAINAGE BASIN:

☐ DELAWARE
☐ SUSQUEHANNA

☐ POTOMAC
☐ LAKE ERIE
☐ GENESEE

☐ ALLEGHENY
☐ MONONGAHELA
☐ OHIO

2. DESCRIBE THE EXACT POINT OF DISCHARGE:

_____ DEG, _____ MIN, _____ SEC LATITUDE

_____ DEG, _____ MIN, _____ SEC LONGITUDE

A. WATERSHED AREA ABOVE POINT OF DISCHARGE IS _____

_____ SQUARE MILES.

3. WHAT IS THE:

A. MINIMUM 7-CONSECUTIVE-DAYS FLOW OCCURRING ONCE IN 10 YEARS?

_____ CUBIC FEET PER SECOND.

B. MINIMUM STREAM FLOW: _____

Attach U.S. Geological Survey 7.5' or 15' Quadrangle Map showing exact points of discharge.

C. ABOVE FLOWS ARE BASED ON:

☐ MEASUREMENTS
☐ ESTIMATES

_____ YEARS OF RECORD

4. IS THE TREATMENT PLANT SUBJECT TO FLOODING? ☐ Yes ☐ No

5. THE PROBABILITY OF THE TREATMENT PLANT BEING OUT OF SERVICE DUE TO FLOODING IS ONCE IN _____ YEARS.

CLASS OF CONSTRUCTION (Check all applicable blocks)

☐ NEW
☐ REPLACEMENT OF EXISTING UNIT(S)
☐ ADDITIONS AND/OR MODIFICATIONS TO EXISTING UNIT(S)

A. LIST BRIEFLY THE METHODS USED FOR FLOOD PROTECTION: _____

TABLE 1 – DESIGN LOADING DATA	Existing Facilities Design	Present Operating	Proposed Total Facilities
1. EQUIVALENT POPULATION TO BE SERVED (NO. OF PERSONS – SUBMIT CALCULATIONS)			
A. DOMESTIC			
B. INDUSTRIAL			

* *Attach U.S. Geological Survey 7.5' or 15' Quadrangle Map showing exact points of discharge.*

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MODULE 1 – GENERAL INFORMATION SEWERAGE

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D. GENERAL INFORMATION – CONTINUED

A. IS THE LETTER FROM MUNICIPAL OFFICER, SIGNIFYING THE OPINION, APPENDED TO THIS APPLICATION? ☐ Yes ☐ No

7. ARE DUPLICATE TREATMENT UNITS PROVIDED WHERE REQUIRED? ☐ Yes ☐ No ☐ N/A

A. IF NO, EXPLAIN: _____

B. DO ANY BY-PASS STRUCTURES DISCHARGE TO WATERS OF THE COMMONWEALTH? (SPECIFY PLAN SHEET NUMBER(S) SHOWING BY-PASS STRUCTURES) ☐ Yes ☐ No

8. HAS AN AUXILIARY STANDBY POWER SOURCE BEEN PROVIDED? ☐ Yes ☐ No ☐ N/A

9. DOES ANY PIPING OR CONNECTION EXIST IN ANY PART OF THE TREATMENT WORKS WHICH MAY CAUSE CONTAMINATION OF THE POTABLE WATER SUPPLY? ☐ Yes ☐ No

10. IF A NON-POTABLE WATER SUPPLY IS PROVIDED, ARE ALL OUTLETS PERMANENTLY POSTED TO INDICATE WATER IS NOT SAFE FOR DRINKING? ☐ Yes ☐ No ☐ N/A

11. ARE FACILITIES PROVIDED FOR MEASURING THE SEWAGE FLOW? ☐ Yes ☐ No

12. SAFETY:

A. ARE FACILITIES PROVIDED TO EFFECTIVELY PROTECT THE OPERATOR AND VISITORS? ☐ Yes ☐ No

13. OUTFALL SEWER:

A. IS THE OUTFALL SEWER ADEQUATELY PROTECTED TO ENSURE ITS STRUCTURAL STABILITY AND FREEDOM FROM STOPPAGE? ☐ Yes ☐ No

THIS SHEET NOT APPLICABLE

B. IS AN OUTFALL HEAD WALL PROVIDED? ☐ Yes ☐ No ☐ N/A

C. DOES THE OUTFALL EXTEND TO THE LOW WATER MARK OF THE RECEIVING STREAM? ☐ Yes ☐ No ☐ N/A

14. HAVE PROVISIONS BEEN MADE TO PROTECT ALL STRUCTURES AGAINST FLOTATION? ☐ Yes ☐ No

15. IF THE PROJECT INVOLVES ADDITIONS TO AN EXISTING TREATMENT PLANT, DO THE SPECIFICATIONS INCLUDE A PROGRAM TO PREVENT BY-PASSING OF ANY UNIT TO WATERS OF THE COMMONWEALTH DURING CONSTRUCTION? ☐ Yes ☐ No ☐ N/A

A. SPECIFY VOLUME AND PAGE NUMBER OF SPECIFICATIONS: _____

16. SPECIFY NAMES OF MUNICIPALITIES AND POPULATION SERVED OR TO BE SERVED BY THIS PLANT: _____

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E. RECEIVING STREAM – CONTINUED

6. TO THE BEST OF YOUR KNOWLEDGE, WILL THE TREATED WASTE DISCHARGE ADVERSELY AFFECT:

A. DOMESTIC WATER SUPPLY?	☐ Yes	☐ No
B. BATHING?	☐ Yes	☐ No
C. STOCK WATERING?	☐ Yes	☐ No
D. FISH AND AQUATIC LIFE?	☐ Yes	☐ No
E. INDUSTRIAL WATER SUPPLY?	☐ Yes	☐ No
F. IRRIGATION?	☐ Yes	☐ No
G. BOATING AND AESTHETICS?	☐ Yes	☐ No

7. IF ANY ITEMS IN 6 ABOVE ARE ANSWERED YES, INDICATE DISTANCE TO, LOCATION OF, AND EXTENT OF ADVERSE EFFECT:

THIS SHEET NOT APPLICABLE

D. GENERAL INFORMATION – CONTINUED

A. IS THE LETTER FROM MUNICIPAL OFFICER, SIGNIFYING THE OPINION, APPENDED TO THIS APPLICATION?

F. ARE DUPLICATE TREATMENT UNITS PROVIDED WHERE REQUIRED?

A. IF NO, EXPLAIN

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MODULE 6 – SEWERS AND APPURTENANCES

CLASS OF CONSTRUCTION (Check All Applicable Blocks)

- [ ] NEW SYSTEM
- [ ] REPLACEMENT OF EXISTING SYSTEM
- [X] EXTENSION(S) TO EXISTING SYSTEM

TABLE I – DESIGN FLOW AND LOADING INFORMATION

1. POPULATION TO BE SERVED	INITIAL	DESIGN	DESIGN YEAR
	189	189	2000

2. AREA TO BE SERVED	ACRES (INITIAL)
TYPE OF AREA (Residential, Commercial, Etc.) Residential	23.1 (gross)
	ACRES (FUTURE) Same

3.			
A. LATERALS AND SUB-MAIN SEWERS	(GPCD)	400
B. MAIN AND TRUNK SEWERS	(GPCD)	N/A
C. INTERCEPTORS	(GPCD)	N/A
(1) MEASURED DRY-WEATHER FLOW	(%)	N/A
(2) ESTIMATED DRY-WEATHER FLOW	(%)	N/A

D. IF ANY VALUES LESS THAN PRESCRIBED IN MANUAL, EXPLAIN (USE ADDITIONAL SHEETS IF NECESSARY)

4. DESIGN FLOW DATA	GPCD	MGD
A. AVERAGE DAILY FLOW	100	0.0189
B. INFILTRATION		incl. in "A"
C. MAXIMUM INDUSTRIAL WASTE FLOW		0
D. TOTAL DESIGN FLOW		0.0189
E. MAXIMUM FLOW RATE		0.0756

TABLE II – GENERAL DESIGN

PIPE DIAMETER (IN.)	MINIMUM SLOPE (%)	MAXIMUM SLOPE (%)	MAXIMUM VELOCITY (FPS) (1)	MAXIMUM FLOW (MGD) (1)	MAXIMUM DISTANCE BETWEEN MANHOLES (Ft.) SEWERS 15 IN. OR LESS	MAXIMUM DISTANCE BETWEEN MANHOLES (Ft.) SEWERS 18 IN. TO 30 IN.	TYPE OF SEWER MATERIAL	"N" VALUE
8"	0.79	4.08	7.6	1.7	396		A.C.P.	.012

(1) Full Flow Condition (USE ADDITIONAL SHEETS IF NECESSARY)

TABLE III – CRITICAL DATA

PLAN SHEET NUMBER	MANHOLE NUMBER FROM	MANHOLE NUMBER TO	SEWER PIPE SIZE (IN.)	SEWER SLOPE (%)	POPULATION SERVED	TOTAL DESIGN FLOW (MGD)	SEWER FLOWING FULL VEL. (FPS)	SEWER FLOWING FULL CAP. (MGD)	MAXIMUM FLOW VELOCITY (FPS)
(No Critical Sections)									

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MODULE 6 – SEWERS AND APPURTENANCES

For Department Use Only

A. GENERAL DESIGN

1. ARE THE PROPOSED SEWERS DESIGNED AS SEPARATE SANITARY SEWERS? [X] Yes [ ] No

A. IF NO, EXPLAIN IN DETAIL, INCLUDING THE POSSIBLE EFFECTS UPON WATER COURSES. N/A

5. SPECIFY THE TYPE OF LEAKAGE TEST (INFILTRATION AND/OR EXFILTRATION) AND THE LIMIT TO BE USED, PREFERABLY IN TERMS OF GALLONS PER INCH OF PIPE DIAMETER PER MILES PER DAY. (INDICATE VOLUME AND PAGE NUMBER OF SPECIFICATIONS.)

TYPE AND LIMITS: Infiltration and Exfiltration - N.T.E. 200 gal. per inch pipe diameter per mile per day (Upper Gwynedd-Towamencin Municipal Authority Specifications)

2. ARE THE PROPOSED SEWERS DEEP ENOUGH TO SERVE ALL ADJACENT BASEMENTS? [X] Yes [ ] No

A. IF NO, EXPLAIN.

3. ARE THERE ANY OVERFLOWS OR BYPASSES OTHER THAN FROM PUMP STATIONS? [ ] Yes [X] No

A. IF YES, SPECIFY PLAN SHEET(S) WHERE SHOWN.

4. WHERE SMALLER SEWERS JOIN LARGER ONES, HAVE THE INVERTS OF THE LARGER SEWERS BEEN LOWERED SUFFICIENTLY TO MAINTAIN THE SAME ENERGY GRADIENT? [ ] Yes [ ] No [X] N/A

6. HAVE PROVISIONS BEEN MADE TO PROTECT SEWERS AT VELOCITIES OF OVER 15 FEET PER SECOND? [ ] Yes [ ] No [X] N/A

A. ARE SEWERS SECURED WITH CONCRETE ANCHORS (OR EQUAL) SPACED AS REQUIRED? [ ] Yes [ ] No [X] N/A

7. ARE MANHOLES PROVIDED AT ALL CHANGES IN SIZE, GRADE, ALIGNMENT, AND SEWER INTERSECTIONS? [X] Yes [ ] No

8. ARE DROP MANHOLES PROVIDED WHERE THE ENTRANCE SEWER INVERT IS 24 INCHES OR MORE ABOVE MANHOLE INVERT? [ ] Yes [ ] No N/A

9. ARE WATERTIGHT COVERS USED WHERE MANHOLES ARE SUBJECT TO FLOODING BY STREET RUNOFF OR HIGH WATER? [X] Yes [ ] No

XX
or

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MODULE 6 – SEWERS AND APPURTENANCES

A. GENERAL INFORMATION – CONTINUED

20. ON THE PLANS, INDICATE THE PERMIT NUMBER OF EXISTING SEWER AT EACH PROPOSED POINT OF CONNECTION AND THE NAME OF THE PERMITEE; SPECIFY PLAN SHEET NUMBER(S) ON WHICH INDICATED: Plan Sheet #7 ☐ N/A

21. WILL THERE BE A PUMP STATION INVOLVED IN RECEIVING SEWAGE FROM THE SEWER EXTENSION? ☐ Yes ☒ No ☐ N/A

A. IF YES, SPECIFY PRESENT AND DESIGN FLOWS OF PUMPING STATION. N/A

22. RECEIVING SEWAGE TREATMENT PLANT (FILL IN FOR EXTENSION(S) TO EXISTING SYSTEM ONLY)

A. OWNER OF PLANT Upper Gwynedd Towamencin Municipal Authority

B. NAME OF PLANT Upper Gwynedd Towamencin Municipal Authority Wastewater Treatment Plant

C. DISCHARGE DATA

	WASTE FLOW (MGD)	SOLIDS SUSPENDED (#/DAY)	SOLIDS SETTLEABLE (ML/L)	BOD 5 DAY 20°C (#/DAY)
(1) ALLOWABLE LOAD TO STREAM AUTHORIZED UNDER PRESENT PERMIT	1.5 2.5(1)	375	None Stated	375
(2) PRESENT LOAD TO STREAM FROM TREATMENT PLANT	1.732(2)	361 (3)	0.4	361 (3)
(3) ADDITIONAL LOAD TO STREAM EXPECTED DURING THE NEXT FIVE YEARS FROM EXISTING SYSTEM	.5388(4)	112	Negligible	112
(4) ADDITIONAL LOAD TO STREAM DURING THE NEXT FIVE YEARS FROM PROPOSED EXTENSION	.0189	4	Negligible	4
(5) TOTAL ANTICIPATED LOAD TO STREAM IN NEXT FIVE YEARS (2+3+4)	2.2897	477	0.4 ☒ Yes	☐ 477

D. TREATMENT PLANT OPERATING EFFICIENCY

	SOLIDS SUSPENDED (%)	SOLIDS SETTLEABLE (%)	BOD 5 DAY 20° C (%)
(1) PRESENT TREATMENT PLANT (3) No in	Representative Data - Plant Expansion progress		
(2) AFTER INITIAL LOAD FROM PROPOSED EXTENSION	90	98	90
(3) IN FIVE YEARS	90	98	90

23. WILL THE LOAD UNDER 22.B.(5) ABOVE PRODUCE AN EFFLUENT THAT WILL HAVE AN ADVERSE EFFECT UPON THE RECEIVING STREAM? ☐ Yes ☒ No

es (1), (2), (3), (4) - See attached supplemental sheet #6-4A

For Department Use Only

ER-BWQ-188.6 REV. 3/75

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED: 2-29-80
DATE REVISED:

WATER POLLUTION CONTROL

MODULE 6 – SEWERS AND APPURTENANCES

For Department Use Only

A. GENERAL INFORMATION – CONTINUED

10. ARE SEWERS IN STREAMS PROTECTED WITH AT LEAST 1 FOOT COVER IN ROCK AND 3 FEET COVER IN OTHER MATERIAL? ☐ Yes ☐ No ☒ N/A

11. ARE SEWERS IN STREAMS CONSTRUCTED TO REMAIN WATERTIGHT AND IN ALIGNMENT? ☐ Yes ☐ No ☒ N/A

12. DOES THE APPLICATION INVOLVE CAPPED SEWERS? ☐ Yes ☒ No

A. IF YES, SPECIFY PLAN SHEET NUMBER. N/A

13. HOW MANY INVERTED SIPHONS ARE INCLUDED IN THIS DESIGN? None

14. IF SIPHONS ARE INCLUDED, SPECIFY THE FOLLOWING:

	SIPHON:	SIPHON:	SIPHON:
A. NUMBER OF BARRELS			
B. MINIMUM PIPE SIZE			
C. MINIMUM VELOCITY AT AVERAGE FLOW			

D. HAS PROVISION BEEN MADE FOR FLUSHING, RODDING, AND MAINTENANCE? ☐ Yes ☐ No

15. IS THERE ANY CONNECTION BETWEEN THE SEWER AND A PUBLIC OR PRIVATE POTABLE WATER SUPPLY OR APPURTENANCES? ☐ Yes ☒ No

16. ARE ANY WATER SUPPLY SOURCES, PUBLIC OR PRIVATE, LOCATED WITHIN 200 FEET OF THE SEWERS? ☐ Yes ☒ No

A. IF YES, SPECIFY PLAN SHEET(S) ON WHICH SOURCES ARE SHOWN. N/A

B. IF YES, WILL SEWERS BE ENCASED OR WATERTIGHT? N/A ☐ Yes ☐ No

17. ARE SEWERS AT LEAST 10 FEET HORIZONTALLY FROM WATER LINES AND/OR AT LEAST 18 INCHES BELOW THE WATER LINE? ☒ Yes ☐ No

18. IF THE PROPOSED FACILITY WILL DISCHARGE TO THE SEWER SYSTEM AND TREATMENT PLANT OF ANOTHER MUNICIPALITY, HAVE APPROPRIATE AGREEMENTS BEEN REACHED? ☐ Yes ☐ No ☒ N/A

A. IS THE AGREEMENT A CERTIFIED AGREEMENT? ☐ Yes ☐ No ☒ N/A

B. IS THE AGREEMENT A LETTER OF INTENT? ☐ Yes ☐ No ☒ N/A

C. HAVE DUPLICATE COPIES BEEN ENCLOSED? ☐ Yes ☐ No N/A

19. DO THE EXISTING SEWERS TO WHICH THE PROPOSED SEWERS WILL CONNECT HAVE ADEQUATE CAPACITY TO CONVEY THE ADDITIONAL FLOW? ☒ Yes ☐ No ☐ N/A

Supplementary Sheet 6-4A

4830417

February 29, 1980

Notes - Re: 6-4 22.C

(1) 1.5 MGD former capacity, plus 1.0 MGD current expansion capacity = 2.5 MGD.

(2) Avg. Daily Flow: Obtained by averaging most recent 12 months' daily recorded flows from January 1980 through December 1980, inclusive.

(3) Values based upon anticipated average 30 day consec. period effluent Susp. Solids and B.O.D. concentrations of 25 ppm each at completion of Plant expansion to 2.5 MGD hydraulic capacity in 1980 when optimum plant efficiency established. During recent and current plant pattern, sequence, and retention time of sewage flow through treatment process units is disrupted or abnormal due to construction schedules and procedures, and optimum plant operating efficiency is not consistently achieved.

(4) Includes incremental contributions for projected flows of recently approved and pending projects in Towamencin Township service area:

Hunter Construction Company "Hunter Meadows" Subdivision, Permit #4678437

"Ralph's Market"/U.G. Tow. Municipal Authority T-14 Line Ext., Permit #4678444

Brookside Farms Subdivision, Permit #4678455

Kirkpatrick Subdivision, Permit #4678459

"Rolling Meadows Estates" Subdivision, Permit #4679414

Stony Creek Village (Upper Gwynedd Township), Permit #4679444

Nash Section III, Permit #4679446

Merrill T. Denslow Subdivision, Permit #4679470

"Meadow View: Subdivision, Permit #4679469

"Lakeview" Subdivision, Permit #4679450

ER-BWQ-188.6 REV. 3/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

DATE PREPARED
2-29-80
DATE REVISED

WATER POLLUTION CONTROL

MODULE 6 – SEWERS AND APPURTENANCES

For Department Use Only

A. GENERAL INFORMATION – CONTINUED

A. IF YES, EXPLAIN N/A

B. IF APPLICANT IS NOT OWNER OF THE RECEIVING SEWAGE TREATMENT PLANT, INDICATE SOURCE OF INFORMATION.

N/A

TO BE COMPLETED BY THE REGIONAL SANITARY ENGINEER

1. WILL THE LOAD UNDER 22.B.(5) MEET THE PERMIT REQUIREMENTS? ☐ Yes ☐ No

   A. WILL THE LOAD UNDER 22.B.(5) CAUSE POLLUTION OF THE RECEIVING STREAM? ☐ Yes ☐ No

2. IS THERE ANY QUESTION AS TO WHETHER THE LOAD IS NOW CAUSING OR WILL CAUSE POLLUTION? ☐ Yes ☐ No

   A. IF YES, COMPLETE A POLLUTION REPORT.

3. IS THE TREATMENT PLANT IN COMPLIANCE? ☐ Yes ☐ No

Notes - Re: 6-4 22.C

(1) 1.5 MGD former capacity, plus 1.0 MGD current expansion capacity = 2.5 MGD

(2) Avg. Daily Flow: Obtained by averaging most recent 12 months' daily recorded flows from January 1980 through December 1980, inclusive.

(3) Values based upon anticipated average 30 day consec. period effluent

Supplementary Sheet 6-4A

where there is no storm-water sewer accessible, such connections may discharge into the public gutter, unless otherwise directed by the proper authorities, however, in no case shall water from said sources drain over the surface of side walks nor be allowed to damage any neighbors property.

NS0417

EXCERPT from Rules and Regulations of
TOWAMENCIN TOWNSHIP PLUMBING CODE

STORM WATER DRAINS

1101. DRAINAGE OF YARDS, AREAS AND ROOFS - All roofs and paved areas, yards, courts and court yards may be drained into the stormwater sewer system but not into the sewers intended for sewage only.

Where there is no storm-water sewer accessible, such connections may discharge into the public gutter, unless otherwise directed by the proper authorities, however, in no case shall water from said sources drain over the surface of side walks nor be allowed to damage any neighbors property.

MODULE 6 – SEWERS AND APPURTENANCES

For Department Use Only

A. GENERAL INFORMATION – CONTINUED

A. IF YES, EXPLAIN N/A

B. IF APPLICANT IS NOT OWNER OF THE RECEIVING SEWAGE TREATMENT PLANT, INDICATE SOURCE OF INFORMATION.

N/A

DATE PREPARED 2-29-80
DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

Exhibit

460417

1875 New Hope Street
Norristown, PA 19401
215 631-2426

February 5, 1980

Mr. Carlo A. Sapelli, Manager
Towamencin Township
P.O. Box 303
Kulpsville, PA 19443

Re: Crist Mill Run
Code No. 1-46949-024-4
Towamencin Township
Montgomery County

Dear Mr. Sapelli:

Please be advised that a review has been made and completed of the above referenced Planning Module for Land Development.

This revision to the Towamencin Township Official Sewage Facilities Plan meets the requirements of Chapter 71, Section 71.16 of the Pennsylvania Department of Environmental Resources Rules and Regulations.

Approval is hereby granted; and in accordance with this Chapter, the Department holds Towamencin Township responsible for implementing this revision as per the approved module.

This approval provides for adequate sewage facilities planning to provide for the development of a 185 acre tract with 484 residential units located on 40 Foot and Welsh Roads with sewage treatment to be provided by the Upper Gwynedd-Towamencin Municipal Authority Sewage Treatment Plant.

This planning approval does not relieve the project sponsor of the responsibility to secure a Department permit for the construction and operation of the proposed facility.

If you have any questions, please feel free to contact this office.

Very truly yours,

Glenn K. Stinson
Sewage Facilities Consultant
Norristown

cc: Herbert H. Metz, Jr., P.E.
Ce Re 30
FF 157

H710.047 REV. 5-71 COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
SANITARY ENGINEERING

For Department Use Only

INTERNAL REVIEW AND RECOMMENDATIONS

REGIONAL ENGINEER'S REVIEW

NAME OF APPLICANT: Upper Gwynedd-Towamencin Municipal Authority
PROJECT LOCATION: Towamencin Township, Montgomery County
APPLICATION NUMBER: 4680417

BRIEF DESCRIPTION OF PROJECT:
This application requests permission for the construction of a sanitary sewer extension to serve Grist Mill Subdivision.

DISCUSSION (Use Additional Sheets If Necessary):
Sewage will be conveyed to the Upper Gwynedd-Towamencin Municipal Authority Sewage Treatment Plant via existing Upper Gwynedd-Towamencin Municipal Authority sewers covered under Permit No. 4675424. The final effluent will be afforded secondary treatment before discharge to Towamencin Creek. The proposed sewer extension will serve 189 people initially and 189 people ultimately. The soil erosion and sedimentation control plan has been reviewed and approved by the Montgomery County Conservation District. This project contains 23.1 (gross) acres. These sewers are an extension to existing Authority gravity sanitary sewer system. Fifty-four (54) single dwelling residential units will be served by these sewers located on Allentown Road near Keeler Road.

CURRENT ESTIMATE OF COMPLETION DATE OF PROJECT (Industrial Wastes Only)

RECOMMENDATION AND ACTION

APPROVAL – RELEVANT LAWS, REGULATIONS, STANDARDS, AND POLICIES HAVE BEEN COMPLIED WITH:

Issue By Region	Issue By Central Office	Refuse	Signature	Date
☒	☐	☐	REVIEWING ENGINEER: Gregory C. Newell	8/19/80
☒	☐	☐	FACILITIES ENGINEER: Howard L. Hunter	8/19/80
☒	☐	☐	REGIONAL ENGINEER: [signature]	8/20/80
	☐	☐	DIV. FACILITIES ENGINEER	
	☐	☐	DIVISION DIRECTOR	
		☐	BUREAU DIRECTOR	

PERMIT CONDITIONS:
1. STANDARD –
Sewerage (1972)
1 thru 9, 11 thru 14, 21, 22, 30, 31
Erosion Control (1973) 1 thru 20

2. SPECIAL (Use Additional Sheets If Necessary) –

3Q38

Recording of Permit: Montgomery County

ER-BWQ-15-Rev. 4/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT

NO. 4680446

A. PERMITTEE: (Name and Address)
Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

B. PROJECT LOCATION
Municipality: Towamencin Township
County: Montgomery County

C. TYPE OF FACILITY (For industrial wastes: type of establishment)
Sanitary Sewer Extension

D. NAME OF MINE, PLANT, AREA SERVED, OUTFALL NO., ETC.
Grist Mill Subdivision, Section I

E. THIS PERMIT APPROVES:

1. Plans For Construction Of: a. [X] Sewers and Appurtenances b. [ ] Sewage Treatment Facilities c. [ ] Industrial Wastes Treatment Facilities d. [ ] Mine Drainage Treatment Facilities e. [ ] Outfall & Headwall f. [ ] Stream Crossing g. [ ] Impoundment

2. The Discharge Of: N/A a. [ ] Treated b. [ ] Untreated c. [ ] Sewage d. [ ] Industrial Wastes

3. N/A Discharge To: a. [ ] Surface Water b. [ ] Ground Water
Name of Stream to which discharged or drainage area in which groundwater discharge takes place or impoundment is located.

4. The Operation of a Mine [ ]
Maximum Area to be Deep Mined N/A Acres

5. An Erosion and Sedimentation Control Plan [X]
Project Area is 23.1 Acres

F. THIS APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:

1. ALL CONSTRUCTION, OPERATIONS, PROCEDURES AND DISCHARGE SHALL BE IN ACCORDANCE WITH APPLICATION NO. 4680446 DATED 2/29/80 ITS SUPPORTING DOCUMENTATION, AND AMENDMENTS DATED _____. SUCH APPLICATION, ITS SUPPORTING DOCUMENTATION AND AMENDMENTS ARE HEREBY MADE A PART OF THIS PERMIT.

2. CONDITIONS NUMBERED 1 thru 9, 11 thru 14, 21, 22, 30 and 31 OF THE Sewerage STANDARD CONDITIONS DATED 1972 AND CONDITIONS NUMBERED 1 thru 20 OF THE EROSION CONTROL STANDARD CONDITIONS DATED 1973 WHICH CONDITIONS ARE ATTACHED AND MADE PART OF THIS PERMIT.

3. SPECIAL CONDITIONS DESIGNATED _____ WHICH ARE ATTACHED AND ARE MADE A PART OF THIS PERMIT.

This permit must be recorded in the Recorder of Deeds Office in Montgomery County.

G. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. IF THERE IS A CONFLICT BETWEEN THE APPLICATION ON ITS SUPPORTING DOCUMENTS AND AMENDMENTS AND THE STANDARD OR SPECIAL CONDITIONS, THE STANDARD OR SPECIAL CONDITIONS SHALL APPLY.

2. FAILURE TO COMPLY WITH THE RULES AND REGULATIONS OF THE DEPARTMENT OR WITH THE TERMS OR CONDITIONS OF THIS PERMIT SHALL VOID THE AUTHORITY GIVEN TO THE PERMITTEE BY THE ISSUANCE OF THE PERMIT.

3. THIS PERMIT IS ISSUED PURSUANT TO THE CLEAN STREAMS LAW, ACT OF JUNE 22, 1937, P.L. 1987 AS AMENDED 35 P.S. § 691.1 ET SEQ. AND/OR THE WATER OBSTRUCTION ACT, ACT OF JUNE 25, 1913, P.L. 555 AS AMENDED 32 P.S. § 681 ET SEQ. ISSUANCE OF THIS PERMIT SHALL NOT RELIEVE THE PERMITTEE OF ANY RESPONSIBILITY UNDER ANY OTHER LAW

DEPARTMENT OF ENVIRONMENTAL RESOURCES

PERMIT ISSUED
DATE 8-20-80

BY C.F. Beechwood
C.T. Beechwood, P.E.
Regional Water Quality Manager

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
Norristown, PA 19401
215 631-2405

August 20, 1980

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: Mr. H. Warren Dimmig
Chairman

Re: Sewerage Permit No. 4680417
Upper Gwynedd-Towamencin Municipal Authority
Grist Mill Subdivision, Section 1
Towamencin Township, Montgomery County

Gentlemen:

Above referenced permit is enclosed.

Please study the permit carefully and direct any questions to the Facilities Section of this office.

To become operative this permit must be recorded in the Office of the Recorder of Deeds in the county in which the discharge is located. Enclosed is a certificate and pre-addressed envelope for this purpose. Please have the Recorder of Deeds accomplish the certificate and return it within ten (10) days.

Very truly yours,

C.T. Beechwood, P.E.
Regional Water Quality Manager

CTB:DH:mj

Enlosures: Permit
Standard Conditions Relating to Sewerage
Standard Conditions Relating to Erosion Control
Recorder of Deeds Certificate with envelope
Notary Public Certificate

cc: Herbert H. Metz, Inc.
Ce Re 30
3037

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT
WATER QUALITY MANAGEMENT PERMIT NO.

ER-BWQ-68 Rev. 4-73

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Permit No. 4680417

Towamencin Township
Montgomery County

Commonwealth of Pennsylvania
Department of Environmental Resources

RECORDER OF DEEDS CERTIFICATE

I hereby certify that on August 29, 1980 (Date)

there was recorded in Book 4555

page 442 the sewerage permit issued

to Upper Gwynedd-Towamencin Mun'l Auth.

bearing date of 8-20-80

Recorder of Deeds for Recording Clerk

Montgomery County

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES

CTT. Beechwood

ER-BWQ-69 Rev. 1/78

4680417

acknowledged the foregoing permit to be his act and deed and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year aforesaid.

STATE OF PENNSYLVANIA
SS
COUNTY OF MONTGOMERY

On the 20th day of August in the year one thousand nine hundred and eighty before me, the Subscriber, a Notary Public, came the above named

CTT. Beechwood

and duly acknowledged the foregoing permit to be his act and deed and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year aforesaid.

Wilbur P. Stender
NOTARY PUBLIC

WILBUR P. STENDER, Notary Public
Norristown Boro, Montg. Co.
My Commission Expires Nov. 2, 1981

Towamencin Township
Montgomery County

Commonwealth of Pennsylvania
Department of Environmental Resources

ER-BWQ-69 Rev. 4-79

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Permit No. 4680417

ER-EPR-1: Rev. 7/77

Form No. 1

Application No.: 4-8041

SUBJECT: SEWERAGE CONTACT: UPPER GWYNEDD-TOWAMENCIN MUNICIPAL AUTHORITY

Towamencin Twp | 2225 KRIEBEL ROAD | KULPSVILLE, PA. 19443

MONTGOMERY COUNTY

New Proposal	✓
Revised Proposal	

Permit Coordination Requirements: APPL: 855-3686 ENGR: 525-6200

Regional Director L. GONSHOR

R. HINKLE

On 4-17-80, we received an application for plan approval and/or permit to construct a sewer extension. The proposed installation involves:

SS EXT TO SERVE Grist Mill Run, Section I

IN Towamencin Twp MONTGOMERY COUNTY

SEWAGE TO Upper-Gwynedd Towamencin STP

Permit Coordination Requirements:

NONE

	No Permit Required	No Permit Required Prior Approval Required	Permit Required Application on Hand	Permit Required Application Needed
Air Quality	✓			
Water Quality		✓	Rek 4/17/80	
Land Protection	✓			
Community Env. Control	✓			
Occupational Health	✓			
Surface Mine Reclamation	✓			
Radiological Health	✓			
DEWQ-69 Rev. 1/78	✓			

STATE OF PENNSYLVANIA SS COUNTY OF MONTGOMERY

On the 20th day of August in the year one thousand nine hundred and eighty before

Please indicate your interest on this form and return to the Director by 4-24-80

ER — EP

START

DEPARTMENT OF ENVIRONMENTAL RESOURCES

BUREAU/PROGRAM Water Quality Management

ENVIRONMENTAL PROTECTION

DIVISION

COUNTY / MUNICIPALITY 46949

PROGRAM Sew

START

CASE NAME Upper Gwynedd Towamencin Municipal Authority

FILE P

BUREAU/PROGRAM Water Quality Management

DIVISION

COUNTY / MUNICIPALITY 46949

PROGRAM Sew

CASE NAME Upper Gwynedd Towamencin Municipal Authority

FILE P

PERMIT NO. 4680423 Dintenfass Estates

CONTACT: UPPER GWYNEDD-TOWAMENCIN MUNICIPAL AUTHORITY

750 E. Johnson Highway
Norristown, Pennsylvania 19401
215 631-2280

August 24, 1977

Mr. Joseph W. Kapusta, Secretary
Towamencin Township Building
1655 Sumneytown Pike, Box 303
Kulpsville, PA 19443

Re: Dintenfass Subdivision
No. 1-46949-010-4
Towamencin Township

Dear Mr. Kapusta:

Please be advised that a review has been made and completed of the above referenced Planning Module for Land Development.

This supplement to the Towamencin Township Official Sewage Facilities Plan meets the requirements of Chapter 71, Section 71.17 of the Pennsylvania Department of Environmental Resources Rules and Regulations.

Approval is hereby granted; and in accordance with this Chapter, the Department holds Towamencin Township responsible for implementing this supplement as per the approved module.

If you have any questions, please feel free to contact this office.

Very truly yours,

Michael L. Simon
Sanitarian
Montgomery County

CC: Sewage Facilities Consultant
File
MCHAS
Estate of Daniel Dintenfass

DEPARTMENT OF ENVIRONMENTAL RESOURCES
ENVIRONMENTAL PROTECTION

BOUCHER & JAMES, INC.
CONSULTING ENGINEERS
REPLY TO: PO BOX 904 • DOYLESTOWN, PA 18901

BUCKINGHAM PROFESSIONAL BUILDING
ROUTES 202 & 263 • BUCKINGHAM, PA
(215) 345-9400

40 WEST MT. CARMEL AVENUE
GLENSIDE, PA
(215) 886-7788

Norman R. Boucher
Thomas E. James, Jr.

Robert R. Larason
Charles P. Durkin

June 19, 1980

RECEIVED
JUN 20 1980
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

Mr. Charles Rehm, P.E.
Pennsylvania Dept. of Environmental Resources
1875 New Hope Street
Norristown, PA 19401

RE: Sewerage Permit Application
Dintenfass Estate
Towamencin Township
Montgomery Co., Pa.

Dear Mr. Rehm:

Enclosed herewith we are respectfully submitting the following:

1. Sewerage Permit Application dated June 13, 1980
2. Application Fee in the amount of $25.00
3. Two (2) complete sets of final plans last dated Feb. 1, 1980

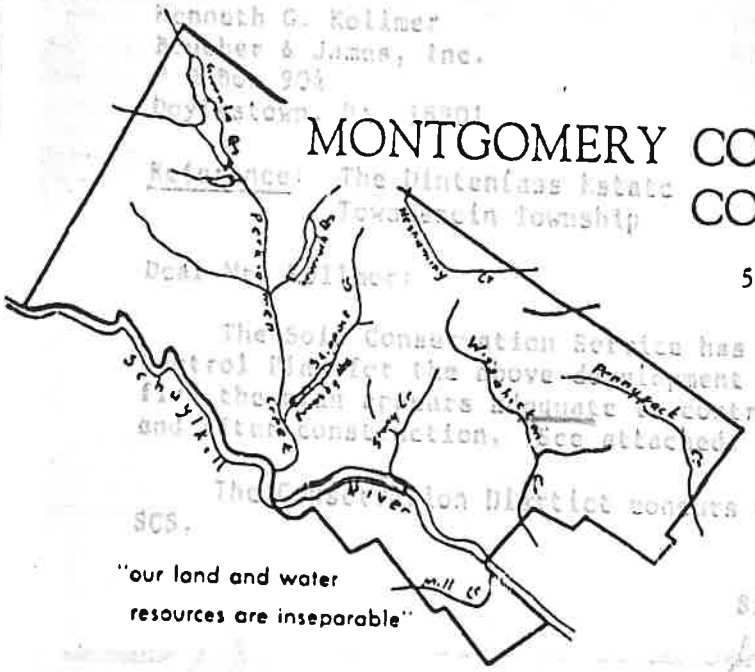
As noted on the application, specifications for the Upper Gwynedd-Towamencin Municipal Authority are on file with the Department of Environmental Resources.

Should you have any questions or require any additional information, please do not hesitate to call.

Sincerely,

Kenneth G. Kollmer

RRL: mk
Enclosure
cc: Regent Valley Builders, Inc.
Upper Gwynedd-Towamencin Municipal Authority



MONTGOMERY COUNTY CONSERVATION DISTRICT

5th Floor, Court House, Norristown, Pa. 19404
Phone: 275-5000 (Ext. 257)

A680423

August 15, 1980

RECEIVED
AUG 2 6 1980
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

Kenneth G. Kollmer
Boucher & James, Inc.
P O Box 904
Doylestown, PA 18901

Reference: The Dintenfass Estate
Towamencin Township

Dear Mr. Kollmer:

The Soil Conservation Service has reviewed the Erosion and Sediment Control Plan for the above development as revised August 7, 1980. They find the plan appears adequate to control erosion and sediment during and after construction. See attached.

The Conservation Disrtict concurs with the review results of the SCS.

Sincerely yours,

Maynard A. King

Maynard A. King
Executive Director

MAK:dlm

cc: Towamencin Township Engineer
Mr. Greg Newell of D.E.R.

Attachment

Cooperating with the following Agencies and Organizations: U.S. Soil Conservation Service; Pa. Dept. of Environmental Resources; Penn DOT; Cooperative Extension Service; Farmers Home Administration; Pa. Fish and Game Commissions; County Planning Commission; Agricultural Stabilization and Conservation Service; Bucks County Division of Natural Resources; Pennypack, Perkiomen and Wissahickon Watershed Associations; Citizens' Council of Montgomery County.

BOUCHER & JAMES, INC.
CONSULTING ENGINEERS

ER-BWO-265
rev. 2/79

SEWERAGE PERMIT APPLICATION
DEPARTMENT OF ENVIRONMENTAL RESOURCES

4680423

APPLICANT NAME* Upper-Gwynedd Towamencin Municipal Authority, ADDRESS: 2225 Kriebel Road
CITY, ZIP Lansdale, Penna. 19446 TELEPHONE NUMBER: 215-855-8165

*Applicant shall be the agency which will own the sewerage facilities following completion of construction and/or dedication.
A filing fee check of $25.00 made out to Pennsylvania Department of Environmental Resources is required with the application.

PROJECT NAME: The Dintenfass Estate PROJECT ACREAGE: 15.864 Acres

MUNICIPALITY: Towamencin Township COUNTY: Montgomery Co.

NOTE: Please attach a drawing which clearly shows the boundaries of the proposed service area, the properties to be served, the location of the sewerage facilities, the slopes of proposed sewers on the plan with inverts of manhole, point of connection to existing sewers, and all streets, streams or other important site features. Also include specifications for the facilities and an erosion an sedimentation control plan. (1)

For any deviations from the Sewerage Manual, please note clearly and fully justify:

FOR THE APPLICANT

I hereby apply for approval on (Date) June 13, 1980 to construct and operate [X] Sewers and appurtenances [ ] Sewage pumping stations(s) which [ ] does [X] does not include stream crossings(s).

For sewage pumping stations include detailed construction plans, Module 7 and an erosion and sedimentation control plan.

For stream crossing, include the plan and profile view of the sewer line crossing along with specific construction techniques including soil erosion and sedimentation control provisions.

Affidavit: I hereby certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and based on my inquiry of those individuals immediately responsible for obtaining the information I believe the submitted information is true, accurate and complete.

Applicant's Signature: H. Warren Dimmig

Name and Title: H. Warren Dimmig, Chairman, U.G.T.M.A.

Address: 2225 Kriebel Road, Lansdale, Penna. 19446

Sworn and subscribed to before me this 13th day of June, 1980.

Notary's seal and signature Jeffrey A. Wert

Jeffrey A. Wert, Notary Public
Lansdale Borough, Montgomery County
My Commission Expires Aug. 16, 1982
Member, Pennsylvania Association of Notaries

FOR THE DESIGN ENGINEER

Affidavit: I, Thomas E. James, Jr., do hereby certify that the information contained in the accompanying plans, specifications, and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance with the standards, guidelines and requirements of the Department of Environmental Resources.

Design Engineer's Seal and Signature: Thomas E. James Jr.

Name of Engineering Firm: Boucher & James, Inc.

Address, Zip P.O. Box 904, Doylestown, Pa. 18901 Telephone No.: (215) 345-9400

(1) Reference Upper Gwynedd-Towamencin Municipal Authority specifications and pertinences as filed with Pa. D.E.R. by U.G.T.M.A.

MONTGOMERY COUNTY CONSERVATION DISTRICT

H710.047 REV. 5-71

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
SANITARY ENGINEERING

For Department Use Only

INTERNAL REVIEW AND RECOMMENDATIONS

REGIONAL ENGINEER'S REVIEW

NAME OF APPLICANT: Upper Gwynedd Towamencin MA
PROJECT LOCATION: Towamencin Township Montgomery County
APPLICATION NUMBER: 4680423

BRIEF DESCRIPTION OF PROJECT: The Applicant requests approval for the construction of a sanitary sewer extension to serve a 27 lot subdivision of the Dintenfass Estate. The subdivision is located on Snyder Road, west of Valley Forge Road and North of North Penn High School. There are no encroachments in this project.

DISCUSSION (Use Additional Sheets If Necessary):
Sewage from the proposed sewer extension will be conveyed to the Upper Gwynedd Towamencin Township STP via existing Towamencin Township sewers covered under Permit No 7665051. The final effluent will be afforded secondary treatment before discharge to the Towamencin Creek. The proposed sewer extension will serve 95 people initially and ultimately. The soil erosion and sedimentation control plan has been reviewed and approved by the Montgomery County ~~Soil~~ Conservation district.

CURRENT ESTIMATE OF COMPLETION DATE OF PROJECT (Industrial Wastes Only)

RECOMMENDATION AND ACTION

APPROVAL – RELEVANT LAWS, REGULATIONS, STANDARDS, AND POLICIES HAVE BEEN COMPLIED WITH:

Issue By Region	Issue By Central Office	Refuse	Signature	Date
☒	☐	☐	REVIEWING ENGINEER: Gregory C. Newell	8/15/80
☒	☐	☐	FACILITIES ENGINEER: Richard J. Burkle	8/18/80
☒	☐	☐	REGIONAL ENGINEER: C. T. Reichmond	8/18/80
	☐	☐	DIV. FACILITIES ENGINEER	
	☐	☐	DIVISION DIRECTOR	
PERMIT CONDITIONS:		☐	BUREAU DIRECTOR	

1. STANDARD –
Erosion Control (1973) – 1 thru 20
Sewerage (1972) – 1 thru 9, 11 thru 14, 21, 22, 30 31

2. SPECIAL (Use Additional Sheets If Necessary)

Recording of Permit: Montgomery County

4K81

ER-BWQ-15, Rev. 4/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT

NO. 4680422

A. PERMITTEE: (Name and Address)
Upper Gwynedd Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

B. PROJECT LOCATION
Municipality: Towamencin Township
County: Montgomery County

C. TYPE OF FACILITY (For industrial wastes type of establishment)
Sanitary Sewer Extension

D. NAME OF MINE, PLANT, AREA SERVED, OUTFALL NO., ETC.
Dintenfass Estates

THIS PERMIT APPROVES:

1. Plans For Construction Of: a. [X] Sewers and Appurtenances; b. [ ] Sewage Treatment Facilities; c. [ ] Industrial Wastes Treatment Facilities; d. [ ] Mine Drainage Treatment Facilities; e. [ ] Outfall & Headwall; f. [ ] Stream Crossing; g. [ ] Impoundment

2. The Discharge Of: N/A a. [ ] Treated; b. [ ] Untreated; c. [ ] Sewage; d. [ ] Industrial Wastes

3. Discharge To: N/A a. [ ] Surface Water; b. [ ] Ground Water
Name of Stream to which discharged or drainage area in which groundwater discharge takes place or impoundment is located.

4. The Operation of a Mine: N/A [ ]
Maximum Area to be Deep Mined _____ Acres

5. An Erosion and Sedimentation Control Plan [X]
Project Area is 15.9 Acres

F. THIS APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS

1. ALL CONSTRUCTION, OPERATIONS, PROCEDURES AND DISCHARGE SHALL BE IN ACCORDANCE WITH APPLICATION NO. 4680423 DATED 6/13/80 ITS SUPPORTING DOCUMENTATION, AND AMENDMENTS DATED _____ SUCH APPLICATION, ITS SUPPORTING DOCUMENTATION AND AMENDMENTS ARE HEREBY MADE A PART OF THIS PERMIT.

2. CONDITIONS NUMBERED 1 thru 9, 11 thru 14, 21, 22, 30 and 31 OF THE Sewerage STANDARD CONDITIONS DATED 1972 AND CONDITIONS NUMBERED 1 thru 20 OF THE EROSION CONTROL STANDARD CONDITIONS DATED 1973 WHICH CONDITIONS ARE ATTACHED AND MADE PART OF THIS PERMIT.

3. SPECIAL CONDITIONS DESIGNATED _____ WHICH ARE ATTACHED AND ARE MADE A PART OF THIS PERMIT.

This permit must be recorded in the Recorder of Deeds Office in Montgomery County.

G. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. IF THERE IS A CONFLICT BETWEEN THE APPLICATION ON ITS SUPPORTING DOCUMENTS AND AMENDMENTS AND THE STANDARD OR SPECIAL CONDITIONS, THE STANDARD OR SPECIAL CONDITIONS SHALL APPLY.

2. FAILURE TO COMPLY WITH THE RULES AND REGULATIONS OF THE DEPARTMENT OR WITH THE TERMS OR CONDITIONS OF THIS PERMIT SHALL VOID THE AUTHORITY GIVEN TO THE PERMITTEE BY THE ISSUANCE OF THE PERMIT.

3. THIS PERMIT IS ISSUED PURSUANT TO THE CLEAN STREAMS LAW, ACT OF JUNE 22, 1937, P.L. 1987 AS AMENDED 35 P.S. § 691.1 ET SEQ. AND/OR THE WATER OBSTRUCTION ACT, ACT OF JUNE 25, 1913, P.L. 555 AS AMENDED 32 P.S. § 681 ET SEQ. ISSUANCE OF THIS PERMIT SHALL NOT RELIEVE THE PERMITTEE OF ANY RESPONSIBILITY UNDER ANY OTHER LAW

PERMIT ISSUED
DATE 8-18-80

DEPARTMENT OF ENVIRONMENTAL RESOURCES
BY C. T. Beechwood
C. T. Beechwood, P.E.
TITLE Regional Water Quality Manager

4K83

REGIONAL OFFICE

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
Norristown, PA 19401
215 631-2405

August 18, 1980

Upper Gwynedd Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: H. Warren Dimmig
Chairman

Re: Sewerage Permit No. 4680423
Dintenfass Estate
Towamencin Township
Montgomery County

Gentlemen:

Above referenced permit is enclosed.

Please study the permit carefully and direct any questions to the Facilities Section of this office.

To become operative this permit must be recorded in the Office of the Recorder of Deeds in the county in which the discharge is located. Enclosed is a certificate and pre-addressed envelope for this purpose. Please have the Recorder of Deeds accomplish the certificate and return it within ten (10) days.

Very truly yours,

C.T. Beechwood, P.E.
Regional Water Quality Manager

CTB:GN:jp

Enlosures: Permit
Standard Conditions Relating to Sewerage
Standard Conditions Relating to Erosion Control
Recorder of Deeds Certificate with envelope
Notary Public Certificate

cc: Boucher and James, Inc.
Ce Re 30 4K82

ER-BWQ-68 Rev. 4-73

Upper Gwynedd Towamencin Municipal Authority
2225 Kriebel Road
lansdale, PA 19446

Sewerage Permit No. 4680423

Towamencin Township
Montgomery County

Commonwealth of Pennsylvania
Department of Environmental Resources

RECORDER OF DEEDS CERTIFICATE

I hereby certify that on 8-22-80 (Date)

there was recorded in Book Deed 4553

page 586 the sewerage permit issued

to Towamencin Twp

bearing date of 8-18-80

Mary Porretti
Recorder of Deeds for

Montgomery County

ER-BWQ-69 Rev. 1/78

and duly acknowledged the foregoing permit to be his act and deed and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year aforesaid.

STATE OF PENNSYLVANIA
COUNTY OF MONTGOMERY } SS

On the 18th day of August in the year one thousand nine hundred and eighty before me, the Subscriber, a Notary Public, came the above named C. T. Beechwood.

and duly acknowledged the foregoing permit to be his act and deed and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year aforesaid.

Kilbur P. Stender
NOTARY PUBLIC

WILBUR P. STENDER, Notary Public
Norristown Boro, Montg. Co.
My Commission Expires Nov. 2, 1981

Towamencin Township
Montgomery County

Commonwealth of Pennsylvania
Department of Environmental Resources

ER-BWQ-69 Rev. 4-79

Upper Gwynedd Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

1875 New Hope Street
Norristown, Pennsylvania 19401
215 631-2402

July 8, 1980

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Kulpsville, PA 19443

Attention: Mr. H. Warren Dimmig
Chairman

Re: Application No. 4680423
Towamencin Township
Montgomery County

Gentlemen:

This will acknowledge receipt of your application on June 20, 1980 for approval to construct a sewer extension to serve the Dintenfass Estate in Towamencin Township, Montgomery County.

The material submitted is accepted for technical review and has been assigned to Greg Newell (631-2411) of our staff.

You are reminded that any proposed facilities cannot be constructed without first obtaining the required permits.

Applications are normally processed within sixty (60) days. If you have not received notification of the action taken within this period, feel free to contact me for information concerning the status of the review.

Very truly yours,

Leon T. Gonshor
Regional Director

cc: Program Services
Facilities
Mr. Thomas E. James, Jr., P.E.
Re 4A73

EPR-1: Rev. 7/77

Form No. 1

Application Nos: 468042

SUBJECT: SEWERAGE CONTACT: UPPER GWYNEDD-TOWAMENCIN MUNICIPAL AUTHORITY

Towamencin Twp. 2225 KRIEBEL ROAD

MONTGOMERY COUNTY KULPSVILLE, PA. 19443

APPL: 855-3686 ENGR: 525-6200

New Proposal	X
Revised Proposal	

FROM: Regional Director L. GONSHOR

R. HINKLE 7/9/80

On 6-20-80, we received an application for plan approval and/or permit to construct a sewer extension. The proposed installation involves:

SS EXT TO SERVE the Duntenfass Estate

IN Towamencin Twp, MONTGOMERY COUNTY

SEWAGE TO Upper Gwynedd-Towamencin STP

Permit Coordination Requirements:

None

	No Permit Required	No Permit Required Prior Approval Required	Permit Required Application on Hand	Permit Required Application Needed
Air Quality				
Water Quality Letter 537 j.s.c	✓		6/27/80	
Land Protection	✓			
Community Env. Control	✓			
Occupational Health	—			
Surface Mine Reclamation	✓			
Radiological Health	✓			
PWM	✓			

Please indicate your interest on this form and return to the Director by 6/27/80

R-EPR-1: Rev. 7/77 Form No. 1 Application Nos.: 468042

SUBJECT: SEWERAGE CONTACT: UPPER GWYNEDD-TOWAMENCIN MUNICIPAL AUTHORITY

Towamencin Twp. 2225 KRIEBEL ROAD

MONTGOMERY COUNTY KULPSVILLE, PA. 19443

APPL: 855-3686 ENGR: 525-6200

New Proposal	X
Revised Proposal	

TO: Regional Director L. CONSHOR

FROM: R. HINKLE

On 6-20-80, we received an application for plan approval and/or permit to construct a sewer extension. The proposed installation involves:

SS EXT TO SERVE the Dintenfass Estate

IN Towamencin Twp, MONTGOMERY COUNTY

SEWAGE TO Upper Gwynedd-Towamencin STP

Permit Coordination Requirements:

	No Permit Required	No Permit Required Prior Approval Required	Permit Required Application on Hand	Permit Required Application Needed
Air Quality				
Water Quality			6/27/80	
Land Protection ✓	✓ N.H.			
Community Env. Control				
Occupational Health				
Surface Mine Reclamation				
Radiological Health				

Please indicate your interest on this form and return to the Director by 6/27/80

ER – EP

START

DEPARTMENT OF ENVIRONMENTAL RESOURCES

ENVIRONMENTAL PROTECTION

BUREAU / PROGRAM Water Quality Management

DIVISION

COUNTY / MUNICIPALITY 46 949

PROGRAM Sew

START

CASE NAME Upper Gwynedd Towamencin Municipal Authority

FILE P

BUREAU / PROGRAM Water Quality Management

DIVISION

COUNTY / MUNICIPALITY 46 949

PROGRAM Sew

CASE NAME Upper Gwynedd Towamencin Municipal Authority

FILE P

PERMIT NO. 4680447 Dock Woods

Department of Environmental Resources

1875 New Hope Street
Norristown, PA 19401
215 631-2426

December 17, 1980

Towamencin Township Board of Supervisors
1655 Sumneytown Pike
Lansdale, PA 19443

Attention: Mr. Carlo Capelli
Municipal Secretary

Re: Dock Woods Community
1-46949-029-4
Towamencin Township
Montgomery County

Gentlemen:

Please be advised that a review has been made and completed of the above referenced Planning Module for Land Development.

This supplement to the Towamencin Township Official Sewage Facilities Plan meets the requirements of Chapter 71, Section 71.16 of the Pennsylvania Department of Environmental Resources Rules and Regulations.

Approval is hereby granted; and in accordance with this Chapter, the Department holds Towamencin Township responsible for implementing this supplement as per the approved module.

This approval provides for adequate Sewage Facilities planning to permit the development of four institutional buildings on 71.8 acres located at the site of the Christopher Dock Mennonite High School Subdivision. Sewage will be treated at the Upper Gwynedd/Towamencin Municipal Authority Sewage Treatment Plant.

This planning approval does not relieve the project sponsor of the responsibility to secure a Department permit for the construction and operation of the proposed facility.

If you have any questions, please feel free to contact this office.

Very truly yours,

Glenn K. Stinson
Sewage Facilities Consultant
Norristown

cc: Mr. Clifford T. Stout, P.E.
MAIS
Ce Re 30 J1793

ENVIRONMENTAL PROTECTION

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
416 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

December 30, 1980

RECEIVED
DEC 31 1980
[illegible]
[illegible]
OFFICE

Commonwealth of Pennsylvania
Department of Environmental Resources
Region I, 1875 New Hope Street
Norristown, Pennsylvania 19401

Attention: Richard Hinkle, Chief of Facilities Section

Re: Dock Manor/Dock Village
Detwiler Road
Towamencin Township, Montgomery County

Dear Mr. Hinkle:

Application is hereby made to extend public gravity sanitary sewer facilities of the Upper Gwynedd-Towamencin Municipal Authority Sewer System.

Said extension is planned to serve two (2) simultaneously-constructed adjacent projects being undertaken by Dock Woods Community, a division of Hatfield Mennonite Homes, Inc. The projects are (1) Dock Manor, Inc., a 100-unit single-building apartment complex for elderly residents and (2) Dock Village, Inc., a federally-subsidized family community consisting of 10 garden-apartment type buildings (totalling 100 units) and a community center. Since these two (2) projects are interconnected and being developed by the same institutional organization, would you please treat them as a single entity, not distinct projects.

Included herewith are the following:

(1) Sewerage Permit Application, as completed by the Upper Gwynedd-Towamencin Municipal Authority

(2) A filing fee check for $100.00

(3) Two sets of design plans (I have also included the subdivision plan for the entire tract so that you may see how the two projects interrelate - refer to Lots #1 and #2.)

HERBERT H. METZ, INC.

Commonwealth of Pennsylvania

-2- December 30, 1980

(4) Two sets of the following supporting materials

a. Stormwater Management Reports for both Dock Manor and Dock Village

b. Erosion and Sediment Control Narrative

Application is simultaneously being made to the Montgomery County Soil Conservation Service for erosion and sediment control approval.

If you should have any questions or comments, please do not hesitate to call.

Very truly yours,

Clifford T. Stout, P.E.

CTS/jdk
Enclosures
cc: Montgomery County Soil Conservation Service
Mr. Edward Brzostek, District Conservationist

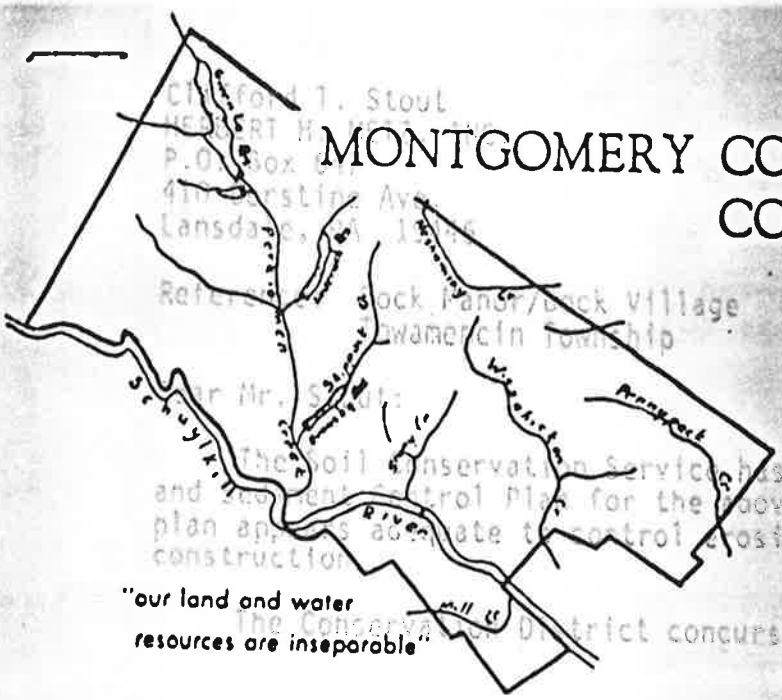
Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
215 DIRSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

December 30, 1980

Commonwealth of Pennsylvania
Department of Environmental Resources
Region 1, 1875 New Hope Street
Norristown, Pennsylvania 19401

Attn: Chief, Facilities Section

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647



MONTGOMERY COUNTY CONSERVATION DISTRICT

4th Floor — One Montgomery Plaza
Court House, Norristown, PA 19404
Phone: 278-3618

RECEIVED
FEB 4 1981
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

Janaury 7, 1981

Clifford T. Stout
HERBERT H. METZ, INC.
P.O. Box 647
410 Derstine Ave.
Lansdale, PA 19446

Reference: Dock Manor/Dock Village
Towamencin Township

Dear Mr. Stout:

The Soil Conservation Service has reviewed the revised Erosion and Sediment Control Plan for the above referenced development. The plan appears adequate to control erosion and sediment during and after construction.

The Conservation District concurs with the findings of the SCS.

Sincerely yours,

Maynard A. King
Executive Director

MAK/cp

Department of Environmental Resources
1875 New Hope Street
Norristown, Pennsylvania 19401
215 631-2402

January 16, 1981

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: Mr. H. Warren Dimmig
Chairman

Re: Application No. 4680447
Towamencin Township
Montgomery County

Gentlemen:

This will acknowledge receipt of your application on December 31, 1980 for approval to construct a sewer extension to serve the Dock Woods Community Subdivision in Towamencin Township, Montgomery County.

The material submitted is accepted for technical review and has been assigned to Marie Faherty, 631-2411, of our staff.

You are reminded that any proposed facilities cannot be constructed without first obtaining the required permits.

Applications are normally processed within sixty (60) days. If you have not received notification of the action taken within this period, feel free to contact me for information concerning the status of the review.

Very truly yours,

Leon T. Conshor
Regional Director

cc: Program Services
Facilities
Mr. Clifford T. Stout, P.E.
31436

RECEIVED
FEB 4
MONTGOMERY COUNTY
CONSERVATION DISTRICT

HATFIELD MENNONITE HOMES, INC.
TOWAMENCIN TOWNSHIP, MONTGOMERY COUNTY, PA

460447

NARRATIVE REPORT

EROSION AND SEDIMENTATION CONTROL PLANS

FOR

DOCK MANOR, INC. AND DOCK VILLAGE, INC.

FOR

DOCK WOOD COMMUNITY

HATFIELD MENNONITE HOMES, INC.

TOWAMENCIN TOWNSHIP, MONTGOMERY COUNTY, PA

MAY 1980

HERBERT H. METZ, INC.

MAY 1980

HERBERT H. METZ, INC.

1. GENERAL DESCRIPTION OF SITE LOCATION

The project site is a 26± acre tract (including both Dock Manor and Dock Village) of land situated in the Village of Kulpsville in Towamencin Township, Montgomery County.

The tract is bounded on the Northeast and Southeast by other lands of Dock Woods Community, on the Southwest by Detwiler Road, and on the Northwest by Gehman Road.

The planned development includes a 100-unit single-building elderly apartment complex and also 100 apartment units (federally subsidized) in 10 garden-type apartment buildings.

2. GENERAL DESCRIPTION OF STORM WATER COLLECTION AND CONTROL

The storm water collection and conveyance systems were designed using 10-year storm frequency criteria. Swale channels and storm sewers have been planned for placement at appropriate locations to accomodate surface runoff on the site.

Storm water detention basins have been designed to detain peak flows generated by a 10-year design storm.

3. GENERAL DESCRIPTION OF ACCELERATED EROSION CONTROL

As hereinafter described and as shown and noted on the Erosion and Sedimentation Control Plans, and in the following (Item #8) construction control stage sequence, the following erosion control procedures and devices shall be employed.

The driveways/parking areas shall be graded and crushed stone base course applied, and curbing placed as soon as possible to prevent erosion of the sub-grade. During street grading, filter berms shall be constructed at appropriate locations to minimize gullying and washing, and siltation on water courses and existing roadway.

Graded slopes and other critical disturbed areas shall be temporarily seeded following earth-moving procedures.

Areas not significant to the progression of construction of buildings and improvements and drainage controls shall be left undisturbed until lawn grading phase of finish construction.

4. GENERAL DESCRIPTION OF SEDIMENTATION CONTROL

Protection during construction will be provided by storm filter and straw bale filter berms, as well as detention basins with sediment trapping devices.

Straw bale filter inlets shall be employed during construction phases at appropriate locations.

Upon completion of construction, all temporary devices shall be removed and the remaining areas regraded and seeded or paved.

5. SANITARY SEWERAGE FACILITIES

Public sanitary sewerage facilities are proposed to serve this development, with planned gravity sanitary sewer extensions to connect and discharge into the existing Upper Gwynedd-Towamencin Municipal Authority Sanitary Sewer System via an existing 8" Ø gravity sewer at existing manhole #360 in Detwiler Road.

Collected sewage will be conveyed by the Authority system for treatment at the Upper Gwynedd-Towamencin Municipal Authority plant.

6. TOPOGRAPHIC AND GEOLOGIC FEATURES

The topography shown on the plans is based on actual physical ground surveys (not performed by this office), and elevation data is related to U.S.G.S. and Upper Gwynedd Township Authority datum on appropriate plan sheets. The soils information is taken from Soil Conservation Service and Montgomery County Soil Survey data and is indicated on the Erosion and Sedimentation Control Plans and supporting data.

7. HYDROLOGIC RUNOFF COMPUTATIONS

The Montgomery County Soil Conservation Service Erosion and Sedimentation Control Handbook and Soils Conservation Engineering Field Manual were used as references.

8. STAGING OF EARTHMOVING ACTIVITIES

a. Construct on-site detention basin facilities. Place applicable temporary sediment control devices as indicated on plan.

b. Place straw bale filter(s) as indicated.

c. Clear and grub driveways, parking areas, and building sites.

d. Available topsoil shall be removed and stockpiled for re-use in finish grading (downslope from construction area where feasible).

e. Temporarily seed all disturbed soil banks with rye grass. Per State law, all soil stockpiles that are to be left undisturbed longer than twenty (20) days shall be seeded promptly.

f. Rough grade drives, etc. to proposed sub-grade elevation gradient and cross-section.

g. Install remainder storm sewers and sanitary sewers and appurtenant structures. Install all undergound utilities. Direct surface runoff to completed storm drainage facilities.

h. Construct remainder of temporary sediment control facilities.

i. Construct buildings, fine grade streets and place stone base course.

j. Finish grade and establish permanent seeding as soon as possible thereafter, in building construction areas. Immediately following removal of temporary erosion and sedimentation control structures, grade and permanently seed these areas.

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1684

DEPT. OF ENVIRONMENTAL RESOURCES
BUREAU OF
WATER QUALITY MANAGEMENT
APPLICATION NO. 4680447 | PLANS REC'D. REGION 12-31-80
REPORTS
NO. OF VOLUMES 2 OF 3

STORMWATER MANAGEMENT REPORT

prepared for

DOCK VILLAGE, INC.

Detwiler Road @ Gehman Road

Towamencin Township

Montgomery County

Pennsylvania

DEPT. OF ENVIRONMENTAL RESOURCES
BUREAU OF
WATER QUALITY MANAGEMENT
APPLICATION NO. 4680447 | PLANS REC'D. REGION 12-31-80
REPORTS
NO. OF VOLUMES 2 OF 3

May 1980

RECEIVED
DEC 31 1980
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
CLIFFORD T. STOUT
ENGINEER
No. 25386-E

INTRODUCTION

Dock Village is a 15.2 (net) Acre Tract located at the intersection of Detwiler Road with Gehman Road.

Presently, the site exists as a fallow, farm field; the main crop having been corn, as evidenced by the short, trimmed stalks which have remained since the last harvest.

The gently rolling site is planned to accomodate eight (8) apartment buildings and two (2) townhouse buildings for a total of 100 units together with parking facilities and service areas. A recreational area and a Community Building are also to be provided. Natural wooded areas on this lot are to be preserved wherever possible and shall serve to enhance the pedestrian paths and associated facilities.

This design concept is presently being approved and construction shall be funded by the Pennsylvania Housing Finance Administration (PHFA).

A proposed Stormwater Management Facility in the form of a detention basin with constricted outflow pipe, at the Westernmost corner of the tract, serves to control the increased stormwater generated by the impervious areas created during development.

Criteria governing basin design must provide, as a minimum, adequate storage to detain the stormwater runoff volume for a 10-year design storm (calculated for "after-development" conditions) while outletting, as a maximum, the rate of runoff for a 10-year design storm (calculated for "before development" conditions).

An analysis of the Stormwater Management facility and requirements is presently in the pages that follow.

STORMWATER MANAGEMENT REPORT

prepared for

DOCK VILLAGE, INC.

Detwiler Road @ Gehman Road

Towamencin Township

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD E. STOUT
BARRY L. WEST
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
419 DERSTINE AVENUE
SANSDALE, PENNSYLVANIA

INTRODUCTION

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Presently, the site exists as a fallow, farm field; the main crop having been corn, as evidenced by the short, trimmed stalks which have remained since the last harvest.

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An analysis of the Stormwater Management facility and requirements is presently in the pages that follow.

I. TOTAL SITE "BEFORE DEVELOPMENT" CONDITIONS

A. A = 15.2 Acres (net Tract Area)

B. Type of ground cover

1. 11.5 Acres - uncultivated corn field

2. 3.7 Acres - woodland

C. Runoff coefficients

1. Uncultivated Cornfield: C = 0.50

2. Woodland: C = 0.30

D. Weighted Runoff Coefficient

$$C^* = \frac{(11.5)\ (0.50) + (3.7)\ (0.30)}{(11.5) + (3.7)} = 0.4513 \text{ use } 0.45$$

E. Time of Concentration: Approximately 15 minutes

F. Rainfall Intensity

$i_{10} = 4.5$ in/hr (10-yr. storm, 15 min. duration)

G. Expected stormwater runoff rate for a 10-year frequency design storm.

$$Q_{10} = C^* i A$$
$$= (0.45)\ (5.3)\ (15.2)$$
$$Q_{10} = 36.2 \text{ cfs}$$

Maximum allowable flow rate permitted to leave site for "after development" conditions must be equivalent to expected runoff for "before development" conditions.

II. TOTAL SITE "AFTER DEVELOPMENT" CONDITIONS

A. A = 15.2 Acres (net Tract Area)

B. Type of ground cover

1. 1.25 Acres - Buildings
2. 0.15 Acres - Concrete Sidewalks
3. 0.2 Acres - Macadam Walkway
4. 3.2 Acres - Macadam Drives and Parking Areas
5. 8.7 Acres - Lawn area with landscaping
6. 1.7 Acres - Woodland

C. Runoff Coefficients

1. Building: C = 1.00
2. Concrete Sidewalk: C = 0.95
3. Macadam Walkway: C = 0.85
4. Macadam Drive and Parking Area: C = 0.85
5. Lawn Area with Landscaping: C = 0.38
6. Woodland: C = 0.30

D. Weighted Runoff Coefficient

$$C^* = \frac{(1.25)(1.0)+(.15)(.95)+(.2)(.85)+(3.2)(.85)+(8.7)(.38)+1.7(.30)}{(1.25)+(.15)+(.2)+(3.2)+(8.7)+(1.7)}$$

$C^* = 0.5328$ use 0.54

E. Time of Concentration: approximately 12.5 minutes

F. Rainfall Intensity

$i_{10} = 5.0$ in/hr (10-yr. storm, 12.5 min. duration)

G. Expected stormwater runoff rate for a 10-year frequency design storm.

$Q_{10} = CIA$

$Q_{10} = (0.54)(5.0)(15.2)$

$= 41.1$ cfs

III. DETENTION FACILITY DESIGN

A. Upon a comparison of the results of Sect. I.G with Section II.G it can be seen that "After Development" conditions can be expected to generate a greater amount of runoff that "Before Development" (Existing) conditions.

Therefore, Detention of Stormwater is required.

B. Design Method: Refer to "Stormwater Basin Design for Small Drainage Areas", by William R. Baker, P.E., Public Works, March 1977.

C. Design Criteria: Provide for adequate storage volume to detain, as a minimum, the expected runoff for a 10-year design storm (under "After Development" conditions) - while outletting, as a maximum, no more runoff than was generated during a 10-year design storm (under "Before Development" conditions) (Refer to Section I.G.).

D. Method of Detention: To provide volume for storage by means of an earth basin with a restricted outflow rate ("undersized" outlet pipe) which casues a backwater condition (stormwater stored or detained) when increased amounts of runoff reach the basin area.

IV. CALCULATION OF RUNOFF RATE WHICH IS ALLOWED TO LEAVE SITE UNHINDERED (UNCONTROLLED)

A. A = 4.97 Acres (Site area not tributary to detention facility)

B. Type of ground cover

1. Concrete Sidewalk - 0.03 Acres
2. Macadam Walkway - 0.04 Acres
3. Macadam Drive and Parking Area - 1.06 Acres (including Recr. Are
4. Lawn Area with landscaping - 2.77 Acres
5. Woodland - 1.07 acres

C. Runoff Coefficients

1. Concrete Sidewalk: C = 0.95
2. Macadam Walkway: C = 0.85
3. Macadam Parking Area: C = 0.85
4. Lawn Area with landscaping: C = 0.38
5. Woodland: C = 0.30

D. Weighted Runoff Coefficient

$$C^* = \frac{(0.03)(0.95)+(0.04)(0.85)+(1.06)(0.85)+(2.77)(0.38)+(1.07)(0.30)}{(0.03)+(0.04)+(1.06)+(2.77)+(1.07)}$$

$C^* = 0.4702$ use 0.47

E. Time of Concentration: Approximately 10 minutes

F. Rainfall Intensity

i_{10} - 5.3 in/hr (10 yr. storm, 10-min. duration)

G. Expected stormwater runoff rate (for a 10-year frequency design storm) allowed to leave site unhindered.

$Q_{10} = C\ I\ A$
$Q_{10} = (0.47)(5.3)(4.97)$
$Q_{10} = 12.4$ cfs

III. DETENTION FACILITY DESIGN

V. MAXIMUM TOTAL ALLOWABLE FLOW RATE PERMITTED TO LEAVE SITE - RUNOFF RATE WHICH IS ALLOWED TO LEAVE SITE UNHINDERED - MAXIMUM RUNOFF RATE WHICH MAY BE OUTLETTED FROM DETENTION FACILITY

36.2 cfs (Refer to Section I.G)
-12.4 cfs (Refer to Section IV.G)
23.8 cfs

Maximum runoff rate allowed to be outletted from proposed detention facility.

VI. BASIN STATISTICS

A. Outlet Pipe: 80 L.F. 15" ø with Type "DW" Endwall

1. Outlet flow rate varies with the height of water and is controlled by the amount of water which can enter the pipe at the endwall.

2. Outlet flow rate can be computed for any water height using the "orifice equation": $Q = CA\sqrt{2gH}$ where C = 0.6 (approximate orifice constant), A = cross-sectional area of orifice (15" ø = 1.23 sq. ft.), g = gravity (32 ft. per sec, per sec), H = height (ft.) from the centerline of outflow pipe.

3. Maximum expected outflow rate based on proposed highwater elevation:

a.) 285.5 - 279.85 = 5.65 (Maximum headwater depth)

b.) H = Maximum headwater depth - (pipe dia./2) =

$$5.65 - \frac{1.25}{2} = 5.03 \text{ ft.}$$

c.) $Q = CA\sqrt{2gH}$

$$= (0.6)\ (1.23)\ \sqrt{2\ (32.2)\ (5.03)}$$

Q = 13.3 cfs (less than maximum allowable flow rate)

d.) Tabulation of Outflow Rate vs Elevation vs H

Elevation (Ft.)	Headwater Depth (Ft.)	H	Outflow Rate Through Orifice (C.F.S)
279.85	0	0	0
280.00	.15	0	0
280.25	.40	0	0
280.50	.65	.03	1.03
280.75	.90	.28	3.13
281.00	1.15	.53	4.31
281.25	1.40	.78	5.23
281.50	1.65	1.03	6.01
281.75	1.90	1.28	6.70
282.00	2.15	1.53	7.33
282.25	2.40	1.78	7.90
282.50	2.65	2.03	8.44
282.75	2.90	2.28	8.94
283.00	3.15	2.53	9.42
283.25	3.40	2.78	9.87
283.50	3.65	3.03	10.31
283.75	3.90	3.28	10.73
284.00	4.15	3.53	11.13
284.25	4.40	3.78	11.51
284.50	4.65	4.03	11.89
284.75	4.90	4.28	12.25
285.00	5.15	4.53	12.61
285.25	5.40	4.78	12.95
285.50	5.65	5.03	13.28

B. Detention area

1. Proposed Invert Elevation: 279.85

2. Proposed Highwater Elevation: 285.5

3. Proposed Top of Berm Elevation: 286.0

4. Maximum Volume of Storage Provided (to Elevation: 285.50) = 34,850± cubic feet.

5. Tabulation of Storage Provided vs. Elevation (above pipe invert) vs. H

Elevation (Ft.)	Headwater Depth (Ft.)	H	Basin Storage Provided (Cu. Ft.)
279.85	0	0	0
280.00	.15	0	35
280.25	.40	0	75
280.50	.65	.03	150
280.75	.90	.28	350
281.00	1.15	.53	650
281.25	1.40	.78	950
281.50	1.65	1.03	1500
281.75	1.90	1.28	2200
282.00	2.15	1.53	3025
282.25	2.40	1.78	4000
282.50	2.65	2.03	5100
282.75	2.90	2.28	6550
283.00	3.15	2.53	7900
283.25	3.40	2.78	9600
283.50	3.65	3.03	11400
283.75	3.90	3.28	13600
284.00	4.15	3.53	15850
284.25	4.40	3.78	18500
284.50	4.65	4.03	21300
284.75	4.90	4.28	24500
285.00	5.15	4.53	27550
285.25	5.40	4.78	31000
285.50	5.65	5.03	34850

VII. CALCULATION OF INFLOW RATE INTO PROPOSED DETENTION FACILITY

A. A = 12.0 Acres (drainage area tributary to facility)

10.13 Acres through piping system (Refer to Storm Sewer design charts in appendix)

2.00 Acres overland flow

B. Type of ground cover

1. 1.25 Acres - Building
2. 0.12 Acres - Concrete sidewalk
3. 0.16 Acres - Macadam Walkway
4. 2.14 Acres - Macadam Drive and Parking Area
5. 6.05 Acres - lawn area with landscaping
6. 2.28 Acres - Woodland

C. Runoff Coefficients

1. Building: C = 1.00
2. Concrete Sidewalk: C = 0.95
3. Macadam Walkway: C = 0.85
4. Macadam Parking Area: C = 0.85
5. Lawn area with landscaping: C = 0.38
6. Woodland: C = 0.30

D. Weighted Runoff Coefficent

$$C^* = \frac{(1.25)(1.0)+(0.12)(.95)+(0.16)(.85)+(2.14)(.85)+(6.05)(.38)+2.28(}{(1.25)+(.12)+(.16)+(2.14)+(6.05)+(2.28)}$$

$C^* = .5252$ use 0.53

E. Time of Concentration - approximately 12.5 minutes

F. Rainfall intensities for various durations of a 10-year design storm.

12.5	minute	(750 sec.)	duration:	i_{10} = 5.05	inches per hour
15	minute	(900 sec.)	duration:	i_{10} = 4.5	inches per hour
20	minute	(1200 sec.)	duration:	i_{10} = 3.8	inches per hour
25	minute	(1500 sec.)	duration:	i_{10} = 3.5	inches per hour
30	minute	(1800 sec.)	duration:	i_{10} = 3.1	inches per hour
60	minute	(3600 sec.)	duration:	i_{10} = 2.0	inches per hour

G. Expected stormwater inflow rate (into detention facility) for various durations of a 10-year frequency design storm.

$$Q_{10} = C*i_{10}A$$

12.5 minute (750 sec.) duration: $Q_{10} = (0.53)\ (5.05)\ (12.0)$
$= 32.12$
Use 32.2 CFS

15 minute (900 sec.) duration: $Q_{10} = (0.53)\ (4.5)\ (12.0)$
$= 28.62$
Use 28.7 CFS

20 minute (1200 sec.) duration: $Q_{10} = (0.53)\ (3.8)\ (12.0)$
$= 24.17$
Use 24.2 CFS

25 minute (1500 sec.) duration: $Q_{10} = (0.53)\ (3.5)\ (12.0)$
$= 22.26$
Use 22.3 CFS

30 minute (1800 sec.) duration: $Q_{10} = (0.53)\ (3.1)\ (12.0)$
$= 19.72$
Use 19.8 CFS

60 minute (3600 sec.) duration: $Q_{10} = (0.53)\ (2.0)\ (12.0)$
$= 12.72$
Use 12.8 CFS

H. Reservior Routing Computations (using prescribed design method) have been completed and are enclosed in the appendix. Results have been tabulated and are shown on the following pages.

INFLOW-OUTFLOW TABULATION

Storm Duration Min.	(Sec.)	Inflow into Detention Basin (C.F.S.)	Calculated Out-Flow from Detention Basin (C.F.S.)	Permitted Out-Flow from Detention Basin (C.F.S.)	Unhindered Flow from Site (C.F.S.)	Total Calculated Flow from Site (C.F.S.)
12.5	750	32.2	10.7	23.8	12.4	23.1
15	900	28.7	10.8	23.8	12.4	23.2
20	1200	24.2	11.0	23.8	12.4	23.4
25	1500	22.3	11.2* Peak	23.8	12.4	23.6
30	1800	19.8	11.2	23.8	12.4	23.6
60	3600	12.8	10.5	23.8	12.4	22.9
25	1500	32.5	12.8	23.8	12.4	25.2
25	1500	35.0	13.0	23.8	12.4	25.4

various durations of a 10-year frequency design storm.

$$Q_{10} = C * i_{10} A$$

12.5 minute (750 sec.) duration: $Q_{10} = (0.53)\ (5.05)\ (12.0)$
$= 32.12$
Use 32.2 CFS

15 minute (900 sec.) duration: $Q_{10} = (0.53)\ (4.5)$

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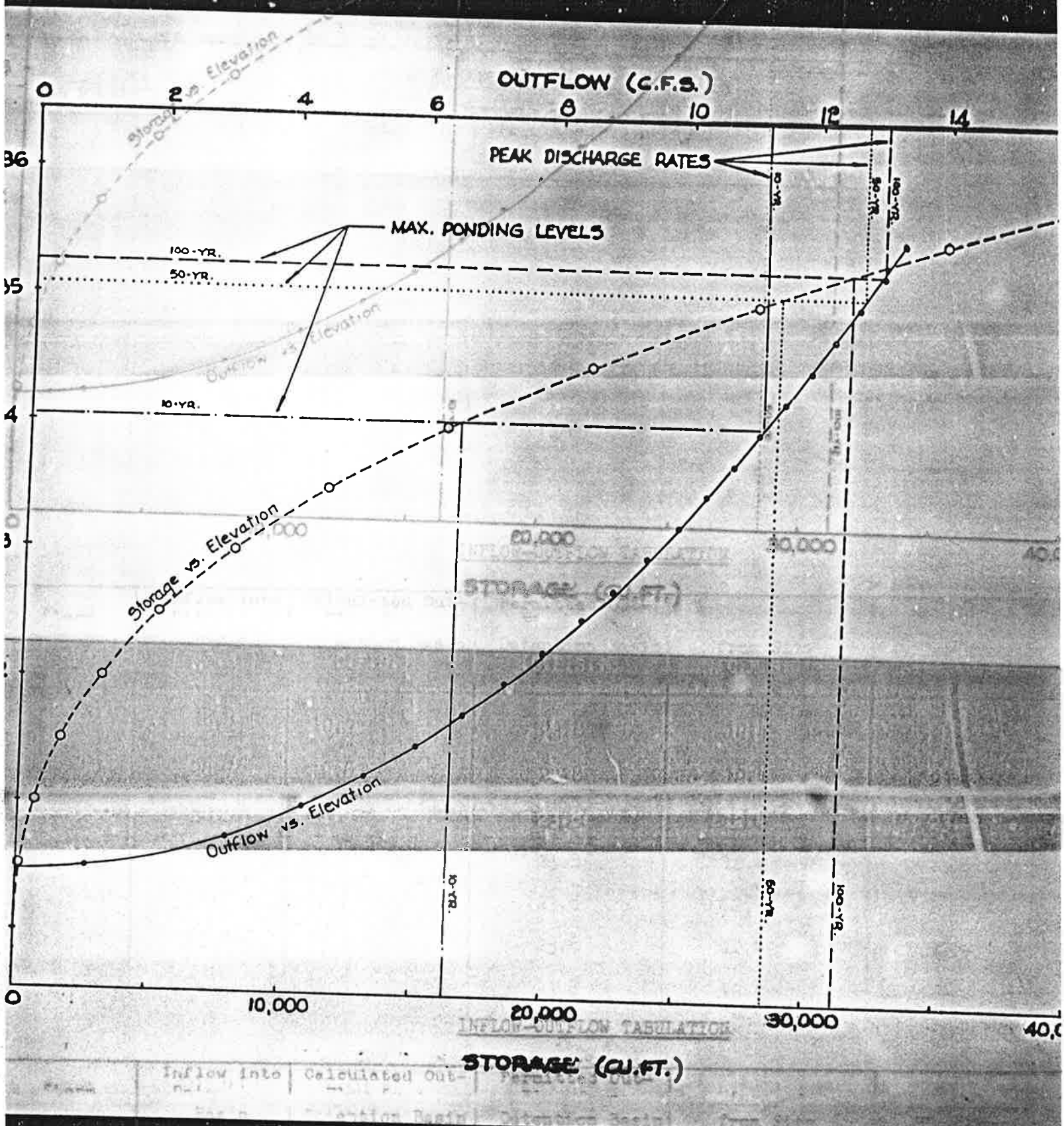

OUTFLOW (C.F.S.)
0
2
4
6
8
10
12
14
PEAK DISCHARGE RATES
10-YR.
50-YR.
100-YR.
MAX. PONDING LEVELS
100-YR.
50-YR.
10-YR.
Storage vs. Elevation
Outflow vs. Elevation
10,000
20,000
30,000
STORAGE (CU.FT.)

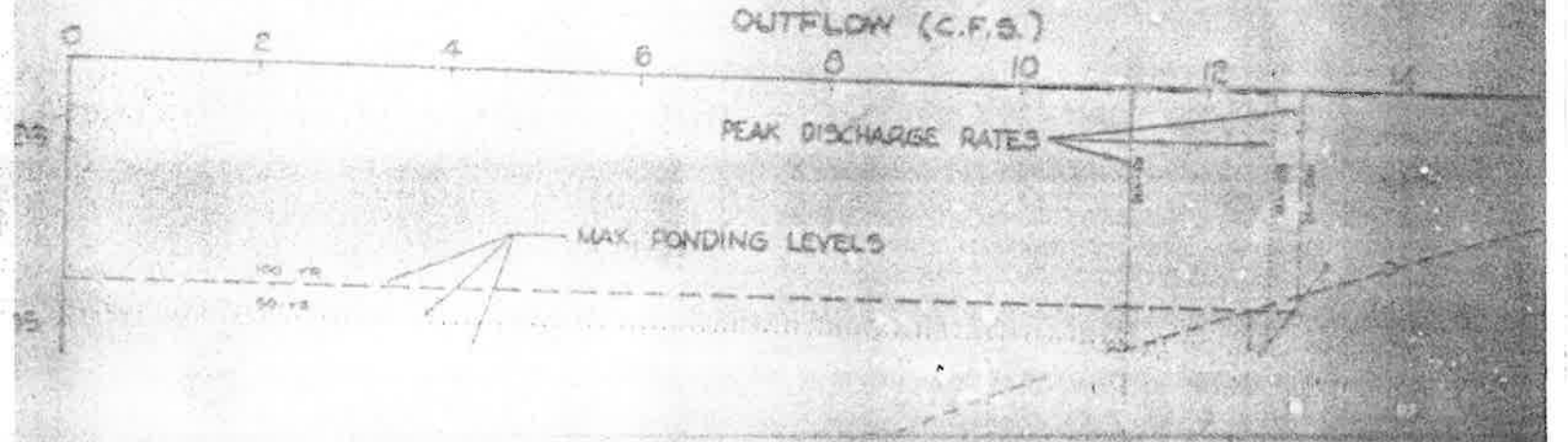
CONCLUSIONS

Upon examination of the preceding tabulation and figures, it is evident that the proposed detention facility not only satisfies the minimum stormwater management criteria (established by Towamencin Township) but in every case exceeds those standards.

The facility is expected to provide a thirty-five per cent (35%) decrease in runoff for the total site, after development, for a peak duration, 10-year design storm.

In addition, for a peak duration, 50-year design storm, after development runoff is expected to be thirty per cent (30%) less than before development runoff for a 10-year design storm.

A similar result is expected for 100-year after development runoff - a calculated decrease of twenty-nine per cent (29%) from 10-year, before development conditions.



APPENDIX

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CONCLUSIONS

Upon examination of the preceding tabulation and figures, it is evident that the proposed detention facility not only satisfies the minimum stormwater management criteria (established by Towamencin Township) but in every case exceeds those standards.

The facility is expected to provide a thirty-five per cent (35%) decrease in runoff for the total site, after development, for a peak duration, 10-year design storm.

In addition, for a peak duration, 10-year design storm, the facility is expected to be thirty per cent (30%) less than the pre-development runoff for a 10-year design storm.

C_o = AC (Contrib Surface Flow between Inlets)
C_B = AC (Bypassing Flow From Previous Inlet)
C_i = AC (Entering Inlet)
C = Runoff Factor

COMPUTATION TABLE - STORM SEWER DESIGN

SHEET NO ____ OF ____ BY ____
CHKD BY ____

		DRAINAGE AREA					TIME		RAIN FALL INTENSITY	DISCHARGE	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS N VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL	
	C	AAC_C	AAC_B	$AAC_C + AAC_B$	AAC	EAC	ΔT	ΣT	I	Q								
		ACRES	ACRES	ACRES	ACRES	ACRES	MIN.	MIN.	IN/HR	C.F.S.	FEET	%			IN.	F.P.S.	C.F.S.	
F WATER	FLOW	—	BLDGS. #8, #9 #10															
3	1.0	0.38	-	0.38		0.38	<5											
	0.45	0.48	-	0.48	0.48				6.5	2.5	← DIRECT TRANSMISSION TO INLET B7							
						0.86	9.5		5.45	2.6								
								9.5	5.45	4.7	157	0.0051	C.M.P.	0.013	15"	4.0	5.0	TY
WATER	FLOW	—	BLDG. #7															
	1.0	0.12	-	0.12		0.12	<5											
	0.58	0.74	-	0.74	0.74				6.5	0.8	← DIRECT TRANSMISSION TO INLET B6							
						1.72	6		6.3	4.7								
								10.0	5.3	9.1	218	0.0050	C.M.P.	0.016	21"	5.8	9.1	TY
WATER	FLOW	—	BLDG. #6															
	1.0	0.14	-	0.14		0.14	<5											
	0.42	0.67	-	0.67	0.67				6.5	0.9	← DIRECT TRANSMISSION TO INLET B5							
							10.0		5.3	3.6								
						2.53		11.0	5.2	13.2	184	0.0058	C.M.P.	0.017	27"	4.9	17.1	TYP
WATER	FLOW	—	BLDG. #5															
	1.0	0.14	-	0.14		0.14	<5											
	0.44	0.40	-	0.40	0.40				6.5	0.9	← DIRECT TRANSMISSION TO INLET B4							
							9		5.6	2.3								
						3.07		11.5	5.1	15.7	266	0.0051	C.M.P.	0.017	27"	4.9	16.9	TYPE

1. SUMP CONDITION

AC (Contrib Surface Flow between Inlets)
AC (Bypassing Flow From Previous Inlet)
AC (Entering Inlet)
Runoff Factor

COMPUTATION TABLE - STORM SEWER DESIGN

SHEET NO ____ OF ____ BY ____
CHKD BY ____

	DRAINAGE AREA					TIME										
	AAC_c	AAC_b	AAC_p or AAC_s	AAC	EAC	ΔT	ET	Ratio Full Inlet Size	Grd. Change	Length of Pipe	Slope of Pipe	Type of Pipe	Manning's n Value	Size of Pipe	Mean Velocity	Pipe Capacity Flowing Full	R
	ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN HR	C F S	FEET	FT/FT			IN	F P S	C F S	
0.44	0.30	0.01	0.31	0.31		<5											
					0.31		<5	6.5	2.0	20	0.0700	C.M.P.	0.012	15"	9.0	18.5	"DW"
ER	FLOW	—	BLDG. #3														
.0	0.14	-	0.14		0.14	<5		6.5	0.9	← DIRECT TRANSMISSION TO INLET						83.2	
.45	0.66	-	0.66	0.40	0.85	0.5		5.45	4.6								
							0.5	5.45	4.6	18	0.0222	C.M.P.	0.012	15"	8.5	10.4	4 FT.
68	0.21	-	0.21	0.18		5		6.5	0.9								
					1.03		9.5	5.45	5.6	85	0.0235	C.M.P.	0.012	5	9.0	10.7	4 FT.

Ca = AC (Contrib Surface Flow between Inlets)
Cb = AC (Bypassing Flow From Previous Inlet)
Cc = AC (Entering Inlet)
R = Runoff Factor

COMPUTATION TABLE - STORM SEWER DESIGN

0.85	0.06	-	0.06	0.06		<5		6.5	0.4									
					4.21		12.5	5.05	24.8	48	0.0052	CMPA	0.019	42"x29"	5.0	28.6		4 FT
										OUTLET THROUGH DW ENDWALL TO STORMWATER MANAGEMENT FACILITY								

- AC (Contrib Surface Flow between Inlets)
- AC (Bypassing Flow From Previous Inlet)
- AC (Entering Inlet)
- Runoff Factor

COMPUTATION TABLE - STORM SEWER DESIGN

SHEET NO ____ OF ____ BY ____

CHKD BY ____

	DRAINAGE AREA					TIME		RAINFALL INTENSITY	DISCHARGE	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS n VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL	
	AC_c	AC_B	$AC_D - AC_B$	AC	ΣAC	ΔT	ET		Q								
	ACRES	ACRES	ACRES	ACRES	ACRES	MIN.	MIN.	IN/HR	C.F.S.	FEET	FT/FT			INS.	F.P.S.	C.F.S.	
WATER	FLOW	—	BLDG	#4													
1.0	0.14	-	0.14		0.14	<5		6.5	0.9	←	DIRECT TRANSMISSION TO INLET B3						
0.56	0.34	0.27	0.61	0.61		<5		6.5	4.0								
					4.85		12.5	5.05	24.5	29	0.0086	C.M.P.	0.018	30"	6.0	23.5	TYP
0.85	0.06	-	0.06	0.06		<5		6.5	0.4								
					4.91		12.5	5.05	24.8	48	0.0052	CMPA	0.019	42"x29"	5.0	28.6	4 FT
										OUTLET THROUGH DW ENDWALL TO STORMWATER MANAGEMENT FACILITY							

1. SUMP CONDITION

= AC (Contrib Surface Flow between Inlets.)
= AC (Bypassing Flow From Previous Inlet).
= AC (Entering Inlet)
= Runoff Factor

COMPUTATION TABLE - STORM SEWER DESIGN

SHEET NO ____ OF ____ BY ____
CHKD BY ____

	DRAINAGE AREA					TIME		RAIN-FALL INTEN-SITY	DIS-CHARGE	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS n VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL	
	AAC_c	AAC_b	$AAC_c - AAC_b$	AAC	ΣAC	AT	ET	I	Q								
	ACRES	ACRES	ACRES	ACRES	ACRES			IN/HR	C.F.S.	FEET				IN	F.P.S.	C.F.S.	
WATER FROM BLDG. #1 & COMMUNITY BLDG.																	
1.0	0.11	-	0.11		0.11	<5		6.5	0.7	← DIRECT TRANSMISSION TO INLET C4							
0.56	0.56	-	0.56	0.36		6.5		6.15	2.2								
					0.47		6.5	6.15	2.9	134	0.0052	C.M.P.	0.012	15"	4.3	5.0	4
WATER FROM BLDG. #2																	
1.0	0.07	-	0.07		0.07	<5		6.5	0.5	← DIRECT TRANSMISSION TO INLET C3							
0.57	0.14	-	0.14	0.13		<5		6.5	0.9								
					0.67		7.0	6.05	4.1	82	0.0152	C.M.P.	0.012	15"	7.0	8.6	4
-	0	-	0	-													
					0.67		7.0	6.05	4.1	50	0.005	CMPA	0.10	21x15	4.1	6.4	JUN
										← OUTLET THROUGH DW ENDWALL TO STORMWATER MANAGEMENT FACILITY							

1. SUMP CONDITION

= AC (Contrib Surface Flow between Inlets.)
= AC (Bypassing Flow From Previous Inlet).
= AC (Entering Inlet)
= Runoff Factor

COMPUTATION TABLE - STORM SEWER DESIGN

INDICATES TOTAL AREA WHICH WILL EVENTUALLY BE TRIBUTARY TO INLET D2, GIVEN PROJECTED HORIZONTAL AND VERTICAL ROADWAY ALIGNMENT

ΔAC_o = AC (Contrib. Surface Flow between Inlets)
ΔAC_B = AC (Bypassing Flow From Previous Inlet)
ΔAC_i = AC (Entering Inlet)
C = Runoff Factor

COMPUTATION TABLE - STORM SEWER DESIGN

SHEET NO ____ OF ____

DRAINAGE AREA							TIME		RAIN-FALL INTEN-SITY	DIS-CHARGE	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS n VALUE	SIZE OF PIPE	MEAN VELOCITY	P. CAP. FLO F.
ΔA	C	ΔAC_o	ΔAC_B	$\Delta AC_o - \Delta AC_B$	ΔAC	ΣAC	Δt	Σt	I	Q							
ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN.	MIN.	IN/HR	C.F.S.	FEET	FT/FT			IN.	F.P.S.	C.F.S.
1.67	0.49	0.82	-	0.82	0.82		7.5		5.9	4.8							
						0.82		7.5	5.9	4.8	172	0.0116	C.M.P.	0.012	15"	6.6	7.1
7.0	0.40	2.80	-	2.80	2.80		10		5.3								
						3.62		10	5.3	19.2	45	0.0256	C.M.P.	0.016	21"	9.7	20.4

OUTLET THROUGH DW ENDWALL

INDICATES TOTAL AREA WHICH WILL EVENTUALLY BE TRIBUTARY TO INLET D2, GIVEN PROJECTED HORIZONTAL AND VERTICAL ROADWAY ALIGNMENT

1. SUMP CONDI

COMPUTATION TABLE - STORM SEWER DESIGN

Amended Appendix A-20-b
Page 895 of 1536

MAX. INFLOW RATE REACHED

TIME OF CONCENTRATION (SECS.)
DURATION OF STORM (SECS.)
PEAK INFLOW (C.F.S.)
(Occurs at time of concentration and lasts until duration of storm is reached)
TIME INTERVAL (SECS.) FOR COMPUTATION PURPOSES

AFTER 60 SECONDS
INFLOW RATE
OUTFLOW RATE

AFTER 750 SECONDS
(TIME OF CONCENTRATION)
MAX. INFLOW RATE REACHED

TIME OF CONCENTRATION (SECS.)
DURATION OF STORM (SECS.)
PEAK INFLOW (C.F.S.)
(Occurs at time of concentration and lasts until duration of storm is reached)
TIME INTERVAL (SECS.) FOR COMPUTATION PURPOSES

AFTER 60 SECONDS
INFLOW RATE
OUTFLOW RATE

PEAK OUTFLOW

420.0000	***
18.0320	***
6.7052	***
480.0000	***
20.6080	***
7.3403	***
540.0000	***
23.1840	***
7.8887	***
600.0000	***
25.7600	***
8.3274	***
660.0000	***
28.3360	***
8.7550	***
720.0000	***
30.9120	***
9.1666	***
780.0000	***
30.9120	***
9.5804	***
840.0000	***
28.3360	***
9.8833	***
900.0000	***
25.7600	***
10.1430	***
960.0000	***
23.1840	***
10.3403	***
1020.0000	***
20.6080	***
10.4736	***
1080.0000	***
18.0320	***
10.5721	***
1140.0000	***
15.4560	***
10.6361	***
1200.0000	***
12.8800	***
10.6776	***
1260.0000	***
10.5040	***
10.6878	***
1320.0000	***
7.7280	***
10.6634	***
1380.0000	***
5.1520	***
10.6225	***
1440.0000	***
2.5760	***
10.5460	***
1500.0000	***
0.0000	***
10.4465	***

750.0000	6666
750.0000	ENTI
32.2000	6666
60.0000	6666
	6666
60.0000	***
2.5760	***
0.2985	***
120.0000	***
5.1520	***
1.0346	***
180.0000	***
7.7280	***
3.2150	***
240.0000	***
10.3040	***
4.9226	***
300.0000	***
12.8800	***
5.3825	***
360.0000	***
15.4560	***
6.1741	***

CHKD. By.....DATE.....

10-YR. STORM, 15 MIN. DURATION

SHEET NO. 1.1430 OF.....

JOB NO.

600.0000 ***
22.5600 ***
7.5564 ***
660.0000 ***
25.2560 ***
8.4575 ***
720.0000 ***
27.5520 ***
9.3305 *** ← tc
780.0000 ***
28.7000 ***
9.2315 ***
840.0000 ***
28.7000 ***
9.5774 ***
900.0000 ***
28.7000 ***
9.6670 ***
PEAK OUTFLOW 960.0000 ***
26.4040 ***
10.1347 ***
1020.0000 ***
24.1000 ***
10.3420 ***
1080.0000 ***
21.8120 ***
10.4877 ***
1140.0000 ***
19.5160 ***
10.5335 ***
1200.0000 ***
17.2200 ***
10.5650 ***
1260.0000 ***
14.9240 ***
10.7442 ***
1320.0000 ***
12.6280 ***
10.7775 ***
1380.0000 ***
PEAK OUTFLOW 10.3320 ***
10.7650 ***
1440.0000 ***
8.0360 ***
10.7677 ***
1500.0000 ***
5.7400 ***
10.7250 ***
1560.0000 ***
3.4440 ***
10.6576 ***
1620.0000 ***
1.1480 ***
10.5656 ***
1680.0000 ***
8.0000 ***
10.4558 ***

750.0000 G3BE
900.0000 EN77
28.7000 G3BC
60.0000 G3BC
G3BE
60.0000 ***
2.2560 ***
0.2332 ***
120.0000 ***
4.5520 ***
1.4780 ***
180.0000 ***
6.8280 ***
2.3745 ***
240.0000 ***
8.1040 ***
4.4001 ***
300.0000 ***
11.4800 ***
5.0717 ***
360.0000 ***
12.7760 ***
5.9271 ***
420.0000 ***
10.8720 ***
6.4234 ***
480.0000 ***
10.3680 ***
7.5044 ***
540.0000 ***
20.6640 ***
7.5044 ***

CHKD. By.....DATE.....

SUBJECT

10-YR. STORM, 12.5 MIN. DURATION

SHEET NO. 1.1430

JOB NO.

BY.....DATE.....
CHKD. By.....DATE.....

SUBJECT....10-YR STORM & 20 MIN. DURATION

SHEET NO.....OF.....
JOB NO.....

			900.0000 ***
			24.2000 ***
			9.3412 ***
			960.0000 ***
			24.2000 ***
			9.5576 ***
			1020.0000 ***
			24.2000 ***
			9.8089 ***
			1080.0000 ***
			24.2000 ***
			10.0266 ***
			1140.0000 ***
			24.2000 ***
			10.2414 ***
		PEAK	1200.0000 ***
		OUTFLOW	24.2000 ***
			10.4136 ***
			1260.0000 ***
			22.2640 ***
			10.5545 ***
			1320.0000 ***
			20.3288 ***
			10.6727 ***
			1380.0000 ***
			18.3920 ***
			10.7682 ***
			1440.0000 ***
			16.4560 ***
			10.8414 ***
			1500.0000 ***
			14.5200 ***
			10.8925 ***
			1560.0000 ***
			12.5840 ***
			10.9217 ***
			1620.0000 ***
		PEAK	10.6480 ***
		OUTFLOW	10.9294 ***
			1680.0000 ***
			8.7120 ***
			10.9152 ***
			1740.0000 ***
			6.7760 ***
			10.8808 ***
			1800.0000 ***
			4.8400 ***
			10.8250 ***
			1860.0000 ***
			2.9040 ***
			10.7485 ***
			1920.0000 ***
			0.9680 ***
			10.6516 ***
			1980.0000 ***
750.0000	GSBB		
1200.0000	ENT1		
24.2000	GSBC		
60.0000	GSBD		
	GSBE		
60.0000	***		
1.9300	***		
8.1625	***		
120.0000	***		
3.8720	***		
1.2583	***		
180.0000	***		
5.8080	***		
2.4362	***		
240.0000	***		
7.7440	***		
3.6675	***		
300.0000	***		
9.6800	***	t_c →	
4.7052	***		
360.0000	***		
11.6160	***		
5.8730	***		
420.0000	***		
13.5520	***		
6.0522	***		
480.0000	***		
15.4880	***		
6.5188	***		
540.0000	***		
17.4240	***		
7.0218	***		
600.0000	***		
19.3600	***		
7.4988	***		
660.0000	***		
21.2960	***		
7.9022	***		
720.0000	***		
[illegible]	***		
8.3559	***	t_c →	
780.0000	***		
24.2000	***		
8.7833	***		
840.0000	***		

BY.....DATE.....
CHKD. By.....DATE.....

SUBJECT.....10-YR. STORM, 20 MIN. DURATION

SHEET NO.....OF.....
JOB NO.....

60.0000	***	1200.0000	***
1.7640	***	22.3000	***
0.1307	***	10.1210	***
120.0000	***	1260.0000	***
3.5280	***	22.3000	***
0.1307	***	10.3054	***
180.0000	***	1320.0000	***
5.2920	***	22.3000	***
0.2612	***	10.4385	***
240.0000	***	1380.0000	***
7.0560	***	22.3000	***
0.5644	***	10.5639	***
300.0000	***	1440.0000	*** PEAK
8.8200	***	22.3000	*** OUTFLOW
4.5587	***	10.6979	***
360.0000	***	1500.0000	***
10.7040	***	22.3000	***
5.1534	***	10.8255	***
420.0000	***	1560.0000	***
12.4880	***	20.5160	***
5.8827	***	10.9413	***
480.0000	***	1620.0000	***
14.2720	***	18.7320	***
6.3220	***	11.0373	***
540.0000	***	1680.0000	***
16.0560	***	16.9480	***
6.7736	***	11.1121	***
600.0000	***	1740.0000	***
17.8400	***	15.1640	***
7.2344	***	11.1575	***
660.0000	***	1800.0000	***
15.6240	***	13.3800	***
7.6852	***	11.1836	***
720.0000	***	1860.0000	***
21.4080	***	11.5960	***
8.0743	***	11.1945	*** PEAK OUTFLOW
780.0000	***	1920.0000	***
22.3000	***	5.8120	***
8.4852	***	11.1304	***
840.0000	***	1980.0000	***
22.3000	***	8.0120	***
8.7752	***	11.1715	***
900.0000	***	2040.0000	***
22.3000	***	6.2440	***
9.0544	***	11.1378	***
960.0000	***	2100.0000	***
22.3000	***	4.4800	***
9.3236	***	11.0767	***
1020.0000	***	2160.0000	***
22.3000	***	2.6760	***
9.5835	***	10.9942	***
1080.0000	***	2220.0000	***
22.3000	***	0.8920	***
9.7436	***	10.8525	***
1140.0000	***	2280.0000	***
22.3000	***	0.0000	***

BY.....DATE.....
CHKD. By.....DATE.....
SUBJECT 10-YR. STORM, 30 MIN. DURATION
SHEET NO.....OF.....
JOB NO.....

		360.0000	***
		5.5040	***
		4.8575	***
		420.0000	***
		11.0250	***
		5.4735	***
		480.0000	***
		12.8720	***
		6.0344	***
		540.0000	***
		14.2560	***
		6.4675	***
		600.0000	***
		15.8400	***
		6.9018	***
		660.0000	***
		17.4240	***
		7.3702	***
		720.0000	***
		19.0080	***
t_c →		7.7125	***
		780.0000	***
		19.8000	***
		8.0821	***
		840.0000	***
		19.8000	***
		8.4481	***
		900.0000	***
		19.8000	***
		8.8140	***
		960.0000	***
		19.8000	***
		8.8.50	***
		1020.0000	***
		19.8000	***
		9.1912	***
		1080.0000	***
		19.8000	***
		9.5627	***
		1140.0000	***
		19.8000	***
		9.9327	***
		1200.0000	***
		19.8000	***
		10.3027	***
		1260.0000	***
		19.8000	***
		10.6448	***
		1320.0000	***
		19.8000	***
		10.9868	***
		1380.0000	***
		19.8000	***
		11.3288	***
		1440.0000	***
		19.8000	***

		1500.0000	***
		19.8000	***
		10.4002	***
		1560.0000	***
		19.8000	***
		10.5035	***
		1620.0000	***
		19.8000	***
		10.6057	***
PEAK OUTFLOW →		1680.0000	***
		19.8000	***
		10.7066	***
		1740.0000	***
		19.8000	***
		10.8063	***
		1800.0000	***
		19.8000	***
		10.9057	***
		1860.0000	***
		18.2160	***
		10.3248	***
		1920.0000	***
		16.8320	***
		11.0655	***
		1980.0000	***
		15.0480	***
		11.1180	***
		2040.0000	***
		13.4540	***
		11.1470	***
		2100.0000	***
PEAK OUTFLOW →		11.8800	***
		11.1257	***
		2160.0000	***
		10.2560	***
		11.1551	***
		2220.0000	***
		8.7120	***
		11.1455	***
		2280.0000	***
		7.1280	***
		11.1148	***
		2340.0000	***
		5.5440	***
		11.0822	***
		2400.0000	***
		3.9600	***
		10.9527	***
		2460.0000	***
		2.3760	***
		10.9068	***
		2520.0000	***
		0.7920	***
		10.8643	***
		2580.0000	***
		0.0000	***

BY.....DATE.....
CHKD. By.....DATE.....
10-YR. STORM, 30 MIN. DURATION

BY.....DATE.....
CHKD. By.....DATE.....

SUBJECT 10-YR. STORM, 60 MIN. DURATION

SHEET NO.....OF.....
JOB NO.....

t_c

120.0000 ###
2.0000 ###
0.5120 ###
240.0000 ###
4.0000 ###
2.0575 ###
360.0000 ###
6.1440 ###
5.7874 ###
480.0000 ###
8.1920 ###
4.8302 ###
600.0000 ###
10.2400 ###
5.7747 ###
720.0000 ###
12.2880 ###
6.4438 ###
t_c
840.0000 ###
12.8000 ###
7.0460 ###
960.0000 ###
12.8000 ###
7.5093 ###
1080.0000 ###
12.8000 ###
7.8350 ###
1200.0000 ###
12.8000 ###
8.0467 ###
1320.0000 ###
12.8000 ###
8.4321 ###
1440.0000 ###
12.8000 ###
8.8123 ###
1560.0000 ###
12.8000 ###
8.7850 ###
1680.0000 ###
12.8000 ###
8.9548 ###
1800.0000 ###
12.8000 ###
9.1122 ###
1920.0000 ###
12.8000 ###
9.2572 ###
2040.0000 ###
12.8000 ###
9.4034 ###
2160.0000 ###
12.8000 ###

2280.0000 ###
12.8000 ###
9.6123 ###
2400.0000 ###
12.8000 ###
9.7087 ###
2520.0000 ###
12.8000 ###
9.8018 ###
2640.0000 ###
12.8000 ###
9.8917 ###
2760.0000 ###
12.8000 ###
9.9784 ###
2880.0000 ###
PEAK
OUTFLOW
12.8000 ###
10.0635 ###
3000.0000 ###
12.8000 ###
10.1461 ###
3120.0000 ###
12.8000 ###
10.2263 ###
3240.0000 ###
12.8000 ###
10.3043 ###
3360.0000 ###
12.8000 ###
10.3801 ###
3480.0000 ###
12.8000 ###
10.4538 ###
3600.0000 ###
12.8000 ###
10.5255 ###
3720.0000 ###
PEAK
OUTFLOW
10.5952 ###
3840.0000 ###
12.8000 ###
10.6630 ###
3960.0000 ###
12.8000 ###
10.7290 ###
4080.0000 ###
12.8000 ###
10.7933 ###
4200.0000 ###
12.8000 ###
10.8559 ###
4320.0000 ###
12.8000 ###
10.9170 ###
4440.0000 ###

BY.....DATE.....
CHKD. By.....DATE.....
P.A.....

SUBJECT 50-YR. STORM, 25 MIN. DURATION

SHEET NO.....OF.....
JOB NO.....

60.0000	444	1200.0000	444
2.0000	444	32.5000	444
0.5000	444	11.4103	444
120.0000	444	1260.0000	444
5.2000	444	32.5000	444
1.6483	444	11.5961	444
180.0000	444	1320.0000	444
7.8000	444	32.5000	444
2.2442	444	11.7603	444
240.0000	444	1380.0000	444
10.4000	444	32.5000	444
4.8961	444	11.9238	444
300.0000	444	1440.0000	444
13.0000	444	32.5000	444
5.4839	444	12.0874	444
360.0000	444	1500.0000	444
15.6000	444	32.5000	444
6.1914	444	12.2361	444
420.0000	444	1560.0000	444
18.2000	444	29.5000	444
6.7835	444	12.3939	444
480.0000	444	1620.0000	444
20.8000	444	27.5000	444
7.3610	444	12.4500	444
540.0000	444	1680.0000	444
23.4000	444	24.7500	444
7.8226	444	12.5443	444
600.0000	444	1740.0000	444
26.0000	444	22.1000	444
8.2788	444	12.6272	444
660.0000	444	1800.0000	444
28.6000	444	19.5000	444
8.6807	444	12.6822	444
720.0000	444	1860.0000	444
31.2000	444	16.9000	444
9.0330	444	12.6926	444
780.0000	444	1920.0000	444
33.8000	444	14.3000	444
9.3397	444	12.7035	444
840.0000	444	1980.0000	444
36.4000	444	14.7000	444
9.6035	444	12.7101	444
900.0000	444	2040.0000	444
39.0000	444	5.1000	444
10.2044	444	12.6974	444
960.0000	444	2100.0000	444
32.5000	444	5.7000	444
10.5510	444	12.6705	444
1020.0000	444	2160.0000	444
32.5000	444	3.2000	444
10.8643	444	12.6335	444
1080.0000	444	2220.0000	444
32.5000	444	1.3000	444
11.1583	444	12.5854	444
1140.0000	444	2280.0000	444
32.5000	444	0.0000	444

PEAK OUTFLOW

PEAK OUTFLOW

BY.....DATE.....
CHKD. By.....DATE.....

SUBJECT 100-YR STORM, 25 MIN. DURATION

CHICAGO

JOB NO.

60.0000	444	1200.0000	444
2.0000	444	35.0000	444
0.5455	444	11.0647	444
120.0000	444	1260.0000	444
5.0000	444	35.0000	444
1.7824	444	11.8591	444
180.0000	444	1320.0000	444
8.0000	444	35.0000	444
3.4870	444	12.0233	444
240.0000	444	1380.0000	444
11.0000	444	35.0000	444
4.8749	444	12.1822	444
300.0000	444	1440.0000	444
14.0000	444	35.0000	444
6.2612	444	12.3393	444
360.0000	444	1500.0000	444
16.0000	444	35.0000	444
7.6552	444	12.4954	444
420.0000	444	PEAK 1560.0000	444
19.0000	444	OUTFLOW 32.2000	444
8.9557	444	12.6246	444
480.0000	444	1620.0000	444
22.4000	444	35.4000	444
7.5222	444	12.7843	444
540.0000	444	1680.0000	444
25.2000	444	35.8000	444
8.0422	444	12.9322	444
600.0000	444	1740.0000	444
28.0000	444	35.8000	444
8.5540	444	13.0801	444
660.0000	444	1800.0000	444
30.8000	444	31.0000	444
8.9570	444	13.2334	444
720.0000	444	1860.0000	444
33.6000	444	16.2000	444
9.4231	444	13.3750	444
780.0000	444	1920.0000	444
35.0000	444	15.4000	444
9.8231	444	13.5260	444
840.0000	444	1980.0000	444
35.0000	444	PEAK 12.6000	444
10.2231	444	OUTFLOW 13.0015	444
900.0000	444	2040.0000	444
35.0000	444	3.0000	444
10.6231	444	13.6761	444
960.0000	444	2100.0000	444
35.0000	444	7.0000	444
11.0231	444	13.8264	444
1020.0000	444	2160.0000	444
35.0000	444	4.2000	444
11.4231	444	13.9767	444
1080.0000	444	2220.0000	444
35.0000	444	1.4000	444
11.8231	444	14.0768	444
1140.0000	444	2280.0000	444
35.0000	444	0.0000	444
11.2231	444	14.0768	444

BY.....DATE.....
CHKD. By.....DATE.....
SUBJECT 100-YR STORM, 25 MIN. DURATION

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P.O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

DEPT. OF ENVIRONMENTAL RESOURCES
BUREAU OF
WATER QUALITY MANAGEMENT
APPLICATION NO. 4680447 | PLANS REC'D. REGION 12-31-80
REPORTS
NO. OF VOLUMES 3 OF 3

STORMWATER MANAGEMENT REPORT

prepared for

DOCK MANOR, INC.

Detwiler Road

(Between Forty Foot Road and Gehman Road)

Towamencin Township

Montgomery County

Pennsylvania

DEPT. OF ENVIRONMENTAL RESOURCES
BUREAU OF
WATER QUALITY MANAGEMENT
APPLICATION NO. 4680447 | PLANS REC'D. REGION 12-31-80
REPORTS
NO. OF VOLUMES 3 OF 3

May 1980

REGISTERED PROFESSIONAL
CLIFFORD T. STOUT
PENNSYLVANIA

BY ..... DATE .....
CHKD. BY ..... DATE .....
SUBJECT 100-YR STORM, 25 MIN. DURATION
SHEET NO. ..... OF .....
JOB NO. .....

INTRODUCTION

Dock Manor is a 12.1 (net) Acre Tract on Detwiler Road located between Forty Foot Road and Gehman Road.

Presently, the site exists as a fallow, farm field; the main crop having been corn, as evidenced by the short, trimmed stalks which have remained since the last harvest.

The gently rolling site is planned to accomodate a 100-unit apartment building together with parking facilities and service areas. Recreational areas in the form of social rooms (within) and pedestrian paths and shuffleboard courts (outside) the main building are also to be provided. Natural wooded areas on this lot are to be totally preserved and shall serve to enhance the pedestrian paths and associated seating area facilities.

This design concept is presently being approved and construction shall be funded by the Department of Housing and Urban Development (HUD).

A proposed Stormwater Management Facility in the form of a detention basin with constricted outflow pipe, at the Westernmost corner of the tract, serves to control the increased stormwater generated by the impervious areas created during development.

Criteria governing basin design must provide, as a minimum, adequate storage to detain the stormwater runoff volume for a 10-year design storm (calculated for "after-development" conditions) while outletting, as a maximum, the rate of runoff for a 10-year design storm (calculated for "before development" conditions).

An analysis of the Stormwater Management facility and requirements is presented in the pages that follow.

CHARLES TACCONELLI
P. O. BOX 847
416 DELAWARE AVENUE
LANSDALE, PENNSYLVANIA
19446

STORMWATER MANAGEMENT REPORT

DOCK MANOR

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 847

I. TOTAL SITE "BEFORE DEVELOPMENT" CONDITIONS

A. A = 12.1 Acres (net Tract Area)

B. Type of ground cover

1. 9.9 Acres - uncultivated corn field

2. 2.2 Acres - woodland

C. Runoff coefficients

1. Uncultivated Cornfield: C = 0.50

2. Woodland: C = 0.30

D. Weighted Runoff Coefficient

$$C^* = \frac{(9.9)\ (0.50) + (2.2)\ (0.30)}{(9.9) + (2.2)} = 0.4636 \text{ use } 0.46$$

E. Time of Concentration: Approximately 5 minutes

F. Rainfall Intensity

i_{10} = 6.5 in/hr (10-yr. storm, 5 min. duration)

G. Expected stormwater runoff rate for a 10-year frequency design storm.

$$Q_{10} = C^* i A$$
$$= (0.46)\ (6.5)\ (12.1)$$
$$Q_{10} = 36.2 \text{ cfs}$$

Maximum allowable flow rate permitted to leave site for "after development" conditions must be equivalent to expected runoff for "before development" conditions.

II. TOTAL SITE "AFTER DEVELOPMENT" CONDITIONS

A. A = 12.1 Acres (net Tract Area)

B. Type of ground cover

1. 1.0 Acres - Building
2. 0.2 Acres - Concrete Sidewalk
3. 0.1 Acres - Macadam Walkway
4. a. 0.85 Acres - Macadam Parking Area (Initial)

   b. 0.45 Acres - Macadam Parking Area (Expansion Area)
5. 7.3 Acres - Lawn area with landscaping
6. 2.2 Acres - Woodland

C. Runoff Coefficients

1. Building: C = 1.00
2. Concrete Sidewalk: C = 0.95
3. Macadam Walkway: C = 0.85
4. Macadam Parking Area: C = 0.85
5. Lawn Area with Landscaping: C = 0.38
6. Woodland: C = 0.30

D. Weighted Runoff Coefficient

$$C^* = \frac{(1.0)(1.0)+(0.2)(0.95)+(0.1)(0.85)+(0.85+0.45)(0.85)+7.3(.38)2.}{(1.0)+(0.2)+(0.1)+(0.85+0.45)+(7.3)+(2.2)}$$

$C^* = 0.4805$ use 0.48

E. Time of Concentration: less than or equal to 5 minutes

F. Rainfall Intensity

$i_{10} = 6.5$ in/hr (10-yr. storm, 5 min. duration)

G. Expected stormwater runoff rate for a 10-year frequency design storm

$$Q_{10} = CIA$$
$$Q_{10} = (0.48)\ (6.5)\ (12.1)$$
$$Q_{10} = 37.8 \text{ cfs}$$

III. DETENTION FACILITY DESIGN

A. Upon a comparison of the results of Sect. I.G. with Section II.G it can be seen that "After Development" conditions can be expected to generate a greater amount of runoff than "Before Development" (Existing) conditions.

Therefore, Detention of Stormwater is required.

B. Design Method: Refer to "Stormwater Basin Design for Small Drainage Areas", by William R. Baker, P.E., Public Works, March 1977.

C. Design Criteria: Provide for adequate storage volume to detain, as a minimum, the expected runoff for a 10-year design storm (under "After Development" conditions) - while outletting, as a maximum, no more runoff than was generated during a 10-year design storm (under "Before Development" conditions) (Refer to Section I.G.).

D. Method of Detention: To provide volume for storage by means of an earth basin with a restricted outflow rate ("undersized" outlet pipe) which causes a backwater condition (stormwater stored or detained) when increased amounts of runoff reach the basin area.

IV. CALCULATION OF RUNOFF RATE WHICH IS ALLOWED TO LEAVE SITE UNHINDERED (UNCONTROLLED)

A. A = 7.35 Acres (Site area not tributary to detention facility)

B. Type of ground cover

1. Concrete Sidewalk - 0.03 Acres
2. Macadam Walkway - 0.05 Acres
3. Macadam Parking Area - 0.85 Acres (including exp. area.)
4. Lawn Area with landscaping - 4.22 Acres
5. Woodland - 2.2 Acres

C. Runoff Coefficients

1. Concrete Sidewalk: C = 0.95
2. Macadam Walkway: C = 0.85
3. Macadam Parking Area: C = 0.85
4. Lawn Area with landscaping: C = 0.38
5. Woodland: C = 0.30

D. Weighted Runoff Coefficent

$$C^* = \frac{(0.03)(0.95)+(0.05)(0.85)+(0.85)(0.85)+4.22(0.38)+2.2(0.30)}{(0.03)+(0.05)+(0.85)+4.22+(2.2)}$$

$C^* = 0.416$ use 0.42

E. Time of Concentration: Less than or equal to five minutes

F. Rainfall Intensity

$i_{10} = 6.5$ in/hr (10 yr. storm, 5-min. duration)

G. Expected stormwater runoff rate (for a 10-year frequency design storm) allowed to leave site unhindered.

$Q_{10} = C\ I\ A$
$= (0.42)\ (6.5)\ (7.4)$
$Q_{10} = 20.1$ cfs

V. MAXIMUM TOTAL ALLOWABLE FLOW RATE PERMITTED TO LEAVE SITE -

RUNOFF RATE WHICH IS ALLOWED TO LEAVE SITE UNHINDERED -

MAXIMUM RUNOFF RATE WHICH MAY BE OUTLETTED FROM DETENTION FACILITY

36.2 cfs (Refer to Sect. I.G)
-20.1 cfs (Refer to Sect. IV.G)
16.1 cfs

Maximum runoff rate allowed to be outletted from proposed detention facility.

IV. CALCULATION OF RUNOFF RATE WHICH IS ALLOWED TO LEAVE SITE UNHINDERED (UNCONTROLLED)

VI. BASIN STATISTICS

A. Outlet Pipe: 45 L.F. 15" ϕ with Type "DW" Endwall

1. Outlet flow rate varies with the height of water and is controlled by the amount of water which can enter the pipe at the endwall.

2. Outlet flow rate can be computed for any water height using the "orifice equation": $Q = CA\sqrt{2gH}$ where C = 0.6 (approximate orifice constant), A = cross-sectional area of orifice (15" ϕ = 1.23 sq. ft.), g = gravity (32 ft. per sec, per sec), H = height (ft.) from the centerline of outflow pipe.

3. Maximum expected outflow rate based on proposed highwater elevation:

a.) 295.5 - 291.5 = 4.0 (Maximum headwater depth)
b.) H = Maximum headwater depth - (pipe dia./2) = $4 - \frac{1.25}{2}$ = 3.38 f
c.) $Q = CA\sqrt{2gH}$
$= (0.6)(1.23)\sqrt{2(32.2)(3.38)}$
Q = 10.9 cfs (less than maximum allowable flow rate)
d.) Tabulation of Outflow Rate vs Elevation vs H

Elevation (Ft.)	Headwater Depth (Ft.)	H	Outflow Rate Through Orifice (C.F.S.)
291.5	0	0	0
291.75	.25	0	0
292.0	.50	0	0
292.25	.75	.13	2.14
292.5	1.00	.38	3.65
292.75	1.25	.63	4.70
293.0	1.50	.88	5.56
293.25	1.75	1.13	6.30
293.5	2.00	1.38	6.96
293.75	2.25	1.63	7.56
294.0	2.50	1.88	8.12
294.25	2.75	2.13	8.64
294.5	3.00	2.38	9.14
294.75	3.25	2.63	9.60
295.0	3.50	2.88	10.05
295.25	3.75	3.13	10.48
295.5	4.00	3.38	10.89

B. Detention area

1. Proposed Invert Elevation: 291.50

2. Proposed Highwater Elevation: 295.50

3. Proposed Top of Berm Elevation: 296.00

4. Maximum Volume of Storage Provided (to Elevation: 295.50) = 28,500- cubic feet.

5. Tabulation of Storage Provided vs. Elevation (above pipe invert) vs H

Elevation (Ft.)	Headwater Depth (Ft.)	H	Basin Storage Provided (Cu. Ft.)
291.50	0	0	0
291.75	.25	0	50
292.00	.50	0	150
292.25	.75	.13	625
292.50	1.00	.38	1250
292.75	1.25	.63	2250
293.00	1.50	.88	3800
293.25	1.75	1.13	5500
293.50	2.00	1.38	7350
293.75	2.25	1.63	9250
294.00	2.50	1.88	11500
294.25	2.75	2.13	13750
294.50	3.00	2.38	16250
294.75	3.25	2.63	18800
295.00	3.50	2.88	21900
295.25	3.75	3.13	25000
295.50	4.00	3.38	28500

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VII. CALCULATION OF INFLOW RATE INTO PROPOSED DETENTION FACILITY

A. A = 5.2 Acres (drainage area tributary to facility) incl. 0.45 acres of Lot 2

2.02 Acres through piping system (Refer to Storm Sewer design charts in appendix)

3.18 Acres overland flow

B. Type of ground cover

1. 1.0 Acres - building
2. 0.17 Acres - concrete sidewalk
3. 0.05 Acres - macadam walkway
4. 0.48 Acres - macadam parking area (incl. part of rec. area on Lot 2)
5. 3.50 Acres - lawn area with landscaping

C. Runoff Coefficients

1.	Building:	C = 1.00
2.	Concrete Sidewalk:	C = 0.95
3.	Macadam Walkway:	C = 0.85
4.	Macadam Parking Area:	C = 0.85
5.	Lawn area with landscaping:	C = 0.38

D. Weighted Runoff Coefficient:

$$C^* = \frac{(1.0)(1.0)+(0.17)(0.95)+(0.05)(0.85)+0.48(0.85)+(3.50)(0.38)}{(1.0)+(0.17)+(0.05)+(0.48)+(3.50)}$$

$C^* = .565$ use 0.57

E. Time of Concentration = less than or equal to five minutes

F. Rainfall intensities for various durations of a 10-year design storm.

5 minute	(300 sec.) duration:	i_{10} = 6.5 inches per hour
10 minute	(600 sec.) duration:	i_{10} = 5.3 inches per hour
15 minute	(900 sec.) duration:	i_{10} = 4.5 inches per hour
20 minute	(1200 sec.) duration:	i_{10} = 3.8 inches per hour
25 minute	(1500 sec.) duration:	i_{10} = 3.5 inches per hour
30 minute	(1800 sec.) duration:	i_{10} = 3.1 inches per hour
60 minute	(3600 sec.) duration:	i_{10} = 2.0 inches per hour

G. Expected stormwater inflow rate (into detention facility) for various durations of a 10-year frequency design storm.

$Q_{10} = C*i_{10}A$

5 minute (300 sec.) duration: $Q_{10} = (0.57)\ (6.5)\ (5.2)$
$= 19.27$
Use 19.3 CFS

10 minute (600 sec.) duration: $Q_{10} = (0.57)\ (5.3)\ (5.2)$
$= 15.71$
Use 15.7 CFS

15 minute (900 sec.) duration: $Q_{10} = (0.57)\ (4.5)\ (5.2)$
$= 13.34$
Use 13.4 CFS

20 minute (1200 sec.) duration: $Q_{10} = (0.57)\ (3.8)\ (5.2)$
$= 11.26$
Use 11.3 CFS

25 minute (1500 sec.) duration: $Q_{10} = (0.57)\ (3.5)\ (5.2)$
$= 10.37$
Use 10.4 CFS

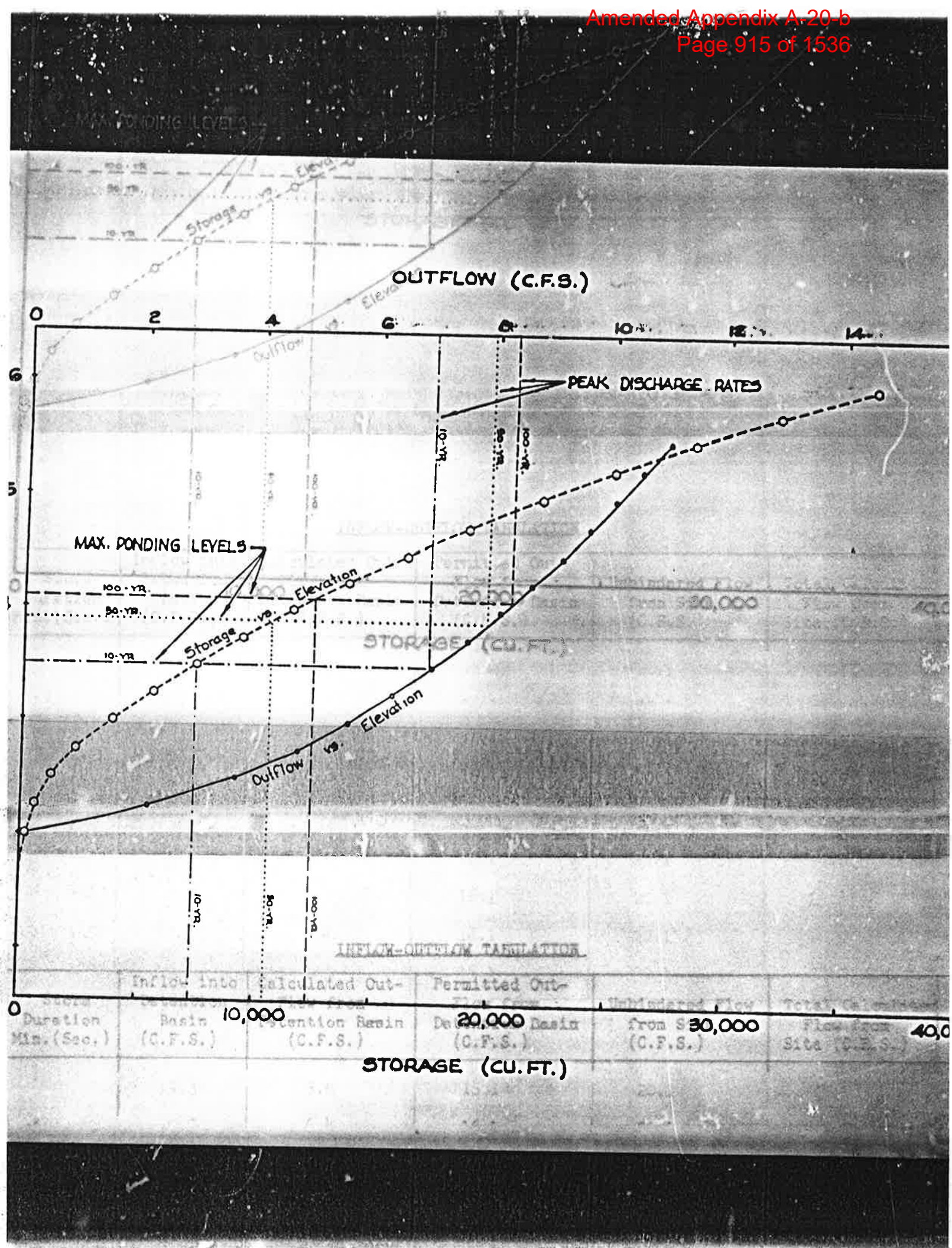
30 minute (1800 sec.) duration: $Q_{10} = (0.57)\ (3.1)\ (5.2)$
$= 9.19$
Use 9.2 CFS

60 minute (3600 sec.) duration: $Q_{10} = (0.57)\ (2.0)\ (5.2)$
$= 5.93$
Use 6.0 CFS

H. Reservoir Routing Computations (using prescribed design method) have been completed and are enclosed in the appendix. Results have been tabulated and are shown on the following pages.

INFLOW-OUTFLOW TABULATION

Storm Duration Min.	(Sec.)	Inflow into Detention Basin (C.F.S.)	Calculated Out-Flow from Detention Basin (C.F.S.)	Permitted Out-Flow from Detention Basin (C.F.S.)	Unhindered Flow from Site (C.F.S.)	Total Calculated Flow from Site (C.F.S.)
5	300	19.3	5.6	16.1	20.1	25.7
10	600	15.7	6.4	16.1	20.1	26.5
15	900	13.4	6.7	16.1	20.1	26.8
20	1200	11.3	6.8	16.1	20.1	26.9
25	1500	10.4	6.9* Peak	16.1	20.1	27.0
30	1800	9.2	6.7	16.1	20.1	26.8
60	3600	6.0	5.7	16.1	20.1	25.8
25	1500	13.7	7.9	16.1	20.1	28.0
25	1500	14.9	8.3	16.1	20.1	28.4


OUTFLOW (C.F.S.)
0
2
4
6
8
10
12
14
PEAK DISCHARGE RATES
10-YR.
50-YR.
100-YR.
MAX. PONDING LEVELS
100-YR.
50-YR.
10-YR.
Storage
vs.
Elevation
Outflow
vs.
Elevation
10-YR.
50-YR.
100-YR.
0
10,000
20,000
30,000
40,000
STORAGE (CU. FT.)

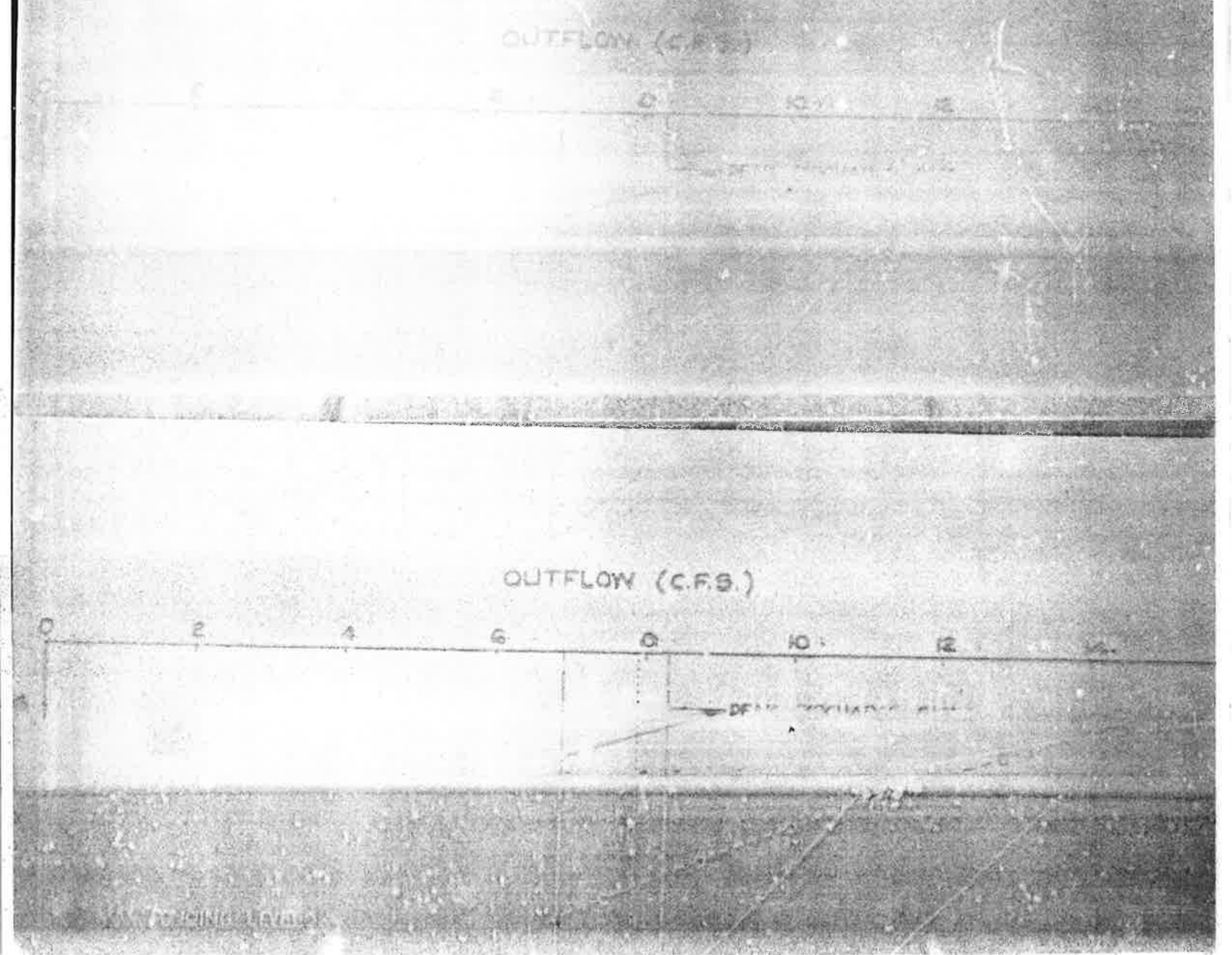
CONCLUSIONS

Upon examination of the preceding tabulation and figures, it is evident that the proposed detention facility not only satisfies the minimum stormwater management criteria (established by Towamencin Township) but in every case exceeds those standards.

The facility is expected to provide a twenty-six per cent (26%) decrease in runoff for the total site, after development, for a peak duration, 10-year design storm.

In addition, for a peak duration, 50-year design storm, after development runoff is expected to be twenty-three per cent (23%) less than before development runoff for a 10-year design storm.

A similar result is expected for 100-year after development runoff - a calculated decrease of twenty-two per cent (22%) from 10-year, before development conditions.



APPENDIX

APPENDIX

Upon examination of the preceding tabulation and figures, it is evident that the proposed detention facility not only satisfies the minimum stormwater management criteria (established by Towamencin Township) but in every case exceeds those standards.

The facility is expected to provide a twenty-six per cent (26%) decrease in runoff for the total site, after development, for a peak duration, 10-year design storm.

In addition, for a peak duration, 50-year design storm, after development runoff is expected to be twenty-two per cent (22%) less than pre-development runoff for a 10-year design storm.

CONCLUSIONS

AC_o = AC (Contrib. Surface Flow between Inlets)
AC_B = AC (Bypassing Flow From Previous Inlet)
AC_j = AC (Entering Inlet)
C = Runoff Factor

COMPUTATION TABLE - STORM SEWER DESIGN

SHEET NO. 1 OF 1

		DRAINAGE AREA					TIME										
	C	AC_o	AC_B	$AC_o + AC_B$	AC	SAC	t_o	t_f	RAINFALL INTENSITY I	DISCHARGE Q	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS N VALUE	SIZE OF PIPE	VELOCITY	PIPE CAPACITY FLOWING FULL
		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	CFS	FEET	FT/FT			IN	FPS	CFS
OF WATER FLOW																	
4	1.0	0.4	-	0.4		0.4	<5		6.5	2.6	← DIRECT TRANSMISSION TO INLET						
5	0.64	0.32	-	0.32	0.32		<5		6.5	2.1							
						0.72		<5	6.5	4.7	130	0.005	C.M.P.	0.012	15"Ø	4.0	4.95
1	0.64	0.32	-	0.32	0.32		<5		6.5	2.1							
						1.04		<5	6.5	6.8	200	0.0050	C.M.P.	0.014	18"Ø	4.1	7.33
F WATER FLOW																	
2	1.0	0.6	-	0.6		0.6	<5		6.5	3.9	← DIRECT TRANSMISSION TO INLET						
1	-	-	-	-	-				-	-							
						1.64		<5	6.5	10.7	130	0.0054	C.M.P.A.	0.016	28"x20"	3.8	11.0
											← OUTLET THROUGH DW ENDWALL TO STORMWATER MANAGEMENT FACILITY						

BY.....DATE.....
CHKD. By.....DATE.....

SUBJECT.....10-YR. STORM & 5 MIN. DURATION

SHEET NO.....OF.....
JOB NO.....

AFTER 300 SECONDS
(TIME OF CONCENTRATION)
MAX. INFLOW RATE REACHED

TIME OF CONCENTRATION (SECONDS)
DURATION OF STORM (SECONDS)
PEAK INFLOW (C.F.S.)
Occurs at time of concentration and lasts for duration of storm
TIME INTERVAL (SECONDS) FOR COMPUTATION PURPOSES

AFTER 60 SECONDS
INFLOW RATE
OUTFLOW RATE

AFTER 300 SECONDS
(TIME OF CONCENTRATION)
MAX. INFLOW RATE REACHED

PEAK OUTFLOW

DURATION

300.0000	65	
300.0000	65	
15.3000	65	
60.0000	65	
	65	
60.0000	0	
3.0000	***	
0.0000	***	
120.0000	***	
7.7200	***	
1.2450	***	
180.0000	***	
11.5000	***	
2.7072	***	
240.0000	***	
15.4400	***	
3.5072	***	
300.0000	***	
19.3000	***	
4.7150	***	
360.0000	***	
15.4400	***	
5.1302	***	
420.0000	***	
11.5000	***	
5.4046	***	
480.0000	***	
7.7200	***	
5.5456	***	
540.0000	***	
3.0000	***	
5.5517	***	
600.0000	***	
0.0000	***	
5.4554	***	
660.0000	***	
0.0000	***	
5.2552	***	
720.0000	***	
0.0000	***	
5.0653	***	
780.0000	***	
0.0000	***	
4.5166	***	
840.0000	*	
0.0000	*	
4.7556	*	
900.0000	*	
0.0000	*	
4.5155	*	

COMPUTATION TABLE - STORM SEWER DESIGN

BY.....DATE..... SUBJECT.....SHEET NO.....
CHKD. By.....DATE..... 10-YR. STORM, 10-MIN. DURATION JOB NO.....

120.0000 ***
DURATION → 6.2800 ***
ENDS 0.9001 ***
180.0000 ***
9.4200 ***
2.3756 ***
240.0000 ***
12.5600 ***
3.5400 ***
t_c → 300.0000 ***
15.7000 ***
4.2471 ***
PEAK 360.0000 ***
OUTFLOW → 15.7000 ***
4.8322 ***
420.0000 ***
15.7000 ***
5.1861 ***
480.0000 ***
15.7000 ***
5.5323 ***
540.0000 ***
15.7000 ***
5.8803 ***
DURATION → 600.0000 ***
ENDS 15.7000 ***
6.0555 ***
660.0000 ***
12.5600 ***
6.2657 ***
720.0000 ***
9.4200 ***
6.3703 ***
780.0000 ***
6.2800 ***
PEAK → 6.4016 ***
OUTFLOW 840.0000 ***
3.1400 ***
6.3656 ***
900.0000 ***
0.0000 ***
6.2564 ***
960.0000 ***
0.0000 ***
6.0952 ***
1020.0000 ***
0.0000 ***
5.9300 ***
1080.0000 ***
0.0000 ***
5.7649 ***
1140.0000 ***
0.0000 ***
5.6356 ***
1200.0000 ***
0.0000 ***
5.3800 ***

TIME OF CONCENTRATION (SECONDS) → 300.0000
DURATION OF STORM (SECONDS) → 600.0000
PEAK INFLOW (C.F.S.) → 15.7000
Occurs at time of concentration and
lasts for duration of storm
TIME INTERVAL (SECONDS) FOR COMPUTATION PURPOSES → 60.0000

BY.....DATE..... SUBJECT.....
CHKD. By.....DATE..... 10-YR. STORM, 5-MIN. DURATION

BY.....DATE.....
CHKD. BY.....DATE.....
SUBJECT 10-YR. STORM , 15 MIN. DURATION
SHEET NO.....OF.....
JOB NO.....

420.0000	***
13.4000	***
4.8587	***
480.0000	***
13.4000	***
5.1770	***
540.0000	***
13.4000	***
5.4463	***
600.0000	***
13.4000	***
5.6755	***
660.0000	***
13.4000	***
5.8747	***
720.0000	***
13.4000	***
6.0667	***
780.0000	***
13.4000	***
6.2577	***
840.0000	***
13.4000	***
6.4163	***
900.0000	***
13.4000	***
6.5644	***
960.0000	***
10.7200	***
6.6806	***
1020.0000	***
8.0400	***
6.7300	***
1080.0000	***
5.3600	***
6.7372	***
1140.0000	***
2.6800	***
6.6736	***
1200.0000	***
0.0000	***
6.5665	***
1260.0000	***
0.0000	***
6.4275	***
1320.0000	***
0.0000	***
6.2695	***
1380.0000	***
0.0000	***
6.1275	***
1440.0000	***
0.0000	***
5.9693	***
1500.0000	***
0.0000	***
5.813	***

PEAK OUTFLOW →

PEAK OUTFLOW →

t_c →

t_c →

300.0000	6SBE
900.0000	EHT1
13.4000	6SBC
60.0000	6SBD
	6SBE
60.0000	***
2.6800	***
6.0000	***
120.0000	***
5.3600	***
0.6811	***
180.0000	***
8.0400	***
2.1143	***
240.0000	***
10.7200	***
3.1075	***
300.0000	***
13.4000	***
5.9512	***
360.0000	***
13.4000	***
4.5287	***

BY.....DATE.....
CHKD. BY.....DATE.....
SUBJECT 10-YR. STORM , 10 MIN. DURATION
SHEET NO.....
JOB NO.....

BY.....DATE.....
CHKD. By.....DATE.....
.....

SUBJECT.....
.....10-YR. STORM, 20 MIN. DURATION.....
.....

SHEET NO. 67
JOB NO.

	720.0000	***
	11.3000	***
	5.6422	***
	780.0000	***
	11.3000	***
	5.7880	***
	840.0000	***
	11.3000	***
	5.9301	***
PEAK	900.0000	***
OUTFLOW	11.3000	***
	6.0660	***
	960.0000	***
	11.3000	***
	6.2035	***
	1020.0000	***
	11.3000	***
	6.3200	***
	1080.0000	***
	11.3000	***
	6.4333	***
	1140.0000	***
	11.3000	***
	6.5370	***
	1200.0000	***
	11.3000	***
	6.6375	***
	1260.0000	***
	9.8400	***
	6.7127	***
	1320.0000	***
	6.7800	***
PEAK	6.7380	***
OUTFLOW	1380.0000	***
	4.5200	***
	6.7150	***
	1440.0000	***
	2.2600	***
	6.6940	***
	1500.0000	***
	0.0000	***
	6.5270	***
	1560.0000	***
	0.0000	***
	6.3655	***
	1620.0000	***
	0.0000	***
	6.2442	***
	1680.0000	***
	0.0000	***
	6.0833	***
	1740.0000	***
	0.0000	***
	5.9264	***
	1800.0000	***
	0.0000	***

	300.0000	GSBB
	1200.0000	ENT1
	11.3000	GSEC
	60.0000	GSED
		GSBE
t_c	60.0000	***
	2.2600	***
	0.0000	***
	120.0000	***
	4.5200	***
	0.4810	***
	180.0000	***
	6.7800	***
	1.7113	***
	240.0000	***
	9.0400	***
	2.7346	***
t_c	300.0000	***
	11.3000	***
	3.6900	***
	360.0000	***
	11.3000	***
	4.1553	***
	420.0000	***
	11.3000	***
	4.5917	***
	480.0000	***
	11.3000	***
	4.8616	***
	540.0000	***
	11.3000	***
	5.0724	***
	600.0000	***
	11.3000	***
	5.2763	***
	660.0000	***
	11.3000	***
	5.4736	***

CHKD. By.....DATE.....
SUBJECT.....
.....10-YR. STORM.....DURATION

BY.....DATE.....
CHKD. By.....DATE.....

SUBJECT.....10-YR. STORM, 25-MIN. DURATION.....

SHEET NO.....OF.....
JOB NO.....

	300.0000	6SEB	
	1500.0000	ENT1	
	10.4000	6SEC	
	60.0000	6SEC	
		6SEE	
	60.0000	***	
	2.0000	***	
	0.0000	***	
	120.0000	***	
	4.1600	***	
	0.3353	***	
	180.0000	***	
	6.2400	***	
	1.5354	***	
	240.0000	***	
	6.3200	***	
	2.5750	***	
t_c →	300.0000	***	
	10.4000	***	
	3.4921	***	
	360.0000	***	
	10.4000	***	
	4.0000	***	
	420.0000	***	
	10.4000	***	
	4.3914	***	
	480.0000	***	
	10.4000	***	
	4.7313	***	
	540.0000	***	
	10.4000	***	
	4.9169	***	
	600.0000	***	
	10.4000	***	
	5.0565	***	
	660.0000	***	
	10.4000	***	
	5.2701	***	
	720.0000	***	
	10.4000	***	
	5.4381	***	
	780.0000	***	
	10.4000	***	
	5.5920	***	
	840.0000	***	
	10.4000	***	
	5.7159	***	
	900.0000	***	
	10.4000	***	
	5.8367	***	
	960.0000	***	
	10.4000	***	
	5.9543	***	
	1020.0000	***	
	10.4000	***	
	6.0689	***	
	1080.0000	***	
	10.4000	***	
	6.1806	***	
	1140.0000	***	
	10.4000	***	
	6.2894	***	
PEAK	1200.0000	***	
OUTFLOW	10.4000	***	
	6.3965	***	
	1260.0000	***	
	10.4000	***	
	6.4635	***	
	1320.0000	***	
	10.4000	***	
	6.5469	***	
	1380.0000	***	
	10.4000	***	
	6.6265	***	
	1440.0000	***	
	10.4000	***	
	6.7034	***	
	1500.0000	***	
	10.4000	***	
	6.7865	***	
	1560.0000	***	
	8.3200	***	
	6.8410	***	
	1620.0000	***	
	6.2400	***	
PEAK			
OUTFLOW →	6.8503	***	
	1680.0000	***	
	4.1600	***	
	6.8154	***	
	1740.0000	***	
	2.0000	***	
	6.7371	***	
	1800.0000	***	
	0.0000	***	
	6.6165	***	
	1860.0000	***	
	0.0000	***	
	6.4763	***	
	1920.0000	***	
	0.0000	***	
	6.3332	***	
	1980.0000	***	
	0.0000	***	
	6.1843	***	
	2040.0000	***	
	0.0000	***	
	6.0248	***	
	2100.0000	***	
	0.0000	***	
	5.8555	***	

BY.....DATE.....
CHKD. By.....DATE.....
SUBJECT.....10-YR. STORM, 25-MIN. DURATION.....

BY.....DATE.....
CHKD. By.....DATE.....

SUBJECT.....10-YR. STORM, 30 MIN. DURATION.....
SHEET NO.....OF.....
JOB NO.....

		180.0000	***
		5.5200	***
		1.3033	***
		240.0000	***
		7.3600	***
		2.3621	***
	t_c →	300.0000	***
		9.2000	***
		3.1619	***
		360.0000	***
		9.2000	***
		3.7932	***
		420.0000	***
		9.2000	***
		4.1262	***
		480.0000	***
		9.2000	***
		4.4373	***
		540.0000	***
		9.2000	***
		4.7154	***
		600.0000	***
		9.2000	***
		4.8623	***
		660.0000	***
		9.2000	***
		5.0043	***
		720.0000	***
		9.2000	***
		5.1417	***
		780.0000	***
		9.2000	***
		5.2746	***
		840.0000	***
		9.2000	***
		5.4031	***
		900.0000	***
		9.2000	***
		5.5275	***
		960.0000	***
		9.2000	***
		5.6231	***
		1020.0000	***
		9.2000	***
		5.7211	***
		1080.0000	***
		9.2000	***
		5.8106	***
		1140.0000	***
		9.2000	***
		5.8982	***
		1200.0000	***
		9.2000	***
		5.9833	***
		1260.0000	***
		9.2000	***
		6.0662	***

1320.0000	***
9.2000	***
6.1470	***
1380.0000	***
9.2000	***
6.2257	***
1440.0000	***
PEAK OUTFLOW → 9.2000	***
6.3020	***
1500.0000	***
9.2000	***
6.3634	***
1560.0000	***
9.2000	***
6.4234	***
1620.0000	***
9.2000	***
6.4822	***
1680.0000	***
9.2000	***
6.5396	***
1740.0000	***
9.2000	***
6.5961	***
1800.0000	***
9.2000	***
6.6513	***
1860.0000	***
7.3600	***
PEAK OUTFLOW → 6.6056	***
1920.0000	***
5.5200	***
6.0000	***
1980.0000	***
3.6800	***
6.0000	***
2040.0000	***
1.8400	***
6.5544	***
2100.0000	***
0.0000	***
6.4331	***
2160.0000	***
0.0000	***
6.2965	***
2220.0000	***
0.0000	***
6.1362	***
2280.0000	***
0.0000	***
5.9780	***
2340.0000	***
0.0000	***
5.8230	***
2400.0000	***
0.0000	***
5.6737	***

BY.....DATE.....
CHKD. By.....DATE.....
SUBJECT.....10-YR. STORM, 30 MIN. DURATION.....
SHEET NO.....
JOB NO.....

BY.....DATE.....
CHKD. By.....DATE.....
.....

SUBJECT.....
.....10-YR. STORM, 60 MIN. DURATION..
.....

SHEET NO.....OF.....
JOB NO.....
.....

300.0000	GSBB	2160.0000	***
3600.0000	ENT1	6.0000	***
6.0000	GSBC	5.2961	***
120.0000	GSBD	2280.0000	***
	GSBE	6.0000	***
120.0000	***	5.3414	***
2.4000	***	2400.0000	***
0.0000	***	6.0000	***
240.0000	***	5.3635	***
4.8000	***	2520.0000	***
t_c @ 1.5168	***	6.0000	***
300 secs. 360.0000	***	5.4236	***
6.0000	***	2640.0000	***
2.7305	***	6.0000	***
480.0000	***	5.4667	***
6.0000	***	PEAK 2760.0000	***
3.5733	***	OUTFLOW 6.0000	***
600.0000	***	5.4955	***
6.0000	***	2880.0000	***
3.9017	***	6.0000	***
720.0000	***	5.5200	***
6.0000	***	3000.0000	***
4.1504	***	6.0000	***
840.0000	***	5.5584	***
6.0000	***	3120.0000	***
4.3657	***	6.0000	***
960.0000	***	5.5812	***
6.0000	***	3240.0000	***
4.5629	***	6.0000	***
1080.0000	***	5.6025	***
6.0000	***	3360.0000	***
4.7161	***	6.0000	***
1200.0000	***	5.6226	***
6.0000	***	3480.0000	***
4.8667	***	6.0000	***
1320.0000	***	5.6428	***
6.0000	***	3600.0000	***
4.8780	***	6.0000	***
1440.0000	***	PEAK 5.6602	***
6.0000	***	OUTFLOW 3720.0000	***
4.9503	***	3.6000	***
1560.0000	***	5.6164	***
6.0000	***	3840.0000	***
5.0179	***	1.2000	***
1680.0000	***	5.4241	***
6.0000	***	3960.0000	***
5.0612	***	0.0000	***
1800.0000	***	5.1133	***
6.0000	***	4080.0000	***
5.1404	***	0.0000	***
1920.0000	***	4.7838	***
6.0000	***	4200.0000	***
5.1556	***	0.0000	***
2040.0000	***	4.1124	***
6.0000	***		

BY ..... DATE .....
CHKD. BY ..... DATE .....

SUBJECT ..... 50-YR. STORM, 25 MIN. DURATION

SHEET NO. ..... OF .....
JOB NO. .....

	1620.0000 ***
	13.7000 ***
	6.5265 ***
	1080.0000 ***
	13.7000 ***
	7.0574 ***
	1140.0000 ***
	13.7000 ***
	7.1621 ***
	1200.0000 ***
PEAK OUTFLOW →	13.7000 ***
	7.3044 ***
	1260.0000 ***
	13.7000 ***
	7.4243 ***
	1320.0000 ***
	13.7000 ***
	7.5423 ***
	1380.0000 ***
	13.7000 ***
	7.6575 ***
	1440.0000 ***
	13.7000 ***
	7.7271 ***
	1500.0000 ***
	13.7000 ***
	7.8457 ***
	1560.0000 ***
	10.3000 ***
	7.8626 ***
	1620.0000 ***
	6.2200 ***
PEAK OUTFLOW →	7.3673 ***
	1680.0000 ***
	5.4600 ***
	7.6322 ***
	1740.0000 ***
	2.7400 ***
	7.6336 ***
	1800.0000 ***
	0.0000 ***
	7.7405 ***
	1860.0000 ***
	0.0000 ***
	7.8236 ***
	1920.0000 ***
	0.0000 ***
	7.9355 ***
	1980.0000 ***
	0.0000 ***
	8.0251 ***
	2040.0000 ***
	0.0000 ***
	7.2210 ***
	2100.0000 ***
	0.0000 ***

	300.0000 ***
	1500.0000 ERR
	13.7000 ERR
	60.0000 ERR
	ERR
	60.0000 ***
	2.7400 ***
	0.0000 ***
	120.0000 ***
	5.4600 ***
	0.7836 ***
	180.0000 ***
	8.2200 ***
	1.1561 ***
	240.0000 ***
	10.9600 ***
	3.1626 ***
t_c →	300.0000 ***
	13.7000 ***
	3.5237 ***
	360.0000 ***
	13.7000 ***
	4.5627 ***
	420.0000 ***
	13.7000 ***
	4.9357 ***
	480.0000 ***
	13.7000 ***
	5.2227 ***
	540.0000 ***
	13.7000 ***
	5.5003 ***
	600.0000 ***
	13.7000 ***
	5.7244 ***
	660.0000 ***
	13.7000 ***
	5.9300 ***
	720.0000 ***
	13.7000 ***
	6.1303 ***
	780.0000 ***
	13.7000 ***
	6.3205 ***
	840.0000 ***
	13.7000 ***
	6.4772 ***
	900.0000 ***
	13.7000 ***
	6.6362 ***
	960.0000 ***
	13.7000 ***

BY ..... DATE .....
CHKD. BY ..... DATE .....

SUBJECT ..... 10-YR. STORM, 60 MIN. DURATION

SHEET NO. ..... OF .....
JOB NO. .....

BY ..... DATE ..... SUBJECT ..... SHEET NO. ..... OF .....
CHKD. BY ..... DATE ..... 100-YR. STORM, 25 MIN. DURATION JOB NO. .....

t_c →			1020.0000 ***
			14.9000 ***
			7.2000 ***
			1080.0000 ***
	300.0000	USER	14.9000 ***
	1500.0000	ENTI	7.3453 ***
	14.9000	USER	1140.0000 ***
	60.0000	USER	14.9000 ***
		USER	7.4671 ***
	60.0000	***	PEAK 1200.0000 ***
	2.9600	***	OUTFLOW 14.9000 ***
	0.0000	***	7.6125 ***
	120.0000	***	1260.0000 ***
	5.9600	***	14.9000 ***
	0.6233	***	7.7204 ***
	180.0000	***	1320.0000 ***
	8.9400	***	14.9000 ***
	2.2600	***	7.8266 ***
	240.0000	***	1380.0000 ***
	11.9200	***	14.9000 ***
	5.3850	***	7.9316 ***
t_c →	300.0000	***	1440.0000 ***
	14.9000	***	14.9000 ***
	4.1441	***	8.0345 ***
	360.0000	***	1500.0000 ***
	14.9000	***	14.9000 ***
	4.7542	***	8.1355 ***
	420.0000	***	1560.0000 ***
	14.9000	***	11.9200 ***
	5.0000	***	8.2262 ***
	480.0000	***	1620.0000 ***
	14.9000	***	8.5400 ***
	5.4877	***	PEAK 8.2387 ***
	540.0000	***	OUTFLOW 1680.0000 ***
	14.9000	***	5.9600 ***
	5.6846	***	8.2273 ***
	600.0000	***	1740.0000 ***
	14.9000	***	2.9600 ***
	5.9224	***	8.1761 ***
	660.0000	***	1800.0000 ***
	14.9000	***	0.0000 ***
	6.1533	***	8.0613 ***
	720.0000	***	1860.0000 ***
	14.9000	***	0.0000 ***
	6.3632	***	7.9513 ***
	780.0000	***	1920.0000 ***
	14.9000	***	0.0000 ***
	6.5433	***	7.8433 ***
	840.0000	***	1980.0000 ***
	14.9000	***	0.0000 ***
	6.7223	***	7.7212 ***

BY ..... DATE ..... SUBJECT .....
CHKD. BY ..... DATE ..... 50-YR. STORM ..... SHEET NO. ..... OF .....
..... JOB NO. .....

	900.0000	***	2040.0000 ***
	14.9000	***	0.0000 ***
	6.8561	***	7.6127 ***
	960.0000	***	2100.0000 ***
	14.9000	***	0.0000 ***

TR-BWQ-206
Rev. 2/79

SEWERAGE PERMIT APPLICATION
DEPARTMENT OF ENVIRONMENTAL RESOURCES

APPLICANT NAME* Upper Gwynedd-Towamencin Municipal Authority, ADDRESS: 2225 Kriebel Road

CITY, ZIP Lansdale, PA 19446 TELEPHONE NUMBER: (215) 855-8165

*Applicant shall be the agency which will own the sewerage facilities following completion of construction and/or dedication.

A filing fee check of $100.00 ~~$25.00~~ made out to Pennsylvania Department of Environmental Resources is required with the application.

PROJECT NAME: Dock Woods Community
Dock Village & Dock Manor PROJECT ACREAGE: 26± Acres

MUNICIPALITY: Towamencin Township COUNTY: Montgomery

NOTE: Please attach a drawing which clearly shows the boundaries of the proposed service area, the properties to be served, the location of the sewerage facilities, the slopes of proposed sewers on the plan with inverts of manhole, point of connection to existing sewers and all streets, streams or other important site features. Also include specifications for the facilities and an erosion and sedimentation control plan. (1)

For any deviations from the Sewerage Manual, please note clearly and fully justify.

RECEIVED
DEC 31 1980
DEPT. OF ENVIRONMENTAL RESOURCES
BUREAU OF
WATER QUALITY MANAGEMENT

APPLICATION NO. 468447 PLANS REC'D. REC 12-31-

REPORTS

NO. OF VOLUMES 1 OF 2

FOR THE APPLICANT

I hereby apply for approval on (Date) December 30, 1980 to construct and operate [X] Sewers and appurtenances [ ] Sewage pumping stations(s) which [ ] does [X] does not include stream crossing(s).

For sewage pumping stations include detailed construction plans, Module 7 and an erosion and sedimentation control plan.

For stream crossing, include the plan and profile view of the sewer line crossing along with specific construction techniques including s erosion and sedimentation control provisions.

Affidavit: I hereby certify under penalty of law that I have personally examined and am familiar with the information submitted in t document and based on my inquiry of those individuals immediately responsible fo obtaining the information I believe the submitt information is true, accurate and complete.

Applicant's Signature: H. Warren Dimmig

Name and Title: H. Warren Dimmig, Chairman, U.G.T.M.A.

Address: 2225 Kriebel Road, Lansdale, PA 19446

Sworn and subscribed to before me this 30th day of DECEMBER, 1980

Notary's seal and signature Jeffrey A. Wert

Jeffrey A. Wert, Notary Public
Lansdale Borough, Montgomery County
My Commission Expires Aug. 16, 1982
Member, Pennsylvania Association of Notaries

FOR THE DESIGN ENGINEER

Affidavit: I, Clifford T. Stout, do hereby certify that the information contained in the accompanying plans, specifications, and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance with the standards, guidelines and requirements of the Department of Environmental Resources.

Design Engineer's Seal and Signature: Clifford T. Stout

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
CLIFFORD T. STOUT
ENGINEER
No. 25386-E

Name of Engineering Firm: Herbert H. Metz, Inc.

Address, Zip P. O. Box 647, Lansdale, PA 19446 Telephone No.: 855-3111

(1) Reference Upper Gwynedd-Towamencin Municipal Authority Specifications and pertinences as filed with PA D.E.R. by U.G.T.M.A.

UG-T

ER-BWQ43 REV. 6/76

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

For Department Use Only

INTERNAL REVIEW AND RECOMMENDATIONS

NAME OF APPLICANT: Upper Gwynedd-Towamencin Municipal Authority
PROJECT LOCATION: Towamencin Township Montgomery County
APPLICATION NUMBER: 4680447

BRIEF DESCRIPTION OF PROJECT AND DISCUSSION (Use Additional Sheets If Necessary)

This application requests permission for the construction of a sanitary sewer extension to serve Dock Woods, Inc. a four (4) lot development of which only lots 1 (Dock Manor) and 2 (Dock Village) are being permitted. Lots 3 (Dock Terrace) and 4 (Dock Acres) will be permitted at a later date. Dock Manor is a 100 unit single building apartment complex for elderly residents and Dock Village is a federally subsidized family community consisting of 10 garden apartment type buildings (totaling 100 units) and a community center.

Sewage from the proposed sewer extension will be conveyed to the Upper Gwynedd-Towamencin Municipal Authority Sewage Treatment Plant via existing Upper Gwynedd-Towamencin Municipal Authority sewers covered under Permit No. 765S013. The STP provides secondary treatment before discharge to the Towamencin Creek. The erosion and sedimentation plan has been reviewed and approved by the Montgomery County Conservation District. The proposed sewer extension will serve 450 people initially and 880 people ultimately. There are no encroachments in this permit.

☐	☐		DIVISION FACILITIES ENGINEER	
☐	☐		DIVISION CHIEF	

CURRENT ESTIMATE OF COMPLETION DATE OF PROJECT (Industrial Wastes Only)

RECOMMENDATION AND ACTION

Approve -- Issue By Region	Approve -- Issue By Central Office	Refuse	Signature	Date
☒	☐	☐	Marie C. Faherty REVIEWING ENGINEER	2-5-81
☒	☐	☐	Richard L. Smith REGIONAL FACILITIES SECTION CHIEF	2/5/81
☒	☐	☐	REGIONAL ENGINEER/WATER QUALITY MANAGER	2/6/81
	☐	☐	DIVISION FACILITIES ENGINEER	
	☐	☐	DIVISION CHIEF	

PERMIT CONDITIONS:

1. STANDARD --
Sewerage (1972)
1 thru 9, 11 thru 14, 21, 22, 30, 31
Erosion Control (1973) 1 thru 20

2. SPECIAL (Use Additional Sheets If Necessary) --

ER-BWQ-15-Rev. 4/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT

NO. 4680447

A. PERMITTEE: (Name and Address)
Upper Gwynedd-Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

B. PROJECT LOCATION
Municipality: Towamencin Township
County: Montgomery County

C. TYPE OF FACILITY (For industrial wastes: type of establishment)
Sanitary Sewer Extension

D. NAME OF MINE, PLANT, AREA SERVED, OUTFALL NO., ETC.
Dock Woods Community, Dock Village and Dock Manor

THIS PERMIT APPROVES:

1. Plans For Construction Of:
a. [X] Pump Stations, Sewers and Appurtenances
b. [ ] Sewage Treatment Facilities
c. [ ] Industrial Wastes Treatment Facilities
d. [ ] Mine Drainage Treatment Facilities
e. [ ] Outfall & Headwall
f. [ ] Stream Crossing
g. [ ] Impoundment

2. The Discharge Of: N/A
a. [ ] Treated
b. [ ] Untreated
c. [ ] Sewage
d. [ ] Industrial Wastes

3. N/A Discharge To:
a. [ ] Surface Water
b. [ ] Ground Water
Name of Stream to which discharged or drainage area in which groundwater discharge takes place or impoundment is located.

4. The Operation of a Mine [ ]
N/A Maximum Area to be Deep Mined _____ Acres

5. An Erosion and Sedimentation Control Plan [X]
Project Area is 26 Acres

F. THIS APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:

1. ALL CONSTRUCTION, OPERATIONS, PROCEDURES AND DISCHARGE SHALL BE IN ACCORDANCE WITH APPLICATION NO. 4680447 DATED 12/30/80 AND AMENDMENTS DATED _____, ITS SUPPORTING DOCUMENTATION, AMENDMENTS ARE HEREBY MADE A PART OF THIS PERMIT. SUCH APPLICATION, ITS SUPPORTING DOCUMENTATION AND

2. CONDITIONS NUMBERED 1 thru 9, 11 thru 14, 21, 22, 30 and 31 OF THE Sewerage STANDARD CONDITIONS DATED 1972 AND CONDITIONS NUMBERED 1 thru 20 EROSION CONTROL STANDARD CONDITIONS DATED 1973 OF THE WHICH CONDITIONS ARE ATTACHED AND MADE PART OF THIS PERMIT.

3. SPECIAL CONDITIONS DESIGNATED _____ WHICH ARE ATTACHED AND ARE MADE A PART OF THIS PERMIT.

This permit must be recorded in the Recorder of Deeds Office in Montgomery County.

G. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. IF THERE IS A CONFLICT BETWEEN THE APPLICATION ON ITS SUPPORTING DOCUMENTS AND AMENDMENTS AND THE STANDARD OR SPECIAL CONDITIONS, THE STANDARD OR SPECIAL CONDITIONS SHALL APPLY.

2. FAILURE TO COMPLY WITH THE RULES AND REGULATIONS OF THE DEPARTMENT OR WITH THE TERMS OR CONDITIONS OF THIS PERMIT SHALL VOID THE AUTHORITY GIVEN TO THE PERMITTEE BY THE ISSUANCE OF THE PERMIT.

3. THIS PERMIT IS ISSUED PURSUANT TO THE CLEAN STREAMS LAW, ACT OF JUNE 22, 1937, P.L. 1987 AS AMENDED 35 P.S. § 691.1 ET SEQ. AND/OR THE WATER OBSTRUCTION ACT, ACT OF JUNE 25, 1913, P.L. 555 AS AMENDED 32 P.S. § 681 ET SEQ. ISSUANCE OF THIS PERMIT SHALL NOT RELIEVE THE PERMITTEE OF ANY RESPONSIBILITY UNDER ANY OTHER LAW

PERMIT ISSUED
DATE 2-6-81

DEPARTMENT OF ENVIRONMENTAL RESOURCES
BY C. T. Buchanan

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
Norristown, PA 19401
215 631-2405

February 6, 1981

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: Mr. H. Warren Dimmig
Chairman

Re: Sewerage Permit No. 4680447
Dock Woods Community, Dock Village and
Dock Manor
Towamencin Township, Montgomery County

Gentlemen:

Above referenced permit is enclosed.

Please study the permit carefully and direct any questions to the Facilities Section of this office.

To become operative this permit must be recorded in the Office of the Recorder of Deeds in the county in which the discharge is located. Enclosed is a certificate and pre-addressed envelope for this purpose. Please have the Recorder of Deeds accomplish the certificate and return it within ten (10) days.

Very truly yours,

C.T. Beechwood, P.E.
Regional Water Quality Manager

CTB:ced

Enclosures: Permit
Standard Conditions Relating to Sewerage
Standard Conditions Relating to Erosion Control
Recorder of Deeds Certificate with envelope
Notary Public Certificate

cc: Herbert H. Metz, Inc.
Ce(Re)30 NC11

ER-BWQ-15-Rev. 4/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT
WATER QUALITY MANAGEMENT PERMIT

B. PROJECT LOCATION
Municipality Towamencin Township
County Montgomery County

ER-BWQ-68 Rev. 4-73

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Permit PA 4680447

Towamencin Township
Montgomery County

Commonwealth of Pennsylvania
Department of Environmental Resources

RECORDER OF DEEDS CERTIFICATE

I hereby certify that on 2-11-81 (Date)

Loretta D. Bradbury
Deputy Recorder of Deeds for

there was recorded in Book .....

Montgomery County

page ..... the sewerage permit issued

to Upper Gwynedd-Towamencin Municipal Authority

DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
215 631-2405

bearing date of February 6, 1981

Loretta D. Bradbury
Deputy Recorder of Deeds for

Montgomery County

COMMONWEALTH OF PENNSYLVANIA

ER-BWQ-69 Rev. 1/78

C.T. Beechwood

and duly acknowledged the foregoing permit to be his act and deed and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year aforesaid.

STATE OF PENNSYLVANIA
SS
COUNTY OF MONTGOMERY

On the 6th day of February in the year one thousand nine hundred and eighty-one before me, the Subscriber, a Notary Public, came the above named

C.T. Beechwood

and duly acknowledged the foregoing permit to be his act and deed and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year aforesaid.

Wilbur P. Stender
NOTARY PUBLIC

WILBUR P. STENDER, Notary Public
Norristown Boro, Montg. Co.
My Commission Expires Nov. 2, 1981

Towamencin Township
Montgomery County

Commonwealth of Pennsylvania
Department of Environmental Resources

ER-BWQ-68 Rev. 4-73

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

ER-EP-1: Rev. 7/80

FORM NO. 1

SUBJECT: Sewerage — CONTACT(S): Upper Gwynedd-Towamencin Mun. Auth. — Application Nos.: 46804

Towamencin Twp. Montgomery County — 2225 Kriebel Rd. Lansdale 19446

New Proposal	✓
Revised Proposal	

TO: Regional Director

Permit Coordination Requirements: Appl: 855-8165 Engr: 855-

FROM:

On 12-31-80, we (accepted/received) an application for plan approval and/or permit to (construct/modify/install) a sewer extension to serve the Dock Woods Community Subdivision in Towamencin Township, Montgomery County. (Sewage to Upper Gwynedd-Towamencin

Permit Coordination Requirements:

Program	No Permit Required	No Permit Required Prior Approval Required	Permit Required Application on Hand	Permit Required Application Needed
Air Quality				
Water Quality	Stormwater facilities LOE-GES-11181		DEP 1/6/81	
Solid Waste Management				
Community Env. Control				
Mining & Reclamation				
Radiation Protection				
Dams & Waterway Management				

Please indicate your interest on this form and return to the Regional Director by 1/16/81. Failure to return the form by the indicated date will indicate that your program has no interest in the project.

BWQ-69 Rev. 1/78

ER – EP

START

DEPARTMENT OF ENVIRONMENTAL RESOURCES

BUREAU/PROGRAM

ENVIRONMENTAL PROTECTION

DIVISION

COUNTY / MUNICIPALITY 46007 Upper Gwynedd-Towamencin Twps.

PROGRAM SEW

START

CASE NAME Upper-Gwynedd-Towamencin

FILE f

BUREAU/PROGRAM Water Quality Management

DIVISION

COUNTY / MUNICIPALITY 46007 Upper Gwynedd-Towamencin Twps.

PROGRAM SEW

CASE NAME Upper-Gwynedd-Towamencin

FILE f

PERMIT NO. 4681402 Towamencin Village Section VI + VII

Exhibit B

961402

Department of Environmental Resources

1375 New Hope Street
Norristown, PA 19401
215 631-2426

December 17, 1980

Towamencin Township Board of Supervisors
1655 Sumneytown Pike
Kulpsville, PA 19443

Attention: Mr. Carlo Sapelli
Municipal Secretary

Re: Towamencin Village
1-46949-028-4
Towamencin Township
Montgomery County

Gentlemen:

Please be advised that a review has been made and completed of the above referenced Planning Module for Land Development.

This revision to the Towamencin Township Official Sewage Facilities Plan meets the requirements of Chapter 71, Section 71.16 of the Pennsylvania Department of Environmental Resources Rules and Regulations.

Approval is hereby granted; and in accordance with this Chapter, the Department holds Towamencin Township responsible for implementing this revision as per the approved module.

This approval provides for adequate Sewage Facilities planning to permit the development of 1,220 dwelling units on 355 acres located west of the intersection of Sumneytown Pike and Bustard Road. Sewage will be treated at the Upper Gwynedd/Towamencin Municipal Authority Sewage Treatment Plant.

This planning approval does not relieve the project sponsor of the responsibility to secure a Department permit for the construction and operation of the proposed facility.

If you have any questions, please feel free to contact this office.

Very truly yours,

Glenn K. Stinson
Sewage Facilities Consultant
Norristown

cc: Mr. Herbert H Metz, Jr.
WAMTS
Co Re 30 JM194

ER - EP

DEPARTMENT OF ENVIRONMENTAL RESOURCES
ENVIRONMENTAL PROTECTION

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
419 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1626

January 14, 1981

Mr. Ed Brzostek, District Conservationist
U. S. Department of Agriculture
Soils Conservation Service
1725 Markley Street
Norristown, Pennsylvania 19401

Re: Towamencin Village Residential Subdivision, Sect. VI & VII
Towamencin Township, Montgomery County

Dear Mr. Brzostek:

I am transmitting with this letter single copies of the following design documents pertaining to the subject project for your review and approval concerning Erosion and Sedimentation Control:

1. Set of Design Construction Plans (42 Sheets)

2. Erosion and Sediment Control Narrative

An Application for Sewerage Permit is simultaneously being submitted to the Region I Office of Pennsylvania Department of Environmental Resources.

Should any clarification or supplementation of design planning and data be required, kindly contact this office.

Very truly yours,

Barry L. Wert, P.E.

BLW/jdk
Enclosures
cc: Maynard A. King, Executive Director
Montgomery County Conservation District
Department of Environmental Resources

Exhibit B

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-2111
855-1686

ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE
JAN 16 1981

RECEIVED
JAN 16 1981

Department of Environmental Resources
Water Quality Management - Region I
1875 New Hope Street
Norristown, Pennsylvania 19401

Re: Upper Gwynedd-Towamencin Municipal Authority
Towamencin Village Residential Subdivision
Sections VI and VII
Water Quality Management Application
Gravity Sanitary Sewer System Extensions

Dear Sir:

In compliance with your requirements, there is submitted herewith for your review and approval, together with an application filing fee check in the amount of $100.00, two (2) copies of the following prepared documents:

1. Sewerage Permit Application, Form ER-BWO-265
2. Site Location Plan, (Exhibit "A")
3. Approval letter of "Planning Module for Land Development" for the overall Towamencin Village tract dated December 17,1980, by Glenn K. Stinson, Sewage Facilities Consultant, Norristown. (Exhibit "B")
4. Erosion and Sediment Control Narrative (Exhibit "C")
5. Stormwater Management Report (Exhibit "D")
6. Set of Design Construction Plans (42 Sheets)
7. Sanitary Sewer Design Analysis (6 Sheets) (Exhibit "E")

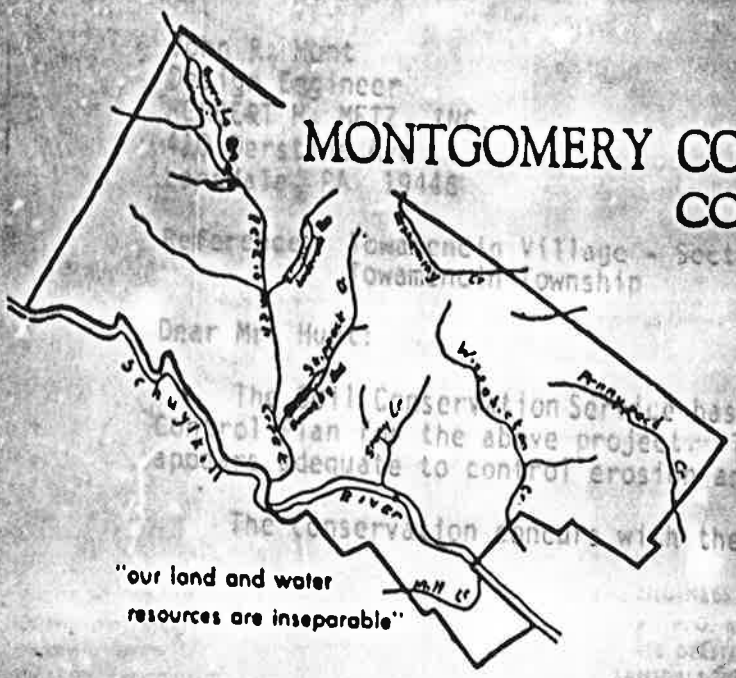
Please process the subject application for permit.

Very truly yours,

Barry L. Wert

Barry L. Wert, P.E.

BLW/jdk
Enclosures



MONTGOMERY COUNTY CONSERVATION DISTRICT

4th Floor — One Montgomery Plaza
Court House, Norristown, PA 19404
Phone: 278-3618

January 26, 1981

John R. Hunt
Design Engineer
HERBERT H. METZ, INC.
410 Derstine Ave
Lansdale, PA 19446

Reference: Towamencin Village - Section 6 and 7
Towamencin Township

Dear Mr. Hunt:

The Soil Conservation Service has reviewed the Erosion and Sediment Control Plan for the above project. The plan, as revised January 22, 1981, appears adequate to control erosion and sediment during and after construction.

The Conservation concurs with the findings of the SCS.

Sincerely,

Maynard A. King
Executive Director

MAK/cp

cc: Towamencin Township Engineer

Department of Environmental Resources
1875 New Hope Street
Norristown, Pennsylvania 19401
215 631-2402

January 26, 1981

Upper Gwynedd - Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: H. Warren Dimmig

Re: Application No. A681402
Towamencin Township
Montgomery County

Gentlemen:

This will acknowledge receipt of your application on January 16, 1981 for approval to construct a sewer extension to serve Towamencin Village, Section VI and VII Subdivision in Towamencin Township, Montgomery County.

The material submitted is accepted for technical review and has been assigned to Marie Faherty (631-2412) of our staff.

You are reminded that any proposed facilities cannot be constructed without first obtaining the required permits.

Applications are normally processed within sixty (60) days. If you have not received notification of the action taken within this period, feel free to contact us for information concerning the status of the review.

Very truly yours,

Leon T. Gonshor
Regional Director

CC: Program Services
Facilities
Herbert H. Metz, Inc.
Re K271

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

Date January 29, 1981

PROJECT Towamencin Village - Sections VI and VII

TO Department of Environmental Resources
Water Quality Mgmt. - Region I

Attention Marie Faherty

Remarks:

☒ enclosed herewith

We are sending you ☐ under separate cover the following:

No. of Prints	Drawing No.	Title and Remarks
2	Cover Sheet	Revised 1-22-81
2	5 of 34	Revised 1-22-81
2	32 of 34	Revised 1-22-81
2	34 of 34	Revised 1-22-81
1	Review letter from S.C.S. dated 1-26-81	
2	Pg.51 -Stormwater Mgmt.Report	Revised 1-22-81

☒ FOR APPROVAL
☐ APPROVED
☐ APPROVED AS NOTED
☐ FOR CORRECTION, RESUBMIT
☐ FOR YOUR USE
☐ FOR DISTRIBUTION

Remarks:

By John R. Hunt
Herbert H. Metz, Inc.
John R. Hunt
Design Engineer

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
Norristown, PA 19401
215 631-2405

February 2, 1981

Upper Gwynedd - Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: H. Warren Dimmig
Chairman

Re: Sewerage Permit No. 4681402
Towamencin Village Section VI & VII
Towamencin Township
Montgomery County

Gentlemen:

Above referenced permit is enclosed.

Please study the permit carefully and direct any questions to the Facilities Section of this office.

To become operative this permit must be recorded in the Office of the Recorder of Deeds in the county in which the discharge is located. Enclosed is a certificate and pre-addressed envelope for this purpose. Please have the Recorder of Deeds accomplish the certificate and return it within ten (10) days.

Very truly yours,

C.T. Beechwood, P.E.
Regional Water Quality Manager

CTB:MF:jp

Enlosures: Permit
Standard Conditions Relating to Sewerage
Standard Conditions Relating to Erosion Control
Recorder of Deeds Certificate with envelope
Notary Public Certificate

cc: Herbert H. Metz
Ce Re 30
S256

Towamencin Village 4681402

12 of 34

Doesn't seem to be any connection ?

Bishop Wood Blvd East (14/15 of 34)

For MH 19.1 → 13 of 34 (refer first to 10 of 34.)

On 15 of 34

above MH 32.2 → ?

Bromley Drive (17 of 34)

OK

Braddock Lane & Dager Circle (18 of 34)

OK → ?

1-22-81

Stratton Drive & Logger Lane (19 of 34)

OK

Audenmen's Circle & Parkside Lane (20 of 34)

OK

Bishop Wood Blvd Inst (21/22 of 34)

See 6 of 34) → OK

Breckenridge Place (23 of 34)

OK

Staley Circle (24 of 34) ← 1-22-81

OK

Green Lane Road (25/26/27 of 34)

None on 27

Liberty Bell Drive (28/29/30 of 34)

None. → 28, 29, 30.

Miscellaneous Profiles (31 of 34)

7-43, 7-48, 7-49 → OK

6-35, 6-36 → OK

6-71, 6-72 → MH 32.0 = DROP MH ✓

6-1 ~ 6-3, 6-59, 60, 61 → OK

7-17 ~ 7-19 → OK

Miscellaneous Profiles (32 of 34)

6-66 ~ 6-72 → MH 32.0 DMHV

6-34, 35, 6-22 ~ 6-27, 6-72, 78 → MH 32.0 DMHV

★ EXISTING PERMIT #'s

GREEN LANE → 765513

BUSTARD RD → 467344

279.14

261.57

273.16

4.98

1975 New Hope Street
Norristown, PA 19401
215 631-2405
February 2, 1981
Attention: H. Warren Dimmig
Re: Sewerage Permit No.
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES

The following are comments from the Bureau of Occupational Health relating to the above application.

Employees of private contractors are subject to regulations of the federal Occupational Safety and Health Administration whereas employees of state and local government related agencies are subject to regulations of the Commonwealth.

The contract should include a clause that all work on the project must be done in compliance with State and Federal occupational health and safety regulations.

Occupational health requirements applicable to the project are as follows.

If rock drilling machinery is used, it must be equipped with an integral water or exhaust ventilation dust suppression device.

Potential noise exposures should be evaluated and control measures and medical programs (audiometric tests) implemented as necessary.

Potential dust exposures should be evaluated and control measures and medical programs (chest X-ray examinations) implemented as necessary.

Where confined spaces (manholes, etc.) must be entered, the atmosphere must be tested for combustible gases (as a minimum) and mechanical ventilation used prior to entry and during occupancy. A worker must also be stationed outside the confined space to offer assistance should a problem occur. Procedures for confined space entry must be submitted to the Department where the employer is subject to Commonwealth regulations.

Lasers used for alignment work must be registered with the Department and any injuries resulting from the use of lasers must be reported.

Ce Re 30

Exhibit E

SANITARY SEWER DESIGN ANALYSIS

WARRENTON VILLAGE MUNICIPALITY COUNTY SHEET

M.H. to M.H.	LENGTH (FEET)	INVERT/INVERT	FALL (FEET)	SLOPE (FT. PER FT.)	CONNECTIONS INCREM'T	CONNECTIONS TOTAL	POPULATION @ 3.5/E.D.U.	FULL FLOW @ 0.0004 MGD/C	PIPE n = .013
19.6		278.44							
19.5	144	277.00	1.44	0.0100	2	2	7	.0028	
19.5		276.90							
19.4	254	273.29	3.61	0.0142	5	7	24.5	.0098	
19.4		273.19							
19.3	130	269.11	4.08	0.0314	3	10	35	.0140	
19.31		269.40							
19.3	58	269.11	0.29	0.0050	2	2	7	.0028	
19.3		269.01							
19.2	233	266.80	2.21	0.0095	3	15	52.5	.0210	
19.2		266.70							
19.1	305	258.59	8.11	0.0266	6	21	73.5	.0294	
19.1		258.49							
19	100	257.94	0.55	0.0055	2	23	80.5	0322	
19		257.84							
18	270	253.10	4.74	0.0176	1	24	84	.0336	
18.1		262.50							
18	135	253.10	9.40	0.0696	3	3	10.5	.0042	
18		253.00							
17	310	240.70	12.30	0.0397	8	32	112.0	.0448	
17		240.60							
16	86	238.39	2.21	0.0257	1	33	115.5	.0462	
16		238.29							
15	180	221.01	17.28	0.0960	2	35	122.5	.0490	

SANITARY SEWER DESIGN ANALYSIS

MERRICK VILLAGE MUNICIPALITY COUNTY SHEET 2

M.H. to M.H.	LENGTH (FEET)	INVERT/INVERT	FALL (FEET)	SLOPE (FT. PER FT.)	CONNECTIONS INCREM'T	CONNECTIONS TOTAL	POPULATION @ 3.5/EDU	FULL FLOW @ 0.0004 MGD	PIPE n = .013	R FULL
4.25		264.44								
14.24	130	257.29	7.15	0.0550	2	2	7	.0028	.013	1.
4.242		262.00								
14.241	80	261.60	0.40	0.0050	2	2	7	.0028	.013	
4.241		261.50								
14.24	179	257.29	4.21	0.0235	2	4	14	.0056	.013	1.2
4.24		257.19								
14.23	140	250.20	6.99	0.0499	3	9	31.5	.0126	.013	1.75
4.23		250.10								
14.22	170	240.75	9.35	0.0550	4	13	45.5	.0182	.013	1.837
4.22		240.65								
14.21	216	237.30	3.35	0.0155	4	17	59.5	.0238	.013	0.97
1		237.20								
4.2	317	229.26	7.94	0.0250	4	21	73.5	.0294	.013	1.239
		231.78								
4.3	97	230.42	1.36	0.0140	3	3	10.5	.0042	.013	0.927
3		230.32								
4.2	212	229.26	1.06	0.0050	2	5	17.5	.0070	.013	0.554
		229.16								
1	155	222.50	6.66	0.430	1	37	24.5	.0378	.013	1.624
		222.40								
	175	202.10	20.30	0.1160	2	29	101.5	.0406	.013	2.6681

EXHIBIT E

SANITARY SEWER DESIGN ANALYSIS

SHEET

Emerson VILLAGE MUNICIPALITY. COUNTY

M.H. to M.H.	LENGTH (FEET)	INVERT/INVERT	FALL (FEET)	SLOPE (FT. PER FT.)	CONNECTIONS INCREM'T	CONNECTIONS TOTAL	POPULATION @ 3.5/E.D.U.	FULL FLOW @ 0.0004 MGD/c	PIPE n = .013	FULL
15.4		247.60								
15.3	120	241.33	6.27	0.0330	6	6	21	.0084	.013	
15.3		241.23								
15.2	138	239.44	1.79	0.0130	2	8	28	.0112	.013	
15.2		239.34								
15.1	180	228.18	11.16	0.0620	2	10	35	.0140	.013	1.
15.1		228.08								
15	229	221.01	7.07	0.0309	1	11	38.5	.0154	.013	1.
15		220.91								
14A	243	211.43	9.48	0.0390	2	48	168	.0672	.013	1.
14A		211.33								
14	197	202.10	9.23	0.0469	2	50	175	.0700	.013	1.
4		202.00								
13	46	196.43	5.57	0.1211	0	79	276.5	.1106	.013	2.
3		196.33								
12	244	191.69	4.64	0.0190	0	79	276.5	.1106	.013	1.
2		191.59								
104B	118	190.41	1.18	0.0100	0	79	276.5	.1106	.013	0.

SANITARY SEWER DESIGN ANALYSIS

SHEET

VILLAGE _____ MUNICIPALITY _____ COUNTY _____

M.H. to M.H.	LENGTH (FEET)	INVERT/INVERT	FALL (FEET)	SLOPE (FT. PER FT.)	CONNECTIONS INCREM'T	CONNECTIONS TOTAL	POPULATION @ 3.5/E.D.U.	FULL FLOW @ 0.0004 mgd	PIPE n = 0.13
135.124		289.60							
135.123	216	288.03	1.57	0.0073	2	2	7	0.0028	.013
135.123		287.93							
35.122	396	276.05	11.88	0.0300	6	8	28	0.0112	.013
35.122		275.95							
35.121	284	269.26	6.69	0.0236	2	10	35	0.0140	.013
35.121		269.16							
35.12	23	268.58	0.58	0.0252	0	10	35	0.0140	.013
30.5		269.65							
30.4	104	266.53	3.12	0.0300	4	4	14	0.0056	.013
30.4		266.43							
30.3	148	265.25	1.18	0.0080	2	6	21	0.0084	.013
30.31		267.00							
30.3	135	265.25	1.75	0.0130	3	3	10.5	0.0042	.013
30.3		265.15							
30.2	310	252.98	12.17	0.0393	4	13	45.5	0.0182	.013
30.2		252.89							
30.1	203	251.87	1.01	0.0050	3	16	56	0.0224	.013
30.1		251.77							
30.0	207	236.00	15.77	0.0762	2	18	63	0.0252	.013

SANITARY SEWER DESIGN ANALYSIS

AMERICUS VILLAGE MUNICIPALITY. COUNTY.

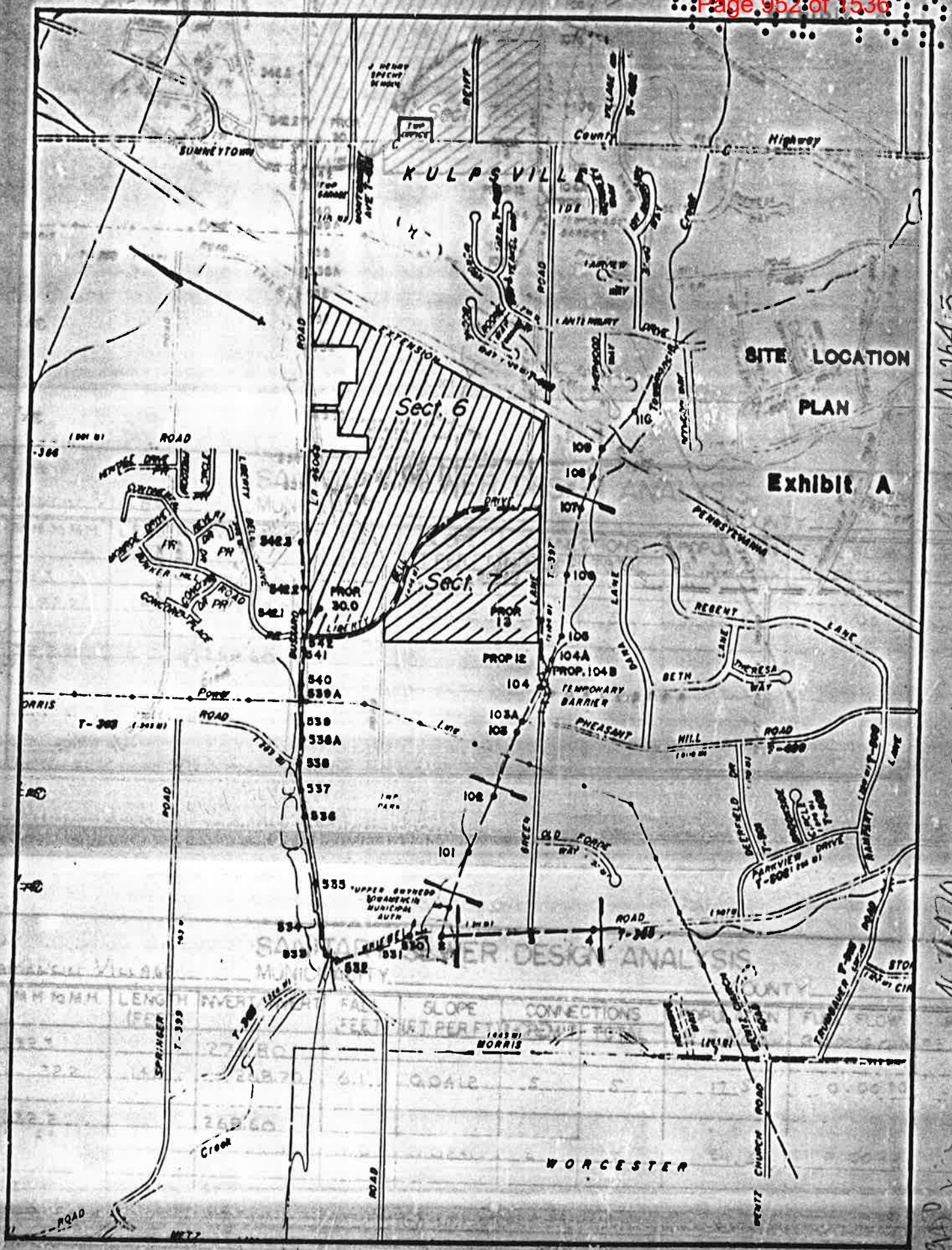
M.H. to M.H.	LENGTH (FEET)	INVERT/INVERT	FALL (FEET)	SLOPE (FT. PER FT.)	CONNECTIONS INCREM'T	CONNECTIONS TOTAL	POPULATION @ 3.5/E.D.U.	FULL FLOW @ 0.0004 max	PIPE n = .013
35.5		272.80							
35.4	126	273.16	4.64	0.0400	3	3	10.5	.0042	.013
35.41		274.81							
35.4	206	273.16	1.65	0.0080	5	8	28	.0112	.013
35.4		273.06							
35.3	115	272.14	0.92	0.0080	1	9	31.5	.0126	.013
35.3		272.04							
35.2	112	271.14	0.90	0.0080	3	12	42	.0168	.013
35.2		271.04							
35.12	308	268.58	2.46	0.0080	7	19	66.5	0.0266	.013
35.12		268.48							
35.0	374	261.52	6.96	0.0186	2	31	108.5	0.0434	.013
37.0		279.14							
36.0	230	273.16	5.98	0.0260	5	5	17.5	0.0070	.013
36.0		273.06							
35.0	204	261.52	11.54	0.0566	2	7	24.5	0.0098	.013
35.0		261.42							
34.0	132	257.69	3.73	0.0283	0	38	133	0.0532	.013
34.0		257.59							
33.0	276	250.96	6.63	0.0240	3	41	143.5	0.0574	.013
33.0		250.86							
32.0	246	244.91	5.95	0.0242	2	43	150.5	0.0602	.013

SANITARY SEWER DESIGN ANALYSIS

OLYMPIA VILLAGE MUNICIPALITY COUNTY

	M.H. to M.H.	LENGTH (FEET)	INVERT/INVERT	FALL (FEET)	SLOPE (FT. PER FT.)	CONNECTIONS INCREM'T	CONNECTIONS TOTAL	POPULATION @ 3.5/E.D.U.	FULL FLOW @ 0.0004 MGD	PIPE n = .013
BNE	32.3		274.80							
A	32.2	148	268.20	6.1	0.0412	5	5	17.5	0.0070	.013
D	32.2		268.60							
A	32.1	233	263.00	5.6	0.0240	2	7	24.5	0.0098	.013
M	32.1		262.90							
	32.0	137	250.00	12.9	0.0942	3	10	35	0.0140	.013
P	32.0		244.81							
	31.0	250	241.10	3.71	0.0148	2	55	192.5	0.0770	.013
X	31.0		241.00							
	30.0	259	236.00	5.00	0.0193	2	57	199.5	0.0798	.013
W	30.0		235.90							
	542	271	225.60	10.3	0.0380	0	75	262.5	0.1050	.013

SANITARY SEWER DESIGN ANALYSIS



461446

Exhibit A

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
418 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-4686

January 14, 1981

Mr. Ed Brzostek, District Conservationist
U. S. Department of Agriculture
Soils Conservation Service
1725 Markley Street
Norristown, Pennsylvania 19401

Re: Towamencin Village Residential Subdivision, Sect. VI & VI
Towamencin Township, Montgomery County

Dear Mr. Brzostek:

I am transmitting with this letter single copies of the following design documents pertaining to the subject project for your review and approval concerning Erosion and Sedimentation Control:

1. Set of Design Construction Plans (42 Sheets)
2. Erosion and Sediment Control Narrative

An Application for Sewerage Permit is simultaneously being submitted to the Region I Office of Pennsylvania Department of Environmental Resources.

Should any clarification or supplementation of design planning and data be required, kindly contact this office.

Very truly yours,

Barry L. Wert, P.E.

BLW/jdk
Enclosures
cc: Maynard A. King, Executive Director
Montgomery County Conservation District
Department of Environmental Resources

Exhibit C

TOWAMENCIN VILLAGE
EROSION & SEDIMENT CONTROL
Sections VI & VII
NARRATIVE

MONTGOMERY COUNTY

4681402 1/14/81

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TOWAMENCIN VILLAGE
Sections VI & VII

TOWAMENCIN TOWNSHIP

MONTGOMERY COUNTY

JANUARY 14, 1981

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EROSION & SEDIMENT CONTROL

NARRATIVE

468402 1/14/81

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Erosion and Sediment Control Narrative

This report summarizes the concepts, analysis, and design of erosion and sediment control for an 88.1-acre land development by Commonwealth Federal Savings and Loan Association.

General Description of Project

The proposed land development, known as Towamencin Village, Sections 6 and 7, is located 1,200 feet more or less in a Southwesterly direction from the intersection of Sumneytown Pike (L.R.198) and Bustard Road (L.R.46068). The site is bounded by the Northeast Extension of the Pennsylvania Turnpike on the East, by Bustard Road and residential properties fronting Bustard Road on the Northwest, by lands of North Penn School District and lands of Maurice Snyder on the West, and by Green Lane Road on the South. The entire tract lies within Towamencin Township, Montgomery County, and is serviced by the Upper Gwynedd-Towamencin Municipal Authority and the North Penn Water Authority.

The site consists of a combination of formerly cultivated, moderately-sloped terrain in the Southwestern and Northwestern corners and moderately-sloped, wooded terrain in the Southeastern corner. A flood plain exists along a tributary of a branch of Towamencin Creek. This tributary flows through a mildly-vegetated area in a Northwesterly direction.

Development will be 142 units of single family, fee simple, residential homes conforming in all respects to Towamencin Township M.R.C. (Mixed Residential Cluster) zoning. Minimum lot size is 12,000 square feet, exclusive of open space.

The tract will be developed in three (3) separate phases. Phase I will be 16.1 acres of developed land consisting of Lots 6-1 to 6-7, 6-22 to 6-29, and 6-45 to 6-73. Phase II will be 21.1 acres of developed land consisting of Lots 6-8 to 6-21, 6-30 to 6-44, and 6-74 to 6-93. Phase III will be 20.6 acres of developed land consisting of Lots 7-1 to 7-49. All phases will be developed at separate time periods and at no time will more than 25 acres of land be under construction.

Project Soils

The soil descriptions and locations found on this site are taken from the Montgomery County Soil Survey of 1967, and are shown or the construction improvement plans. The site consists primarily of Penn Silt Loam and Readington Silt Loam. Also found on this site are the following soils; Abbottstown Silt Loam, Bowmansville Silt Loam, Klinesville Silt Loam, and Reaville Shaly Silt Loam.

These soils are shallow to moderately deep, moderately to well drained, and have a favorable slope and depth to bedrock for residential development. However, the Bowmansville Silt Loam has limitations for residential development due to its poor surface drainage and frequent flooding.

The major limitation of these soils is the seasonally high water table, which mandates foundation underdrains or sump pumps in basements. Poor percolation necessitates proper lawn grading. The use of these soils for topsoil or road fill is considered fair.

General Description of Storm Water Collection and Control

The storm water pipe and inlet collection system was designed using 10-year storm frequency criteria. Inlets and storm sewers have been planned for placement at appropriate critical locations along the tract streets and in lot easements for dispersal into tributaries of Towamencin Creek.

Pipe outfalls at minimum slopes and outlet energy-dissipating devices are designed for release of storm water run-off at reduced velocities.

The detention facilities will function to decrease the peak discharge after development run-off from short-duration, high-intensity storms as outlined in the "Storm Water Management Report".

Erosion and Sediment Control

During the construction process, certain procedures and facilities outlined in the appendix and on the construction improvement plan are for the prevention and control of accelerated erosion and the resultant off-site sedimentation.

Scheduling of earthmoving activities to minimize bare earth exposure for any period of time, especially summer months, is necessary. This is accomplished by containing surface cover disruption to as small an area as possible. The appendix contains a schedule for this site.

In addition to minimizing disruption of the vegetative cover, certain facilities must be constructed where disruption is required. Construction of swales and roads will intercept some overland run-off before it enters a building area. Run-off from roads under construction is conveyed to a stone filter berm, where a large portion of the sediment it may contain is filtered out. Straw bale filter inlets are proposed to be constructed to minimize siltation in pipes and water courses. Utilization of temporary diversion berms

is also proposed along flood plain areas and established-developed areas where on-site earthmovement and construction is planned. Swales will have velocity-retarding and filtering structures to help control erosion and sedimentation that may occur. Certain areas may have temporary diversion berms and on-lot control berms to intercept sediment-laden flow from reaching off-site lands.

Temporary and permanent seeding of disrupted areas and stock-piled soil is necessary to provide an erosion-retarding vegetation cover.

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GENERAL EROSION AND SEDIMENT CONTROL PROCEDURES

1. All vegetated areas in undisturbed sections will remain for erosion protection. Contractors and equipment will be restrained from venturing into all rear yard areas not being graded. Disturbed areas will remain exposed for the shortest time possible. No altering of the existing contours, vegetation, etc. in the rear yard except for utilities, E & S, grass lined swales, right of way portions, and special lot grading areas as shown on the Construction Improvement Plans will take place.

2. As much as possible, excavated or disturbed areas of ground will be seeded with temporary fast growing grasses, such as annual rye, to contain any accelerated erosion. Where needed, adjustments to the seedbed fertility levels will be made in addition to any temporary cover protection that may be required until the new vegetative cover is established.

3. Implementation of any vegetative measures will be done in accordance with the procedures as set down in the Montgomery County "Handbook" for Erosion and Sediment Control. If temporary covers are needed to help establish the stand of plantings, small grain straw or hay will be used as directed and anchored, if needed, until growth persists. If a lack of growth in temporary plantings in critical areas is encountered, then a soil analysis will be made to determine what additives are required, and this will be done as directed in the analysis and "Handbook". Plantings will be maintained as needed to keep erosion at tolerable levels.

4. Dust will be kept within tolerable limits by either the use of chemical agents, such as calcium chloride to suppress the dust in the roadbeds, or by sprinkling the areas contributing to air-dust pollution with water, when available.

5. If possible, construction in rights-of-way shall be planned and scheduled for the summer months when erosion is less of a hazard, and there is minimal, or no, surface runoff in furrows, swales, and water courses.

6. The stone sub-bases of the streets will be connected into the storm water inlets to maintain road stability and contain the seasonal high water tables.

7. Permanent seeded cover varieties will be planted over all non-paved surface areas as directed in the "Handbook" and during optimum planting seasons.

8. Grading away from the wall sections of the homes will be at a minimum slope of two per cent (2%) or more towards curbs, driveways, sidewalks and side yard swales and berms which will carry the runoff safely and effectively without erosion or surface damage to a proper point of collection.

9. When the houses are ready for final grading, top soil will be

redistributed and permanent grass seed planted. If required, an adjustment to the soil fertility will be made as suggested in the "Handbook" to insure adequate growth of the permanent vegetative cover plantings.

10. At this time, the rear yard areas will be graded, by removing the existing vegetation, distributing the top soil as required, and planting the permanent grass seed types.

11. Refer to the Erosion and Sediment Control Handbook of Montgomery County for additional standards for seeding, mulching and construction of erosion control structures.

12. Temporary, permanent vegetative or mulch cover must be applied within 20 days of exposure of bare soil.

13. Bi-weekly and following each storm, filters, diversions, and swales are to be inspected for silt accumulation and damage. Repair damage facilites and remove accumulated sediment to maintain effectiveness of structure. Straw bale and stone filters to be replaced when clogged with silt and no longer efficient.

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GENERAL EROSION AND SEDIMENT CONTROL

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SCHEDULE OF EARTHMOVING ACTIVITIES FOR EROSION AND SEDIMENT CONTROL

1. Construct off-site sanitary and storm sewer facilities. Grade, sod or seed, and mulch.
2. Excavate for new road(s). Stockpile topsoil separately from lower horizon soils and seed for a temporary vegetative cover.
3. Simultaneous with above, place filter berm across entrance from Liberty Bell D. with runaround area for construction vehicles. Fill areas above natural grade will also require a downslope interception berm with a filter outlet.
4. Install utilities, sanitary and storm sewage facilities. Surround each inlet with filter material. Install curb.
5. Finish road grade, install base and binder course.
6. Strip topsoil and excavate for building sites. Use materials to form down slope interception, diversion, and filter berms. Seed with temporary vegetation for cover.
7. Following completion of buildings, grade around each structure and all disturbed areas. Dismantle temporary diversion berms and use materials in final grading, seed and mulch for a permanent vegetative cover. If weather is unsuitable for growning permanent vegetation, use mulches and soil stabilizations to protect surface until permanent vegetation is established.
8. Remove filter material from inlets following establishment of a good permanent vegetative cover. Clean and repair all permanent water conveyance, storm sewerage, and stormwater management structures.

MONTGOMERY COUNTY SOIL AND WATER CONSERVATION DISTRICT

STANDARD

TEMPORARY COVER FOR CRITICAL AREAS

DEFINITION: Stabilizing sediment producing and severely eroded areas by establishing temporary annual grasses or small grains.

PURPOSE: To provide short term rapid cover for the control of surface runoff and erosion until permanent vegetation or other stabilization materials can be established.

WHERE APPLICABLE: On all sediment producing areas where the period of exposure will be more than two (2) months, but less than twelve (12) months; such as construction sites, eroding areas within urban and industrial areas, and certain cut and fill slopes.

SPECIFICATIONS

1. Site Preparation
   a. Install needed surface water control measures.
   b. Perform all cultural operations at right angles to the slope.
   c. Apply uniformly 2 tons of ground limestone per acre (100 lbs. per 1,000 sq. ft.) or according to soil test.
   d. Apply uniformly a 10-10-10 fertilizer, or equivalent, according to soil test or at the rate of 400 lbs. per acre (10 lbs. per 1,000 sq. ft.).
   e. Work in lime and fertilizer to a depth of 4 inches using any suitable equipment.

2. Establishment
   a. Select species according to recommended seeding dates from table on pages 11 and 12.
   b. Apply seed uniformly according to the rate indicated in the table, by broadcasting, drilling or hydraulic application.
   c. Cover ryegrass and field bromegrass grass seeds with 1/4 inch of soil with suitable equipment. Cover rye or oats with about 2 inches of soil. Cover sudangrass with about 1 inch of soil.

   (Adapted from U.S.D.A. Soil Conservation Service Standard and Specifications for Critical Area Planting #342.)

TEMPORARY SEEDINGS FOR CRITICAL AREAS

es re	Percent by Weight	Seeding Rates in Lbs. per 1,000 sq.ft.	per acre	Recommended Seeding Dates	Adaptation to Soil Site Con: Shallow Well Drained	Mod. Deep Well Drained	Deep Well Drained	Mod. Well Drained
Ryegrass	100	1	20 to 40	March 1 to June 15 Aug. 15 to Sept. 15	x	x	x	x
Bromegrass	100	1	20 to 40	March 1 to June 15 Aug. 15 to Sept. 15	x	x	x	x
Oats	100	2.5	96	March 1 to June 15	x	x	x	x
ass	100	1	30 to 40	May 15 to Aug. 15	x	x	x	x
Rye	100	3.5	140	Aug. 15 to Oct. 15	x	x	x	x
Ryegrass Oats	25 75	2	85	Mar. 1 to June 15	x	x	x	x

STANDARD

TEMPORARY COVER FOR CRITICAL AREAS

DEFINITION: Stabilizing sediment producing and severely eroded areas by establishing temporary annual grasses or small grains.

PURPOSE: To provide short term rapid cover for the control of surface runoff and erosion until permanent vegetation or other stabilization materials can be established.

WHERE APPLICABLE: On all sediment producing areas where the period of exposure will be more than two (2) months, but less than twelve (12)

STANDARD

MONTGOMERY COUNTY SOIL AND WATER CONSERVATION DISTRICT

STANDARD

PERMANENT GRASS AND LEGUME COVER

FOR CRITICAL AREAS

ON PREPARED SEEDBED

DEFINITION: Stabilizing sediment producing and severly eroded areas by establishing permanent grass and/or legume cover.

PURPOSE: To provide permanent vegetative cover to control surface run-off and erosion.

WHERE APPLICABLE: On all sediment producing areas where it is feasible to prepare seedbed and where the period of exposure will be more than twelve (12) months; such as construction sites, and eroding areas within urban and industrial areas.

SPECIFICATIONS

1. Site Preparation

   a. Install needed surface water control measures.
   b. Perform all cultural operations at right angles to the slope.
   c. Apply lime according to soil test or at the rate of 3 tons ground limestone per acre (150 lbs. per 1,000 sq. ft.).
   d. Apply fertilizer according to soil test or work in deeply 1,000 lbs. of 0-20-20 or equivalent per acre (25 lbs. per 1,000 sq. ft.) and at the time of seeding work into the surface 1,000 lbs. of 10-10-10 or equivalent per acre (25 lbs. per 1,000 sq. ft.).

2. Establishment

   a. Smooth and firm seedbed with cultipacker, or other similar equipment, prior to seeding.
   b. Select species according to recommended seeding data from the Table
   c. Apply seed uniformly according to rate indicated in the Table, by broadcasting, drilling or hydraulic application.
   d. Cover grass and legume seeds with 1/4 inch of soil, with suitable equipment.
   e. Use sodding, suitable mats, netting, or mulch anchoring methods where there is a heavy concentration of water and it is important to get a quick vegetative cover to prevent gullying.

3. Maintenance

   a. Lime according to soil test every 5 years.
   b. Where grasses predominate, broadcast annually, or as needed, 600 lbs. of 10-10-10 or equivalent per acre (14 lbs. per 1,000 sq. ft.).
   c. Where legumes predominate, broadcast every 3 years, or as needed, 300 lbs. of 0-20-20 or equivalent per acre (7 lbs. per 1,000 sq. ft.).

4. Management

a. For forage, harvest the first crop when the grass is in the boot stage or the legume is in early bloom. Harvest successive crops before grass begins jointing or when grass is in the boot stage.
b. For wildlife, delay mowing until nesting period ends (about July 15). Remove heavy concentrations of residue after mowing to prevent smothering.
c. For all other uses, mow as needed to control weeds, improve appearance, or to maintain stand of desired vegetation.

(Adapted from U.S.D.A. Soil Conservation Service Standard and Specifications for Critical Area Planting #342.)

PERMANENT GRASS AND LEGUME COVER

FOR CRITICAL AREAS

ON PREPARED SEEDBED

MONTGOMERY COUNTY SOIL AND WATER CONSERVATION DISTRICT

PERMANENT GRASS AND LEGUME COVER

FOR CRITICAL AREAS

ON PREPARED SEEDBED

DEFINITION: Stabilizing sediment producing and severly eroded areas by establishing permanent grass and/or legume cover.

PURPOSE: To provide permanent vegetative cover to control surface run-off and erosion.

MONTGOMERY COUNTY SOIL AND WATER CONSERVATION DISTRICT

STANDARD

ANENT SEEDINGS FOR CRITICAL AREAS ON PREPARED SEED

COVER 3/

er and Mixture 5/	Percent by Weight	Seeding Rates in lbs. per 1,000 sq. ft.	per acre	Recommended Seeding Dates	Adaptation to Soil-Si: Shallow Well Drained	Mod. Deep Well Drained	Deep Well Drained
ll Fescue	88	1 - 2	40	April 1 to June 15 4/			
Trefoil 1/	12			July 25 to Sept. 15	x	x	x
ll Fescue	38						
Red Fescue	50	1 - 2	40	Mar. 1 to May 20 4/	x	x	x
	12			July 25 to Sept. 15			
rygrass	83	1 - 2	30	Mar. 1 to June 15 4/	x	x	x
	17			July 25 to Sept. 15			
l Fescue	75	1 - 2	40	Mar. 1 to June 15 4/	x	x	x
Trefoil 1/	25						
l Fescue or Red Fescue or	75	1 - 2	40	Mar. 1 to May 30 4/	x	x	x
h 1/	25			July 25 to Sept. 15			
l Fescue	55						
Trefoil 1/	25	1 - 2	40	Mar. 1 to June 15 4/	x	x	x
h 1/	20						
l Fescue or ygrass or e Grass 2/	45	1/2 - 1	22	Apr. 1 to June 15 4/	x	x	x
	55			July 25 to Sept. 15			

PERMANENT SEEDINGS FOR CRITICAL AREAS ON PREPARED SEE

MANENT COVER

of Cover and s or Mixture	Percent by Weight	Seeding Rates in Lbs. per 1,000 sq. ft.	per Acre	Recommended Seeding Dates	Adaptation Conditions: Shallow Well Drained	Mod. Deep Well Drained	Deep
(1) (2)	30 70	1/2-1 1/2-1	17	April 1 to June 15 (4)	x	x	x
ot Trefoil	40 60	1/2-1	13	April 1 to June 15 (4)	x	x	x
all Fescue or harygrass or rome Grass ot Trefoil (1) (2)	55 45	1/2-1	18	April 1 to June 15 (4)	x	x	x

) Inoculate legume seeds-use four time the normal rate when hydroseeding.

) Use these mixtures on the gentle, less erosive slopes.

) One to 1-1/2 bu. of small grain may be seeded with any of the mixtures in this section that do not contain a legume. Mow small grains just before they head out, if slopes permit. If small grain is sown, cover seed to depth of 2 inches.

(4) When seedings are mulched, seedi be extended from November 15 to dormant seedings and March 1 to for regular.

(5) In situations where other lawn g desired, follow the seeding reco The Turf Grass Guide, Pennsylvan University, College of Agricultu Service, University of Pennsylva

MONTGOMERY COUNTY SOIL AND WATER CONSERVATION DISTRICT

STANDARD

PERMANENT GRASS AND LEGUME COVER

FOR CRITICAL AREAS

ON UNPREPARED SEEDBED

DEFINITION: Stabilizing sediment producing and severely eroded areas by establishing permanent grass and/or legume cover.

PURPOSE: To provide permanent vegetative cover to control surface runoff and erosion.

WHERE APPLICABLE: On all sediment producing areas where the period of exposure will be more than twelve months, and a prepared seedbed can not or will not be made; such as construction sites, and eroding areas within urban and industrial areas.

SPECIFICATIONS

1. Site Preparation

a. Install needed water control measures.
b. Where practical, loosen surface by dragging heavy chain or other suitable implement over area to be seeded.
c. Apply ground limestone according to soil test or at the rate of 3 tons per acre (150 lbs. per 1,000 sq. ft.).
d. Apply fertilizer according to soil test or at the rate of 800 lbs. of 10-20-20 or equivalent per acre (20 lbs. per 1,000 sq. ft.) at the time of seeding.

2. Establishment

a. Seed by using one of the mixtures listed in table

b. Lime, fertilizer, seed, and mulch may be applied by any method that will give uniform distribution of the materials. Hydraulic application is an approved method.
c. Apply mulch according to Standard and Specifications for mulching.

3. MAINTENANCE

a. Lime according to soil test every five years or apply 2 tons of ground limestone per acre every 3 to 5 years as needed (100 lbs. per 1,000 sq. ft.).
b. Where grasses predominate, broadcast annually or as needed 600 lbs. or 10-10- or equivalent per acre (14 lbs. per 1,000 sq. ft.).
c. Where legumes predominate, broadcast every 3 years or as needed 300 lbs. of 0-20-20 or equivalent per acre (7 lbs. per 1,000 sq. ft.)
d. Mow sufficiently often to control weeds and rank growth of grasses.

(Adapted form U.S.D.A. Soil Conservation Service Standard and Specifications for Critical Area Planting #342.)

ENT SEEDINGS FOR CRITICAL AREAS ON UNPREPARED SEEDBED WITH

VER

Adaptation to Soil-Site Conditio

and ture	Percent by Weight	Seeding Rates in Lbs. Per 1,000 sq. ft.	per acre	Recommended Seeding Dates	Shallow - Well Drained	Mod. Deep Well Drained	Deep Well Drained	Mod. Well Drained
scue	100	1-2	45	Mar. 1 to Oct. 15 Nov. 15 to Mar. 1	x	x	x	x
scue	88 12	1-2	40	Mar. 1 to Oct. 15 Nov. 15 to Mar. 1	x	x	x	x
cue Fescue	38 50 12	1-2	40	Mar. 1 to Oct. 15 Nov. 15 to Mar 1	x	x	x	x
cue foil 1/	75 25	1-2	40	Mar. 1 to July 25 Nov. 15 to Mar. 1	x	x	x	x
ue 1/	60 40	1-2	50	Mar. 1 to July 25 Nov. 15 to Mar. 1	x	x	x	x

Notes: 1/ Inoculate legume seeds - use 4 times the normal rate when hydro

FOR CRITICAL AREAS

ON UNPREPARED SEEDBED

DEFINITION: Stabilizing sediment producing and severely eroded areas by establishing permanent grass and/or legume cover.

PURPOSE: To provide permanent vegetative cover to control surface runoff and erosion.

NORTHUMBERLAND COUNTY SOIL AND WATER CONSERVATION DISTRICT

MONTGOMERY COUNTY SOIL AND WATER CONSERVATION DISTRICT

STANDARD

SODDING

DEFINITION: Stabilizing sediment producing and severely eroded areas by establishing vegetative cover.

PURPOSE: To stabilize the area to reduce damages from sediment and surface runoff where there is a heavy concentration of water and it is important to get quick vegetative cover to prevent gullying.

WHERE APPLICABLE: On all sediment producing areas such as gullied areas, cut and fill slopes, eroding areas within urban, industrial or agricultural areas.

SPECIFICATIONS

1. Site Preparation

   a. Install needed water control measures.

   b. Apply lime according to soil test or at the rate of 3 tons of ground limestone per acre (150 lbs. per 1,000 sq. ft.)

   c. Apply fertilizer according to soil test or work in deeply 1,000 lbs. of 0-20-20 (35 lbs. per 1,000 sq. ft.). Apply and work in to a depth of 1 inch 1,000 lbs. of 10-10-10 per acre (25 lbs. per 1,000 sq. ft.).

   d. Loosen soil surface to a depth of 1 inch with a shallow tillage tool and dampen before laying sod.

2. Selection

   a. Select sod grown from certified seed of adapted varieties and under cultural practices conducive to high quality sod that will be free of any serious thatch, weeds, insects, diseases, and other pest problems.

   b. Select species and varieties best suited for the sites to be planted and purpose for which turf is to be used. Use only varieties tested and approved by State Experiment Stations.

   c. Select sod at least one year old and no older than three years. Cultivated turfgrass is usually considered ready for harvest when a cut portion of sod 3 feet in length and about 1-1/2 feet in width will support its own weight. The most common age of sod when cut is 15 to 24 months.

   d. Select sod cuts of a width and length suited to the equipment and job. Generally, sod cuts are from 12 to 24 inches wide with 12 inches being the most common width. Length of cuts vary from 4 to 8 feet. Sod may be cut and rolled or folded in the middle and stacked on pallets. Folded sod is cut shorter than rolled sod--about 3 to 4 feet in length. Sod should be cut with a 1/2 to 1 inch layer of soil. About 80 percent of all rhizomes are

very steep slopes to hold sod in place until secured by plant growth.

c. Irrigate sodded area if unfavorable weather or other conditions

in the top 3/4 inch of soil. The thinner the sod is cut (1/2 to 3/4 inch), the more quickly it will knit to the site soil.

4. Management and Maintenance

e. Deliver sod to the site as soon as practical after lifting. During hot weather, delivery should be made within 6 hours and may be extended to 48 hours during July and August. It is generally unwise to move sod during July and August. If moved during this period sod may need to be cut 1-1/4 inches thick and will require intensive care.

3. Establishment

a. Lay strips of sod at right angles to direction of slope or flow of water starting at the lowest elevation. Wedge the edges and ends of the sod strips together and tamp or roll. Stagger joints. Make the top of the sod strips flush with the top of the undisturbed ground.

b. Use wire staples, fine mesh wire, or wood pins and binder twine on very steep slopes to hold sod in place until secured by plant growth.

c. Irrigate sodded area if unfavorable weather or other conditions prevail. It may also be desirable to irrigate area from which sod is to be removed prior to lifting.

4. Management and Maintenance

a. Lime according to soil test every 5 years.

b. Topdress annually or as needed with a 10-10-10 fertilizer at the rate of 600 lbs. per acre (14 lbs. per 1,000 sq. ft.)

c. Mow once or twice a year to reduce undesirable growth.

(Adapted from U.S.D.A. Soil Conservation Service Standard and Specifications for Critical Area Planting #342.)

SODDING

DEFINITION: Stabilizing sediment producing and severely eroded areas by establishing vegetative cover.

PURPOSE: To stabilize the area to reduce damages from sediment and surface runoff where there is a heavy concentration of water and it is important to get quick vegetative cover to prevent gullying.

WHERE APPLICABLE: On all sediment producing areas such as gullied areas, cut and fill slopes, grading areas within

MONTGOMERY COUNTY SOIL AND WATER CONSERVATION DISTRICT

STANDARD

MONTGOMERY COUNTY SOIL AND WATER CONSERVATION DISTRICT

STANDARD

MULCHING

DEFINITION: Applying plant residues or other suitable materials, not produced on the site, to the surface of the soil.

PURPOSE: To reduce surface runoff and erosion, prevent surface compaction or crusting, conserve moisture, aid in establishing plant cover, and control weeds.

WHERE APPLICABLE: On any area subject to erosion or which has unfavorable conditions for plant establishment and growth. The practice may be used alone or in conjunction with other structural and vegetative conservation practices such as waterways, ponds, or critical area planting.

SPECIFICATIONS

1. Application

a. For areas subject to critical erosion install temporary erosion control devices such as furrows, diversions, etc., within or adjacent to area to be mulched.

b. Select the type of mulch and application rate from TABLE 1. which will best meet the use and performance requirements.

c. Determine anchoring requirements if needed and select a method of anchoring from TABLE 2. which will best meet the specific job requirements.

(Adapted from U.S.D.A. Soil Conservation Service Standard and Specifications for Mulching #484.)

Part A. GUIDE TO MULCH MATERIALS RATES AND USES

rial	Quality Standards	Application Rates per 1000 sq. ft.	Rates per acre	Depth of Application	Remarks
mulsion	SS-1 SS-K	14-28 gal.	600 - 1200 gal.	-	Use as a film on seeded areas mulch. Requires special equip Application rate critical - to seedings from penetrating and prevents erosion control.
ushed ag	Washed - Size 2B or 3A	9 cu. yds.	-	3"	Excellent mulch for short slop woody plants and ornamentals. subject to foot traffic. (Appr /cu. yds.)
Sugar	Air-dried well shredded	200-400 cu. ft. 14-28 bales	-	2" - 4"	Most effective as a mulch arou trees, shrubs and small fruits for erosion control. Resistan ing. Packaged in 100 lb. bales slowly.
aw	Air-dried, free from undesirable seeds and course materials	75-100 lbs. 2-3 bales	1.5-2.5 tons 90-120 bales	Lightly cover 75% to 90% of surface	Use straw where mulch effect i tained for more than 3 months. blowing unless kept moist or t common and widely used mulchin Good for erosion control in cr
ı or ls	Air-dried, free from excessive fine materials.	200-400 cu. ft.	-	2" - 4"	Most effective as a mulch arc Excellent moisture conserver. about one year. Subject to wi Packaged in 50 lb. bags.
	Well shredded free from excessive course material	400-600 lbs.	8-10 tons	-	Use straw manure where erosic needed. May create problem wi Excellent moisture conserver. wind blowing.
chopped	Air-dried, shredded into 8" to 12" lengths	150-300 lbs.	4-6 tons	-	Effective for erosion control, to decompose. Excellent for r fields. Has about same value Resistant to wind blowing.

1 Part A. (Continued) GUIDE TO MULCH MATERIALS RATES AND USES.

lal	Quality Standards	Application Rates per 1000 sq. ft.	Application Rates per acre	Depth of Application	Remarks
loss	Dried, compressed, free from course materials.	200-400 cu. ft.	-	2" - 4"	Most effective as a mulch around Subject to wind blowing unless k Packaged in 100 lb. bales (6 cu. moisture holding capacity.
traw dles	Air-dried, free from course objectionable material.	50-90 lbs.	1-2 tons	-	Use at 2 ton/acre where erosion desired. Resistant to wind blowi slowly.
t, or ted	Free from objectionable course material	83-500 cu. ft.	-	1" - 7"	Most effective as a mulch around small fruits, and other nursery application rates: Fruit trees berries 6"; Vegetables and Flowe berries and raspberries 4-7"; Str Most resistant to wind blowing. lbs. N/ton to prevent N deficienc caying mulch. One cu. ft. weighs
	Air-dried, non-toxic.	300-400 cu. ft.	-	3" - 4"	Effective mulch around ornamental sistant to wind blowing than peat moisture holding capacity. Packag bags (approx. 2 cu. ft.)
ips ings	Green or air-dried. Free from objectionable coarse materials.	500-900 lbs.	10-20 tons	2" - 7"	Has about the same use and applic sawdust, but requires less N/ton Resistant to wind blowing. Decomp

Part A. GUIDE TO MULCH MATERIALS RATES AND USES

rial	Quality Standards	Application Rates per 1000 sq. ft.	Application Rates per acre	Depth of Application	Remarks
mulsion	SS-1 SS-K	1½-2? gal.	600 - 1200 gal.	-	Use as a film on seeded areas mulch. Requires special equi seedings from penetrating

Part A. (Continued) GUIDE TO MULCH MATERIALS RATES AND USES

al	Quality Standards	Application Rates per 1000 sq. ft.	Application Rates per acre	Depth of Application	Remarks 1/
or	Green or air-dried burred wood fibers .024" x .031" x 4"	90 lbs. (1 bale)	2 tons	-	Effective for erosion control. T usually not required. Decompose Subject to some wind blowing. Pa 80-90 lb. bales.
ted	Dyed Green. No growth organism inhibiting factors. air dried. 30% fibers 3.7 mm or longer.	25-30 lbs.	1,000 - 1,500 lbs.	-	When used for erosion control on areas double application rate. hydro-mulcher. No tie-down requi aged in 100 lb. bags.

NOTE: 1/ All mulches will provide some degree of (1) ero control, (2) moisture conservation, (3) weed contro (4) reduction of soil crusting.

Part B GUIDE TO MULCH MATERIALS, RATES AND USES

rial. tting	Quality Standards	Unit Size	Unit & Weight	Area Covered Per Unit	Remarks
aft	Plain weave, warp 7/in. filling 4/in. selvage edge with polyprophylene filament	45" x 250 yds.	Roll 100 lbs.	312-1/2 sq. yds.	Use to hold seed and a without mulch. Tie down manufacturing specifica
ft	Fungicide treated warp 1.1 pairs/in. filling 2.5/in.	45" x 250 yds.	Roll 80 lbs.	312-1/2 sq. yds.	Use over bare soil or a erosion and hold seed. waterways, critical slo cal ditch bottoms. Tie staples as per manufact
l	Undyed, unbleached plain weave, warp 78 ends/yd. weft 41 ends/yd.	48" x 50 yds. or 48" x 75 yds.	Roll 60 lbs. 90 lbs.	60 sq. yds. 100 sq. yds.	Use without additional as per manufacturing sp Effective for erosion c critical areas.
d'	Interlocking web of excelsior fibers with a mulch net backing on one side only.	36" x 30 yds.	Roll	16 1/2 sq. yds.	Use without additional as per manufacturing spe
	1/4" thick, 7/16" dia. holes on 1" centers 2-4 mils.	72" x 30 yds.	Roll 56 lbs. (Variable up to 50' wide.)	100 sq. yds.	Use without additional with T Bars as per manuf specifications. Use black for weed contr for seeding establishmen organic mulch. Release p seeding is established. moisture conservation an for small fruits.

Part A. (Continued) GUIDE TO MULCH MATERIALS RATES AND USES

Quality Standards	Application Rates per 1000 sq. ft.	Application Rates per acre	Depth of Application	Remarks 1/
-dried ded wood	(1 bale)			Effective for erosion con usually not required.

MULCH ANCHORING GUIDE

MULCH ANCHORING GUIDE

Method al	Kind of Mulch to be Anchored	How to Apply
twine	Hay or straw, shredded sugar cane or corn stalks. Pine Straw.	After mulching, divide area into blocks 1 sq. yd. in size. Drive 4 - 6 pegs pe within 2 to 3 inches of soil surface. S to soil surface by stretching twine betw a criss-cross pattern on each block. Se around each peg with two or more turns. flush with soil where mowing and maintens
tting notched)	Hay or straw, shredded sugar cane or corn stalks, pine straw, compost wood shavings, tanbark.	Staple light-weight paper, jute, wood fib nettings to soil surface according to man recommendations.
stones	Plastic	Plow a single furrow along edge of area t with plastic, fold about 6 inches of the the furrow and plow furrow slice back ove Use stones to hold plastic down in other needed.
	Hay or straw, Corn stalks	Cut mulch into soil surface with a square Make cuts in contour rows spaced 18 inche
pray	Cocoa beans or peanut hulls, compost, wood chips, wood shavings, hay or straw, shredded sugar cane or corn stalks.	Apply with suitable spray equipment using ing rates; Asphalt emulsion 0.04 gallons yards; liquid asphalt (rapid, medium, or s 0.10 gallons per square yard.
n	Hay or straw, corn stalks, manure compost, pine straw.	Use on slopes steeper than 3 to 1. Pull a with suitable power equipment.
horing isk r notched)	Hay or straw, manure, corn stalks, pine straw.	Apply mulch and pull a mulch anchoring too When a disk (smooth) is used, set in the s position and pull across the slope with su power equipment. Mulch material should be into the soil surface about 3 inches.

ER-BWO-266
rev. 2/79

4691402

SEWERAGE PERMIT APPLICATION
DEPARTMENT OF ENVIRONMENTAL RESOURCES

APPLICANT NAME* Upper Gwynedd-Towamencin Municipal Authority ADDRESS: 2225 Kriebel Road

CITY, ZIP Lansdale, PA 19446 TELEPHONE NUMBER: (215) 855-8165

*Applicant shall be the agency which will own the sewerage facilities following completion of construction and/or dedication.

A filing fee check of $25.00 made out to Pennsylvania Department of Environmental Resources is required with the application.

PROJECT NAME: Towamencin Village - Sect. VI and VII PROJECT ACREAGE: 88.1 Acres

MUNICIPALITY: Towamencin Township COUNTY: Montgomery

NOTE: Please attach a drawing which clearly shows the boundaries of the proposed service area, the properties to be served, the location of the sewerage facilities, the slopes of proposed sewers on the plan with inverts of manhole, point of connection to existing sewers, and all streets, streams or other important site features. Also include specifications for the facilities and an erosion an sedimentation control plan.

For any deviations from the Sewerage Manual, please note clearly and fully justify.

FOR THE APPLICANT

I hereby apply for approval on (Date) January 14, 1981 to construct and operate [X] Sewers and appurtenances [ ] Sewage pumping stations(s) which [ ] does [X] does not include stream crossings(s).

For sewage pumping stations include detailed construction plans, Module 7 and an erosion and sedimentation control plan.

For stream crossing, include the plan and profile view of the sewer line crossing along with specific construction techniques including soil erosion and sedimentation control provisions.

Affidavit: I hereby certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and based on my inquiry of those individuals immediately responsible for obtaining the information I believe the submitted information is true, accurate and complete.

Applicant's Signature: H. Warren Dimmig

Name and Title: H. Warren Dimmig, Chairman, U.G.T.M.A.

Address: 2225 Kriebel Road, Lansdale, PA 19446

Sworn and subscribed to before me this 15th day of JANUARY, 1981.

Notary's seal and signature Jeffrey A. West

Jeffrey A. West, Notary Public
Lansdale Borough, Montgomery County
My Commission Expires Aug. 16, 1982
Member, Pennsylvania Association of Notaries

FOR THE DESIGN ENGINEER

Affidavit: I, Herbert H. Metz, Jr., do hereby certify that the information contained in the accompanying plans, specifications, and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance with the standards, guidelines and requirements of the Department of Environmental Resources.

Design Engineer's Seal and Signature: Herbert H. Metz

Name of Engineering Firm: Herbert H. Metz, Inc.

Address, Zip 410 Derstine Avenue, Lansdale, PA 19446 (215) 885-3111

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
HERBERT HALLMAN METZ, JR.
ENGINEER
No. 5953-E

H710.047 REV.5-21 COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
SANITARY ENGINEERING

For Department Use Only

INTERNAL REVIEW AND RECOMMENDATIONS

REGIONAL ENGINEER'S REVIEW

NAME OF APPLICANT: Upper Gwynedd Towamencin Municipal Authority
PROJECT LOCATION: Towamencin Township, Montgomery County
APPLICATION NUMBER: 4681402

BRIEF DESCRIPTION OF PROJECT: The Applicant requests approval for the construction of a sanitary sewer extension to serve the 88 acre Towamencin Village Residential Subdivision Sections VI and VII located off Bustard Road in Towamencin Township, Montgomery County. All phases will be developed at separate time periods and at no time will more than 25 acres of land be under construction.

DISCUSSION (Use Additional Sheets If Necessary):
Sewage from the proposed sewer extension will be conveyed to the Upper Gwynedd - Towamencin Municipal Authority STP via existing Upper Gwynedd - Towamencin sewers covered under Permit No. 765S13 and 4673446. The final effluent will be afforded secondary treatment before discharge to the Towamencin Creek. The proposed sewer extension will serve 497 people initially and ultimately. The soil erosion and sedimentation control plan has been reviewed and approved by the Montgomery County Soil Conservation District. There are no encroachments in this permit.

CURRENT ESTIMATE OF COMPLETION DATE OF PROJECT (Industrial Wastes Only)

RECOMMENDATION AND ACTION

APPROVAL – RELEVANT LAWS, REGULATIONS, STANDARDS, AND POLICIES HAVE BEEN COMPLIED WITH:

Issue By Region	Issue By Central Office	Refuse	Signature	Date
☑	☐	☐	Marie C. Doherty REVIEWING ENGINEER	1-30-81
☑	☐	☐	Leonard L. Beadle FACILITIES ENGINEER	1/30/81
☒	☐	☐	[illegible] REGIONAL ENGINEER	2-2-81
	☐	☐	DIV. FACILITIES ENGINEER	
	☐	☐	DIVISION DIRECTOR	
		☐	BUREAU DIRECTOR	

PERMIT CONDITIONS:
1. STANDARD –
Erosion Control (1973) - 1 thru 20
Sewerage (1972) - 1 thru 9, 11 thru 14, 21, 22, 30 31

2. SPECIAL (Use Additional Sheets If Necessary) –

255 Recording of Permit: Montgomery County

ER-BWQ-15-Rev. 4/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT

NO. 4681402

A. PERMITTEE: (Name and Address)
Upper Gwynedd - Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

B. PROJECT LOCATION
Municipality: Towamencin Township
County: Montgomery County

C. TYPE OF FACILITY (For Industrial wastes: type of establishment)
Sanitary Sewer Extension

D. NAME OF MINE, PLANT, AREA SERVED, OUTFALL NO., ETC.
Towamencin Village Section VI & VII

E. THIS PERMIT APPROVES:

1. Plans For Construction Of: a. [X] Sewers and Appurtenances b. [ ] Sewage Treatment Facilities c. [ ] Industrial Wastes Treatment Facilities d. [ ] Mine Drainage Treatment Facilities e. [ ] Outfall & Headwall f. [ ] Stream Crossing g. [ ] Impoundment

2. N/A The Discharge Of: a. [ ] Treated b. [ ] Untreated c. [ ] Sewage d. [ ] Industrial Wastes

3. N/A Discharge To: a. [ ] Surface Water b. [ ] Ground Water
Name of Stream to which discharged or drainage area in which groundwater discharge takes place or impoundment is located.

4. The Operation of a Mine [ ]
N/A Maximum Area to be Deep Mined _____ Acres

5. An Erosion and Sedimentation Control Plan [X]
Project Area is 88.1 Acres

F. THIS APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:

1. ALL CONSTRUCTION, OPERATIONS, PROCEDURES AND DISCHARGE SHALL BE IN ACCORDANCE WITH APPLICATION NO. 4681402 DATED 1/14/81 AND AMENDMENTS DATED _____, ITS SUPPORTING DOCUMENTATION, SUCH APPLICATION, ITS SUPPORTING DOCUMENTATION AND AMENDMENTS ARE HEREBY MADE A PART OF THIS PERMIT.

2. CONDITIONS NUMBERED 1 thru 9, 11 thru 14, 21, 22, 30 and 31 OF THE Sewerage STANDARD CONDITIONS DATED 1972 AND CONDITIONS NUMBERED 1 thru 20 OF THE EROSION CONTROL STANDARD CONDITIONS DATED 1973 WHICH CONDITIONS ARE ATTACHED AND MADE PART OF THIS PERMIT.

3. SPECIAL CONDITIONS DESIGNATED _____ WHICH ARE ATTACHED AND ARE MADE A PART OF THIS PERMIT.

This permit must be recorded in the Recorder of Deeds Office in Montgomery County.

G. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. IF THERE IS A CONFLICT BETWEEN THE APPLICATION ON ITS SUPPORTING DOCUMENTS AND AMENDMENTS AND THE STANDARD OR SPECIAL CONDITIONS, THE STANDARD OR SPECIAL CONDITIONS SHALL APPLY.
2. FAILURE TO COMPLY WITH THE RULES AND REGULATIONS OF THE DEPARTMENT OR WITH THE TERMS OR CONDITIONS OF THIS PERMIT SHALL VOID THE AUTHORITY GIVEN TO THE PERMITTEE BY THE ISSUANCE OF THE PERMIT.
3. THIS PERMIT IS ISSUED PURSUANT TO THE CLEAN STREAMS LAW, ACT OF JUNE 22, 1937, P.L. 1987 AS AMENDED 35 P.S. § 691.1 ET SEQ. AND/OR THE WATER OBSTRUCTION ACT, ACT OF JUNE 25, 1913, P.L. 555 AS AMENDED 32 P.S. § 681 ET SEQ. ISSUANCE OF THIS PERMIT SHALL NOT RELIEVE THE PERMITTEE OF ANY RESPONSIBILITY UNDER ANY OTHER LAW

PERMIT ISSUED
DATE 2-2-81

DEPARTMENT OF ENVIRONMENTAL RESOURCES
BY C. T. Beechwood
C. T. Beechwood, P.E.
TITLE Regional Water Quality Manager

S257

REGIONAL OFFICE

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
Norristown, PA 19401
215 631-2405

February 2, 1981

Upper Gwynedd - Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: H. Warren Dimmig
Chairman

Re: Sewerage Permit No. 4681402
Towamencin Village Section VI & VII
Towamencin Township
Montgomery County

Gentlemen:

Above referenced permit is enclosed.

Please study the permit carefully and direct any questions to the Facilities Section of this office.

To become operative this permit must be recorded in the Office of the Recorder of Deeds in the county in which the discharge is located. Enclosed is a certificate and pre-addressed envelope for this purpose. Please have the Recorder of Deeds accomplish the certificate and return it within ten (10) days.

Very truly yours,

C.T. Beechwood, P.E.
Regional Water Quality Manager

CTB:MF:jp

Enlosures: Permit
Standard Conditions Relating to Sewerage
Standard Conditions Relating to Erosion Control
Recorder of Deeds Certificate with envelope
Notary Public Certificate

cc: Herbert H. Metz
Ce Re 30
3256

Bureau of Water
FEB 6 1981
Quality Management

ER-BWQ-68 Rev. 4-73

Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Sewerage Permit No. 4681402

Towamencin Township
Montgomery County

Commonwealth of Pennsylvania
Department of Environmental Resources

RECORDER OF DEEDS CERTIFICATE

I hereby certify that on 2-11-81 (Date) Loretta D. Bradbury Deputy Recorder of Deeds for

there was recorded in Book Montgomery County

page the sewerage permit issued

to Upper Gwynedd-Towamencin Muc'pl auth.

bearing date of 2-2-81

Norristown, PA 19401
215 631-2405

February 2, 1981

Upper Gwynedd - Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: H. Warren Dimmig
Chairman

Loretta D. Bradbury
Deputy Recorder of Deeds for
Montgomery County

Sewerage Permit No. 4681402

COMMONWEALTH OF PENNSYLVANIA

ER-BWQ-69 Rev. 1/78

4641402

STATE OF PENNSYLVANIA
COUNTY OF MONTGOMERY } SS

On the 2nd day of February in the year one thousand nine hundred and eighty-one before me, the Subscriber, a Notary Public, came the above named

C.T. Beechwood

and duly acknowledged the foregoing permit to be his act and deed and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year aforesaid.

Wilbur P. Stender
NOTARY PUBLIC

WILBUR P. STENDER, Notary Public
Norristown Boro, Montg. Co.
My Commission Expires Nov. 2, 1981

Commonwealth of Pennsylvania
Department of Environmental Resources

Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Sewerage Permit No. 4641402

Towamencin Township

ER-EP-1: Rev. 7/80

FORM NO. 1

SUBJECT: Sewerage

CONTACT(S): Upper Gwynedd.

Application Nos.: 4681%

New Proposal	✓
Revised Proposal	

FROM: Montgomery

Regional Director

TO: R Dietz

Permit Coordination Requirements: None

On 1-16-81, we (accepted/received) an application for plan approval and/or permit to (construct/~~modify/install~~) a sewer extension to serve Towamencin Village II & VII in Towamencin Township,

~~This proposal involves:~~ Montgomery county.

Sew to upper Gwynedd-Towamencin STP

Permit Coordination Requirements: None

DATE 1/28/81

Program	No Permit Required	No Permit Required Prior Approval Required	Permit Required Application on Hand	Permit Required Application Needed
Air Quality	✓			
Water Quality (Planning Facilities)	✓		ALL 1/21/81	✓
Solid Waste Management	✓			
Community Env. Control	✓			
Mining & Reclamation	—			
Radiation Protection	—			
Dams & Waterway Management	✓			

Please indicate your interest on this form and return to the Regional Director by 1-23-81. Failure to return the form by the indicated date will indicate that your program has no interest in the project.

ER-BWQ-69 Rev. 1/78

ER – EP

START

DEPARTMENT OF ENVIRONMENTAL RESOURCES

BUREAU/PROGRAM Water Quality Management

ENVIRONMENTAL PROTECTION

DIVISION

COUNTY/MUNICIPALITY 46007

PROGRAM SEW

CASE NAME Upper Gwynedd-Towamencin

FILE P

PERMIT NO. 4681452 Robert C. Stiegler Subdivision

START

BUREAU/PROGRAM Water Quality Management

DIVISION

COUNTY/MUNICIPALITY 46007

PROGRAM SEW

CASE NAME Upper Gwynedd-Towamencin

FILE P

PERMIT NO. 4681452 Robert C. Stiegler Subdivision

46-21-52

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
Norristown, PA 19401
215 631-2426

OCT

October 2, 1981

Mrs. Cecil M. Daniel, Municipal Secretary
Towamencin Township
1655 Sumneytown Pike
Kulpsville, PA 19443

Re: Robert C. Stiegler Subdivision
Code No. 1-46949-030-4
Towamencin Township
Montgomery County

Dear Mrs. Daniel:

Please be advised that a review has been made and completed of the above referenced Planning Module for Land Development amending your municipality's Official Sewage Facilities Plan.

We find that the proposal is consistent with your Official Sewage Facilities Plan and that your plan is adequate.

This supplement provides for adequate Sewage Facilities planning to permit the development of 3 residential units on 4.71 acres on the southwest side of Allentown Road at its intersection with Fretz Road. Sewage will be treated at the Upper Gwynedd-Towamencin Municipal (Sewer) Authority wastewater treatment plant.

If you have any questions, please feel free to contact this office.

Very truly yours,

Glenn K. Stinson

GLENN K. STINSON
Sewage Facilities Consultant
Norristown

cc: Upper Gwynedd Township Municipal Authority
Mr. Charles E. Tacconelli
Mr. Robert C. Stiegler
WAMIS
Ce Re 30 YB212

RECEIVED
NOV 17 1981
ENVIRONMENTAL PROTECTION

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 447
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

October 9, 1981

RECEIVED
NOV 17 1981
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

Commonwealth of Pennsylvania
Department of Environmental Resources
Region I, 1875 New Hope Street
Norristown, Pennsylvania 19401

Attention: Richard Hinkle, Chief of Facilities Section

Re: Robert C. Stiegler
3-Lot Subdivision
Towamencin Township, Montgomery County

Dear Mr. Hinkle:

Application is hereby made to extend public gravity sanitary sewer facilities of the Upper Gwynedd-Towamencin Municipal Authority Sewer System. Said extension is planned to serve three (3) single-family dwellings.

Included herewith are the following:

(1) Sewerage Permit Application, as completed by the Upper Gwynedd-Towamencin Municipal Authority

(2) A filing fee check for $100.00.

(3) Two (2) prints of Plan of Subdivision for the 4.7± acre tract.

(4) Copy of approval letter regarding previously-made Planning Module submission

If you should have any questions or comments, please do not hesitate to call.

Very truly yours,

Clifford T. Stout, P.E.

CTS/jdk
Enclosures

Department of Environmental Resources
1875 New Hope Street
Norristown, Pennsylvania 19401
215 631-2402

November 24, 1981

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: Mr. H. Warren Dimmig
Chairman

Re: Application No. 4681452
Towamencin Township
Montgomery County

Gentlemen:

This will acknowledge receipt of your application on November 17, 1981 for approval to construct a sewer extension to serve the Robert C. Stiegler Subdivision in Towamencin Township, Montgomery County.

The material submitted is accepted for technical review by the staff of the Department.

You are reminded that any proposed facilities cannot be constructed without first obtaining the required permits.

Very truly yours,

LEON T. GOVSHOR
Regional Director

cc: Towamencin Township
Herbert H. Metz, Inc.
Water Quality Management - Permits Section
Re AZ518

Department of Environmental Resources

1875 Two Penn Center
Norristown, PA 19401
215 631-2411

January 29, 1982

Mr. Clifford T. Stout, P.E.
Herbert H. Metz, Inc.
P.O. Box 647
Lansdale, PA 19446

Re: Sewerage Application No. 4681452
Robert C. Stiegler Subdivision
Towamencin Township, Montgomery County

Dear Mr. Stout:

You are reminded that the issuance of the permit associated with the subject application depends solely on the submission of an adequate Erosion and Sedimentation Control Plan. We urge you to give this matter your immediate attention so as to speed the eventual issuance of this permit.

Very truly yours,

MCF

MARIE C. FAHERTY
Sanitary Engineering Aide

cc: Upper Gwynedd-Towamencin M.A. (H. Warren Dismig)
Ca Re 60 Sl123

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
419 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-9111
855-1686

February 25, 1982

U. S. Department of Agriculture
Soil Conservation Service
1725 Markley Street
Norristown, Pennsylvania 19401

Attention: Mr. Edward Brzostek
District Conservationist

Re: Robert Stiegler Subdivision
Allentown Road at Fretz Road
Towamencin Township

Dear Ed:

Enclosed please find two (2) prints of an approved plan of subdivision for the above-captioned tract.

The subject tract is to be subdivided into three (3) lots. Presently, one (1) dwelling exists on the tract together with various other buildings and drives.

Ultimately, two (2) more dwellings will be constructed, but at this time no houses are proposed to be built on either Lot 1 or Lot 3.

No off-site improvements or roadway widening improvements have been required. The only "public" improvement is the extension of an 8" Ø gravity sanitary sewer.

Please review and comment.

If you have any questions, please do not hesitate to call.

Very truly yours,

Clifford T. Stout, P.E.

CTS/jdk
Enclosures
cc: Pennsylvania Department of
Environmental Resources

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

February 26, 1982

Pennsylvania Department
of Environmental Resources
1875 New Hope Street
Norristown, Pennsylvania 19401

Attention: Marie C. Faherty
Sanitary Engineering Aide

Re: Sewerage Application No. 4681452
Robert C. Stiegler Subdivision
Towamencin Township, Montgomery County

Dear Ms. Faherty:

Please excuse the inordinate delay since our last correspondence regarding the above-captioned matter but, due to personal circumstances beyond my control, the delay was unavoidable.

Per your January 29th letter, I am enclosing herewith an Erosion and Sediment Control Plan for the Stiegler Subdivision.

I am forwarding same to the U.S. Department of Agriculture Soil Conservation Service for their review/approval.

Very truly yours,

Clifford T. Stout, P.E.

CTS/jdk

cc: U. S. Department of Agriculture
Soil Conservation Service

Enclosure

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 447
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1486

March 9, 1982

Montgomery County Conservation
District
One Montgomery Plaza, Fourth Floor
Norristown, Pennsylvania 19401

RECEIVED
MAR 10 1982
ENV... WATER ... NORRISTOWN REGIONAL OFFICE

Attention: Mr. Maynard A. King
Executive Director

Re: Robert C. Stiegler Subdivision
Sanitary Sewer Installation
Towamencin Township

Dear Mr. King:

In accordance with your letter of March 8th, I am enclosing herewith a copy of the revised plan on which I have included a "construction sequence" detailing measures for seeding, mulching and maintenance.

Very truly yours,

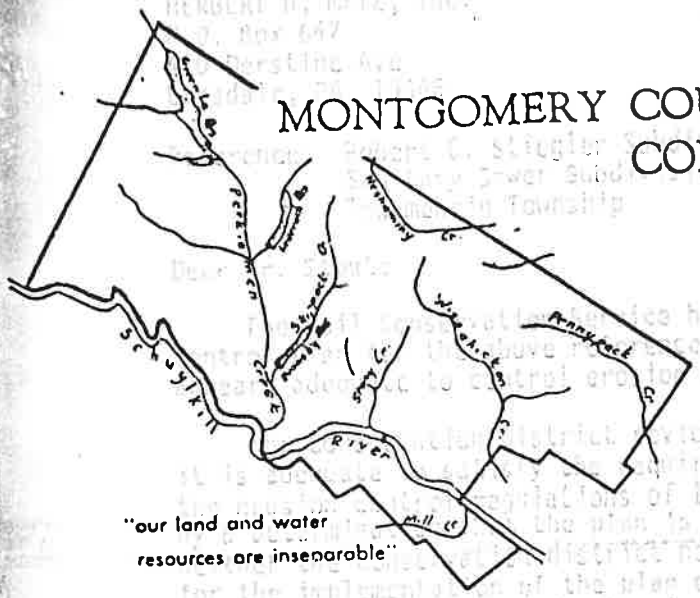
Clifford T. Stout, P.E.

CTS/jdk

Enclosure

cc: Ed Brzostek
Soil Conservation Service

cc: Marie Faherty
Department of Environmental Resources



MONTGOMERY COUNTY CONSERVATION DISTRICT

4th Floor -- One Montgomery Plaza
Court House, Norristown, PA 19404
Phone: 278-3618

RECEIVED
MAR 16 1982
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

March 12, 1982

Clifford T. Stout, P.E.
HERBERT H, METZ, INC.
P.O. Box 647
410 Derstine Ave
Lansdale, PA 19446

Reference: Robert C. Stiegler Subdivision
Sanitary Sewer Subdivision
Towamencin Township

Dear Mr. Stout:

The Soil Conservation Service has reviewed the Erosion and Sediment Control Plan for the above referenced project. The plan, as revised, appears adequate to control erosion and sediment during and after construction.

The Conservation District reviews this plan solely to determine whether it is adequate to satisfy the requirements of 25 Pa. Code §§102.1 et seq., the erosion control regulations of the Department of Environmental Resources. By a determination that the plan is adequate to meet those requirements, neither the conservation district nor the county assumes any responsibility for the implementation of the plan or the proper construction and operation of the facilities contained in the plan.

Sincerely,

Maynard A. King
Executive Director

MAK/cmp

cc: Towamencin Township Engineer
Marie Faherty, DER

RECEIVED
MAR 19 1982

ER-BWO-205
rev. 2/79

SEWERAGE PERMIT APPLICATION
DEPARTMENT OF ENVIRONMENTAL RESOURCES

APPLICANT NAME* Upper Gwynedd-Towamencin Municipal Authority, ADDRESS: 2225 Kriebel Road

CITY, ZIP Lansdale, PA 19446 TELEPHONE NUMBER: (215) 855-8165

*Applicant shall be the agency which will own the sewerage facilities following completion of construction and/or dedication.

A filing fee check of $100.00 made out to Pennsylvania Department of Environmental Resources is required with the application.

PROJECT NAME: Robert C. Stiegler Subdivision PROJECT ACREAGE: 4.7± acres

MUNICIPALITY: Towamencin Township COUNTY: Montgomery

NOTE: Please attach a drawing which clearly shows the boundaries of the proposed service area, the properties to be served, the location of the sewerage facilities, the slopes of proposed sewers on the plan with inverts of manhole, and point of connection to existing sewers, and all streets, streams or other important site features. Also include specifications (1) for the facilities and an erosion an sedimentation control plan.

For any deviations from the Sewerage Manual, please note clearly and fully justify.

RECEIVED
NOV 17 1981

FOR THE APPLICANT

I hereby apply for approval on (Date) October 9, 1981 to construct and operate [X] Sewers and appurtenances [ ] Sewage pumping stations(s) which [ ] does [X] does not include stream crossings(s).

For sewage pumping stations include detailed construction plans, Module 7 and an erosion and sedimentation control plan.

For stream crossing, include the plan and profile view of the sewer line crossing along with specific construction techniques including soil erosion and sedimentation control provisions.

Affidavit: I hereby certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and based on my inquiry of those individuals immediately responsible for obtaining the information I believe the submitted information is true, accurate and complete.

Applicant's Signature: X H. Warren Dimmig

Name and Title: H. Warren Dimmig, Chairman, U.G.T.M.A.

Address: 2225 Kriebel Road, Lansdale, PA 19446

Sworn and subscribed to before me this 16th day of OCTOBER, 1981.

Notary's seal and signature

Jeffrey A. West, Notary Public
Lansdale Borough, Montgomery County
My Commission Expires Aug. 16, 1982
Member, Pennsylvania Association of Notaries

FOR THE DESIGN ENGINEER

Affidavit: I, Clifford T. Stout, do hereby certify that the information contained in the accompanying plans, specifications, and reports has been prepared in accordance with accepted engineering practice, is true and correct, and in conformance with the standards, guidelines and requirements of the Department of Environmental Resources.

Design Engineer's Seal and Signature: Clifford T. Stout

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
CLIFFORD T. STOUT
ENGINEER
No. 8556-E

Name of Engineering Firm: Herbert H. Metz, Inc.

Address, Zip P. O. Box 647, Lansdale, PA 19446 Telephone No.:

(1) Reference Upper Gwynedd-Towamencin Municipal Authority Specifications and pertinences as filed with PA D.E.R. by U.G.T.M.A.

RECEIVED

H710.047 REV. 5-71

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
SANITARY ENGINEERING

For Department Use Only

INTERNAL REVIEW AND RECOMMENDATIONS

REGIONAL ENGINEER'S REVIEW

NAME OF APPLICANT: Upper Gwynedd-Towamencin Municipal Authority
PROJECT LOCATION: Towamencin Township Montgomery County
APPLICATION NUMBER: 4681452

BRIEF DESCRIPTION OF PROJECT: The Applicant requests approval for the construction of a sanitary sewer extension to serve the Robert C. Stiegler subdivision, a development of 3 residential units on 4.71 acres on the southwest side of Allentown Road at its intersection with Fretz Road.

DISCUSSION (Use Additional Sheets If Necessary):
Sewage from the proposed sewer extension will be conveyed to the Upper Gwynedd-Towamencin Municipal Authority STP via existing Upper Gwynedd-Towamencin Municipal Authority sewers covered under Permit No. 765S13. The final effluent will be afforded secondary treatment before discharge to the Towamencin Creek. The proposed sewer extension will serve 9 people initially and 9 people ultimately. The soil erosion and sedimentation control plan has been reviewed and approved by the Montgomery County Conservation District. Associated with this project is an encroachment dealing with the construction within the 100 year floodplain.

CURRENT ESTIMATE OF COMPLETION DATE OF PROJECT (Industrial Wastes Only)

RECOMMENDATION AND ACTION

APPROVAL – RELEVANT LAWS, REGULATIONS, STANDARDS, AND POLICIES HAVE BEEN COMPLIED WITH:

Issue By Region	Issue By Central Office	Refuse	Signature	Date
☒	☐	☐	Marie C. Doherty REVIEWING ENGINEER	3/16/82
☒	☐	☐	Richard L. Hurlle FACILITIES ENGINEER	3/16/82
☒	☐	☐	C. T. Fretz REGIONAL ENGINEER	3/16/82
	☐	☐	DIV. FACILITIES ENGINEER	
	☐	☐	DIVISION DIRECTOR	
		☐	BUREAU DIRECTOR	

PERMIT CONDITIONS:
1. STANDARD –

Erosion Control (1973) - 1 thru 20
Sewerage (1972) - 1 thru 9, 11 thru 14, 21, 22, 30 31

2. SPECIAL (Use Additional Sheets If Necessary) –

1 - Floodplain Encroachment Condition

Recording of Permit: Montgomery County

NC350

ER-BWQ-15-Rev. 4/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT NO. 4681452

A. PERMITTEE: (Name and Address)
Upper Gwynedd-Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

B. PROJECT LOCATION
Municipality: Towamencin Township
County: Montgomery County

C. TYPE OF FACILITY (For Industrial wastes: type of establishment)
Sanitary Sewer Extension

D. NAME OF MINE, PLANT, AREA SERVED, OUTFALL NO., ETC.
Robert C. Stiegler Subdivision

E. THIS PERMIT APPROVES:

1. Plans For Construction Of: a. [X] Sewers and Appurtenances b. [ ] Sewage Treatment Facilities c. [ ] Industrial Wastes Treatment Facilities d. [ ] Mine Drainage Treatment Facilities e. [ ] Outfall & Headwall f. [X] Floodplain Encroachment g. [ ] Impoundment

2. N/A The Discharge Of: a. [ ] Treated b. [ ] Untreated c. [ ] Sewage d. [ ] Industrial Wastes

3. N/A Discharge To: a. [ ] Surface Water b. [ ] Ground Water
Name of Stream to which discharged or drainage area in which groundwater discharge takes place or impoundment is located.

4. The Operation of a Mine [ ]
N/A Maximum Area to be Deep Mined _____ Acres

5. An Erosion and Sedimentation Control Plan [X]
Project Area is 4.7 Acres

F. THIS APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:

1. ALL CONSTRUCTION, OPERATIONS, PROCEDURES AND DISCHARGE SHALL BE IN ACCORDANCE WITH APPLICATION NO. 4681452 DATED 10/10/81 ITS SUPPORTING DOCUMENTATION, AND AMENDMENTS DATED _____, SUCH APPLICATION, ITS SUPPORTING DOCUMENTATION AND AMENDMENTS ARE HEREBY MADE A PART OF THIS PERMIT.

2. CONDITIONS NUMBERED 1 thru 9, 11 thru 14, 21, 22, 30 and 31 OF THE Sewerage STANDARD CONDITIONS DATED 1972, AND CONDITIONS NUMBERED 1 thru 20 OF THE EROSION CONTROL STANDARD CONDITIONS DATED 1973 WHICH CONDITIONS ARE ATTACHED AND MADE PART OF THIS PERMIT.

3. SPECIAL CONDITIONS DESIGNATED I WHICH ARE ATTACHED AND ARE MADE A PART OF THIS PERMIT.

This permit must be recorded in the Recorder of Deeds Office in Montgomery County.

G. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. IF THERE IS A CONFLICT BETWEEN THE APPLICATION ON ITS SUPPORTING DOCUMENTS AND AMENDMENTS AND THE STANDARD OR SPECIAL CONDITIONS, THE STANDARD OR SPECIAL CONDITIONS SHALL APPLY.

2. FAILURE TO COMPLY WITH THE RULES AND REGULATIONS OF THE DEPARTMENT OR WITH THE TERMS OR CONDITIONS OF THIS PERMIT SHALL VOID THE AUTHORITY GIVEN TO THE PERMITTEE BY THE ISSUANCE OF THE PERMIT.

3. THIS PERMIT IS ISSUED PURSUANT TO THE CLEAN STREAMS LAW, ACT OF JUNE 22, 1937, P.L. 1987 AS AMENDED 35 P.S. § 691.1 ET SEQ. AND/OR THE WATER OBSTRUCTION ACT, ACT OF JUNE 25, 1913, P.L. 555 AS AMENDED 32 P.S. § 681 ET SEQ. ISSUANCE OF THIS PERMIT SHALL NOT RELIEVE THE PERMITTEE OF ANY RESPONSIBILITY UNDER ANY OTHER LAW

PERMIT ISSUED
DATE 3-16-82

DEPARTMENT OF ENVIRONMENTAL RESOURCES
BY C.T. Beechwood
C.T. Beechwood, P.E.
TITLE Regional Water Quality Manager

NC352

Sewerage Permit No. 4681452
Upper Gwynedd-Towamencin Municipal Authority
Towamencin Township, Montgomery County

1. This permit is subject to the following Special Condition(s):

The stream bed shall not be used as a roadway for moving machinery from one site to another. Temporary stream crossings must be provided for equipment that must cross the stream during construction. Any structures are to be removed and the stream bed returned to its original condition when the project is completed.

Siltation control shall be provided for during construction and bank stabilization shall be undertaken by planting of grasses, shrubbery, or trees immediately after completion of each phase of the project.

NC353

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT

NO. [illegible]

A. PERMITTEE (Name and Address)
Upper Gwynedd-Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

B. PROJECT LOCATION
Municipality: Towamencin Township
County: Montgomery County

C. TYPE OF FACILITY (For industrial waste, type of establishment)
Sanitary Sewer Extension

D. NAME OF WWE, PLANT, AREA SERVED, OUTFALL NO. ETC.
Robert C. Stiegler Subdivision

[illegible] Sewage Treatment Facilities [illegible] Industrial Waste Treatment Facilities

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
Norristown, PA 19401
215 631-2405

March 17, 1982

Upper Gwynedd-Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: Mr. H. Warren Dimmig
Chairman

Re: Sewerage Permit No. 4681452
Robert C. Stiegler Subdivision
Upper Gwynedd-Towamencin Municipal Authority
Towamencin Township, Montgomery County 46.949

Gentlemen:

Referenced permit is enclosed.

Please study the permit carefully and direct any questions to the Permits Section of this office at 215 631-2411.

To become operative this permit must be recorded in the Office of the Recorder of Deeds in the county in which the discharge is located. Enclosed is a certificate and pre-addressed envelope for this purpose. Please have the Recorder of Deeds accomplish the certificate and return it within ten (10) days.

Very truly yours,

C. T. Beechwood

C. T. BEECHWOOD, P.E.
Regional Water Quality Manager

CTB:RL:cd

Enclosures: Permit
Standard Conditions Relating to Sewerage
Standard Conditions Relating to Erosion Control
Recorder of Deeds Certificate
Notary Public Certificate

cc: Herbert H. Metz, Inc. (C. Stout)
Permits & Compliance
Re 30 NC351

ER-BWQ-68 Rev. 4-73

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

file
4-5-8
ep

Sewerage Permit No. 4681452

Towamencin Township
Montgomery County

Commonwealth of Pennsylvania
Department of Environmental Resources

RECORDER OF DEEDS CERTIFICATE

I hereby certify that on . . . March 30, 1982 . . . . . (Date)

there was recorded in Book . . . . . 4681 . . . . . .

page . . . . . 1566 . . . . . the sewerage permit issued

to Upper Gwynedd-Towamencin Municipal Authority

bearing date of . . 3/16/82 . . . . . .

Recorder of Deeds for

Montgomery County

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
Norristown, PA 19401
215 631-2405

March 17, 1982

Upper Gwynedd-Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

ER-BWQ-69 Rev. 1/78

STATE OF PENNSYLVANIA >SS
COUNTY OF Montgomery

On the 17th day of March in the year one thousand nine hundred and eighty-two before me, the Subscriber, a Notary Public, came the above named

C.T. Beechwood

and duly acknowledged the foregoing permit to be his act and deed and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year aforesaid.

Teresa L. Riegel
NOTARY PUBLIC

TERESA L. RIEGEL, Notary Public
Norristown Boro, Montgomery Co.
My Commission Expires Oct. 1, 1984

EQB-FP-1: Rev. 7/80

FORM NO. 1

SUBJECT: Upper Gwynedd. Towanencin Municipal Authority 468452

CONTACT(S): H. Warren Dimmig (855-8165)

Application Nos.:

New Proposal	✓
Revised Proposal	

2225 Kriebel Rd
Lansdale PA 19446

Clifford Stout
855-3111

From: Regional Director
R Hickle

11/25/81

On 11-17-81, we (accepted/~~received~~) application for plan approval and/or permit to (construct/~~modify~~/~~install~~) a sewer extension to serve the Robert C. Stiegler Subdivision in Towanencin Township, Montgomery County. (New to Upper Gwynedd-Towanencin STP)

This ~~proposal involves~~

Permit Coordination Requirements: none

To:

Program (Date: NOV 25 1981)	No Permit Required	No Permit Required Prior Approval Required	Permit Required Application on Hand	Permit Required Application Needed
Air Quality	✓		✓ Rec 11/17/81	
Water Quality (HR ATTACH) FAC PLAN	✓			
Solid Waste Management	✓			
Community Env. Control	✓			
Mining & Reclamation	—			
Radiation Protection	✓			
Dams & Waterway Management	✓			

Please indicate your interest on this form and return to the Regional Director by 11-23-81. Failure to return the form by the indicated date will indicate that your program has no interest in the project.

ER – EP

START

DEPARTMENT OF ENVIRONMENTAL RESOURCES

ENVIRONMENTAL PROTECTION

START

BUREAU / PROGRAM Water Quality Management

DIVISION

COUNTY / MUNICIPALITY 46949

PROGRAM Sewo

CASE NAME Upper Gwynedd Towamencin Municipal Authority

FILE P

PERMIT NO. 4682422 Transducer Systems, Inc.

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

RECEIVED
JUL 14 1982
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

RECEIVED
JUL 9 1982
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

Pennsylvania Department of
Environmental Resources
Bureau of Water Quality Management
1875 New Hope Street
Norristown, Pennsylvania 19401

Attention: Richard Hinkle
Chief of Facilities Section

Re: Transducer Systems, Inc.
Lot #13, Delp Drive
Towamencin Township, Montgomery County

Dear Mr. Hinkle:

Enclosed herewith are a completed application form, a check in the amount of $100.00 made payable to "PA D.E.R.", two (2) prints of a Plan of Subdivision prepared for William Delp by Urwiler and Walter, Inc., and two (2) plan/profiles depicting the design of an 8" ∅ sanitary sewer extension through said subdivision in order to serve the above-captioned light industrial corporation.

Application has been made for Planning Module approval of said extension. Mr. Charles Rehm and I have discussed this project at length and approval should be acquired within days.

If you have any questions or comments, please do not hesitate to call.

Very truly yours,

Clifford T. Stout, P.E.

CTS/jdk
Enclosures
cc: John O. Chambers, Jr., P.E.
Township Engineer
cc: Lotz Constructors, Inc.

ENVIRONMENTAL

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

FAX 855-3111
855-1686

RECEIVED
JUL 14 1982
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

RECEIVED
JUL 9 1982
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

Pennsylvania Department of
Environmental Resources
Bureau of Water Quality Management
1875 New Hope Street
Norristown, Pennsylvania 19401

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Chief of Facilities Section

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Lot #13, Delp Drive
Towamencin Township, Montgomery County

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Application has been made for Planning Module approval of said extension. Mr. Charles Rehm and I have discussed this project at length and approval should be acquired within days.

If you have any questions or comments, please do not hesitate to call.

Very truly yours,

Clifford T. Stout, P.E.

CTS/jdk
Enclosures
cc: John O. Chambers, Jr., P.E.
Township Engineer
cc: Lotz Constructors, Inc.

Department of Environmental Resources

1875 New Hope Street
Norristown, PA 19401
215 631-2426

July 13, 1982

Towamencin Township Board of Supervisors
1655 Sumneytown Pike
Kulpsville, PA 19443

Attention: Ms. Cecile . . Daniel
Municipal Secretary

Re: Transducer Systems, Inc.
Court Co. 1-(illegible)-81-4
Towamencin Township
Montgomery County

Gentlemen:

Please be advised that a review has been made and completed of the above referenced Planning Module for Land Development detailing your municipality's Official Sewage Facilities Plan.

We find that the proposal is consistent with your Official Sewage Facilities Plan and that your plan is adequate.

This supplement provides for adequate Sewage Facilities planning to permit the development of a light industrial facility located on 9.4 acres of ground on the southeast side of Delp Drive, northeast of its intersection with Detwiler Road. The facility will generate 1,750 gallons of sewage per day which will be treated at the Upper Gwynedd Towamencin Municipal Authority Sewage Treatment Plant.

This planning approval does not relieve the project sponsor of the responsibility to secure a Department permit for the construction and operation of the proposed facility.

If you have any question, please feel free to contact this office.

Very truly yours,

PAUL WARD
Water Quality Sanitarian
Norristown Regional Office

cc: Henry S. Conrey, Inc.
(Attn: Clifford T. Stout)
Transducer Systems, Inc.
Upper Gwynedd Towamencin Municipal Sewer Authority
WARD
Pa 30 K660

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 442
210 DEKALB AVENUE
LANSDALE, PENNSYLVANIA

RECEIVED
JUL 14 1982

Pennsylvania Department of
Environmental Resources
Bureau of Water Quality Management

RECEIVED

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone 855-7111
855-1696

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

July 14, 1982

RECEIVED
JUL 16 1982
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

Pennsylvania Department of
Environmental Resources
Bureau of Water Quality Management
1875 New Hope Street
Norristown, Pennsylvania 19401

Attention: Richard Hinkle
Chief of Facilities Section

Re: Transducer Systems, Inc.
Lot #13, Delp Drive
Towamencin Township, Montgomery County

Dear Mr. Hinkle:

Enclosed herewith is a copy of a Planning Module approval letter for the above-captioned site. Would you please see that it gets incorporated into the W. Q. M. A. submission that was made last week.

If you have any questions or comments, please do not hesitate to call.

Thank you.

Very truly yours,

Clifford T. Stout

Clifford T. Stout, P.E.

CTS/jdk
Enclosure

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P.O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

July 15, 1982

Pennsylvania Department of
Environmental Resources
1875 New Hope Street
Norristown, Pennsylvania 19401

Attention: Mr. George Kohut

Re: Transducer Systems, Inc.
Lot #13 - Delp Drive
Towamencin Township, Montgomery County

Dear George:

Pursuant to our telephone conversation of July 14, I am enclosing duplicate copies of the following:

1. Revised plan and profile of proposed sewer line extension depicting approximate limit of flood plain
2. Development plans (prepared by Lotz, Incorporated and approved by Towamencin Township) detailing erosion and sediment control measures to be implemented during construction

A similar package (but with just one copy each) is being forwarded to Ed Brzostek at Soils Conservation Service for this review/approval.

As we have discussed, development of this tract is to be on an individual lot basis, as the owner of the tract is selling off lots as the market dictates. As such, erosion and sediment control measures will be handled in a similar fashion, lot by lot.

Thank you for your call and your continued cooperation in processing our application.

Very truly yours,

Clifford T. Stout, P.E.

CTS/jdk
cc: Lotz, Inc.
cc: John O. Chambers, Jr., P.E.
cc: Ed Brzostek, Soils Conservation Service

Enclosures

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
416 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

July 15, 1982

U. S. Department of Agriculture
Soils Conservation Service
1725 Markley Street
Norristown, Pennsylvania 19401

Attention: Edward Brzostek
District Conservationist

Re: Transducer Systems, Inc.
Lot #13 - Delp Drive
Towamencin Township, Montgomery County

Dear Ed:

At the request of George Kohut of D.E.R., I am enclosing one (1) set of development plans (prepared by Lotz, Incorporated and approved by Towamencin Township) detailing erosion and sediment control measures to be implemented during construction of the above-captioned project.

Please review the plans for adequacy regarding erosion and sediment control measures and inform Mr. Kohut of your comments.

If you require plan revisions, notes, etc., please contact Mr. Jerry Smith at Lotz, Incorporated, telephone (215) 674-5950, or feel free to call me.

We await your response.

Very truly yours,

Clifford T. Stout, P.E.

CTS/jdk
cc: Lotz, Inc.
cc: John O. Chambers, Jr., P.E.
cc: George Kohut, D.E.R.
Enclosures

COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA FISH COMMISSION

PFC 531 (Rev. 8-81)

Date: 8/12/82

SUBJECT: Review of Permit Application

In Reply To: #4682422 NORRISTOWN DER

RECEIVED
OCT 7 1982
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

TO: Department of Environmental Resources

FROM: Pennsylvania Fish Commission

Permit Applicant: TRANSDUCER SYSTEMS

Type of Construction: ENCROACHMENT ON STREAM

Location: County MONTGOMERY Township TOWAMENCIN

Other

		Trout		Warmwater	
Stream Affected (Primary)	UNNAMED TRIB	Yes ___	No X	Yes ___	No X
Tributary To (Secondary)	SKIPPACK CRK	Yes X	No ___	Yes X	No ___

	Stocking Status			Worked Area-Stocked Area		Fishing Pressure			
Primary:	Stocked ___	Wild ___	In ___	Above ___	Below X	High ___	Med ___	Low ___	None X
Secondary:	Stocked X	Wild ___	In ___	Above ___	Below X	High X	Med ___	Low ___	None ___

Comments:

Horbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 410
611 BERGEN AVENUE
LANSDALE, PENNSYLVANIA
19446

Guy S. Bowersox (Waterways Patrolman) Yes ✓ No ___ Approved 8/12/82 Date

Ron Tibbott (Fisheries Environmental Services) Yes ✓ No ___ Approved 8/30/82 Date

U. S. Department of Agriculture
Soil Conservation Service
1775 Markley Street
Norristown, Pennsylvania 19401
Attention: Edward Brzostek
Soil Conservationist

rev. 2/79

SEWERAGE PERMIT APPLICATION
DEPARTMENT OF ENVIRONMENTAL RESOURCES

RECEIVED
JUL 14 1982
BUREAU OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

July 7, 1982

APPLICANT NAME* Upper Gwynedd-Towamencin Municipal Authority ADDRESS 2225 Kriebel Road

CITY, ZIP Lansdale, PA 19446 TELEPHONE NUMBER: (215) 855-8165

*Applicant shall be the agency which will own the sewerage facilities following completion of construction and/or dedication.

A filing fee check of ~~$85.00~~ $100.00 made out to Pennsylvania Department of Environmental Resources is required with the application.

PROJECT NAME: Transducer Systems, Inc. PROJECT ACREAGE: 9.4

MUNICIPALITY: Towamencin Township COUNTY: Montgomery

NOTE: Please attach a drawing which clearly shows the boundaries of the proposed service area, the properties to be served, the location of the sewerage facilities, the slopes of proposed sewers on the plan with inverts of manhole, point of connection to existing sewers, and all streets, streams or other important site features. Also include specifications for the facilities and an erosion an sedimentation control plan.

For any deviations from the Sewerage Manual, please note clearly and fully justify.

FOR THE APPLICANT

I hereby apply for approval on (Date) July 7, 1982 to construct and operate (x) Sewers and appurtenances
[ ] Sewage pumping stations(s) which [ ] does [x] does not include stream crossings(s).

For sewage pumping stations include detailed construction plans, Module 7 and an erosion and sedimentation control plan.

For stream crossing, include the plan-and-profile view of the sewer-line crossing along with specific construction techniques including soil erosion and sedimentation control provisions.

Affidavit: I hereby certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and based on my inquiry of those individuals immediately responsible for obtaining the information I believe the submitted information is true, accurate and complete.

Applicant's Signature: H. Warren Dimmig

Name and Title: H. Warren Dimmig, Chairman

Address: c/o U.G.T.M.A., 2225 Kriebel Road, Lansdale, PA 19446

Sworn and subscribed to before me this 7th day of July, 1982

Notary's seal and signature

Jeffrey Sylvan Notary Public
Lansdale Borough, Montgomery County
My Commission Expires Aug. 16, 1982
Member, Pennsylvania Association of Notaries

FOR THE DESIGN ENGINEER

Affidavit: I, Clifford T. Stout, do hereby certify that the information contained in the accompanying plans, specifications, and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance with the standards, guidelines and requirements of the Department of Environmental Resources.

Design Engineer's Seal and Signature: Clifford T. Stout

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
CLIFFORD T. STOUT
ENGINEER
No. 26386-E

Name of Engineering Firm: Herbert H. Metz, Inc. (215) 855-3111

Address, Zip 410 Derstine Ave., Lansdale, PA 19446

H710.047 REV. 5-71

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
SANITARY ENGINEERING

For Department Use Only

INTERNAL REVIEW AND RECOMMENDATIONS

REGIONAL ENGINEER'S REVIEW

NAME OF APPLICANT: U. Gwynedd Towamencin Municipal Authority

PROJECT LOCATION: Towamencin Township Montgomery County

APPLICATION NUMBER: 4682422

BRIEF DESCRIPTION OF PROJECT: The Applicant requests approval for the construction of a sanitary sewer extension to serve the Transducer Systems, Inc. located on Delp Drive, Towamencin Township, Montgomery County. In some parts of this development, sanitary sewer manholes are within the floodplain. These manholes are to be watertight.

DISCUSSION (Use Additional Sheets If Necessary):
Sewage from the proposed sewer extension will be conveyed to the Upper Gwynedd Towamencin Municipal Authority STP via existing Upper Gwynedd Towamencin Municipal Authority sewers covered under Permit No. 7665053. The final effluent will be afforded secondary treatment before discharge to the Towamencin Creek. The proposed sewer extension will serve 180 people initially and ultimately. The soil erosion and sedimentation control plan has been reviewed and approved by the Montgomery County Conservation District.

The Floodplain Encroachment involved in this project has been reviewed and approved by the Pa. Fish Commission. Development of this tract is to be on an individual lot basis as the owner of the tract is selling off lots as the market dictates.

CURRENT ESTIMATE OF COMPLETION DATE OF PROJECT (Industrial Wastes Only)

RECOMMENDATION AND ACTION

APPROVAL – RELEVANT LAWS, REGULATIONS, STANDARDS, AND POLICIES HAVE BEEN COMPLIED WITH:

Issue By Region	Issue By Central Office	Refuse	Signature	Date
☒	☐	☐	REVIEWING ENGINEER: Eugene P. Wright	8/25/82
☒	☐	☐	FACILITIES ENGINEER: George E. Schutt	8/26/82
☒	☐	☐	REGIONAL ENGINEER: [illegible]	8/25/82
	☐	☐	DIV. FACILITIES ENGINEER	
	☐	☐	DIVISION DIRECTOR	
		☐	BUREAU DIRECTOR	

PERMIT CONDITIONS:

1. STANDARD –

Erosion Control (1973) - 1 thru 20
Sewerage (1972) - 1 thru 9, 11 thru 14, 21, 22, 30 31

2. SPECIAL (Use Additional Sheets If Necessary) –

I - Pa. Fish Comm. Standards; II- Watertight manholes

Recording of Permit: Montgomery County

JP862

ER-BWQ-15-Rev. 4/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT

NO. 4682422

A. PERMITTEE: (Name and Address)
Upper Gwynedd Towamencin Municipal Auth.
2225 Kriebel Road
Lansdale, PA 19446

B. PROJECT LOCATION
Municipality: Towamencin Township
County: Montgomery County

C. TYPE OF FACILITY (For industrial wastes: type of establishment)
Sanitary Sewer Extension

D. NAME OF MINE, PLANT, AREA SERVED, OUTFALL NO., ETC.
Transducer Systems, Inc.

E. THIS PERMIT APPROVES:

1. Plans For Construction Of: a. [X] Pump Stations: Sewers and Appurtenances; b. [•] Sewage Treatment Facilities; c. [•] Industrial Wastes Treatment Facilities; d. [•] Mine Drainage Treatment Facilities; e. [•] Outfall & Headwall; f. [X] Stream Crossing (Floodplain Encroachment); g. [•] Impoundment

2. The Discharge Of: N/A a. [•] Treated; b. [•] Untreated; c. [•] Sewage; d. [•] Industrial Wastes

3. Discharge To: N/A a. [•] Surface Water; b. [•] Ground Water
Name of Stream to which discharged or drainage area in which groundwater discharge takes place or impoundment is located.

4. The Operation of a Mine [•]
N/A Maximum Area to be Deep Mined _____ Acres

5. An Erosion and Sedimentation Control Plan [X]
Project Area is 5.4 Acres

F. THIS APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:

1. ALL CONSTRUCTION, OPERATIONS, PROCEDURES AND DISCHARGE SHALL BE IN ACCORDANCE WITH APPLICATION NO. 4682422 DATED 7/7/82 ITS SUPPORTING DOCUMENTATION, AND AMENDMENTS DATED 7/15/82, SUCH APPLICATION, ITS SUPPORTING DOCUMENTATION AND AMENDMENTS ARE HEREBY MADE A PART OF THIS PERMIT.

2. CONDITIONS NUMBERED 1 thru 9, 11 thru 14, 21, 22, 30, 31, 32, 33 OF THE Sewerage STANDARD CONDITIONS DATED 1972 AND CONDITIONS NUMBERED 1 thru 20 OF THE EROSION CONTROL STANDARD CONDITIONS DATED 1973 WHICH CONDITIONS ARE ATTACHED AND MADE PART OF THIS PERMIT.
1 - Pa. Fish Comm. Standard Conditions ; II

3. SPECIAL CONDITIONS DESIGNATED _____ WHICH ARE ATTACHED AND ARE MADE A PART OF THIS PERMIT.

This permit must be recorded in the Recorder of Deeds Office in Montgomery County.

G. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. IF THERE IS A CONFLICT BETWEEN THE APPLICATION ON ITS SUPPORTING DOCUMENTS AND AMENDMENTS AND THE STANDARD OR SPECIAL CONDITIONS, THE STANDARD OR SPECIAL CONDITIONS SHALL APPLY.

2. FAILURE TO COMPLY WITH THE RULES AND REGULATIONS OF THE DEPARTMENT OR WITH THE TERMS OR CONDITIONS OF THIS PERMIT SHALL VOID THE AUTHORITY GIVEN TO THE PERMITTEE BY THE ISSUANCE OF THE PERMIT.

3. THIS PERMIT IS ISSUED PURSUANT TO THE CLEAN STREAMS LAW, ACT OF JUNE 22, 1937, P.L. 1987 AS AMENDED 35 P.S. § 691.1 ET SEQ. AND/OR THE WATER OBSTRUCTION ACT, ACT OF JUNE 25, 1913, P.L. 555 AS AMENDED 32 P.S. § 681 ET SEQ. ISSUANCE OF THIS PERMIT SHALL NOT RELIEVE THE PERMITTEE OF ANY RESPONSIBILITY UNDER ANY OTHER LAW

DEPARTMENT OF ENVIRONMENTAL RESOURCES

PERMIT ISSUED
DATE 8-25-82
JP864

BY C. T. Beechwood
C. T. Beechwood, P.E., Regional Water Quality Manager

TITLE

REGIONAL OFFICE

4682422

Sewerage Permit No. 4682422
Upper Gwynedd Towamencin Municipal Authority
Towamencin Township, Montgomery County

This permit is subject to the following Special Condition(s):

I. The stream bed shall not be used as a roadway for moving machinery from one site to another. Temporary stream crossings must be provided for equipment that must cross the stream during construction. Any structures are to be removed and the stream bed returned to its original condition when the project is completed.

Siltation control shall be provided for during construction and bank stabilization shall be undertaken by planting of grasses, shrubbery, or trees immediately after completion of each phase of the project.

II. Solid watertight manhole covers are to be used whenever the manhole tops may be flooded by street runoff or high water (Section 26.6, Pennsylvania Department of Environmental Resources Sewerage Manual).

JP863

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT

4682422

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
Norristown, PA 19401
215 631-2405

August 25, 1982

Upper Gwynedd Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: Mr. H. Warren Dimmig
Chairman

Re: Sewerage Permit No. 4682422
Transducer Systems, Inc.
Towamencin Township
Montgomery County

Gentlemen:

Referenced permit is enclosed.

Please study the permit carefully and direct any questions to the Permits Section of this office at 215 631-2411.

To become operative this permit must be recorded in the Office of the Recorder of Deeds in the county in which the discharge is located. Enclosed is a certificate and pre-addressed envelope for this purpose. Please have the Recorder of Deeds accomplish the certificate and return it within ten (10) days.

Very truly yours,

C. T. BEECHWOOD, P.E.
Regional Water Quality Manager

CTB:sk

Enclosures: Permit
Standard Conditions Relating to Sewerage
Standard Conditions Relating to Erosion Control
Recorder of Deeds Certificate
Notary Public Certificate

cc: Herbert H. Metz, Inc.
(Attn: Clifford T. Stout)
Pennsylvania Fish Commission
Guy Bowersox, PFC Waterways Patrolman
Permits & Compliance
Re 30 JP865

ER-BWQ-68 Rev. 4-73

Upper Gwynedd Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Permit No. 4682422

Towamencin Township
Montgomery County
Commonwealth of Pennsylvania
Department of Environmental Resources

RECORDER OF DEEDS CERTIFICATE

I hereby certify that on . . . . . (Date)

there was recorded in Book . . . . . .

page . . . . . the sewerage permit issued

to . . . . . .

bearing date of . . . . . .

. . . . . Recorder of Deeds for

. . . . . County

ER-BWQ-69 Rev. 1/78

4632422

STATE OF PENNSYLVANIA >SS

COUNTY OF Montgomery

On the 25th day of August in the year one thousand nine hundred and eighty-two before me, the Subscriber, a Notary Public, came the above named

C. T. Beechwood

and duly acknowledged the foregoing permit to be his act and deed and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year aforesaid.

Teresa L Riegel
NOTARY PUBLIC

TERESA L. RIEGEL, Notary Public
Norristown Boro, Montgomery Co.
My Commission Expires Oct. 1, 1984

4682422

Department of Environmental Resources
1875 New Hope Street
Norristown, Pennsylvania 19401
215 631-2402

July 22, 1982

Upper Gwynedd - Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: Mr. H. Warren Dinnig
Chairman

Re: Application No. 4682422
Towamencin Township
Montgomery County

Gentlemen:

This will acknowledge receipt of your application on July 14, 1982 for approval to construct a sanitary sewer to serve Transducer Systems, Inc. in Towamencin Township, Montgomery County.

The material submitted is accepted for technical review and has been assigned to Eugene Wingert, 631-2411, of our staff.

In addition to the above, an encroachment permit may be required if construction occurs within 50 feet of a stream or within the 100 year floodway of a stream delineated on the municipality's flood insurance study.

Please contact Edward Bender, 631-2415, if you have any questions concerning the encroachment requirements.

You are reminded that any proposed facilities cannot be constructed without first obtaining the required permits.

Very truly yours,

[illegible]
Regional Director

cc: Towamencin Township
Mr. Clifford T. Stout
Water Quality Management
(3) 65219

ER-EP-1: Rev. 7/80

FORM NO. WARREN DIMMIC 4682422

SUBJECT: UPPER GWYNEDD CONTACT(S): TOWAMENCIN M. A Application Nos.:

2225 KRIEBEL RD 855-8165

LANSDALE PA 19446

New Proposal	✓
Revised Proposal	

TO: Regional Director CLIFFORD T. STOUT

855-3111

FROM: 7/22/82

On July 14, 1982, we (accepted/~~received~~) an application for plan approval and/or permit to (~~construct/modify/install~~) TRANSDUCER sanitary sewer to sewer transducer systems, Inc.

This proposal involves: Towamencin Township / Montgomery County

UPPER GWYNEDD STP SKIPPACK

Permit Coordination Requirements: * ~~NPDES~~ DWM 1,3,DWM,1,DWM

Program	No Permit Required	No Permit Required Prior Approval Required	Permit Required Application on Hand	Permit Required Application Needed
Air Quality	✓			
Water Quality 537 LETTER 7/13	✓		VBEK 7/15/82	
Solid Waste Management	✓			
Community Env. Control	✓			
Mining & Reclamation				
Radiation Protection	~~BEK 7/15/82~~ ✓			
Dams & Waterway Management				✓

Please indicate your interest on this form and return to the Regional Director by 7-23-82
Failure to return the form by the indicated date will indicate that your program has no interest in the project.

* NoBDWM Permit needed for Sewer Construction, However approvals and/or BDWM permits may be required for building Construction on various Lots in this industrial park that are in 100yr Floodway. 994 LF or 50 ft of the Stream

ER – EP

START

DEPARTMENT OF ENVIRONMENTAL RESOURCES

BUREAU / PROGRAM ~~Water Quality Management~~

DIVISION ~~Subdivision~~

ENVIRONMENTAL PROTECTION

COUNTY / MUNICIPALITY ~~46949~~

PROGRAM ~~Sew~~

START

CASE NAME ~~Upper Gwynedd – Towamencin Municipal Authority~~

FILE ~~P~~

BUREAU / PROGRAM Water Quality Management

DIVISION ~~Subdivision~~

COUNTY / MUNICIPALITY 46949

PROGRAM Sew

CASE NAME Upper Gwynedd – Towamencin Municipal Authority

FILE P

PERMIT NO. 4682438 Meadow View Subdivision

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 584-3111
855-1486

November 22, 1982

Pennsylvania Department of Environmental Resources
Bureau of Water Quality Management
1875 New Hope Street
Norristown, Pennsylvania 19401

RECEIVED
NOV 26 1982
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

Attention: Mr. Richard Hinkle
Chief of Facilities Section

Re: Meadow View Subdivision
Snyder Road and Troxell Road (L.R. 46047)
Towamencin Township, Montgomery County

Dear Mr. Hinkle:

Transmitted herewith are duplicate sets of plans and supporting documents for the subject Meadow View Subdivision which was previously processed in 1979 and issued Sewerage Permit Number 4679469 on January 22, 1980.

Re-submittal is hereby made to request an affirmation or extension of the prior permit.

Included in the submission are the following plans and documents:

1. Sewerage Permit Application with fee check payable to PA D.E.R. in the amount of $100.00
2. Engineering Design Plans (20 sheets including Number 4A)
3. Stormwater Management Report
4. Erosion and Sediment Control Narrative

For your information, this project plan had been processed for review/approvals in 1979 from the Township, PA D.E.R., and S.C.S. It was also reviewed by the Division of Obstructions and Flood Plain Management, which determined that a permit was not required from that agency. (Copy of December 18, 1979 comment letter is enclosed.)

The current re-submission is being made for two (2) reasons: (a) development of the site has not yet occurred and three (3) years have elapsed since issuance of sewerage permit, and (b) the Township's ordinances have changed, requiring some re-design of the stormwater collection system (for detention purposes).

cc: John O. Chambers, Jr., P.E.
Towamencin Township Engineer

HERBERT H. METZ, INC.

Pennsylvania Department of Environmental Resources
- 2 -

November 22, 1982

There have been no changes made to the basic lot layout, nor to the sanitary sewer system extension design.

Please process this application for appropriate action.

Very truly yours,

Herbert H. Metz, Jr., P.E.

HHMjr/jdk
Enclosures
cc: John O. Chambers, Jr., P.E.
Towamencin Township Engineer

November 22, 1982

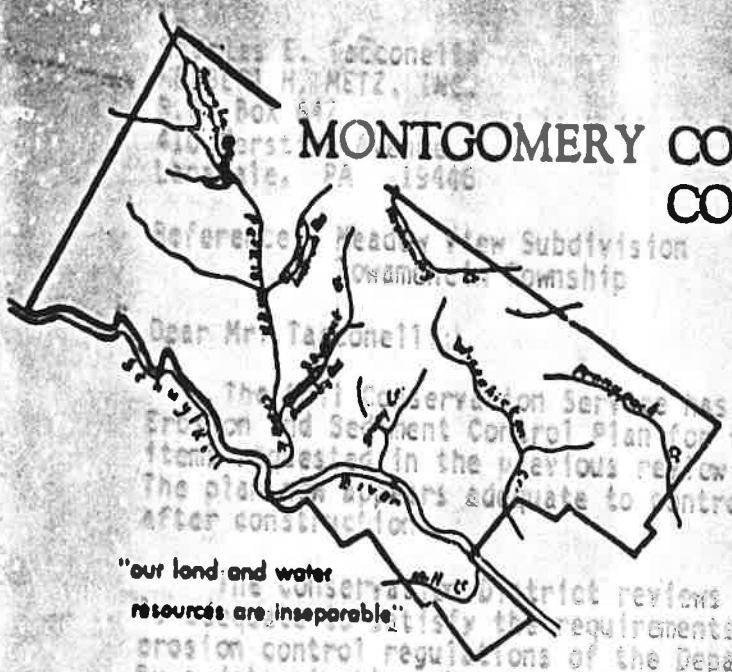
Pennsylvania Department of Environmental Resources
Bureau of Water Quality Management
1875 New Hope Street
Norristown, Pennsylvania 19401

Attention: Mr. Richard Winkle
Chief of Facilities Section

RECEIVED
NOV 26 1982

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS

MG 824 38



MONTGOMERY COUNTY CONSERVATION DISTRICT

4th Floor — One Montgomery Plaza
Court House, Norristown, PA 19404
Phone: 278-3618

"our land and water resources are inseparable"

February 4, 1983

Charles E. Tacconelli
KERBERT H. METZ, INC.
P.O. Box 647
410 Derstine Avenue
Lansdale, PA 19446

Reference: Meadow View Subdivision
Towamencin Township

Dear Mr. Tacconelli:

The Soil Conservation Service has reviewed the revised January 28, 1983 Erosion and Sediment Control Plan for the above referenced project. All items requested in the previous review have been satisfactorily answered. The plan now appears adequate to control erosion and sediment during and after construction.

The Conservation District reviews this plan solely to determine whether it is adequate to satisfy the requirements of 25 Pa. Code §§102.1 et seq., the erosion control regulations of the Department of Environmental Resources. By a determination that the plan is adequate to meet those requirements, neither the conservation district nor the county assumes any responsibility for the implementation of the plan or the proper construction and operation of the facilities contained in the plan.

Sincerely,

Maynard A. King

Maynard A. King
Executive Director

MAK/cmp

cc: Towamencin Township Engineer

HERBERT H. METZ, INC.
Civil Engineers & Surveyors
P.O. Box 647 410 Derstine Avenue
LANSDALE, PENNSYLVANIA 19446

855-3111 855-1686

LETTER OF TRANSMITTAL

DATE: February 8, 1983 | JOB NO.: M-2903

ATTENTION: Marie Faherty

RE: Meadow View Subdivision
Towamencin Township, Montgomery County

TO Department of Environmental Resources
1875 New Hope Street
Norristown, Pennsylvania 19401

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☒ reports

COPIES	DATE	NO.	DESCRIPTION
1			Letter of S.C.S. approval
1			Erosion and Sediment Control Narrative

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval
☒ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS DUE _____ 19____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS Dear Marie:

Pursuant to our telephone conversation, I am enclosing the above-listed documents. Your prompt attention will be greatly appreciated.

COPY TO Sam Colavita

SIGNED: Chas by Loccarelle

If enclosures are not as noted, kindly notify us at once.

MONTGOMERY COUNTY

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
HARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1666

M-2903

Towamencin Township
Montgomery County
Pennsylvania

NARRATIVE REPORT

EROSION AND SEDIMENT CONTROL PLAN

Prepared for

"MEADOW VIEW" SUBDIVISION

a development to be constructed by

HUNTER CONSTRUCTION COMPANY

in

Towamencin Township

Montgomery County

Pennsylvania

855-3111 855-1666

to Department of Environmental R... JANUARY, 1983
1875 New Hope Street
Norristown, Pennsylvania 19401

ATTENTION Dave Faherty
RE: Meadow View Subdivision
Towamencin Township, Montgomery County

M-2903

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

HERBERT H. METZ, INC.
410 Derstine Avenue
LANSDALE, PENNSYLVANIA 19446

LETTER OF TRANSMITTAL

Highways • Bridges • Sanitary, Municipal, Industrial and Subdivision Engineering • Title and Topographic Surveys • Investigations • Supervision • Reports • Studies

DATE JOB NO.

1. GENERAL DESCRIPTION OF THE SITE LOCATION

The project site is a 25.3 (net area) Acre tract of land situated at the Easterly corner of the intersection of Troxell Road (Pa. L.R. 46047) and Syndor Road (Township Road #378) in Towamencin Township, Montgomery County.

The site is bounded on the Southwest and Northwest by the aforementioned roads, by a small stretch of farmland to the Northeast and by single-family residences to the Southeast.

Soils composition on the site, as identified by the Montgomery County Soils survey, is made up of the following categories: Penn Silt Loam, Readington Silt Loam, and Reaville Shaly Silt Loam.

2. GENERAL DESCRIPTION OF STORMWATER COLLECTION AND CONTROL

The stormwater pipe and inlet collection system was designed using the rational method and following 10-year design storm frequency criteria. Inlets and storm sewers have been planned for placement at appropriate critical locations along tract streets for conveyance to (1) a tributary watercourse leading to the Lansdale Branch of the Towamencin Creek and (2) existing storm sewer facilities constructed under Troxell Road leading to the Kulpsville Branch of the Towamencin Creek.

Pipe outfalls at minimum slopes and outlet energy-dissipting devices are designed for release of stormwater runoff at reduced velocities.

If stormwater detention is required (to reduce "localized" increases in runoff) it will be provided by using oversized storm pipes in combination with street (cartway area) storage controlled by restricted orifice plates installed on downstream sides of appropriate inlets. Placing of permanent on-lot detention facilities will be avoided due to inherent maintenance problems as the Township does not wish to be responsible for them.

3. GENERAL DESCRIPTION OF ACCELERATED EROSION CONTROL MEASURES

As hereinafter described and as shown and noted on the Erosion and Sedimentation Control Plan, and in the following (Item #8) construction control stage sequence, the following erosion control procedures and devices shall be employed.

The streets shall be graded and crushed stone base course applied, and curbing placed as soon as possible, to prevent erosion of the sub-grade. During street grading, filter berms and filter inlets are proposed to be constructed at appropriate intervals and locations to minimize gullying and washing, and siltation in pipes and water courses. Utilization of temporary straw bale silt barriers is also proposed along adjacent roadway and established - developed areas where on-site earth movement and construction is planned.

3. Continued

Graded slopes, swales or diversions, on-lot sedimentation control features and other critical disturbed areas shall be temporarily seeded following earth-moving procedures.

Rear-of-lot belt areas not significant to the progression of construction of houses and improvements and drainage controls shall be left undisturbed until lawn grading phase of finish construction. In addition, top soil storage as a protective berm may be utilized across the down-slope limit of construction in some locations.

4. GENERAL DESCRIPTION OF SEDIMENTATION CONTROL

On-lot protection during construction and grading activity will be provided by temporary controlled-flow interceptor diversion berms on individual lots.

Straw bale filter inlets and filter berms shall be employed, during specific construction phases at appropriate spaced locations across or along graded rights-of-way, such as noted on the Erosion and Sedimentation Control Plan. Stone ballast over-berm to be placed at the intersection of the proposed road with the existing road.

Upon completion of construction, the temporary berms and filter inlets shall be removed and the reamining areas re-graded and seeded or paved.

5. SANITARY SEWERAGE FACILITIES

Public sanitary sewerage facilties are proposed to serve this development, with planned sanitary sewer extensions to connect and discharge into the existing Upper Gwynedd-Towamencin Municipal Sewer Authority System via 8" ø gravity sewer connection-extensions of existing T-Trunk sewer (12" ø and 10" ø at proposed juncture points).

Collected sewage will be conveyed by the Authority System for treatment at the Upper Gwynedd-Towamencin Municipal Sewer Authority Wastewater Treatment Plant.

6. TOPOGRAPHIC AND GEOLOGIC FEATURES

The topography shown on the plans is based on actual physical ground surveys. The soils information is taken from Soil Conservation Service and Montgomery County Soil Survey data and is indicated on the Erosion and Sedimentation Control Plan and supporting data.

7. HYDROLOGIC RUNOFF COMPUTATIONS

The Montgomery County Soil Conservation Service Erosion and Sedimentation Control Handbook and Soils Conservation Engineering Field Manual were used as references.

8. STAGING OF EARTHMOVING ACTIVITIES

A. Construct on-site temporary sediment control facilities (including on-lot berms, if applicable) in accordance with scheduled construction and the design criteria shown on the Control Plan. Grade and seed all exposed areas of embankments.

B. Clear and grub street rights of way and building sites.

C. Available topsoil shall be removed and stockpiled or windrowed (downslope from construction area where feasible); for use in finish grading.

D. Juncture portion of proposed road with existing road is to be graded and stone ballast placed, with a ballast overberm formed across the throat of the intersection as an erosion and sediment control deterrent and stablization device for protection of the existing roadway.

E. Rough grade roadways to the proposed sub-grade elevation gradient and cross-section.

F. Install storm sewers (including sediment controls at appropriate inlets) and sanitary sewers and appurtenant structures. Install all underground utilities. Direct surface runoff to completed storm drainage facilities by constructing temporary interceptor channels and dikes.

G. Temporarily seed all disturbed soil banks with rye grass.

H. Construct buildings, fine grade streets and place stone base course. (On-lot sedimentation control measures are to have been constructed prior to improvements and house construction as noted in "A").

I. Finish grade and establish permanent seeding as soon as possible thereafter in buiding construction areas. Immediately following removal of temporary erosion and sedimentation control structures, grade and permanently seed these areas, implementing permanent on-lot grading/landscaping features planned to minimize surface runoff impact.

4682438

RECEIVED

NOV 26 1982

DEPT. OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

STORMWATER MANAGEMENT REPORT

PREPARED FOR

MEADOWVIEW SUBDIVISION

A PLANNED COMMUNITY OF 38 SINGLE-FAMILY HOMES

AT

TROXELL AND SNYDER ROADS

TOWAMENCIN TOWNSHIP

MONTGOMERY COUNTY, PENNSYLVANIA

TO BE DEVELOPED BY

HUNTER CONSTRUCTION COMPANY

215 WEST MORELAND ROAD

WILLOW GROVE, PENNSYLVANIA

TOWAMENCIN TWP
MONTGOMERY CO.

DEPT. OF ENVIRONMENTAL RESOURCES
BUREAU OF
WATER QUALITY MANAGEMENT
APPLICATION NO. PLANS REC'D. REGION
4682438 11-26-82
REPORTS
NO. OF VOLUMES 1 OF 1

COMMONWEALTH OF PENNSYLVANIA
Registered Professional
HERBERT HALLMAN METZ, JR.
Engineer
No. 6953-E

Herbert H. Metz

PREPARED BY

HERBERT H. METZ, INCORPORATED

410 DERSTINE AVENUE, P.O. BOX 647

LANSDALE, PENNSYLVANIA

AUGUST 31, 1982

I. EXISTING CONDITIONS PRIOR TO DEVELOPMENT

A. General Description of the Site Location

The subject site is a 26.7± acre tract of ground situated at the Easterly corner of the intersection of Troxell Road (PA L.R. 46047) and Snyder Road (TR-378) in Towamencin Township, Montgomery County.

The site can be described as having gentle to moderate slopes throughout. Existing soil types present on the site are of a clay and/or silt nature, which is predominant throughout this area. Approximately 4.2 acres, or seventeen per cent (17%) of the site is vegetated with grass (lawn area) and sparse woodland. The remaining eighty-three per cent (83%), or 21.1 acres, is bare ground.

B. Stormwater Runoff

The total controllable (by storm drainage facilities) acreage is divided into two (2) separate drainage areas, one area being tributary to the East toward an existing ditch and the second being tributary to the West to existing Pennsylvania Department of Transportation-controlled drainage facilities under Troxell Road (PA L.R. 46047) near its intersection with Snyder Road. The Eastward tributary area approximates 13.9 acres; the Westward tributary area approximates 17.0 acres.

From this point, it is necessary to treat each area as a separate entity - to analyze and perform calculations for stormwater collection, conveyance and control on an individual basis.

1. Tract area:

   Eastward "E" tributary area = 13.9 acres
   Westward "W" tributary area = 17.0 acres

2. Ratios of ground cover:

   For purposes of calculation and design, the entire tract shall be considered as meadow in good condition.

3. Coefficient of runoff:

   Meadow (good condition) - C = 0.35

4. Rainfall intensity: (10-year frequency design storm)

NOTE: Time of concentration = 12 min. (Eastward "E" tributary area)
Time of concentration = 14 min. (Westward "W" tributary area)

i_{10} = 4.95 inches per hour (Eastward "E" tributary area)
i_{10} = 4.60 inches per hour (Westward "W" tributary area)

5. "Before-Development" site runoff (10-year frequency design storm):

Using Rational Formula, Q=CiA

Eastward "E" tributary area:

$$Q_{10_{before}} = (.35)(4.95)(13.9) = 24.1 \text{ cfs}$$

Westward "W" tributary area:

$$Q_{10_{before}} = (.35)(4.60)(17.0) = 27.4 \text{ cfs}$$

II. EXPECTED CONDITIONS AFTER DEVELOPMENT

A. Site Coverage

The subject tract is proposed to be developed into thirty-eight (38) single-family residential dwelling units, each having a minimum lot area of 20,000 square feet, under the R-125 Residential Zoning criteria of Towamencin Township.

Each proposed lot will support a dwelling unit with an average square-foot coverage of 1,800, including all roof overhangs and concrete patios. Each unit will be served by its own paved driveway, the average square footage of which should approximate 880 square feet.

Access to lots is provided via cul-de-sac streets having a total length of 2,300± feet. Each street is designed with a 30-feet-wide cartway with curb on each side.

The remainder of the tract's area will be vegetated.

B. Stormwater Runoff

1. Eastward "E" Tributary Area

a. Area

1) Area controlled by drainage facilities = 10.63 acres

2) Uncontained area = 1.97 acres

b. Ratios of ground cover and coefficients of runoff

INLET	AREA (ACRES)	PERVIOUS AREA (C=0.35)	IMPERVIOUS AREA (C=0.90)	$\bar{C}$	CA
E8	0.50	0.32	0.18	0.55	0.28
E7	0.71	0.55	0.16	0.47	0.33
E6	0.27	0.19	0.08	0.51	0.14
E5	2.57	2.39	0.18	0.39	1.00
E4	1.63	1.43	0.20	0.42	0.68
E3	1.34	1.16	0.18	0.42	0.56
E4.1	1.62	1.31	0.31	0.46	0.75
E2.1	0.76	0.60	0.16	0.47	0.36
E2	1.23	0.85	0.38	0.52	0.64
UNCONTAINED AREA	1.97	1.84	0.13	0.38	0.75

c. Rainfall intensity (50-year frequency design storm)

NOTE: Due to paving and storm sewers, time of concentration for the site is reduced to approximately 8.6 minutes.

i_{50} = 7.10 inches per hour

d. "After-Development" site runoff (50-year frequency design storm)

Using Rational Formula, Q=CiA

$Q_{50_{after}} = Q_{\text{into drainage basin}} + Q_{\text{uncontained}}$

$Q_{50_{after}} = 4.74\ (7.10) + .75\ (7.10) = 38.98 \approx 39$ cfs

2. Westward "W" Tributary Area

a. Area

1) Area controlled by drainage facilities = 8.04 acres

2) Uncontained area = 6.89 acres

b. Ratios of ground cover and coefficients of runoff

INLET	AREA (ACRES)	PERVIOUS AREA (C=0.35)	IMPERVIOUS AREA (C=0.90)	$\bar{C}$	CA
W6	0.99	0.70	0.29	0.51	0.50
W5	0.95	0.65	0.30	0.52	0.49
W4	0.39	0.13	0.26	0.72	0.28
W4.1	3.15	2.73	0.42	0.42	1.32
W4.11	1.68	1.53	0.15	0.40	0.67
W4.12	0.88	0.74	0.14	0.44	0.39
UNCONTAINED AREA	6.89	6.19	0.70	0.41	2.82

c. Rainfall intensity (50-year frequency design storm)

NOTE: Due to paving and storm sewers, time of concentration for the site is reduced to approximately 13 minutes

i_{50} = 6.10 inches per hour

d. "After-Development" site runoff (50-year frequency design storm)

Using Rational Formula, Q=CiA

$Q_{50_{after}} = Q_{into\ drainage\ basin} + Q_{uncontained}$

$Q_{50_{after}} = 3.65\ (6.1) + 2.82\ (6.1) = 39.47 \approx 39.5$ cfs

III. BEFORE-DEVELOPMENT VERSUS AFTER-DEVELOPMENT STORMWATER RUNOFF COMPARISON

By comparing the results of the before- versus after-development storm runoff conditions for the respective tributary areas, it can be seen that the Eastward "E" tributary area shows a difference of 14.9 cubic feet per second of runoff, while the Westward "W" tributary area shows a difference of 12.1 cubic feet per second of runoff, given the extra coverage of impervious surfaces and the upgrading of design storm frequency.

IV. STORMWATER DETENTION CRITERIA

Stormwater runoff from the site must be detained so that the flow rate, as calculated for a 50-year frequency storm under "after-development" conditions, does not exceed the flow rate that left the site, as calculated for a 10-year frequency storm under "before-development" conditions.

V. APPROXIMATION OF OVERALL SITE DETENTION REQUIREMENTS

A. Determination of Outlet Pipe Maximum Flow Rate

1. Criteria

The proposed outlet pipe must be sized so that the sum of the flow rate for (1) the stormwater discharged through the outlet pipe plus (2) the stormwater allowed to bypass the detention facility minus (3) any off-site stormwater tributary to the facility does not exceed "before-development" runoff, 10-year storm, i.e.:

stormwater through outlet pipe
+ stormwater bypassing detention facility
- off-site stormwater into detention facility
"before-development" runoff, 10-year storm

2. Eastward "E" tributary area

a. Drainage area allowed to bypass detention facility

$Area_{bypass}$ = 1.97 acres

b. Runoff coefficient

C_{bypass} = 0.38

c. Rainfall intensity (50-year frequency design storm)

Time of concentration - 8.6 minutes

i_{50} = 7.10 inches per hour

d. Stormwater runoff bypassing detention facility

Using Rational Formula, Q=CiA

$Q_{50_{bypass}}$ = 0.38 (7.10)(1.97) = 5.3 cfs

e. Off-site stormwater runoff tributary to detention facility

Area = 2.64 acres
C = 0.35
i_{50} = 7.10 inches per hour (8.6-min. time of concentration)

Q_{50} = 6.6 cfs

f. Maximum outlet pipe flow rate

24.1 cfs - 5.3 cfs + 6.6 cfs = 25.4 cfs

g. Stormwater entering detention facility

CA = 4.74
i_{50} = 7.10 inches per hour (time of concentration = 8.6 minutes)

$Q_{50_{into\ basin}}$ = 4.74(7.10) = 33.7 cfs

h. Storage required

33.7 cfs - 25.4 cfs = 8.30 cfs

3. Westward "W" tributary area

a. Drainage area allowed to bypass detention facility

$Area_{bypass}$ = 6.89 acres

b. Runoff coefficient

$C_{bypass} = 0.41$

c. Rainfall intensity (50-year frequency design storm)

Time of concentration = 13 minutes

$i_{50} = 6.10$ inches per hour

d. Stormwater runoff bypassing detention facility

Using Rational Formula, $Q=CiA$

$Q_{50_{bypass}} = 0.41(6.1)(6.89) = 17.2$ cfs

e. Off-site stormwater runoff tributary to detention facility

Area = 1.67 acres
C = 0.35
i_{50} = 6.1 inches per hour (time of concentration = 13 minutes)

$Q_{50} = 3.6$ cfs

f. Maximum outlet pipe flow rate

27.4 cfs - 17.2 cfs + 3.6 cfs = 13.80 cfs

g. Stormwater entering detention facility

CA = 3.65
i_{50} = 6.10 inches per hour (time of concentration = 13 minutes)

$Q_{into\ basin} = 3.65(6.1) = 22.3$ cfs

h. Storage required

22.3 cfs - 13.80 cfs = 8.50 cfs

B. Sizing of Outlet Pipe

1. Maximum allowable outflow rate

For Eastward "E" tributary area = 25.40 cfs
For Westward "W" tributary area = 13.80 cfs

2. Use orifice equation to determine adequate pipe diameter:

$Q = CA\sqrt{2gH}$

2. (Continued)

Where Q = outflow rate
C = an orifice coefficient approximately equal to 0.6
A = the cross-sectional area of the pipe
g = the accelleration due to gravity in feet/sec/sec
H = the difference in height between the emergency spillway elevation and the centerline of the outlet pipe

3. Basin statistics

A. Eastward "E" tributary drainage system

1) Orifice diameter = 20 inches
2) Invert elevation of orifice = 292.0 feet
3) Emergency spillway elevation = 299.0 feet

B. Westward "W" tributary drainage system

1) Orifice diameter = 17 inches
2) Invert elevation of orifice = 297.0 feet
3) Emergency spillway elevation = 302.0 feet

C. Storage volume tabulation versus discharge (See Appendix)

D. Reservoir Routing Summary (See Appendix)

VI. CONCLUSIONS

By comparing the results of the reservoir routing calculations depicted in the Appendix, it can be readily seen that the proposed stormwater collection and conveyance system coupled with the proposed detention facilities will serve to more than adequately control the increased stormwater created by the new development.

46 824 38

APPENDIX

Where Q = outflow rate
C = an orifice coefficient approximately equal to 0.6
A = the cross-sectional area of the
g = the acceleration due to gravity
(ft/sec/sec)
H = the difference in height between the emergency spillway elevation and the centerline of the outlet pipe

2. Basin statistics

A. Eastward [illegible]

(Continued)

HERBERT H. METZ, INC.
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JOB
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CHECKED BY ___ DATE ___
SCALE

RESERVOIR ROUTING EQUATION

$$(2S/\Delta t + O)_N = I_{N-1} + I_N + (2S/\Delta t + O)_{N-1} - 2O_{N-1}$$

S = STORAGE
O = FLOW (OUT)
I = FLOW (IN)
Δt = ROUTING TIME INCREMENT
N = TIME PERIOD

∴ WITH $(2S/\Delta t + O)_N$ KNOWN, THE FLOW (OUT), O_N, FOR A PARTICULAR TIME PERIOD, MAY BE FOUND FROM THE STORAGE-OUTFALL-ELEVATION RELATIONSHIP.

REFERENCE - BAKER, WILLIAM R., P.E., "STORMWATER DETENTION BASIN DESIGN FOR SMALL DRAINAGE AREAS" PUBLIC WORKS MAGAZINE, MARCH 1977

EASTWARD "E" TRIBUTARY DRAINAGE SYSTEM

FREQ = 50 YR
DURATION: 5 MIN.
Δt = 120 SEC

t_N			
	120.00	***	480.00 ***
	3.21	***	14.35 ***
	8.44	***	33.82 ***
	8.61	***	53.52 ***
	3.33	***	MAX FLOW (OUT) → 14.62 ***
	240.00	***	600.00 ***
	17.03	***	9.22 ***
	26.46	***	23.57 ***
	28.48	***	47.66 ***
	9.64	***	15.60 ***
I	360.00	***	720.00 ***
$(I_{N-1}+I_N)$	19.41	***	4.10 ***
$(2S/\Delta t+O)$	54.40	***	13.32 ***
O	46.53	***	33.98 ***
	15.44	***	10.71 ***

FORM 304-1 Available from ACES Inc. Groton, Mass. 01450

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Phone 855-3111

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FREQ = 50 YR
DURATION = 10 MIN
Δt = 120 SEC

120.00	***		
7.40	***	600.00	***
7.46	***	31.00	***
7.46	***	61.33	***
2.73	***	85.96	***
		25.25	***
240.00	***		
14.75	***	720.00	***
22.13	***	24.40	***
24.12	***	56.20	***
8.65	***	101.61	***
		25.70	***
360.00	***		
22.19	***	840.00	***
36.96	***	17.01	***
43.73	***	41.41	***
12.83	***	91.62	***
		24.53	***
480.00	***		
29.58	***	960.00	***
51.77	***	9.61	***
69.91	***	26.62	***
17.69	***	69.06	***
		17.75	***

FREQ = 50 YR
DURATION = 15 MIN
Δt = 120 SEC

120.00	***		
6.22	***	720.00	***
6.26	***	27.00	***
6.38	***	54.00	***
2.22	***	93.62	***
		25.07	***
240.00	***		
12.56	***	840.00	***
18.84	***	17.00	***
26.66	***	54.00	***
7.55	***	97.48	***
		25.38	***
360.00	***		
18.84	***	960.00	***
31.40	***	23.66	***
36.37	***	50.66	***
11.53	***	97.56	***
		25.36	***
480.00	***		
25.12	***	1080.00	***
43.50	***	17.53	***
57.87	***	41.44	***
15.40	***	88.27	***
		23.25	***
600.00	***		
27.00	***	1200.00	***
52.12	***	11.30	***
75.13	***	28.86	***
19.76	***	70.66	***
		16.24	***

FORM 304-1 Available from GYMI Inc. Groton, Mass 01450

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FREQ = 50 YR
DURATION = 20 MIN
Δt = 120 SEC

120.00	***	720.00	***	1320.00	***
5.63	***	24.20	***	16.57	***
5.63	***	48.40	***	42.77	***
5.63	***	62.64	***	85.00	***
1.92	***	20.96	***	21.90	***
240.00	***	840.00	***	1440.00	***
11.26	***	24.20	***	12.94	***
16.88	***	46.40	***	31.52	***
18.68	***	89.12	***	72.72	***
6.89	***	23.59	***	16.81	***
360.00	***	960.00	***		
16.88	***	24.20	***		
28.14	***	46.40	***		
33.03	***	90.33	***		
10.67	***	24.08	***		
480.00	***	1080.00	***		
22.51	***	24.20	***		
39.40	***	46.40	***		
51.05	***	90.57	***		
14.16	***	24.18	***		
600.00	***	1200.00	***		
24.26	***	24.20	***		
46.71	***	46.40	***		
69.44	***	90.62	***		
17.60	***	24.19	***		

FREQ = 60 YR
DURATION = 25 MIN
Δt = 120 SEC

120.00	***	720.00	***	1320.00	***
5.07	***	[illegible]	***	21.60	***
5.07	***	43.60	***	43.60	***
5.07	***	72.73	***	84.74	***
1.66	***	18.24	***	21.80	***
240.00	***	840.00	***		
10.14	***	21.80	***	1440.00	***
15.21	***	43.60	***	21.60	***
16.96	***	79.85	***	43.60	***
6.33	***	15.96	***	84.75	***
360.00	***	960.00	***	21.80	***
15.21	***	21.80	***		
25.35	***	43.60	***	1560.00	***
29.65	***	83.53	***	15.27	***
9.90	***	21.30	***	41.07	***
480.00	***	1080.00	***	82.21	***
20.28	***	21.60	***	20.60	***
35.45	***	43.60	***		
45.33	***	84.53	***	1680.00	***
13.12	***	21.71	***	14.28	***
600.00	***	1200.00	***	33.46	***
21.80	***	21.80	***	74.08	***
42.08	***	43.60	***	18.93	***
61.17	***	84.71	***		
16.02	***	21.78	***		

FORM 364-1 Available from METZ Inc., Groton, MA

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410 Derstine Avenue
LANSDALE, PENNSYLVANIA 19446
Phone 855-3111

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FREQ = 10 HR
DURATION: 5 MIN
Δt = 120 SEC

120.00	480.00
7.16	11.66
7.16	27.49
7.16	41.21
2.82	12.33
240.00	600.00
14.33	7.50
21.49	19.16
23.40	35.70
8.45	11.27
360.00	720.00
15.82	3.33
30.15	16.63
36.66	23.99
11.47	8.62

FREQ = 10 YD
DURATION = 10 MIN
Δt = 120 SEC

120.00	600.00
5.64	25.18
5.64	46.45
5.64	72.56
2.01	18.21
240.00	720.00
11.07	15.20
17.51	44.36
15.32	80.51
7.11	20.14
360.00	840.00
17.51	13.43
25.15	32.69
34.29	72.91
10.35	18.44
480.00	960.00
23.35	7.55
40.86	21.61
53.25	57.85
14.57	15.44

FORM 304-1 Available from ACEC/MI, Inc., Groton, Mass. 01450

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FREQ = 10 YR
DURATION = 15 MIN
Δt = 120 SEC

120.00	***
4.95	***
4.95	***
4.95	***
1.61	***
240.00	***
9.91	***
14.86	***
16.60	***
6.21	***
360.00	***
14.86	***
24.77	***
28.94	***
9.74	***
480.00	***
19.81	***
34.67	***
44.13	***
12.89	***
600.00	***
21.30	***
41.11	***
59.46	***
15.70	***
720.00	***
21.30	***
42.60	***
70.67	***
17.84	***
840.00	***
21.30	***
42.60	***
77.53	***
19.36	***
960.00	***
18.62	***
40.12	***
78.99	***
19.73	***
1080.00	***
13.87	***
32.69	***
72.22	***
18.14	***
1200.00	***
6.92	***
22.79	***
58.72	***
15.56	***

FREQ = 10 YR
DURATION = 20 MIN
Δt = 120 SEC

120.00	***
4.19	***
4.19	***
4.19	***
1.25	***
240.00	***
8.37	***
12.56	***
14.24	***
5.44	***
360.00	***
12.56	***
20.33	***
24.23	***
8.69	***
480.00	***
16.74	***
29.30	***
36.21	***
11.38	***
600.00	***
18.00	***
34.74	***
48.19	***
13.66	***
720.00	***
18.00	***
36.00	***
56.66	***
15.22	***
840.00	***
18.00	***
36.00	***
62.44	***
16.26	***
960.00	***
18.00	***
36.00	***
65.91	***
16.92	***
1080.00	***
16.60	***
36.60	***
68.07	***
17.34	***
1200.00	***
18.00	***
36.00	***
69.40	***
17.59	***
1320.00	***
13.81	***
31.81	***
66.03	***
16.94	***
1440.00	***
9.63	***
23.44	***
55.58	***
15.02	***

FORM 204-1 Available from KEUFFEL & ESSER CO., Green, Mass. 01460

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JOB
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FREQ = 10 YR
DURATION = 25 MIN
Δt = 120 SEC

120.00	###	720.00	###	1320.00	###
3.42	###	14.70	###	14.70	###
3.42	###	29.40	###	29.40	###
3.42	###	43.92	###	52.91	###
0.50	###	12.85	###	14.51	###
240.00	###	840.00	###	1440.00	###
6.84	###	14.70	###	14.70	###
10.26	###	29.40	###	29.40	###
11.88	###	45.62	###	53.30	###
4.66	###	13.56	###	14.58	###
360.00	###	960.00	###	1560.00	###
10.26	###	14.70	###	12.59	###
17.09	###	29.40	###	27.69	###
19.64	###	49.91	###	51.84	###
7.21	###	13.97	###	14.31	###
480.00	###	1080.00	###	1680.00	###
13.67	###	14.70	###	9.57	###
23.93	###	29.40	###	22.56	###
29.15	###	51.37	###	45.77	###
9.79	###	14.23	###	13.20	###
600.00	###	1200.00	###		
14.70	###	14.70	###		
28.37	###	29.40	###		
37.94	###	52.31	###		
11.71	###	14.40	###		

WESTWARD "W" TRIBUTARY DRAINAGE SYSTEM

FREQ = 50 YR
DURATION = 5 MIN
Δt = 120 SEC

120.00	###	480.00	###	640.00	###
4.49	###	8.64	###	3.46	###
4.49	###	19.01	###	8.64	###
4.49	###	30.46	###	23.01	###
1.41	###	7.31	###	6.35	###
240.00	###	600.00	###		
8.98	###	6.91	###		
13.48	###	15.55	###		
15.14	###	31.33	###		
4.69	###	7.41	###		
360.00	###	720.00	###		
10.37	###	5.18	###		
19.35	###	12.09	###		
24.72	###	28.61	###		
6.66	###	7.12	###		

FORM 200-1 Available from [illegible] Inc., Grass Valley, CA 95945

HERBERT N. METZ, INC.
410 Derstine Avenue
LANSDALE, PENNSYLVANIA 19446
Phone 855-3111

JOB
SHEET NO
CALCULATED BY DATE
CHECKED BY DATE
SCALE

FREQ = 50 YR
DURATION = 10 MIN
Δt = 120 SEC

120.00	...	600.00	...	1080.00	...
3.77	...	18.85	...	5.25	...
3.77	...	33.91	...	17.40	...
3.77	...	54.55	...	71.25	...
1.11	...	5.65	...	11.09	...
240.00	...	720.00	...	1200.00	...
7.54	...	15.32	...	4.35	...
11.31	...	34.75	...	11.60	...
12.85	...	77.04	...	68.67	...
4.46	...	10.55	...	16.16	...
360.00	...	840.00	...		
11.31	...	13.05	...		
16.85	...	28.95	...		
22.78	...	77.06	...		
6.30	...	11.60	...		
480.00	...	960.00	...		
15.08	...	16.15	...		
26.38	...	23.20	...		
36.56	...	77.85	...		
7.97	...	11.60	...		

FREQ = 50 YR
DURATION = 15 MIN
Δt = 120 SEC

120.00	...	600.00	...	1080.00	...
3.20	...	16.00	...	16.80	...
3.20	...	28.80	...	35.20	...
3.20	...	44.32	...	101.35	...
0.87	...	6.76	...	14.84	...
240.00	...	720.00	...	1200.00	...
6.40	...	19.20	...	12.80	...
5.60	...	35.20	...	28.80	...
11.85	...	61.99	...	103.88	...
4.13	...	10.36	...	14.73	...
360.00	...	840.00	...	1320.00	...
9.60	...	20.80	...	3.60	...
16.80	...	40.63	...	22.40	...
18.80	...	81.40	...	96.82	...
5.56	...	12.04	...	13.62	...
480.00	...	960.00	...		
12.80	...	18.20	...		
22.40	...	40.00	...		
30.07	...	97.32	...		
7.27	...	13.66	...		

HERBERT H. METZ, INC.
410 Derstine Avenue
LANSDALE, PENNSYLVANIA 19446
Phone 855-3111

JOB
SHEET NO.
CALCULATED BY DATE
CHECKED BY DATE
SCALE

FREQ = 50 YR
DURATION 10 MIN
Δt = 120 SEC

120.00	600.00	1080.00
2.86	14.31	16.50
2.86	25.75	37.20
2.86	38.45	97.74
0.73	8.17	13.93
240.00	720.00	1200.00
5.72	17.17	18.00
8.58	31.48	37.20
9.96	53.59	107.07
3.72	9.57	15.16
360.00	840.00	1320.00
8.58	18.60	15.74
14.31	35.77	34.34
16.86	70.22	111.08
5.21	11.00	15.72
480.00	960.00	1440.00
11.45	16.60	12.66
20.63	37.20	28.62
26.46	85.42	108.26
6.89	12.44	15.33

FREQ = 50 YR
DURATION = 25 MIN
Δt = 120 SEC

120.00	720.00	1320.00
2.86	15.51	16.80
2.86	28.43	33.60
2.86	47.00	100.72
0.62	9.80	14.32
240.00	840.00	1440.00
5.17	16.80	16.80
7.75	32.31	33.60
9.11	61.31	105.68
3.33	18.24	14.97
360.00	960.00	1560.00
7.75	16.80	15.51
12.93	33.60	32.31
15.33	74.43	108.65
4.52	11.36	15.30
480.00	1080.00	1680.00
10.34	16.80	12.92
18.05	33.60	26.43
23.56	65.31	105.88
6.45	12.43	15.80
600.00	1200.00	1800.00
12.92	16.80	16.34
23.26	33.60	23.26
33.94	94.05	99.15
7.09	13.46	14.12

HERBERT H. METZ, INC.
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JOB
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FREQ = 10 YR
DURATION = 5 MIN
Δt = 120 SEC

120.00		480.00	
5.65		7.81	
3.65		15.43	
3.63		23.47	
1.01		6.43	
240.00		600.00	
7.29		5.61	
10.54		12.62	
12.46		23.23	
4.32		6.35	
360.00		720.00	
6.41		4.21	
15.11		9.82	
15.39		20.27	
5.67		5.84	

FREQ = 10 YR
DURATION = 10 MIN
Δt = 120 SEC

120.00			
2.96		600.00	1080.00
2.98		14.92	5.74
2.98		20.86	13.76
0.73		40.37	48.53
240.00		6.35	9.46
5.57		720.00	1200.00
8.93		12.63	3.44
10.37		27.55	9.18
3.66		51.34	39.76
360.00		[illegible]	6.31
8.55		840.00	
14.82		18.33	
17.54		23.96	
5.33		55.55	
480.00		9.74	
11.94		960.00	
20.83		8.04	
27.77		18.37	
7.03		54.44	
		5.64	

FORM 304-1 Available from [illegible] Inc. Groton, Mass. 01450

HERBERT H. METZ, INC.
410 Derstine Avenue
LANSDALE, PENNSYLVANIA 19446
Phone 855-3111

JOB
SHEET NO.
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SCALE

FREQ = 10 YR
DURATION = 15 MIN
Δt = 120 SEC

120.00	***		600.00	***	1080.00	***
2.52	***		12.62	***	12.62	***
2.52	***		25.71	***	27.75	***
2.53	***		38.96	***	38.92	***
0.53	***		7.56	***	11.54	***
240.00	***		720.00	***	1200.00	***
5.05	***		15.14	***	15.05	***
7.57	***		27.75	***	27.71	***
8.51	***		45.57	***	76.05	***
3.47	***		8.87	***	11.53	***
360.00	***		840.00	***	1320.00	***
7.57	***		16.40	***	7.57	***
12.62	***		31.54	***	17.66	***
14.99	***		59.36	***	70.71	***
4.86	***		10.87	***	11.04	***
480.00	***		960.00	***	1440.00	***
10.09	***		15.14	***	5.05	***
17.66	***		31.54	***	12.62	***
22.94	***		76.76	***	61.24	***
6.33	***		11.05	***	16.25	***

FREQ = 10 YR
DURATION = 20 MIN
Δt = 120 SEC

120.00	***		720.00	***	1320.00	***
2.52	***		12.62	***	11.76	***
2.52	***		25.71	***	25.66	***
2.53	***		38.62	***	75.23	***
0.43	***		7.57	***	11.43	***
240.00	***		840.00	***	1440.00	***
4.26	***		13.90	***	5.62	***
6.42	***		26.73	***	21.38	***
7.70	***		47.46	***	73.75	***
2.76	***		9.03	***	11.38	***
360.00	***		960.00	***	1560.00	***
6.42	***		13.90	***	7.48	***
10.68	***		27.80	***	17.11	***
12.87	***		57.14	***	68.25	***
4.47	***		9.88	***	10.53	***
480.00	***		1080.00	***	1680.00	***
8.53	***		13.90	***	5.35	***
14.37	***		27.80	***	12.83	***
16.37	***		65.19	***	58.42	***
5.38	***		10.57	***	10.37	***
600.00	***		1200.00	***		
10.69	***		13.90	***		
19.25	***		27.80	***		
26.93	***		71.65	***		
6.32	***		11.14	***		

FORM 804-1 Available from Chi-Corp Inc., Groton, Mass. 01450

HERBERT H. METZ, INC.
410 Derstine Avenue
LANSDALE, PENNSYLVANIA 19446
Phone 855-3111

JOB
SHEET NO ___ OF ___
CALCULATED BY ___ DATE ___
CHECKED BY ___ DATE ___
SCALE

EREQ = 50 YR
DURATION = 25 MIN
Δt = 120 SEC

120.00	720.00	1320.00
1.74	10.45	11.30
1.74	19.12	22.68
6.26	28.00	56.05
	7.06	9.78
240.00		
3.76	840.00	1440.00
5.22	11.30	11.30
6.43	21.73	22.60
2.26	35.67	53.02
	7.67	10.05
360.00		
5.22	960.00	1560.00
8.65	11.30	10.45
10.87	22.60	21.73
4.00	42.53	66.73
	8.00	10.15
480.00		
6.55	1080.00	1680.00
12.11	11.30	8.69
14.85	22.60	19.12
4.65	47.53	59.47
	9.02	10.08
600.00		
8.65	1200.00	1800.00
15.03	11.30	6.95
20.82	22.60	15.65
5.94	52.37	54.36
	9.46	9.69

HERBERT H. METZ, INC.
419 Derstine Avenue
LANSDALE, PENNSYLVANIA 19446
Phone 855-8111

JOB
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SCALE

STORM VOLUME TABULATION VERSUS DISCHARGE

EASTWARD "E" TRIBUTARY DRAINAGE SYSTEM

ELEVATION	PIPE VOLUME			INLET VOLUME				TOTAL AVAILABLE STORAGE	OUTFLOW RATE (30"Ø ORIFICE)
	49 LF 21"Ø CMAPA	DUAL 90 LF 7'-1"x4'-7" CMAPA	187 LF 18"Ø CAAP	E2 (4'Lx5'Lx4'W)	E2 (4'Lx5'Lx6'W)	E3 (4'Lx2'W)	ROADWAY (CUL-DE-SAC)		
	CU.FT	CU.FT	CU.FT	CU.FT	CU.FT	CU.FT	CU.FT	CU.FT	CFS
292.0	0	0	0	0	0	0	0	0	0
292.5		62			44			106	0
293.0		340			88			428	4.33
293.5		824		35	132			991	8.59
294.0		1352		77	176			1605	11.35
294.5		1876		119	220			2215	13.56
295.0	5	2342		161	264			2772	15.46
295.5	27	2720		203	308	4		3262	17.15
296.0	66	3016	5	245	352	8		3692	18.69
296.5	101	3154	27	287	396	12		3977	20.11
297.0	116	3168	82	329	440	16		4151	21.43
297.5	118		154		484	20		4273	22.68
298.0			236		528	24		4397	23.87
298.5			308			28	20	4499	24.99
299.0			377			32	700	5252	26.07

FORM 356-1 Available from ATES Inc., Groton, Mass. 01450

HERBERT H. REIL, INC.
410 Derstine Avenue
LANSDALE, PENNSYLVANIA 19446
Phone 855-3111

STORAGE VOLUME TABULATION VERSUS DISCHARGE

WESTWARD "W" TRIBUTARY DRAINAGE SYSTEM

ELEVATION	PIPE VOLUME					INLET VOLUME				TOTAL AVAILABLE STORAGE VOLUME	OUTFLOW RATE (I/T & ORIFICE)
	20LF 71"X47" CAAPA	127LF 71"X47" CAAPA	308 LF 15"Ø CAAP	262 LF 15"Ø CAAP	190LF 49"X33" CAAPA	W4C(11.5'L X 8'W)	W4(C(11.5'L X 2'W)	W3C(11.5'L X 3'W)	W5C(4'L X 8'W)		
	CU.FT	CU.FT	CU.FT	CU.FT	CU.FT	CU.FT	CU.FT	CU.FT	CU.FT	CU.FT	CFS
297.0	0	0	0	0	0	0	0	0	0	0	0
297.5	↓	↓	↓	↓	43	↓	↓	17	↓	60	0
298.0					360			34		394	4.10
298.5	28	58			916	37	7	51		1097	6.76
299.0	82	328			1474	83	18	68	8	2061	8.64
299.5	145	698			1992	129	30	85	24	3053	10.18
300.0	207	1076			2398	175	41	102	40	3972	11.51
300.5	270	1441			2804	221	53	119	56	4893	12.71
301.0	333	1796			3210	267	64	136	72	5782	13.77
301.5	384	1996			3616	313	75	153	88	6625	14.71
302.0	392	2188	21	143	4022	359	86	170	104	7493	15.58

HERBERT H. METZ, INC.
410 Derstine Avenue
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JOB
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SCALE

RESERVOIR ROUTING SUMMARY

EASTWARD "E" TRIBUTARY DRAINAGE SYSTEM

		DURATION 5 MIN	10 MIN	15 MIN	20 MIN	25 MIN	PEAK FLOW (OUT)	ELEVATION
50 YR FREQ	INTENSITY	8.0	6.7	5.7	5.1	4.6		
	FLOW (IN)	37.9	31.8	27.0	24.2	21.8		
	FLOW (OUT)	14.6	25.7	25.4	24.2	21.8	25.7 CFS	298.6 FT
10 YR FREQ	INTENSITY	6.5	5.3	4.5	3.8	3.1		
	FLOW (IN)	30.8	25.1	21.3	18.0	14.7		
	FLOW (OUT)	12.3	20.1	19.7	17.6	14.6	20.1 CFS	296.5 FT

WESTWARD "W" TRIBUTARY DRAINAGE SYSTEM

		DURATION 5 MIN	10 MIN	15 MIN	20 MIN	25 MIN	PEAK FLOW (OUT)	ELEVATION
50 YR FREQ	INTENSITY	8.0	6.7	5.7	5.1	4.6		
	FLOW (IN)	29.2	24.5	20.8	18.6	16.8		
	FLOW (OUT)	7.4	11.6	14.8	15.7	16.3	15.7 CFS	302.0
10 YR FREQ	INTENSITY	6.5	5.3	4.5	3.8	3.1		
	FLOW (IN)	23.7	19.4	16.4	13.9	11.3		
	FLOW (OUT)	6.4	9.7	11.5	11.4	10.2	11.5 CFS	300.0

OUTFLOW SUMMARY

		5 MIN	10 MIN	15 MIN	20 MIN	25 MIN
"E" TRIBUTARY	DISCHARGE (CFS)	14.6	25.7	25.4	24.2	21.8
ALLOWABLE	DISCHARGE (CFS)	25.6	25.8	25.0	26.0	24.8
"W" TRIBUTARY	DISCHARGE (CFS)	7.4	11.6	14.8	15.7	15.3
ALLOWABLE	DISCHARGE (CFS)	9.4	12.4	14.6	16.0	17.1

FORM 304-1 Available from Metz, Inc., Groton, Mass. 01450

ΔAC_o = AC (Contrib. Surface Flow between Inlets)
ΔAC_B = AC (Bypassing Flow From Previous Inlet)
ΔAC_I = AC (Entering Inlet)
C = Runoff Factor

COMPUTATION TABLE - STORM SEWER DESIGN

SHEET NO ____ OF ____ BY ____
CHKD. BY ____

DRAINAGE AREA							TIME		RAIN. FALL INTEN-SITY I	DIS-CHARGE Q	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS n VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL
ΔA	C	ΔAC_o	ΔAC_B	$\Delta AC_o + \Delta AC_B$	$\Sigma \Delta AC$	ΣAC_I	ΔT	ΣT									
ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	CFS	FEET	FT/FT			IN	FPS	CFS
.58	.66	.38	—	.38	.38			5									
.71	.67	.33	—	.33	.26	.64	.1	6.6	6.5	1.8	26	.0296	CMP	.012	15	4.60	6.9
.27	.51	.14	.07	.21	.20	.74	.1	6.7	6.1	3.3	50	.021	CMP	.012	15	7.3	10.1
2.57	.30	1.00	.01	1.01	.58	1.32	.2	7.7	6.1	4.5	144	.0201	CMP	.012	15	7.9	9.9
								8.1	5.9	7.8	201	.0189	CMP	.012	15	8.8	9.6
.62	.46	.75	—	.75	.65	.65	.1	8.2	6.5	4.2	50	.010	CMP	.012	15	6.0	7.8
								4.0									
.63	.42	.68	.63	1.11	.62	2.59	.4	8.1	6.8	17.0	187	.0155	CMP	.016	21	7.8	16.1
.34	.42	.57	.29	1.05	.57	3.16	.1	8.5	5.6	17.7	49	.020	CMP	.016	21	8.7	18.3
								8.6									

Δ AC_0 = AC (Contrib. Surface Flow between Inlets)
Δ AC_B = AC (Bypassing Flow From Previous Inlet)
Δ AC_I = AC (Entering Inlet)
C = Runoff Factor

COMPUTATION TABLE - STORM SEWER DESIGN

SHEET NO ____ OF ____ BY.
CHKD. BY.

DRAINAGE AREA								TIME		RAIN-FALL INTEN-SITY I	DIS-CHARGE Q	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNING'S n VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL
Δ A	C	ΔAC_0	ΔAC_B	$\Delta AC_0 + \Delta AC_B$	ΔAC_I	ΣAC_I		Δ T	ΣT									
ACRES		ACRES	ACRES	ACRES	ACRES	ACRES		MIN	MIN	IN / HR	C F S	FEET	FT / FT			IN	F P S	C F S
.76	.47	.36	.10	.46	.35			—	4.6									
						.35				6.5	2.3	2@30	.010	CMP	.021	22X52	N/A	N/A
1.23	.56	.64	.59	1.23	1.23				10.0									
—	—	—	—	—	—	4.74		.2		N/A	20.1	78	.016	CMP	.011	27	8.2	30.0
						4.74		.1	10.2	N/A	20.1	36	.0057	CMP	.009	42IN	5.0	29.5
TO OUTFALL									10.3									

AC_o = AC (Contrib. Surface Flow between inlets)
AC_o = AC (Bypassing Flow From Previous Inlet)
AC_i = AC (Entering Inlet)
C = Runoff Factor

COMPUTATION TABLE-STORM SEWER DESIGN

SHEET NO ____ OF ____ BY ____
CHKD. BY ____

DRAINAGE AREA							TIME		RAIN-FALL INTENSITY I	DIS-CHARGE Q	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS n VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL
AA	C	AAC_o	AAC_o	$AAC_o + AAC_o$	AAC	EAC	ΔT	ET									
ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	CFS	FEET	FT/FT			IN	FPS	CFS
.99	.61	.50	—	.50	.50			3.4									
.98	.57	.40	—	.49	.34	.60	1	5.6	6.5	3.3	308	.0094	CAAP	.012	15	5.4	6.8
						.84			6.4	5.4	127	.0051	CAAP	.012	21X14	N/A	N/A
BB	.44	.39	—	.39	.32			5.1									
CB	.40	.67	—	.67	.55	.32	.2	5.3	6.5	2.1	73	.0226	CAAP	.012	15	6.50	10.3
						.87	.7		6.4	5.6	267	.0103	CAAP	.012	15	6.40	7.10
5	.2	1.32	.22	1.54	1.54			12.7									
						1.54	.1		6.9	7.6	25	.0154	CAAP	.012	15	8.30	8.70
3	.72	.28	.12	.40	.40			12.8									
	—	—	—	—	—	3.65		15.0	4.8	17.5	140	.0057	CALDA	.020	49X33	N/A	N/A
						3.66	.2	15.3	N/A	11.5	177	.0078	CAAP	.016	21	10.3	24.9

▲ AC_a = AC (Contrib. Surface Flow between Inlets)
▲ AC_b = AC (Bypassing Flow From Previous Inlet)
▲ AC_t = AC (Entering Inlet)
C = Runoff Factor

COMPUTATION TABLE-STORM SEWER DESIGN

SHEET NO ____ OF ____ BY ____
CHKD BY ____

DRAINAGE AREA							TIME										
▲AA	C	AAC_a	AAC_b	$AAC_a + AAC_b$	AAC'	AAC_t	ΔT	ΣT	RAIN. FALL INTEN. SITY I	D.S. CHARGE Q	LENGTH OF PIPE	SLOPE OF PIPE	TYPE OF PIPE	MANNINGS n VALUE	SIZE OF PIPE	MEAN VELOCITY	PIPE CAPACITY FLOWING FULL
ACRES		ACRES	ACRES	ACRES	ACRES	ACRES	MIN	MIN	IN/HR	CFS	FEET	FT/FT			IN	FPS	CFS
1.03	.52	.54	—	.54	.54			5.0									
.16	.69	.11	—	.11	.10	.54	2		6.5	3.5	74	.0122	CAAP	.012	15	6.2	7.7
.4	.47	.19	.31	.20	.18	.64	.8	5.2									
.18	.47	.08	.02	.10	.10	.32	.2	6.0	6.5	4.2	332	.0101	CAAP	.012	15	7.7	7.7
						.02	.1	6.4	6.3	5.2	164	.0066	CAP	.012	15	5.3	5.7
									6.2	5.70	23	.0074	CALP	.017	15	5.6	6.0
1.52	.47	.71	—	.71	.71			3.3									
						.71	.1		5.5	3.9	25	.0088	CAAP	.012	15	5.4	6.3
—	—	—	—	—	—			15.3									
—	—	—	—	—	—	4.45	.3		4.5	31.5	112	.0104	CMPA	.019	48"	6.9	40.3
						4.45		15.6	4.4	31.1	20	.022	CMPA	.019	42"	9.2	53.7

ER-BWQ-285
rev 2/79

RE-SUBMIT
FOR RENEWAL OR AFFIRMATION OF PERMIT (1)

4682438

SEWERAGE PERMIT APPLICATION
DEPARTMENT OF ENVIRONMENTAL RESOURCES

APPLICANT NAME* Upper Gwynedd-Towamencin Municipal Authority ADDRESS: 2225 Kriebel Road

CITY, ZIP Lansdale, PA 19446 TELEPHONE NUMBER: (215) 855-8165

*Applicant shall be the agency which will own the sewerage facilities following completion of construction and/or dedication.

A filing fee check of $100.00 made out to Pennsylvania Department of Environmental Resources is required with the application.

PROJECT NAME: Meadow View Subdivision PROJECT ACREAGE: 26.7 acres

MUNICIPALITY: Towamencin Township COUNTY: Montgomery County

NOTE: Please attach a drawing which clearly shows the boundaries of the proposed service area, the properties to be served, the location of the sewerage facilities, the slopes of proposed sewers on the plan with inverts of manhole, point of connection to existing sewers, and all streets, streams or other important site features. Also include specifications for the facilities and an erosion an sedimentation control plan. (2)

For any deviations from the Sewerage Manual, please note clearly and fully justify.

RECEIVED
NOV 26 1982
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

FOR THE APPLICANT

I hereby apply for approval on (Date) November 22, 1982 to construct and operate (X) sewers and appurtenances
[ ] Sewage pumping stations(s) which [ ] does [X] does not include stream crossings(s).

For sewage pumping stations include detailed construction plans, Module 7 and an erosion and sedimentation control plan.

For stream crossing, include the plan and profile view of the sewer line crossing along with specific construction techniques including soil erosion and sedimentation control provisions.

Affidavit: I hereby certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and based on my inquiry of those individuals immediately responsible for obtaining the information I believe the submitted information is true, accurate and complete.

Applicant's Signature: H. Warren Dimmig

Name and Title: H. Warren Dimmig, Chairman, U.G.T.M.A.

Address: 2225 Kriebel Road, Lansdale, PA 19446

Sworn and subscribed to before me this 22nd day of NOVEMBER, 1982.

Notary's seal and signature: Jeffrey A. West

JEFFREY A. WEST, NOTARY PUBLIC
LANSDALE BORO, MONTGOMERY COUNTY
MY COMMISSION EXPIRES AUG. 16, 1986

FOR THE DESIGN ENGINEER

Affidavit: I, Herbert H. Metz, Pennsylvania Associate of Notaries, certify that the information contained in the accompanying [illegible] cations, and reports has been prepared in accordance with accepted engineering practice, is true and correct, and [illegible] the standards, guidelines and requirements of the Department of Environmental Resources.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER No. 9953-E

Design Engineer's Seal and Signature: Herbert H. Metz

Name of Engineering Firm: Herbert H. Metz, Inc.

Address, Zip P.O. Box 647, Lansdale, PA 19446 Telephone No.: (215) 855-3111

(1) Reference prior Permit Number 4679469, issued January 22, 1980.

(2) Reference Upper Gwynedd-Towamencin Municipal Authority specifications and pertinences as filed with PA D.E.R. by U.G.T.M.A.

4716-047 REV. 8-71

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
SANITARY ENGINEERING

INTERNAL REVIEW AND RECOMMENDATIONS

4682438
For Department Use Only

REGIONAL ENGINEER'S REVIEW

NAME OF APPLICANT: Upper Gwynedd-Towamencin Municipal Authority
PROJECT LOCATION: Towamencin Township Montgomery County
APPLICATION NUMBER: 4682438

BRIEF DESCRIPTION OF PROJECT: The Applicant requests approval for the construction of a sanitary sewer extension to serve the Meadow View Subdivision located in Towamencin Township at the easterly corner of the intersection of Troxell Rd. & Snyder Rd., Montgomery County. This application was a resubmission of a previously permitted sewer extension covered under permit #4679469 issued 1/22/80. Resubmission was made on request by the Township due to 2 reasons: 1) Development of the site has (CONT.BELOW)

DISCUSSION (Use Additional Sheets If Necessary):
Sewage from the proposed sewer extension will be conveyed to the Upper Gwynedd-Towamencin STP via existing Upper Gwynedd-Towamencin MA sewers covered under Permit Nos. 765S13, 4672412 and 4679414. The final effluent will be afforded secondary treatment before discharge to the Towamencin Creek. The proposed sewer extension will serve 143.5 people initially and 143.5 people ultimately. The soil erosion and sedimentation control plan has been reviewed and approved by the Montgomery County Conservation District. (CONT. FROM ABOVE) - not yet occurred & 3 yrs. have elapsed since issuance of the permit; & 2) Redesign of the stormwater collection system had occurred due to changing to Township ordinances. There are no encroachments involved with this permit. Earthmoving shall not exceed 25 acres at one time.

CURRENT ESTIMATE OF COMPLETION DATE OF PROJECT (Industrial Wastes Only)

RECOMMENDATION AND ACTION

APPROVAL – RELEVANT LAWS, REGULATIONS, STANDARDS, AND POLICIES HAVE BEEN COMPLIED WITH:

Issue By Region	Issue By Central Office	Refuse	Signature	Date
☒	☐	☐	Marie Crabarly REVIEWING ENGINEER	2/10/83
☒	☐	☐	Richard L. Heiller FACILITIES ENGINEER	2/14/83
☒	☐	☐	C. F. Fuge REGIONAL ENGINEER	2/15/83
	☐	☐	DIV. FACILITIES ENGINEER	
	☐	☐	DIVISION DIRECTOR	
		☐	BUREAU DIRECTOR	

PERMIT CONDITIONS:
1. STANDARD –
Erosion Control (1973) - 1 thru 20
Sewerage (1972) 1-9, 11-14, 21, 22, 30, 31

2. SPECIAL (Use Additional Sheets If Necessary) –
This permit cancels Permit #4679469.

Recording of Permit: Montgomery County

T47

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT

NO. 4682438

A. PERMITTEE (Name and Address)
Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

B. PROJECT LOCATION
Municipality: Towamencin Township
County: Montgomery

C. TYPE OF FACILITY (For industrial wastes: type of establishment)
Sanitary Sewer Extension

D. NAME OF MINE, PLANT, AREA SERVED, OUTFALL NO., ETC.
Meadow View Subdivision

E. THIS PERMIT APPROVES:

1. Plans For Construction Of: a. [X] Pump Stations, Sewers and Appurtenances; b. [ ] Sewage Treatment Facilities; c. [ ] Industrial Wastes Treatment Facilities; d. [ ] Mine Drainage Treatment Facilities; e. [ ] Outfall & Headwall; f. [ ] Stream Crossing; g. [ ] Impoundment

2. The Discharge Of: N/A a. [ ] Treated; b. [ ] Untreated; c. [ ] Sewage; d. [ ] Industrial Wastes

3. Discharge To: N/A a. [ ] Surface Water; b. [ ] Ground Water
Name of Stream to which discharged or drainage area in which groundwater discharge takes place or impoundment is located.

4. Operation of a Mine: N/A [ ]
Maximum Area to be Deep Mined _____ Acres

5. An Erosion and Sedimentation Control Plan [X]
Project Area is 26.7 Acres

F. THIS APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:

1. ALL CONSTRUCTION, OPERATIONS, PROCEDURES AND DISCHARGE SHALL BE IN ACCORDANCE WITH APPLICATION NO. 4682438 DATED November 22, 1982 ITS SUPPORTING DOCUMENTATION, AND AMENDMENTS DATED _____, SUCH APPLICATION, ITS SUPPORTING DOCUMENTATION AND AMENDMENTS ARE HEREBY MADE A PART OF THIS PERMIT.

2. CONDITIONS NUMBERED 1 thru 9, 11 thru 14, 21, 22, 30 and 31 OF THE Sewerage STANDARD CONDITIONS DATED 1972 AND CONDITIONS NUMBERED 1 thru 20 OF THE EROSION CONTROL STANDARD CONDITIONS DATED 1973 WHICH CONDITIONS ARE ATTACHED AND MADE PART OF THIS PERMIT.

3. SPECIAL CONDITIONS DESIGNATED _____ WHICH ARE ATTACHED AND ARE MADE A PART OF THIS PERMIT.

This permit must be recorded in the Recorder of Deeds Office in Montgomery County.

G. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. IF THERE IS A CONFLICT BETWEEN THE APPLICATION OR ITS SUPPORTING DOCUMENTS AND AMENDMENTS AND THE STANDARD OR SPECIAL CONDITIONS, THE STANDARD OR SPECIAL CONDITIONS SHALL APPLY.

2. FAILURE TO COMPLY WITH THE RULES AND REGULATIONS OF THE DEPARTMENT OR WITH THE TERMS OR CONDITIONS OF THIS PERMIT SHALL VOID THE AUTHORITY GIVEN TO THE PERMITTEE BY THE ISSUANCE OF THE PERMIT.

3. THIS PERMIT IS ISSUED PURSUANT TO THE CLEAN STREAMS LAW, ACT OF JUNE 22, 1937, P.L. 1987 AS AMENDED 35 P.S. § 691.1 ET SEQ. AND/OR THE WATER OBSTRUCTION ACT, ACT OF JUNE 25, 1913, P.L. 555 AS AMENDED 32 P.S. § 681 ET SEQ. ISSUANCE OF THIS PERMIT SHALL NOT RELIEVE THE PERMITTEE OF ANY RESPONSIBILITY UNDER ANY OTHER LAW

PERMIT ISSUED
DATE 2-15-83

DEPARTMENT OF ENVIRONMENTAL RESOURCES
BY C.T. Beechwood
C.T. Beechwood, P.E.
TITLE Regional Water Quality Manager

T49

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
Norristown, PA 19401
215 631-2405

February 15, 1983

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: Mr. H. Warren Dimmig
Chairman

Re: Sewerage Permit No. 4682438
Meadow View Subdivision
Towamencin Township
Montgomery County

Gentlemen:

Referenced permit is enclosed.

Please study the permit carefully and direct any questions to the Permits Section of this office at 215 631-2411.

To become operative this permit must be recorded in the Office of the Recorder of Deeds in the county in which the discharge is located. Enclosed is a certificate and pre-addressed envelope for this purpose. Please have the Recorder of Deeds accomplish the certificate and return it within ten (10) days.

We will cancel permit No. 4679469 issued on January 22, 1980, which covered the sanitary sewer system for the Meadow View Subdivision, as the subject permit supercedes our prior approval.

Very truly yours,

C. T. Beechwood

C. T. BEECHWOOD, P.E.
Regional Water Quality Manager

CTB:JF:hw

Enclosures: Permit
Standard Conditions Relating to Sewerage
Standard Conditions Relating to Erosion Control
Recorder of Deeds Certificate
Notary Public Certificate

cc: Herbert H. Metz, Inc.
Permits & Compliance
Re 30 T48

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT
WATER QUALITY MANAGEMENT PERMIT No. 4682438

ER-RWQ-68 Rev. 4-73

Upper Gwynedd-Towamencin Municipal Authority
225 Kriebel Road
Lansdale, PA 19446

4682438

Permit No. 4682438

Towamencin Township
Montgomery County

Commonwealth of Pennsylvania
Department of Environmental Resources

RECORDER OF DEEDS CERTIFICATE

I hereby certify that on . . . . . .
(Date)

there was recorded in Book . . . . . .

page . . . . . the sewerage permit issued

to . . . . . .

bearing date of . . . . . .

. . . . . .
Recorder of Deeds for

. . . . . County

ER-BWQ-69 Rev. 1/78

STATE OF PENNSYLVANIA
COUNTY OF MONTGOMERY } SS

On the 15th day of February in the year one thousand nine hundred and eighty-three before me, the Subscriber, a Notary Public, came the above named

C.T. Beechwood

and duly acknowledged the foregoing permit to be his act and deed and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year aforesaid.

NOTARY PUBLIC

My Commission Expires Sept. 20, 1985

Department of Environmental Resources
1875 New Hope Street
Norristown, Pennsylvania 19401
215 631-1402

December 6, 1982

Upper Gwynedd-Towamencin Municipal
Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: H. Warren Dunnig
Chairman

Re: Application No. 4682438
Towamencin Township
Montgomery County

Gentlemen:

This will acknowledge receipt of your application on November 26, 1982 for approval to construct a sanitary sewer extension to serve the Meadow View Subdivision in Towamencin Township, Montgomery County.

The material submitted is accepted for technical review and has been assigned to Eugene Wingert, 631-2411, of our staff.

You are reminded that any proposed facilities cannot be constructed without first obtaining the required permits.

Applications are normally processed within sixty (60) days. If you have not received notification of the action taken within this period, feel free to contact me for information concerning the status of the review.

Very truly yours,

LEON T. GORSUCH
Regional Director

cc: Towamencin Township
Herbert H. Metz
Water Quality Management
Re JA628

ER-TP-1: Rev. 7/79

FORM NO. 1

SUBJECT: UPPER GWYNEDD / TOWAMENCIN M.A. CONTACT(S): Application Nos.

2225 KRIEBEL RD H.WARREN DIMMIG 855-8163
LANSDALE, PA 19446 CHAIRMAN

New Proposal	✓
Revised Proposal	

Regional Director HERBERT H. METZ

Permit Coordination Requirements: 855-3111

EROS:

12/6/82

On 11/26/82, we (~~completed~~/received) an application for plan approval and/or permit to (construct/~~modify/install~~) A SANITARY SEWER EXTENSION TO SERVE THE MEADOW VIEW SUB DIVISION IN

This proposal involves: TOWAMENCIN TOWNSHIP, MONTGOMERY COUNTY

UPPER GWYNEDD-TOWAMENCIN STP

Permit Coordination Requirements: None

Program	No Permit Required	No Permit Required Prior Approval Required	Permit Required Application on Hand	Permit Required Application Needed
Air Quality	✓			
Water Quality ~~537~~ Sec.	✓		ASK-11-29-82	
Solid Waste Management	✓			
Community Env. Control	✓			
Mining & Reclamation				
Radiation Protection				
Dams & Waterway Management	✓			

Please indicate your interest on this form and return to the Regional Director by 12-3-82
Failure to return the form by the indicated date will indicate that your program has no interest in the project. * This application has been permitted before, #6794469 but the extension was never built. The Township requested ~~Resubmittal~~ a new permit. please cancel 6794469 once project is permitted.

ER – EP

START

DEPARTMENT OF ENVIRONMENTAL RESOURCES

ENVIRONMENTAL PROTECTION

START

BUREAU / PROGRAM Water Quality Management

DIVISION returned

COUNTY / MUNICIPALITY 46949

PROGRAM Sew

New Proposal

Revised Proposal

CASE NAME Upper Gwynedd - Towamencin Municipal Authority

FILE P

PERMIT NO. 4683409 Towamencin Village

returned

ER-EP-1: Rev. 8/82

Department of Environmental Resources

1875 New Hope Street
Norristown, PA 19401
215 631-2426

December 17, 1980

Towamencin Township Board of Supervisors
1655 Sumneytown Pike
Kulpsville, PA 19443

Attention: Mr. Carlo Sapelli
Municipal Secretary

Re: Towamencin Village
1-46949-028-4
Towamencin Township
Montgomery County

Gentlemen:

Please be advised that a review has been made and completed of the above referenced Planning Module for Land Development.

This revision to the Towamencin Township Official Sewage Facilities Plan meets the requirements of Chapter 71, Section 71.16 of the Pennsylvania Department of Environmental Resources Rules and Regulations.

Approval is hereby granted; and in accordance with this Chapter, the Department holds Towamencin Township responsible for implementing this revision as per the approved module.

This approval provides for adequate Sewage Facilities planning to permit the development of 1,220 dwelling units on 355 acres located west of the intersection of Sumneytown Pike and Bustard Road. Sewage will be treated at the Upper Gwynedd/Towamencin Municipal Authority Sewage Treatment Plant.

This planning approval does not relieve the project sponsor of the responsibility to secure a Department permit for the construction and operation of the proposed facility.

If you have any questions, please feel free to contact this office.

Very truly yours,

Glenn K. Stinson
Sewage Facilities Consultant
Norristown

cc: Mr. Herbert H. Metz, Jr.
WAIIS
Co Re 30 JM194

ENVIRONMENTAL PROTECTION

United States Department of Agriculture
Soil Conservation Service
1721 Markley Street, Norristown, Pa. 19401

November 3, 1981

Mr. Maynard King, Executive Assistant
Montgomery County Conservation District
One Montgomery Plaza - Court House
Norristown, Pa. 19404

Dear Mr. King:

Re: Towamencin Village - Section IV
E & S Control Plan
Towamencin Township

The plan as submitted is not adequate for sedimentation and erosion control. The following revisions are needed:

1. The amount of runoff from the project area and upstream watershed should be included. Calculations should be made for before, during, and after construction so that adequacy of runoff facilities can be determined.

2. Construction specifications and permanent maintenance of the storm water detention basin should be included in the plan. The timing of basin construction should be included in the schedule of earthmoving activities.

3. The profile at the lower left corner of page 12 of 12 needs to be labeled and height should be included.

4. The length and depth of Rock Basin is needed.

5. The length and slope ratio of stone outlet trap is needed.

6. The depth and width of parabolic swale should be included.

7. The proposed diversion grade exceeds the maximum allowable grade. It is suggested that diversion berms be realigned not to exceed a 2.0% grade to minimize channel erosion.

8. The projected starting and finishing dates of construction should be included in the narrative.

When these items are included in the plan, the plan should be reviewed as adequate.

Sincerely,

Tanya R. Mason

Tanya R. Mason
Soil Conservationist

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P.O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

December 30, 1981

Pennsylvania Department of Environmental Resources
Bureau of Water Quality Management
1875 New Hope Street
Norristown, Pennsylvania 19401

Re: Upper Gwynedd-Towamencin Municipal Authority
Towamencin Village - Sections #1, #2, #4
Sewer Extensions and Sewage Pumping Station Water Quality Management Application

Gentlemen:

In compliance with your Permit Application procedure requirements, we are transmitting herewith a filing fee check for $100.00 made out to the Commonwealth of Pennsylvania, and executed duplicate copies of the following application documents:

1. Application Form ER-BWQ-265, Rev. 2/79
2. Module 7 - Sewage Pumping Stations (ER-BWQ-188.7, Rev. 3/75)
3. Tract Area Plan showing proposed service area
4. Sets of plan-profiles for sewer extensions - Sections #1, #2 and #4
5. Set of Plan-Profiles for gravity sewer collector via future Section #5 to sewage pump station
6. Set of Plan-Profiles for Towamencin Village trunk-line, via open space, future Section #5, easement and Old Forty Foot Road to sewage pumping station
7. Set of Plans- Sewage Pumping Station #2 with included specifications
8. Set of Plan-Profiles for Old Morris Road force main and gravity sewer connection to existing system
9. Pump - System Head curve sheet

HERBERT H. METZ, INC.
Pennsylvania Department of
Environmental Resources

December 30, 1981

It should be noted that U.G.T.M.A. sewer specifications and pertinences are already on file with the Department.

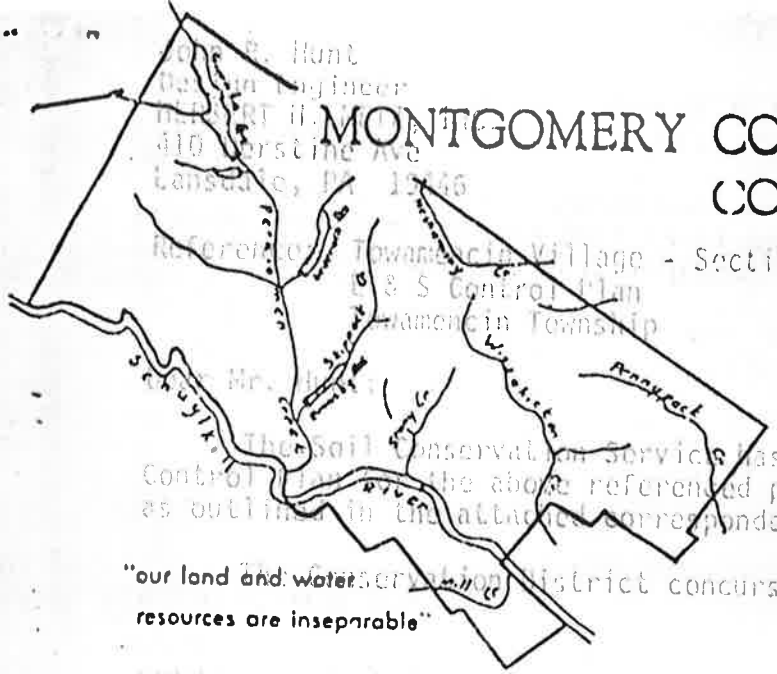
Erosion and sedimentation control plans and schedules for the sewage pumping station site and associated land development are incorporated on the related plans for such facilities.

Please advise us should you require any additional information or data to support this application.

Very truly yours,

Barry L. Wert, P.E., P.L.S.

BLW/jdk
Enclosures
cc: U.G.T.M.A.



MONTGOMERY COUNTY CONSERVATION DISTRICT

4th Floor — One Montgomery Plaza
Court House, Norristown, PA 19404
Phone: 278-3618

RECEIVED
FEB 13 1982
EN
WA
NORRISTOWN FIELD OFFICE

November 4, 1981

Maynard A. King
Executive Director

John R. Hunt
Design Engineer
HERBERT H. METZ, INC.
410 Derstine Ave
Lansdale, PA 19446

cc: Towamencin Township Engineer

Reference: Towamencin Village - Section IV
E & S Control Plan
Towamencin Township

Dear Mr. Hunt:

The Soil Conservation Service has reviewed the Erosion and Sediment Control Plan for the above referenced project. The find it to be inadequate as outlined in the attached correspondence.

The Conservation District concurs with the findings of the SCS.

Sincerely,

Maynard A. King
Executive Director

MAK/cmp

cc: Towamencin Township Engineer

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P.O. BOX 647
410 DERSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 855-3111
855-1686

March 30, 1982

Department of Environmental
Resources
1875 New Hope Street
Norristown, Pennsylvania 19401

Attention: Marie Faherty

Dear Marie:

Enclosed herewith please find two (2) sets of Construction Drawings for Towamencin Village, Sections 1 and 2. The drawings contain revisions reflecting comments from the Montgomery County Conservation District and your office.

In addition, please find the completed calculations and hydraulic design for Stormwater Management facilities for this section of development. We are simultaneously submitting them to Edward Brzostek who, on behalf of the Montgomery County Conservation District, has requested copies thereof.

Please review our submission and do not hesitate to call should you have any questions or desire additional information. We would be happy to meet with you at any time to discuss this project.

Thank you.

Sincerely,

Barry L. Wert, P.E., P.L.S.

BLW/jdk

cc: Edward Brzostek

Enclosures

HERBERT H. METZ, INC.
Civil Engineers & Surveyors
P.O. Box 647 410 Derstine Avenue
LANSDALE, PENNSYLVANIA 19446

855-3111 855-1686

LETTER OF TRANSMITTAL

DATE 3-3 JOB NO. 2930

ATTENTION Marie Faherty

RE Towamencin Village
Water Quality Permit Appl

RECEIVED
MAR 5 1982
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

TO DER
1875 New Hope St.
Norristown, Pa

WE ARE SENDING YOU ☐ Attached ☐ Under separate cover via ____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

☒ Copy of letter ☐ Change order ☐ ____

COPIES	DATE	NO.	DESCRIPTION
			MCCD Review - Section 4

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit ____ copies for approval

☒ For your use ☐ Approved as noted ☐ Submit ____ copies for distribution

☐ As requested ☐ Returned for corrections ☐ Return ____ corrected prints

☐ For review and comment ☐ ____

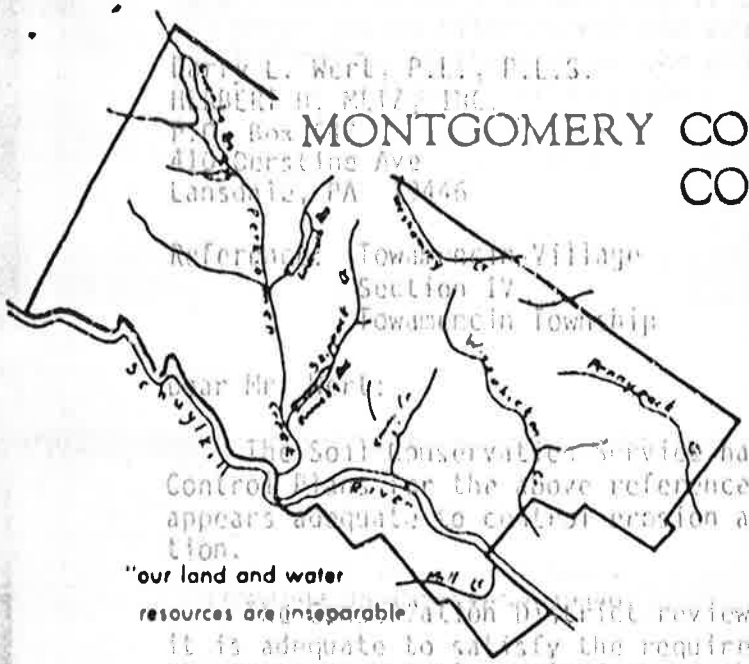
☐ FOR BIDS DUE ____ 19____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS March 30, 1982

As I indicated on the phone, re-design of SWM for Sections 1 & 2 for the Township is to be completed this week and submitted to MCCD. We would anticipate an expeditious and satisfactory review in the near future. Thank you for your patience with our application. Please call me should you have any further questions.

COPY TO ____

SIGNED: Dawn L. West



MONTGOMERY COUNTY CONSERVATION DISTRICT

4th Floor — One Montgomery Plaza
Court House, Norristown, PA 19404
Phone: 278-3618

March 2, 1982

Barry L. Wert, P.E., P.L.S.
HERBERT H. METZ, INC.
P.O. Box 647
410 Derstine Ave
Lansdale, PA 19446

Reference: Towamencin Village
Section IV
Towamencin Township

Dear Mr. Wert:

The Soil Conservation Service has reviewed the Erosion and Sediment Control Plans for the above referenced development. The plan as revised appears adequate to control erosion and sediment during and after construction.

The Conservation District reviews this plan solely to determine whether it is adequate to satisfy the requirements of 25 Pa. Code §§102.1 et seq., the erosion control regulations of the Department of Environmental Resources. By a determination that the plan is adequate to meet those requirements, neither the conservation district nor the county assumes any responsibility for the implementation of the plan or the proper construction and operation of the facilities contained in the plan.

Sincerely,

Maynard A. King
Executive Director

MAK/cmp

cc: Towamencin Township Engineer

Department of Environmental Resources

1875 New Hope Street
Norristown, PA 19401
215 631-2402

May 11, 1982

Upper Gwynedd-Towamencin Municipal
Sewer Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: H. Warren Dimig, Chairman

Re: Application No. 4681461
Towamencin Township
Montgomery County

Gentlemen:

I am pleased to inform you that our water quality management program has completed their review of the above application for approval to construct a sewer extension to serve Towamencin Village.

With reference to my letter dated January 13, 1982 the permit will not be issued until approvals have been received from our dams and waterway management program regarding a possible dam permit which may be related to this project. It is my understanding that material concerning the dam permit is currently being reviewed.

Very truly yours,

LEON T. GONSHOR
Regional Director

cc: Water Quality Management
Dams and Waterway Management
Re K623

HERBERT H. METZ, JR.
JACOB HOTTINGER
CLIFFORD T. STOUT
BARRY L. WERT
CHARLES TACCONELLI

Herbert H. Metz, Inc.
CIVIL ENGINEERS & SURVEYORS
P. O. BOX 647
410 DELSTINE AVENUE
LANSDALE, PENNSYLVANIA
19446

Phone: 368-2111
855-1664

February 25, 1983

Pennsylvania Department of Environmental Resources
Bureau of Dam Safety, Obstructions and Stormwater Management
P. O. Box 2357
Harrisburg, Pennsylvania 17120

RECEIVED
MAR 25 1983
DEPT. OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

Attention: Mr. Jackie Ford
Mr. Don Martino

Re: RM-DWM
P-46
WQMA 1-46969-028-4

Gentlemen:

We have made certain revisions to several proposed structures which are flood plain encroachments under the jurisdiction of the Dam Safety and Encroachment Act. Last Spring, when your bureau had initially reviewed our plans, we were still under review by Towamencin Township for the last two (2) sections, III and V, of the current 5-section phase. Sections I, II and IV at that point had received conditional approval from the Bureau of Water Quality Management for an extension of sanitary sewer and Township approval.

In the last nine (9) months, we have revised our drawings and have received conditional approval for these last two (2) sections of this phase of Towamencin Village from the Township Board of Supervisors and the Montgomery County Conservation District.

We will shortly be submitting an application for sanitary sewer for Sections III and V. Therefore, a review of our current proposals, which involve all five (5) sections of this current phase, is necessary. The encroachments consist of the following:

1. Structure 1 is a proposed 90± foot (formerly 160 foot) 49"x33" C.M.P.A. culvert under the proposed Re-Located Rittenhouse Road with a drainage area of 16.8 acres

2. Structure 2 is a proposed dam with an upstream invert to top of berm height of 14 feet and a drainage area of 96.1 acres. A permanent pool is proposed with additional storage for stormwater management.

HERBERT H. METZ, INC.

Pennsylvania Department of
Environmental Resources

February 25, 1983

3. Structure 4 is a proposed 70-foot long 4'x8' reinforced concrete box culvert with a drainage area of 141.4 acres

4. In addition, as may be seen on Sheet 2 of 7 (Watershed C), there are two (2) storm sewer system outfalls. They are a 57"x38" C.M.P.A. and an 18" C.M.P. with flared end sections and rock rip-rap aprons from Sections II and V, respectively.

We wish to request a waiver of permit for these structures under the Chapter 105 rules and regulations. To aid you in your evaluation of our request, we have included the following data:

1. Stormwater Management Report - Watershed C
2. D.E.R. letter of May 25, 1982
3. Montgomery County Conservation District review letters
4. Tract Site Plan
5. Stormwater Management - Watershed C - Plan Set (7 sheets)
6. Re-Located Rittenhouse Road (Sheets 4 and 7 of 7)
7. Berkshire Boulevard Culvert Plan set (2 sheets)
8. Berkshire Boulevard Sheet 5 of 5

I trust this information is sufficient for you to determine if any of the proposed structures require permits. Please call if you have any questions or require additional information.

Sincerely,

Barry L. Wert, P.E., P.L.S.

BLW/jdk
cc: Leon Gonshor
Enclosures

Called Martino 6/16/83 (RC)

Need further information from engr to decide whether a waiver can be granted or whether permit required. Been waiting for 3-4 months (verbal request)

over

HERBERT H. METZ, INC.
JACOB HOFFNER
CLIFFORD T. STOUT
BARRY L. WERT
410 DESTINE AVENUE
LANSDALE, PENNSYLVANIA

6/16/83

Then called Barry West Metz

1. Encroachment's people wanted additional details. Commonwealth Federa
2. Client advised to cease work since selling project (agreement of sale) which will have own engineer & will be modifying proposal. Would require Top approval.

New engineer → Bernie 3364 Susquehanna Rd Dresher, Pa. 19025 Spector (542-1573)

Client → G&G. Consultants.

Timing —

Number of units to be increased (60 units add to 89 Zo
Center zoning to be hopefully changed to multi residential (Shopping
Road alignment & sewer alignment to be changed. Same P.S. & force main however.

Planning modules ?? How many units

I said we would return.

HERBERT H. METZ, INC.
Pennsylvania Department of

CZOP / SPECTER, INC.
Consulting Engineers & Surveyors
3364 SUSQUEHANNA ROAD
DRESHER, PA. 19025
215-542-1573

June 27, 1983
Reference 502-1

RECEIVED
JUN 29 1983
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

Mr. Leon T. Ganshor
Regional Director
Department of Environmental Resources
1875 New Hope Street
Norristown, PA 19401

Re: Towamencin Village - Subdivision
Towamencin Township
Montgomery County

Dear Mr. Ganshor:

Confirming my telephone conversation with Mr. Richard Hinkle of your office, I wish to inform you that a new Developer/Applicant for the referenced project has retained our firm as the Engineer.

I am writing this letter to request an extention of time of the present application for a Water Quality Management Permit as submitted to your office by the previous Developer. We are requesting the time of extention be made to July 29, 1983.

We have submitted a revised subdivision plan to the Township. The revised plan proposes changes to the number and arrangement of the residential lots and the elimination of the SC (Shopping Center) District. Upon the approvals from the Township; we will contact your office to discuss the methods of submitting additional data to the Department.

Very truly yours,

Bernard Specter, P.E.
President

BS/py
cc/Richard Hinkle ✓

OK for extension
If not in position by 7/29, will be returned.

BRANCH OFFICE:
2874 W. RIDGE PIKE • NORRISTOWN, PA 19403 • 215-539-1595

Department of Environmental Resources
1875 New Hope Street
Norristown, PA 19401
215 631-2411

July 12, 1983

Mr. Bernard Spector, P.E.
President
Capp/Spector, Inc.
3360 Susquehanna Road
Dresher, PA 19025

RE: Sewerage Applications
Nos. 4481461 and 4683409
Upper Gwynedd-Towamencin Municipal Authority
Towamencin Village Development
Towamencin Township, Montgomery County

Dear Mr. Spector:

Thank you for your June 27, 1983 letter relative to the subject applications relating to the sanitary sewerage system for Sections 1-5 of the proposed Towamencin Village Development.

These applications have been pending for some time, and we have been unable to issue the two (2) permits because of the need to coordinate permit issuance with a possible encroachment permit. Further information is needed and has been requested for some time from the former consulting engineer relative to the encroachments associated with the development in order to determine whether an encroachment permit would be required or could be waived. Questions regarding this particular matter may be directed to Don Martino of our Department's Bureau of Dams and Waterway Management who may be reached at (717) 787-6826.

Your letter advised that a new developer for the project had retained your firm as engineer and you also requested an extension of time until July 29, 1983 as a revised subdivision plan has been submitted to the Township, which would change the number and arrangement of the residential lots and eliminate the shopping center district.

I would like to note that the first 537 planning approval granted by our Department was for a development of 1,220 units. If this number is to be increased as part of the revised development proposal, it will be necessary to submit land use planning modules approved by Towamencin Township in order to obtain Department approval of a revised supplement to the Township's sewage facilities plan. Should you have any questions regarding this particular aspect of the project, please feel free to contact Glenn Stinson, of our office, who may be reached at 631-3426.

Mr. Bernard Spector, P.E.
July 12, 1993
- 2 -

We will grant the requested extension; however, if the revised plans [illegible] the proposed realignment of the sanitary sewer system and as well as the information required by our Department for making a determination as to the need for an encroachment permit are not submitted by that date, the application will be returned.

If you have any questions, please feel free to contact me.

Very truly yours,

RICHARD L. [illegible]
Chief, Permits Section

cc: Bureau of Dams and Waterway Management
Upper Oxford Township Municipal Authority
Herbert R. Metz, Inc. (Barry West)
Regional Director
Re 30 2506

Department of Environmental Resources

1875 New Hope Street
Norristown, PA 19401
215 631-2411

August 23, 1983

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, Pa. 19446

Attention: Mr. H. Warren Dimig
Chairman

Re: Sewerage Application Nos. 4681461 and 4683409
Towamencin Village Development
Towamencin Township, Montgomery County

Gentlemen:

The subject applications have been pending with our Department for some time relative to a proposed sanitary sewerage system to serve Sections 1 through 5 of the Towamencin Village Development. We have been unable to issue these two (2) permits because of the need to coordinate permit issuance with a possible encroachment permit.

We have discussed the project's status with Bernard Specter, consultant for the developer which recently purchased the project, and learned that a request has been submitted to change the zoning on a portion of the site which in turn would result in realignment of roads and the proposed sanitary sewer system. Mr. Specter requested a time extension until July 29, 1983 relative to action on the subject application which is now past, and in a recent telephone conversation, it was agreed we would return the subject applications. Once the decisions regarding the future of this development have been made and the revised plans prepared, you are certainly welcome to resubmit the applications (could be combined into one application) to our Department for processing. If the application(s) is resubmitted to our Department within six (6) months of the date of this letter, no new filing fee is required.

I call your attention to our July 12, 1983 letter which gave further information relative to the Act 537 planning approval and to the encroachment aspects of the project.

Very truly yours,

RICHARD L. HINKLE
Chief, Permits Section

cc: Bureau of Dams and Waterways Management
Herbert H. Metz, Inc. (Barry Wert)
Ctop/Specter Inc. (Bernard Specter)
Regional Director
Re 30 S28

Type of Construction: SEWER STREAM CROSSINGS, FLOOD PLAIN ENCROACHMENT

COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA FISH COMMISSION

PFC 531 (Rev. 8-81) County MONTGOMERY Township TOWAMENCIN

Other

SUBJECT: Review of Permit Application

Date: 1/9/82

In Reply To: 468146

TO: Department of Environmental Resources

MARIE C. FAHERTY
SANITARY ENGINEER AIDE
NORRISTOWN DER

FROM: Pennsylvania Fish Commission

Comments:

Permit Applicant: TOWAMENCIN VILLAGE

Type of Construction: SEWER STREAM CROSSINGS, FLOOD PLAIN ENCROACHMENT

Location: County MONTGOMERY Township TOWAMENCIN

Other

		Trout		Warmwater	
Stream Affected (Primary)	UNNAMED TRIB	Yes ___	No X	Yes ___	No X
Tributary To (Secondary)	SKIPPACK CREEK	Yes X	No ___	Yes ___	No ___

	Stocking Status		Worked Area-Stocked Area			Fishing Pressure			
Primary:	Stocked ___	Wild ___	In ___	Above ___	Below ___	High ___	Med ___	Low X	None ___
Secondary:	Stocked X	Wild ___	In ___	Above ___	Below X	High X	Med ___	Low ___	None ___

Comments:

1675 New Hope Street
Norristown, PA 19401
215 631-2411

August 23, 1983

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

(Waterways Patrolman) Yes X No ___ Approved 1/9/82 Date

Ron Tibbott (Fisheries Environmental Services) Yes ✓ No ___ Approved 1/22/82 Date

Department of Environmental Resources

Date 1/7/82

Subject: Sewerage Application No. 4681462
Towamencin Township
Montgomery County
☒ Other flood plain encroachment

Dear Mr. Bowersox

The subject sewerage permit application has been submitted to the Norristown Regional Office for review. This project involves a sewer extension to serve Towamencin Village, sections 1, 2, 4 and five, the Towamencin Trunk Line & the force main along Old Morris Road.

We note that the following types of stream encroachments are included as part of the proposed sewerage facilities:

☐ Sewage Treatment Plant Headwall and/or Outfall Sewer

☒ Sanitary Sewer Stream Crossing(s)

☒ Other flood plain encroachment

Please review the enclosed documents, and return all documents with your comments and recommendations within thirty (30) days so we can complete the processing of this permit application.

Should you have any questions relative to this project, please feel free to contact us.

Very truly yours,

Marie C. Faherty

Sanitary Engineer Aide
Norristown Office

Enclosure

cc: Pennsylvania Fish Commission (Jack Miller)

CN65

ER-BWQ43 REV. 6/76

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

For Department Use Only

INTERNAL REVIEW AND RECOMMENDATIONS

NAME OF APPLICANT: Upper Gwynedd-Towamencin M.A.

PROJECT LOCATION: Towamencin Township, Montgomery County

APPLICATION NUMBER: 4683409

BRIEF DESCRIPTION OF PROJECT AND DISCUSSION (Use Additional Sheets if Necessary)

The Applicant requests approval for the construction of a sanitary sewer extension to serve the Towamencin Village Sections III and V located west of the intersection of the Sumneytown Pike and Bustard Road intersection in Towamencin Township, Montgomery County.

Sewage from the proposed sewer extension will be conveyed to the Upper Gwynedd-Towamencin M.A. STP via existing Upper Gwynedd-Towamencin M.A. sewers covered under Permit No. 4681461. The final effluent will be afforded secondary treatment before discharge to the Towamencin Creek. Earthmoving shall not exceed 25 acres at any one time. The soil erosion and sedimentation control plan has been reviewed and approved by the Montgomery County Conservation District.

Section III is comprised of 88 duplex type units on 18.15 acres and Section V is comprised of 108 single units on 40.3 acres. Other sections not covered under this permit are 1) Sections 1, 2 and 4, covered under 4681462 and 2) Sections 6 and 7, covered under 4681402. Sections 8 and 9 will be developed at a later time. Involved with this project is a sanitary sewer stream crossing; therefore, the Pennsylvania Fish Commission's standard comments have been included as part of this permit.

Permit No. 4681461 is in coordination with a BDWM permit for stream encroachments; therefore this permit is in coordination with both 4681461 and the aforementioned BDWM permit.

CURRENT ESTIMATE OF COMPLETION DATE OF PROJECT (Industrial Wastes Only)

RECOMMENDATION AND ACTION

Approve - Issue By Region	Approve - Issue By Central Office	Refuse	Signature	Date
☒	☐	☐	REVIEWING ENGINEER	4-5-83
☒	☐	☐	REGIONAL FACILITIES ENGINEER	4/8/83
☒	☐	☐	REGIONAL ENGINEER/WATER QUALITY MANAGER	4/8/83
	☐	☐	DIVISION FACILITIES ENGINEER	
	☐	☐	DIVISION CHIEF	

PERMIT CONDITIONS:

1. STANDARD -
   Erosion Control (1973) - 1 thru 20
   Sewerage (08/28/81) 1-7, 9, 13-14, 17, 21-23, 18-19.

2. SPECIAL (Use Additional Sheets if Necessary) -

   Recording of Permit: Montgomery County

   Date 1/7/82

KS387

ER-BWQ-15-Rev. 4/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT NO. 4683409

A. PERMITTEE: (Name and Address)
Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

B. PROJECT LOCATION
Municipality: Towamencin Township [X]
County: Montgomery

C. TYPE OF FACILITY (For Industrial wastes; type of establishment)
Sanitary Sewer Extension

D. NAME OF MINE, PLANT, AREA SERVED, OUTFALL NO., ETC.
Towamencin Village, Sec. III & V

THIS PERMIT APPROVES:

1. Plans For Construction Of:
a. [X] Sewers and Appurtenances
b. [ ] Sewage Treatment Facilities
c. [ ] Industrial Wastes Treatment Facilities
d. [ ] Mine Drainage Treatment Facilities
e. [ ] Outfall & Headwall
f. [X] Stream Crossing
g. [ ] Impoundment

2. The Discharge Of: N/A
a. [ ] Treated
b. [ ] Untreated
c. [ ] Sewage
d. [ ] Industrial Wastes

3. Discharge To: N/A
a. [ ] Surface Water
b. [ ] Ground Water
Name of Stream to which discharged or drainage area in which groundwater discharge takes place or impoundment is located.

4. The Operation of a Mine [ ]
Maximum Area to be Deep Mined: N/A Acres

5. An Erosion and Sedimentation Control Plan [X]
Project Area is 58.5 Acres

F. THIS APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:

1. ALL CONSTRUCTION, OPERATIONS, PROCEDURES AND DISCHARGE SHALL BE IN ACCORDANCE WITH APPLICATION NO. 4683409 DATED 9/22/82 AND ITS SUPPORTING DOCUMENTATION, AND AMENDMENTS DATED _____. SUCH APPLICATION, ITS SUPPORTING DOCUMENTATION AND AMENDMENTS ARE HEREBY MADE A PART OF THIS PERMIT.

2. CONDITIONS NUMBERED 1-7, 9, 13, 14, 17-19, 21-23 OF THE Sewerage STANDARD CONDITIONS DATED 8/28/81 AND CONDITIONS NUMBERED 1 thru 20 OF THE EROSION CONTROL STANDARD CONDITIONS DATED 1973 WHICH CONDITIONS ARE ATTACHED AND MADE PART OF THIS PERMIT.

3. SPECIAL CONDITIONS DESIGNATED I WHICH ARE ATTACHED AND ARE MADE A PART OF THIS PERMIT.

This permit must be recorded in the Recorder of Deeds Office in Montgomery County.

G. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. IF THERE IS A CONFLICT BETWEEN THE APPLICATION ON ITS SUPPORTING DOCUMENTS AND AMENDMENTS AND THE STANDARD OR SPECIAL CONDITIONS, THE STANDARD OR SPECIAL CONDITIONS SHALL APPLY.

2. FAILURE TO COMPLY WITH THE RULES AND REGULATIONS OF THE DEPARTMENT OR WITH THE TERMS OR CONDITIONS OF THIS PERMIT SHALL VOID THE AUTHORITY GIVEN TO THE PERMITTEE BY THE ISSUANCE OF THE PERMIT.

3. THIS PERMIT IS ISSUED PURSUANT TO THE CLEAN STREAMS LAW, ACT OF JUNE 22, 1937, P.L. 1987 AS AMENDED 35 P.S. § 691.1 ET SEQ. AND/OR THE WATER OBSTRUCTION ACT, ACT OF JUNE 25, 1913, P.L. 555 AS AMENDED 32 P.S. § 681 ET SEQ. ISSUANCE OF THIS PERMIT SHALL NOT RELIEVE THE PERMITTEE OF ANY RESPONSIBILITY UNDER ANY OTHER LAW

PERMIT ISSUED

DEPARTMENT OF ENVIRONMENTAL RESOURCES

DATE _____

BY C.T. Beachwood

C.T. Beachwood, P.E.
TITLE Regional Water Quality Manager

KS385

Sewerage Permit No. 4683409
Upper Gwynedd-Towamencin Municipal Authority
Towamencin Township, Montgomery County

This permit is subject to the following Special Condition(s):

I. The stream bed shall not be used as a roadway for moving machinery from one site to another. Temporary stream crossings must be provided for equipment that must cross the stream during construction. Any structures are to be removed and the stream bed returned to its original condition when the project is completed.

Siltation control shall be provided for during construction and bank stabilization shall be undertaken by planting of grasses, shrubbery, or trees immediately after completion of each phase of the project.

When channel changes occur, the stream bed shall not exceed the original width and if a greater cross sectional area is required, an elevated flood plain must be put into use.

All material and debris removed from the stream bed shall be moved entirely out of the flood plain area.

A permit must be secured from the Pennsylvania Fish Commission in Harrisburg, if the use of explosives is required. The following P.F.C. Waterways Patrolman must be notified when the project is started, when explosives are to be used, and when the project is completed for final inspection:

Guy Bowersox
1198 Old Evansburg Road
R.D. 1
Collegeville, PA 19426
Telephone (215) 584-0255

KS386

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
Norristown, PA 19401
215 631-2405

Upper Gwynedd-Towamencin Municipal
Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: Mr. H. Warren Dimmig
Chairman

Re: Sewerage Permit No. 4683409
Towamencin Village, Sections III and V
Towamencin Township, Montgomery County

Gentlemen:

Referenced permit is enclosed.

Please study the permit carefully and direct any questions to the Permits Section of this office at 215 631-2411.

To become operative this permit must be recorded in the Office of the Recorder of Deeds in the county in which the discharge is located. Enclosed is a certificate and pre-addressed envelope for this purpose. Please have the Recorder of Deeds accomplish the certificate and return it within ten (10) days.

Very truly yours,

C. T. BEECHWOOD, P.E.
Regional Water Quality Manager

CTB:MF:sk

Enclosures: Permit
Standard Conditions Relating to Sewerage
Standard Conditions Relating to Erosion Control
Recorder of Deeds Certificate
Notary Public Certificate

cc: Herbert H. Metz, Inc.
Permits & Compliance
Re 30 KS384
Pa. Fish Commission
Waterways Patrolman (Guy Bowersox)

ER-EP-21: 10/86

START

DEPARTMENT OF ENVIRONMENTAL RESOURCES

ENVIRONMENTAL PROTECTION

START

BUREAU/PROGRAM Water Quality Management

DIVISION

COUNTY/MUNICIPALITY 46949

PROGRAM Sew

CASE NAME Upper Gwynedd-Towamencin Municipal Authority

FILE

PERMIT NO. 4683420 Linpro - Towamencin I Limited

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
P. O. Box 2357, Harrisburg, PA 17120

717-787-6826

April 20, 1983

In reply refer to
RM-DWM
WL-46-24

Mr. James R. Rudolph, P. E.
Urwiler and Walter, Incorporated
Sumneytown Pike
Sumneytown, PA 18084

Dear Mr. Rudolph:

This is in reference to your letter dated February 14, 1983 and letter dated March 31, 1983 (Your File No. 82275) along with revised plans and report concerning Linpro-Towamencin I Limited Project consisting of two 90-inch C. M. pipe culverts and four storm sewer outfalls in and along the channel of a Tributary to Towamencin Creek located between Sumneytown Pike and Bankroft Road in Towamencin Township, Montgomery County.

In accordance with the provisions of Section 4 of the Dam Safety and Encroachments Act, the Act of November 26, 1978, P.L. 1375, No. 325 (as amended by Act 70), the proposed structures and/or activity is regulated by this Act.

However, based on the plans and data submitted, the requirements for a permit are waived in accordance with Section 7(a) of the Dam Safety and Encroachments Act and the provisions of Section 105.12, paragraph (a)(2) of Chapter 105, Rules and Regulations, Dam Safety, Water Obstructions and Encroachments.

It will be required that you secure all other approvals that may be necessary under other federal, state or local regulations and meet the construction, operation, maintenance or other requirements of Chapter 105 to include the following:

1. Waterways Patrolman, Guy Bowersox, 1198 Old Evansburg Road, RD 1, Collegeville, PA 19426, Telephone (215) 584-0255, shall be contacted and advised as to when the work will be done.

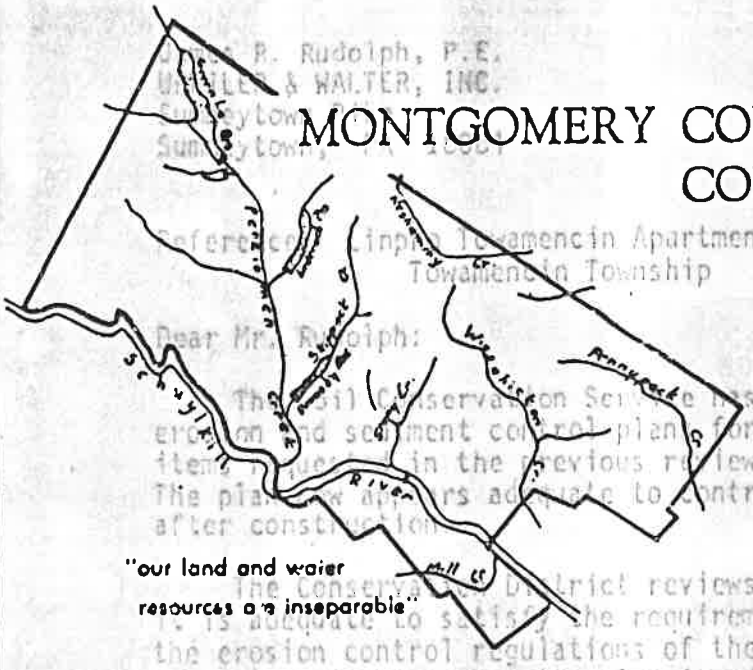
2. Proper erosion and sedimentation control measures shall be instituted during and after construction, and approval of the adequacy of these measures shall be obtained from the Montgomery County Conservation District.

Sincerely,

Eugene E. Counsil

Eugene E. Counsil, Chief
Division of Waterways and
Storm Water Management

ER-EP-21: 10/80



MONTGOMERY COUNTY CONSERVATION DISTRICT

4th Floor — One Montgomery Plaza
Court House, Norristown, PA 19404
Phone: 278-3618

April 20, 1983

RECEIVED
MAY 19 1983
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

James R. Rudolph, P.E.
URWILER & WALTER, INC.
Sumneytown Pike
Sumneytown, PA 18084

Reference: Linpro Towamencin Apartments
Towamencin Township

Dear Mr. Rudolph:

The Soil Conservation Service has reviewed the revised April 14, 1983 erosion and sediment control plans for the above referenced project. All items requested in the previous review have been satisfactorily answered. The plan now appears adequate to control erosion and sediment during and after construction.

The Conservation District reviews this plan solely to determine whether it is adequate to satisfy the requirements of 25 Pa. Code §§102.1 et seq., the erosion control regulations of the Department of Environmental Resources. By a determination that the plan is adequate to meet those requirements, neither the conservation district nor the county assumes any responsibility for the implementation of the plan or the proper construction and operation of the facilities contained in the plan.

Sincerely,

Maynard King
Executive Director

MK/cmp

cc: Towamencin Township Engineer

Department of Environmental Resources

1875 New Hope Street
Norristown, PA 19401
215 631-2426

RECEIVED
MAY 21 9 1983
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

April 22, 1983

Mr. Cecile M. Daniel
Municipal Secretary
Towamencin Township
1655 Sumneytown Pike
Kulpsville, PA 19443

Re: Kimpo Towamencin I Limited Subdivision
Code No. 1-46949-031-4
Towamencin Township, Montgomery County

Dear Mr. Daniel:

Please be advised that a review has been made and completed of the above referenced Planning Module for Land Development amending your municipality's Official Sewage Facilities Plan.

We find that the proposal is consistent with your Official Sewage Facilities Plan and that your plan is adequate.

This supplement provides for adequate Sewage Facilities planning to permit the development of a 144 residential dwelling unit project generating 21,600 gallons of sewage per day on 24.1 acres located on the north side of Valley Forge Road. Sewage will be treated at the Upper Gwynedd-Towamencin Municipal Authority sewage treatment plant.

Capacity for this project is provided consistent with the Upper Gwynedd-Towamencin Municipal Authority Chapter 94 Wasteload Management Plan.

If you have any questions, please feel free to contact this office.

Very truly yours,

PAUL HARMO
Water Quality Sanitarian
Norristown Regional Office

cc: Upper Gwynedd-Towamencin Municipal Authority
Mr. John G. Walter, Jr., P. E.
Re 30 R055

CONSERVATION DISTRICT
4th Floor — One Montgomery Plaza
Court House, Norristown, PA 19404
Phone: 278-3618

MONTGOMERY COUNTY

Highway Engineering
Structural and Foundation Design
Boundary Surveys
Traffic Engineering and Reports

Sewerage and Sewage Treatment
Municipal Engineering
Real Estate Developments
Topographic Surveys
Erosion and Sediment Control

URWILER AND WALTER, INCORPORATED
ENGINEERS AND SURVEYORS
SUMNEYTOWN PIKE
SUMNEYTOWN, PA. 18084
(215-234-4562)

Refer To File No.: 82275

May 17, 1983

Department of Environmental Resources
1875 New Hope Street
Norristown, PA 19401

Attention: Mr. Richard Hinkel

Subject: Linpro-Towamencin I Limited
Towamencin Township

Dear Mr. Hinkel:

I am enclosing the following in support of a Water Quality Permit Application:

1) A check for $100.00.
2) Two complete sets of plans.
3) Two copies of the Sewerage Permit Application.
4) Two copies of the Erosion Control Report.
5) A copy of the letter approving the Planning Modules.
6) A copy of the letter approving the stream crossing.
7) A copy of the letter approving the Erosion Control.

Very truly yours,

URWILER & WALTER, INC.

James R. Rudolph

James R. Rudolph, P.E.

Enclosures
cc: John Hanna
Ralph Wert, P.E.

JRR/dm

RECEIVED
MAY 19 1983
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

Highway Engineering
Structural and Foundation Design
Boundary Surveys
Traffic Engineering and Reports

Sewerage and Sewage Treatment
Municipal Engineering
Real Estate Developments
Topographic Surveys
Erosion and Sediment Control

URWILER AND WALTER, INCORPORATED
ENGINEERS AND SURVEYORS
SUMNEYTOWN PIKE
SUMNEYTOWN, PA. 18084
(215-234-4562)

Refer To File No.: 82275

May 27, 1983

RECEIVED
JUN 01 1983
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

Department of Environmental Resources
1875 New Hope Street
Norristown, PA 19401

Attention: Ms. Marie Faherty

Subject: Linpro-Towamencin I Limited
Towamencin Township

Dear Ms. Faherty:

I am enclosing two copies of a construction improvement plan for the above referenced project. This plan has been revised in accordance with our phone conversation to show water tight manholes.

Very truly yours,

URWILER & WALTER, INC.

James R. Rudolph, P.E.

Enclosures
cc: John Hanna
Ralph Wert
JRR/dm

TOWAMENCIN TWP
MONTGOMERY CO

DEPT. OF ENVIRONMENTAL RESOURCES
BUREAU OF
WATER QUALITY MANAGEMENT

APPL. # 4683420 DATE RECD. REGION 5-19-83

REPORTS

NO. OF VOLUMES 1 OF 1

URWILER & WALTER INC.
SUMNEYTOWN, PENNSYLVANIA 18084 • (215) 234-4582

RECEIVED
MAY 19 1983
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

December 15, 1982
Revised February 10, 1983
Revised March 7, 1983
Revised March 30, 1983
Revised April 11, 1983

EROSION CONTROL REPORT

and

DETENTION BASIN STUDY

made for

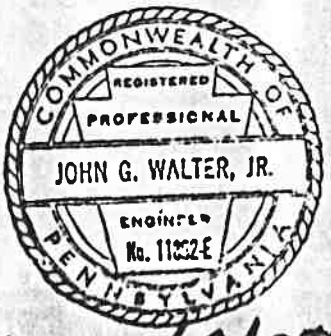
LINPRO TOWAMENCIN I LIMITED

situate

TOWAMENCIN TOWNSHIP

MONTGOMERY COUNTY

RECEIVED
MAY 19 1983
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE



Urwiler & Walter, Inc.
Engineers & Surveyors
Box B
Sumneytown, PA 18084
Phone (215) 234-4562
Job Number 82275

I. INTRODUCTION

This 24.117 acre ± tract is located on the north side of Valley Forge Road in Towamencin Township, Montgomery County. This project will be developed to include 142 condominium units. The project will include the private road system shown on the plans and will be constructed in one phase of less than 25 acres. Approval for the erosion control plan as well as a permit for the sanitary sewer extension will be required from the Department of Environmental Resources.

The additional plans in this submittal detail the construction to be done on this project. These include a Site Development Plan, an Erosion Control and Drainage Area Plan and applicable Construction Improvement Plans.

This project will be started as soon as necessary approvals are received from Towamencin Township, PennDOT and the Department of Environmental Resources.

II. SOIL TYPES

A. AbA - Abbottstown silt loam, 0-3% slopes, severe limitations for residentail development due to seasonal high water table.

B. KsE3 - Klinesville very shaly silt loam, 15-35% slopes, severely eroded, moderate limitations for residential development due to shallow bedrock.

C. ReA - Readington silt loam, 0-3% slopes, moderate limitations for residential development due to seasonal high water table.

D. ReB2 - Readington silt loam, 3-8% slopes, moderately eroded, moderate limitations for residential development due to seasonal high water table.

E. ReC2 - Readington silt loam, 8-15% slopes, moderately eroded, moderate limitations for residential development due to slope, seasonal high water table.

F. RsB2 - Reaville shaly silt loam, 3-8% slopes, moderately eroded, severe limitations for residential development due to shallow bedrock, seasonal high water table.

G. RsC3 - Reaville shaly silt loam, 8-15% slopes, severely eroded, severe limitations for residential development due to slope, shallow bedrock, seasonal high water table.

H. Rt - Rowland silt loam, severe limitations for residential development due to flooding, seasonal high water table.

III. PROPOSED ALTERATIONS TO THE SITE

The proposed final site will consist of 142 condominium units in eleven buildings. These units will be serviced by the private road and parking courts shown on the site plans and the construction improvement plans.

The units will be serviced by sanitary sewer, water and storm sewer systems. Another feature of this project are the 4 sedimentation-detention basins shown on the Erosion Control and Drainage Area Plan, and detailed later in this report.

IV. THE AMOUNT OF RUNOFF FROM THE PROJECT AREA

All on-site runoff has been calculated using the Rational Method. The interior storm sewer has been sized to handle a 10 year storm. The detention basin has been sized to detain a 50 year developed flow and to release a 10 year undeveloped flow. The detention basin sizing details are presented in Section VII.

V. STAGING OF EARTHMOVING ACTIVITIES

A. Prior to construction taking place on the project, the downstream sedimentation basin and/or the baled straw barriers must be constructed. Also the swales carrying the runoff to and the discharge from the basin must be constructed.

B. Rough grade construction area.

C. Grade the roads to final elevations.

D. Install all underground utilities.

E. Apply crushed stone to road areas within 60 days of the time of grading. Hay bales or stone filters are to be constructed around all inlets proposed and will

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E. Apply crushed stone to road areas within 60 days of the time of grading. Hay bales or stone filters are to be constructed around all inlets proposed and will

remain in place until the stone base is placed. At that time, the bale or filter will remain around the inlet until all up-grade construction is completed. Should the filters or bales become clogged, they will be reworked or replaced to keep them in proper filter operation condition.

F. Final grading and landscaping of project.

G. General - Immediately upon construction of the roads, the control measures on the Erosion Control Plan shall be instituted. The depressed filter area will stop any sediment flow to Valley Forge Road. As much as possible, construction will take place from the high to low areas to fully utilize the existing vegetation as an erosion control device. Any area that is left bare and inactive for 60 days must be temporarily seeded. In all cases the roads will act as an erosion control device because of the crushed stone surface. Surface runoff will be diverted to the basin by the proposed storm sewer systems.

VI. TEMPORARY CONTROL MEASURES

A. Follow the procedure outlined in Section V.

B. General

1. Existing trees and other existing vegetation will be disrupted as little as possible.

2. Temporary seeding and mulching will be applied to all areas which will remain open for more than 20 days.

3. Only the area which is necessary for construction of the particular building being built will be exposed at one time. No large scale denuding of the site will occur.

4. All topsoil from the overall site preparation will be stockpiled and redistributed uniformly at the time of final grading.

5. Significant stands of trees will be roped off or marked to protect them from damage by construction equipment.

6. Rip-rap will be applied to all areas where heavy concentrations of drainage are prevalent.

C. Sedimentation Basin #1 Design - All design criteria for the sedimentation basin is taken from the "Erosion and Sediment Control Handbook" prepared by the Montgomery County Soil and Water Conservation District.

1. Basin Volume Design

Storage required = 0.60 watershed inches
(handbook, page 57)

Contributing Area = 4.50 acres

Volume required = 4.50 acres x 0.60 inches

$$\times \frac{43{,}560 \text{ ft}^2}{\text{acre}} \times \frac{1 \text{ foot}}{12 \text{ inches}} = 9{,}801 \text{ ft}^3$$

Volume available = 17,543 ft^3 at elevation 258.0

2. Discharge Pipe Design

a. Barrel Design - The minimum capacity of the principle spillway will be 0.21 cfs per acre of drainage area (handbook, page 44).

$$4.5 \text{ acres} \times \frac{0.21 \text{ cfs}}{\text{acre}} = 0.9 \text{ cfs}$$

Use an 8" CMP

$$Q = a \sqrt{\frac{2 g H}{1 + Km + KpL}}$$

(from S.C.S. Engineering Field Manual, p. 3-25)

Where:

a = 0.349 s.f.

g = 32.2 ft/sec^2

H = 258.0 - (250.0 + 0.33) = 7.67 feet

Km = 1.0

Kp = 0.183

L = 45 feet

Capacity = 2.4 cfs

b. Riser Design

Use a 12" CMP

With H = 0.5 feet (top of riser elevation = 257.5

Capacity = 3.0 cfs (handbook, p. 64)

This riser will be perforated with 1½" diameter holes spaced 8" vertically and 10½" horizontally around the pipe. The riser and barrel discharge structure will be placed at the location shown on the Erosion Control Plan. The structures have been sized for the complete drainage area.

D. Sedimentation Basin #2 Design

1. Basin Volume Design

Storage required = 0.60 watershed inches

Contributing area = 2.97 acres

Volume required = 2.97 acres x 0.60 inches

$$\times \frac{43{,}560 \text{ ft}^2}{\text{acre}} \times \frac{1 \text{ foot}}{12 \text{ inches}} = 6{,}469 \text{ ft}^3$$

Volume available = 10,953 ft^3 at elevation 257.5

2. Discharge Pipe Design

a. Barrel Design

The minimum capacity of the principle spillway will be 0.21 cfs per acre of drainage area.

$$2.97 \text{ acres} \times \frac{0.21 \text{ cfs}}{\text{acre}} = 0.6 \text{ cfs}$$

Use an 8" CMP

$a = 0.349 \text{ ft}^2$

$g = 32.2 \text{ ft/sec}^2$

H = 258.0 - (251.0 + 0.33) = 6.67 feet

Km = 1.0

Kp = 0.183

L = 55 feet

Capacity = 2.0 CFS

b. Riser Design

Use a 12" CMP

With H = 0.5 feet (top of riser elevation = 257.0)

Capacity = 3.0 cfs

E. Sedimentation Basin #3

1. Basin Volume Design

Storage required = 0.60 watershed inches

Contributing area = 2.06 acres

Volume required = 2.06 acres x 0.60 inches

$$\text{x } \frac{43{,}560 \text{ ft}^2}{\text{acre}} \text{ x } \frac{1 \text{ foot}}{12 \text{ inches}} = 4{,}487 \text{ ft}^3$$

Volume available = 4,786 ft^3 at elevation 247.0

2. Discharge Pipe Design

a. Barrel Design

The minimum capacity of the principle spillway will be 0.21 cfs per acre of drainage area.

$$2.06 \text{ acres x } \frac{0.21 \text{ cfs}}{\text{acre}} = 0.4 \text{ cfs}$$

Use a 12" CMP

$a = 0.785 \text{ ft}^2$

$g = 32.2 \text{ ft/sec}^2$

H = 247.0 - (243.0 + 0.50) = 3.50 feet

Km = 1.0

Kp = 0.1067

L = 25 feet

Basin Capacity = 5.5 CFS

b. Riser Design

Use a 15" CMP

With H = 0.5 feet (top of riser elevation = 246.5)

Capacity = 3.8 cfs

D. The sedimentation-detention basins will be cleaned out when the storage is reduced to a point where 0.25 inches of site watershed storage remains. This elevation will be marked on the riser with paint. At the completion of construction, the basin will completely be cleaned of sediment and debris. All sedimentation and storm water facilities must be maintained. During construction, the responsibility of this maintenance will rest with the project superintendent. After construction, the owner will be responsible for the maintenance of the facilities. This maintenance will include, but is not restricted to: grass mowing, weed and brush control, pest and disease control, fire hazard control, rodent control, and erosion damage repair. These features should be checked semi-annually and after each heavy rain.

VII. PERMANENT CONTROL MEASURES

A. General

1. Grade all cut and fill slopes to 3 foot horizontal for every 1 foot vertical or flatter, and apply a critical area seeding and mulch.
2. All endwall outlets will have energy dissipating devices installed to reduce the outflow velocity. Rip-rap or other methods will be used.

3. Permanent grass shall be stablished by seeding and mulching or sodding, following final grading. Prior to establishment of permanent vegetation a 10-6-4 fertilizer, or approved equal, shall be applied at a rate of 25 lbs. per 1,000 square feet.
4. Maintenance of the detention basin and other facilities shall be the responsibility of the owner.
5. After the storm sewer system is constructed, monthly inspections for each device will be made. An inspection of all facilities will be made after every storm to determine their resistance to driving rains, and accumulated runoff.
6. Seeded areas that have washed away shall be filled and graded as necessary and then reseeded. A burlap or straw cover will be applied to retain the seed until it has a chance to root properly.
7. The above procedure shall be repeated after each sizeable storm until no more signs of erosion are evident. At monthly intervals thereafter, inspections and necessary cleaning will be done. Trash that is removed from any of the control devices shall be disposed of at an approved Township disposal area. Silt that has accumulated shall be removed and allowed to dry and used as fill wherever required on the site.

B. Detention Basin Design #1

1. Basin Volume Design

To determine the volume of detention required to impound the increase in runoff between a 50 year developed storm rate and a 10 year undeveloped storm rate use:

$$V_{required} = 60.5 [C \times A \times D \times I - (D) Q_{out}]$$

(from "Airport Drainage" published by the Department of Transportation, FAA).

Where:

V required = Volume required at a particular time in minutes.

C = Developed coefficient of runoff

A = Drainage area (acres)

I = Intensity (inches/hour)

D = Duration (minutes)

Q_{out} = Flow out (cfs)

50 Year Storm

Duration (minutes)	Intensity (inches/hour)
5	8.3
10	6.75
15	5.75
20	5.0
25	4.6

Duration (minutes)	Intensity (inches/hour)
30	4.2
50	3.0
60	2.75
70	2.5
80	2.5
90	2.15
100	2.0
120	1.75

Flow In:

	CA
EW #2	0.72 acres
EW #6	0.67 acres
Overland	1.18 acres
	2.57 acres

Flow Out:

$Q_{out} = Q_{10}$ - Bypass

Q_{10}:

A = 5.31 acres

C = 0.4

t_c = 10.6 minutes

I_{10} = 5.1 inches/hour

Q_{10} = 10.8 cfs

Bypass:

"B" Area

A = 1.23 acres

C = 0.42

t_c = 8 minutes

I_{50} = 7.2 inches/hour

Q_{50} = 3.7 cfs

Q_{out} = 10.8 cfs - 3.7 cfs = 7.1 cfs

Set Q_{out} = 2.4 cfs

V_{60} = 60.5 (2.57 x 60 x 2.75 - 60 x 2.4) = 16,943 ft^3

V_{80} = 60.5 (2.57 x 80 x 2.3 - 80 x 2.4) = 16,993 ft^3

V_{90} = 60.5 (2.57 x 90 x 2.15 - 90 x 2.4) = 17,018 ft^3

V_{100} = 60.5 (2.57 x 100 x 2.0 - 100 x 2.4) = 16,577 ft^3

V_{120} = 60.5 (2.57 x 120 x 1.75 - 120 x 2.4) = 15,228 ft^3

Maximum volume occurs at D = 90 minutes

Volume required = 17,018 ft^3

Volume available = 17,543 ft^3 at elevation 258.0

2. Discharge Pipe Design

Use an 8" CMP with a 12" Riser

Capacity = 2.4 cfs (See Section VI)

3. Emergency Spillway Design

For a permanent detention basin, the capacity of the emergency spillway shall be greater than the peak flow of a 100 year developed flow.

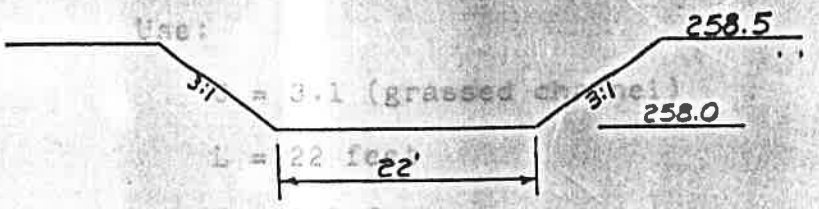
Peak flow for a 100 year developed storm:

CA = 2.57 acres

I_{100} = 8.9 inches/hour

Q_{100} = 22.9 cfs

Spillway Cross-Section



From the S.C.S. Engineering Field Manual, page 3-50, for weir flow conditions:

$$Q = C\ L\ H^{3/2}$$

Where:

Q = discharge (cfs)

H = measured head (feet)

L = length of weir (feet)

C = weir conditions

Use:

C = 3.1 (grassed channel)

L = 22 feet

H = 0.5 feet

$$Q = 3.1\ (22)\ (0.5)^{3/2} = 24.1 \text{ cfs}$$

C. Detention Basin #2

1. Volume Design

Flow In:

	CA
EW #5	1.22 acres
Overland	0.57 acres
	1.79 acres

Flow Out for Entire East Drainage Area:

Q_{10}:

A = 4.92 acres

C = 0.4

I_{10} = 6.5 inches/hour

Q_{10} = 12.8 cfs

Bypass	Area	CA
Area "C"	0.59 acres	0.30 acres
Area "D"	0.34 acres	0.14 acres
Inlets 11 & 12	0.84 acres	0.59 acres
	1.77 acres	1.03 acres

I_{50} = 8.3 inches/hour

Q_{50} = 8.5 cfs

Q_{out} = 12.8 cfs - 8.5 cfs = 4.3 cfs

Basin #1 Allowance = 7.1 cfs - 2.4 cfs = 4.7 cfs

Allowable Q_{out} Basins 2 & 3 = 9.0 cfs

Set Q_{out} for Basin #2 = 2.0 cfs

$V_{30} = 60.5\ (1.79 \times 30 \times 4.2 - 30 \times 2.0) = 10{,}015\ ft^3$

$V_{50} = 60.5\ (1.79 \times 50 \times 3.0 - 50 \times 2.0) = 10{,}194\ ft^3$

$V_{60} = 60.5\ (1.79 \times 60 \times 2.75 - 60 \times 2.0) = 10{,}609\ ft^3$

$V_{70} = 60.5\ (1.79 \times 70 \times 2.5 - 70 \times 2.0) = 10{,}481\ ft^3$

$V_{90} = 60.5\ (1.79 \times 90 \times 2.15 - 90 \times 2.0) = 10{,}065\ ft^3$

Maximum volume occurs at D = 60 minutes

Volume required = 10,609 ft^3

Volume available = 10,953 ft^3 at elevation 257.5

2. Discharge Pipe Design

Use an 8" CMP with a 12" Riser

Use:

Capacity = 2.0 cfs (See Section VI)

3. Emergency Spillway Design

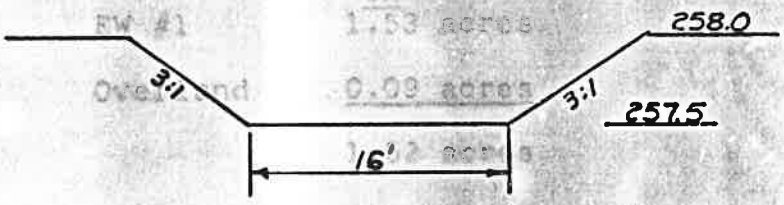
Peak flow for 100 year developed storm:

CA = 1.79 acres

I_{100} = 8.9 inches/hour

Q_{100} = 15.9 cfs

Spillway Cross-Section



Use:

C = 3.1 (grassed channel)

L = 16 feet

H = 0.5 feet

Capacity = 3.1 (16) $(0.5)^{3/2}$ = 17.5 cfs

D. Detention Basin #3

1. Volume Design

Flow In:

	CA
EW #1	1.53 acres
Overland	0.09 acres
	1.62 acres

Flow Out:

See Q_{out} = 5.5 cfs

$V_5 = 60.5\ (1.62 \times 5 \times 8.3 - 5 \times 5.5) = 2,403\ ft^3$

$V_{10} = 60.5\ (1.62 \times 10 \times 6.75 - 10 \times 5.5) = 3,288\ ft^3$

$V_{15} = 60.5\ (1.62 \times 15 \times 5.75 - 15 \times 5.5) = 3,462\ ft^3$

$V_{20} = 60.5\ (1.62 \times 20 \times 5.0 - 20 \times 5.5) = 3,146\ ft^3$

$V_{25} = 60.5\ (1.62 \times 25 \times 4.6 - 25 \times 5.5) = 2,952\ ft^3$

Maximum volume occurs at D = 15 minutes

Volume required = 3,462 ft^3

Volume available = 4,786 ft^3 at elevation 247.0

2. Discharge Pipe Design

Use a 12" CMP

Capacity = 5.5 cfs (see Section VI)

3. Emergency Spillway Design

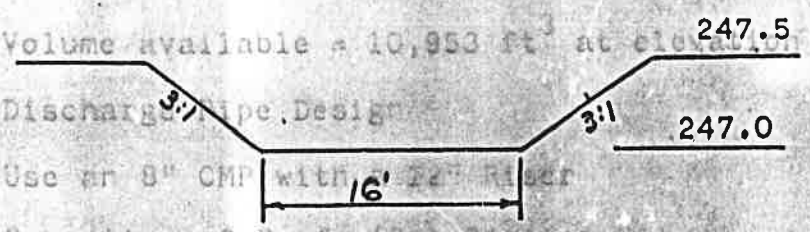
Peak flow for 100 year developed storm:

CA = 1.62 acres

I_{100} = 8.9 inches/hour

Q_{100} = 14.4 cfs

Spillway Cross-Section



Use: C = 3.1 (grassed channel)

L = 40 feet

H = 0.5 feet

$Q = 3.1 (16) (0.5)^{3/2} = 17.5$ cfs

E. Basin Construction

1. Site Preparation - Areas under the embankment and any structural works shall be cleared, grubbed, and the topsoil stripped to remove trees, vegetation, roots or other objectionable material. In order to facilitate clean-out and restoration, the pool area will be cleared of all brush and excess trees.

2. Cut-Off Trench - A cut-off trench will be excavated along the centerline of dam on earth fill embankments. The minimum depth shall be 2 feet. The cut-off shall extend up both abutments to the riser crest elevations. The minimum bottom width shall be 8 feet but wide enough to permit operation of compaction equipment. The side slopes shall be no steeper than 1:1. Compaction requirements shall be the same as those for embankment. The trench shall be kept free from standing water during the backfilling operation.

3. Embankment - The fill material shall be taken from selected borrow areas. It shall be free of roots, woody vegetation, oversized stones, rocks, or other objectionable material. Areas on which fill is to be placed shall be scarified prior to placement of fill.

The fill material should contain sufficient moisture so that it can be formed by hand into a ball without crumbling. If water can be squeezed out of the ball, it is too wet for proper compaction.

Fill material will be placed in 6 to 8 inch layers and shall be continuous over the entire length of the fill. Compaction will be obtained by routing the hauling equipment over the fill so that the entire surface of the fill is traversed by at least one tread track of the equipment, or compaction shall be achieved by the use of a compactor. The embankment shall be constructed to an elevation of 10% higher than the design height to allow for settlement if compaction is obtained with hauling equipment. If compactors are used for compaction, the overbuild may be reduced to 5%.

4. Pipe Spillways - The riser shall be solidly attached to the barrel and all connections shall be water-tight. The barrel and riser shall be placed on a

firm foundation. The fill material around the pipe spillway will be placed in 4 inch layers and compacted to at least the same density as the adjacent embankments.

F. Backwater at Culvert

1. Outlet Control

$$H = \left(1 + K_e + \frac{29n^2L}{R^{1.33}}\right)\frac{V^2}{2g}$$

Reference: Hydraulic Engineering Circular No. 5, U.S. Department of Transportation

For a 90" CMP:

$K_e = 0.5$

$n = .024$

$L = 62$ feet

Area = 44.18 S.F.

$$V = \frac{237.5 \text{ cfs}}{44.18 \text{ S.F.}} = 5.38 \text{ fps}$$

$R = 1.87$

$$H = \left(1 + 0.5 + \frac{29\ (.024)^2\ 62}{1.87^{1.33}}\right)\frac{5.38^2}{64.4}$$

$= 0.88$ feet

TW = 249.0 (See Section #2A)

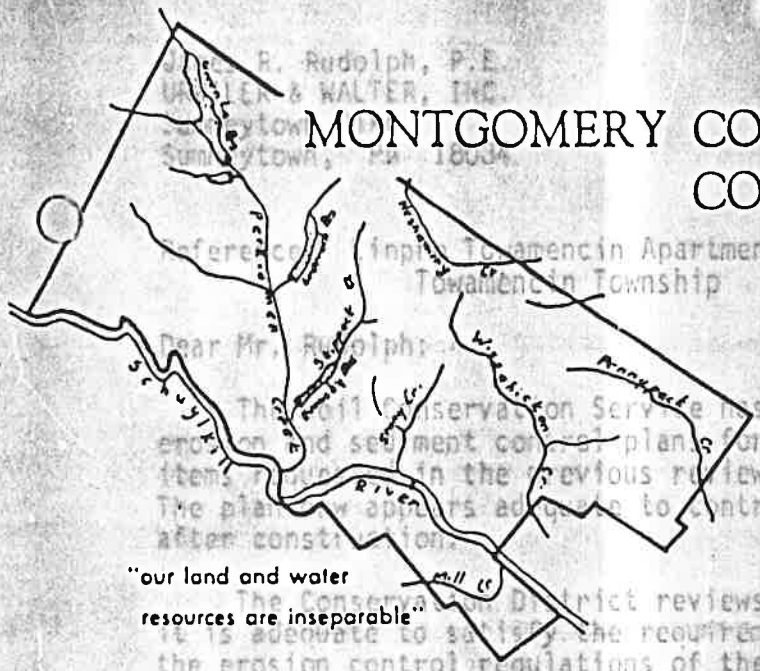
HW = 249.88 < 252.0 (Elevation at Victor Property Line)

2. Inlet Control

$$\frac{HW}{D} = \frac{252 - 246}{7.5} = 0.80$$

Capacity = 250 cfs x 2 = 500 cfs

Reference: Bureau of Public Roads, Chart 5.



MONTGOMERY COUNTY CONSERVATION DISTRICT

4th Floor — One Montgomery Plaza
Court House, Norristown, PA 19404
Phone: 278-3618

"our land and water resources are inseparable"

April 20, 1983

James R. Rudolph, P.E.
URWILER & WALTER, INC.
Sumneytown Pike
Sumneytown, PA 18084

Reference: Linpro Towamencin Apartments
Towamencin Township

Dear Mr. Rudolph:

The Soil Conservation Service has reviewed the revised April 14, 1983 erosion and sediment control plans for the above referenced project. All items requested in the previous review have been satisfactorily answered. The plan now appears adequate to control erosion and sediment during and after construction.

The Conservation District reviews this plan solely to determine whether it is adequate to satisfy the requirements of 25 Pa. Code §§102.1 et seq., the erosion control regulations of the Department of Environmental Resources. By a determination that the plan is adequate to meet those requirements, neither the conservation district nor the county assumes any responsibility for the implementation of the plan or the proper construction and operation of the facilities contained in the plan.

Sincerely,

Maynard King
Executive Director

MK/cmp

cc: Towamencin Township Engineer

ER-BWQ-265
rev 2/79

4483420

SEWERAGE PERMIT APPLICATION
DEPARTMENT OF ENVIRONMENTAL RESOURCES

APPLICANT NAME* Upper Gwynedd-Towamencin Municipal Authority, ADDRESS: 2225 Kriebel Road

CITY, ZIP Lansdale, PA 19446 TELEPHONE NUMBER: 855-3686

*Applicant shall be the agency which will own the sewerage facilities following completion of construction and/or dedication.

A filing fee check of ~~$250~~ $100.00 made out to Pennsylvania Department of Environmental Resources is required with the application.

PROJECT NAME: Linpro-Towamencin I Limited PROJECT ACREAGE: 24.117 Acres

MUNICIPALITY: Towamencin Township COUNTY: Montgomery

NOTE: Please attach a drawing which clearly shows the boundaries of the proposed service area, the properties to be served, the location of the sewerage facilities, the slopes of proposed sewers on the plan with inverts of manhole, point of connection to existing sewers, and all streets, streams or other important site features. Also include specifications for the facilities and an erosion an sedimentation control plan.

For any deviations from the Sewerage Manual, please note clearly and fully justify.

RECEIVED
MAY 19 1983
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

FOR THE APPLICANT

I hereby apply for approval on (Date) May 16, 1983 to construct and operate [X] Sewers and appurtenances [ ] Sewage pumping stations(s) which [X] does [ ] does not include stream crossings(s).

For sewage pumping stations include detailed construction plans, Module 7 and an erosion and sedimentation control plan.

For stream crossing, include the plan and profile view of the sewer line crossing along with specific construction techniques including soil erosion and sedimentation control provisions.

Affidavit: I hereby certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and based on my inquiry of those individuals immediately responsible for obtaining the information I believe the submitted information is true, accurate and complete.

Applicant's Signature: H. Warren Dimmig

Name and Title: H. Warren Dimmig, Vice-Chairman

Address: 2225 Kriebel Road, Lansdale, PA 19446

Sworn and subscribed to before me this 16 day of MAY, 1983.

Notary's seal and signature Derek W. Lindsay 4-14-84

FOR THE DESIGN ENGINEER

Affidavit: I, John G. Walter, Jr., do hereby certify that the information contained in the accompanying plans, specifications, and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance with the standards, guidelines and requirements of the Department of Environmental Resources.

Design Engineer's Seal and Signature: John G. Walter

Name of Engineering Firm: Urwiler & Walter, Inc.

Address, Zip Sumneytown, PA 18084 Telephone No.: (215) 234-4562

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOHN G. WALTER, JR.
ENGINEER
No. 11892-E

MONTGOMERY COUNTY

H710.047 REV. 5-71 COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
SANITARY ENGINEERING

For Department Use Only

INTERNAL REVIEW AND RECOMMENDATIONS

REGIONAL ENGINEER'S REVIEW

NAME OF APPLICANT: Upper Gwynedd-Towamencin Municipal Authority
PROJECT LOCATION: Towamencin Township Montgomery County
APPLICATION NUMBER: 4683420

BRIEF DESCRIPTION OF PROJECT: The Applicant requests approval for the construction of a sanitary sewer extension to serve the Linpro Towamencin I Limited Subdivision a development of 144 residential dwelling units consisting of garden type apartments on 24.1 acres located on the north side of Valley Forge Road west of Sumneytown Pike in Towamencin Township, Montgomery County. No other Departmental permits are required. Construction does, however, take place in the floodplain of the Towamencin Creek and as such is considered a floodplain encroachment.

DISCUSSION (Use Additional Sheets If Necessary): Sewage from the proposed sewer extension will be conveyed to the Upper Gwynedd-Towamencin Municipal Authority STP via existing Upper Gwynedd-Towamencin Municipal Authority sewers covered under Permit No. 766S53. The final effluent will be afforded secondary treatment before discharge to the Towamencin Creek. The proposed sewer extension will serve 216 people initially and ultimately. The soil erosion and sedimentation control plan has been reviewed and approved by the Montgomery County Conservation District.

CURRENT ESTIMATE OF COMPLETION DATE OF PROJECT (Industrial Wastes Only)

RECOMMENDATION AND ACTION

APPROVAL – RELEVANT LAWS, REGULATIONS, STANDARDS, AND POLICIES HAVE BEEN COMPLIED WITH:

Issue By Region	Issue By Central Office	Refuse	Signature	Date
☑	☐	☐	REVIEWING ENGINEER: Marie Flaherty	6/7/83
☒	☐	☐	FACILITIES ENGINEER: Richard L. Hunter	6/7/83
☒	☐	☐	REGIONAL ENGINEER: C. T. Fencil	6/8/83
	☐	☐	DIV. FACILITIES ENGINEER	
	☐	☐	DIVISION DIRECTOR	
		☐	BUREAU DIRECTOR	

PERMIT CONDITIONS:
1. STANDARD – Sewerage (08/28/81) 1-7, 9, 13-14, 17, 21-23
EROSION CONTROL (1973) 1-20
2. SPECIAL (Use Additional Sheets If Necessary) –

4683420

Recording of Permit: Montgomery County

YB533

ER-BWQ-15-Rev. 4/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT

NO. 4683420

A. PERMITTEE: Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

B. PROJECT LOCATION
Municipality: Towamencin Township
County: Montgomery County

C. TYPE OF FACILITY (For industrial wastes, type of establishment): Sanitary Sewer Extension

D. NAME OF MINE, PLANT, AREA SERVED, OUTFALL NO., ETC.: Linpro-Towamencin I Limited

E. THIS PERMIT APPROVES:

1. Plans For Construction Of: a. [X] Pump Stations: Sewers and Appurtenances b. [ ] Sewage Treatment Facilities c. [ ] Industrial Wastes Treatment Facilities d. [ ] Mine Drainage Treatment Facilities e. [ ] Outfall & Headwall f. [X] Stream Crossing g. [ ] Impoundment
2. The Discharge Of: N/A a. [ ] Treated b. [ ] Untreated c. [ ] Sewage d. [ ] Industrial Wastes
3. Discharge To: N/A a. [ ] Surface Water b. [ ] Ground Water
   Name of Stream to which discharged or drainage area in which groundwater discharge takes place or impoundment is located.
4. The Operation of a Mine: N/A [ ]
   Maximum Area to be Deep Mined _____ Acres
5. An Erosion and Sedimentation Control Plan [X]
   Project Area is 24.1 Acres

F. THIS APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:

1. ALL CONSTRUCTION, OPERATIONS, PROCEDURES AND DISCHARGES SHALL BE IN ACCORDANCE WITH APPLICATION NO. 4683420 DATED 5/16/83 ITS SUPPORTING DOCUMENTATION, AND AMENDMENTS DATED 5/27/83. SUCH APPLICATION, ITS SUPPORTING DOCUMENTATION AND AMENDMENTS ARE HEREBY MADE A PART OF THIS PERMIT.
2. CONDITIONS NUMBERED 1 thru 7, 9, 13, 14, 17, 21 thru 23 OF THE Sewerage STANDARD CONDITIONS DATED 8/28/81 AND CONDITIONS NUMBERED 1 thru 20 OF THE EROSION CONTROL STANDARD CONDITIONS DATED 1973 WHICH CONDITIONS ARE ATTACHED AND MADE PART OF THIS PERMIT.
3. SPECIAL CONDITIONS DESIGNATED _____ WHICH ARE ATTACHED AND ARE MADE A PART OF THIS PERMIT.

This permit must be recorded in the Recorder of Deeds Office in Montgomery County.

For Department Use Only

INTERNAL REVIEW AND RECOMMENDATIONS

G. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. IF THERE IS A CONFLICT BETWEEN THE APPLICATION ON ITS SUPPORTING DOCUMENTS AND AMENDMENTS AND THE STANDARD OR SPECIAL CONDITIONS, THE STANDARD OR SPECIAL CONDITIONS SHALL APPLY.
2. FAILURE TO COMPLY WITH THE RULES AND REGULATIONS OF THE DEPARTMENT OR WITH THE TERMS OR CONDITIONS OF THIS PERMIT SHALL VOID THE AUTHORITY GIVEN TO THE PERMITTEE BY THE ISSUANCE OF THE PERMIT.
3. THIS PERMIT IS ISSUED PURSUANT TO THE CLEAN STREAMS LAW, ACT OF JUNE 22, 1937, P.L. 1987 AS AMENDED 35 P.S. § 691.1 ET SEQ. AND/OR THE WATER OBSTRUCTION ACT, ACT OF JUNE 25, 1913, P.L. 555 AS AMENDED 32 P.S. § 681 ET SEQ. ISSUANCE OF THIS PERMIT SHALL NOT RELIEVE THE PERMITTEES OF ANY RESPONSIBILITY UNDER ANY OTHER LAW

DEPARTMENT OF ENVIRONMENTAL RESOURCES

PERMIT ISSUED DATE 6-8-83

BY C.T. Beachwood
C.T. Beachwood, P.E.
Regional Water Quality Manager

YB535

4683420

Sewerage Permit No. 4683420
Upper Gwynedd-Towamencin Municipal Authority
Towamencin Township, Montgomery County

This permit is subject to the following Special Condition(s):

I. The stream bed shall not be used as a roadway for moving machinery from one site to another. Temporary stream crossings must be provided for equipment that must cross the stream during construction. Any structures are to be removed and the stream bed returned to its original condition when the project is completed.

Siltation control shall be provided for during construction and bank stabilization shall be undertaken by planting of grasses, shrubbery, or trees immediately after completion of each phase of the project.

YB536

WATER QUALITY MANAGEMENT PERMIT NO.

A. PERMITTEE Upper Gwynedd-Towamencin Municipal Authority 2225 Kriebel Road Lansdale, PA 19446

B. PROJECT LOCATION Municipality Towamencin Township County Montgomery County

C. TYPE OF FACILITY (Including specific type of establishment) Sanitary Sewer Extension

D. NAME OF PROJECT, FACILITY, AREA SERVED, SYSTEM AND STREAM

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
Norristown, PA 19401
215 631-2405

June 8, 1983

Upper Gwynedd-Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: Mr. H. Warren Dimmig
Vice-Chairman

Re: Sewerage Permit No. 4683420
Linpro-Towamencin I Limited
Towamencin Township
Montgomery County

Gentlemen:

Referenced permit is enclosed.

Please study the permit carefully and direct any questions to the Permits Section of this office at 215 631-2411.

To become operative this permit must be recorded in the Office of the Recorder of Deeds in the county in which the discharge is located. Enclosed is a certificate and pre-addressed envelope for this purpose. Please have the Recorder of Deeds accomplish the certificate and return it within ten (10) days.

Very truly yours,

C. T. BEECHWOOD, P.E.
Regional Water Quality Manager

CTB:MCF:cd

Enclosures: Permit
Standard Conditions Relating to Sewerage
Standard Conditions Relating to Erosion Control
Recorder of Deeds Certificate
Notary Public Certificate

cc: Urwiler and Walter, Inc.
Permits & Compliance
Re 30 YB534

ER-BWQ-68 Rev. 4-73

Upper Gwynedd-Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Sewerage Permit No. 4683420

Towamencin Township
Montgomery County

Commonwealth of Pennsylvania
Department of Environmental Resources

RECORDER OF DEEDS CERTIFICATE

I hereby certify that on . . . . . (Date)

Recorder of Deeds for

there was recorded in Book . . . . . County

page . . . . . the sewerage permit issued

to . . . . . .

bearing date of . . . . . .

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
Norristown, PA 19401
215 631-2405

June 8, 1983

. . . . . .
Recorder of Deeds for

Upper Gwynedd-Towamencin
Municipal Authority
2225 Kriebel Road

. . . . . .County

C. T. Beechwood

ER-BWQ-69 Rev. 1/78 acknowledged the foregoing permit to be his act and deed and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year

STATE OF PENNSYLVANIA
COUNTY OF Montgomery
SS

On the eighth day of June in the year one thousand nine hundred and eighty-three before me, the Subscriber, a Notary Public, came the above named

C. T. Beechwood

and duly acknowledged the foregoing permit to be his act and deed and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year aforesaid.

Teresa L. Riegel
NOTARY PUBLIC

TERESA L. RIEGEL, Notary Public
Norristown Boro, Montgomery Co.
My Commission Expires Oct. 1, 1984

Sewerage Permit No. 4603420

To [illegible]
Montgomery

Commonwealth of Pennsylvania
Department of Environmental Resources

RECORDER OF DEEDS CERTIFICATE

ER-BWQ-68 Rev. 4-73

Upper Gwynedd-Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Department of Environmental Resources

1875 New Hope Street
Norristown, Pennsylvania 19401
215 631-2402

June 6, 1983

Upper Gwynedd-Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: H. Warren Dimmig
Vice Chairman

Re: Application No. 4683420
Towamencin Township, Montgomery County

Gentlemen:

This will acknowledge receipt of your application on May 19, 1983 for approval to construct a sanitary sewer extension to serve Lin Pro-Towamencin I Subdivision Limited in Towamencin Township, Montgomery County.

The material submitted is accepted for technical review and has been assigned to Marie Faberty, Sanitary Engineering Aide, 632-2411, of our staff.

You are reminded that any proposed facilities cannot be constructed without first obtaining the required permits.

Applications are normally processed within sixty (60) days. If you have not received notification of the action taken within this period, feel free to contact me for information concerning the status of the review.

Very truly yours,

LEON T. GONSHOR
Regional Director

cc: Water Quality Management
John G. Walter, Jr.
Re HE242

ER-EP-1: Rev. 7/80

FORM NO. 1

SUBJECT: UPPER GWYNEDD-TOWAMENCIN M.A

CONTACT(S): H. WARREN DIMMIG

Application Nos.: 4683420

New Proposal	✓
Revised Proposal	

2225 KRIEBEL RD
LANSDALE, PA 19446

855-3686

From [illegible]

Regional Director: JOHN G. WALTER, JR

234-4562

On 5-19-83, we (accepted/~~received~~) an application for plan approval and/or permit to (construct/~~modify~~/install) A.S.S. EXTENSION TO SERVE SUBDIVISION UNPRO-TOWAMENCIN LIMITED IN TOWAMENCIN

~~This proposal involves:~~ TWP., MONTGOMERY COUNTY

UPPER GWYNEDD-TOWAMENCIN M.A. STP

Permit Coordination Requirements: None

Date 6-6-83 Program	No Permit Required	No Permit Required Prior Approval Required	Permit Required Application on Hand	Permit Required Application Needed
Air Quality	✓			
Water Quality 537 letter 4/22/83	✓		86 MAY 20 1983	
Solid Waste Management	✓			
Community Env. Control	✓			
Mining & Reclamation				
Radiation Protection				
Dams & Waterway Management	✓			

Please indicate your interest on this form and return to the Regional Director by 5-31-83. Failure to return the form by the indicated date will indicate that your program has no interest in the project.

ER-EP-21: 10/86

DEPARTMENT OF ENVIRONMENTAL RESOURCES

ENVIRONMENTAL PROTECTION

START

BUREAU/PROGRAM Water Quality Management

DIVISION

COUNTY/MUNICIPALITY 46949

PROGRAM Sew

CASE NAME Upper Gwynedd-Towamencin Municipal Authority

FILE

PERMIT NO. 4684407 William House

750 E. Johnson Highway
Norristown, Pennsylvania 19401
215 631-2036

December 12, 1979

Ms. Beverly Thompson
Towamencin Township
Box 99, 655 Sumneytown Pike
Kulpsville, PA 19443

Re: The Heyser Subdivision
Code No. 1-46949-022-4
Towamencin Township

Dear Ms. Thompson:

Please be advised that a review has been made and completed of the above referenced Planning Module for Land Development.

This supplement to the Towamencin Township Official Sewage Facilities Plan meets the requirements of Chapter 71, Section 71.17 of the Pennsylvania Department of Environmental Resources Rules and Regulations.

Approval is hereby granted; and in accordance with this Chapter, the Department holds Towamencin Township responsible for implementing this supplement as per the approved module.

This planning approval does not relieve the project sponsor of the responsibility to secure a Department permit for the construction and operation of the proposed facility.

If you have any questions, please feel free to contact this office.

Very truly yours,

James R. Purhenn
Sanitarian
Montgomery County

CC: Sewage Facilities Consultant
File
WAMIS ✓
William H. Heyser
3862

ATT. MARK TIGER

DER - RECEIVED
APR 6 1984

HOPKINS & SCOTT, INC. REGISTERED SURVEYORS
KIMBERTON, PA. 19442 PHONE 215-933-1754

TO: WATER QUALITY MANAGEMENT
1875 NEW HOPE ST.
NORRISTOWN, PA. 19401
ATT. MARK TIGER

Date: 4/4/84

Project No. _____

We are sending you ± Attached _____ Under separate cover

No. of Copies	Drawing No.	Description
2	1-23-24-002	W. HOYSER SUB. PLAN SHEET #1
1	LETTER	

These are transmitted as checked below:

- ☒ For approval
- ☐ For your use
- ☐ As requested
- ☐ For review and comment
- ☐ Approved as submitted
- ☐ Approved as noted
- ☐ Returned for corrections
- ☐ Resubmit _____ copies for approval

REMARKS:

REVISED WATER MAIN LOC. PER CONVERSATION

HOPKINS & SCOTT, INC.

APR 6 1984 RECD

HOPKINS & SCOTT, INC. REGISTERED SURVEYORS
KIMBERTON, PA. 19442 PHONE 215-933-1754

April 4, 1984

Bureau of Dams and Waterway Management
P.O. Box 2357
Harrisburg, Pa. 17120

Re: Code No. 1-46949-022-4
Heyser Subdivision
Towamencin Township
Montgomery Co., Pa.

Gentlemen:

Attached is 2 copies of the application for rip-rap outfall structure for the storm water retention basin for the subject subdivision together with the following:

1. 2 copies of the Erosion Control Narrative and Hydraulics Plan and Erosion Control Plan.

2. 2 sets of Subdivision Plans and Road and Sewer Plans & Profiles.

John A. Scott, President
Hopkins & Scott, Inc.

cc: Water Quality Management
Norristown, Pa.

Dams and Waterway Management
Norristown, Pa.

William Heyser

HOPKINS & SCOTT, INC. REGISTERED SURVEYORS
KIMBERTON, PA. 19442 PHONE 215-933-1754

DER-RECEIVED NORRISTOWN APR 19 1994

TO: D.E.R.

Date: 4/16/94

ATT: MARK TIGER

Project No. HEYSER

We are sending you ☒ Attached ☐ Under separate cover

No. of Copies	Drawing No.	Description
2	1-23-24-dAP	Wm Heyser Subdivision

These are transmitted as checked below:

- ☒ For approval
- ☐ For your use
- ☒ As requested
- ☐ For review and comment
- ☐ Approved as submitted
- ☐ Approved as noted
- ☐ Returned for corrections
- ☐ Resubmit _____ copies for approval

REMARKS:

WATER MAIN ADDED TO PROFILE

HOPKINS & SCOTT, INC.

PFC 531 (Rev. 8-81)

COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA FISH COMMISSION

WP Guy Bowersox

SUBJECT: Review of Permit Application

DER-RECEIVED NORRISTOWN MAY 25 1984

Date: April 6, 1984

In Reply To: 4684407

TO: Department of Environmental Resources

FROM: Pennsylvania Fish Commission

Permit Applicant: Upper Gwynedd-Towamencin Municipal Authority

Type of Construction: Sewer system extension

Location: County Montgomery Township Towamencin

Other

		Trout		Warmwater	
Stream Affected (Primary)	Towamencin Creek	Yes ___	No ✓	Yes ✓	No ___
Tributary To (Secondary)	SKIPPACK CREEK	Yes ✓	No ___	Yes ✓	No ___

	Stocking Status				Worked Area	Stocked Area		Fishing Pressure			
	Stocked	Wild	In	Above	Below	High	Med	Low	None		
Primary:	___	✓	___	___	___	___	___	___	✓	___	
Secondary:	✓	___	___	___	✓	✓	___	___	___	___	

Comments:

Guy A. Bowersox (Waterways Patrolman) Yes ✓ No ___ Approved 4/23/84 Date

Ron Tibbott (Fisheries Environmental Services) Yes ✓ No ___ Approved 5/18/84 Date

HOPKINS & SCOTT, INC. REGISTERED SURVEYORS
KIMBERTON, PA 19442
PHONE 215-933-1754

May 17, 1979

RECEIVED
MAR 30 1984
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

EROSION & SEDIMENTATION CONTROL NARRATIVE

Re: Subdivision
Towamencin Twp.
Montgomery Co., Pa.
William H. Heyser

This project covers the subdivision of a 15.837 Acre tract into 16 lots with one road. The property is located on Kriebel Road on the southwest side of the Pennsylvania Turnpike, Northeast Extension.

The tract has approximately 3 acres of woodland with the balance in Meadowland. The average slope over the entire area is approximately 6%. The tract area and the total watershed area are the same.

The subdivision will be serviced by public sewers and public water.

The soils as mapped on the plan consist of Bowmansville Silt Loam (alluvial soils), Reaville Shalysilt Loam, Readington Silt Loam and an area Madeland. These soils are in the "C" hydrologic group.

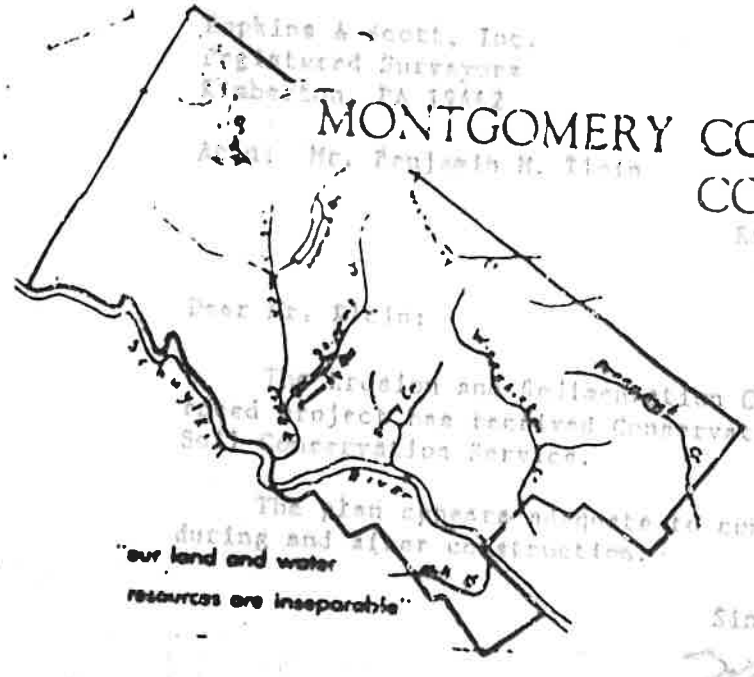
The tract generally slopes from a ridge line near Kriebel Road to Towamencin Creek which flows from east to west across the southern end of the tract.

The increased storm water run-off will be controlled by use of a storm drainage system in the proposed road, and grassed swales to direct this run-off to a permanent storm water management basin.

The increased sediment run-off will be controlled by the use of hay bales at inlets and at the bottom of fill slopes.

The calculations for the storm water management basin and for the storm drainage system are attached. Also seeding specifications, earth moving activities and maintenance program details are attached.

NOTE: A COPY OF THIS NARRATIVE, THE PLANS AND ALL ATTACHMENTS ARE TO BE KEPT AVAILABLE AT THE SITE AT ALL TIMES DURING CONSTRUCTION.



MONTGOMERY COUNTY CONSERVATION DISTRICT

3rd Floor, Court House, Norristown, Pa. 19404
Phone [redacted]
278-3618

June 11, 1979

Hopkins & Scott, Inc.
Registered Surveyors
Kimberton, PA 19442

Attn: Mr. Benjamin M. Klein

Re: William H. Heyser Subdivision
Towamencin Township

Dear Mr. Klein:

The Erosion and Sedimentation Control plan for the above referenced project has received Conservation District review by the U. S. Soil Conservation Service.

The plan appears adequate to control erosion and sediment production during and after construction.

Sincerely,

Maynard A. King
Executive Director

cc: Towamencin Township Engineer

PERMANENT BASIN

Schedule of Earthmoving Activities and Construction

1. Construct basin, roads, storm sewer system, and swales as designed in conjunction with earthmoving, or construction, activity. This will prevent increased peak flow of storm water runoff from entering the stream or damaging adjacent property. Runoff will be directed to the basin by swaling and piping.

2. Removal and stock-piling of topsoil from road areas. Excavated material from the main access roads shall be stock-piled on up slope of the road such that runoff will be impeded from crossing the bare earth, thus reducing the possibility of erosion.

3. Rough grade roads, install all utilities, and apply at least stone base to all roads. Restore all backfilled areas with vegetation or crushed stone. This is to be done within 30 days from start of construction or prior to building. Road base to be in accordance with Township and/or State specifications.

4. Permanently seed all areas following final grading. See Seeding Specifications.

5. No more trench for utilities installation is to be opened in any one day than can be opened, pipe installed, backfilled, and a temporary, or permanent, seeding applied.

Temporary Control Measures

1. Remove as few trees as possible.
2. Remove no more vegetative cover than is necessary to effect required grading.
3. Construct retention basin and swales as indicated on "Storm Water Management Plan".
4. Removal and stock-piling of topsoil from road area. Excavated material from the main access roads shall be stock-piled on up slope of the road, such that runoff will be impeded from crossing the bare earth, thus reducing the possibility of erosion.
5. Rough grade roads and install all utilities (including any permanent swales where designed). Apply base (crushed stone, bituminous concrete, or aggregate lime-pozzolan) to all roads after grading and restore all backfilled areas with vegetation or crushed stone. This is to be done within 30 days from start of construction, or prior to building.
6. Temporary seeding and mulch on all areas which will remain open for more than 20 days.
7. Restore area to stable condition by fine grading, seeding or sodding, mulching and maintaining until a good stand of cover is established.
8. Rip rap all areas where heavy concentrations of drainage are discharged into basin, where water is in transition from an open channel into a culvert, or as specified.
9. Anti-scour pad, energy dissipator, and rock rip rap at outlet of pipe from basin to prevent scouring of stream

silt and debris shall be expressed by a mark on the riser pipe (see Basin Detail page).

of drainageway.

10. To all areas which shall remain disturbed for more than 20 days and will be subject to the action of earthmoving and other equipment, apply a mulch (wood chip - 20 tons per acre hay or straw - 2 tons per acre). All other disturbed areas remaining open for more than 20 days shall be temporarily seeded and mulched.

11. Silt and debris accumulation in the basin shall be removed, graded elsewhere, and stabilized. The maximum elevation of silt and debris shall be expressed by a mark on the riser pipe (see Basin Detail page).

Permanent Control Measures

1. Construct permanent storm water management structure where designed on site plan.
2. Construct swales where designed to carry surface water down slopes, without causing erosion, to an outlet into retention basin.
3. Grade all cut and fill slopes to 3 foot horizontal for every 1 foot vertical, or flatter, and apply seeding and mulch.
4. Roads and drives are to be paved.
5. Permanent grass, or legume vegetative cover, shall be established by seeding and mulching, following final grading.
6. All outfall areas from basin shall be provided with rip rap stabilization and/or energy dissipating structure to prevent stream or drainageway scouring.

Maintenance Program

1. Vegetation in permanent basin shall be mowed to maintain a pleasing appearance, and discourage weed growth. All local regulations will be complied with.
2. The riser pipe and outlet structures shall be checked and repaired, if necessary. Also, all channels and pipes.
3. Maintenance of the permanent basin, and other facilities, shall be the responsibility of the owner, owner-developer, unless specified otherwise by the Township.
4. After the retention basin and stabilized swales are established, inspections for each device will be made to determine the durability of the slope stabilization measures. An inspection of all facilities will be made after every storm of magnitude to determine their resistance to driving rains.
5. Areas that contain sod shall be checked very carefully to ensure that joints between the sod strips are tight and secure. Where joint separation is in evidence, a careful inspection of each joint shall be made to determine whether undermining of the strips is occurring. If it is, the strips shall be rolled up, the subsurface shall be filled and graded, as required, and the sod strips shall be relaid with tight joints and pegging.
6. Seeded areas that have washed away shall be filled and graded as necessary and then reseeded. A burlap, or straw, cover will be applied to retain the seed until it has a chance to root properly.

7. The above procedure shall be repeated after each sizable storm until no more signs of erosion are evident. At intervals thereafter, inspections and necessary cleaning will be done. Trash that is removed from any of the control devices shall be disposed of at an approved Township disposal area. Silt that has accumulated shall be removed and used as fill wherever required on the site.

NOTE: ALL LOCATIONS OF EXISTING UTILITIES SHOWN ON THE PLAN HAVE BEEN DEVELOPED FROM EXISTING UTILITY RECORDS AND/OR ABOVE GROUND EXAMINATION OF THE SITE. COMPLETENESS OR ACCURACY OF LOCATION AND DEPTH OF UNDERGROUND UTILITIES OR STRUCTURES CANNOT BE GUARANTEED. CONTRACTOR MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES BEFORE START OF WORK.

NOTE: ALL LOCATIONS OF EXISTING UTILITIES SHOWN ON THE PLAN HAVE BEEN DEVELOPED FROM EXISTING UTILITY RECORDS AND/OR ABOVE GROUND EXAMINATION OF THE SITE. COMPLETENESS OR ACCURACY OF LOCATION AND DEPTH OF UNDERGROUND UTILITIES OR STRUCTURES CANNOT BE GUARANTEED. CONTRACTOR MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES BEFORE START OF WORK.

EARTHEN EMERGENCY SPILLWAY

Basin Specifications

Site Preparations:

Areas under the embankment, or any structural work, shall be cleared, grubbed, topsoil stripped, and trees, roots and other objectionable material shall be removed. The basin area shall be cleared of all trees and brush to facilitate future cleanout of the basin.

Core Trench or Cut-off Trench:

Excavated along the longitudinal center line of the dam, the minimum depth shall be two feet. It shall extend up both abutments to the riser crest elevation. The minimum bottom width shall be four feet, but wide enough to permit operation of compaction equipment. The side slopes shall be no steeper than 1:1. Compaction requirements shall be the same as those for embankments. The trench shall be kept free of standing water during the backfilling operation.

Embankment (Dam):

The fill material shall be taken from select borrow areas. It shall be free of roots, stones, woody vegetation, boulders and other extraneous material. Areas on which fill is to be placed shall be scarified prior to placement. The fill material shall contain sufficient moisture so that it can be formed by hand into a ball without crumbling. If water can be squeezed out of the ball, the soil is too wet for compaction.

Fill material shall be placed in 6 to 8 inch layers and shall be continuous over the entire length of fill. Compaction shall be obtained by routing the equipment over the fill so that the entire surface of the fill is traversed by at least one tread track of the equipment, or compaction shall be achieved by a compactor. The embankment shall be constructed to an elevation 10% higher than the design height if compaction is obtained with hauling equipment. If compactors are used, the overbuild may be reduced by 5%. Embankment shall be compacted to no less than 90% of the determined dry weight density.

Riser and Barrel:

Both riser pipes shall be solidly attached to the barrel and all connections shall be water tight. The barrel and riser shall be placed on a firm foundation. The fill material around the pipe spillway shall be placed in four inch layers and compacted to the same density as the embankment.

The temporary perforated riser pipe will be removed after construction and basin cleanout, leaving a culvert. The solid auxiliary riser shall remain permanently. The barrel pipe (horizontal) shall be rigidly attached to the riser pipes (vertical), with risers firmly imbedded in concrete base to prevent movement or flotation. If necessary, the barrel should be steel strapped to the concrete base.

EARTHEN EMERGENCY SPILLWAY

Basin Specifications

Site Preparations:

Areas under the embankment, or any structural work, shall be cleared, grubbed, topsoil stripped, and trees, roots and other objectionable material shall be removed. The basin area shall be cleared of all trees and brush to facilitate future cleanout of the basin.

Core Trench or Cut-off Trench:

Excavated along the longitudinal center line of the dam, the minimum depth shall be two feet. It shall extend up both abutments to the riser crest elevation. The minimum bottom width shall be four feet, but wide enough to permit operation of compaction equipment. The side slopes shall be no steeper than 1:1. Compaction requirements shall be the same as those for embankments. The trench shall be kept free of standing water during the backfilling operation.

Embankment (Dam):

The fill material shall be taken from select borrow areas. It shall be free of roots, stones, woody vegetation, boulders and other extraneous material. Areas on which fill is to be placed shall be scarified prior to placement. The fill material shall contain sufficient moisture so that it can be formed by hand into a ball without crumbling. If water can be squeezed out of the ball, the soil is too wet for compaction.

EMERGENCY SPILLWAY

The emergency spillway shall be installed in undisturbed earth. The lines and grades shall conform to those shown on the 'Storm Water Management Plan'. The entire surface of the spillway shall be sodded.

Stabilization:

Seeding and mulching of embankment and basin slopes shall conform to the recommendations for such, as set forth in the Erosion and Sediment Control Handbook, published by the County Conservation District and available at the local office of the U.S.D.A., Soil Conservation Service.

General Note

Construction operations shall be carried out in a manner such that soil erosion and air-water pollution is minimized. State and local laws concerning pollution abatement shall be followed.

Should unforeseen erosive conditions develop during construction, the Contractor shall take action to remedy such conditions and to prevent damage to adjacent properties as a result of increased runoff and/or sediment displacement. Special attention should be given to frozen slopes. Stockpiles of wood chips, hay bales, crushed stone and other mulches shall be held in readiness to deal immediately with emergency problems of erosion.

The Contractor is advised to become thoroughly familiar with the provisions of Appendix 64, Erosion Control Rules and Regulations, Title 25, Part I, Department of Environmental Re-

CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES BEFORE START OF WORK.

Sources, Sub-Part C, Protection of Natural Resources, Article II, Water Resources, Chapter 102, Erosion Control.

A COPY OF THIS PLAN MUST BE POSTED AT THE CONSTRUCTION SITE IN ACCORDANCE WITH STATE LAW.

NOTE: LOCATION AND ELEVATION OF UNDERGROUND UTILITIES OR STRUCTURES NOT GUARANTEED.

CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES BEFORE START OF WORK.

LAWN WORK

SEEDING SPECIFICATIONS

(For Immediate Seeding ——— Temporary Cover Only)

1. EQUIPMENT

The Contractor shall furnish all tools, equipment, materials and necessary labor required for performing all the operations in connection with clean up, finish grading, soil preparation, seeding and sodding, as specified herein.

2. SCOPE OF WORK

A. Removal of trash, finish grading (by machine and hand raking).

B. Preparation of seedbed (sod treated the same).

C. Spreading fertilizer and lime

D. Seeding

E. Sodding

F. Mulching

3. SEASONAL AND WEATHER LIMITATIONS

Preparation of seedbed and planting shall not be performed when, in the opinion of the Landscape Architect or his representative, the soil is not in condition to permit satisfactory work.

4. PROTECTION TO EXISTING TREES AND SHRUBS

Care shall be taken by the Contractor to protect all of the existing trees and shrubs from damage.

5. MATERIALS

A. Fertilizer - shall be standard quality, as indicated:

Analysis	Quantity
0-20-20 Basic Fertilizer	20#/1,000 sq. ft.
5-10-5 Starter Fertilizer	10#/1,000 sq. ft.

B. Lime - shall be agricultural limestone:

Analysis	Quantity
90% minimum of carbonates	50#/1,000 sq. ft. or maximum
Calcium carbonate	1 ton/acre

C. Seed - shall be commercial grades of types specified and shall meet requirements of State and Federal seed laws. The Contractor shall guarantee germination.

Species of Mixture	Purity	Germination
50% Winter Rye	90%	85%
50% Annual Ryegrass	90%	85%

Mixture to be seeded at the rate of 10 lbs/1,000 sq. ft.

D. Mulch - shall be salt hay which is free of weeds and seed, not moldy or rotten, and shall be applied to all critical slope areas not sodded at a rate of 100 lb. bale per 1,000 square feet.

E. Sod - shall be standard quality, as indicated:

Species or Type	Thickness	Size
Weed free mixed Bluegrass & Fescue	1"	W-12" to 16" L-4' to 5'

6. GUARANTEE

The Contractor shall guarantee germination and shall reseed or resod as often as necessary to ensure adequate coverage.

7. METHODS

A. Finish Grading

Step 1 - surface clean up. Remove all trash, roots and

stones of one inch or greater diameter and remove from site. Repeat, if necessary, in the following steps.

Step 2 - loosen soils in compacted areas by sub-plowing in two directions to a depth of not less than 12 inches. Protect existing trees by not plowing close to trunks and injuring root systems and bark areas.

Step 3 - spread topsoil to depth of 6 inches if economically feasible, but never less than 4 inches. Grade and smooth to the specified slope or contours to the satisfaction of the Landscape Architect or his representative.

B. Seed Bed Preparation

Step 1 - mix together evenly the basic fertilizer 0-20-20 previously specified and the application of lime described. Spread evenly over entire lawn area and work mixture into the soil to a depth of 6 to 8 inches. Protect root systems by hand work.

NOTE: This mixture will die off after one growing season.

LAWN WORK

SEEDING SPECIFICATIONS

(PERMANENT COVER SPECIFICATIONS)

(LAWNS)

1. EQUIPMENT

The Contractor shall furnish all tools, equipment, materials and necessary labor required for performing all the operations in connection with clean up, finish grading, soil preparation, seeding and sodding, as specified herein.

2. SCOPE OF WORK

A. Removal of trash, finish grading (by machine and hand raking).

B. Preparation of seedbed (sod treated the same).

C. Spreading fertilizer and lime

D. Seeding

E. Sodding

F. Mulching

3. SEASONAL AND WEATHER LIMITATIONS

Preparation of seedbed and planting shall not be performed when, in the opinion of the Landscape Architect or his representative, the soil is not in condition to permit satisfactory work.

4. PROTECTION TO EXISTING TREES AND SHRUBS

Care shall be taken by the Contractor to protect all of the existing trees and shrubs from damage.

5. MATERIALS

A. Fertilizer - shall be standard quality, as indicated:

Analysis	Quantity
0-20-20 Basic Fertilizer	20#/1,000 sq. ft.
10-5-5 Starter Fertilizer	10#/1,000 sq. ft.

B. Lime - shall be agricultural limestone:

Analysis	Quantity
90% minimum of carbonates	50#/1,000 sq. ft. or maximum 1 ton/acre
Calcium carbonate	

C. Seed - shall be commercial grades of types specified and shall meet requirements of State and Federal seed laws. The Contractor shall guarantee germination.

Species of Mixture	Purity	Germination
Kentucky Bluegrass 60%	90%	85% (Pennstar)
Pennfine Perennial Ryegrass 10%	90%	85%
Pennlawn Red Fescue 30%	90%	85%

Mixture to be seeded at the rate of 4 lbs/1,000 sq. ft.

D. Mulch - shall be salt hay which is free of weeds and seed, not moldy or rotten, and shall be applied to all critical slope areas not sodded at a rate of 100 lb. bale per 1,000 square feet.

E. Sod - shall be standard quality, as indicated:

Species or Type	Thickness	Size
Weed free mixed Bluegrass & Fescue	1"	W-12" to 16" L-4' to 5'

6. GUARANTEE

The Contractor shall guarantee germination and shall reseed or resod as often as necessary to ensure adequate coverage.

7. METHODS

A. Finish Grading

Step 1 - surface clean up. Remove all trash, roots and stones of one inch or greater diameter and remove from site. Repeat, if necessary, in the following steps.

Step 2 - loosen soils in compacted areas by sub-plowing in two directions to a depth of not less than 12 inches. Protect existing trees by not plowing close to trunks and injuring root systems and bark areas.

Step 3 - spread topsoil to depth of 6 inches if economically feasible, but never less than 4 inches. Grade and smooth to the specified slope or contours to the satisfaction of the Landscape Architect or his representative.

B. Seed Bed Preparation

Step 1 - mix together evenly the basic fertilizer 0-20-20 previously specified and the application of lime described. Spread evenly over entire lawn area and work mixture into the soil to a depth of 6 to 8 inches. Protect root systems by hand work.

NOTE: This mixture is the permanent seeding mixture to be done in late spring to early summer.

Job No. HEYSEL - SUBDIV. — CALCULATIONS — SOIL & WATER MANAGEMENT

Area "D" Type TOWNSHIP Date 1-24-84 24 Hr Rain fall 100 Yr Freq 7.3

Size of Drainage Area 16.1 Ac. Av. Slope of Watershed 6% Slope Factor — (Flat, Moderate)

BEFORE DEVELOPMENT — 71

Soil Name	Hydro Soil Group	Land Use	Condition	Soil Cover No.	Area-Acres	Comp. No. x
	C	Meadow	Good	71	12.6	894
	C	"	Good	71	0.3	21
	C	Woodland	Good	70	3.2	224
					16.1	1139

Weighted Soil Complex No. Total Comp. No. / Total Area = 1139.9 / 16.1 = (708) 71

Direct Runoff Q = _____ Inches

Peak Discharge q = _____

DURING DEVELOPMENT

Soil Name	Hydro Soil Group	Land Use	Condition	Soil Cover No.	Area-Acres	Comp. No. x A

Weighted Soil Complex No. Total Comp. No. / Total Area = _____ = _____

Direct Runoff Q = _____ Inches

Peak Discharge q = _____ c

Storage Req. During Const. (-) x x 43,560 / 12 = _____ cf.

TOTAL = _____ C.F.

AFTER DEVELOPMENT

Soil Name	Hydro Soil Group	Land Use	Condition	Soil Cover No.	Area-Acres	Comp. No. x Acr

Weighted Soil Complex No. Total Comp. No. / Total Area = _____

Direct Runoff C = _____ inch

Peak Discharge q = _____ cf

Storage Req. After Const. (-) x x 43,560 / 12 = _____ cf.

TOTAL = _____ C.F.

REMARKS:

AREA "D" TOWNSHIP MONTGOMERY COUNTY HEYSER

TOTAL AREA 16.1 AC

Pertinent Data - Watershed Calculations

Before Construction - CN = 71

2-year storm - 3.2 Inches in 24 hours
Direct Runoff = 0.88 Inches
Peak Discharge = 13.4 C.F.S.
Volume of Runoff = 51429 C.F.

10-year storm - 5.0 Inches in 24 hours
Direct Runoff = 2.11 Inches
Peak Discharge = 322 C.F.S.
Volume of Runoff = 123315 C.F.

25-year storm - 5.7 Inches in 24 hours
Direct Runoff = 2.66 Inches
Peak Discharge = 40.6 C.F.S.
Volume of Runoff = 155455 C.F.

50-year storm - 6.4 Inches in 24 hours
Direct Runoff = 3.22 Inches
Peak Discharge = 491 C.F.S.
Volume of Runoff = 188,186 C.F.

100-year storm - 7.3 Inches in 24 hours
Direct Runoff = 3.97 Inches
Peak Discharge = 60.5 C.F.S.
Volume of Runoff = 232019 C.F.

During Construction - CN =

2-year storm - 3.2 Inches in 24 hours
Direct Runoff = Inches
Peak Discharge = C.F.S.
Volume of Runoff = C.F.
Vr Increase = C.F. C.F. sediment

10-year storm - 5.0 Inches in 24 hours
Direct Runoff = Inches
Peak Discharge = C.F.S.
Volume of Runoff = C.F.
Vr Increase = C.F.

25-year storm - 5.7 Inches in 24 hours
Direct Runoff = Inches
Peak Discharge = C.F.S.
Volume of Runoff = C.F.
Vr Increase = C.F.

During Construction (Cont'd)

50-year storm - 6.9 Inches in 24 hours
Direct Runoff = Inches
Peak Discharge = C.F.S.
Volume of Runoff = C.F.
Vr Increase = C.F.

100-year storm - 7.3 Inches in 24 hours
Direct Runoff = Inches
Peak Discharge = C.F.S.
Volume of Runoff = C.F.
Vr Increase = C.F.

After Construction - CN =

2-year storm - 3.2 Inches in 24 hours
Direct Runoff = Inches
Peak Discharge = C.F.S.
Volume of Runoff = C.F.
Vr Increase = C.F.

10-year storm - 5.0 Inches in 24 hours
Direct Runoff = Inches
Peak Discharge = C.F.S.
Volume of Runoff = C.F.
Vr Increase = C.F.

25-year storm - 5.7 Inches in 24 hours
Direct Runoff = Inches
Peak Discharge = C.F.S.
Volume of Runoff = C.F.
Vr Increase = C.F.

50-year storm - 6.4 Inches in 24 hours
Direct Runoff = Inches
Peak Discharge = C.F.S.
Volume of Runoff = C.F.
Vr Increase = C.F.

100-year storm - 7.3 Inches in 24 hours
Direct Runoff = Inches
Peak Discharge = C.F.S.
Volume of Runoff = C.F.
Vr Increase = C.F.

Job No. MONTGOMERY CO.

Area AREA "A" CALCULATIONS - SOIL & WATER MANAGEMENT

Project TOWNSHIP Date 1-24-84 24 Hr. Rainfall 10.0 in. Freq. 7.3

Size of Drainage Area 2.8 Ac. Av. Slope of Watershed 3% Slope Factor - (Flat) Moderate

BEFORE DEVELOPMENT — 71

Soil Name	Hydro Soil Group	Land Use	Condition	Soil Cover No.	Area-Acres	Comp. No. x Ac.
See Plan	C	Meadow	Good	71	2.80	198.8

Weighted Soil Complex No. Total Comp. No. = 198.8 / 280 = .71 Total Area

Direct Runoff Q = ____ Peak Discharge q = ____

DURING DEVELOPMENT

Soil Name	Hydro Soil Group	Land Use	Condition	Soil Cover No.	Area-Acres	Comp. No. x Ac.

Weighted Soil Complex No. Total Comp. No. = ____ / ____ = ____ Total Area

Direct Runoff Q = ____ Inc. Peak Discharge q = ____

Storage Req. During Const. (-) x 43,560 / 12 = ____ cf.

TOTAL = ____ C.F.

AFTER DEVELOPMENT — 76

Soil Name	Hydro Soil Group	Land Use	Condition	Soil Cover No.	Area-Acres	Comp. No. x Ac.
See Plan	C	PAVED DRIVE	COMPLETE	98	0.50	49.0
	C	LAWN	VEG. EST.	74	0.64	47.3
	C	MEADOW	GOOD	71	1.66	117.8
					2.80	214.1

Weighted Soil Complex No. Total Comp. No. = 214.1 / 280 = (.764) 76 Total Area

Direct Runoff C = ____ Inc. Peak Discharge q = ____ C.

Storage Req. After Const. (-) x 43,560 / 12 = ____ cf.

TOTAL = — C.F.

REMARKS:

AREA A

MONTGOMERY COUNTY

HYDROLOGY

AREA = 2.80 AC

Pertinent Data - Watershed Calculations

Before Construction - CN = 71

2-year storm - 3.2 Inches in 24 hours
Direct Runoff = 0.98 Inches
Peak Discharge = 3.4 C.F.S.
Volume of Runoff = 8944 C.F.

10-year storm - 5.0 Inches in 24 hours
Direct Runoff = 2.11 Inches
Peak Discharge = 8.2 C.F.S.
Volume of Runoff = 21446 C.F.

25-year storm - 5.7 Inches in 24 hours
Direct Runoff = 2.66 Inches
Peak Discharge = 10.4 C.F.S.
Volume of Runoff = 27036 C.F.

50-year storm - 6.4 Inches in 24 hours
Direct Runoff = 3.22 Inches
Peak Discharge = 12.6 C.F.S.
Volume of Runoff = 32728 C.F.

100-year storm - 7.3 Inches in 24 hours
Direct Runoff = 3.97 Inches
Peak Discharge = 15.5 C.F.S.
Volume of Runoff = 40351 C.F.

During Construction - CN =

2-year storm - 3.2 Inches in 24 hours
Direct Runoff = Inches
Peak Discharge = C.F.S.
Volume of Runoff = C.F.
Vr Increase = C.F. C.F. sediment

10-year storm - 5.0 Inches in 24 hours
Direct Runoff = Inches
Peak Discharge = C.F.S.
Volume of Runoff = C.F.
Vr Increase = C.F.

25-year storm - 5.7 Inches in 24 hours
Direct Runoff = Inches
Peak Discharge = C.F.S.
Volume of Runoff = C.F.
Vr Increase = C.F.

Alt "A"

Hoyson

AR-A = 2.80

During Construction (Cont'd)

50-year storm - 6.4 Inches in 24 hours
Direct Runoff = Inches
Peak Discharge = C.F.S.
Volume of Runoff = C.F.
Vr Increase = C.F.

100-year storm - 7.3 Inches in 24 hours
Direct Runoff = Inches
Peak Discharge = C.F.S.
Volume of Runoff = C.F.
Vr Increase = C.F.

After Construction - CN = 76

2-year storm - 3.2 Inches in 24 hours
Direct Runoff = 1.15 Inches
Peak Discharge = 4.8 C.F.S.
Volume of Runoff = 11589 C.F.
Vr Increase = 2745 C.F.

4.2

10-year storm - 5.0 Inches in 24 hours
Direct Runoff = 2.54 Inches
Peak Discharge = 10.7 C.F.S.
Volume of Runoff = 25817 C.F.
Vr Increase = 4371 C.F.

25-year storm - 5.7 Inches in 24 hours
Direct Runoff = 3.12 Inches
Peak Discharge = 13.1 C.F.S.
Volume of Runoff = 31,712 C.F.
Vr Increase = 4676 C.F.

50-year storm - 6.4 Inches in 24 hours
Direct Runoff = 3.73 Inches
Peak Discharge = 15.7 C.F.S.
Volume of Runoff = 37911 C.F.
Vr Increase = 5184 C.F.

100-year storm - 7.3 Inches in 24 hours
Direct Runoff = 4.53 Inches
Peak Discharge = 19.0 C.F.S.
Volume of Runoff = 46043 C.F.
Vr Increase = 5692 C.F.

Job No _____ — CALCULATIONS — Sheet ___ of ___

Area AREA "B" SOIL & WATER MANAGEMENT

Project _____ Type DRAINAGE Date 1-24-84 25 yr Rainfall 190 Yr Prog 7.3 Inch

Size of Drainage Area 4.0 Ac Av. Slope of Watershed C 9% Slope Factor – (Flat Moderate) Steep

BEFORE DEVELOPMENT

Soil Name	Hydro Soil Group	Land Use	Condition	Soil Cover No.	Area-Acres	Comp. No. x Acres
Bp RcB2 MeB	C	Meadow	Good	71	4.0	284

Weighted Soil Complex No. Total Comp. No. / Total Area = 284 / 4.0 = 71

Direct Runoff Q = ____ Inches

Peak Discharge q = ____ cfs

DURING DEVELOPMENT

Soil Name	Hydro Soil Group	Land Use	Condition	Soil Cover No.	Area-Acres	Comp. No. x Acres

Weighted Soil Complex No. Total Comp. No. / Total Area = ____ = ____

Direct Runoff Q = ____ Inches

Peak Discharge q = ____ cfs

Storage Req. During Const. (–) x x 43,560 / 12 = ____ cf

TOTAL = ____ C.F.

AFTER DEVELOPMENT – 73

Soil Name	Hydro Soil Group	Land Use	Condition	Soil Cover No.	Area-Acres	Comp. No. x Acres
Soil	FC	ROAD DRIVE	COMPLETE	98	0.20	19.6
Plan	C	LAWN	VEG EST	74	0.44	32.6
	C	MEADOW	GOOD	71	3.36	238.6
					4.00	290.8

Weighted Soil Complex No. Total Comp. No. 290.8 / Total Area 4.00 = (72.7) 73

Direct Runoff Q = ____ Inches

Peak Discharge q = ____ cfs

Storage Req. After Const. (–) x x 43,560 / 12 = ____ cf

TOTAL = ____ C.F.

REMARKS:

TOWNSHIP OF MONTGOMERY
MONTGOMERY COUNTY

AREA "B"

Pertinent Data - Watershed Calculations

Before Construction - CN = 71

AREA = 40 Ac.

2-year storm - 3.2 Inches in 24 hours
Direct Runoff = 0.88 Inches
Peak Discharge = 4.8 C.F.S.
Volume of Runoff = 12,778 C.F.

10-year storm - 5.0 Inches in 24 hours
Direct Runoff = 2.11 Inches
Peak Discharge = 11.4 C.F.S.
Volume of Runoff = 30637 C.F.

25-year storm - 5.7 Inches in 24 hours
Direct Runoff = 2.66 Inches
Peak Discharge = 14.4 C.F.S.
Volume of Runoff = 38,623 C.F.

50-year storm - 6.4 Inches in 24 hours
Direct Runoff = 3.22 Inches
Peak Discharge = 17.4 C.F.S.
Volume of Runoff = 46754 C.F.

100-year storm - 7.3 Inches in 24 hours
Direct Runoff = 3.97 Inches
Peak Discharge = 21.4 C.F.S.
Volume of Runoff = 57,644 C.F.

During Construction - CN =

2-year storm - 3.2 Inches in 24 hours
Direct Runoff = Inches
Peak Discharge = C.F.S.
Volume of Runoff = C.F.
Vr Increase = C.F. C.F. sediment

10-year storm - 5.0 Inches in 24 hours
Direct Runoff = Inches
Peak Discharge = C.F.S.
Volume of Runoff = C.F.
Vr Increase = C.F.

25-year storm - 5.7 Inches in 24 hours
Direct Runoff = Inches
Peak Discharge = C.F.S.
Volume of Runoff = C.F.
Vr Increase = C.F.

AREA B

46.4.07

AREA = 4C

During Construction (Cont'd)

50-year storm - 6.9 Inches in 24 hours
Direct Runoff = Inches
Peak Discharge = C.F.S.
Volume of Runoff = C.F.
Vr Increase = C.F.

100-year storm - 7.3 Inches in 24 hours
Direct Runoff = Inches
Peak Discharge = C.F.S.
Volume of Runoff = C.F.
Vr Increase = C.F.

After Construction - CN = 73

2-year storm - 3.2 Inches in 24 hours
Direct Runoff = 0.98 Inches
Peak Discharge = 5.4 C.F.S.
Volume of Runoff = 14230 C.F.
Vr Increase = 1452 C.F.

10-year storm - 5.0 Inches in 24 hours
Direct Runoff = 2.28 Inches
Peak Discharge = 12.5 C.F.S.
Volume of Runoff = 33106 C.F.
Vr Increase = 2469 C.F.

25-year storm - 5.7 Inches in 24 hours
Direct Runoff = 2.84 Inches
Peak Discharge = 15.6 C.F.S.
Volume of Runoff = 41237 C.F.
Vr Increase = 2614 C.F.

50-year storm - 6.4 Inches in 24 hours
Direct Runoff = 3.43 Inches
Peak Discharge = 18.9 C.F.S.
Volume of Runoff = 49804 C.F.
Vr Increase = 3049 C.F.

100-year storm - 7.3 Inches in 24 hours
Direct Runoff = 4.20 Inches
Peak Discharge = 23.1 C.F.S.
Volume of Runoff = 60984 C.F.
Vr Increase = 3348 C.F.

CALCULATIONS — SOIL & WATER MANAGEMENT

Job C-74527L Project SUBDIVISION Town LAWRENCEVILLE Date 1-24-84 24 Hr Rainfall 10.2 Yr Freq 7.3

Size of Drainage Area 9.29 Ac. Av. Slope of Watershed 6% Slope Factor – (Flat/Moderate)

BEFORE DEVELOPMENT — 71

Soil Name	Hydro Soil Group	Land Use	Condition	Soil Cover No.	Area-Acres	Comp. No. x Ac.
See	C	Meadow	Good	71	7.70	546.7
	C	Woods	Good	70	1.30	91.
Plan	C	Meadow	Good	71	0.29	20.6
					9.29	658.3

Weighted Soil Complex No. Total Comp. No. / Total Area = 658.3 / 9.29 = (10.8) 71

Direct Runoff Q = ____ In

Peak Discharge q =

DURING DEVELOPMENT

Soil Name	Hydro Soil Group	Land Use	Condition	Soil Cover No.	Area-Acres	Comp. No. x Ac.

Weighted Soil Complex No. Total Comp. No. / Total Area = ____ = ____

Direct Runoff Q = ____ Inches

Storage Req. During Const. = (–) x ____ x 43,560 / 12 = ____ C.F.

Peak Discharge q = ____ C.F.

TOTAL = ____ C.F.

AFTER DEVELOPMENT — 77

Soil Name	Hydro Soil Group	Land Use	Condition	Soil Cover No.	Area-Acres	Comp. No. x Acres
See	C	Roof, Drive & Road	Complete	98	1.82	178.36
	C	Lawns	Veg. Est.	74	2.38	176.12
Plan	C	Meadow	Good	71	5.09	361.39
					9.29	715.87

Weighted Soil Complex No. Total Comp. No. / Total Area = 715.87 / 9.29 = 77.0

Direct Runoff Q = ____ Inches

Storage Req. After Const. (–) x ____ x 43,560 / 12 = ____ C.F.

Peak Discharge q = ____ C.F.

TOTAL = ____ C.F.

REMARKS:

AREA "C"

TOWNSHIP TO MONTGOMERY COUNTY

HEYSETT

AREA = 9.29

Pertinent Data - Watershed Calculations

Before Construction - CN - 71

2-year storm - 3.2 Inches in 24 hours
Direct Runoff - 0.88 Inches
Peak Discharge - 8.8 C.F.S.
Volume of Runoff - 29676 C.F.

10-year storm - 5.0 Inches in 24 hours
Direct Runoff - 2.11 Inches
Peak Discharge - 21.1 C.F.S.
Volume of Runoff - 71154 C.F.

25-year storm - 5.7 Inches in 24 hours
Direct Runoff - 2.66 Inches
Peak Discharge - 26.6 C.F.S.
Volume of Runoff - 89702 C.F.

50-year storm - 6.4 Inches in 24 hours
Direct Runoff - 3.22 Inches
Peak Discharge - 32.2 C.F.S.
Volume of Runoff - 108587 C.F.

100-year storm - 7.3 Inches in 24 hours
Direct Runoff - 3.97 Inches
Peak Discharge - 39.7 C.F.S.
Volume of Runoff - 133879 C.F.

22

During Construction - CN -

2-year storm - 3.2 Inches in 24 hours
Direct Runoff - Inches
Peak Discharge - C.F.S.
Volume of Runoff - C.F.
Vr Increase - C.F.

C.F. sediment

10-year storm - 5.0 Inches in 24 hours
Direct Runoff - Inches
Peak Discharge - C.F.S.
Volume of Runoff - C.F.
Vr Increase - C.F.

25-year storm - 5.7 Inches in 24 hours
Direct Runoff - Inches
Peak Discharge - C.F.S.
Volume of Runoff - C.F.
Vr Increase - C.F.

(11 Acres)

During Construction (Cont'd)

50-year storm - 6.9 Inches in 24 hours
Direct Runoff = Inches
Peak Discharge = C.F.S.
Volume of Runoff = C.F.
Vr Increase = C.F.

100-year storm - 7.3 Inches in 24 hours
Direct Runoff = Inches
Peak Discharge = C.F.S.
Volume of Runoff = C.F.
Vr Increase = C.F.

After Construction - CN = 77

2-year storm - 3.2 Inches in 24 hours
Direct Runoff = 1.21 Inches.
Peak Discharge = 12.3 C.F.S.
Volume of Runoff = 40864 C.F.
Vr Increase = 11128 C.F.

10-year storm - 5.0 Inches in 24 hours
Direct Runoff = 2.62 Inches
Peak Discharge = 26.7 C.F.S.
Volume of Runoff = 88353 C.F.
Vr Increase = 17199 C.F.

25-year storm - 5.7 Inches in 24 hours
Direct Runoff = 3.22 Inches
Peak Discharge = 32.8 C.F.S.
Volume of Runoff = 108587 C.F.
Vr Increase = 18885 C.F.

50-year storm - 6.4 Inches in 24 hours
Direct Runoff = 3.85 Inches
Peak Discharge = 39.3 C.F.S.
Volume of Runoff = 129832 C.F.
Vr Increase = 21245 C.F.

100-year storm - 7.3 Inches in 24 hours
Direct Runoff = 4.63 Inches
Peak Discharge = 47.2 C.F.S.
Volume of Runoff = 154136 C.F.
Vr Increase = 22257 C.F.

DESIGN STORM 50 YEAR
DRAINAGE AREA 8.80 ACRES
RUNOFF COEFFICIENT = .40 CA = 3.52
TIME OF CONCENTRATION = 12.00 MINUTES
PEAK OUTFLOW FROM BASIN = 9.00

DURATION	INTENSITY	STORAGE VOLUME (cf)
5	8.30	4175
10	7.00	8844
15	5.95	[illegible]
20	5.15	[illegible]
25	4.60	[illegible]
30	4.15	[illegible]
35	3.80	15400
40	3.50	15528 STORAGE REQUIRED
45	3.15	[illegible]
50	[illegible]	[illegible]
55	[illegible]	[illegible]
60	2.60	[illegible]
90	1.90	8575
120	1.55	3643

PEAK OUT FLOW (10 YR)

TOTAL TRACT BEFORE CONST. 32.2 CFS
AREA "A" AFTER CONST. = 10.7 CFS
AREA "B" AFTER CONST. = 12.5 CFS

AREA 'C' ... BASIN AREA OUTFALL ALLOWED 9 CFS

BASIN CAPACITY 407

ELEV	SF	CF	CF VOL
215.0	25		
		462	
216.0	900		462
		1700	
217.0	2501		2162
		3301	
218.0	4102		5463
		4902	
219.0	5703		10365
		6504	
220.0	7305		16,869

50YR STORM WL 219.80 USE 220.00 Q_o = 9 CFS

$\frac{5}{1} = 5$ = 9 C.F.S 12" CMP BARREL

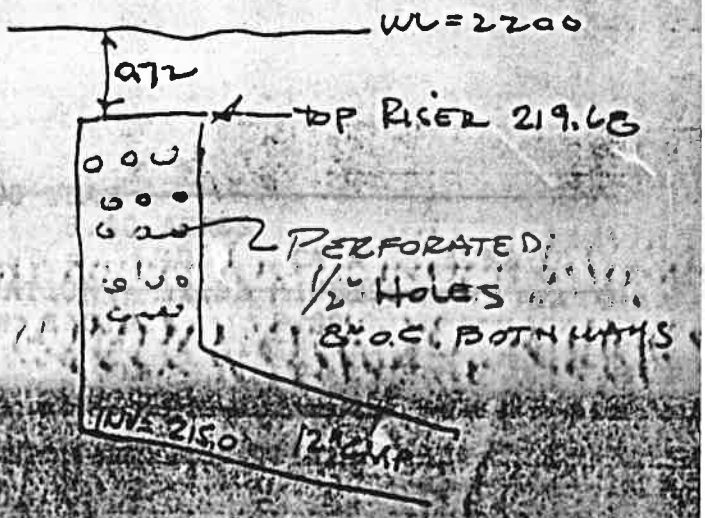
RISER

18' CMP WL = 220.00

$Q = 3.1 \times L \times H^{3/2}$

$Q = 3.1 \times 4.712 \times (.72)^{3/2}$

$Q = 8.92$ CFS

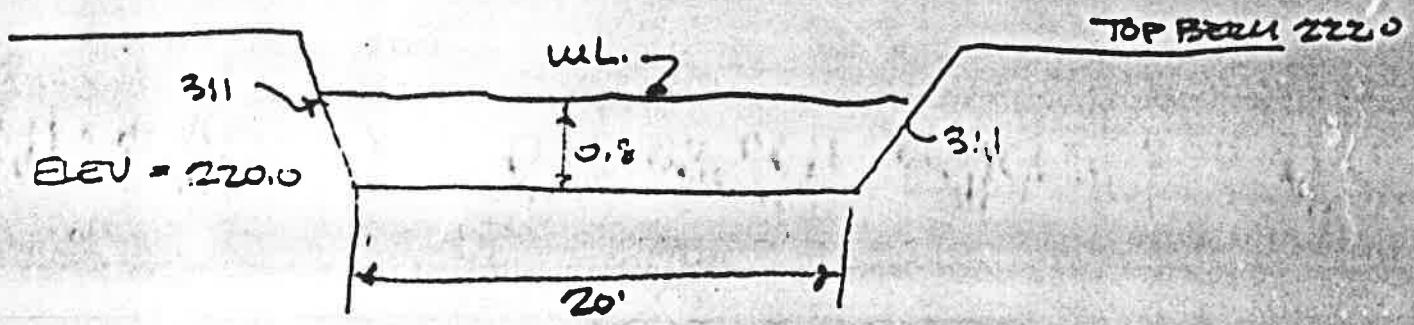


$Q = 3.367 \times 20 \times (1.80)^{3/2}$

$Q = 48.2$ CFS.

WOSH 407

Q = 47.2 CFS EMERGENCY OVERFLOW (SPILLWAY)



$Q = 3.367 \times 20 \times (1.80)^{3/2}$

$Q = 48.2$ CFS.

TYPICAL INLET RISER

(NO SCALE)

NOTES:

1. INLET RISERS TO BE PLACED ON INLETS AS INDICATED ON PLANS.
2. ACCUMULATION OF SILT AROUND RISER TO BE REMOVED PERIODICALLY AS NEEDED.
3. INLET RISERS CAN BE REMOVED AFTER DISTURBED AREAS ARE FINALLY STABILIZED.

TYPICAL INLET RISER

(NO SCALE)

NOTES:

1. INLET RISERS TO BE PLACED ON INLETS AS INDICATED ON PLANS.
2. ACCUMULATION OF SILT AROUND RISER TO BE REMOVED PERIODICALLY AS NEEDED.
3. INLET RISERS CAN BE REMOVED AFTER DISTURBED AREAS ARE FINALLY STABI

HOPKINS & SCOTT, INC.
REGISTERED SURVEYORS
KIMBERTON & PRIZER ROADS
KIMBERTON, PA 19442

PROJECT: WM. HEMSER SUBDIVISION

OUTLET CONTROL ANALYSIS

DESIGNER:

DATE: 2/

HYDROLOGIC AND CHANNEL INFORMATION

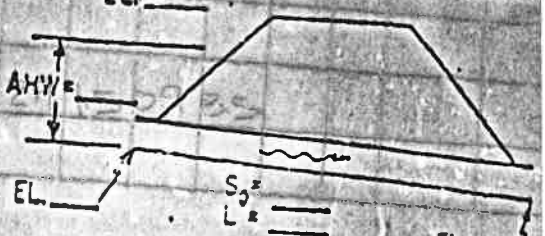
Q_1 = _____ TW_1 = _____

Q_2 = _____ TW_2 = _____

(Q_1 = DESIGN DISCHARGE, SAY Q_{25}
Q_2 = CHECK DISCHARGE, SAY Q_{50} OR Q_{100})

SKETCH

STATION:



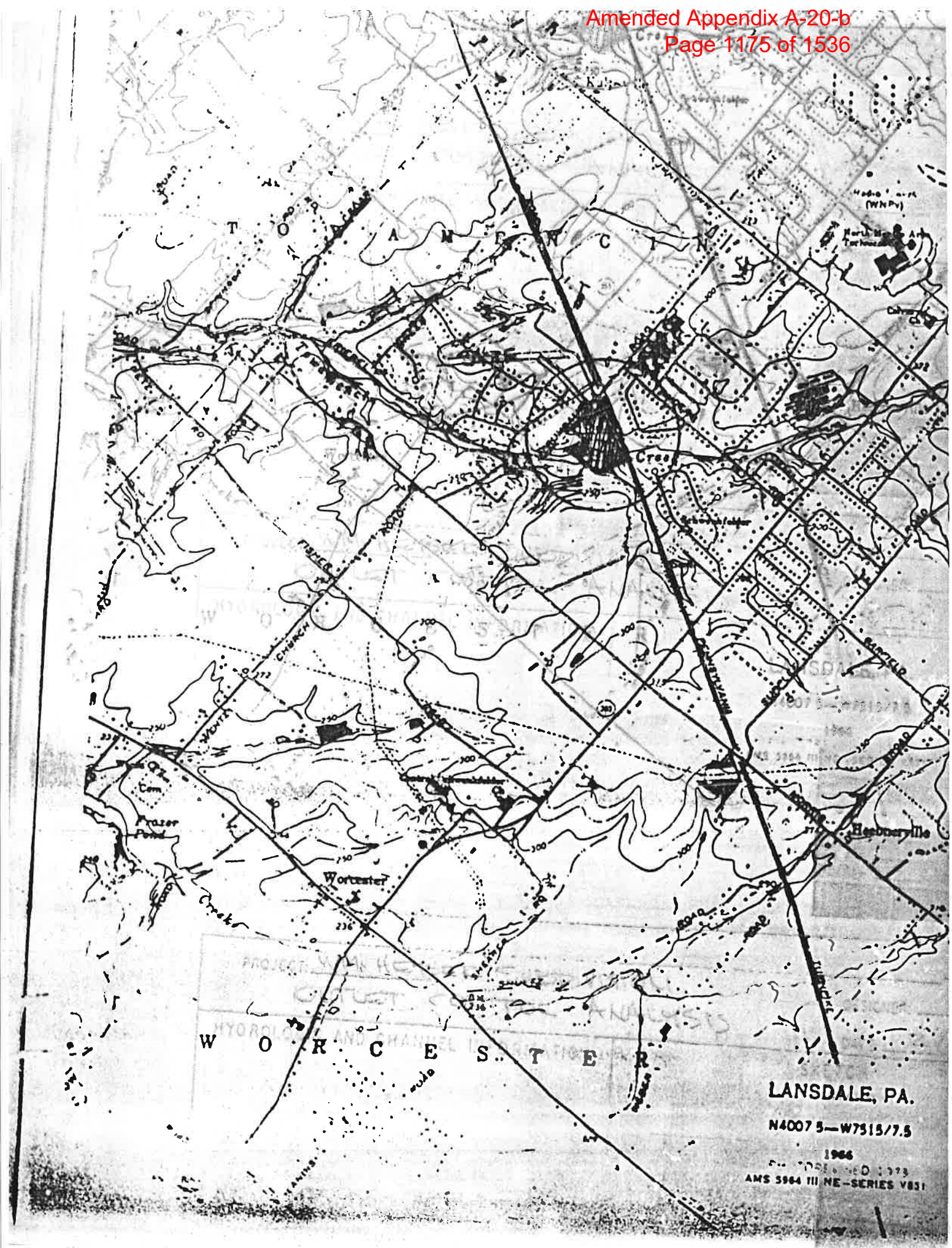
MEAN STREAM VELOCITY = _____

MAX. STREAM VELOCITY = _____

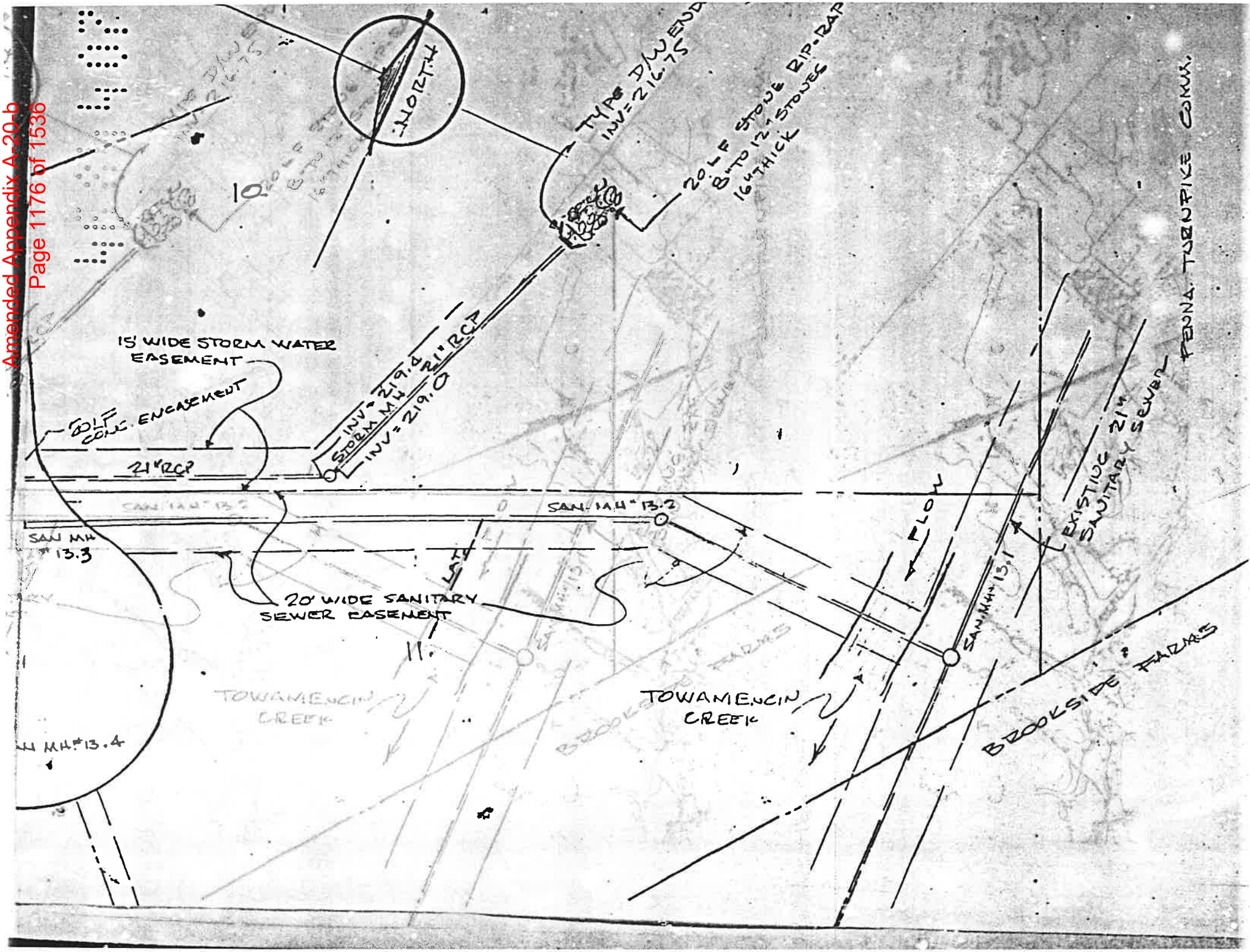
L	So	CULVERT DESCRIPTION (ENTRANCE TYPE)	Q	SIZE	HEADWATER COMPUTATION: INLET CONT. HW/D	INLET CONT. HW	OUTLET CONTROL HW=H+h_o−LS$_o$: K_e	H	d_c	$\frac{d_c+D}{2}$	TW	h_o	LS$_o$	HW	CONTROLLING HW	OUTLET VELOCITY	COST
38'	.053	RCCP n=0.012	2.6	15"			.5	—			—	—	2.0	—			
235'	.0394		8.7	15"			.5	4.7			2.3	4.7	9.3	—			
120'	.031		18.4	21"			.5	3.1			3.5	3.1	3.7	2.9			
125'	.018		18.4	21"			.5	3.1			3.25	3.1	2.25	4.1			
87'	.01	RCCP n=0.012	1.7	18"			.5	1.5			2.9	1.5	0.9	3.5			

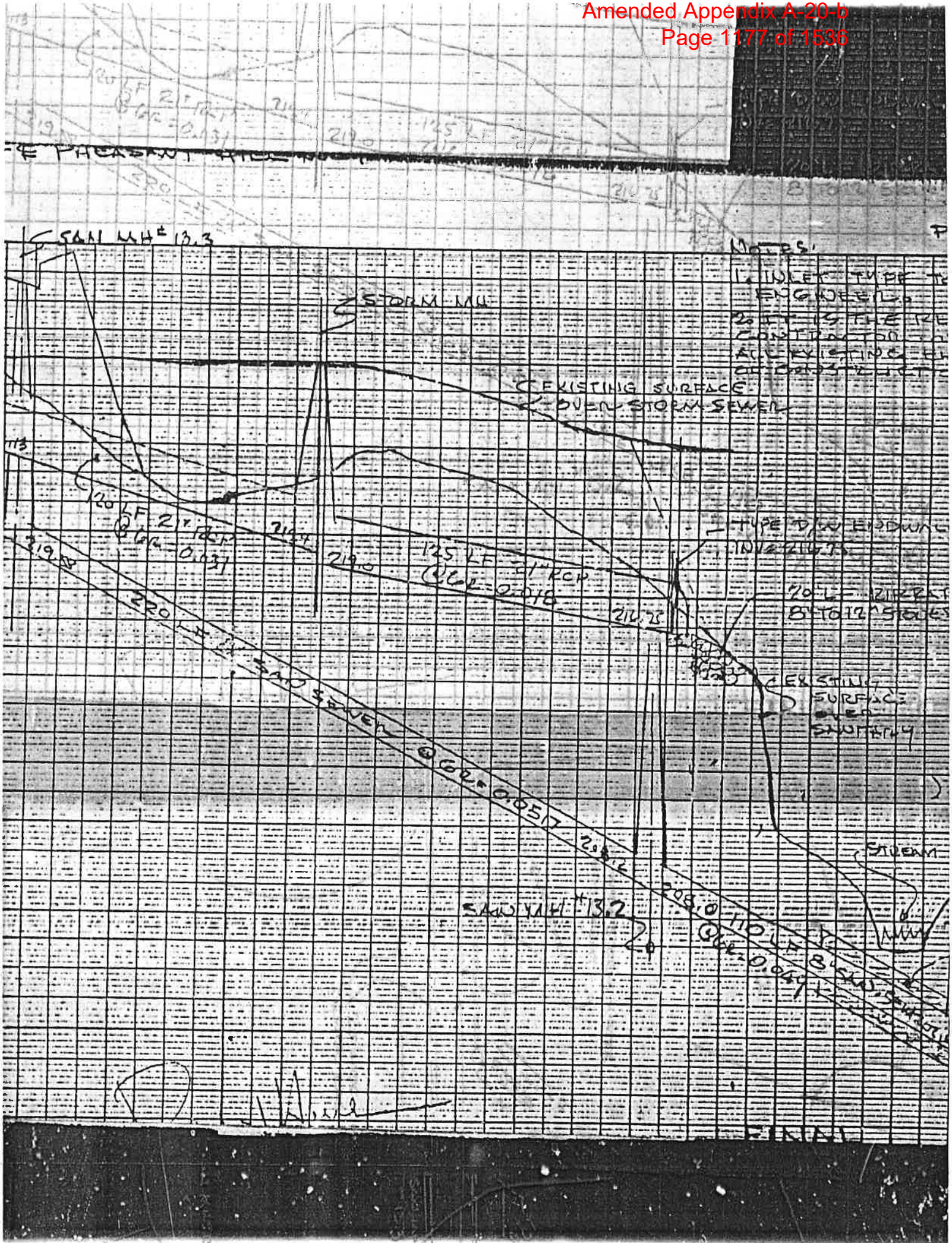
SUMMARY & RECOMMENDATIONS:

FOR 3" OVER INLET & 50 YR. STORM


T O W A M E N C I N
W O R C E S T E R
Worcester
Hatboro
LANSDALE, PA.
N4007 5—W7515/7.5
1966
AMS 5964 III NE—SERIES V831

Amended Appendix A-20-b
Page 1176 of 1536




SAN MH# 13.3
STORM MH
EXISTING SURFACE OVER STORM SEWER
125 LF 21" RCP @ Gr = 2.01%
219.0
214.2
220
SAN SEWER @ Gr = 0.057
208.0
SAN MH #13.2
EXISTING SURFACE OVER SHUTTING
STREAM
NOTES:
1. INLET TYPE
ENGINEERED
20 FT IS THE
CONSTRUCTION
AS EXISTING
OR DOES
TYPE
INV
20
BOTTOM
EXISTING
SURFACE
OVER
SHUTTING
STREAM
MMM
8" SAN. SEWER

PEIL ACT # 287

NOTES.

1. INLET TYPE TO BE SPECIFIED BY TWP. ENGINEER.
2. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL EXISTING ELEVATIONS BEFORE STARTING CONSTRUCTION.

EXISTING SURFACE OVER STORM SEWER

TYPE D/W ENDWALL
INV = 216.75

20° LE RIPRAP
8' TO 12" STONES 14" TH

EXISTING SURFACE OVER ENDWALL

STM. MH # 13.1
TOP = 220.00
WITH SEALED TOP

STORM

208.0 LIN. FT. 8" PVC @ 0.04% SLOPE

SITE FULL OF EMBANKMENT

EXISTING SANI SEWER

FINAL

ER-BWQ-265
rev 2/79

4684467

SEWERAGE PERMIT APPLICATION
DEPARTMENT OF ENVIRONMENTAL RESOURCES

APPLICANT NAME* Upper Gwynedd-Towamencin Municipal Authority, ADDRESS: 2225 Kriebel Road

CITY, ZIP Lansdale, Pa. 19446 TELEPHONE NUMBER: 215-855-8165

*Applicant shall be the agency which will own the sewerage facilities following completion of construction and/or dedication.

A filing fee check of $25.00 made out to Pennsylvania Department of Environmental Resources is required with the application.

PROJECT NAME: William Heyser Subdivision PROJECT ACREAGE: 15.840

MUNICIPALITY: Towamencin COUNTY: Montgomery

NOTE: Please attach a drawing which clearly shows the boundaries of the proposed service area, the properties to be served, the location of the sewerage facilities, the slopes of proposed sewers on the plan with inverts of manhole, point of connection to existing sewers, and all streets, streams or other important site features. Also include specifications for the facilities and an erosion an sedimentation control plan.

For any deviations from the Sewerage Manual, please note clearly and fully justify.

FOR THE APPLICANT

I hereby apply for approval on (Date) _____ to construct and operate [X] Sewers and appurtenances
[ ] Sewage pumping station(s) which [X] does [ ] does not include stream crossings(s).

For sewage pumping stations include detailed construction plans, Module 7 and an erosion and sedimentation control plan.

For stream crossing, include the plan and profile view of the sewer line crossing along with specific construction techniques including soil erosion and sedimentation control provisions.

Affidavit: I hereby certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and based on my inquiry of those individuals immediately responsible for obtaining the information I believe the submitted information is true, accurate and complete.

Applicant's Signature: Kenneth F Finger

Name and Title: Kenneth F Finger - Chairman

Address: 1591 Meadow Glen Dr. Lansdale PA

Sworn and subscribed to before me this 20th day of March, 1984.

Notary's seal and signature Erica D Fox

Erica D Fox, Notary Public
Lower Providence Twp., Montgomery County
My Commission Expires Feb. 8, 1988
Member Pennsylvania Association of Notaries

FOR THE DESIGN ENGINEER

Affidavit: I, John A. Scott, do hereby certify that the information contained in the accompanying plans, specifications, and reports has been prepared in accordance with accepted engineering practices, is true and correct, and is in conformance with the standards, guidelines and requirements of the Department of Environmental Resources.

Design Engineer's Seal and Signature: John A. Scott

JOHN A. SCOTT
No. 16579-E
REGISTERED PROFESSIONAL ENGINEER
COMMONWEALTH OF PENNSYLVANIA

Name of Engineering Firm: Hopkins & Scott, Engr.

Address, Zip Kimberton & Prizer Roads Box 244
Kimberton, Pa. 19442 Telephone No.: 215-933-1754

RECEIVED
MAR 20 1984
ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

H710.047 REV. 5-71

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
SANITARY ENGINEERING

For Department Use Only

INTERNAL REVIEW AND RECOMMENDATIONS

REGIONAL ENGINEER'S REVIEW

NAME OF APPLICANT: Upper Gwynedd-Towamencin Municipal Authority
PROJECT LOCATION: Towamencin Township, Montgomery County
APPLICATION NUMBER: 4684407

BRIEF DESCRIPTION OF PROJECT: The Applicant requests approval for the construction of a sanitary sewer extension to serve the William Heyser Subdivision located in Towamencin Township, Montgomery County.

Mark A. Tiger — REVIEWING ENGINEER — 4/27/84

Richard L. Hurtle — FACILITIES ENGINEER — 5/1/84

DISCUSSION (Use Additional Sheets If Necessary):

Sewage from the proposed sewer extension will be conveyed to the Upper Gwynedd-Towamencin Municipal Authority STP via existing Upper Gwynedd-Towamencin Municipal Authority sewers covered under Permit No. 7655013. The sewage will be afforded secondary treatment before discharge to the Towamencin Creek. The proposed sewer extension will serve 56 people initially and 56 ultimately. The soil erosion and sedimentation control plan has been reviewed and approved by the Montgomery County Conservation District.

Details of streamcrossing sent to Fish Commission on 3/23/84 and no comments received after one month.

CURRENT ESTIMATE OF COMPLETION DATE OF PROJECT (Industrial Wastes Only)

RECOMMENDATION AND ACTION

APPROVAL – RELEVANT LAWS, REGULATIONS, STANDARDS, AND POLICIES HAVE BEEN COMPLIED WITH:

Issue By Region	Issue By Central Office	Refuse	Signature	Date
☑	☐	☐	Mark A. Tiger — REVIEWING ENGINEER	4/27/84
☒	☐	☐	Richard L. Hurtle — FACILITIES ENGINEER	5/1/84
☒	☐	☐	Joseph A. Feola — REGIONAL ENGINEER	5/1/84
	☐	☐	DIV. FACILITIES ENGINEER	
	☐	☐	DIVISION DIRECTOR	
		☐	BUREAU DIRECTOR	

PERMIT CONDITIONS:
1. STANDARD –

Erosion Control (1973) – 1 thru 4, 6 thru 20
Sewerage (9/2/83) 1-7, 9, 13-14, 16, 20-22

2. SPECIAL (Use Additional Sheets If Necessary) –

Recording of Permit: Montgomery County

5.4

ER-BWQ-15-Rev. 4/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT

NO. 4684407

A. PERMITTEE (Name and Address)
Upper Gwynedd-Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

B. PROJECT LOCATION
Municipality: Towamencin Township
County: Montgomery

C. TYPE OF FACILITY (For Industrial wastes: type of establishment)
Sanitary Sewer Extension

D. NAME OF MINE, PLANT, AREA SERVED, OUTFALL NO., ETC.
William Heyser Subdivision

E. THIS PERMIT APPROVES:

1. Plans For Construction Of:
a. [X] Pipe, Stations, Sewers and Appurtenances
b. [ ] Sewage Treatment Facilities
c. [ ] Industrial Wastes Treatment Facilities
d. [ ] Mine Drainage Treatment Facilities
e. [ ] Outfall & Headwall
f. [X] Stream Crossing
g. [ ] Impoundment
Floodplain Encroachment and

2. The Discharge Of: N/A
a. [ ] Treated
b. [ ] Untreated
c. [ ] Sewage
d. [ ] Industrial Wastes

3. Discharge To: N/A
a. [ ] Surface Water
b. [ ] Ground Water
Name of Stream to which discharged or drainage area in which groundwater discharge takes place or Impoundment is located.

4. The Operation of a Mine [ ]
Maximum Area to be Deep Mined ____ Acres

5. An Erosion and Sedimentation Control Plan [X]
Project Area is 15.8 Acres

F. THIS APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:

1. ALL CONSTRUCTION, OPERATIONS, PROCEDURES AND DISCHARGE SHALL BE IN ACCORDANCE WITH APPLICATION NO. 1584403 DATED 3/25/84 AND AMENDMENTS DATED ____ ITS SUPPORTING DOCUMENTATION, AMENDMENTS ARE HEREBY MADE A PART OF THIS PERMIT. SUCH APPLICATION, ITS SUPPORTING DOCUMENTATION AND

2. CONDITIONS NUMBERED 1 thru 7, 9, 13, 14, 16, 20 thru 22 THE Sewerage STANDARD CONDITIONS DATED 09/02/83 OF AND CONDITIONS NUMBERED 1 thru 4, 6 thru 20 EROSION CONTROL STANDARD CONDITIONS DATED 1973 OF THE WHICH CONDITIONS ARE ATTACHED AND MADE PART OF THIS PERMIT.

3. SPECIAL CONDITIONS DESIGNATED I WHICH ARE ATTACHED AND ARE MADE A PART OF THIS PERMIT.

This permit must be recorded in the Recorder of Deeds Office in Montgomery County.

G. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. IF THERE IS A CONFLICT BETWEEN THE APPLICATION ON ITS SUPPORTING DOCUMENTS AND AMENDMENTS AND THE STANDARD OR SPECIAL CONDITIONS, THE STANDARD OR SPECIAL CONDITIONS SHALL APPLY.

2. FAILURE TO COMPLY WITH THE RULES AND REGULATIONS OF THE DEPARTMENT OR WITH THE TERMS OR CONDITIONS OF THIS PERMIT SHALL VOID THE AUTHORITY GIVEN TO THE PERMITTEE BY THE ISSUANCE OF THE PERMIT.

3. THIS PERMIT IS ISSUED PURSUANT TO THE CLEAN STREAMS LAW, ACT OF JUNE 22, 1937, P.L. 1987 AS AMENDED 35 P.S. § 691.1 ET SEQ. AND/OR THE WATER OBSTRUCTION ACT, ACT OF JUNE 25, 1913, P.L. 555 AS AMENDED 32 P.S. § 681 ET SEQ. ISSUANCE OF THIS PERMIT SHALL NOT RELIEVE THE PERMITTEE OF ANY RESPONSIBILITY UNDER ANY OTHER LAW

PERMIT ISSUED
DATE JUN 08 1984

DEPARTMENT OF ENVIRONMENTAL RESOURCES
BY Joseph A. Feola
Joseph A. Feola
TITLE Regional Water Quality Manager

F525.1

Sewerage Permit No. 4684407
Upper Gwynedd-Towamencin Municipal Authority
Towamencin Township, Montgomery County

This permit is subject to the following Special Condition(s):

I The stream bed shall not be used as a roadway for moving machinery from one site to another. Temporary stream crossings must be provided for equipment that must cross the stream during construction. Any structures are to be removed and the stream bed returned to its original condition when the project is completed.

Siltation control shall be provided for during construction and bank stabilization shall be undertaken by planting of grasses, shrubbery, or trees immediately after completion of each phase of the project.

When channel changes occur, the stream bed shall not exceed the original width and if a greater cross sectional area is required, an elevated flood plain must be put into use.

All material and debris removed from the stream bed shall be moved entirely out of the flood plain area.

A permit must be secured from the Pennsylvania Fish Commission in Harrisburg, if the use of explosives is required. The following P.F.C. Waterways Patrolman must be notified when the project is started, when explosives are to be used, and when the project is completed for final inspection:

Guy Bowersox
1198 Old Evansburg Road
R.D. 1
Collegeville, PA 19426
Telephone (215) 584-0255

E525.3

WATER QUALITY MANAGEMENT PERMIT

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
Norristown, PA 19401
215 270-1975

June 8, 1984

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: Mr. Kenneth F. Finger
Chairman

Re: Sewerage Permit No. 4684407
William Heyser Subdivision
Towamencin Township, Montgomery County

Gentlemen:

Referenced permit is enclosed.

Please study the permit carefully and direct any questions to the Permits Section of this office.

To become operative this permit must be recorded in the Office of the Recorder of Deeds in the county in which the discharge is located. Enclosed is a certificate and pre-addressed envelope for this purpose. Please have the Recorder of Deeds accomplish the certificate and return it within ten (10) days.

Very truly yours,

Joseph A. Feola

JOSEPH A. FEOLA
Regional Water Quality Manager

JAF:MT:he

Enclosures: Permit
Standard Conditions Relating to Sewerage
Standard Conditions Relating to Erosion Control
Recorder of Deeds Certificate
Notary Public Certificate

cc: John A. Scott, P.E.
Permits & Compliance
Re 30 E525

ER-BWQ-69 Rev. 1/78

STATE OF PENNSYLVANIA
COUNTY OF MONTGOMERY > SS

On the eighth day of June in the year one thousand nine hundred and eighty four before me, the Subscriber, a Notary Public, came the above named

Joseph A. Feola

and duly acknowledged the foregoing permit to be his act and deed and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year aforesaid.

Teresa L. Riegel
NOTARY PUBLIC

TERESA L. RIEGEL, Notary Public
Norristown Boro, Montgomery Co.
My Commission Expires Oct. 1, 1984

ER-BWQ-68 Rev. 4-73

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Permit No. 4684407

Towamencin Township
Montgomery County

Commonwealth of Pennsylvania
Department of Environmental Resources

RECORDER OF DEEDS CERTIFICATE

I hereby certify that on . . . . . .
(Date)

there was recorded in Book . . . . . .

page . . . . . the sewerage permit issued

to . . . . . .

bearing date of . . . . . .

. . . . . .
Recorder of Deeds for

. . . . . County

Re: Application No.
Towamencin Township
Montgomery County

Gentlemen:

This will acknowledge receipt of your application on March 20, 1984 for approval to construct a sanitary sewer extension to serve the William Heyser Subdivision located in Towamencin Township.

The material submitted is accepted for technical review by the staff of the Department.

In addition to the above, the rip rap outfall for the retention basin requires an encroachment permit since it is located within the 100 year floodway of Towamencin creek. Also, a dam safety permit may be required for the storm water retention basin if the contributory drainage area into this basin exceeds 100 acres.

All applications must be submitted as soon as possible so that they can be processed concurrently. No permits will be issued until processing is completed on all required applications. The permits will be issued simultaneously from this office.

Please contact Edward Bender, Hydraulic Engineer, 270-1936, if you have any questions concerning the Dams and Waterway Management requirements.

You are reminded that any proposed facilities cannot be constructed without first obtaining the required permits.

Department of Environmental Resources
1875 New Hope Street
Norristown, PA 19401
215 270-1923

March 27, 1984

Upper Gwynedd Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: Kenneth F. Finger
Chairman

Re: Application No. 4684407
Towamencin Township
Montgomery County

Gentlemen:

This will acknowledge receipt of your application on March 20, 1984 for approval to construct a sanitary sewer extension to serve the William Heyser Subdivision located in Towamencin Township, Montgomery County.

The material submitted is accepted for technical review by the staff of the Department.

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Please contact Edward Bender, Hydraulic Engineer, 270-1936, if you have any questions concerning the Dams and Waterway Management requirements.

You are reminded that any proposed facilities cannot be constructed without first obtaining the required permits.

Very truly yours,

LEON T. GONSHOR
Regional Director

cc: Water Quality Management
Towamencin Township
Hopkins and Scott, Inc.
Dams and Waterway Management
Re IW 87

ER-21-1: Rev. 8/82

FORM NO. 4580-FM-BWM0007

SUBJECT: Upper Gwynedd Township - Mega Auth - CONTACT(S): Kenneth Finger

2225 Kriebel Rd. Lansdale PA 19446 855-8165

Application Nos.:

New Proposal	✓
Revised Proposal	

From: Regional Director, PERMIT SECTION, Bureau of Dams and Waterway Management

RICH HINKLE — John A. Hall 783-1754

On 3-20-84, we (accepted/~~received~~) an application for plan approval and/or permit to (construct/~~modify~~/~~install~~) a S.S. ext. to serve the William Keyser subdivision located in Upper Gwynedd Twp Montgomery County

~~This proposal involves~~: U. Gwynedd Township STP

Permit Coordination Requirements: DWM

Program (DATE 3-27-84)	No Permit Required	No Permit Required Prior Approval Required	Permit Required Application on Hand	Permit Required Application Needed
Air Quality	✓			
Water Quality ~~537 OK~~ 3/29	✓		* REK 3/21/84	
Solid Waste Management	✓			
Community Env. Control	✓			
Mining & Reclamation				
Radiation Protection				
Dams & Waterway Management				VELR 3-26-84

Please indicate your interest on this form and return to the Regional Director by 3-28-84. Failure to return the form by the indicated date will indicate that your program has no interest in the project.

* No issue Jake in BDWM review placement of [illegible] from S[illegible]

ER-EP-1: Rev. 8/82

FORM NO. 1 WQM adm PAT File:

SUBJECT: William Heyser
400 North Park Avenue
Norristown, PA 19401

CONTACT(S): 215/539-6090

Application Nos.: E 46-179

New Proposal	
Revised Proposal	

TO: Regional Director
Norristown

FROM: PERMIT SECTION
Bureau of Dams and Waterway Management

5-10-84

On April 16, 1984, we (accepted/received) an application for plan approval and/or permit to (construct/modify/install)

5/2/84

This proposal involves: To place fill for the detention basin embankment along the right bank of Towamencin Creek in Towamencia Township, Montgomery County.

Note: Coordination Req'd, however, No separate acknowledgment letter will be sent.

Permit Coordination Requirements: WQM 4684407 - Lowered - Towamencin auth

Program	No Permit Required	No Permit Required Prior Approval Required	Permit Required Application on Hand	Permit Required Application Needed
5-10-84				
Air Quality	✓			
Water Quality	✓		✓ RH 5/1,	
Solid Waste Management	✓			
Community Env. Control	✓			
Mining & Reclamation				
Radiation Protection				
Dams & Waterway Management			4-30	

Please indicate your interest on this form and return to the Regional Director by 5-7-84. Failure to return the form by the indicated date will indicate that your program has no interest in the project.

ER-EP-21: 10/86

START

DEPARTMENT OF ENVIRONMENTAL RESOURCES

ENVIRONMENTAL PROTECTION

BUREAU/PROGRAM Water Quality Management

DIVISION

COUNTY/MUNICIPALITY 46949

PROGRAM

START

CASE NAME Upper Gwynedd Towamencin Municipal Authority

FILE

BUREAU/PROGRAM Water Quality Management

DIVISION

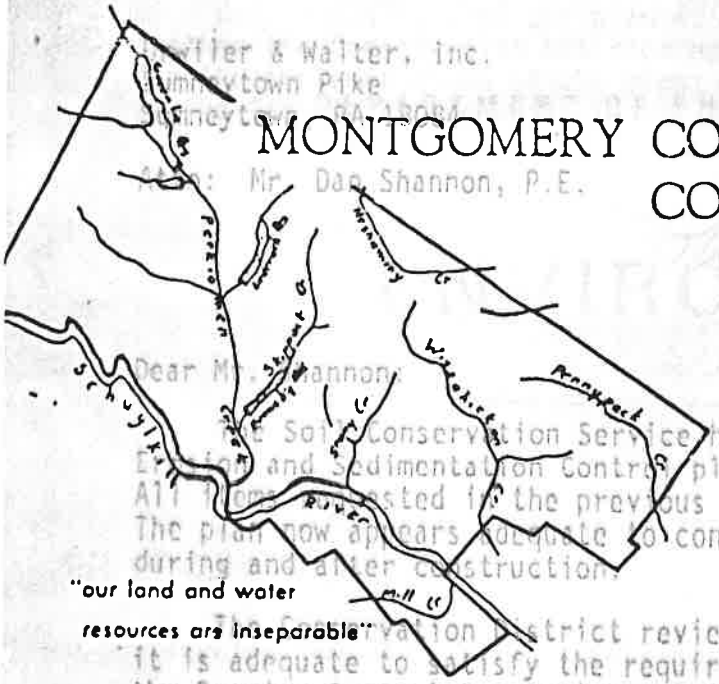
COUNTY/MUNICIPALITY 46949

PROGRAM Sew

CASE NAME Upper Gwynedd Towamencin Municipal Authority

FILE

PERMIT NO. 4685410 Tennisbey



MONTGOMERY COUNTY CONSERVATION DISTRICT

4th Floor — One Montgomery Plaza
Court House, Norristown, PA 19404
Phone: 278-3618

June 12, 1984

Urwiler & Walter, Inc.
Sumneytown Pike
Sumneytown, PA 18084

Attn: Mr. Dan Shannon, P.E.

Re: Robert Koffel
Towamencin Township

Dear Mr. Shannon:

The Soil Conservation Service has reviewed the revised June 12, 1984 Erosion and Sedimentation Control plan for the above referenced project. All items requested in the previous review have been satisfactorily answered. The plan now appears adequate to control erosion and sediment production during and after construction.

The Conservation District reviews this plan solely to determine whether it is adequate to satisfy the requirements of 25 Pa. Code §§ 102.1 et seq., the Erosion Control Regulations of the Department of Environmental Resources. By a determination that the plan is adequate to meet those requirements, neither the Conservation District nor the County assumes any responsibility for the implementation of the plan, or the proper construction and operation of the facilities contained in the plan.

Sincerely,

Maynard A. King
Manager

cc: Towamencin Township Engineer

Department of Environmental Resources

1875 New Hope Street
Norristown, PA 19401
215 270-1975

June 18, 1984

Mr. Cecile M. Daniel, Municipal Secretary
Towamencin Township
Box 303
1655 Sumneytown Pike
Kulpsville, PA 19443

Re: Robert Koffell Project
Code No. 1-46949-037-4
Towamencin Township, Montgomery County

Dear Mr. Daniel:

Please be advised that a review has been made and completed of the above referenced Planning Module for Land Development regarding your municipality's Official Sewage Facilities Plan.

We find that the proposal is consistent with your Official Sewage Facilities Plan and that your plan is adequate.

This supplement provides for adequate Sewage Facilities planning to permit the development of 12 residential dwelling units on 16.3 acres located on the south side Keeler Road, 1/4 mile west of Allentown Road. The project will generate 6,600 gallons of sewage per day to be treated and disposed of at Upper Gwynedd-Towamencin Township Municipal Authority sewage treatment plant.

This planning approval does not relieve the project sponsor of the responsibility to secure a Department permit for the construction and operation of the proposed facility.

If you have any questions, please feel free to contact this office.

Very truly yours,

GLENN K. STRENGL, R.S.
Sewage Facilities Consultant

cc: Daniel J. Shannon
Robert Koffell
Upper Gwynedd-Towamencin Township Municipal Authority
Sewage Treatment Plant
Mary Strautins
Re 30 SW 170.5

URWILER & WALTER, INC.
Sumneytown Pike
SUMNEYTOWN, PENNSYLVANIA 18084
(215) 234-4562

LETTER OF TRANSMITTAL

DATE 9-14-84 JOB NO. 8412

ATTENTION

RE: ROBERT Koffel Subdivision
TOWAMENCIN TWP

UPPER GWYNEDD - TOWAMENCIN MUNICIPAL AUTHORITY

TO PA. DEPT OF ENVIRONMENTAL Resources
1875 NEW HOPE ST
NORRISTOWN PA 19401

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☒ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☒ APPLICATION & CHECK

COPIES	DATE	NO.	DESCRIPTION
1	9-12-84		APPLICATION & CHECK
1	6-18-84		DER PLANNING MODULE LETTER
1	6-4-84		SCS EROSION CONTROL LETTER
2	5-22-84		SETS OF DRAWINGS

THESE ARE TRANSMITTED as checked below:

☒ For approval ☐ Approved as submitted ☐ Resubmit ____ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit ____ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return ____ corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS DUE _____ 19 ____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS

GENTLEMEN:

ENCLOSED IS AN APPLICATION & PLANS FOR A SAN. SEWER EXTENSION TO SERVICE A PROPOSED RESIDENTIAL DEVELOPMENT KNOWN AS THE ROBERT KOFFEL SUBDIVISION. THE PROJECT WILL CONSIST OF 19 SINGLE FAMILY HOMES AND WILL CONNECT TO THE UPPER GWYNEDD - TOWAMENCIN AUTH. SYSTEM.

COPY TO ROBERT Koffel

SIGNED: DAN SHANNON

Highway Engineering
Structural and Foundation Design
Boundary Surveys
Traffic Engineering and Reports

Sewerage and Sewage Treatment
Municipal Engineering
Real Estate Developments
Topographic Surveys
Erosion and Sediment Control

URWILER AND WALTER, INCORPORATED
ENGINEERS AND SURVEYORS
SUMNEYTOWN PIKE
SUMNEYTOWN, PA. 18084
(215-234-4562)

Refer To File No.: 84170
84112

September 18, 1984

Ms. Cecile Daniel
Towamencin Township
P.O. Box 303
Kulpsville, PA 19443

Subject: H & L Development Company
Robert Koffel

Dear Ms. Daniels:

As per the requirement of the Pennsylvania Department of Environmental Resources, we are hereby notifying Towamencin Township that we have applied for the sanitary sewer extension permits to service the Robert Koffel subdivision and the H & L Development Company subdivision.

Very truly yours,

URWILER & WALTER, INC., by:

Daniel J. Shannon, P.E.

cc: Robert Koffel
H & L Development Company

DJS/ses

PA DEPT OF ENVIRONMENTAL Resources
1875 New Hope St
Norristown PA 19401

DATE 9-17-84 | 84112
ATTENTION
RE ROBERT KOFFEL SUBDIVISION
TOWAMENCIN TWP
UPPER GWYNEDD-TOWAMENCIN
MUNICIPAL AUTHORITY

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via

URWILER & WALTER, INC.
Sumneytown Pike
SUMNEYTOWN, PENNSYLVANIA 18084

LETTER OF TRANSMITTAL

PS Form 3811, July 1983

SENDER: Complete items 1, 2, 3 and 4.

Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for service(s) requested.

1. ☐ Show to whom, date and address of delivery.
2. ☐ Restricted Delivery.

3. Article Addressed to:
MS. CECILE DANIEL
TOWAMENCIN TOWNSHIP
P.O. BOX 303
KULPSVILLE, PA. 19443

4. Type of Service:
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail

Article Number
P381 392 035

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature – Addressee
X Cecile M. Daniel

6. Signature – Agent
X

7. Date of Delivery
KULPSVILLE PA 19 1984

8. Addressee's Address (ONLY if requested and fee paid)

DOMESTIC RETURN RECEIPT

PS Form 3811, July 1983

SENDER: Complete items 1, 2, 3 and 4.

Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for service(s) requested.

1. ☐ Show to whom, date and address of delivery.
2. ☐ Restricted Delivery.

3. Article Addressed to:
MS. CECILE DANIEL
TOWAMENCIN TOWNSHIP
P.O. BOX 303
KULPSVILLE, PA. 19443

4. Type of Service:
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail

Article Number
P381 392 035

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature – Addressee
X Cecile M. Daniel

6. Signature – Agent
X

7. Date of Delivery
KULPSVILLE PA 19 1984

8. Addressee's Address (ONLY if requested and fee paid)

DOMESTIC RETURN RECEIPT

Highway Engineering
Structural and Foundation Design
Boundary Surveys
Traffic Engineering and Reports

Sewerage and Sewage Treatment
Municipal Engineering
Real Estate Developments
Topographic Surveys
Erosion and Sediment Control

URWILER AND WALTER, INCORPORATED
ENGINEERS AND SURVEYORS
SUMNEYTOWN PIKE
SUMNEYTOWN, PA. 18084
(215-234-4562)

Refer To File No. 84112

[redacted]

JAN 16 1985

September 18, 1984

The Montgomery County Board of Commissioners
The Courthouse
Norristown, PA 19404

Subject: H & L Development Company
Robert Koffel Subdivision
Towamencin Township

Gentlemen:

As per the Pennsylvania Department of Environmental Resources's request, we are hereby notifying the Board of Commissioners that we have applied for sanitary sewer extension permits to service the Robert Koffel Subdivision and the H & L Development Company Subdivision located in Towamencin Township.

Very truly yours,

URWILER & WALTER, INC.

Daniel J. Shannon, P.E.

cc: Robert Koffel
H & L Development Company

DJS/ses

PS Form 3811, July 1983

SENDER: Complete items 1, 2, 3 and 4.

Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for service(s) requested.

1. ☐ Show to whom, date and address of delivery.
2. ☐ Restricted Delivery.

3. Article Addressed to:

THE MONTGOMERY COUNTY
BOARD OF COMMISSIONERS
THE COURTHOUSE
NORRISTOWN, PA. 19404

4. Type of Service:

☑ Registered ☐ Insured
☑ Certified ☐ COD
☐ Express Mail

Article Number

P 381 392 086

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Addressee

X John Lafean

6. Signature — Agent

X

7. Date of Delivery

JAN 16 1985

8. Addressee's Address (ONLY if requested and fee paid)

DOMESTIC RETURN RECEIPT

UNWIN AND WALTER, INCORPORATED
September 10, 1984
The Montgomery County Board of Commissioners
The Courthouse

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES

REQUEST FOR REFUND

Date 10/10/84

TO: Department of Environmental Resources
Office of Comptroller
Fourth Floor, Fulton Building
Harrisburg, PA 17120

REFUND TO: Name Robert M. Koffel

Address 745 Main Street

Harleysville, PA 19438

The above individual/company is due a refund of revenue paid to the Commonwealth of Pennsylvania in accordance with the following:

Amount Received from Payor - $ 100.00

Treasury Receipt No. - Date -

Type of Revenue - Water Quality Permit Application Fee

Revenue Code - 01410-35000-103

Revenue Transmittal No. - 1150124 Date - September 21, 1984

Less: Revised Amount Due Commonwealth - ( )

REFUND DUE PAYOR $ 100.00

Reason for refund: After review by the Planning Section, it was determined that no additional connections would be allowed to the Upper Gwynedd Township Sewage Treatment Plant.. Permit application was returned to applicant.

I certify that the above information is true and correct to the best of my knowledge.

By John F. Daly Jr.

Title John F. Daly, Jr.
Business Office Manager

Office Dept.. of Environmental Resources -
Norristown Regional Office

OFFICE OF COMPTROLLER USE ONLY

Date

Expenditure Code

Comptroller Approval

Highway Engineering
Structural Land Foundation Design
Boundary Surveys
Traffic Engineering and Reports

Sewerage and Sewage Treatment
Municipal Engineering
Real Estate Developments
Topographic Surveys
Erosion and Sediment Control

URWILER AND WALTER, INCORPORATED
ENGINEERS AND SURVEYORS
SUNNEYTOWN PIKE
SUNNEYTOWN, PA. 18084
(215-234-4862)

Refer To File Nos. 84170
84112

DER-RECEIVED
NORRISTOWN
NOV 7 1984

November 5, 1984

Mr. Richard Hinkle
Pennsylvania Department of Environmental Resourses
1875 New Hope Street
Norristown, PA 19401

Subject: Robert Koffel Subdivision &
H & L Development Company Subdivision
Towamencin Township

Dear Mr. Hinkle:

As per my discussion with Mr. Glen Stinson of the Pennsylvania Department of Environmental Resources, I am hereby re-submitting the Sewer Permit Applications for the Robert Koffel Subdivision and the H & L Development Company Subdivision.

I understand the applications will be reviewed on an informal basis and, once the management plan is approved on the Upper/Gwynedd Towamencin Municipal Authority improvements, the fees can be paid and the permit can be issued.

I have written to the Towamencin Township Board of Supervisors and I have requested that they include these project in the current management plan.

Very truly yours,

URWILER & WALTER, INC., by:

Daniel D. Shannon, P.E.

Enclosures
cc: Robert Koffel
H & L Development Company

DJS/ses

Highway Engineering
Structural and Foundation Design
Boundary Surveys
Traffic Engineering and Reports

Sewerage and Sewage Treatment
Municipal Engineering
Real Estate Developments
Topographic Surveys
Erosion and Sediment Control

URWILER AND WALTER, INCORPORATED
ENGINEERS AND SURVEYORS
SUMNEYTOWN PIKE
SUMNEYTOWN, PA. 18084
(215-234-4562)

Refer To File No.: 84170
84112

RECEIVED
NORRISTOWN
JAN 16 1985

January 11, 1985

Mr. Jeffrey Landis
Pennsylvania Department of Environmental Resources
1875 New Hope Street
Norristown, PA 19401

Subject: Sanitary Sewer Extension permit
Robert Koffel Subdivision
and H & L Development Company Subdivision
Towamencin Township, Montgomery County

Dear Jeff:

In reference to your review letter dated December 14, 1984, please be advised that we have revised the plan of Robert Koffel and the plan of H & L Development Company in accordance with your recommendation.

Robert Koffel Subdivision

A. The Pennsylvania Department of Environmental Resource's permit number of the existing sewer has been shown on the plan.
B. The location of the water main crossing near manhole #5 has been shown on the plan.
C. Attached is a copy of the Municipal notification letter dated September 18, 1984 to the Montgomery County Board of Commissioners and to the Towamencin Township Manager. Also attached is a copy of the reciept of the certified mail.

H & L Development Company Subdivision

A. The location of the rip-rap has been shown on the plan view of the erosion control drawing.
B. The location of the water main crossing near manhole #1 and manhole #2 has been shown on the profile plan.
C. The Pennsylvania Department of Environmental Resource's permit number of the existing sewer has been shown on the plans. A copy of the Municipal notification letter and a the certified mail receipt is attached herewith.

Towamencin Township has informed both Robert Koffel and the H & L Development Company that they need the final Department of Environmental Resource's sewer extension permit in order to obtain final land development approval. Thereford, we are quite anxious to obtain the DER sewer permit.

- cont. -

If any additional information is required, would you please contact me.

Very truly yours,

URWILER & WALTER, INC., by:

Daniel J. Shannon, P.E.

Enclosures
cc: Andy Wirth
Robert Koffel

JGW/ses

Highway Engineering
Structural and Foundation Design
Boundary Surveys
Traffic Engineering and Reports

Sewerage and Sewage Treatment
Municipal Engineering
Real Estate Developments
Topographic Surveys
Erosion and Sediment Control

URWILER AND WALTER, INCORPORATED
ENGINEERS AND SURVEYORS
SUMNEYTOWN PIKE
SUMNEYTOWN, PA. 18084
(215-234-4562)

Refer To File No.: 84170
84112

February 11, 1985

Mr. Mark Tiger
Pennsylvania Department of Environmental Resources
1875 New Hope Street
Norristown, PA 19401

Subject: Sanitary sewer extension permit
Robert Koffel Subdivision and
H & L Development Company Subdivision
Towamencin Township, Montgomery County

Dear Mark:

As per my discussion with Mr. Glen Stinson of the Pennsylvania Department of Environmental Resources, I am hereby submitting two checks in the amount of $100.00 each for the above referenced projects.

Mr. Stinson has indicated that the Department of Environmental Resources is now able to issue a capped sewer extension permit for the Koffel and H & L Development Subdivisions.

It is my understanding that you have completed your review and the plans as submitted were adequate. Therefore, if you have any additional questions please contact me.

Very truly yours,

URWILER & WALTER, INC., by:

Daniel J. Shannon, P.E.

Enclosures
cc: Robert Koffel
Andrew Wirth

DJS/ses

Upper Gwynedd-Towamencin Municipal Authority

2225 KRIEBEL ROAD • LANSDALE, PA • 19446
(215) 855-8165

February 20, 1985

Mr. Mark Tiger
PA. Department of
Environmental Resources
1875 New Hope Street
Norristown, PA 19401

Ref: Robert Koffel Subdivision and
H & L Development Company,
Towamencin Township

Dear Mr. Tiger:

We understand that the above referenced properties have requested DER approval of the construction of capped or dry sewers. Upper Gwynedd-Towamencin Municipal Authority is receptive to the concept of capped sewers as long as it presents no problem to Towamencin Township.

Individual sewer connections within the developments will be allocated according to the current arrangements established between DER, the Authority and Upper Gwynedd and Towamencin Townships.

Very truly yours,

UPPER GWYNEDD-TOWAMENCIN
MUNICIPAL AUTHORITY

Thomas E. Whittle,
Acting Manager

TEW/eb

cc: Daniel J. Shannon,
Urwiler & Walter, Inc.

Cecile Daniel,
Towamencin Twp. Manager

LETTER OF TRANSMITTAL

URWILER & WALTER, INC.
Sumneytown Pike
SUMNEYTOWN, PENNSYLVANIA 18084
(215) 234-4562

DER-RECEIVED
NORRISTOWN
MAR. 05 1985

DATE	JOB NO.
3/1/85	
ATTENTION	
RE: H & L Development Robert Koffel	

TO Mr. Mark Tiger
PA Department of Environmental Resources
1875 New Hope Street
Norristown, PA 19401

WE ARE SENDING YOU ☐ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☒ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
2	5/22/84		Sheet 3 Of 5 - Robert Koffel
2	6/14/84		Sheet 4 of 4 - H & L Development Company

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS DUE _____ 19 _____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS Dear Mark:

As per our discussion, we have added notes indicating the proposed collection systems and laterals will have temporary plugs.

COPY TO Robert Koffel
Andrew Wirth

SIGNED: Dan Shannon

If enclosures are not as noted, kindly notify us at once.

LR BWC-205
rev 2/78

FOR THE APPLICANT

~~4685431~~
4685410

SEWERAGE PERMIT APPLICATION
DEPARTMENT OF ENVIRONMENTAL RESOURCES

APPLICANT NAME* Upper Gwynedd-Towamencin Municipal Authority, ADDRESS: 2225 Kriebel Rd.

CITY, ZIP Lansdale PA 19446 TELEPHONE NUMBER: 855-8165

*Applicant shall be the agency which will own the sewerage facilities following completion of construction and/or dedication.

A filing fee check of ~~$25.00~~ $100.00 made out to Pennsylvania Department of Environmental Resources is required with the application.

PROJECT NAME: Robert Koffel Subdivision PROJECT ACREAGE: 16.825 acres

MUNICIPALITY: Towamencin Township COUNTY: Montgomery

NOTE: Please attach a drawing which clearly shows the boundaries of the proposed service area, the properties to be served, the l cation of the sewerage facilities, the slopes of proposed sewers on the plan with inverts of manhole, point of connection to existing sewe and all streets, streams or other important site features. Also include specifications for the facilities and an erosion an sedimentation contr plan.

For any deviations from the Sewerage Manual, please note clearly and fully justify.

FOR THE APPLICANT

I hereby apply for approval on (Date) June 25, 1984 to construct and operate [X] Sewers and appurtenances
[ ] Sewage pumping stations(s) which [ ] does [ ] does not include stream crossings(s).

For sewage pumping stations include detailed construction plans, Module 7 and an erosion and sedimentation control plan.

For stream crossing, include the plan and profile view of the sewer line crossing along with specific construction techniques including s erosion and sedimentation control provisions.

Affidavit: I hereby certify under penalty of law that I have personally examined and am familiar with the information submitted in th document and based on my inquiry of those individuals immediately responsible for obtaining the information I believe the submitt information is true, accurate and complete.

Applicant's Signature: Kenneth Finger

Name and Title: Kenneth Finger, Chairman

Address: Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Rd. Lansdale PA 19446

Sworn and subscribed to before me this 12th day of September, 19 84.

Notary's seal and signature: Barbara L. Groff

BARBARA L. GROFF, Notary Public
Kulpsville, Montgomery Co., Pa.
My Commission Expires Mar. 15, 1986

FOR THE DESIGN ENGINEER

Affidavit: I, Daniel J. Shannon, do hereby certify that the information contained in the accompanying plans, spec cations, and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance wi the standards, guidelines and requirements of the Department of Environmental Resources.

Design Engineer's Seal and Signature: Daniel J. Shannon

Name of Engineering Firm: Urwiler & Walter, Inc.

Address, Zip Sumneytown PA, 18084 Telephone No.: 234-4562

URWILER & WALTER, INC.
SUMNEYTOWN, PENNSYLVANIA 18084

ER-BWQ43 REV. 6/76

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

For Department Use Only

INTERNAL REVIEW AND RECOMMENDATIONS

NAME OF APPLICANT: Upper Gwynedd-Towamencin Municipal Authority
PROJECT LOCATION: Towamencin Township Montgomery County
APPLICATION NUMBER: 4685410

BRIEF DESCRIPTION OF PROJECT AND DISCUSSION (Use Additional Sheets If Necessary)

The Applicant requests approval for the construction of a capped sanitary sewer extension to serve 19 residential units to be built on the proposed Tennis Way. This 16.8 acre site is located south of Keeler Road between Allentown and Quarry Roads.

Sewage from the proposed sewer extension will be conveyed to the Upper Gwynedd-Towamencin Municipal Authority STP via existing Upper Gwynedd-Towamencin Municipal Authority sewers covered under Permit No. 7655013. The sewage will be afforded secondary treatment before discharge to the Towamencin Creek. The proposed sewer extension will serve 67 people both initially and ultimately. The soil erosion and sedimentation control plan has been reviewed and approved by the Montgomery County Conservation District.

The Montgomery County Board of Commissioners received notification on September 19, 1984 by Daniel J. Shannon, P.E. regarding submission of this application to our Department.

Towamencin Township received notification on September 19, 1984 by Daniel J. Shannon, P.E. regarding submission of this application to our Department.

This permit approves the connection of the proposed sanitary sewer extension to an existing manhole located in the 100-year flood plain. Approximately fifty feet of the new sewer line will be located in the 100-year flood plain, but the stream will not be crossed.

CURRENT ESTIMATE OF COMPLETION DATE OF PROJECT (Industrial Wastes Only)

RECOMMENDATION AND ACTION

Approve -- Issue By Region	Approve -- Issue By Central Office	Refuse	Signature	Date
☑	☐	☐	Jeffrey Landis REVIEWING ENGINEER / Mark L. Tiger	3/25/85
☒	☐	☐	REGIONAL FACILITIES SECTION CHIEF	3/25/85
☒	☐	☐	REGIONAL ENGINEER/WATER QUALITY MANAGER	3/26/85
	☐	☐	DIVISION FACILITIES ENGINEER	
	☐	☐	DIVISION CHIEF	

PERMIT CONDITIONS:

1. STANDARD -- Please attach a drawing which clearly shows the boundaries of the proposed service area, the properties to be served, and the location of the proposed sewerage facilities.

   Erosion Control (1973) 1 thru 4, 6 thru 20
   Sewerage (09/02/83) 1-7, 9, 13, 14, 16, 20-22

2. SPECIAL (Use Additional Sheets If Necessary) -

   I. Capped sewers pending administration of approved wasteload management plan.

ER-BWQ-15-Rev. 4/72

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT NO. 4685410

A. PERMITTEE: (Name and Address)

Upper Gwynedd-Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

B. PROJECT LOCATION

Municipality: Towamencin Township

County: Montgomery

C. TYPE OF FACILITY (For industrial wastes, type of establishment)

Capped Sanitary Sewers

D. NAME OF MINE, PLANT, AREA SERVED, OUTFALL NO., ETC.

Robert Koffel Subdivision
(Tennis Way)

E. THIS PERMIT APPROVES:

1. Plans For Construction Of: a. [X] Sewers and Appurtenances b. [ ] Sewage Treatment Facilities c. [ ] Industrial Wastes Treatment Facilities d. [ ] Mine Drainage Treatment Facilities e. [ ] Outfall & Headwall f. [X] Flood plain encroachment g. [ ] Impoundment

2. The Discharge Of: a. [ ] Treated N/A b. [ ] Untreated c. [ ] Sewage d. [ ] Industrial Wastes

3. Discharge To: a. [ ] Surface Water N/A b. [ ] Ground Water
Name of Stream to which discharged or drainage area in which groundwater discharge takes place or impoundment is located.

4. The Operation of a Mine [ ] N/A
Maximum Area to be Deep Mined _____ Acres

5. An Erosion and Sedimentation Control Plan [X]
Project Area is 16.8 Acres

F. THIS APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:

1. ALL CONSTRUCTION, OPERATIONS, PROCEDURES AND DISCHARGE SHALL BE IN ACCORDANCE WITH APPLICATION NO. 4685410 DATED 9/12/84 ITS SUPPORTING DOCUMENTATION, AND AMENDMENTS DATED 1/11/85, 3/1/85, SUCH APPLICATION, ITS SUPPORTING DOCUMENTATION AND AMENDMENTS ARE HEREBY MADE A PART OF THIS PERMIT.

2. CONDITIONS NUMBERED 1 thru 7, 9, 13, 14, 16, 20 thru 22 OF THE Sewerage STANDARD CONDITIONS DATED 09/02/83 AND CONDITIONS NUMBERED 1 thru 4, 6 thru 20 OF THE EROSION CONTROL STANDARD CONDITIONS DATED 1973 WHICH CONDITIONS ARE ATTACHED AND MADE PART OF THIS PERMIT.

3. SPECIAL CONDITIONS DESIGNATED I WHICH ARE ATTACHED AND ARE MADE A PART OF THIS PERMIT.

This permit must be recorded in the Recorder of Deeds Office in Montgomery County.

G. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. IF THERE IS A CONFLICT BETWEEN THE APPLICATION ON ITS SUPPORTING DOCUMENTS AND AMENDMENTS AND THE STANDARD OR SPECIAL CONDITIONS, THE STANDARD OR SPECIAL CONDITIONS SHALL APPLY.

2. FAILURE TO COMPLY WITH THE RULES AND REGULATIONS OF THE DEPARTMENT OR WITH THE TERMS OR CONDITIONS OF THIS PERMIT SHALL VOID THE AUTHORITY GIVEN TO THE PERMITTEE BY THE ISSUANCE OF THE PERMIT.

3. THIS PERMIT IS ISSUED PURSUANT TO THE CLEAN STREAMS LAW, ACT OF JUNE 22, 1937, P.L. 1987 AS AMENDED 35 P.S. § 691.1 ET SEQ. AND/OR THE WATER OBSTRUCTION ACT, ACT OF JUNE 25, 1913, P.L. 555 AS AMENDED 32 P.S. § 681 ET SEQ. ISSUANCE OF THIS PERMIT SHALL NOT RELIEVE THE PERMITTEE OF ANY RESPONSIBILITY UNDER ANY OTHER LAW

PERMIT ISSUED
DATE 3-26-85

DEPARTMENT OF ENVIRONMENTAL RESOURCES
BY Joseph A. Feola
Joseph A. Feola
TITLE Regional Water Quality Manager

CF34

Sewerage Permit No. 4685410
Upper Gwynedd-Towamencin Municipal Authority
Towamencin Township, Montgomery County

This permit is subject to the following Special Condition(s):

I. This permit authorizes construction of the proposed sanitary sewer extension; however, the sanitary sewer extension shall be capped until such time as connections can be authorized. Connections will be restricted to those authorized in accordance with a Department approved wasteload management plan which is currently being administered by the Upper Gwynedd-Towamencin Municipal Authority.

CF35

Upper Gwynedd-Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
Norristown, PA 19401
215 270-1975

March 26, 1985

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: Mr. Kenneth Finger
Chairman

Re: Sewerage Permit No. 4685410
Robert Koffel Subdivision
Towamencin Township
Montgomery County

Gentlemen:

Referenced permit is enclosed.

Please note Special Condition I which restricts connections to the proposed sewer extension to those authorized by a Department approved wasteload management plan to be administered by the Authority.

Please study the permit carefully and direct any questions to the Permits Section of this office.

To become operative this permit must be recorded in the Office of the Recorder of Deeds in the county in which the discharge is located. Enclosed is a certificate and pre-addressed envelope for this purpose. Please have the Recorder of Deeds accomplish the certificate and return it within ten (10) days.

Very truly yours,

Joseph A. Feola

JOSEPH A. FEOLA
Regional Water Quality Manager

JAF:MT:cd

Enclosures: Permit
Standard Conditions Relating to Sewerage
Standard Conditions Relating to Erosion Control
Recorder of Deeds Certificate
Notary Public Certificate

cc: Urwiler & Walter, Inc.
Permits & Compliance
Re 30 CF33

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

ER-BWQ-68: Rev. 4/73

Permit No. 4685410

Towamencin Township
Montgomery County

Commonwealth of Pennsylvania
Department of Environmental Resources

RECORDER OF DEEDS CERTIFICATE

I hereby certify that on .....
(Date)

there was recorded in Book .....

page ..... the sewerage permit issued

to .....

bearing date of .....

.....
Recorder of Deeds for

DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
Norristown, PA 19401
215 270-1975

..... County

ER-BWQ-69 Rev. 1/78

STATE OF PENNSYLVANIA
COUNTY OF Montgomery } SS

On the 26th day of March in the year one thousand nine hundred and eighty-five before me, the Subscriber, a Notary Public, came the above named

Joseph A. Feola

and duly acknowledged the foregoing permit to be his act and deed and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year aforesaid.

Sharon S. Moore
NOTARY PUBLIC

SHARON S. MOORE, Notary Public
Norristown Boro, Montgomery Co.
My Commission Expires Sept. 23, 1985

Department of Environmental Resources

1875 New Hope Street
Norristown, PA 19401
215 270-1923

March 5, 1985

Upper Gwynedd Towamencin Municipal Authority
2226 Kriebel Road
Lansdale, PA 19446

Attention: Kenneth Finger
Chairman

Re: Application No. 4685410
Towamencin Township
Montgomery County

Gentlemen:

This will acknowledge receipt of your application on February 25, 1985 for approval to construct a sanitary sewer extension with capped sewers to serve the Robert Koffel subdivision in Towamencin Township, Montgomery County.

The material submitted is accepted for technical review and has been assigned to Mark Tiger of our staff who may be reached at 270-1957.

You are reminded that any proposed facilities cannot be constructed without first obtaining the required permits.

Very truly yours,

LEON T. GONSHOR
Regional Director

cc: Water Quality Management
Towamencin Township
Urwiler and Walter, Inc.
Re 4264.1

ER-ES 3: Rev. 8/82

FORM NO. 1

SUBJECT: M. A CONTACT(S): Application Nos.:

2225 Kriebel Rd Kenneth Fuger

Lansdale, PA 19446

New Proposal	✓
Revised Proposal	

TO: Regional Director

FROM: PERMIT SECTION

Program 3-7-85

On 2-25-85, we (accepted/~~received~~) an application for plan approval and/or permit to (construct/~~modify~~/~~install~~) a sanitary sewer extension with capped sewer stubs

~~This proposal involves~~: the Robert Kriebel subdivision located in Towamencin (Twp.) / Montgomery (C)

U Gwynedd-Towamencin STP

Permit Coordination Requirements: None (min)

DATE 3-6-85

Program 3-7-85	No Permit Required	No Permit Required Prior Approval Required	Permit Required Application on Hand	Permit Required Application Needed
Air Quality	✓			
Water Quality 537	✓		2/26/85	
Solid Waste Management	✓			
Community Env. Control	✓			
Mining & Reclamation				
Radiation Protection				
Dams & Waterway Management	✓			

Please indicate your interest on this form and return to the Regional Director by 3-6-85. Failure to return the form by the indicated date will indicate that your program has no interest in the project.

ER-EP-21: 10/86

START

DEPARTMENT OF ENVIRONMENTAL RESOURCES

ENVIRONMENTAL PROTECTION

START

BUREAU/PROGRAM Water Quality Management

DIVISION

COUNTY/MUNICIPALITY 46949

PROGRAM

CASE NAME Upper Gwynedd Towamencin Municp Authority

FILE

BUREAU/PROGRAM Water Quality Management

DIVISION

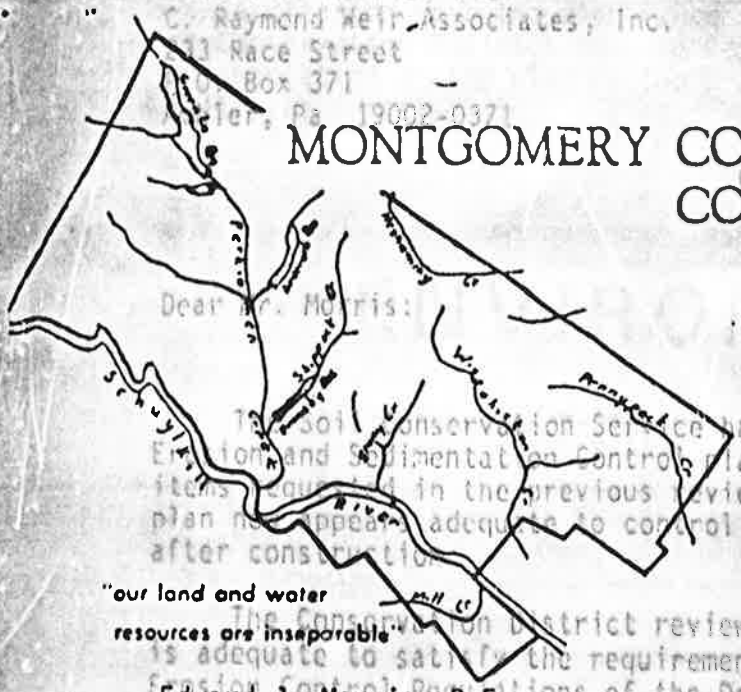
COUNTY/MUNICIPALITY 46949

PROGRAM Sew

CASE NAME Upper Gwynedd Towamencin Municp Authority

FILE

PERMIT NO. 4685455



MONTGOMERY COUNTY CONSERVATION DISTRICT

4th Floor — One Montgomery Plaza
Court House, Norristown, PA 19404
Phone: 278-3618

January 25, 1985

Edward J. Morris, P.E.
C. Raymond Weir Associates, Inc.
233 Race Street
P.O. Box 371
Ambler, Pa 19002-0371

Re: Philadelphia Suburban Development Corp.
Towamencin Township

Maynard A. King
District Manager

Dear Mr. Morris:

The Soil Conservation Service has reviewed the revised January 7, 1985 Erosion and Sedimentation Control plan for the above referenced project. All items requested in the previous review have been satisfactorily answered. The plan now appears adequate to control erosion and sediment production during and after construction.

The Conservation District reviews this plan solely to determine whether it is adequate to satisfy the requirements of 25 Pa. Code §§ 102.1 et seq., the Erosion Control Regulations of the Department of Environmental Resources. By a determination that the plan is adequate to meet those requirements, neither the Conservation District nor the County assumes any responsibility for the implementation of the plan or the proper construction and operation of the facilities contained in the plan.

Sincerely,

Maynard A. King

Maynard A. King
District Manager

cc: Towamencin Township Engineer

C. RAYMOND WEIR ASSOCIATES, INC.

CONSULTING ENGINEERS, SURVEYORS AND SITE PLANNERS

WILLIAM T. WEIR, P.E., P.L.S.
CHARLES D. WEIR, JR., P.E., P.L.S.

233 RACE STREET
P. O. BOX 371
AMBLER, PA 19002-0371
646-8070

C. RAYMOND WEIR
1895-1979

ASSOCIATES
JOHN R. FLUCK
CONRAD L. MOORE, P.L.S.

April 16, 1985

Montgomery County Planning Commission
Courthouse, Swede and Airy Streets
Norristown, PA. 19401

ATTENTION: John Gaadt

RE: Philadelphia Suburban Development Corporation Subdivision,
Towamencin Township, Montgomery County, PA.

EJM/EJM

Dear Sir:

The purpose of this letter is to officially notify Montgomery County that it is proposed to develop a site in the Township as referenced above, and as shown on the attached exhibits. Application will be made to the PA. Department of Environmental Resources for a water quality management permit for the proposed sewer extention that will serve the proposed development.

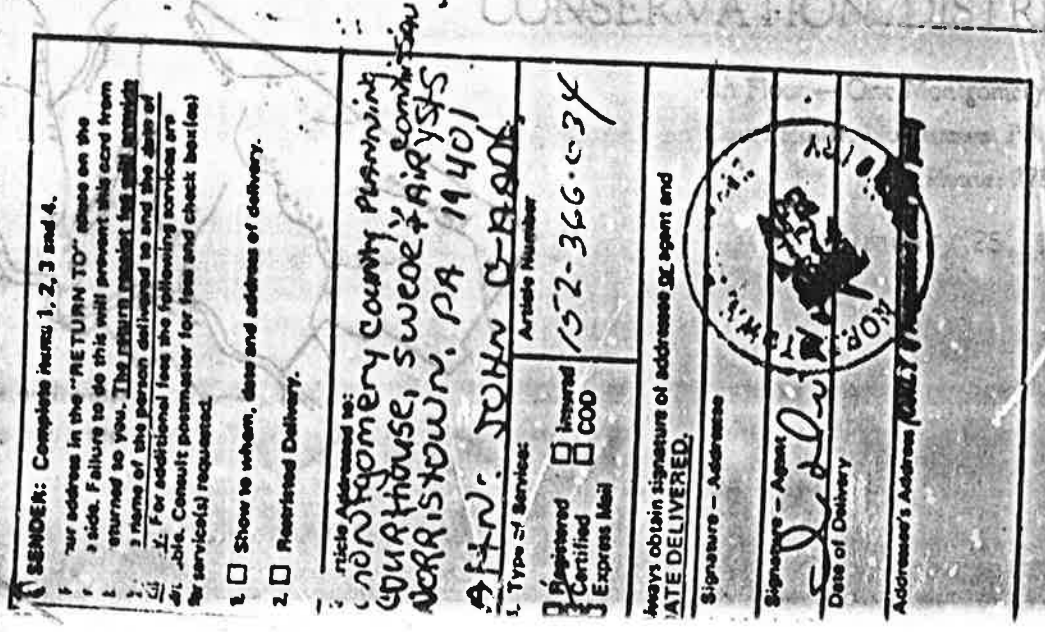
This notification is pursuant to the requirement in the Commonwealth's Administrative Code (Section 1905-A), Cooperation with Municipalities, which became effective April 17, 1984.

Please call if you have any questions.

Very truly yours,

Edward J. Morris, P.E.

ER/EJM



C. RAYMOND WEIR ASSOCIATES, INC.

CONSULTING ENGINEERS, SURVEYORS AND SITE PLANNERS

WILLIAM T. WEIR, P.E., P.L.S.
CHARLES R. WEIR, JR., P.E., P.L.S.

233 RACE STREET
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AMBLER, PA 19002-0371
646-9070

C. RAYMOND WEIR
1895-1979

ASSOCIATES
JOHN R. FLUCK
CONRAD L. MOORE, P.L.S.

April 16, 1985

Towamencin Township
1655 Sumneytown Pike
Kulpsville, PA. 19443

ATTENTION: Cecile Daniel, Township Manager

RE: Philadelphia Suburban Development Corporation Subdivision,
Towamencin Township, Montgomery County, PA.

Dear Mr. Daniel:

The purpose of this letter is to offically notify Towamencin Township th it is proposed to develop a site in the Township as referenced above, and as shown on the attached exhibits. Application will be made to the PA. Department of Environmental Resources for a water quality management permit for the proposed sewer extention that will serve the proposed development.

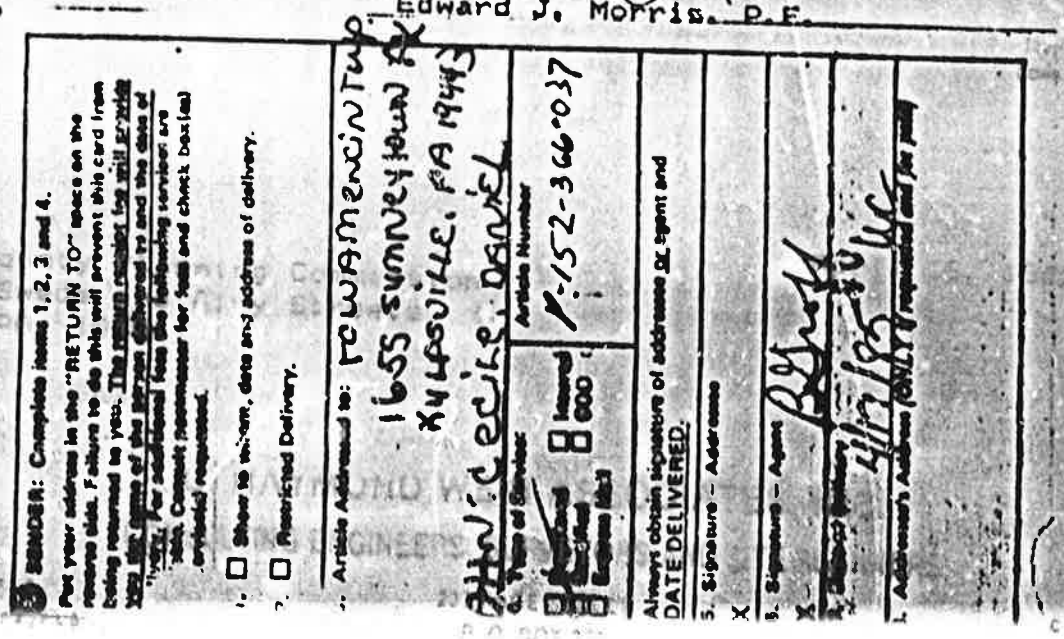
This notification is pursuant to the requirement in the Commonwealth's Administrative Code (Section 1905-A), Cooperation with Municipalities, which became effective April 17, 1984.

Please call if you have any questions.

Very truly yours,

Edward J. Morris, P.E.

EJM/EJM



C. RAYMOND WEIR ASSOCIATES, INC.
CONSULTING ENGINEERS, SURVEYORS AND SITE PLANNERS

WILLIAM T. WEIR, P.E., P.L.S.
CHARLES R. WEIR, JR., P.E., P.L.S.

233 RACE STREET
P.O. BOX 371
AMBLER, PA 19002-0371
646-8070

C. RAYMOND WEIR
1906-1979

ASSOCIATES
JOHN R. PLUCK
CONRAD L. MOORE, P.L.S.

DER-RECEIVED
NORRISTOWN
OCT 01 1985

September 25, 1985

Montgomery County Commissioners
Courthouse, Swede and Airy Streets
Norristown, PA 19401

RE: PHILADELPHIA SUBURBAN DEVELOPMENT CORPORATION SUBDIVISION
TOWAMENCIN TOWNSHIP, MONTGOMERY COUNTY, PA

Dear Sir:

The purpose of this letter is to offically notify Montgomery County that it is proposed to develope a site in the Township as referenced above, and as shown on the attached exhibits. Application will be made to the Pa. Department of Environmental Resources for a water quality management permit for the proposed sewer extension that will serve the proposed development.

This notification is pursuant to the requirement in the Commonwealth's Administrative Code (Section 1905-A), Cooperation with Municipalities, which became effective April 17, 1984.

Please call if you have any questions.

Very truly yours,

Edward J. Morris, P.E.

SENDER: Complete items 1, 2, 3 and 4.
Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for service(s) requested.
1. ☐ Show to whom, date and address of delivery.
2. ☐ Restricted Delivery

3. Article Addressed to:
Montgomery County Commissioners
Courthouse
Swede & Airy Streets
Norristown Pa 19401

4. Type of Service: ☐ Registered ☐ Insured
Article Number: P 701 598 037

PS Form 3811, July 1983 447-865

P 701 598 037

RECEIPT FOR CERTIFIED MAIL
NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to	Montgomery County Commissioners
Street and No.	Swede & Airy Sts
P.O. State and ZIP Code	Norristown Pa 19401
Postage	$
Certified Fee	75
Special Delivery Fee	

* U.S.G.P.O. 1983-403-517

DER-RECEIVED
NORRISTOWN
OCT 28 1985

C. RAYMOND WEIR ASSOCIATES, INC.

CONSULTING ENGINEERS, SURVEYORS AND SITE PLANNERS

WILLIAM T. WEIR, P.E., P.L.S.
CHARLES R. WEIR, JR., P.E., P.L.S.

233 RACE STREET
P. O. BOX 371
AMBLER, PA 19002-0371
646-8070

C. RAYMOND WEIR
1896-1979
ASSOCIATES
JOHN R. FLUCK
CONRAD L. MOORE, P.L.S.

October 24, 1985

PA Dept. of Environmental Resources
1875 New Hope Street
Norristown, PA 19401

Attn: Tom Ahaneku

Re: Application No. 4685455
Towamencin Twp., Montg. Co.

Mr. Ahaneku:

Enclosed you will find two (2) copies of our Drawing number 1300-E-8, Sheet 8 of 13. This plan has been revised to show the approximate location of the well on the North Penn Water Authority Property. Concrete encasement for sanitary sewers within 100 feet of the well has been indicated on the plan view and on the profiles.

Please call if additional information is required.

Very truly yours,

Edward J. Morris, P.E., P.L.S.

EJM:vvsk

Enclosure

OCT 01 1986

DER-RECEIVED,
NORRISTOWN
DEC 16 1985

PHILADELPHIA SUBURBAN DEVELOPMENT
CORPORATION
REAL ESTATE DIVISION
930 WASHINGTON AVENUE
P.O. BOX 2499
PHILADELPHIA, PENNSYLVANIA 19147
(215) 389-1709

December 11, 1985

Mr. Richard Dalasio
Department of Environmental Resources
1875 New Hope Street
Norristown, Pennsylvania 19401

Re: Application No. 4685455
Towamencin Township
Montgomery County

Dear Rich:

In regards to the above captioned project, I hope this letter will suffice insofar as the sewers for the subject project.

We will be installing sewers as per Mr. William Weir's engineering plans of C. Raymond Weir Associates, Inc. We will be tying same into the trunk line next to Mr. Charles Policastro's property. We will be running laterals across the road and under curbs, in order that we may be able to complete the streets. We will not be looking for any sewer connections until such time as DER permits the township to authorize same. At that time, I would assume the people who will be purchasing our lots would want to make application for connections into the sewers. There will be no other form of sewerage collection and deposal other than the public sewer system that we are asking permission to install.

Mr. Richard Hinkle felt that there was no need for any additional engineering plans providing I send this letter in this form.

Thank you for all your efforts on our behalf.

Very truly yours,

Robert V. Nicoletti

Robert V. Nicoletti
PHILADELPHIA SUBURBAN DEVELOPMENT CORP.

RVN/cib

EROSION AND SEDIMENTATION CONTROL PLAN

SUBDIVISION

PHILADELPHIA SUBURBAN DEVELOPMENT CORPORATION

TOWAMENCIN TOWNSHIP

MONTGOMERY COUNTY, PA.

NOVEMBER 30, 1984

BASIN REV. 1-3-85

EROSION & SEDIMANTATION CONTROL PLAN
PREPARED FOR PHILADELPHIA SUBURBAN DEVELOPMENT CORPORATION

TOWAMENCIN TOWNSHIP
MONTGOMERY COUNTY

I. SITE LOCATION AND DESCRIPTION

The subject site is situate along the southeasterly side of Troxell Road between Steven Lane and Keeler Road and contains 21.99 more or less acres of land.

The site is bordered on the northwest and north by Troxell Road, on the northeast, east, southeast and south by the farm of Norman D. Landis, and on the southwest and west by single family residences on lots less than one acre.

The soils on the site belong to hydrologic group C with their actual symbols being indicated on the "Erosion and Sedimentation Control Plan" (Drawing number 1629-B-2, sheet 3 of 11.)

II. CONSTRUCTION PROGRAM

Construction shall proceed as follows:

1. Place filter fabric fence.
2. Rough grade silt-basin first and install temporary erosion structure.
3. Strip topsoil and stockpile in berms as shown on the plan.
4. Install gabion mattress emergency spillway.
5. Install sanitary sewers.
6. Install storm sewers.
7. Find grade and seed basin and other wet areas with a mixture of ky. 31 tall fescue and reed canarygrass.
8. Construct concrete curbs.
9. Install other underground utilities.
10. Place road base and binder course.
11. Construct sidewalks.
12. Find grade and seed with Penn D.O.T. formula 'B' along shoulders of roads and easements.
13. Remove all erosion and sedimentation controls when the site is stabilized.
14. Houses can be built at anytime.

III. SOIL AND EROSION CONTROL MEASURES

1. Topsoil shall be stripped from any area to be regraded and shall be stockpiled in berms where indicated on the plan prior to the regrading operation. Topsoil berms shall be seeded as specified below within ten days.

2. The filter fabric fence shall direct surface runoff and cause sediment to drop out of suspension in the water.

3. Disturbed areas shall be seeded with Penn. D.O.T. Formula 'B', at the rate of 21 lbs./1000 s.y. or a 50:50 mixture of ky. 31 tall fescue and reed canarygrass at a rate of 18 lbs./1000 s.y. in basin area. During the non growing

seasons all disturbed areas shall be mulched or otherwise stabilized.

4. All regraded areas that are to be left undisturbed for one month or more shall be stabilized using the above method. Other seed mixtures may be used if approved by the Township Engineer.

5. Proper inspection and maintenance procedures will be followed with respect to:
   a. Filter fabric fence.
   b. Temporary plywood box in basin.
   c. Basin (remove silt buildup and mow basin as required thereafter.)

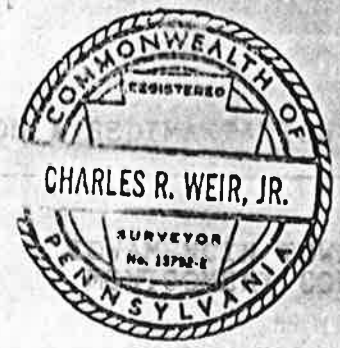
   Remove all temporary devices when the project is stabilized.

6. All fills shall be compacted in 6" to 8" layers as they are placed to a density of not less than 97%.

IV. STORM WATER MANAGEMENT

See attached engineering calculations.

Charles R. Weir, Jr., P.E., P.L.S.
Vice President/Treasurer
C. Raymond Weir Associates, Inc.



ER-BWQ-188.11.REV.3/83

DATE PREPARED
9-17-85
DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

FOR DEPARTMENT USE ONLY

WATER POLLUTION CONTROL
MODULE 11
STREAM ENCROACHMENT

GENERAL

1. Note how the construction work along and in the stream will be conducted to avoid excessive turbidity in the stream. Such features as control of runoff, trapping sediment, pump discharges, disposal of material removed, sequence of construction, and construction techniques should be addressed. (Reference may be made to applicable sections of plans, specifications, and erosion control plan).

2. Note those measures which have been taken to minimize disturbing or uprooting trees and vegetation along and in the vicinity of the stream to preserve streambank stability. Also, note those measures which will be taken to restore and stabilize the streambank areas which must be disturbed during construction. (Reference may be made to applicable sections of plans, specifications and erosion control plan).

STREAM CROSSINGS

1. Please justify the need for each stream crossing including evaluation of alternatives to minimize the number of crossings.

2. What measures will be taken to insure the sewer crossing under a stream will be rendered throughly water tight and remain in alignment?

3. For any sewer without the required cover (1 foot in rock and 3 feet in other material), please explain why such cover is not provided and what measures are to be taken to minimize the erosion threat at the crossing location and the aesthetics of the permanent sewer crossing.

4. Note how manholes along the stream will be made watertight if the top elevation is below the 100 year flood.

5. List crossings by stream name and sheet numbers in plans. Provide extra set of plan sheets only with stream crossing.

HEADWALLS/OUTFALLS

1. Explain how the headwall/outfall structure will be constructed to minimize downstream and/or bank erosion and achieve complete mixing of the treated effluent with the streamflow within a short distance.

2. Identify stream by name, show design of outfall/headwall on plan sheet and provide an extra copy.

Describe below all of the applicable items from the above.

C. RAYMOND WEIR ASSOCIATES, INC.
CONSULTING ENGINEERS, SURVEYORS AND SITE PLANNERS

WILLIAM T. WEIR, P.E., P.L.S.
CHARLES R. WEIR, JR., P.E., P.L.S.

233 RACE STREET
P. O. BOX 371
AMBLER, PA 19002-0371
646-8070

C. RAYMOND WEIR
1895-1979

ASSOCIATES
JOHN R. FLUCK
CONRAD L. MOORE, P.L.S.

STREAM CROSSINGS

PROJECT NAME: PHILADELPHIA SUBURBAN DEVELOPMENT CORPORATION SUBDIVISION

WATER POLLUTION CONTROL MODULE 11
STREAM ENCROACHMENT

GENERAL

1. Each plan and profile for sanitary sewer construction across or near a stream has detailed step by step instructions to avoid turbidity in the stream.

2. The detailed instructions, referenced above, describe measures that shall be taken to preserve existing vegetation, and to restore vegetation when work is completed in the vicinity of the stream and anywhere else earthwork is to take place. The proposed sewer is located on the less wooded side of the stream.

STREAM CROSSINGS

1. The proposed sanitary sewer crosses Troxel Road north of the unnamed tributary to the west branch of the Towamencin Creek. This is because the proposed subdivision site does not include the land on the south side. The first of the two crossings is across this tributary, and is necessary to avoid the wooded area on the north side of the waterway further down. The second crossing is across the previously mentioned branch of the Towamencin Creek and is necessary because the existing sewer intercepter is on the other side. The proposed sewer alignment is essentially the same as that originally proposed in the 1964 preliminary design of the Upper Gwynedd-Towamencin Municipal Authority.

2. The sanitary sewer construction will conform to the requirements of the "Standard Specifications for Construction of Sanitary Sewers for Towamencin Twp. Board of Supervisors". This will assure water tightness of the sewers at the time of acceptance of the sewers by Towamencin Township. The first crossing under the unnamed tributary will have 4 feet, more or less cover over it. The other proposed crossing, under the Towamencin Creek will have 2½ feet of cover and will be encased in concrete.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES

C. RAYMOND WEIR ASSOCIATES, INC.
WATER POLLUTION CONTROL MODULE II
STREAM ENCROACHMENT
PAGE 2

3. The only area where the proposed sewer will not have 3 feet or more cover is at the crossing under the Towamencin Creek. It cannot go deeper because it is to be connected to an existing sewer. There will be approximately 2½ feet of cover and encasement in concrete.

4. All manholes along a stream shall have watertight manhole covers.

5. The two previously mentioned stream crossings are shown on (1) Drawing No. 1300-E-10, Sheet 11 of 13, and (2) Drawing No. 1300-E-11, Sheet 12 of 13.

HEADWALLS/OUTFALLS

Not applicable.

William T. Weir

William T. Weir, P.E., P.L.S.

EH-SWO-226: Rev. 2/82

DER-RECEIVED NORRISTOWN
SEP 25 1985

SEWER EXTENSIONS and PUMPING STATIONS PERMIT APPLICATION
DEPARTMENT OF ENVIRONMENTAL RESOURCES

APPLICANT NAME* Upper Gwynedd-Towamencin Municipal Authority-- 2225 Kriebel Rd.
CITY, ZIP Lansdale, PA 19446 TELEPHONE NUMBER: 215-855-8165

*Applicant shall be the agency which will own the sewerage facilities following completion and/or dedication.

A filing fee of $100.00 will be required for sewer extension (collector sewers only). A filing fee of $500.00 will be required for all other type of facilities. This fee must be submitted with the application in the form of a check (not more than 16 days old) made payable to "Pennsylvania Department of Environmental Resources". This fee is not required of the State or Federal agencies. For a non-municipal applicant, an additional filing fee of $50.00 is required when the sewerage project involves a stream encroachment located within the delineated 100 year floodplain or within 50 feet of the stream bank in absence of a delineated floodplain.

PROJECT NAME PHILADELPHIA SUBURBAN DEVELOPMENT CORPORATION
PROJECT LOCATION
MUNICIPALITY TOWAMENCIN TOWNSHIP
COUNTY MONTGOMERY
BASIS OF DESIGN
DESIGN YEAR 2000
DESIGN POPULATION 69

If the project is associated with land development, complete the following:
NAME OF DEVELOPMENT PHILADELPHIA SUBURBAN DEVELOPMENT CORPORATION SUBDIVISION
TYPE OF DEVELOPMENT SINGLE FAMILY RESIDENTAL
NUMBER OF UNITS 23 PROJECT ACREAGE 21.99±
PERMIT NO. OF RECEIVING SEWERS 7665053

NOTE: Please attach a drawing which clearly shows the boundaries of the proposed service area, the properties to be served, the location of the sewerage facilities, the slope of proposed sewers on the plan with inverts of manhole, point of connection to existing sewers, and all streets, streams or other important site features. Also, include specifications for the facilities and an erosion and sedimentation control plan.

For any deviations from the Sewerage Manual, please note clearly and fully justify.

FOR THE APPLICANT

I hereby apply for approval on (Date) SEPT. 15, 1985 to construct and operate [X] Sewers and appurtenances [ ] ~~Sewage Treatment Plant~~ which [X] does [ ] ~~does not~~ include stream crossing(s)/100 year floodplain location.

For sewage pumping stations include detailed construction plans and Module 2. N/A

For stream crossing, include the plan and profile view of the sewer line and Module 11.

Affidavit: I hereby certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and based on my inquiry of those individuals immediately responsible for obtaining the information I believe the submitted information is true, accurate and complete.

APPLICANT'S SIGNATURE _____
NAME AND TITLE: CHAIRMAN, UPPER GWYNEDD-TOWAMENCIN MUNICIPAL AUTH KEN FINGER
ADDRESS: 2225 KRIEBEL RD., LANSDALE PA 19446
SWORN and subscribed to before me this 25th day of September, 19 85
_____ NOTARY
PATRICIA A. YANCI, NOTARY PUBLIC
ACKLER BORO, MONTGOMERY COUNTY
MY COMMISSION EXPIRES JULY 11, 1988

NOTARY SEAL

FOR THE DESIGN ENGINEER

Affidavit, I, William T. Weir, do hereby certify that the information shown on the accompanying plans, specifications, and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance with the standards, guidelines and requirements of the Department of Environmental Resources.

DESIGN ENGINEER'S NAME William T. Weir, P.E., P.L.S.
NAME OF ENGINEERING FIRM: C. Raymond Weir Associates In DESIGN ENGINEER'S SIGNATURE
ADDRESS, ZIP 233 Race Street, P. O. Box 371
Ambler, PA 19002
TELEPHONE NUMBER: 215-646-8070

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
WILLIAM T. WEIR
ENGINEER
No. 22174-E

ER-BWQ43 REV. 6/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

For Department Use Only

INTERNAL REVIEW AND RECOMMENDATIONS

NAME OF APPLICANT: Upper Gwynedd-Towamencin Municipal Authority
PROJECT LOCATION: Towamencin Township Montgomery County
APPLICATION NUMBER: 4685455

BRIEF DESCRIPTION OF PROJECT AND DISCUSSION (Use Additional Sheets If Necessary)

The Applicant requests approval for the construction of a capped sanitary sewer extension to serve the 23 residential units of the Philadelphia Suburban Development Corporation Suddivision. This project is to be built on 21.99 acres, and will generate 6900 gallons of sewage per day. Approval has been given by the Pennsylvania Fish Commission for the two stream crossings of an unnamed tributary of the West Branch of Towamencin Creek.

Sewage from the proposed sewer extension will be conveyed to the Upper Gwynedd-Towamencin STP via existing Upper Gwynedd-Towamencin Municipal Authority sewers covered under Permit No. 766S053. The sewage will be afforded tertiary treatment before discharge to the Towamencin Creek. The proposed sewer extension will serve 69 people both initially and ultimately. The soil erosion and sedimentation control plan has been reviewed and approved by the Montgomery County Conservation District.

Montgomery County Commissioners received notification on September 26, 1985 by Edward J. Morris regarding submission of this application to our Department.

Towamencin Township Board of Supervisors received notification on April 17, 1985 by Edward J. Morris regarding submission of this application to our Department.

CURRENT ESTIMATE OF COMPLETION DATE OF PROJECT (Industrial Wastes Only)

RECOMMENDATION AND ACTION

Approve – Issue By Region	Approve – Issue By Central Office	Refuse	Signature	Date
☒	☐	☐	REVIEWING ENGINEER	12/16/85
☒	☐	☐	REGIONAL FACILITIES SECTION CHIEF	12/20/85
☒	☐	☐	REGIONAL ENGINEER/WATER QUALITY MANAGER	12/20/85
	☐	☐	DIVISION FACILITIES ENGINEER	
	☐	☐	DIVISION CHIEF	

PERMIT CONDITIONS:

1. STANDARD Erosion Control (1985) 1 thru 12
   Sewerage (09/02/83) 1-7, 9, 13, 14, 16, 20-22

2. SPECIAL (Use Additional Sheets If Necessary) –
   Fish commission Conditions
   Limited Connections Condition

(3F4)316.1.2

SEP 25 1985

ER-SWQ-15-Rev. 4/78

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT NO. 4685455

A. PERMITTEE: (Name and Address)
Upper Gwynedd-Towamencin Mun. Auth.
2225 Kriebel Road
Lansdale, PA 19446

B. PROJECT LOCATION
Municipality: Towamencin Township
County: Montgomery

C. TYPE OF FACILITY (For industrial wastes: type of establishment)
Capped Sanitary Sewers

D. NAME OF MINE, PLANT, AREA SERVED, OUTFALL NO., ETC.
Philadelphia Suburban Development Corporation Subdivision

E. THIS PERMIT APPROVES:

1. Plans For Construction Of: a. [X] Sewers and Appurtenances b. [ ] Sewage Treatment Facilities c. [ ] Industrial Wastes Treatment Facilities d. [ ] Mine Drainage Treatment Facilities e. [X] Outfall & Headwall f. [X] Stream Crossing g. [ ] Impoundment
   Floodplain Encroachment &
2. The Discharge Of: a. [ ] Treated N/A b. [ ] Untreated c. [ ] Sewage d. [ ] Industrial Wastes
3. Discharge To: a. [ ] Surface Water N/A b. [ ] Ground Water
   Name of Stream to which discharged or drainage area in which groundwater discharge takes place or impoundment is located.
4. The Operation of a Mine [ ] N/A
   Maximum Area to be Deep Mined _____ Acres
5. An Erosion and Sedimentation Control Plan [X]
   Project Area is 21.99 Acres

F. THIS APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:

1. ALL CONSTRUCTION, OPERATIONS, PROCEDURES AND DISCHARGE SHALL BE IN ACCORDANCE WITH APPLICATION NO. 4685455 DATED 9/15/85 ITS SUPPORTING DOCUMENTATION, AND AMENDMENTS DATED 10/29/85, SUCH APPLICATION, ITS SUPPORTING DOCUMENTATION AND AMENDMENTS ARE HEREBY MADE A PART OF THIS PERMIT.
2. CONDITIONS NUMBERED 1 thru 7, 9, 13, 14, 16, 17, 18, 20 thru 22 OF THE Sewerage STANDARD CONDITIONS DATED 09/02/83, AND CONDITIONS NUMBERED 1 through 12 OF THE EROSION CONTROL STANDARD CONDITIONS DATED 1985 WHICH CONDITIONS ARE ATTACHED AND MADE PART OF THIS PERMIT.
3. SPECIAL CONDITIONS DESIGNATED I, II WHICH ARE ATTACHED AND ARE MADE A PART OF THIS PERMIT.

INTERNAL REVIEW AND RECOMMENDATIONS — For Department Use Only

NAME OF Municipal Authority: Upper Gwynedd-Towamencin — PROJECT LOCATION: Towamencin Township, Montgomery County — APPLICATION NUMBER:

G. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. IF THERE IS A CONFLICT BETWEEN THE APPLICATION ON ITS SUPPORTING DOCUMENTS AND AMENDMENTS AND THE STANDARD OR SPECIAL CONDITIONS, THE STANDARD OR SPECIAL CONDITIONS SHALL APPLY.
2. FAILURE TO COMPLY WITH THE RULES AND REGULATIONS OF THE DEPARTMENT OR WITH THE TERMS OR CONDITIONS OF THIS PERMIT SHALL VOID THE AUTHORITY GIVEN TO THE PERMITTEE BY THE ISSUANCE OF THE PERMIT.
3. THIS PERMIT IS ISSUED PURSUANT TO THE CLEAN STREAMS LAW, ACT OF JUNE 22, 1937, P.L. 1987 AS AMENDED 35 P.S. § 691.1 ET SEQ. AND/OR THE WATER OBSTRUCTION ACT, ACT OF JUNE 25, 1913, P.L. 555 AS AMENDED 32 P.S. § 681 ET SEQ. ISSUANCE OF THIS PERMIT SHALL NOT RELIEVE THE PERMITTEE OF ANY RESPONSIBILITY UNDER ANY OTHER LAW

PERMIT ISSUED
DATE 12-20-85

DEPARTMENT OF ENVIRONMENTAL RESOURCES
BY Joseph A. Feola
TITLE Joseph A. Feola
Regional Water Quality Manager

(3F4)316.1

Upper Gwynedd-Towamencin Municipal Authority

Sewerage Permit No. 4685455

Towamencin Township, Montgomery County

This permit is subject to the following Special Condition(s):

I. The stream bed shall not be used as a roadway for moving machinery from one site to another. Temporary stream crossings must be provided for equipment that must cross the stream during construction. Any structures are to be removed and the stream bed returned to its original condition when the project is completed.

Siltation control shall be provided for during construction and bank stabilization shall be undertaken by planting of grasses, shrubbery, or trees immediately after completion of each phase of the project.

When channel changes occur, the stream bed shall not exceed the original width and if a greater cross sectional area is required, an elevated flood plain must be put into use.

All material and debris removed from the stream bed shall be moved entirely out of the flood plain area.

A permit must be secured from the Pennsylvania Fish Commission in Harrisburg, if the use of explosives is required. The following P.F.C. Waterways Patrolman must be notified when the project is started, when explosives are to be used, and when the project is completed for final inspection:

Guy Bowersox
1198 Old Evansburg Road
Collegeville, PA 19426
Telephone (215) 584-0255

II. This permit authorizes construction of the proposed sanitary sewer extension; however, the sanitary sewer extension shall be capped until such time as connections can be authorized. Connections will be restricted to those authorized in accordance with a Department approved wasteload management plan which is currently being administered by the Upper Gwynedd-Towamencin Municipal Authority.

(3F4)316.1.1
Capped Sanitary Sewers

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
Norristown, PA 19401
215 270-1975

DECEMBER 20,1985

Upper Gwynedd-Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: Ken Finger
Chairman

Re: Sewerage Permit No. 4685455
Phila. Suburban Development Corp.
Towamencin Township
Montgomery County

Gentlemen:

Referenced permit is enclosed.

Please note Special Condition II which restricts connection to the proposed sewer extension to those authorized by a Department approved wasteload management plan to be administered by the Authority.

Please study the permit carefully and direct any questions to the Permits Section of this office.

Very truly yours,

Joseph A. Feola

JOSEPH A. FEOLA
Regional Water Quality Manager

JAF:RD:bjo

Enclosures: Permit
Standard Conditions Relating to Sewerage
Standard Conditions Relating to Erosion Control

cc: C. Raymond Weir Associates, Inc.
Pennsylvania Fish Commission - Guy Bowersox
Pennsylvania Fish Commission - Jack Miller
Permits & Compliance
Re 30 (3F4)316

Department of Environmental Resources

1875 New Hope Street
Norristown, PA 19401
215 270-1923

October 15, 1985

Upper Gwynedd-Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: Kenneth Fingar
Chairman

Re: Application No. 4685455
Towamencin Township
Montgomery County

Gentlemen:

This will acknowledge receipt of your application on September 25, 1985 for approval to construct a sanitary sewer extension to serve Philadelphia Suburban Development Corporation in Towamencin Township, Montgomery County.

The material submitted is accepted for technical review and has been assigned to Tom Ahaneku, Sanitary Engineering Aide, of our staff who may be reached at 270-3657.

You are reminded that any proposed facilities cannot be constructed without first obtaining the required permits.

Very truly yours,

LEON T. GORSHUK
Regional Director

cc: Water Quality Management
Towamencin Township
C. Raymond Weir Associates, Inc.
Re 2W288

ER-EP-1: Rev. 8/82

FORM NO. 1

SUBJECT: Upper Gwynedd - Towamencin Mun. Auth. CONTACT(S): 855-8165

Application Nos.: 468545

2225 Kriebel Rd. Kenneth Finger

Lansdale, Pa. 19446 Chairman

New Proposal	✓
Revised Proposal	

FROM Regional Director William T. Weir P.E. C.L.S.

646-8070

FROM PERMIT SECTION
Bureau of Dams and Waterway Management Both Nun Nat Stms Attache

On Sept 25, 1985, we (accepted/received) an application for plan approval and/or permit to (construct/modify/install) a Sanitary Sewer Extension to serve Philadelphia Suburban Development

This proposal involves: Corporation located in Towamencin Twp Montg. Co.

Lansdale

N 2.8"

N 10.3"

Permit Coordination Requirements:

Program / Date 10-15-85	No Permit Required	No Permit Required Prior Approval Required	Permit Required Application on Hand	Permit Required Application Needed
Air Quality	✓			
Water Quality 532-DK GLENN	✓		WBG 10/1/85	
Solid Waste Management	✓			
Community Env. Control	✓			
Mining & Reclamation				
Radiation Protection				
Dams & Waterway Management	✓			

Please indicate your interest on this form and return to the Regional Director by 10-8-85. Failure to return the form by the indicated date will indicate that your program has no interest in the project.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES

1875 New Hope Street
Norristown, PA 19401
215 270-1975

November 16, 1987

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: Kenneth F. Finger
Chairman

Re: Sewerage Permit No. 4687464
Skippack Creek Interceptor,
Pump Station and Force Main
Towamencin and Lower Salford Townships
Montgomery County

Gentlemen:

Referenced permit is enclosed.

Please study the permit carefully and direct any questions to the Permits Section of this office.

Very truly yours,

Joseph A. Feola

JOSEPH A. FEOLA
Regional Water Quality Manager

JAF:RR:bjo

Enclosures: Permit
Standard Conditions Relating to Sewerage
Standard Conditions Relating to Erosion Control

cc: Thomas E. Whittle
David E. McKee
Permits & Compliance
Re 30 (3P1)225.1

RECEIVED
NOV 17 1987
U.G.T.M.A.

ER-BWQ-15-Rev. 11/85

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT

NO. 4687464

A. PERMITTEE: (Name and Address)

Upper Gwynedd-Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

B. PROJECT LOCATION

Municipality: Towamencin & Lower Salford Townships

County: Montgomery

C. TYPE OF FACILITY (For industrial wastes; type of establishment)

Sanitary Sewer and Pump Station

D. NAME OF PLANT, AREA SERVED, OUTFALL NO., ETC.

Skippack Creek Interceptor/Pump Station

E. THIS PERMIT APPROVES:

1. Plans For Construction Of:
   a. [X] Pump Stations: Sewers and Appurtenances
   b. [ ] Sewage Treatment Facilities
   c. [ ] Industrial Wastes Treatment Facilities
   d. [ ] Injection Well
   e. [ ] Outfall & Headwall
   f. [X] Stream Crossing
   g. [ ] Impoundment

2. The Discharge Of: a. [ ] Treated N/A b. [ ] Untreated c. [ ] Sewage d. [ ] Industrial Wastes

3. Discharge To:
   a. [ ] Surface Water N/A
   b. [ ] Ground Water
   Name of Stream to which discharged or drainage area in which groundwater discharge takes place or impoundment is located.

4. Preparedness, Prevention, Contingency (PPC) Plan [ ] N/A

5. An Erosion and Sedimentation Control Plan [X]
   Project Area is <10 Acres

F. THIS APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:

1. ALL CONSTRUCTION, OPERATIONS, PROCEDURES AND DISCHARGE SHALL BE IN ACCORDANCE WITH APPLICATION NO. 4687464 DATED 4/13/87 ITS SUPPORTING DOCUMENTATION, AND AMENDMENTS DATED 7/29/87 and 8/20/87. SUCH APPLICATION, ITS SUPPORTING DOCUMENTATION AND AMENDMENTS ARE HEREBY MADE A PART OF THIS PERMIT.

2. CONDITIONS NUMBERED 1 thru 7, 9, 13, 14, 16 thru 18, 20 thru 22 OF THE Sewerage STANDARD CONDITIONS DATED 09/02/83, AND CONDITIONS NUMBERED 1 through 12 OF THE EROSION CONTROL STANDARD CONDITIONS DATED 1985 WHICH CONDITIONS ARE ATTACHED AND MADE PART OF THIS PERMIT.

3. SPECIAL CONDITIONS DESIGNATED I, II, III, IV WHICH ARE ATTACHED AND ARE MADE A PART OF THIS PERMIT.

G. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. IF THERE IS A CONFLICT BETWEEN THE APPLICATION ON ITS SUPPORTING DOCUMENTS AND AMENDMENTS AND THE STANDARD OR SPECIAL CONDITIONS, THE STANDARD OR SPECIAL CONDITIONS SHALL APPLY.

2. FAILURE TO COMPLY WITH THE RULES AND REGULATIONS OF THE DEPARTMENT OR WITH THE TERMS OR CONDITIONS OF THIS PERMIT SHALL VOID THE AUTHORITY GIVEN TO THE PERMITTEE BY THE ISSUANCE OF THE PERMIT.

3. THIS PERMIT IS ISSUED PURSUANT TO THE CLEAN STREAMS LAW, ACT OF JUNE 22, 1937, P.L. 1987 AS AMENDED 35 P.S. §691.1 ET SEQ. AND/OR THE DAM SAFETY AND ENCROACHMENTS ACT OF NOVEMBER 26, 1978, P.L. 1375, AS AMENDED, 32 P.S. §693.1 ET SEQ. ISSUANCE OF THIS PERMIT SHALL NOT RELIEVE THE PERMITTEE OF ANY RESPONSIBILITY UNDER ANY OTHER LAW.

PERMIT ISSUED

DATE Nov. 16, 1987

DEPARTMENT OF ENVIRONMENTAL RESOURCES

BY Joseph A. Feola

Joseph A. Feola

TITLE ~~Regional Water Quality Manager~~

(3P2)225.1.1

Upper Gwynedd-Towamencin Municipal Authority
Sewerage Permit No. 4687464
Towamencin & Lower Salford Townships, Montgomery County

This permit is subject to the following Special Condition(s):

I. The stream bed shall not be used as a roadway for moving machinery from one site to another. Temporary stream crossings must be provided for equipment that must cross the stream during construction. Any structures are to be removed and the stream bed returned to its original condition when the project is completed.

Siltation control shall be provided for during construction and bank stabilization shall be undertaken by planting of grasses, shrubbery, or trees immediately after completion of each phase of the project.

II. When channel changes occur, the stream bed shall not exceed the original width and if a greater cross sectional area is required, an elevated flood plain must be put into use.

All material and debris removed from the stream bed shall be moved entirely out of the flood plain area.

III. A permit must be secured from the Pennsylvania Fish Commission in Harrisburg, if the use of explosives is required. The following P.F.C. Waterways Patrolman must be notified when the project is started, when explosives are to be used, and when the project is completed for final inspection:

Guy Bowersox
RD #1
Box 1147
Fleetwood, PA 19522
Telephone (215) 944-0273

IV. Since this is a stocked trout stream, no work is to be done between March 1 and June 15.

(3P1)225.1.2

DEPARTMENT OF ENVIRONMENTAL RESOURCES
STANDARD CONDITIONS RELATING TO EROSION CONTROL 1986
For Use in Water Quality Management Permits

1. By approval of the plans for which this permit is issued, neither the Department nor the Commonwealth of Pennsylvania assumes any responsibility for the feasibility of the plans or the operation of the measures and facilities to be constructed thereunder.

2. If at any time the erosion and sedimentation activities undertaken pursuant to this permit or the discharge of the effluent therefrom is causing or contributing to pollution of the waters of the Commonwealth, the permittee shall forthwith adopt such remedial measures as are acceptable to the Department.

3. This permit does not authorize any earth disturbance controlled by an ordinance enacted by a local municipality. Additional permits must be secured from local municipalities where earth-moving activities are covered by local ordinances.

4. At least seven days before earthmoving will begin, the permittee, by telephone or certified mail, shall notify the Department or its designee of the date for beginning of construction and invite the County Conservation District Representative to attend a pre-construction conference with the contractor. The permittee shall have his erosion control plan available at the site of the activity at all times.

5. All earthmoving activities shall be undertaken in the manner set forth in the erosion and sedimentation control plan identified with this permit. Revisions to the plan shall be approved by the Department.

6. The erosion control measures and facilities shall be constructed under the supervision and competent inspection of an individual trained and experienced in erosion control, and in accordance with plans, designs and other data as herein approved or amended, and with the conditions of this permit. Control facilities shall be frequently inspected to insure effective control.

7. When the herein approved erosion control measures and facilities are completed, the permittee shall notify the Department so that an inspection of the measures and facilities may be made by a representative of the County Conservation District.

8. No storm water, sewage or industrial wastes not specifically approved herein, shall be admitted to the erosion and sedimentation measures and facilities for which this permit is issued, unless with the approval of the Department.

9. Sediment shall at no time be permitted to accumulate in sedimentation basins to a depth sufficient to limit storage capacity or interfere with the settling efficiency thereof. The sediment removed shall be handled and disposed of in a manner that will not create pollution problems and so that every reasonable and practical precaution is taken to prevent the said material from reaching the waters of the Commonwealth.

10. All slopes, channels, ditches or any disturbed area shall be stabilized as soon as possible after the final grade or final earthmoving has been completed. Where it is not possible to permanently stabilize a disturbed area immediately after the final earthmoving has been completed or where the activity ceases for more than 20 days, interim stabilization measures shall be implemented promptly.

11. Upon completion of the project, all areas which were disturbed by the project shall be stabilized so that accelerated erosion will be prevented. Any erosion and sedimentation control facility required or necessary to protect areas from erosion during the stabilization period shall be maintained until stabilization is completed. Upon completion of stabilization, all unnecessary or unusable control measures and facilities shall be removed, the areas shall be graded and the soils shall be stabilized.

September 2, 1983

STANDARD CONDITIONS RELATING TO SEWERAGE - PART II PERMITS

ONE: During construction, no changes affecting any engineering design parameter shall be made from the plans, designs, and other data herein approved unless the permittee shall first receive written approval thereof from the Department. The sewerage facilities shall be constructed under expert engineering supervision and competent inspection.

TWO: The sewers shall have adequate foundation support as soil conditions require. Trenches shall be back-filled such that the sewers will have proper structural stability, with minimum settling and adequate protection against breakage. Concrete used in connection with these sewers shall be protected from injury by water, freezing, drying or other harmful conditions until cured.

THREE: Manhole inverts shall be so formed as to facilitate the flow of the sewage and to prevent the stranding of sewage solids, and the whole manhole structure shall have proper structural strength and be so constructed as to prevent undue infiltration, entrance of the street wash or grit, and to provide convenient and safe means of access and maintenance.

FOUR: No stormwater from pavements, area ways, roofs, foundation drains or other sources shall be admitted to the sanitary sewers herein approved.

FIVE: The permittee shall adopt and enforce an ordinance requiring the abandonment of privies, cesspools or similar receptacles for human waste and on-lot sewage disposal systems on the premises of occupied structures which are accessible to public sewers and require the connection of such structures to the public sewers.

SIX: The herein approved sewers shall be maintained in good condition, kept free from deposits by flushing or other proper means of cleaning, and repaired when necessary.

SEVEN: The permittee shall file with the Department of Environmental Resources "as-built" plans showing the correct plan of all sewers and sewerage structures as actually constructed together with any other information in connection therewith that may be required.

EIGHT: The outfall sewer or drain shall be extended to the low water mark of the receiving body of water. Where necessary to assure the proper mixing and waste assimilation an outfall sewer or drain may be extended with appurtenances below the low water mark and into the bed of navigable stream, provided that the permittee has secured an easement, right-of-way, license, or lease from the Department in accordance with Section 15 of the Dam Safety and Encroachment Act, the Act of November 26, 1978, P.L. 1375, as amended.

NINE: The approval herein given is specifically made contingent upon the permittee acquiring all necessary property rights, by easement or otherwise, providing for the satisfactory construction, operation, maintenance and replacement of all sewers or sewerage structures in, along, or across private property, with full rights of ingress, egress and regress.

TEN: When the herein approved sewage treatment works is completed and before it is placed in operation, the permittee shall notify the Department in writing so that an inspection of the works may be made by a representative of the Department.

ELEVEN: The various structures and apparatus of the sewage treatment works herein approved shall be maintained in proper condition so that the facility will individually and collectively perform the functions for which they were designed.

TWELVE: If, in the opinion of the Department, these works are not so operated or if by reason of change in the character of wastes or increased load upon the works, or changed use or condition of the receiving body of water, or otherwise the effluent from the said works ceases to be satisfactory or the sewerage facilities shall have created a public nuisance, then upon notice by the Department, the right herein granted shall cease and become null and void unless within the time specified by the Department, the permittee shall adopt such remedial measures as will produce an effluent which, in the opinion of the Department, will be satisfactory.

THIRTEEN: The attention of the permittee is called to the highly explosive nature of certain gases generated by the digestion of sewage solids when these gases are mixed in proper portions with air, and to the highly toxic character of certain gases arising from such digestion or from sewage in insufficiently ventilated compartments or sewers. Therefore, at all places throughout the sewerage facilities where hazard of fire, explosion, or danger from toxic gases may occur, the permittee shall post conspicuously proper warnings of a permanent and legible character and shall provide for the thorough instruction of all employees concerning the aforesaid hazards and in first aid and emergency methods of meeting such hazards and shall further provide, in a conveniently accessible place, all necessary equipment and material therefor.

FOURTEEN: Cross connections between the potable water supply and the sewerage system constitute a potential danger to the public health. Therefore, all direct and indirect connections whereby under normal or abnormal conditions the potable water supply may become contaminated from an inferior water supply from any unit of the sewage treatment works, or by any appurtenance thereof or from any part of a sewerage system are hereby specifically prohibited. The permittee is further warned against permitting to be made permanent any temporary connection with a potable supply designed to be held in place while being used for flushing or other purposes, and is also cautioned against the danger of back siphonage through portable hose lines and similar avenues of possible contamination.

FIFTEEN: This permit authorizes the construction and operation of the proposed sewerage facilities until such time as facilities for conveyance and treatment at a more suitable location are installled and are capable of receiving and treating the permittee's sewage. Such facilities must be in accordance with either the applicable municipal official plan adopted pursuant to Section 5 of the Pennsylvania Sewage Facilities Act, the Act of January 24, 1956, P.L. 1535, as amended, or a comprehensive Water Quality Management Plan as set forth in Section 91.31 of the Rules and Regulations of the Department. When such municipal sewerage facilities become available, the permittee shall provide for the conveyance of the sewage to these sewerage facilities, abandon the use of the herein-approved facilities and notify the Department accordingly. This permit shall then, upon notice from the Department, terminate and become null and void, and shall be relinquished to the Department.

SIXTEEN: The permittee shall construct the sewerage facilities in a manner compatible with good conservation methods in order to minimize the adverse effect on the environment.

SEVENTEEN: The local waterways patrolman of the Pennsylvania Fish Commission shall be notified when the construction of a stream crossing and outfall is started and completed. A permit must be secured from the Pennsylvania Fish Commission if the use of explosives is required. The permittee shall notify the local waterways patrolman when explosives are to be used.

EIGHTEEN: If future operations by the Commonwealth of Pennsylvania require modifications of the stream crossing and/or outfall, or there shall be unreasonable obstruction to the free passage of floods or navigation from the stream crossing and/or outfall, permittee shall remove or alter the structural work or obstruction without expense to the Commonwealth of Pennsylvania. If upon the revocation of the permit, the work shall not be completed, the permittee, at his own expense and in such time and manner as the Department may require, shall remove any or all portions of the incompleted work and restore the water-course to its former condition. No claims shall be made against the Commonwealth of Pennsylvania on account of any such removal or alteration.

NINETEEN: The sewage treatment plant shall be operated by an operator certified in accordance with the Sewage Treatment Plant and Waterworks Operators' Certification Act, the Act of November 18, 1968, P.L. 1217, as amended.

TWENTY: All industrial waste discharged or proposed for discharge into the sewer system shall be studied to determine the degree of pretreatment necessary in order that the industrial waste will not adversely affect the sewerage facilities or the sewage treatment process. The permittee shall properly control any industrial waste discharge into its sewerage system by regulating the rate of such discharge, requiring necessary pretreatment, and excluding industrial waste, if necessary, to protect the integrity of the permittee's sewerage system.

TWENTY-ONE: Receipt of this permit does not relieve the permittee of its obligations to comply with all federal, interstate, state, or local laws, ordinances, and regulations applicable to the sewerage facilities authorized herein.

TWENTY-TWO: This permit does not give any real or personal property rights or grant any exclusive privileges, nor shall it be construed to grant or confirm any right, title, easement, or interest in, on, to, or over any lands belonging to the Commonwealth.

SEWER EXTENSIONS and PUMPING STATIONS PERMIT APPLICATION
DEPARTMENT OF ENVIRONMENTAL RESOURCES

APPLICANT NAME* Upper Gwynedd-Towamencin, ADDRESS: 2225 Kriebel Road
CITY, ZIP Municipal Authority, Lansdale, PA 19446 TELEPHONE NUMBER: (215) 855-8165

*Applicant shall be the agency which will own the sewerage facilities following completion and/or dedication.

A filing fee of $100.00 will be required for sewer extension (collector sewers only). A filing fee of $500.00 will be required for all other type of facilities. This fee must be submitted with the application in the form of a check (not more than 15 days old) made payable to "Pennsylvania Department of Environmental Resources". This fee is not required of the State or Federal agencies. For a non-municipal applicant, an additional filing fee of $50.00 is required when the sewerage project involves a stream encroachment located within the delineated 100 year floodplain or within 50 feet of the stream bank in absence of a delineated floodplain.

PROJECT NAME Skippack Creek Pumping Station (Skippack Creek Interceptor and Force Main)
PROJECT LOCATION
MUNICIPALITY Towamencin Township
COUNTY Montgomery
BASIS OF DESIGN
DESIGN YEAR See EDM Design Report
DESIGN POPULATION See EDM Design Report

If the project is associated with land development, complete the following:
NAME OF DEVELOPMENT N/A
TYPE OF DEVELOPMENT
NUMBER OF UNITS PROJECT ACREAGE
PERMIT NO. OF RECEIVING SEWERS

NOTE: Please attach a drawing which clearly shows the boundaries of the proposed service area, the properties to be served, the location of the sewerage facilities, the slope of proposed sewers on the plan with inverts of manhole, point of connection to existing sewers, and all streets, streams or other important site features. Also, include specifications for the facilities and an erosion and sedimentation control plan.

For any deviations from the Sewerage Manual, please note clearly and fully justify.

FOR THE APPLICANT

I hereby apply for approval on (Date) April 1987 to construct and operate [ ] ~~Sewers and appurtenances~~ [x] Sewage pumping station~~(s)~~ which [X] does [ ] ~~does not~~ include stream crossing(s)/100 year floodplain location.

For sewage pumping stations include detailed construction plans and Module 2.

For stream crossing, include the plan and profile view of the sewer line and Module 11.

Affidavit: I hereby certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and based on my inquiry of those individuals immediately responsible for obtaining the information I believe the submitted information is true, accurate and complete.

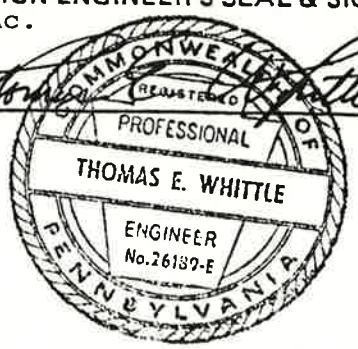
APPLICANT'S SIGNATURE
NAME AND TITLE: Kenneth F. Finger, Chairman UGTMA NOTARY SEAL
ADDRESS: (Same as above)
SWORN and subscribed to before me this day of , 19
NOTARY

FOR THE DESIGN ENGINEER

Affidavit, I, Thomas E. Whittle, do hereby certify that the information contained in the accompanying plans, specifications, and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance with the standards, guidelines and requirements of the Department of Environmental Resources.

DESIGN ENGINEER'S NAME Thomas E. Whittle
NAME OF ENGINEERING FIRM: Commonwealth Engineering & Technology, Inc.
ADDRESS, ZIP 3113 North Front Street Harrisburg, PA 17110
TELEPHONE NUMBER: (717) 232-2266

DESIGN ENGINEER'S SEAL & SIGNATURE



April 1, 1987
DATE REVISED

DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

FOR DEPARTMENT USE ONLY

WATER POLLUTION CONTROL
MODULE 2

TABLE 1 — SEWER SYSTEM

1. Class of construction ☐ New System ☐ Replacement of Existing System ☐ Sanitary ☐ Combined
2. Initial Population _____, Design Year Population _____
3. DESIGN FLOW DATA
   - (a) Laterals and Submain Sewers (GPCD) _____.
   - (b) Interceptors (GPCD) _____.
   - (c) Average Daily Flow (MGD) _____.
   - (d) Infiltration/Inflow (MGD) _____.
   - (e) Industrial Waste Flow (MGD) _____.
   - (f) Total Average Design Flow (MGD) _____.
   - (g) Maximum Expected Flow Rate (MGD) _____.
4. General Information:
   - (a) Describe measures taken to reduce I/I in the system including leakage test and reference applicable portion of the specifications.

     See separate module submission.

   - (b) Describe any overflows or bypasses within the system.

   - (c) If applicable, describe capacity of receiving sewers and pumping station and submit two copies of the executed inter municipal agreement.

TABLE 2 — PUMP STATION (Submit separate table for each pump station)

1. Pump Station Name: Skippack Creek Pumping Station
2. Location: Old Forty-Foot Road and Rittenhouse Road
3. Type (Conventional, suction lift, Ejector or submersible) submersible
4. Initial Population to be served: * , Design year population to be served. *
5. DESIGN INFORMATION

		AVG (MGD)	MAX (MGD)
(a) Domestic Flow Rate (based on Design population to be served)		1.38	*
(b) Industrial Flow Rate		1.17	*
(c) Infiltration/Inflow Rate		1.10	*
(d) Design Flow Rate		3.65	8.5
(e) Effective Wet Well Capacity	(Gal)	4,500	
(f) Detention Time	(Min)	1.8	
(g) Design Average Velocity in Force Main	(Fps)	see attached table	

(h) Total Dynamic (Head Pump Station + Force Main)
Static Head 89.73 Ft.
Friction Loss _____ Ft. see attached table
TDH _____ Ft see attached table

* See EDM Design Report

(Continued)

MODULE 2

TABLE 2 - PUMP STATION

Skippack Creek Pumping Station

DESIGN INFORMATION

5. (g) Design Average Velocity in Force Main

With two force mains and four pumps, there are eight possible design average velocities. The fifth pump serves as a stand-by.

Number of Pumps	Velocity (fps), One Force Main	Velocity (fps), Two Force Mains
1	3.18	1.79
2	4.77*	3.10
3	5.57	4.10
4	5.97	4.69

* - Second force main will be put on line when the average flow exceeds 5 MGD.

5. (h) Friction Loss and Total Dynamic Head

With two force mains and four pumps, there are eight possible friction loss figures.

Number of Pumps	Friction Loss (Ft.), One Force Main	Friction Loss (Ft.), Two Force Mains
1	32.27	14.27
2	60.27	32.27
3	77.27	48.27
4	86.27	60.27

With two force mains and four pumps, there are eight possible total dynamic head figures.

Number of Pumps	TDH (Ft.), One Force Main	TDH (Ft.), Two Force Mains
1	122	104
2	150	122
3	167	138
4	176	150

DATE PREPARED
April 1, 1987
DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

FOR DEPARTMENT USE ONLY

WATER POLLUTION CONTROL
MODULE 11
STREAM ENCROACHMENT

GENERAL

1. Note how the construction work along and in the stream will be conducted to avoid excessive turbidity in the stream. Such features as control of runoff, trapping sediment, pump discharges, disposal of material removed, sequence of construction, and construction techniques should be addressed. (Reference may be made to applicable sections of plans, specifications, and erosion control plan).

2. Note those measures which have been taken to minimize disturbing or uprooting trees and vegetation along and in the vicinity of the stream to preserve streambank stability. Also, note those measures which will be taken to restore and stabilize the streambank areas which must be disturbed during construction. (Reference may be made to applicable sections of plans, specifications and erosion control plan).

STREAM CROSSINGS

1. Please justify the need for each stream crossing including evaluation of alternatives to minimize the number of crossings.

2. What measures will be taken to insure the sewer crossing under a stream will be rendered throughly water tight and remain in alignment?

3. For any sewer without the required cover (1 foot in rock and 3 feet in other material), please explain why such cover is not provided and what measures are to be taken to minimize the erosion threat at the crossing location and the aesthetics of the permanent sewer crossing.

4. Note how manholes along the stream will be made watertight if the top elevation is below the 100 year flood.

5. List crossings by stream name and sheet numbers in plans. Provide extra set of plan sheets only with stream crossing.

HEADWALLS/OUTFALLS

1. Explain how the headwall/outfall structure will be constructed to minimize downstream and/or bank erosion and achieve complete mixing of the treated effluent with the streamflow within a short distance.

2. Identify stream by name, show design of outfall/headwall on plan sheet and provide an extra copy.

Describe below all of the applicable items from the above.

See attached narrative.

ER-BWQ-265: Rev. 3/83

SEWER EXTENSIONS and PUMPING STATIONS PERMIT APPLICATION
DEPARTMENT OF ENVIRONMENTAL RESOURCES

APPLICANT NAME* Upper Gwynedd-Towamencin Municipal Authority, ADDRESS: 2225 Kriebel Road
CITY, ZIP Lansdale, PA 19446, TELEPHONE NUMBER: (215) 855-8165
*Applicant shall be the agency which will own the sewerage facilities following completion and/or dedication.

A filing fee of $100.00 will be required for sewer extension (collector sewers only). A filing fee of $500.00 will be required for all other type of facilities. This fee must be submitted with the application in the form of a check (not more than 15 days old) made payable to "Pennsylvania Department of Environmental Resources". This fee is not required of the State or Federal agencies. For a non-municipal applicant, an additional filing fee of $50.00 is required when the sewerage project involves a stream encroachment located within the delineated 100 year floodplain or within 50 feet of the stream bank in absence of a delineated floodplain.

PROJECT NAME Skippack Creek Interceptor & Force Main

PROJECT LOCATION
MUNICIPALITY Towamencin/Lower Salford
COUNTY Montgomery

BASIS OF DESIGN
DESIGN YEAR * *
DESIGN POPULATION * *
* * See Design Report

If the project is associated with land development, complete the following:
NAME OF DEVELOPMENT N/A
TYPE OF DEVELOPMENT
NUMBER OF UNITS, PROJECT ACREAGE
PERMIT NO. OF RECEIVING SEWERS

NOTE: Please attach a drawing which clearly shows the boundaries of the proposed service area, the properties to be served, the location of the sewerage facilities, the slope of proposed sewers on the plan with inverts of manhole, point of connection to existing sewers, and all streets, streams or other important site features. Also, include specifications for the facilities and an erosion and sedimentation control plan. (See attached plans, specifications, and design report)

For any deviations from the Sewerage Manual, please note clearly and fully justify.

FOR THE APPLICANT

I hereby apply for approval on (Date) April 1987 to construct and operate [ ] Sewers and appurtenances [ ] Sewage pumping station(s) which [ ] does [ ] ~~does not~~ include stream crossing(s)/100 year floodplain location.

For sewage pumping stations include detailed construction plans and Module 2.

For stream crossing, include the plan and profile view of the sewer line and Module 11.

Affidavit: I hereby certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and based on my inquiry of those individuals immediately responsible for obtaining the information I believe the submitted information is true, accurate and complete.

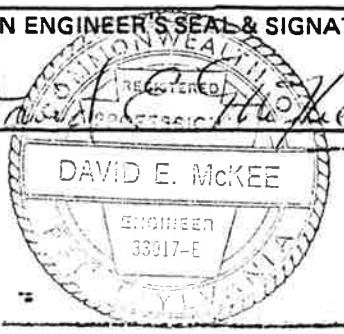
APPLICANT'S SIGNATURE
NAME AND TITLE: Kenneth F. Finger, Chairman UGTMA — NOTARY SEAL
ADDRESS: (Same as above)
SWORN and subscribed to before me this ____ day of ____, 19____
NOTARY

FOR THE DESIGN ENGINEER

Affidavit, I, David E. McKee, do hereby certify that the information contained in the accompanying plans, specifications, and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance with the standards, guidelines and requirements of the Department of Environmental Resources.

DESIGN ENGINEER'S NAME David E. McKee PE
NAME OF ENGINEERING FIRM: EDM Consultants, Inc.
ADDRESS, ZIP 100 W. Main St. Suite 204, Lansdale, PA 19446
TELEPHONE NUMBER: (215) 362-0360

DESIGN ENGINEER'S SEAL & SIGNATURE



ER-BWQ-188.2:REV.3/83

DATE PREPARED
April 1,1987
DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 2

FOR DEPARTMENT USE ONLY

TABLE 1 — SEWER SYSTEM

1. Class of construction * ☒ New System ☒ Replacement of Existing System ☒ Sanitary ☐ Combined
2. Initial Population _____ , Design Year Population ** _____
3. **DESIGN FLOW DATA**

(a)	Laterals and Submain Sewers	(GPCD)	N/A
(b)	Interceptors	(GPCD)	N/A
(c)	Average Daily Flow	(MGD)	1.38
(d)	Infiltration/Inflow	(MGD)	1.10
(e)	Industrial Waste Flow	(MGD)	1.17
(f)	Total Average Design Flow	(MGD)	3.65
(g)	Maximum Expected Flow Rate	(MGD)	8.48

** See Design Report

4. **General Information:**

(a) **Describe measures taken to reduce I/I in the system including leakage test and reference applicable portion of the specifications.** Pipelines and manholes will be leak tested per Section 02651 and Section 02601, respectively.

(b) **Describe any overflows or bypasses within the system.** None

(c) **If applicable, describe capacity of receiving sewers and pumping station and submit two copies of the executed inter municipal agreement.** Flow from the interceptor is tributary to the proposed Skippack Creek Pump Station (SCPS) as described in a separate module. The flow from the SCPS discharges to the UGTMA wastewater treatment plant. The WWTP influent pump station has a proposed capacity of 13.0 MGD.

TABLE 2 — PUMP STATION (Submit separate table for each pump station)

1. Pump Station Name:
2. Location: SEE SEPARATE MODULE SUBMISSION
3. Type (Conventional, suction lift, Ejector or submersible) _____
4. Initial Population to be served: _____ , Design year population to be served. _____
5. **DESIGN INFORMATION**

		AVG (MGD)	MAX (MGD)
(a) Domestic Flow Rate (based on Design population to be served)		_____	_____
(b) Industrial Flow Rate		_____	_____
(c) Infiltration/Inflow Rate		_____	_____
(d) Design Flow Rate		_____	_____
(e) Effective Wet Well Capacity	(Gal) _____		
(f) Detention Time	(Min) _____		
(g) Design Average Velocity in Force Main	(Fps) _____		

(h) Total Dynamic (Head Pump Station + Force Main)
Static Head _____ Ft.
Friction Loss _____ Ft.
TDH _____ Ft.

(Continued)

ER-BWQ-188.11:REV.3/83

DATE PREPARED
April 1, 1987
DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

FOR DEPARTMENT USE ONLY

WATER POLLUTION CONTROL
MODULE 11
STREAM ENCROACHMENT

GENERAL

1. Note how the construction work along and in the stream will be conducted to avoid excessive turbidity in the stream. Such features as control of runoff, trapping sediment, pump discharges, disposal of material removed, sequence of construction, and construction techniques should be addressed. (Reference may be made to applicable sections of plans, specifications, and erosion control plan).

2. Note those measures which have been taken to minimize disturbing or uprooting trees and vegetation along and in the vicinity of the stream to preserve streambank stability. Also, note those measures which will be taken to restore and stabilize the streambank areas which must be disturbed during construction. (Reference may be made to applicable sections of plans, specifications and erosion control plan).

STREAM CROSSINGS

1. Please justify the need for each stream crossing including evaluation of alternatives to minimize the number of crossings.

2. What measures will be taken to insure the sewer crossing under a stream will be rendered throughly water tight and remain in alignment?

3. For any sewer without the required cover (1 foot in rock and 3 feet in other material), please explain why such cover is not provided and what measures are to be taken to minimize the erosion threat at the crossing location and the aesthetics of the permanent sewer crossing.

4. Note how manholes along the stream will be made watertight if the top elevation is below the 100 year flood.

5. List crossings by stream name and sheet numbers in plans. Provide extra set of plan sheets only with stream crossing.

HEADWALLS/OUTFALLS

1. Explain how the headwall/outfall structure will be constructed to minimize downstream and/or bank erosion and achieve complete mixing of the treated effluent with the streamflow within a short distance.

2. Identify stream by name, show design of outfall/headwall on plan sheet and provide an extra copy.

Describe below all of the applicable items from the above.

EDM Consultants, Inc.
Skippack Creek Interceptor and Force Main
April, 1987

Module 11 - Stream Encroachment

GENERAL

A silt fence or row of hay bales will be placed between the sewer trench and the stream to minimize sediment transport into the stream. Excavated material will be used to backfill the trench. The plans and specifications give detailed information, with sheets 15, 16, and 18 showing stream crossing details and sheet 18 also indicating soil and erosion control methods. The following general construction criteria will be established to minimize the impacts of the stream encroachments.

1. All erosion and sediment control practices shall be in place prior to any grading operations and installation of proposed utilities.

2. All erosion and sediment control practices shall be left in place until construction is completed and/or area is stabilized.

3. Disturbed areas shall be temporarily seeded and/or mulched until proper weather conditions exist for establishment of a permanent vegetative cover.

4. Land grading and excavating should be kept at a minimum to reduce the possibility of creating runoff and erosion problems which require extensive control measures.

5. Topsoil should be removed and stockpiled before grading begins.

6. Land exposure should be minimized in terms of area and time.

7. Natural vegetation should be retained whenever feasible.

8. Roadways and parking lots should be paved or otherwise stabilized as soon as feasible.

9. Clearing and grading should not be started until a firm construction schedule is known and can be effectively coordinated with the grading and clearing activity.

10. All control devises shall be removed after construction has been completed (i.e. haybales shall not be allowed to rot in place). Also provisions shall be made for replacement of erosion/sediment control devices to retain their desired effectiveness throughout the Project construction.

STREAM CROSSING

The number of stream crossings has been minimized by routing the gravity line along the northern side of the Skippack Creek with only two major crossings. One crossing occurs just west of the PA Turnpike and the other occurs near the intersection of Rittenhouse Road and Old Forty Foot Road. Routing the sewer along the southern side of Skippack Creek would require excavations in excess of 20 feet deep, excessive cutting of trees in heavily wooded areas, and two major future stream crossing to facilitate connection of existing sewers in Lower Salford Township.

The sewers installed in all stream crossings will be a minimum of one foot below the stream bed and will be encased in concrete as shown on the plan sheets 15, 16, and 18. Those manholes along the stream located below the 100 yr flood elevation will be provided with a water tight cover. The sewer line will be vented by vent stacks at select manholes. Vents will be provided at a maximum of every 1000 feet along the sewer. The manhole schedule on sheet 15 lists the type of cover to be provided for each manhole.

Attached is a list of the stream crossings.

STREAM CROSSINGS

Stream Crossing No.	Sheet No.	Linear Feet Concrete Encasement	Stream Name	Stream Crossing Construction Procedure Alt.
1	14	365	Skippack Creek Tributary	A
2	14	55	Skippack Creek	B, C, or D
3	13	40	Skippack Creek Tributary	B, C, or D
4	12	80	Skippack Creek Tributary	B, C, or D
5	12	110	Skippack Creek Tributary	B, C, or D
6	11	30	Skippack Creek Tributary	B, C, or D
7	10	105	Skippack Creek	B, C, or D
8	9	30	Skippack Creek Tributary	B, C, or D
9	9	25	Skippack Creek Tributary	B, C, or D
10	7	50	Skippack Creek Tributary	B, C, or D
11	5	40	Towamencin Creek Tributary	B, C, or D

DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT NO. 4693417

A. PERMITTEE: (Name and Address)

Towamencin Township
1675 Sumneytown Pike
Kulpsville, PA 19443

B. PROJECT LOCATION

Municipality: Towamencin Township

County: Montgomery

C. TYPE OF FACILITY (For industrial wastes, type of establishment)

Sanitary Sewer Extension

D. NAME OF PLANT, AREA SERVED, OUTFALL NO., ETC.

Towamencin Creek Interceptor

E. THIS PERMIT APPROVES:

1. Plans For Construction Of:
   a. [X] Pump Stations: Sewers and Appurtenances
   b. [ ] Sewage Treatment Facilities
   c. [ ] Industrial Wastes Treatment Facilities
   d. [ ] Injection Well
   e. [ ] Outfall & Headwall
   f. [X] Stream Crossing
   g. [ ] Impoundment

2. The Discharge Of: a. [ ] Treated N/A b. [ ] Untreated c. [ ] Sewage d. [ ] Industrial Wastes

3. Discharge To:
   a. [ ] Surface Water
   b. [ ] Ground Water
   N/A — Name of Stream to which discharged or drainage area in which groundwater discharge takes place or impoundment is located.

4. Preparedness, Prevention, Contingency (PPC) Plan [ ] N/A

5. An Erosion and Sedimentation Control Plan [X]
   Project Area is 3.6 Acres

F. THIS APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:

1. ALL CONSTRUCTION, OPERATIONS, PROCEDURES AND DISCHARGE SHALL BE IN ACCORDANCE WITH APPLICATION NO. 4693417 DATED 4/20/1993 ITS SUPPORTING DOCUMENTATION, AND AMENDMENTS DATED _____. SUCH APPLICATION, ITS SUPPORTING DOCUMENTATION AND AMENDMENTS ARE HEREBY MADE A PART OF THIS PERMIT.

2. CONDITIONS NUMBERED 1 thru 7, 9, 13, 14, 16, 17, 18, 20 thru 22 OF THE Sewerage STANDARD CONDITIONS DATED 09/02/83 AND CONDITIONS NUMBERED 1 thru 12 OF THE EROSION CONTROL STANDARD CONDITIONS DATED August, 1991 WHICH CONDITIONS ARE ATTACHED AND MADE PART OF THIS PERMIT.

3. SPECIAL CONDITIONS DESIGNATED I WHICH ARE ATTACHED ~~AND~~ ARE MADE A PART OF THIS PERMIT.

G. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. IF THERE IS A CONFLICT BETWEEN THE APPLICATION ON ITS SUPPORTING DOCUMENTS AND AMENDMENTS AND THE STANDARD OR SPECIAL CONDITIONS, THE STANDARD OR SPECIAL CONDITIONS SHALL APPLY.

2. FAILURE TO COMPLY WITH THE RULES AND REGULATIONS OF THE DEPARTMENT OR WITH THE TERMS OR CONDITIONS OF THIS PERMIT SHALL VOID THE AUTHORITY GIVEN TO THE PERMITTEE BY THE ISSUANCE OF THE PERMIT.

3. THIS PERMIT IS ISSUED PURSUANT TO THE CLEAN STREAMS LAW, ACT OF JUNE 22, 1937, P.L. 1987 AS AMENDED 35 P.S. §691.1 ET SEQ. AND/OR THE DAM SAFETY AND ENCROACHMENTS ACT OF NOVEMBER 26, 1978, P.L. 1375, AS AMENDED, 32 P.S. §693.1 ET SEQ. ISSUANCE OF THIS PERMIT SHALL NOT RELIEVE THE PERMITTEE OF ANY RESPONSIBILITY UNDER ANY OTHER LAW.

PERMIT ISSUED

DATE 7-19-93

DEPARTMENT OF ENVIRONMENTAL RESOURCES

BY Joseph A. Feola

Joseph A. Feola

TITLE Water Management Program Manager

(WQM).1

Sewerage Permit No. 4693417
Towamencin Township
Towamencin Township, Montgomery County

This permit is subject to the following Special Condition(s):

I. A permit must be secured from the Pennsylvania Fish and Boat Commission in Harrisburg, if the use of explosives is required. The following P.F.C. Waterways Patrolman must be notified when the project is started, when explosives are to be used, and when the project is completed for final inspection:

Robert Nestor
P.O. Box 1241
King of Prussia, PA 19406

(WQM).3

EDM CONSULTANTS, INC.
1101 South Broad Street, Suite 200 P. O. Box 1545, Lansdale, PA 19446
Phone (215) 393-0670 Fax (215) 393-0652

June 14 , 2000

Upper Gwynedd-Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attn: Mr. Dennis Alig, Manager

RE: Towamencin Creek Interceptor Sewer
PaDEP Water Quality Management
Permit No. 4600413

FILE: 101-103C (1.00)

Gentlemen:

We have reviewed the PaDEP Water Quality Management Permit No. 4600413 for the Towamencin Creek Interceptor Sewer from Manhole No. 109 to Manhole No. 112. The permit is subject to various general permit conditions and erosion and sedimentation control permit conditions all of which are or will be satisfied by existing Township and UGTMA regulations or in the contract specifications.

All required permits have been received for this project. Preparation of contract documents for public bidding can proceed pending Township authorization.

Should you have any additional questions or require further information, please contact this office.

Very truly yours,

EDM CONSULTANTS, INC.

William K. Dingman, P.E.
President

WKD/grw
Enclosure
pc: Mr. John Granger, Manager, Towamencin Township (w/encl)

v:\101\103CWQMPermitTT

Pennsylvania Department of Environmental Protection
Lee Park, Suite 6010
555 North Lane
Conshohocken, PA 19428

Southeast Regional Office

610-832-6130
Fax 610-832-6133

June 6, 2000

RECEIVED
JUN - 7 2000
CONSULTANTS

Mr. Kenneth Finger
Upper Gwynedd/Towamencin
Municipal Authority
2225 Kribel Road
Lansdale, PA 19446

Re: Sewerage Permit No. 4600413
Towamencin Creek Interceptor
APS No. 322979, AUTH No. 327127
Towamencin Township
Montgomery County

Dear Mr. Finger:

Referenced permit is enclosed.

Please study the permit carefully and direct any questions to the Permits Section of this office.

Please take the time to complete the enclosed questionnaire and return it in the pre-addressed and stamped envelope. Your response will be taken into account, as we consider ways of improving our service to the public and regulated community. Thank you for your cooperation.

Sincerely,

James Newbold, P.E.
Regional Manager
Water Management

Enclosures: Permit
Standard Conditions Relating to Sewerage
Standard Conditions Relating to Erosion Control

cc: Mr. Wrigley – EDM Consultants, Inc.
Towamencin Township
Montgomery County Health Department
Permits and Compliance
Permits Chief
Assistant Regional Director (Transmittal Letter Only)
Re 30 (RN00)139-25C

3600-PM-WQ0015 Rev. 8/94

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER MANAGEMENT PROGRAM

PERMIT NO. 4600413

AMENDMENT NO. _____

WATER QUALITY MANAGEMENT PERMIT

A. PERMITTEE (Name & Address):
Upper Gwynedd/Towamencin Municipal Authority - Client ID No. 52551
2225 Kribel Road
Lansdale, PA 19446

B. PROJECT (Name, County, Municipality)
Towamencin Creek Interceptor - Site ID No. 451588
Towamencin Township
Montgomery County

C. THIS: X **Permit** ____ **Permit Amendment**

APPROVES:

X	**The construction/operation of:**	____	**Modification(s) to the construction/operation of:**
____	Sewage Treatment Facilities	____	Industrial Waste Treatment Facilities
____	Land Application Facilities	____	Other: ____
	Average Design Flow of ____ MGD consisting of: ____		
X	Sewers and Appurtenances	____	Pump Station(s)
____	Impoundment(s)	____	Injection Well(s)
____	Soil Erosion & Sedimentation Control Plan		
X	Stream Crossing(s)	____	Outfall & Headwall(s)

D. APPROVAL GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING CONDITIONS:

1. a. All construction, operations, and procedures shall be in accordance with the Water Quality Management Permit/Permit Amendment Application dated **April 11, 2000**, its supporting documentation, and addendums dated ____. Such application, its supporting documentation and addendums are hereby made a part of this permit.

b. Water Quality Management Permit No. ____ dated ____ and conditions, supporting documentation and addendums are (except for any modifications to the original permit herein permitted) also made a part of this permit amendment.

2. Conditions numbered **1-6, 8, 11-15, 17-19** of the **Sewerage** standard conditions dated **09/98** and conditions numbered **1-13** of the erosion control standard conditions dated **09/98** are attached and made part of this permit.

3. Special conditions numbered **I** are attached and made part of this permit.

E. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. If there is a conflict between the application or its supporting documents and amendments and the standard or special conditions, the standard or special conditions shall apply.
2. Failure to comply with the rules and regulations of the Department or with the terms or conditions of this permit shall void the authority given to the permittee by the issuance of the permit.
3. This permit is issued pursuant to the Clean Stream law Act of June 22, 1937, P.L. 1987, as amended 35 P.S. § 691.1 et seq., and/or the Dam Safety and Encroachments Act of November 26, 1978, P.L. 1375, as amended, 32 P.S. § 693.1 et seq. Issuance of this permit shall not relieve the permittee of any responsibility under any other law.
4. Industrial Facilities - If the herein permitted facilities or modifications are not completed with two (2) years of the issue date below, this permit will become null and void and reapplication shall be required.

PERMIT ISSUED:
DATE June 6, 2000

AMENDMENT ISSUED:
DATE ____

DEPARTMENT OF ENVIRONMENTAL PROTECTION
BY: James Vanaldi
TITLE: Regional Manager, Water Management

Re 30 (RN00)139-25A

Sewerage Permit No. 4600413
Upper Gwynedd/Towamencin Municipal Authority
Towamencin Township, Montgomery County

This permit is subject to the following Special Condition(s):

I. Consistent with Department of Environmental Protection Policy, the Department did not conduct a detailed technical review of the application for this permit. The Department considers the registered professional engineer whose seal is affixed to the design documents, to be fully responsible for the adequacy of all aspects of the facility design.

Re 30 (RN00)139-25B

3820-PM-WQ0015b 9/98

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

STANDARD CONDITIONS RELATING TO SEWERAGE
for Use in Water Quality Management Permits

1. During construction, no changes affecting any engineering design parameter relied on in issuing this permit shall be made from the plans, designs, and other data herein approved unless the permittee shall first receive written approval thereof from the Department. The sewerage facilities shall be constructed under expert engineering supervision and competent inspection.

The permittee shall maintain "as-built" plans showing the correct plan of all sewers and sewerage structures as actually constructed together with any other information that may be required. The Permittee shall also maintain facility operation and maintenance (O&M) manuals at the facility to assure proper O&M of the permitted facility. The Permittee shall file the "as-builts" and O&M manuals with the Department upon request.

2. The sewers shall have adequate foundation support as soil conditions require. Trenches shall be back-filled such that the sewers will have proper structural stability, with minimum settling and adequate protection against breakage. Concrete used in connection with these sewers shall be protected from damage by water, freezing, drying or other harmful conditions until cured.

3. Manhole inverts shall be so formed as to facilitate the flow of the sewage and to prevent the standing of sewage solids, and the whole manhole structure shall have proper structural strength and be so constructed as to prevent undue infiltration, entrance of the street wash or grit, and to provide convenient and safe means of access and maintenance.

4. No stormwater from pavements, area ways, roofs, foundation drains, basement drains, or other sources shall be admitted to the sanitary sewers herein approved. The stormwater from stormwater collection and retention facilities serving the facility may be discharged to the plant headworks at a hydraulic and organic rate which will not violate the Permit.

5. The permittee shall adopt and enforce an ordinance requiring the abandonment of privies, cesspools or similar receptacles for human waste and on-lot sewage disposal systems on the premises of occupied structures which are accessible to public sewers and require the connection of such structures to the public sewers.

6. The herein approved sewers shall be maintained in good condition, kept free from deposits by flushing or other proper means of cleaning, and repaired when necessary.

7. The outfall sewer or drain shall be extended to the low water mark of the receiving body of water. Where necessary to assure the proper mixing and waste assimilation, an outfall sewer or drain may be extended with appurtenances below the low water mark and into the bed of a navigable stream, provided that the permittee has secured an easement, right-of-way, license, or lease from the Department in accordance with Section 15 of the Dam Safety and Encroachments Act, the Act of November 26, 1978, P.L. 1375, as amended.

8. The approval is specifically made contingent upon the permittee acquiring all necessary property rights, by easement or otherwise, providing for the satisfactory construction, operation, maintenance and replacement of all sewers or sewerage structures in, along, or across private property, with full rights of ingress, egress and regress.

9. The various structures and apparatus of the sewage treatment works herein approved shall be maintained in proper condition so that the facility will individually and collectively perform the functions for which they were designed.

10. When the herein approved sewage treatment works is completed and before it is placed in operation, the permittee shall notify the Department in writing so that an inspection of the works may be made by a representative of the Department.

11. If, at any time, the sewage and/or conveyance facilities covered by this permit create a public nuisance, including but not limited to, causing malodors, or cause environmental harm to waters of the Commonwealth, the Department may require the Permittee to adopt appropriate remedial measures to abate the nuisance or harm.

12. The attention of the permittee is called to the highly explosive nature of certain gases generated by the digestion of sewage solids when these gases are mixed in proper portions with air, and to the highly toxic character of certain gases arising from such digestion or from sewage in insufficiently ventilated compartments or sewers. Therefore, at all places throughout the sewerage facilities where hazard of fire, explosion, or danger from toxic gases may occur, the permittee shall post conspicuously proper warnings of a permanent and legible character and shall provide for the thorough instruction of all employees concerning the aforesaid hazards and in first aid and emergency methods of meeting such hazards and shall further provide, in a conveniently accessible place, all necessary equipment and material therefor.

13. Cross connections between the potable water supply and the sewerage system constitute a potential danger to the public health. Therefore, all direct and indirect connections whereby under normal or abnormal conditions the potable water supply may become contaminated from an inferior water supply from any unit of the sewage treatment works, or by any appurtenance thereof or from any part of a sewerage system are hereby specifically prohibited. The permittee is further warned against permitting to be made permanent any temporary connection with a potable supply designed to be held in place while being used for flushing or other purposes, and is also cautioned against the danger of back siphonage through portable hose lines and similar avenues of possible contamination.

14. This permit authorizes the construction and operation of the proposed sewerage facilities until such time as facilities for conveyance and treatment at a more suitable location are installed and are capable of receiving and treating the permittee's sewage. Such facilities must be in accordance with either the applicable municipal official plan adopted pursuant to Section 5 of the Pennsylvania Sewage Facilities Act, the Act of January 24, 1966, P.L. 1535, as amended, or a comprehensive Water Quality Management Plan as set forth in Section 91.31 of the Rules and Regulations of the Department. When such municipal sewerage facilities become available, the permittee shall provide for the conveyance of the sewage to these sewerage facilities, abandon the use of the herein-approved facilities and notify the Department accordingly. This permit shall then, upon notice from the Department, terminate and become null and void, and shall be relinquished to the Department.

15. The local waterways patrolman of the Pennsylvania Fish and Boat Commission shall be notified when the construction of a stream crossing and outfall is started and completed. A permit must be secured from the Pennsylvania Fish and Boat Commission if the use of explosives is required. The permittee shall notify the local waterways patrolman when explosives are to be used.

16. The sewage treatment plant shall be operated by an operator certified in accordance with the Sewage Treatment Plant and Waterworks Operators' Certification Act, the Act of November 18, 1968, P.L. 1217, as amended.

17. The permittee shall properly control any industrial waste discharged into its sewerage system by regulating the rate and quality of such discharge, requiring necessary pretreatment, and excluding industrial waste, if necessary, to protect the integrity or operation of the permittee's sewerage system.

18. The permit does not relieve the permittee of its obligations to comply with all federal, interstate, state, or local laws, ordinances, and regulations applicable to the sewerage facilities authorized herein.

19. This permit does not give any real or personal property rights or grant any exclusive privileges, nor shall it be construed to grant or confirm any right, title, easement, or interest in, on, to, or over any lands belonging to the Commonwealth.

20. No untreated or ineffectively treated wastewaters from any facility shall be discharged into the waters of the Commonwealth, and special care shall be used in developing and implementing the PPC plan to prevent accidental "spills" or similar unusal discharges of all raw, finished and waste materials.

21. No stormwater from pavements, area ways, roofs, foundation drains, basement drains, or other sources shall be admitted to the sanitary sewers herein approved. The stormwater from stormwater collection and retention facilities serving the facility may be discharged to the plant has wastes as a hydraulic and organic rate which will not violate the Permit.

ER – EP

START

DEPARTMENT OF ENVIRONMENTAL RESOURCES

BUREAU / PROGRAM Water Quality Management

ENVIRONMENTAL PROTECTION

DIVISION

COUNTY / MUNICIPALITY 46949

PROGRAM Sew

START

CASE NAME Upper Gwynedd Township Municipal Authority

FILE P

PERMIT NO.

BUREAU / PROGRAM Water Quality Management

DIVISION

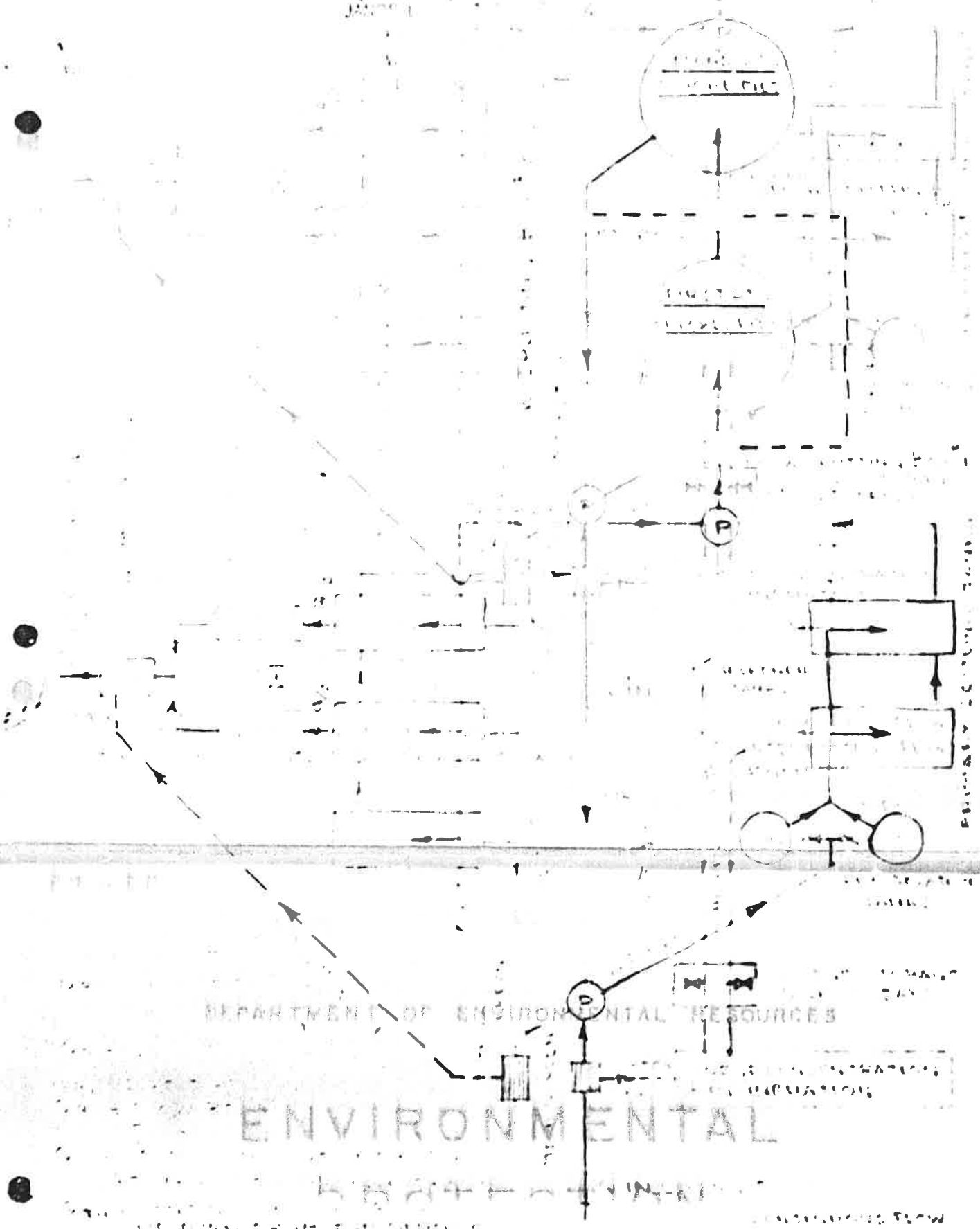
COUNTY / MUNICIPALITY 46949

PROGRAM Sew

CASE NAME Upper Gwynedd Township Municipal Authority

FILE P

PERMIT NO. 765513



DEPARTMENT OF ENVIRONMENTAL RESOURCES
ENVIRONMENTAL

RECEIVED
REGION VII
PHILADELPHIA OFFICE

JÁNOS LIPTÁK & ASSOCIATES
510 DAVISVILLE RD.
WILLOW GROVE, PA.
TEL: 215-659-7244

RECEIVED
REGION VII
PHILADELPHIA OFFICE

[illegible] and Operation of the Treatment Unit

1. [illegible] sewage

[illegible] ft. wide, [illegible] ft. long, 7 ft. deep at the sludge [illegible] at the effluent end.

Capacity [illegible] gal.

[illegible] flow = [illegible] hr.

[illegible] rate @ design ave. flow = [illegible] gpd/sq. ft.

[illegible] flow rate @ design ave. flow = [illegible] gpd/sq. ft.

[illegible] ft. x [illegible] ft. x [illegible] ft. deep, [illegible] gal. capacity.

[illegible] gal.

[illegible] flow = [illegible] hr.

[illegible] ft.

2. Alternate chlorinating following two units

[illegible] sq. ft.

3. [illegible] for treatment unit

[illegible] days of [illegible] sludge

4. [illegible] Two units

[illegible] sq. ft.

5. [illegible]

[illegible]

6. Chlorinator: Two units, built approximately [illegible] ft. [illegible]".

7. Piping Connections

Various filtrate

RECEIVED
REGION VII
FEB 25 1965
PHILADELPHIA OFFICE

[illegible] ASSOCIATES
510 DAVISVILLE RD.
WILLOW GROVE, PA.
TEL: 215-659-7244

4/29/65

(1) ... to P.S with W.C

... > ... Km N.G.

... O.K

(2) ... = 1.75 M.G.D < 2.0 M.G.D (max)

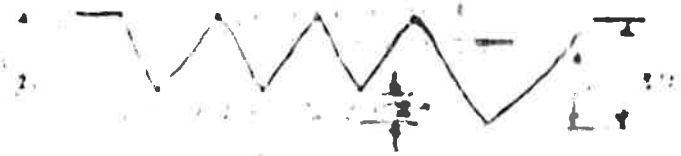
(3) ... 0.5 M.G.D Max.

... 0.57 + 0.05 + 0.12

... = 0.28 + 0.20 + 0.48

... + 0.12 = 192.87

... + 0.48 = 194.23



2 MGD. (3 MGD max.)

[illegible] transmitting under separate cover three (3) copies of Engineer's Summary Report, three (3) copies of two (2) folios of plans (41 and 75 sheets) and one (1) volume of specifications for the subject project in support of the Borough's application for Federal Grant under P. L. 660.

Application No. 765313
P. L. 660 (Plans & Specifications)
Upper Aymedi-Towamensin Municipal Authority
Montgomery County

May 21, 1965

[illegible] and specifications and find they are the same as those submitted to support Application No. 765313 which is currently being processed by the Department.

Accordingly, we are forwarding the aforementioned plans and specifications, under separate cover via Railway Express today, to you.

Floyd E. Collins, Jr., Chief
Staff Services Section

J. M. Palermo
Sanitary Engineer
Region VII - Phila.

[illegible] (Mailed under separate cover-Railway Express)

JMP:s
Attachment(Mailed under separate cover-Railway Express)

May 21, 1965

Subject: Severage Application #765513
Upper Gwynedd-Towamencin Municipal Authority
Montgomery County

Chief, The Projects eview Branch
Delaware River Basin Commission
25 Scotch Road
Suburban Square
Trenton, N. J.

Dear Sir:

In accordance with the Delaware River Basin Commission's Rule of Practice and Procedure, Administrative Manual, Part 2, adopted February 27, 1964, we are transmitting herewith a copy of a Regional Engineer's Report dated May 17, 1965 on Severage Application #765513 concerning the Upper Gwynedd-Towamencin Municipal Authority, Montgomery County.

Very truly yours,

C. T. Beechwood
Engineer-in-Charge
Region VII

CTBjh
(Attachment)

DOCKET NO. D-64-61 CP

DELAWARE RIVER BASIN COMMISSION

Upper Gwynedd-Towamencin Sewage Works
Upper Gwynedd and Towamencin Townships, Montgomery County, Pa.

Proceedings

This is an application submitted on behalf of Upper Gwynedd-Towamencin Municipal Authority by the Pennsylvania Department of Health on May 24, 1965 for review of a sewage works project. The application requests inclusion of the project in the Comprehensive Plan and approval under Section 3.6 of the Compact. A public hearing on this project was held by the Delaware River Basin Commission on December 29, 1965.

The project was approved by the Pennsylvania Sanitary Water Board on June 16, 1965. The Pennsylvania Water and Power Resources Board issued an encroachment permit on October 28, 1965 for this project.

Comprehensive Plan Description

Purpose. The purpose of this project is to provide collecting and interceptor sewers and a secondary sewage treatment plant to serve sections of Upper Gwynedd and Towamencin Townships, Montgomery County, Pennsylvania, [illegible] Section X - Water Quality Policy.

Location. The treatment plant will be located in the western section of Towamencin Township at Kriebel Road and Towamencin Creek with the discharge into Towamencin Creek, a tributary of Skippack and Perkiomen Creeks in the Schuylkill River Basin.

The treatment plant outfall is located at river mile 92.47-32.3-2.9-7.6-2.0.

Physical Features. The project is designed to provide secondary treatment of the sanitary wastes of 10,000 persons or an average flow of 1 mgd.

The plant facilities include a mechanical bar screen, a wet well, a pumping station, two pre-aeration tanks, two primary settling tanks, two trickling filters, three final settling tanks, two chlorine contact tanks, chlorination facilities, two sludge thickening tanks, a thickened sludge well, two vacuum filters, one sludge incinerator and 225 ft. of outfall sewer to Towamencin Creek.

Cost. The estimated cost of the project is $1,598,900 and a PL 660 grant of $447,570 has been requested.

Relationship to the Comprehensive Plan. The project is designed to conform with the requirements of the Comprehensive Plan as established in Section X - Water Quality Policy.

D-64-61 CP

Sheet 2.

Finding

The project does not [illegible] adversely affect the Comprehensive Plan. It provides beneficial use of the water resources [illegible], and physically feasible, conforms to accepted public [illegible] and does not adversely affect the present or future use and development of the water resources of the Basin.

Decision

I. The project is hereby added to the Comprehensive Plan, Section IX, as described above.

II. The project is approved pursuant to Section 3.8 of the Compact, subject to conditions imposed by the Pennsylvania Sanitary Water Board and the Pennsylvania Water and Power Resources Board.

BY THE COMMISSION

DATED: December 29, 1965

CP

DECISION NO. D-64-61 CP

SUSQUEHANNA RIVER BASIN COMMISSION

[illegible]

[illegible]

November 16, 1956

[illegible] Authority

[illegible] municipal authority

[illegible] facilities

[illegible] final facilities

[illegible] the following items

1. [illegible]
2. [illegible] associated chemical equipment
3. [illegible]
4. [illegible]
5. [illegible] for chlorine cylinders

According to your engineer, the flow meter, etc. [illegible] and laboratory will soon be ready for service; however, it is [illegible] that the vacuum filters will [illegible] not be ready for service until June, 1957.

Our office could consider the sewage treatment plant to be in compliance with [illegible] facilities until such time as all the facilities approved by the subject permit have been constructed. Since until our office [illegible] all the above facilities have been installed and put into proper functioning order, [illegible]

Mr. John D. Taylor

November 26, 1968

It is recommended that guards be installed around the drive shafts of the raw sewage pumps as a safety measure. It was also mentioned by your engineer that minor changes were to be made with respect to the distribution box at the recirculating pump well in order to permit better flow distribution.

We also discussed the matter of conducting tests and keeping records with the plant operator or consulting engineer. A sample operation report form was reviewed which may be submitted to our office on a monthly basis. The operation report form lists pertinent information about the flows and quality of the raw and treated sewage. It is recommended that samples of raw and treated sewage be analyzed on a weekly basis for biochemical oxygen demand and suspended solids.

If you have any questions, please feel free to contact our office.

Very truly yours,

Richard L. Nickle
Sanitary Engineer
Human Services - Region

RLN/ad
cc: Lititz and Warwick Twp.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH

RECEIVED

JAMES LIPTAK & ASSOCIATES
CONSULTING ENGINEERS

Taylorville Seal

1969

In re: Upper Carroll-Tamaroa
Municipal Authority
Contract No. 5 & 6

Jaime Liptak

February 21, 1969

[illegible]

[illegible]

[illegible]

JANOS LIPTAK & ASSOCIATES

RECEIVED
REGION
JUL 27 19
PHILADELPHIA BRANCH

Pennsylvania Department of Health
Sanitary Engineering
Region 2
Attn: Mr. Tom Brown

Gentlemen:

With reference to our telephone discussion with Mr. Tom Brown, we are [illegible] three sets of the Specifications prepared for the referenced project. Three sets of construction drawings were, also, sent to you under separate cover, parcel post-special handling.

Upon the return of drawings we shall forward the Form Determination of the Department of Labor, which will be sent to all [illegible] interested parties in addendum.

Two Aeration Equipment Manufacturers were already [illegible] Both were [illegible] drawing as they were [illegible] the Authority intends to [illegible] Mr. Frank A. Tisinai
Chief, Construction Grants Activities
Water Pollution Control Administration
Mid-Atlantic Region
U. S. Department of Interior
[illegible] East Main Street
Charlottesville, Virginia 22901

Respectfully yours,

JANOS LIPTAK, P.E.

Encl.

cc: Authority

JL/re:

Upper [illegible]-Towamencin
Municipal Authority
Incinerator and Vacuum Filter
Plans and Specifications

July 25, 1969

Marshall [illegible], Chief
Permits Section

[illegible]

[illegible]

[illegible]

[illegible] received a letter dated June 23, 1969, from [illegible], Consulting Engineers, on the subject project, transmitting three (3) copies of plans and specifications for the incinerator and filter previously approved by permit number 769513 for the Upper Gwynedd-Towamencin Municipal Authority Sewage Treatment Plant.

We have reviewed the aforementioned data and find they are satisfactory [illegible].

We are returning herewith the original transmittal letter and the three (3) copies of the above mentioned plans and specifications, and recommend [illegible] be forwarded to the Contractor.

[illegible]

WC.

TOWin

RECEIVED
REGION

August 4, 1969

Upper Gwynedd-Towamencin
Municipal Authority
Incinerator and Vacuum Filter
Labor rate determinations

Marcia [illegible], Chief
Program Services Unit

Thomas [illegible]
Secretary to [illegible]
Water Services-Section I

On July 30, 1969, this office received a letter dated July 25, 1969, from James Lipton and Associates, Consulting Engineers, on the subject project, transmitting three (3) copies of labor rate determinations and a supplement to specifications for the incinerator and vacuum filter previously approved by permit No. [illegible] for the Upper Gwynedd-Towamencin Municipal Authority Sewage Treatment Plant.

We are enclosing herewith the original transmittal letter and the three (3) copies of the aforementioned documents, and recommend they be approved and forwarded to [illegible].

TJ:[illegible]
Encl.

July 25, 1969

October 22, 1969

Upper Gwynedd - Towamencin
Municipal Authority
Treatment Plant
Final Invoice
Marshall Cashman, Chief
Program Services Unit

Thomas L. Brown
Sanitary Engineer
Human Services-Section 1

On October 17, 1969, this office received a letter dated October 9, 1969, from Jarus Hintz and Associates, Consulting Engineers, on the subject project, transmitting three (3) copies of the final invoice for the sewage treatment plant approved by permit number 7[illegible] for the Upper Gwynedd - Towamencin Municipal Authority Sewage Treatment Plant.

We have reviewed the aforementioned data and find they are satisfactory and can be approved. We are enclosing herewith the original transmittal letter and the three (3) copies of the above mentioned final invoice, and recommend they be approved and forwarded [illegible]

T.B/bs

August 4, 1969

October X, 1969

Upper Oxymond - Tow sencin
Municipal Authority
Vacuum Filter and Incinerator Contract

Marshall Cashman, Chief
Program Services Unit

Sanitary Engineer

On [illegible], this office received a letter dated October 2[illegible], 1969, from [illegible], consulting engineers, on the subject project, transmitting three (3) copies of Supplemental Project Information - Part B (two volumes) for the [illegible] incinerator equipment approved by permit number 7[illegible]3) for the Upper [illegible] Municipal Authority Sewage Treatment Plant.

[illegible] the aforementioned data and find they are satisfactory and can be approved. We are enclosing the three (3) copies of the above mentioned data, and recommend [illegible] be forwarded to the [illegible].

T.D/bw

enc.

[illegible]

January 14, 1970

[illegible] - Sewerage
[illegible] Municipal Authority
Incinerator and Vacuum Filter
[illegible] Specification

Marshall Garrison, Chief
Program Services Unit

Thomas [illegible] Engineer
Sanitary Engineer
Human Services Advisor

On January 13, 1970, this office received a letter dated December 11, 1969, from James Lipton and Associates, Consulting Engineers, on the subject project transmitting three (3) copies of [illegible] contracts signed by the Authority, with Nichols Engineering and Research Corporation and Combire - Anderson Engineering Corporation, for the single incinerator and vacuum filters, previously approved by permit number 7-(51) for the [illegible] Municipal Authority Sewage Treatment Plant.

We have reviewed the aforementioned data and find they are satisfactory and can be approved. We are enclosing herewith the original transmittal letter and the three (3) copies of the above mentioned bids and specifications, and recommend they be approved and returned to this office.

January 14, 1970

[illegible] - Sewerage
[illegible] Municipal Authority
Incinerator and Vacuum Filter

TP/hw

cc:

Exhibit No. 4

Henry S. Conrey, Inc.
Division of Chester Valley Engineers
CIVIL ENGINEERS & SURVEYORS
[illegible]

July 1, 1973

Mr. [illegible]
[illegible]

[illegible] Municipal Authority
[illegible]

Dear

[illegible] a joint effort by Mr. Weir and myself [illegible] and immediate future connections.

July 1, 1973
[illegible]

		Persons
[illegible]	[illegible] @ 3.5	3744
[illegible]	[illegible] @ 3.5	42
[illegible]	[illegible] @ 3.5	32
[illegible]	[illegible] @ 3.5	384
[illegible]	[illegible] @ 3.5	324
[illegible]	[illegible] @ 3.5	1626
	SUB-TOTAL	6418

[illegible] months - 114,091 gal.

[illegible] - [illegible]

[illegible] - [illegible]

Henry S. Conrey, Inc.

Mr. James Liptak, P.E.
July 7, 1971
Page 2 of 3

Upper Gwynedd Township

		Persons
Single Family Dwelling	363 @ 3.5	1271
Apartments	130 @ 2.3	299
Semi-Commercial	63 EDU x .5 x 3.5	110
Small Industry	8 EDU @ 3.5	28
	SUB-TOTAL	1708

Lehi Valley

Average daily flow last six months - 139,675 gal.
Weighted Avg. B.O.D. last two tests - 1,066
Weighted Avg. S.S. last two tests - 201

Estimated Future Connections

		Persons
By December 31, 1971		
Towamencin -	32 E.D.U. @ 3.5	112
Towamencin -	272 Apts. @ 2.3	626
Upper Gwynedd -	30 E.D.U. @ 3.5	105
Upper Gwynedd -	32 Apts. @ 2.3	74
	SUB-TOTAL	917 = 91,700
By July 1, 1972		
Towamencin -	29 E.D.U. @ 3.5	103
Towamencin -	272 Apts. @ 2.3	633
Upper Gwynedd -	48 E.D.U. @ 3.5	168
Upper Gwynedd -	32 Apts. @ 2.3	74
	SUB-TOTAL	977 = 97,700

Henry S. Conrey, Inc.

TOTAL ADD. FLOW = 261,800 gpd

Mr. Janos Liptak, P.E.
July 3, 1973
Page 3 of 3

By December 31, 1974

Towamencin -	14 E.D.U.	@ 3.5	49
Towamencin -	190 Apts. (4)	@ 2.3	437
Upper Gwynedd -	32 Apts.	@ 2.3	74
			560 56,000

By July 1, 1975

Towamencin -	11 E.D.U.	@ 3.5	39
Towamencin -	22 Apts.	@ 2.3	51
Upper Gwynedd -	32 Apts.	@ 2.3	74
			164 16,400

TOTAL ADD. FLOW = 261,800 gpd

(1) 3.5 persons per single family dwelling is the current Montgomery County Planning Commission density for Towamencin and Upper Gwynedd Townships.

(2) "Semi-commercial" connections are those for which two E.D.U.'s are charged for rental fee but which have actual flows of one family or slightly over. Such uses would be home-office type businesses, unmetered small business, etc. Zoning/Building codes require lavatory facilities for such businesses and the additional lavatory becomes a rental unit under Authority law.

(3) 2.3 persons per apartment/condominiums is the apparent local density of this type housing. Upper Gwynedd and Towamencin Townships have regulations restricting the number of bedrooms per apartment.

(4) All figures in this tabulation represent actual construction permits issued although large percentages of these figures are based on occupancy subject to availability of sanitary sewer service.
The decrease in semi-annual totals shows the result of present and past "holding patterns" of the Townships. More than 1000 connection units are waiting.

Ralph A. Wert, P.E.
Towamencin Township Engineer

William T. Weir, P.E.
Upper Gwynedd Township Engineer

For your information
I have Record
Return to

JANOS LIPTAK & ASSOCIATES
CONSULTING ENGINEERS
510 Davisville Road
Willow Grove, Pa. 19090

July 18, 1973.

Mr. Richard L. Hinkle, Chief - Facilities
Department of Environmental Resources.
Commonwealth of Pennsylvania
1275 New Hope Street
Norristown, Pa. 19401.

RECEIVED
JUL 2 1973
WATER MANAGEMENT
NORRISTOWN REGIONAL OFFICE

Re: Upper Gwynedd-Towamencin
Municipal Authority
Upgrading of Plant Capacity.

Dear Mr. Hinkle:

With reference to the discussion held at the meeting on June 21, 1973 and to our personal telephone discussion we are enclosing:

one copy of our Preliminary Study, July 1973 pertinent to upgrading the capacity of the referenced wastewater treatment plant,

one copy of Exhibits No. 1 through 4.

In connection with our report we want to note that as per your specific instruction it was kept as short as it was possible.

It was necessary, however, to explain the type and operation of the plant in order that its potential could be evaluated. According to the official classification it is a trickling filter type of plant. Our plant, however, can do much more than a conventional trickling filter type of plant.

If it would only be a conventional trickling filter type of plant it would be always on the verge of being upset under the pressure of the very heavy and widely fluctuating industrial load. The treatment efficiency would be in the 80 to 85 % range.

The provided treatment processes, however, are such that our plant is very stable and has very good efficiency under the rapidly variable high organic loads. We attempted to explain in a little bit more detail why our plant operates so well. It might be noted that the good performance is not an accident but is the result of careful design.

The end results of the study may be summarized as follows:

1) All pump manifolds and piping interconnecting the treatment units were sized to accomodate a 3.00 to 3.50 MGD expected ultimate flow, therefore they can easily accomodate the considered capacity increase.

2) Fortunately the trickling filters were greatly oversized to provide good secondary treatment therefore they do not present much difficulty in the current upgrading process. The industrial waste pretreatment currently undertaken by our two major industries will drastically reduce the organic load the plant will receive. Consequently the upgraded plant will receive substantially smaller organic load, than it handles successfully now.

3) Fortunately large excess capacity was build into the final settling tanks. Therefore they do not present problem for upgrading the plant capacity.

4) The existing pumping capacity appears to be sufficient. Since, however, all pumps were fitted with small dia. impellers and are driven by small rpm motors, it is not difficult to increase the capacity of these pumps by installing larger driving motors with higher rpm and/or by increasing the impeller sizes.

5) The primary settling tank capacity would present some problem. Since, however, the plant has fine screens with 0.04 and 0.06 mesh sizes ahead of the primary settling tanks the primary settling capacity is not that vital. The Ten State Standards and Pennsylvania Sewerage Manual does not even have standard requirements for primary settling tank capacity.

It might be noted that the whole primary settling tank capacity problem is only academic. At the present time the primary settling tanks are low grade activated sludge aeration tanks and we are in the process of converting them into normal aeration tanks according to the approved plant expansion plans. The aerators are already on order and some of them are even delivered.

6) The bottle neck of our treatment process is the chlorine contact tank, which at higher flows would not have sufficient capacity. This problem, however, could be easily overcome by applying the chlorine at the end of the final settling tanks, when the flow is very high, or even all the time.

With proper operational control measuring the chlorine residue and testing the bacteria (coli) count in the plant effluent proper and safe operation may be maintained.

7) Finally it may be noted that in our study the treatment unit and treatment equipment capacities were computed for 1.00, 1.25, 1.50, 1.75 and 2.00 MGD flow in order that the selection of the upgraded plant capacity may be facilitated.

In order to keep our report short some of the calculations which appeared to be important are included in the form of exhibits. You may want to skip those exhibits, or check only the parts you are interested in.

If you need any further information, please call us and we will furnish the requested data immediately.

Respectfully yours,

Janos Liptak CE., PE.

- 3 -

1875 New Hope Street
Norristown
277-3210

September 10, 1973

Re: #765813
Upper Gwynedd - Towamencin Municipal Authority
Upper Gwynedd Township Building
Year Point, Pa.

Mr. Janos Liptak
Janos Liptak and Associates
Consulting Engineer
510 Maxwelton Road
Willow Grove, Pa.

Dear Mr. Liptak:

I am in receipt of your correspondence of August 9, 1973 to discuss the permit application for the rerating of the Upper Gwynedd Towamencin Municipal Authority's sewage treatment plant. Ralph Hart, Towamencin Township Engineer, was also present at our meeting.

As we discussed, we feel the following areas are critical items which must be addressed in the preparation of the permit-application for the rerating of the plant.

1. The raw sewage pumps do not appear to be adequate to handle the peak flow projected for a rerated plant, in addition to the recycled flows witnin the plant itself such as secondary sludge return, sludge tank decantation, filtrate from the vaccuum filters, and incinerator scrubber water. We noted that it may be possible to modify the current pumping system, consistent with the proposed expansion and updating program, which would involve the installation of new motors on certain pumps to increase their capacity. We must be assured that the raw sewage pumping capacity will be capable of handling the peak flows arriving in the wet well which normally we assume to be 200% of the average daily flow in addition to the flows recycled through the wet well from the treatment plant process units.

2. We urge that composite sampling and analysis of the primary effluent in conjunction with the raw sewage and final effluent be performed in order to determine the loadings on the trickling filters. This is necessary in order to properly determine the projected loadings to the trickling filters for use in complating their efficiency by the NRC or a similar relationship.

If you need any further information, please call us and we will furnish

Janos Liptak CE., PE.

Mr. Janon Liptak September 10, 1973

3. Recirculation drawn from the final settling tanks should be so controlled that the surface settling rates in the final settling tanks will not exceed the Sewerage Manual's requirement of 800 gpd sq. ft. You noted that recirculation could be taken from either directly after the trickling filters or from the final settling tank since such flexibility was originally installed during plant construction.

4. The critical item with respect to plant design appears to be the chlorine contact tank and more specifically the detention time afforded. The Sewerage Manual requires that 15 minutes detention time be provided following chlorination during periods of peak flow. We, therefore, urge that a determination of the peak flow to average flow ratio be established so that the size of the rerated plant can be fixed. You noted that there is a flow meter at the end of the plant near the chlorine contact tank which could be used for this purpose. In addition, you noted that there were several additional chlorinators added to the plant since the original plant was constructed. However, we have no record of this increase in chlorination capacity. Therefore, it must be so indicated in the application documents.

Based on our preliminary review it would appear that the plant could possibly be rerated from 1 mgd to 1.5 mgd with the chlorine contact tank detention time being the critical factor. We do, of course, need to review in detail the final permit application before we can grant formal approval for the rerating, especially in light of the above comments. We will need three sets of modular report, three copies of a schematic flow diagram of the plant process, a $25.00 filing fee check and any necessary specifications and plans associated with the modifications to be made part of the rerated plant application.

As part of the application documents we will need information regarding the pretreatment facilities to be installed at Lehigh Valley and at Hatfield Packing Company specifically with respect to the type of pretreatment facilities to be provided, and the timing of the construction and operation for these very needed pretreatment facilities.

We also discussed the projected flow from Upper Gwynedd Township and Towamencin Township which were summarized by the Township engineers. The flow figures indicate that over the next two year period of time an additional 250,000 gpd of sewage could be expected to be generated by new construction with reasonable controls on growth during the few years until the expanded and upgraded plant is placed into service. Thus, it would appear that rerating of the plant from 1 to 1.5 mgd would be adequate for the needs of the two Townships over the next several years. I trust this letter is clear, if you have any questions, please contact me.

Very truly yours,

Richard L. Hinkle, Chief
Facilities Section

RLH:jr

cc: Ralph Wert
Upper Gwynedd-Towamencin Municipal Authority

UPPER GWYNEDD-TOWAMENCIN

MUNICIPAL AUTHORITY

Montgomery County, Pennsylvania

RECEIVED
JUL 20 1973
ENV...
WATER ...
NORRIS...

7-17-73

UPGRADING THE CAPACITY

of the existing

1.00 MGD WASTEWATER TREATMENT PLANT

PRELIMINARY STUDY

7-17-73

Prepared by:

JANOS LIPTAK & ASSOCIATES
CONSULTING ENGINEERS
Willow Grove, Pa.

July, 1973.

The following is the:

Brief description of the more important treatment units, and

Computation of the existing capacities.

1) INCOMING LINES: O.K.

Two dia. 18" AC. pipes: S = 0.0042,

Capacity = 2 x 4.4 = 8.80 MGD Kutter's n = 0.013

This calculation assumes stationary flow. Actually the flow will depend more on the pumping rate, and could be much greater if needed.

2) BARMINUTOR: Chicago Pump Co., Model C-18. O.K. for at least 1.5 mgd.

Capacity 0.24 MGD - 4.00 MGD.

During peak flows the capacity may be augmented by the by-pass screen.

3) RAW SEWAGE PUMPS:

Two (2) Chicago Pump Co., Type VOSO6 pump (dia 6") Constant speed
Rated capacity 800 GPM at TDH of 27.4 Ft.
Impeller 12" (Minimum and maximum impeller sizes the pump can accomodate are dia 10" and dia 14").
Driving motor: 10 HP, 870 RPM, 220 V, 3 PH, 60 cy.

Two (2) Chicago Pump Co., Type VOSOM4 pump (dia 4")
Rated capacity 400 GPM at TDH of 25.0 Ft.
Impeller size 8 3/4" (Minimum and maximum impeller sizes the pump can accomodate are dia 8" and dia 11").

Driving motor: 5 HP, 1150 RPM, 220 V, 3 PH, 60 cy.

$Q_{PH}/Q_{PM} = 160\%$ 180% Hmt STD.

The installation of the Hydrasieves changed the static and friction heads of the system. To consider the change the HEAD-CAPACITY CURVES were revised. (See EXHIBIT No. 1.). The last table in the exhibit indicates all possible pumping rates. A copy of this table is posted in the pump room.

Operating 2 small and 1 large pump, and having one large pump on stand-by, the pumping rate is 1540 GPM = 2.22 MGD.

The pumping capacity of these pumps may be increased easily by installing larger impellers and/or motors with greater RPM. At the time of the original design special care was exercised to use low RPM motors

and relatively small impellers in order, that future pumping capacity increases may be achieved easily.

4) DISCHARGE MAINFOLD AND FORCE MAIN have ample capacity. They were sized to accomodate a 3.50 MGD average daily flow.

5) HYDRASIEVES. Four (4) Bauer Co., Model 552-72.
Rated capacity 4 x 800 gpm = 3200 gpm = 4.60 MGD.

No change in BOD5 grease reduction

6) Two (2) PREAERATION TANKS.
Dia 12.0 Ft. Average useful depth = 12.55 ft
Capacity = 10,650 gal = 1,420 cft.

For conventional waste preaeration a relatively small amount (0.1 cft of air) is used. Assuming a 1.00 MGD flow this would require 100,000 cft/24 hrs= = 69.5 cfm.

Realizing that this small amount of air would only be a drop in the bucket, three blowers, each with 420 cfm capacity, were provided. Using one as a stand-by the available capacity is 840 cfm, which compared to the air requirement of an activated sludge treatment is moderate, but much more than that usually used for preaeration.

It is interesting to note the stability of the treatment. Daily high BOD-s, sometimes up to 1,000 mg/l or even higher, and a sudden drop to 200-400 mg/l apparently does not affect the treatment efficiency. It appears that the higher the BOD load is the better is the operation, meaning not only efficiency expressed in percentage, but in mg/l as well.

- 3 -

7) TWO (2) DIA 10" PIPE LINES BETWEEN THE PREAERATION AND PRIMARY SETTLING TANKS.

These lines are submerged and are operated by hydraulic heads.

Without surcharging the Preaeration Tanks 196.00 - 193.75 = 2.25 ft head is available, but surcharging the weirs occasionally would not affect the treatment at all.

Exhibit No. 2 indicates the flow carrying capacity of the pipes. The tables on pp 3 & 4 indicate that no surcharge of the weir would occure even at 2 x 2.00 = 4.00 MGD flow.

8) Two (2) PRIMARY SETTLING TANKS.

Width = 16'-0"
Length = 60'-0"
Av. depth = 7'-0" TO 6'-3"
Capacity = 49,520 gal = 6,360 cft.
Surface area = 960 sft.

For Primary Settling Tanks the Ten State Standards and the Pennsylvania Sewerage Manual do not have specific requirements for surface settling rates or detention time. The percentage of BOD removal, allowed to consider, is dependent, however, on the surface settling rate used.

Unfortunately it is very difficult to apply the provisions of the noted Ten State and Pennsylvania Standards to our case. Effective preaeration and fine screening of the waste (0.04 and 0.06 mesh size) substantially increase the BOD and SS removal of our waste way above those levels noted in the standards.

Hydrasieves: The Bauer Co., manufacturer of the Hydrasieve is guarantying 20% - 25 % BOD & SS removal with the 0.040 and 0.060 screens respectively. There is no doubt in our mind that with our great garbage load our BOD and SS removal is much greater than that guaranteed.

Our experience indicates, for instance, that the Hydrasieve does a great job removing grease. Apparently as the thin wastewater layer is spread evenly on the surface of the sieve the grease is deposited on the screen surface as a thin film, as it is similarly deposited on the wall of cooking pots and pans, or on your hand if you put it in a greasy dishwashing water. The screening rolling down the screen surface then picks up the sticky grease particles and removes them from the treatment.

Visual inspection indicates that the screen is removing substantial amounts of soluble human feces. The problem is, however, how much is the Hydrasieves extra removal (that which would not settle out in the primary tanks) or how much relief the sieves are rendering to the overall treatment?

It appears to be safe to assume that the Hydrasieves are removing practically all the ground garbage. Furthermore, it was assumed that it provides approximately 5% additional BOD.

Preaeration: The beneficial effects of the preaeration were briefly described under Section 6. It is firmly believed that massive preaeration makes the difference between failure and success. Therefore it would be difficult to set a numerical figure to estimate its benefit. Nevertheless f r the purpose of this study it will be assumed that preaeration would remove 5 % additional BOD. This assumption is thought to be very conservative.

Considering 5 %.- 5 % additional BOD removal by the Hydrasieve and the preaeration, the settling rates, detention times and expected BOD removal for flows 1.00 MGD to 2.00 MGD were computed as folows:

FLOW		DE-TENSION TIMES HRS	SURFACE SETTLING RATE GAL/SF/DAY	BOD RE-MOVAL %	TOTAL BOD REMOVAL PERCENTAGE
IN MGD	IN GPH				
1.00	41,670	2.38	520	36.0	5 + 5 + 36.0 = 46.0
1.25	52,050	1.90	650	35.0	5 + 5 + 35.0 = 45.0
1.50	62,500	1.585	782	34.2	5 + 5 + 34.2 = 44.2
1.75	72,900	1.36	910	33.3	5 + 5 + 33.3 = 43.3
2.00	83,330	1.18	1,040	32.5	5 + 5 + 32.5 = 42.5

9) DIA 16" AC. PIPE BETWEEN PRIMARY SETTLING TANK AND RECIRCULATING PUMP WELL.

This is a submerged pipe operating under pressure. The available head is 193.75 - 190.00 = 3.75. Say 3.00 ft.

Total equivalent pipe length is approximately 150 ft.

At 5,000 gpm = 7.20 MGD flow rate the friction head is 2.02 Ft/100 ft or 3.03 Ft/150 ft.

This line has plenty of reserved capacity.

10) RECIRCULATING PUMPS.

Three (3) Chicago Pump Co., Type VCSOM4 pumps (dia.4")
Rated capacity 750 GPM = 0.940 MGD, at TDH of 31.0 ft.
Impeller size 10 3/4" (Minimum and maximum impeller the pump can accomodate 8" and 11" respectively)
Driving motor 10 HP, 1150 RPM, 220 V, 3 PH, 60 cy.
T.E.F.C.

One (1) Chicago Pump Co., Type VCSOS6 pump (dia.6")
Rated capacity 1250 GPM = 1.80 MGD at TDH of 28 ft.
Impeller size 12 1/2". (Minimum and maximum impeller the pump can accomodate 10" and 14" respectively).
Driving motor 15 HP, 870 RPM, 220 V, 3 PH, 60 cy.
T.E.F.C.

Exhibit No. 3 indicates the head-capacity curves and the pertinent pumping rates.

Operating only three pumps and having one pump as stand-by, the pumping rates are:

3 small pumps	2090 GPM = 3.02 MGD
2 small and one large pumps	2510 GPM = 3.52 MGD.

11) DIA. 18" A.C. CLASS 100 PRESSURE LINE BETWEEN THE RECIRCULATING PUMP WELL AND PRIMARY TRICKLING FILTER.

This is a pressure line. The flow carrying capacity and pertinent friction losses were calculated as follows:

Equivalent Pipe Length:

horizontal pipe	240 FT
two 45°bend	42 "
one 90° bend at center column	42 "
60 degree Y	18 "
center column	8 "
	350 FT

DIA 18 INCH A.C. PIPE			
Q GPM	Q MGD	LOSS PER 100 FT	TOTAL LOSS IN FEET
1,250	1.80	0.08	3.50 x 0.08 = 0.28
1,500	2.16	0.11	3.50 x 0.11 = 0.39
2,000	2.88	0.20	3.50 x 0.20 = 0.70
2,500	3.60	0.30	3.50 x 0.30 = 1.05
3,000	4.32	0.41	3.50 x 0.41 = 1.44
3,500	5.04	0.55	3.50 x 0.55 = 1.93
4,000	5.75	0.68	3.50 x 0.68 = 2.39
4,500	6.47	0.82	3.50 x 0.82 = 2.87
5,000	7.20	1.02	3.50 x 1.02 = 3.57

This line was designed for the ultimate plant load and there is plenty of reserved capacity.

12) TWO (2) DIA 90 FT TRICKLING FILTERS.

Dia. = 90.00'
Depth = 6.00' - 6.33'
Surface Area = 6,350 sft
Media Volume = 38,850 cft = 0.890 Acre-Ft.

Applied BOD:

The applied BOD was computed for several possible conditions, as:

10,000 equivalent capita w/o industrial pretreatment
10,000 " " with " "
12,500 " " " "
15,000 " " " "
17,500 " " " "
20,000 " " " "

	FLOW, OR EQUIVALENT CAPITA	BOD MG/L OR LBS	TOTAL BOD IN LBS
Lehigh Valley	129,675 gal	1,066 mg/l	1,083
Hatfield Packing Company	114,091 gal	916 mg/l	875
Domestic load	7,563 E.C.	@ 0.17 *	1,285
Existing Load w/o Pretreatment	10,000 E.C.		3,243 ← NOW
Assume industrial pretreatment to provide 300 mg/l BOD		300	
Lehigh Valley	129,675 gal	766 mg/l	830
Hatfield Packing Company	114,091 gal	616 mg/l	585 1,415
Existing Load with Pretreatment			1,828 ←
1.25 MGD Flow	2,500 E.C.	@ 0.17 *	425
12,500 Equivalent Capita			2,253
1.50 MGD Flow	2,500 E.C.	@ 0.17 *	425
15,000 Equivalent Capita			2,678
1.75 MGD Flow	2,500 E.C.	@ 0.17 *	425
17,500 Equivalent Capita			3,103
2.00 MGD Flow	2,500 E.C.	@ 0.17 *	425
20,000 Equivalent Capita			3,528

	EXISTING LOAD		EQUIVALENT CAPITA			
	WITHOUT PRETREATMENT	WITH PRETREATMENT	12,500 WITH INDUSTRIAL PRETREATMENT	15,000 WITH INDUSTRIAL PRETREATMENT	17,500 WITH INDUSTRIAL PRETREATMENT	20,000 WITH INDUSTRIAL PRETREATMENT
TOTAL BOD - LBS	3,243	1,828	2,253	2,678	3,103	3,528
REMOVED IN PRIMARY SETTL.TANK 46.5 % 45.0 % 44.2 % 43.3 % 42.5 %	1,508	850	1,014	1,184	1,344	1,499
APPLIED BOD	1,735	978	1,239	1,494	1,759	2,029
LB/DAY/1000 CFT*	22.30	12.60	15.90	19.20	22.65	26.05
LB/DAY/ACRE FT**	975	550	695	842	990	1,140

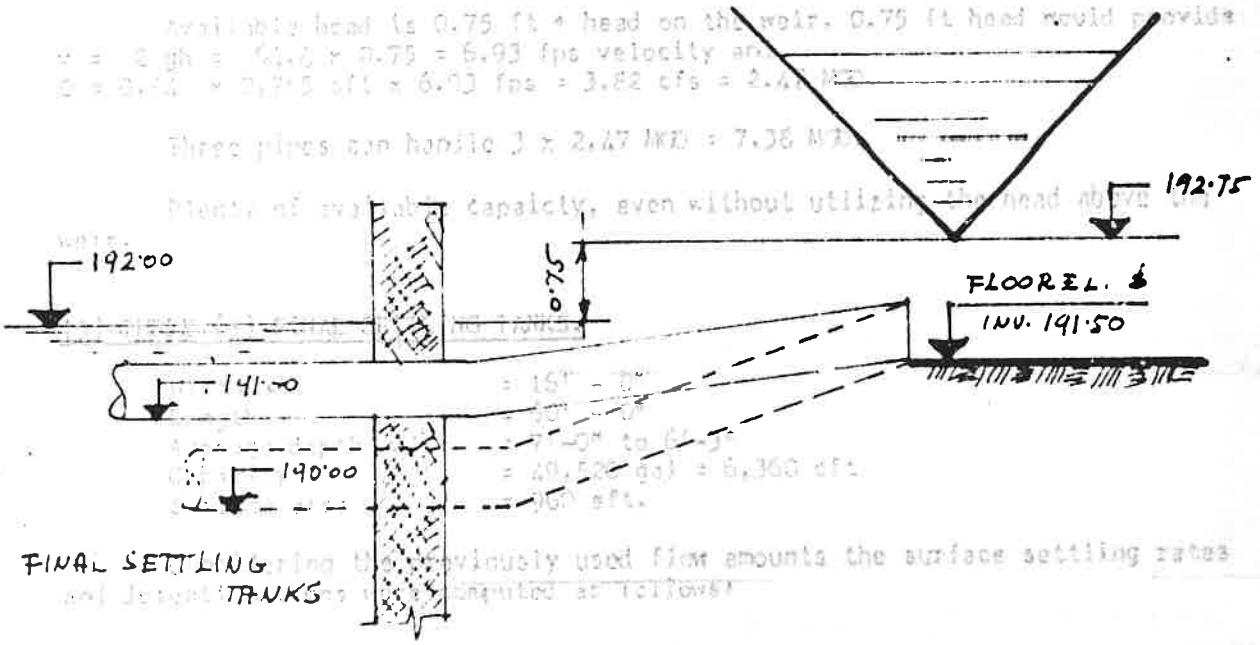
* Total filter media = 2 x 38,850 = 77,700 cft
** Total filter media = 2 x 0.890 = 1.780 acre ft

13) DIA. 20" CLASS 100 A.C. PRESSURE PIPE BETWEEN THE TWO TRICKLING FILTERS AND BETWEEN THE SECONDARY TRICKLING FILTER AND RECIRCULATING PUMP WELL.

These lines were sized for 3.50 MGD average flow and apparently have plenty of capacity.

14) Three (3) DIA. GLASS 100 A.C. PRESSURE PIPES BETWEEN RECICULATING PUMP WELL AND FINAL SETTLING TANKS.

These lines are submerged, and are operated by static head.



Available head is 0.75 ft + head on the weir. 0.75 ft head would provide
v = 2 gh = 64.4 x 0.75 = 6.93 fps velocity and
Q = 0.84 x 0.785 sft x 6.93 fps = 3.82 cfs = 2.47 MGD.

Three pipes can handle 3 x 2.47 MGD = 7.38 MGD.

Plenty of available capaicty, even without utlizing the head above the weir.

15) THREE (3) FINAL SETTLING TANKS.

Width	= 16' - 0"
Length	= 60' - 0"
Average depth	= 7'-0" to 6'-3"
Capacity	= 49,520 gal = 6,360 cft
Surface area	= 960 sft.

Considering the previously used flow amounts the surface settling rates and detention times were computed as follows:

What about recirculation in light of Ch

F L O W			DE-TENSION TIMES HRS	SURFACE SETTLING RATES GAL/SFT/DAY
IN MGD	IN GPH			
	3 TANKS	ONE TANK		
1.00	41,670	13,900	3.57	347
1.25	52,050	17,350	2.85	434
1.50	62,500	20,830	2.38	520
1.75	72,900	24,300	2.04	607
2.00	83,330	27,750	1.78	694

Apparently there is a great safety factor incorporated into our final settling tanks. Adding the third settling tank was an afterthought, an additional extra safety measure, and it comes in handy at this time.

16) CHLORINE CONTACT TANKS,

Two UPPER TANKS

Width	= 7'-9"	
Length	=16'-0"	
Depth	= 7'-0"	
Capacity	= 2 x 7.75 x 16.0 x 7.0 =	1,740 cft = 13,050 gal

Two LOWER TANKS

Width	= 7'-9"	
Length	=16'-0"	
Depth	= 8'-0"	
Capacity	= 2 x 7.75 x 16.0 x 8.0 =	1,990 cft = 14,900 gal
	Total	3,730 cft = 27,950 gal

15 minutes detention time is required at peak hourly flow or at maximum rate of pumpage. On this basis the flow which the existing contact tank can handle is

4 x 24 x 27,950 gpd = 2.68 MGD.

17) TWO (2) 60 SFT KOMLINE SANDERSON VACUUM FILTERS. (O.K.)

The present load can be carried by an 8-10 hrs/day and 5 to 6 days/week operation of one vacuum filter.

A three-fold load increase would be handled by one vacuum filter, if operated around the clock.

18) NICHOLS MULTIPLE HEARTH INCINERATOR. (O.K.)

The present load can be handled by an 8-10 hrs/day and 5 to 6 days/week operation of the incinerator.

A three-fold load increase could be handled by the existing incinerator, if operated around the clock.

19) THREE (3) SUTORBILT BLOWERS. (O.K.)

Each blower has a capacity of 420 cfm. Two blowers can be operated while the third one is the stand-by unit.

What about sidestream?

FLOW IN GPD	3 TANKS	ONE TANK	DETENTION TIMES HRS	SURFACE SETTLING RATES GAL/SFT/DAY
1.40	41,670	13,900	3.57	347
1.95	52,050	17,350	2.85	434
2.50	62,500	20,830	2.38	520

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ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT
NORRISTOWN REGIONAL OFFICE

REVISED HEAD - CAPACITY CURVS

FOR THE RAW SEWAGE PUMPING SYSTEM

Due to the installation of the Hydrasieve there was a substantial increase in the total dynamic load of the Raw Sewage Pumping System. This necessitated the revision of the Head-Capacity curves.

STATIC HEAD: 204.5 - 181.5 = 23.00 ft. Original static head was 14.5 ft. The increase was almost 10 ft.

FRICTION HEAD: The losses in the suction line and the discharge manifold are associated with the individual pump curves therefore these losses are considered as a Correction to the individual pump curves.

Suction line and discharge manifold losses for Ø 4" pump.

Ø 6" vertical pipe	6 ft
90° elbow equivalent length	16 ft
horizontal suction line	12 ft
45° bend equivalent length	7 ft
horizontal discharge line	8 ft
two gate valves 2 x 3.75	7 ft
one check valve	40 ft
Two Reducers (Sudden Contraction) d/D ≃ 3/4 2 x 3.5	7 ft
Total Equivalent Length	103 ft

Suction line and discharge manifold losses for Ø 6" pump.

Ø 6" vertical pipe	10 ft
90° elbow equivalent length	20 ft
horizontal suction line	10 ft
45° bend equivalent length	10 ft
horizontal discharge line	5 ft
two gate valves open 2 x 4.5	9 ft
one check valve	50 ft
two reducers (Sudden Contraction) d/D ≃ 3/4 2 x 4.5	9 ft
Total Equivalent Length	119 ft

DIA 6"			DIA 8"		
EQUIVALENT LENGTH = 103 FT			EQUIVALENT LENGTH = 119 FT		
Q GPM	LOSS PER 100 FT	TOTAL LOSS (IN FT)	Q GPM	LOSS PER 100 FT	TOTAL LOSS (IN FT)
250	0.92	0.95	250	0.22	0.26
400	2.21	2.28	400	0.54	0.64
600	4.71	4.85	600	1.14	1.36
800	8.00	8.25	800	1.97	2.34
			1000	3.02	3.60
			1200	4.15	4.94

The theoretical pump curves denoted by [1] and [2] on the diagram on p. were corrected by the above computed losses to obtain curves (1) and (2).

CORRECTION FOR SUCTION AND MANIFOLD FRICTION LOSSES						
	CHICAGO PUMP CO VOS ONLY 1150 RPM 6" SUCC 4" DISC			CHICAGO PUMP CO VOS OS 6 870 RPM 8" SUCC 6" DIS		
	[1] H.Q.CURVE	CORRECTION	(1) CORRECTED	[2] H.Q.CURVE	CORRECTION	(2) CORRECTED
250	29.0	0.95	26.05	34.75	0.26	34.49
400	25.0	2.28	22.72	32.75	0.64	31.86
600				30.00	1.36	28.69
800				27.50	2.34	24.66
1000				25.00	3.60	21.40
1200						

Equivalent length calculation for the discharge lines.

Ø 12" discharge pipe

pipe length	40' - 0"
22.5° Bend Equivalent Length	5' - 0"
Two 45° Equivalent Length 2 x 15	30' - 0"
Total Equivalent Length	75' - 0"

Ø 16" discharge pipe

pipe length	14' - 0"
one enlarger 12" x 16" Equivalent Length	10' - 0"
one 45° Bend Equivalent Length	20' - 0"
one Tee 16" Equivalent Length	90' - 0"
one Reducer 16" x 12	15' - 0"
one 90° Elbow	40' - 0"
Total Equivalent Length	189' - 0"

Ø 12" discharge pipe

pipe length	2' - 6"
Total Equivalent Length	2' - 6" (Neglected)

Ø 8" discharge pipe

pipe length	1' - 6"
8" gate valve 3/4 open. Equivalent Length	30' - 0"
one enlarger 6"x10" Equivalent Length	6' - 0"
Total Equivalent Length	37' - 6" Say 38 Ft

Ø 10" discharge pipe

pipe length	3' - 0"
Total Equivalent Length	3' - 0" (Neglected)

Friction head computation

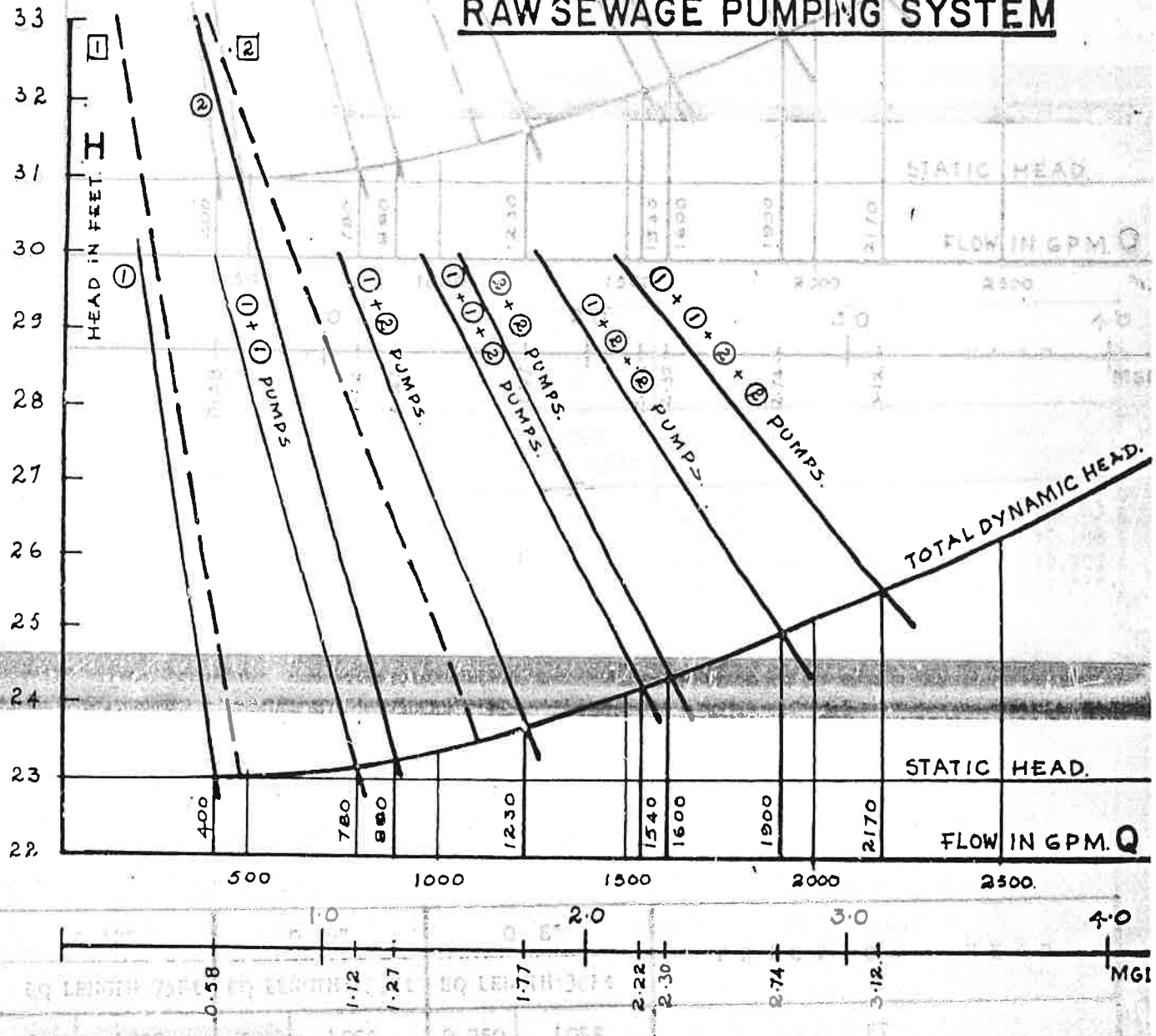
Based on the above determined equivalent pipe lengthes the friction head at different flow rates were computed as follows:

Q 12"		Q 16"		Q 8"		FRICTION HEAD
EQ LENGTH=75Ft		EQ LENGTH=189Ft		EQ LENGTH=38Ft		
Q GPM	LOSS PER 100Ft	Q GPM	LOSS PER 100Ft	0.25Q GPM	LOSS PER 100Ft	FT
500	0.11	500	--	125	-	0.75x0.11 =0.083
800	0.27	800	-	200	-	0.75x0.27 =0.168
1000	0.41	1000	-	250	0.22	0.75x0.41+0.38x0.22 =0.392
1500	0.85	1500	0.21	375	0.48	0.75x0.85+1.89x0.21+0.38x0.48=1.218
2000	1.43	2000	0.39	500	0.82	0.75x1.43+1.89x0.39+0.38x0.82=2.122
2500	2.28	2500	0.56	625	1.24	0.75x2.28+1.89x0.56+0.38x1.24=3.239
3000	3.15	3000	0.80	750	1.74	0.75x3.15+1.89x0.80+0.38x1.74=4.536

Using the computed static and friction heads the total dynamic head was computed and plotted on the next page.

Plotting the corrected pump curves all possible pumping combination the pumping rates of the various pumping combinations were determined by the diagram on the next page.

H-Q CURVES OF THE RAW SEWAGE PUMPING SYSTEM



NOTES:

[1] Chicago Pump Co VOS OM4. 1150 RPM 6" Suction 4" Disc.

① Corrected H - Q curve for the [1] pump to consider head losses in the suction pipe and discharge manifold.

[2] Chicago Pump Co. VOS OS6 870 RPM 8" Suction 6" Disc.

② Corrected H - Q curve for the [2] pump, to consider head losses in the suction pipe and discharge manifold.

①+① Two [1] pumps operating simultaneously.

①+② One [1] and one [2] pumps operating simultaneously

①+①+② Two [1] and one [2] pumps operating simultaneously

②+② Two [2] pumps operating simultaneously

②+②+① Two [2] pumps and one [1] pump operating simultaneously

①+①+②+② Two [1] pumps and two [2] pumps operating simultaneously

For ready reference the pumping rates of the various possible pumping combinations were tabulated on the next sheet.

H-Q CURVES OF THE
RAW SEWAGE PUMPING SYSTEM

RAW SEWAGE PUMPS

THEORETICAL PUMPING RATES

SMALL PUMP	LARGE PUMP	DELIVERY	
DIA 4"	DIA 6"	GPM	MGD
1		400	0·58
	1	880	1·27
2		780	1·12
	2	1600	2·30
1	1	1230	1·77
2	1	1540	2·22
1	2	1900	2·74
2	2	2170	3·12

EXHIBIT NO. 2

FLOW CARRYING CAPACITY OF THE PIPE BETWEEN THE PREAERATION AND FINAL SETTLING TANKS

These lines are submerged and are operated by hydraulic heads. The following is the computation of the flow amounts as a function of the pertinent friction and velocity heads.

The schematic sketch of the pipe system is indicated on the next page.

1) Equivalent Pipe Length of the Dia 10" C.I. Pipe Between Preaeration Tank No. 1 and Primary Settling Tank No. 1.

Straight length = 11'-8" + 4'-4" + 0'-6" =	16.50 Ft
One 45° elbow = 26.0/2	13.00 Ft
Elbow at the Preaeration Tank's trough	
0.75 x 90° elbow = 0.75 x 26.0	19.50 Ft
	49.00 Ft

2) Equivalent Pipe Length - Dia 10" C.I. Pipe Between Preaeration Tank No. 2 and Primary Settling Tank No. 2.

Straight length = 1.5 + 0.5 + 27.0 + 0.5 =	29.50 Ft
Two 45° elbow	26.00 Ft
Elbow at the Preaeration Tank's trough	
0.75 x 90° elbow = 0.75 x 26.0	19.50 Ft
	75.00 Ft

3) Friction and Discharge Loss in the Discharge Tee.

For arrangement see Section A-A on p. 2.

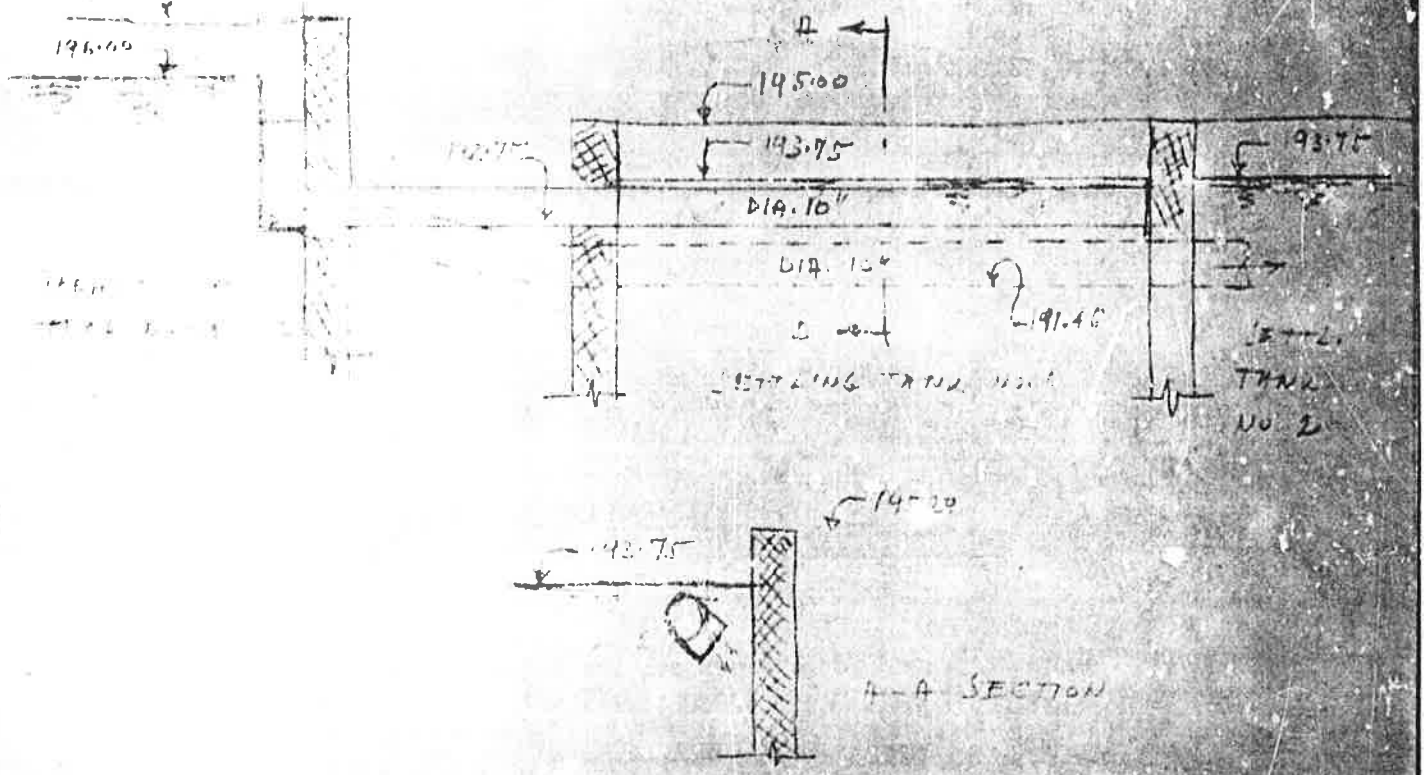
Equivalent Length: Dia 10" Tee, side outlet 57.00 Ft

Flow = 1/3 Q A = 0.852^2 x 0.785 = 0.570 SFT

RAW SEWAGE PUMPS

THEORETICAL PUMPING RATES

SMALL PUMP	LARGE PUMP	DELIVERY



FLOW CARRYING CAPACITY OF THE PIPE
BETWEEN THE AERATION AND FINAL SETTLING TANKS

These lines are submerged and are ...
lowing is the computation of the flow ...
friction and velocity heads.

Discharge Loss = $\frac{v^2}{2g} = \frac{v^2}{64.4} \frac{(Ft/sec)^2}{Ft/sec^2}$

FLOW			DISCHARGE LOSS		FRICTION HEAD		TOTAL REQV. HEAD IN FT
IN MGD	IN GPM	IN CFS	V Ft/sec	$\frac{v^2}{2g}$	FT* / 100 Ft	HEAL LOSS IN FT	
0.25/3=0.083	57.6	0.1286	0.226	0.001	0.005	0.003	0.004
0.50/3=0.167	116.0	0.259	0.455	0.003	0.0175	0.010	0.013
0.75/3=0.250	173.5	0.386	0.676	0.007	0.0400	0.023	0.030
1.00/3=0.333	230.1	0.516	0.910	0.013	0.0690	0.039	0.052
1.25/3=0.417	280.0	0.647	1.135	0.020	0.1000	0.057	0.077
1.50/3=0.500	347.0	0.775	1.360	0.029	0.140	0.080	0.109
1.75/3=0.593	405.0	0.905	1.585	0.039	0.190	0.108	0.147
2.00/3=0.666	463.0	1.030	1.805	0.058	0.250	0.142	0.200

*From Hasen-William Table; Equivalent length 57.0 Ft.

4) The Friction and Velocity Heads for both pipes were tabulated as follows:

DIA 10" C.I. PIPE FROM NO. 1 AERATION TANK TO NO. 1 PRIMARY SETTLING TANK

FLOW		VELOCITY HEAD		FRICTION HEAD			TOTAL HEAD IN FEET	TOTAL REQUIRED HEAD IN FT
IN MGD	IN CFM	V FT/SEC	$\frac{v^2}{2g}$	FT / 100 FT		HEAD LOSS IN FT		
0.25	0.387	0.68	0.007	0.04	EQUIVALENT LENGTH 49.0 FT	0.020	0.004	0.031
0.50	0.775	1.36	0.029	0.14		0.068	0.013	0.110
0.75	1.161	2.41	0.095	0.30		0.147	0.030	0.272
1.00	1.55	2.72	0.115	0.50		0.245	0.052	0.412
1.25	1.94	3.41	0.181	0.70		0.343	0.079	0.603
1.50	2.32	4.08	0.258	1.10		0.539	0.109	0.906
1.75	2.71	4.75	0.351	1.45		0.710	0.147	1.208
2.00	3.10	5.43	0.460	1.85		0.906	0.200	1.566

1.50	2.32	4.08	0.258	1.10	EQUIVALENT	0.825	0.109	1.192
1.75	2.71	4.75	0.351	1.45		1.090	0.147	1.588
2.00	3.10	5.43	0.460	1.85		1.390	0.200	2.050

DIA 10" C.I. PIPE FROM NO. 2 AERATION TANK TO NO. 2 PRIMARY SETTLING TANK

FLOW		VELOCITY HEAD		FRICTION HEAD			TOTAL HEAD IN FEET	TOTAL REQUIRED HEAD IN FT
IN MGD	IN CFM	V FT/SEC	$\frac{v^2}{2g}$	$\frac{FT}{100\ FT}$		HEAD LOSS IN FT		
0.25	0.387	0.68	0.007	0.04	EQUIVALENT LENGTH 75.0 FT	0.030	0.004	0.041
0.50	0.775	1.36	0.029	0.14		0.105	0.013	0.147
0.75	1.161	2.41	0.095	0.30		0.225	0.030	0.350
1.00	1.55	2.72	0.115	0.50		0.375	0.052	0.542
1.25	1.94	3.41	0.181	0.70		0.525	0.077	0.783
1.50	2.32	4.08	0.258	1.10		0.825	0.109	1.192
1.75	2.71	4.75	0.351	1.45		1.090	0.147	1.588
2.00	3.10	5.43	0.460	1.85		1.390	0.200	2.050

Discharge loss = $\frac{v^2}{2g} \cdot \frac{v^2}{64.4} \frac{(ft/sec)^2}{ft/sec^2}$

FLOW			DISCHARGE LOSS		FRICTION HEAD		TOTAL
IN MGD	IN GPM	IN CFS	V Ft/sec	$\frac{v^2}{2g}$	$\frac{FT}{100\ Ft}$	HEAD LOSS IN FT	
0.25/3=0.083	57.6	0.1286	0.226	0.001	0.04	0.030	
0.50/3=0.167	116.0	0.259	0.455	0.001			

EXHIBIT NO. 3

Recirculation Pumping System

Static head: 216.50 - 191.50 = 25.00 ft.

Friction head: Losses developed in the discharge manifold are considered by correcting the individual H-Q pump curves.

Horizontal pipe	240 ft.
two 45° elbow equivalent length 2x19	38 ft.
one 90° (at center column) equ. length	42 ft.
center column	8 ft.
60° y	10 ft.
total equivalent length	338 ft.

Considering 15 years old C. I. pipe the friction losses were calculated as follows:

Φ 16" EQUIVALENT LENGTH = 338 FT.				Φ 18" EQUIVALENT LENGTH = 338 FT.			
Q GPM	Q MGD	LOSS PER 100 FT	TOTAL LOSS FT				
1250							
1500	2.16	0.21	0.71				
2000			1.32				
	3.6	0.76					
3500	4.32	0.90	2.70				
3500	5.04	1.04	3.52				
4000		1.34					

DIA FOR C.I. PIPE FROM NO. 2 AERATION TANK TO NO. 2 PRIMARY SETTLING TANK

FLOW		VELOCITY HEAD		FRICTION HEAD			TOTAL HEAD IN FEET	TOTAL HEAD REQUIRED
IN MGD	IN CFM	V FT/SEC	$\frac{v^2}{2g}$	FT / 100 FT		HEAD LOSS IN FT		
0.25	0.347	0.68	0.007	0.04		0.030	0.04	
0.50	0.775	1.36	0.029	0.14		0.105		

Losses in the discharge manifold for ϕ 4" pump.

ϕ 6" Horizontal discharge pipe	12 ft.
22½ bend equivalent length	4 ft.
check valve	40 ft.
increasing T	35 ft.
22½ Y	9 ft.
Total equivalent length	100 ft.

Losses in the discharge manifold for ϕ 6" pump.

ϕ 8" Horizontal discharge pipe	10 ft.
check valve	50 ft.
increasing T	47 ft.
enlarger d/D ≃ ½	13 ft.
Total equivalent length	120 ft.

ϕ 8" EQUIVALENT LENGTH = 120 FT.			ϕ 6" EQUIVALENT LENGTH = 100 FT.		
Q GPM	LOSS PER 100 FT	TOTAL LOSS IN FT.	Q GPM	LOSS PER 100 FT	TOTAL LOSS IN FT.
250	0.22	0.26	200	0.62	0.62
400	0.54	[illegible]	400	2.21	2.21
600	1.14	1.37	600	4.70	4.70
800	1.97	2.37	800	[illegible]	[illegible]
1000	3.02	3.63			
1200	4.15	4.98			

CAPACITY
MGD
4000
3500
3000
2500
2000
1500
1000
500
4.39
3.92
3.48
3.04
2.74
2.04
1.74
1.37
STATIC HEAD
FRICTION HEAD.
3400
3050
2570
2090
1900
1420
1225
740
HEAD IN FT
35
34
33
32
31
30
29
28
27
26
25
24
23
1
2
3
4
5
6
7

NOTES:

[1] 4" x 4" SSK Figure 5192 Vertical American Wet Pit Pump, 9½" impeller, 7½ HP motor, pump efficiency approx. 70%.

(1) Corrected H-Q curve for the [1] pump to consider head losses in the suction pipe and discharge manifold.

[2] 6" x 6" SSK Figure 5192 Vertical American Wet Pit Pump, 13¼ impeller, 10 HP motor pump efficiency 77% to 78%.

(2) Corrected H-Q curve for the [2] pump to consider head losses in the suction pipe and discharge manifold.

(3) Two [1] pumps operating simultaneously.

(4) One [1] and one [2] pump operating simultaneously.

(5) Three [1] pumps operating simultaneously.

(6) Two [1] pumps and one [2] pump operating simultaneously.

(7) Three [1] pumps and one [2] pump operating simultaneously.

	OPERATING		DELIVERY	
	[1] Pump	[2] Pump	GPM	MGD
(1)	1		740	1.07
(2)		1	1,225	1.76
(3)	2		1,420	2.04
(4)	1	1	1,900	2.74
(5)	3		2,090	3.02
(6)	2	1	2,510	3.52
(7)	3	1	~~3,400~~ 3,050	~~4.90~~ 4.39

RECIRCULATING PUMPS

THEORETICAL PUMPING RATES

SMALL PUMP	LARGE PUMP	DELIVERY	
DIA 4"	DIA 6"	GPM	MGD
1		740	1·07
	1	1225	1·76
2		1420	2·04
1	1	1900	2·74
3		2090	3·02
2	1	2510	3·52
3	1	3050	4·39

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A D D E N D A

to the

S U M M A R Y R E P O R T

of the proposed

C O L L E C T I O N S Y S T E M

and

S E W A G E T R E A T M E N T P L A N T

for the

UPPER GWYNEDD - TOWAMENCIN

MUNICIPAL AUTHORITY

Montgomery County, Pennsylvania

DEPARTMENT OF HEALTH
DIVISION OF SANITARY ENGINEERING
APPLICATION NO. OF THE MUNICIPALITY
765513 March 1, 1965
REPORTS
NO. OF VOLUMES 2 OF 2

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JANOS LIPTAK
No. 5726-E

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5/12/65

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May, 1965

INTRODUCTION

During the conference held on the 7th of May 1965 with the Engineers of the VII-th Regional Office the submission of the following Engineering calculation was requested:

I, Hydraulics of the recirculation through the final settling tank.

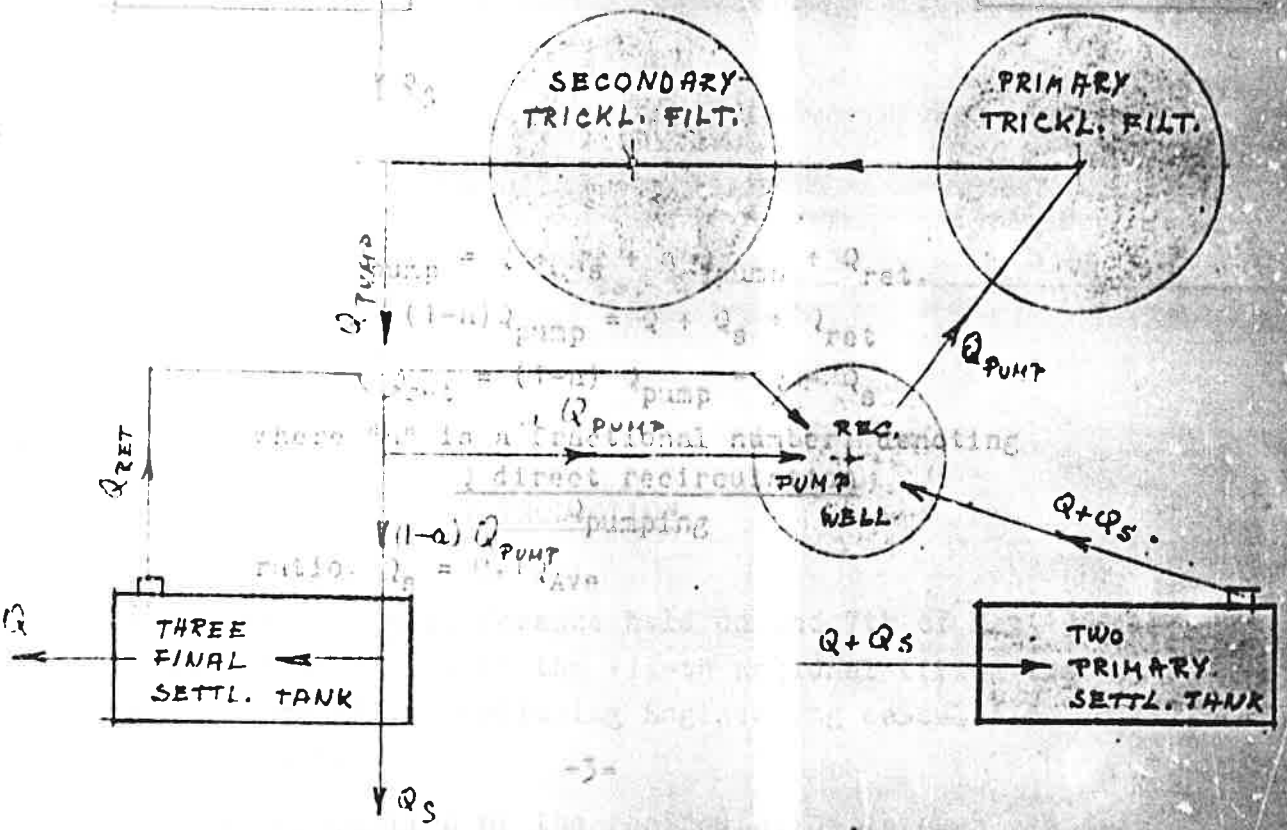
II, Head-capacity curves of raw sewage and recirculation pump systems.

III, Typical weir calculation for the direct recirculation.

IV, Hydraulics of the telescopic valves.

1., HYDRAULICS OF THE RECIRCULATION THROUGH THE FINAL SETTLING TANK.

The flow diagram of the recirculation through the final settling tank is the following:



$$Q_{pump} = Q + Q_s + a\,Q_{pump} + Q_{ret.}$$

$$(1-a)Q_{pump} = Q + Q_s + Q_{ret}$$

$$Q_{ret} = (1-a)\,Q_{pump} - Q - Q_s$$

where "a" is a fractional number, denoting

$$\frac{Q \text{ direct recirculation}}{Q_{pumping}}$$

ratio. $Q_s = 0.1 Q_{Ave}$

For the expected immediate flow with 1:3 recirculation and for the design flow with 1:2 recirculation, assuming a=0.25 and a=0.50 (25% and 50% of the pumped flow is direct recirculated) the Q_{ret} was calculated as follows:

1., Immediate Flow:

average flow		0.52 MGD
recirculation	3x0.52	1.56 "
		2.08 MGD

1-1., Average Flow: $Q_{ret} = (1-a)x\ 2.08-0.52-0.05=(1-a)2.08-0.57$

a = 0.25 Q_{ret} =1.56-0.57=0.99 MGD

= 0.50 Q_{ret} =1.04-0.57=0.57 MGD

1-2., High Flow: $Q_{ret} = (1-a)\ 2.08-2x0.52-0.05=(1-a)2.08-1.09$

a = 0.25 Q_{ret} =1.56-1.09=0.47 MGD

= 0.50 Q_{ret} =1.04-1.09=0.00 MGD

1-3., Low Flow: $Q_{ret} = (1-a)2.08-0.4x0.52-0.05=(1-a)2.08-0.26$

a = 0.25 Q_{ret} =1.56-0.26=1.30 MGD

= 0.50 Q_{ret} =1.04-0.26=0.78 MGD

1-4., Q = 0 $Q_{ret} = (1-a)\ 2.08-0.05$

a = 0.25 Q_{ret} =1.56-0.05=1.51 MGD

= 0.50 Q_{ret} =1.04-0.05=0.99 MGD

2., Design Flow:

average flow	1.00 MGD
1:2 recirculation	2.00 MGD
	3.00 MGD

2-1., Average Flow: $Q_{ret} = (1-a)\ 3.00-1.00-0.10=(1-a)3.00-1.10$

a = 0.25 Q_{ret} =2.25-1.10=1.15 MGD

= 0.50 Q_{ret} =1.50-1.10=0.40 MGD

2-2., High Flow: $Q_{ret} = (1-a)3.00-2.00-0.10=(1-a)3.00-2.10$

a = 0.25 =2.25-2.10=0.15

= 0.50 Q_{ret} =1.50-2.10=0.60

2-3., Low Flow:

a = 0.25
= 0.50

Q_{ret}=(1-a)x3.00-0.4-0.10= (1-a)3.00-0.50

Q_{ret} =2.25-0.50=1.75 MGD

Q_{ret} =1.50-0.50=1.00 MGD

2-4., Q = 0

a = 0.25
= 0.50

Q_{ret}=(1-a)x3.00-0.10

Q_{ret}= 2.25 = 2.15
= 1.50 = 1.40

For the expected immediate flow with 1:3 recirc
and for the design flow with 1:2 recirculation,
and he 50 (25% and 50% of the pumped flow is direc
ted) the Q_{ret} was calculated as follows:

1., Immediate flow:

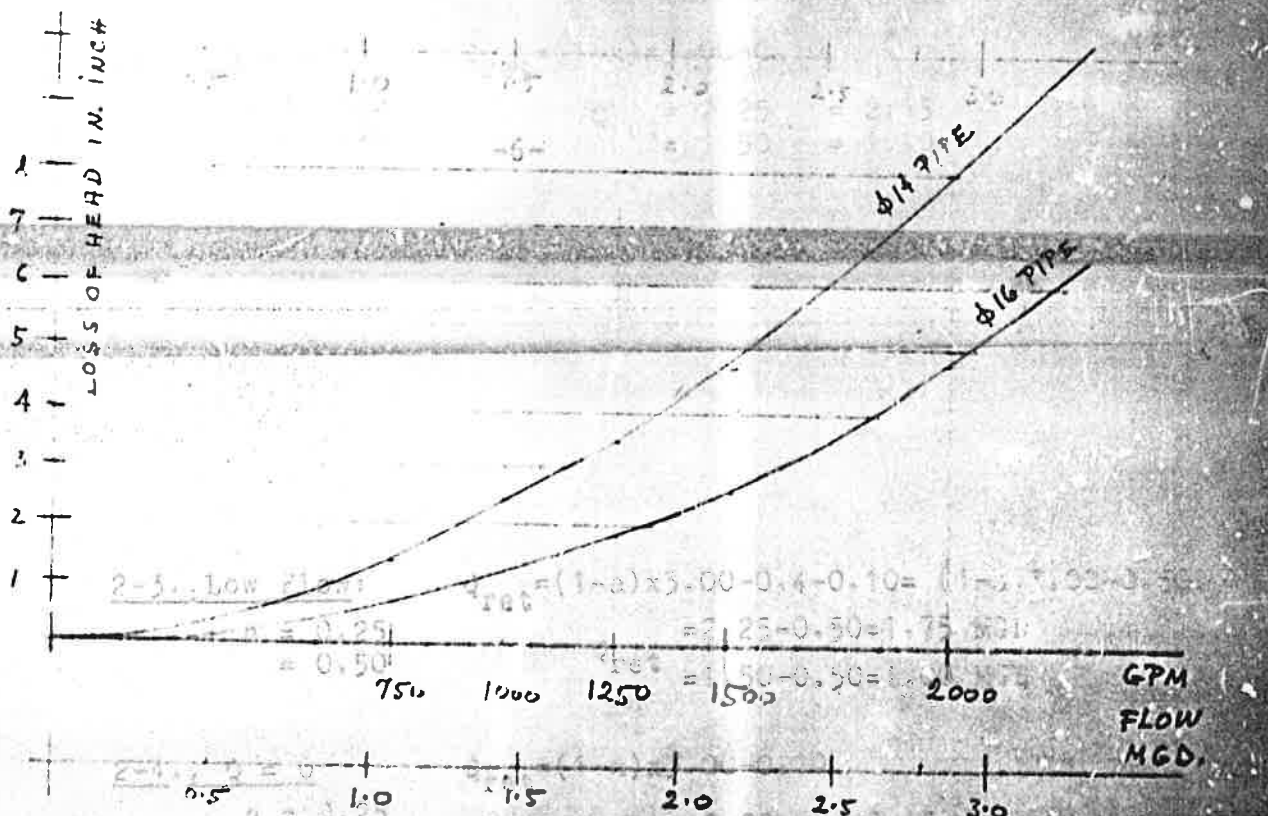
Average flow
recirculation

It should be noted that proposed pumping arrangement provides adjustable control for the pumps to increase the pumping rate in steps as the incoming flow increases. The proposed pump sizes and available number of pumps allow much flexibility for the operator. For further possibilities to split the flows ahead of recirculation pump well, see III. Typical weir calculations.

The Relation Between the Water Level of the Recirculation Pump Well and Discharge Box.

Equivalent pipe length:

straight pipe	76 ft.
losses in the Discharge Box	24 ft.
total equivalent length	100 ft.



Using this diagram it may be seen that for the expected flows the difference in water level will be in the order of 1 to 2 inches. It should be noted, that only a differential flow will flow through this return pipe. To avoid settling of solids in the pipe at times of low flows dia. 14 in. pipe is proposed and 18 in. of slope is provided on the 76' length.

It should be noted, however, that the pressure drop in this pipe will not effect essentially the basic hydraulics of system. Using a smaller pipe size the pressure drop would be greater between the pump well and the discharge box. This would only slightly reduce the capacity of the pump well without having any influence on the basic hydraulics involved. The basic controlling factor is the water level in the two discharge pipes between the secondary settling tank and chlorine contact chamber.

It should be noted further, that while the change in the flow is slow and accures gradually the respond, due to the incompressibility of the water, is instantaneous. A few inch drop of the water level in the pump well will divert the entire secondary settling tank effluent into the pump well and all flow i.e. the effluent of the primary settling tank, the direct recirculated flow and the effluent of the final settling tank will go immediately into the pump well. Because of this fast and effective respond the fluctuation of the water level in the pump well will be extremely small and the completely automatic flow regulation will be very sensitive.

There will be an essential variation in the water level only when a new pump will start. At this time the water level will drop gradually. This drop will be moderate because the continuous flow from the primary settling tank and from the direct recirculared trickling filter flow and because of the increasing respond of the secondary settling tank. After the water level in the pump well reaches the lowest

point it will stay there for a very short period until the increasing flow from the trickling filter will raise the water level slowly to the original heights.

The proposed automatic flow control will operate very smoothly. The only requirement is the proper discharge capacity of the final settling tank effluent pipes. In connection with the hydraulics of these effluent pipes it should be noted, that while there might be relatively sudden decrease in amount of the effluent when a new recirculating pump is started, the increase in the amount of the effluent will always be very slow.

The discharge capacity of two dia. 8" pipes as a function of the head available:

$Q\ (cfs) = 2A\ (ft^2) \times V\ (ft/sec) = 7.5 \times 60 \times 14$

$Q\ (MGD) = \frac{7.5 \times 60 \times 1440}{1,000,000} \times Q\ (cu.ft/sec) = 1.293\ Q\ (cfs)$

$= 1.293 \times 0.67^2 \times 0.785 \sqrt{64.4 \times h} = 0.452 \sqrt{64.4\ h}$

H =	$\sqrt{64.4\ h}$ =	Q = 2.56 MGD
0.5	5.65	3.14
0.75	6.95	3.63
1.00	8.02	4.04
1.25	8.92	4.43
1.50	9.80	4.90
1.75	10.80	

It could be noted that the weir plate on the effluent trough is replacable and a dia. 10 inch pipe may be used if needed sometime in the future.

The discharge capacity of the orifices as a function of the head available.

outflow coefficient = 0.61

total number of 5/8 inch orifices = 2 x 138. Total combined area = $2 \times 138 \times 0.625 \times 0.625 \times 0.785/144 = 2 \times 0.294$ sq.ft.= A

$Q(MGD) = 1.293\ Q(cfs) = 1.293 \times 0.61 \times 2 \times 0.294 \times \sqrt{64.4\ h(ft)}$

$= 0.465 \times \sqrt{64.4\ h(ft)}$

The size and number of holes were selected so that head required to produce a velocity necessary for discharge a certain Q shall be sufficient to discharge the flow through the orifices also. Due to the provided 5 to 8 fps velocities the orifices will be self-cleaning. To maintain these self-cleaning velocities for low immediate flow at start up the plant the distributor arms will be furnished with ½ inch orifices.

Finally it could be noted, that if the pumping system would fail for any reason, the primary effluent would reach the final settling tank by gravity without causing any further disturbance in the operation.

II. H-Q CURVES OF THE RAW SEWAGE AND RECIRCULATION PUMPING SYSTEMS

II-I., Raw Sewage Pumping System

Static head: at high flow 196.00 - 181.50 = 14.50ft.

Friction head: the losses in the suction line and in the discharge mainfold are associated with the individual pump curves, therefore these losses are considered as a correction to the individual pump curves:

Ø12" discharge pipe:

pipe length	40 ft.
22.5° bend equivalent length	5 ft.
two 45° bend equivalent length 2x15	30 ft.
	75 ft.
y-branch equivalent length 0.5x32	16 ft.
total equivalent length	91 ft.

Ø8" discharge pipe:

pipe length (18.0 + 18.0)x0.5	14 ft.
gate valve open	5 ft.
	19 ft.

Considering 15 years old C. I. pipe, the friction losses were calculated as follows:

ϕ 12" EQU. LENGTH = 91 FT.		ϕ 8" EQU. LENGTH = 19 FT		FRICTION HEAD
Q GPM	LOSS PER 100 FT	0.5Q GPM	LOSS PER 100 FT	FT.
500	0.11	250	0.22	0.91 × 0.11 + 0.19 × 0.22 = 0.14
800	0.27	400	0.54	× 0.27 + × 0.54 = 0.35
1000	0.41	500	0.82	× 0.41 + × 0.82 = 0.53
1500	0.85	750	1.74	× 0.85 + × 1.74 = 1.10
2000	1.43	1000	3.02	× 1.43 + × 3.02 = 1.77
2500	2.28	1250	4.45	× 2.28 + × 4.45 = 2.93
3000	3.15	1500	6.27	× 3.15 + × 6.27 = 4.05

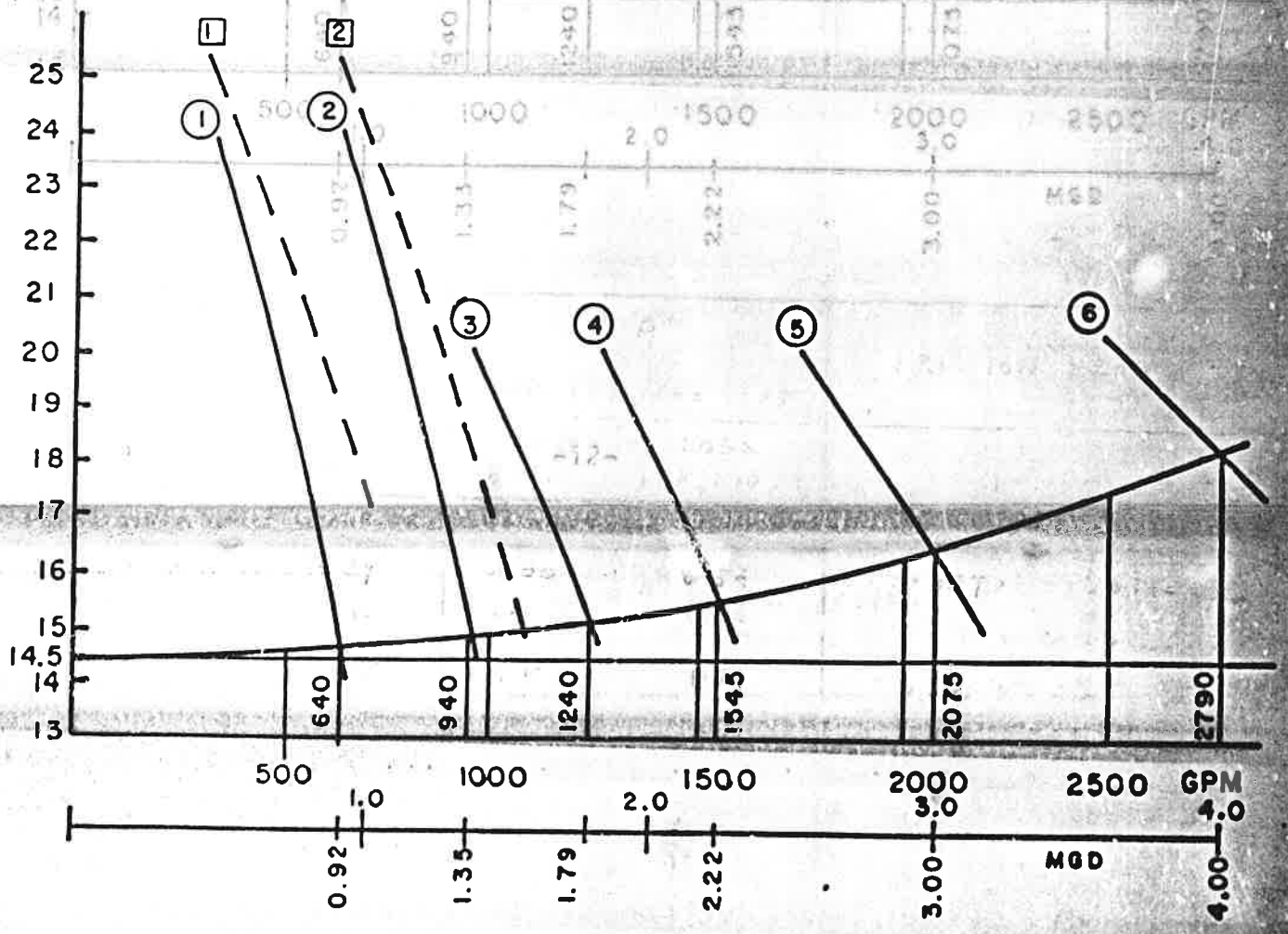
Suction line and discharge manifold losses for Ø4" pump.

Ø6" vertical pipe	6 ft.
90° elbow equivilent length	16 ft.
horizontal suction line	12 ft.
45° bend equivalent length	7 ft.
horizontal discharge line	8 ft.
two gate valves 2 x 3.5	7 ft.
one check valve	40 ft.
two reducers (sudden contraction) d/D ≃ 3/4 2 x 3.5	7 ft.
total equivalent length	103 ft.

Suction line and discharge manifold for Ø6" pump.

Ø8" vertical pipe	6 ft.
90° elbow equivalent length	20 ft.
horizontal suction line	10 ft.
45° bend equivalent length	10 ft.
horizontal discharge line	5 ft.
two gate valves open 2 x 4.5	9 ft.
one check valve	50 ft.
two reducers (sudden contraction) d/D ≃ 3/4 2 x 4.5	9 ft.
total equivalent length	119 ft.

ø 8"			ø 6"		
EQUIVALENT LENGTH = 119 FT.			EQUIVALENT LENGTH = 103 FT.		
Q GPM	LOSS PER 100 FT.	TOTAL LOSS (in Ft.)	Q GPM	LOSS PER 100 FT.	TOTAL LOSS (in Ft.)
250	0.22	0.26	200	0.62	0.64
400	0.54	0.64	400	2.21	2.28
600	1.14	1.36	600	4.70	4.85
800	1.97	1.34	800	8.00	8.25
1,000	3.02	3.60			
1,200	4.15	4.94			



NOTES:

[1] 4LCx4 AURORA pump 875RPM 10½ dia. impeller 5HP motor, pump efficiency 76 to 77%.

(1) corrected H-Q curve for the [1] pump to consider head losses in the suction pipe and discharge manifold.

[2] 6Cx6 AURORA pump 1150RPM 9½ dia. impeller 7½HP motor, pump efficiency 76 to 77%.

(2) corrected H-Q curve for the [2] pump to consider head losses in the suction pipe and discharge manifold.

(3) two [1] pumps operating simultaneously.

(4) one [1] and one [2] pump operating simultaneously.

(5) two [1] and one [2] pump operating simultaneously.

(6) two [1] and two [2] pumps operating simultaneously.

Case	Operating		Delivery	
	4" pump	6" pump	GPM	MGD
(1)	1		640	0.92
(2)		1	940	1.35
(3)	2		1240	1.79
(4)	1	1	1545	2.22
(5)	2	1	2075	3.00
(6)	2	2	2790	4.00

∅ 8"			∅ 6"		
EQUIVALENT LENGTH = 119 FT.			EQUIVALENT LENGTH = 103 FT.		
Q GPM	LOSS PER 100 FT.	TOTAL LOSS (in FT.)	Q GPM	LOSS PER 100 FT.	TOTAL LOSS (in FT.)
250	0.22	0.26	200	0.62	0.64
400	0.54	0.64	300		
600	1.14	1.36	400		
			500		
			600		

11-7. Recirculation Pumping System

Static head: 216.50 - 191.50 = 25.00 ft.

Friction head: Losses developed in the discharge manifold are considered by correcting the individual H-Q pump curves.

horizontal pipe		240 ft.
two 45° elbow equivalent length	2x19	38 ft.
one 90° (at center column) equ. length		42 ft.
center column		8 ft.
60° y		10 ft.
total equivalent length		338 ft.

Considering 15 years old C. I. pipe the friction losses were calculated as follows:

ϕ 16" EQUIVALENT LENGTH = 338 FT.				ϕ 18" EQUIVALENT LENGTH = 338 FT.			
Q GPM	Q MGD	LOSS PER 100 FT	TOTAL LOSS FT				
1250	1.80	0.15	0.51				
1500	2.16	0.21	0.71				
2000	2.88	0.39	1.32				
2500	3.60	0.56	1.90				
3000	4.32	0.80	2.70				
3500	5.04	1.04	3.52				
4000	5.75	1.34	4.53				

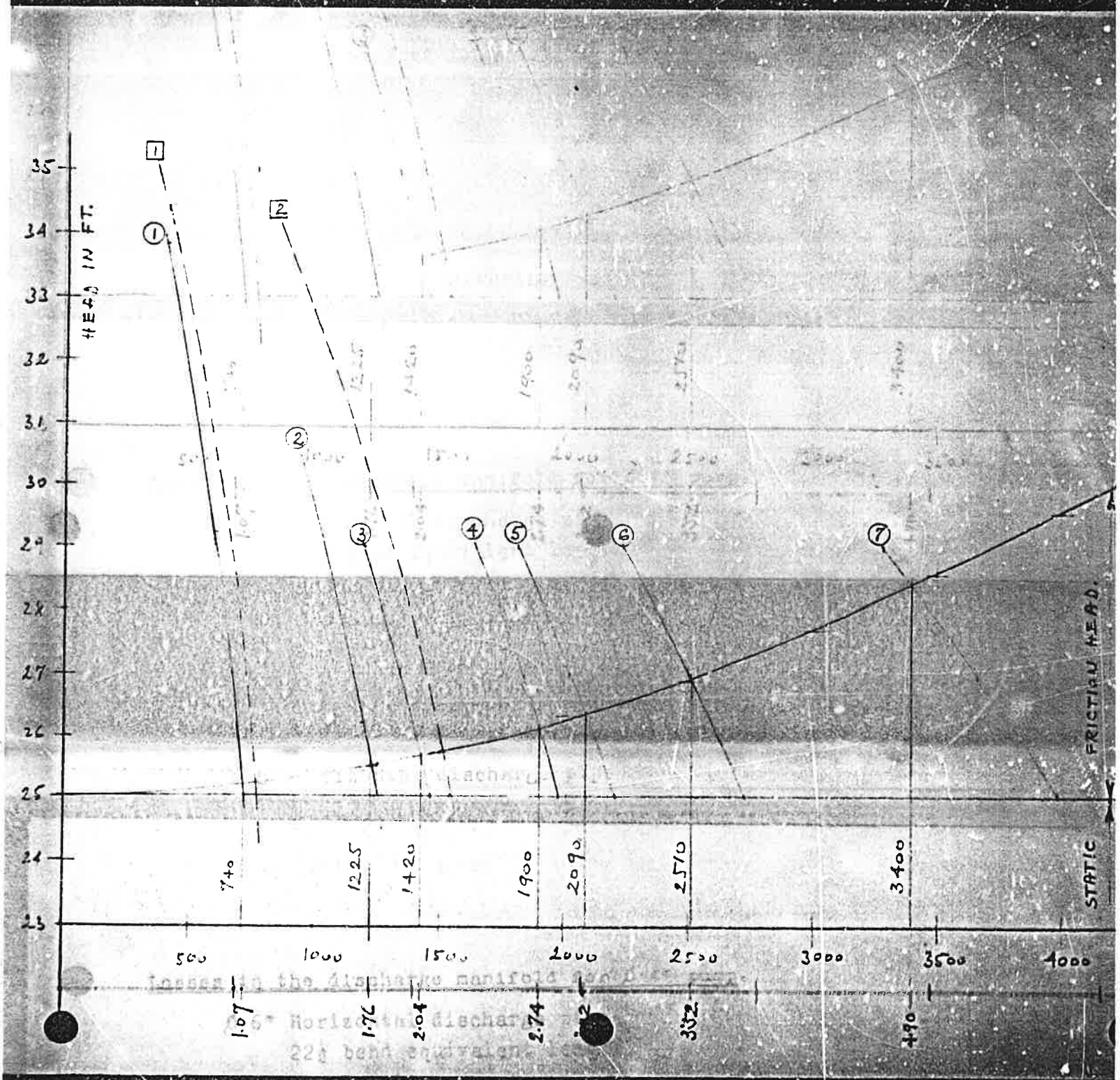
Losses in the discharge manifold for ϕ 4" pump.

ϕ 6" Horizontal discharge pipe	12 ft.
22½ bend equivalent length	4 ft.
check valve	40 ft.
increasing T	35 ft.
22½ Y	9 ft.
Total equivalent length	100 ft.

Losses in the discharge manifold for ϕ 6" pump.

ϕ 8" Horizontal discharge pipe	10 ft.
check valve	50 ft.
increasing T	47 ft.
enlarger d/D ≃ ½	13 ft.
Total equivalent length	120 ft.

ϕ 8"			ϕ 6"		
EQUIVALENT LENGTH = 120 FT.			EQUIVALENT LENGTH = 100 FT		
Q GPM	LOSS PER 100 FT	TOTAL LOSS IN FT.	Q GPM	LOSS PER 100 FT	TOTAL LOSS IN FT.
250	0·22	0·26	200	0·62	0·62
400	0·54	0·65	400	2·21	2·21
600	1·14	1·37	600	4·70	4·70
800	1·97	2·37	800	8·00	8·00
1000	3·02	3·63			
1200	4·15	4·98			


HEAD IN FT.
35
34
33
32
31
30
29
28
27
26
25
24
23
1
2
3
4
5
6
7
740
1225
1420
1900
2090
2510
3400
STATIC
FRICTION HEAD.
500
1000
1500
2000
2500
3000
3500
4000
1.07
1.72
2.04
2.74
3.12
3.32
4.90

NOTES:

[1] 4" x 4" SSK Figure 5192 Vertical American Wet Pit Pump, 9½" impeller, 7½ HP motor, pump efficiency approx. 70%.

(1) Corrected H-Q curve for the [1] pump to consider head losses in the suction pipe and discharge manifold.

[2] 6" x 6" SSK Figure 5192 Vertical American Wet Pit Pump, 13½ impeller, 10 HP motor pump efficiency 77% to 78%.

(2) Corrected H-Q curve for the [2] pump to consider head losses in the suction pipe and discharge manifold.

(3) Two [1] pumps operating simultaneously.

(4) One [1] and one [2] pump operating simultaneously.

(5) Three [1] pumps operating simultaneously.

(6) Two [1] pumps and one [2] pump operating simultaneously.

(7) Three [1] pumps and one [2] pump operating simultaneously.

	OPERATING		DELIVERY	
	[1] Pump	[2] Pump	GPM	MGD
(1)	1		740	1.07
(2)		1	1,225	1.76
(3)	2		1,420	2.04
(4)	1	1	1,900	2.74
(5)	3		2,090	3.02
(6)	2	1	2,510	3.52
(7)	3	1	3,400	4.90

III. Typical Weir Calculation for the Direct Recirculation

The expected low immediate flows at the start up of the plant will allow to recirculate the entire flow through the final settling tank. To avoid too long detention times and developing septic conditions it seems to be advisable to recirculate the entire flow through the final settling tanks. Therefore the present contract calls for a 3/16 plate which will close the opening provided for the direct recirculation.

Later on, when the flow is increased and direct recirculation will be practiced this plate can be converted into a suitable weir plate. The weir plates provided to measure and divert the flow to each final settling tank are proposed to be 90° V - notch weir to allow good flow measurements at low flows.

Providing the same 90° V - notch weir for the direct recirculation the pump flow would be split in 4 equal amounts. ¼ of the flow going into each settling tank and ¼ direct recirculated. At 1:1 recirculation rate this would be 0.5Q recirculation through the final settling tanks and 0.5Q direct recirculation. At 1:2 recirculation rate this would be 1.25Q recirculation through the final settling tank and 0.75Q direct recirculation. At 1:3 recirculation rate this would be 2Q recirculation through the final settling tank and 1Q direct recirculation.

It could be noted that weir plate providing and overflow proportional to the length of the applied weirs (Cippoletti weir) or any other type of weir also can be installed to suit any required operating condition. To test the settling tank efficiency at higher flow one of the settling tanks can be over loaded or underloaded. The entire recirculated flow may be recirculated through the final settling tank, or the entire recirculated flow may be direct recirculated. Arrangement can be made that up to a preset flow all recircu-

lated Flow will flow through the final settling tanks and the flow above the preset amount will be direct recirculated. Etc. Varying the slope, size and the height of the weir the flow can be split amoung the individual unit practically any way as desired.

IV. Hydraulics of the Telescopic Valve

For dia. 4 inch and 3 inch telescoping valve the velocities and heads required to draw $0.1Q_{Ave}$ and $0.2Q_{Ave}$ flow were calculated as follows:

	0.1xDesign Ave. Flow		0.2xDesign Ave. Flow	
	100,000 GPD		200,000 GPD	
Total Flow	0.155 CFS		0.31 CFS	
Flow of one valve	0.0387		0.0775	
	∅ 4"	∅ 3"	∅ 4"	∅ 3"
Area sq.ft.	0.0875	0.0491	0.0875	0.0491
Velocity fps.	0.443	0.787	0.886	1.57
Required Head "	0.04	0.12	0.15	0.47

Using a ∅ 3 in. telescoping valve, and recirculating a flow of $Q_S+Q_{TH} = 0.2Q_{Ave}$ proper velocities may be obtained to maintain a continuous sludge flow without clogging. As a daily operation routine each sludge line and hopper can be flushed for 2 to 5 minutes with a velocity 4 to 5 fps. The required head for this flushing is 3 to 4.6 in.

JANOS LIPTAK & ASSOCIATES
CONSULTING ENGINEERS

Janos Liptak

JANOS LIPTAK CE, PE.

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SUMMARY REPORT

of the proposed

COLLECTION SYSTEM

and

SEWAGE TREATMENT PLANT

for the

UPPER GWYNEDD - TOWAMENCIN MUNICIPAL AUTHORITY

Montgomery County, Pennsylvania

DEPARTMENT OF HEALTH
DIVISION OF SANITARY ENGINEERING
APPLICATION NO. 765513
REPORTS REC'D, REGION 3/1/65
REPORTS
NO. OF VOLUMES 1 OF 2

Prepared by:

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Willow Grove, Pa.

HENRY S. CONREY, INC.
Paoli, Pa.

C. RAYMOND WEIR ASSO., INC.
Ambler, Pa.

February 1965

INTRODUCTION

In the February 23, 1961 Sewer Study concerning the needs of Upper Gwynedd Township, C. Raymond Weir, Township Engineer, presented a preliminary estimate to provide sewer service for the Green Street and Rosemont Avenue area in Upper Gwynedd Township. Due to the relatively small number of homes involved the estimated sewer rental was fairly high, approximately $94.00 per year per home. In the June 26, 1961 report to the Board of Supervisors of the Upper Gwynedd Township the possibility of serving the critical Green Street and Rosemont Avenue area by pumping the sewage into the Lansdale system was studied.

Because of the relatively small number of homes to be served in the Green Street and Rosemont Avenue area both solutions resulted in high sewer rentals. Therefore, in the June 26, 1961 report it was suggested that to achieve economy in providing service for this critical area, an attempt should be made to serve a larger block of connections.

After this recognition discussions were held with the representatives of Martin Century Farms, with the Sewer Committee of the Lansdale Borough Council and then with representatives of Towamencin Township.

The representatives of the Martin Century Farms were interested in a cooperation. It is felt that with co-operation, both the Company and the Township will realize definite advantages.

When representatives of Upper Gwynedd Township met the Sewer Committee of the Lansdale Borough Council it was indicated that they would probably cooperate in any scheme that would be economically feasible and in line with their present costs.

Towamencin Township also was interested in a co-operation. The Township has increasing problems with

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on site sewage disposal in the Village of Kulpsville. To provide sewer service in the fully developed Inglewood area the Township is maintaining a pumping station and force main and is contracting for sewage treatment outside of its natural watershed. Furthermore, the Township wants to consider the potential growth in its populated areas.

Based on the participation of the three municipalities, the December 1962 Feasibility Report was prepared and presented by the Office of C. Raymond Weir Associates, Inc., Engineers for Upper Gwynedd Township, Henry S. Conrey, Inc., Engineers for Towamencin Township and Mr. Janos Liptak, Registered Professional Engineer, acting as Consultant on the sewage treatment plant design. Benefit of consultation was also had with Mr. Stanley Moyer, Engineer for Lansdale Borough.

Officials from the Township Boards of Towamencin and Upper Gwynedd and of Lansdale Borough Council met regularly to discuss the problems involved. Lansdale's participation in the project; financing the construction, reserved Plant capacity for each municipality. During the meeting held on the 20th of May 1963, Lansdale Borough announced its withdrawl, stating that the Borough's expansion would probably not use up the capacity from 2,150 population which they would gain from Upper Gwynedd (Pennbrook Junior High School, with 900 students, representing 150 population) and Towamencin (400 homes in Inglewood, representing 2,000 population). Lansdale Borough decided to solve its problems alone.

After Lansdale's withdrawl Officials from the Township Boards of Towamencin and Upper Gwynedd decided to go ahead without Lansdale. A Sewer Agreement was drawn between the two Townships. The Upper Gwynedd-Towamencin Municipal Authority was formed. Underwriters, Bond Council and Engineer were selected.

In July 1964 an extensive new Feasibility Report was prepared to consider the changed conditions occuring as a result of the withdrawl of Lansdale Borough and to study the feasibility of providing sewer service for additional developed areas.

I. RELEVANT SANITARY WATER BOARD PERMITS.

The Upper Gwynedd-Towamencin Municipal Authority was formed recently. No application was filed and no Sanitary Water Board permit was issued.

In July 1964 an extensive new Feasibility Report was prepared to consider the changed conditions occuring as a result of the withdrawl of Lansdale Borough and to study the feasibility of providing sewer service for additional developed areas.

II. GENERAL CONDITIONS.

1) Location. The proposed collection system will be located in two Townships: Upper Gwynedd and Towamencin Townships, Montgomery County, Pa.

The territory of the Authority comprises of the Towamencin Creek Drainage area in Upper Gwynedd Township (see Drawing No. P-200), and the entire area of Towamencin Township.

2) Topography.

Topographically Upper Gwynedd Township is divided into two large and one small major drainage sheds:

Wissahickon Drainage Shed	*3,200	acres	= 5.00	square miles
Towamencin Drainage Shed	1,643	"	= 2.56	" "
Zacharias Drainage Shed	396	"	= 0.62	" "

The respective location of these major drainage areas may be found on Drawing No. UG-T-64-P-200.

The scope of this report with respect to providing sanitary sewer service for the Upper Gwynedd Township is concerned with the Towamencin Drainage Shed.

The Towamencin Drainage Shed, comprising approximately 1,643 acres, is divided into 7 minor drainage sheds, as it is shown on Drawing No. UG-T-64-P-200.

Essential portions of the Whites Road and Broad Street drainage areas are within the borough limits of Lansdale. Since Lansdale decided to solve its sewerage problems alone, these portions of the mentioned drainage sheds are not considered in this report.

For further details see PP. 6-7 of the July 1964 Feasibility Report.

Topographically Towamencin Township is divided into three major drainage sheds:

* Excluding North Wales and Lansdale Boroughs.

Towamencin Creek

Main Branch Drainage Shed 1,855 acres = 2.95 sq.mi.

Towamencin Creek

Kulpsville Branch Drainage Shed 2,011 " = 3.15 " "

Skippack Drainage Shed 2,260 " = 3.54 " "

The scope of this report with relation to providing sanitary sewer service for Towamencin Township is concerned with the drainage area of the Kulpsville Branch of the Towamencin Creek, and also of that portion of the drainage area of the Main Branch of the Towamencin Creek, which is located above the proposed treatment plant site.

The drainage area of the Main Branch of the Towamencin Creek which is located in Towamencin Township may be divided into 10 minor drainage areas with a combined total area of 1,855 acres. Seven of these ten minor drainage areas, with a combined total area of 1,081 acres, are situated above the proposed treatment plant. See Drawing No. UG-T-64-P-100.

The drainage area of the Kulpsville Branch of the Towamencin Creek may be divided into seven minor drainage areas with a combined total area of 2,030 acres. See Drawing No. UG-T-64-P-100.

For further details see PP. 10-12 of the July 1964 Feasibility Report.

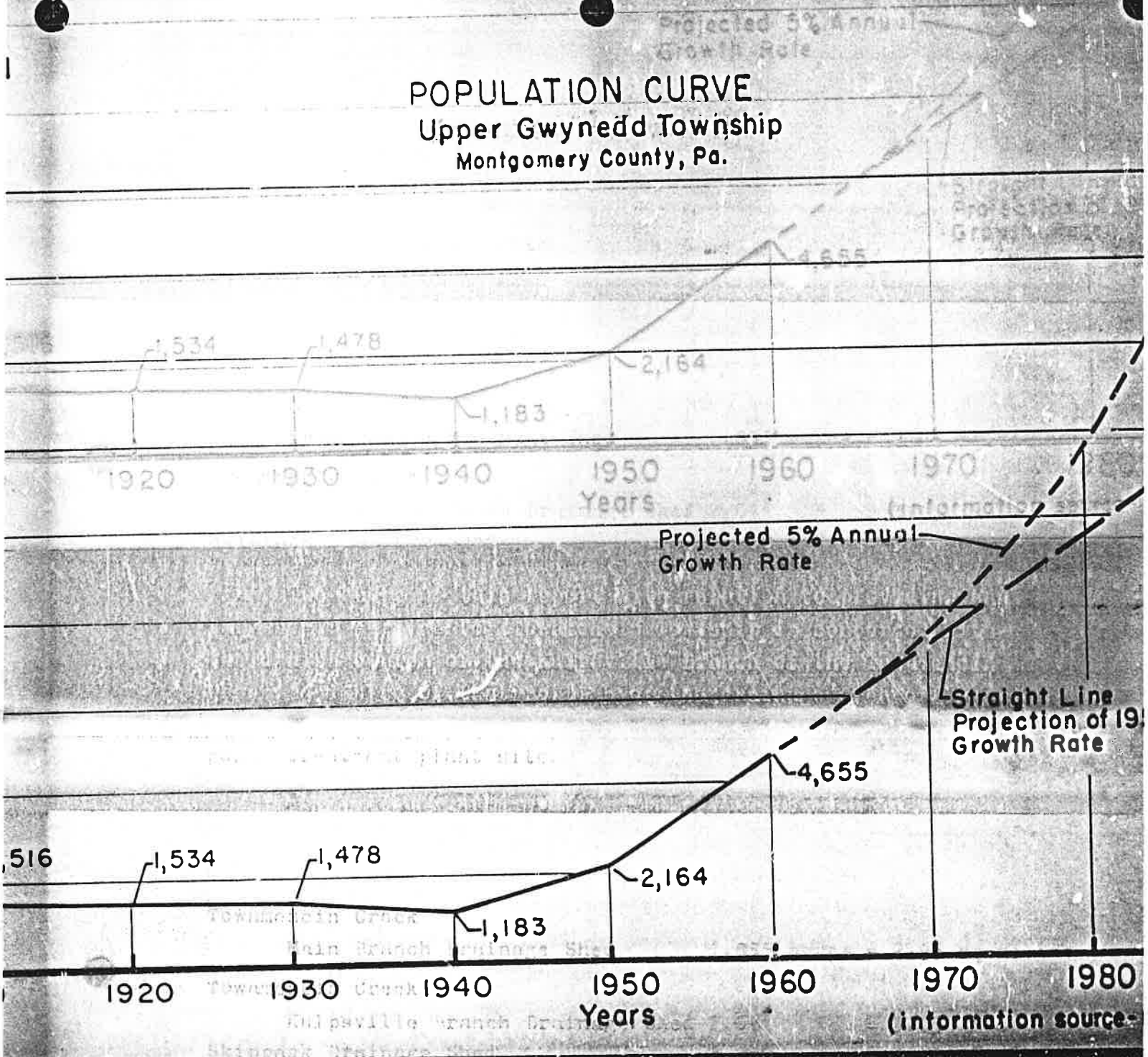
3) Population.

In Upper Gwynedd Township the general trend of population growth is indicated on Page 8. The ultimate population for the Towamencin water shed was estimated by Mr. C. Raymond Weir, Township Engineer to be 9,500 capita. The flow study made in connection with the present design revealed a present and ultimate equivalent population of 3,226 and 14,296 capita, respectively. Subtracting the Martin Century Farm industrial load and Corpus Christi School load the present and ultimate population figure is 1,426 and 11,960 capita. Considering that this last population figure contains essential equivalent industrial and commercial loads, the two estimates seem to be in good agreement.

POPULATION CURVE

Upper Gwynedd Township

Montgomery County, Pa.



In Towamencin Township the general trend of population growth is shown on Page 10, using census figures from 1910. The population of the Township between the years 1910 and 1960 has increased in varying amounts from 1,160 to 3,674 persons, the greatest increase being between 1950 and 1960 with the completion of Inglewood Manor. It is believed, however, that the rate of population growth will increase in the near future. It is indicated on the graph on Page 10, the expected lower limit of the growth, a straight line extension of the 1940-1960 population increase, and for the expected higher limit of the growth a curve with 5% annual growth rate.

The present and ultimate population of the area concerned with is estimated to be 3,196 and 17,277 equivalent capita.

The proposed sewage treatment plant was a design load of 10,000 equivalent capita, with 50% - 50% available capacity for each Township.

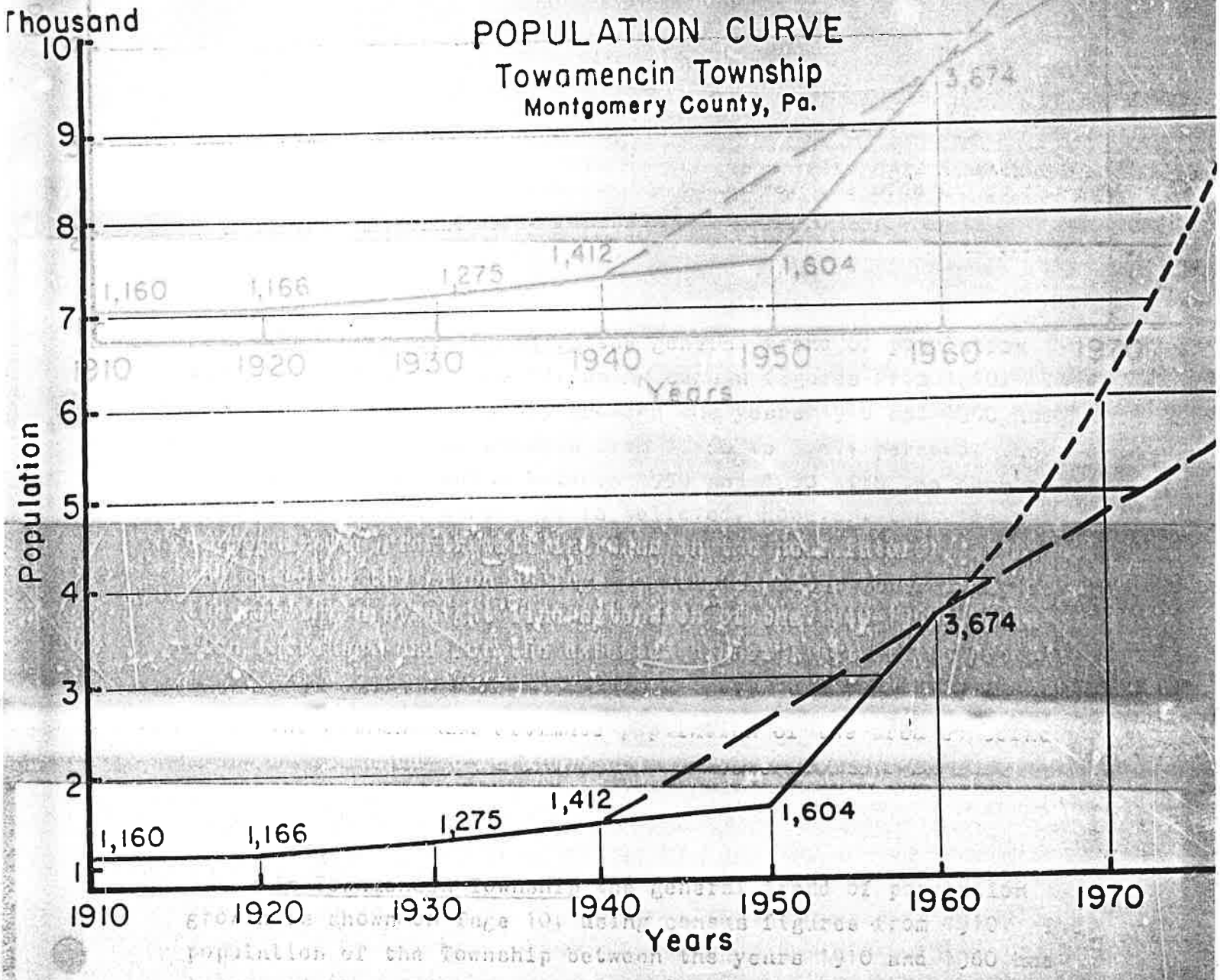
4) Water Supply.

Upper Gwynedd Township. Only a small portion of the Towamencin water shed (the area with which this design is concerned with) is provided with public water supply at the present time. However, the areas served with public water will be provided with sewer service.

North Wales Water Authority has a 8" water main serving the Gwynedd Square commercial area. The Authority is in the process of installing a 16" water main along the Sumneytown Pike.

Lansdale Municipal Authority is serving the Green Street, Rosemont Ave., and Broad Street area. The Authority has water mains on Valley Forge Road and Towamencin Ave. adjoining Lansdale Borough.

Towamencin Township. The entire Inglewood area is served with public water by the Lansdale Municipal Authority. The consumption as determined by water meter readings is between 50 to 60 gpd per capita.


Thousand
10
9
8
7
6
5
4
3
2
1
Population
POPULATION CURVE
Towamencin Township
Montgomery County, Pa.
1,160
1,166
1,275
1,412
1,604
3,674
1910
1920
1930
1940
1950
1960
1970
Years

The North Penn Water Authority is working on long range plans to provide water to the entire area to be served by the present proposed sewer trunk lines, if and when public water is required.

5) Industrial Wastes. The only essential amount of industrial waste is contributed by the Martin Century Farm, Inc. The Company's present waste flow is 90,000 gpd dairy waste. It is contemplated that the Company will double its waste amount in the very near future to 180,000 gpd. A 10% further future growth then will increase the load to the ultimate 200,000 gpd. For further information see PP. 66 - 68 of the July 1964 Feasibility Report.

Upper Gwynedd Township has two substantial areas zoned industrial: The Martin tract and the Merck, Sharp and Dohme tract. Allowances are made in the trunk line capacities to consider these possible future loads. For further details see PP. 39 and 41 to 42 of the 1964 Feasibility Report.

Towamencin Township does not have substantial areas zoned industrial in the area concerned with.

POPULATION CURVE
Towamencin Township
Montgomery County, Pa.

III. EXISTING SANITARY SEWER SYSTEM

As previously mentioned with respect to providing sewer service the concern is only with the Towamencin Drainage Sheds situated in Upper Gwynedd and in Towamencin Townships. Therefore, under this heading only the sanitary sewer systems located in this drainage area are considered.

It could be mentioned briefly that in Upper Gwynedd Township in order to serve the Wissahickon and Drainage Shed a new sewage treatment plant for 5,800 capita and additional collection lines and trunk sewers were constructed recently; Merck, Sharp and Dohme Co. has its own industrial waste treatment plant; West Point which is located on the ridge line between the Wissahickon and Zacharies Water Sheds also has sewer service. There is no sewer service in Towamencin Township outside the area covered in this report. The adjoining boroughs, Lansdale and North Wales have their own sewerage facilities, both utilized up to full capacity.

a) Entire area of territory involved.

Upper Gwynedd Township:	approx.	1,643 acres
Towamencin Township:		
Main Branch	approx.	1,855 "
Kulpsville Branch	approx.	2,011 "
	approx.	5,509 acres

b) Area covered by comprehensive sewerage plans.

None

c) Area presently served by existing sewers.

In Upper Gwynedd Township only a small portion of Green St. and Rosemont Avenue area naturally draining toward Lansdale Borough, and Towamencin Avenue area, served by a small pumping station is presently served by public sewer. All

of these areas are situated in the Drainage Area No. 2, are adjoining Lansdale Borough and are contributing to the Lansdale sewerage system.

In Towamencin Township the area of Inglewood Subdivision, denoted as Drainage Area No. 13, is served by existing sewer. The entire area is fully sewered. The sewage is collected at the lowest point of the drainage area and it is discharged by a pumping station into the Lansdale sewerage system.

d) Populated areas not presently served by existing sewers.

In Upper Gwynedd Township:

Green Street, Rosemont Ave., Broad St., and State St. area, ± 69 acre zoned residential is Drainage Area No. 3.

Gwynedd Square

Sumneytown Pike between Gwynedd Square and Valley Forge Rd.

Valley Forge Road between Garfield Ave. and Sumneytown Pike.

Clearbrook Road, Clearview Road, Grayer Road, Jack's Lane area, zoned residential at the junction of Sumneytown Pike and Valley Forge Road

Garfield Avenue and General Nash Drive residential area.

In Towamencin Township:

Kulpsville area

The small development in the Hillside Ave. and Anders Road area adjoining Upper Gwynedd Township.

All of these populated areas will be provided with sewer service.

e) Main drainage districts.

Upper Gwynedd Township. The drainage districts are indicated on Drawing P-200.

Towamencin Township. The drainage districts are indicated on Drawing P-100.

f) Drainage districts served by pumping stations.

Only one drainage district, the No. 3 Drainage Area - Inglewood Area - is served by pumping station.

IV. EXISTING SEWAGE TREATMENT WORKS.

As it was mentioned before, the present report is concerned only with the Towamencin Drainage Sheds situated in Upper Gwynedd and Towamencin Townships. Therefore, under this heading only the existing sewage treatment works located in this drainage area should be considered.

No existing sewage treatment work is in the area considered.

The proposed sewerage treatment works are described in detail further.

-15-

V. PROPOSED SANITARY SEWER SYSTEM.

According to the community in which they are located, and according to their use and financing, the collection lines are divided into 5 groups.

Assessable collection lines in Upper Gwynedd Township - Drawing Nos. 400, 401, 402,

Assessable collection lines in Towamencin Township - Drawing Nos. 300, 301, 302,

Non-assessable collection lines in Upper Gwynedd Township - Drawing Nos. 200, 201, 202,

Non-assessable collection lines in Towamencin Township used exclusively by Towamencin Township - Drawing Nos. 100, 101, 102,

Non-assessable collection lines in Towamencin Township used jointly by both Townships, Drawing Nos. 0, 1, 2, 3,

The proposed collection system, when completed, will collect the entire flow originated in -

Upper Gwynedd Township:

Towamencin Water Shed	± 1,643 acres

Towamencin Township:

Kulpsville Branch of Towamencin Creek	± 2,011 "
Main Branch of Towamencin Creek	± 1,081 "
	± 4,735 "

Most part of the ± 186 acre Bustard Rd. (Cedar Rd.) drainage area, denoted as Drainage Area No. 18, on the drawings, could be brought into the proposed system by gravity. A large portion of this area is zoned industrial.

The undeveloped No. 19 and 20 sub-drainage areas, with a total area of ± 588 acres. are draining into the Towamencin Creek below the proposed plant site.

The large industrial areas of the ± 2,260 acres Skippack Drainage Shed could be brought into the proposed system only by pumping stations. This, however, could be considered as a temporary measure only, to provide service for these areas until

a treatment plant serving the entire Skippack Drainage Shed could be constructed.

±287 acres are located in Hatfield Township and ±709 acres are located in Worcester Township which would naturally drain into the proposed system. No provisions are made in the present system to provide service for these areas. Hatfield Township has its own plans in order to solve the sewerage problems in the mentioned area, and the entire 709 acres in Worcester Township is undeveloped farm land.

Upper Gwynedd Township

a) Extent of proposed area to be immediately served.

Potential future area considered tributary. Acreage.

Collection line (assessable lines) service will be provided in the following populated areas:

Drainage Area		Drawing No.	Developed	Undeveloped*	Total
			Areas - in Acres		
3	Green St.-Allentown Rd. Rosemont Ave.-Park Ave. Broad St.-State St. Broad St.-Allentown Rd.	P401	69	85	154
4	Gwynedd Square Sumneytown Pike	P402	41	22	63
5	Clearbrook Rd. Clearview Road Valley Forge Road	P402	23	7	30
6	Jack's Lane General Nash Drive Valley Forge Road	P403	57	6	63
1	Sumneytown Pike Valley Forge Road	P402	6	14	20
	TOTAL		196	134	330

* Undeveloped areas draining into the proposed collection lines.

Trunk Line (non-assessable line) service will be provided in the entire Towamencin Drainage area:

Drainage Area		Developed	**Undeveloped	Total
		Areas - in Acres		
1	Valley Force Road Drainage Area	---	31	51
2	Whites Road Drainage Area	---	234	234
3	Broad Street Drainage Area	154	266	420
4	Sumneytown Pike Drainage Area	63	200	263
5	Supplee Road-Broad St. Drainage Area	30	248	278
6	Garfield Avenue Drainage Area	63	110	173
7	Supplee Rd.-Morris Rd. Drainage area			
	East of Pa.Turnpike	---	195	195
	West of Pa.Turnpike	---	29	29
		330	1,313	1,643

**Undeveloped area where at the present time no collection line construction is proposed.

b) Sub-drainage districts. Acreage.

The sub-drainage districts and pertinent acreage, broken down according to zoning districts are shown on Dwg.P200.

c) Points of connections with existing sewer system.

None

d) Point of connection into adjoining municipality.

There are two points of connection into the adjoining Towamencin collection system:

U Trunk Line (Upper Gwynedd trunk line) is proposed to

discharge into the UT Trunk Line (Upper Gwynedd-Towamencin Trunk Line) at the proposed manhole to be located on Valley Forge Road approximately 950 ft. south of Sumneytown Pike and Valley Forge Road intersection.

The sewage originated in Upper Gwynedd portion of the Drainage Area No. 6, it is discharged into the UT-6 Trunk Line Branch (trunk line branch serving Drainage Area No. 6 and carrying combined Upper Gwynedd and Towamencin flow) at the proposed manhole to be located on Valley Forge Road approximately 2,600 ft. south of Sumneytown Pike and Valley Forge Road intersection

The computed immediate and ultimated flows as well as the discharge points are indicated on Drawing Nos. P201, P402, and P403.

Towamencin Township

a) Extent of proposed area to be immediately served.

Potential future area considered tributary. Acreage.

Collection line (assessable line) service will be provided in the following areas:

Drainage Area		Developed	**Undeveloped	Total
		Areas - in Acres		
16	Kulpsville area	82	60	142
6	Hillside Avenue Anders Road	21	3	24
13	Inglewood area***	195	---	195
		298	63	361

**Undeveloped areas draining into the proposed collection lines.

*** Existing collection lines in the entire area.

Limited areas along Valley Forge Road in the total amount of approximately 77 acres with a combined 6,750 gpd immediate and 35,550 gpd ultimate flow will discharge into the Upper Gwynedd collection system. Most of this flow will be generated in Drainage Area No. 1.

Trunk line (non-assessable line) service will be provided in the entire Towamencin Drainage Shed located above the point of treatment plant discharge point. Two kinds of non-assessable lines are proposed in the Township:

T - Trunk line (Towamencin Trunk Line) used exclusively by Towamencin Township.

UT Trunk line, and UT-6 Trunk Line Branch used jointly by both Townships.

Drainage Area	T TRUNK LINE			
		Developed	**Undeveloped	Total
		Areas - in Acres		
12	Weikel Road Drainage Area	---	98	98
13	Inglewood Drainage Area	195	---	195
14	Welsh Road Drainage Area	---	455	455
15	Keeler Road Drainage Area	---	505	505
16	Kulpsville Drainage Area	142	71	213
17	Green Lane Drainage Area	---	223	224
9	Drainage Area	---	321	321
		337	1,674	2,011

**Undeveloped area where at the present time no collection lines are proposed.

UT TRUNK LINE AND UT-6 TRUNK LINE BRANCH				
Drainage Area		Developed	**Undeveloped	Total
		Areas - in Acres		
1	Valley Forge Road Drainage Area	51	---	51
5	Supplee Road-Broad Street Drainage Area	5	10	15
6	Garfield Ave-Anders Road	24		
	Drainage Area	10	37	71
7	Supplee Road-Morris Road Drainage Area	---	161	161
8	Morris Road Drainage Area	---	164	164
10	Kriebol Road Drainage Area	---	333	333
11	Sumneytown Pike Drainage Area	---	286	286
		90	991	1,081

b) Sub-drainage districts. Acreage.

The sub-drainage districts and pertinent arceage, broken down according to zoning districts, are shown on Drawing No. P-100.

c) Points of connection with existing sewer systems.

There is one point of connection with the existing sewer system at the existing Inglewood pumping station. The pumping station will be abandoned and the entire Inglewood area will be incorporated into the proposed system.

d) Ultimate point of sewer discharge.

The ultimate point of sewer discharge is the well in the

in the proposed sewage treatment plant. The proposed plant is located at the intersection of Green Lane and Kriebel Road.

BASIS OF DESIGN

a) Population:

In the populated areas, where collection line construction is proposed, house count was conducted and the number of immediate population to be served was determined by multiplying the actual number of houses by 3.7 capita.

The immediate and ultimate load of the existing industries, commercial establishments, schools, clinics, etc., were individually computed using the information obtained from the Management.

The undeveloped areas and the number of future population to be served was determined by considering the zoning regulations as follows:

Upper Gwynedd Township,

Residential Districts:					
AA - Agricultural	District	6.3	capita	per	acre
A - Agricultural	"	6.3	"	"	"
B - Residential	"	6.3	"	"	"
Industrial District:		11.5	"	"	"
Commercial District: considered individually					

Towamencin Township:

Residential Districts: (in undeveloped areas)					
Ag (R-175)	Agricultural Dist.	4.6	capita	per	acre
R - 125 -	Residential	4.6	"	"	"
R - 100 -	Residential	4.6	"	"	"
RR -	Residential	4.6	"	"	"
Residential Districts: (in developed areas)					
R - 125 -	Residential District	5.35	capita	per	acre
R - 100 -	Residential	5.35	"	"	"
Industrial District:		10.00	"	"	"
Commercial District:					

For the computation of the aforementioned per acre population figures see PP. 17-24 of the July 1964 Feasibility Report.

Using the above figures, the flows were computed at all characteristic points of the proposed collection and trunk line system. The tabulated, and the ultimate, as well as the immediate average flows are shown on the drawings. Using these flow figures the contributing equivalent population may be obtained by dividing the figure by one hundred.

b) Areas served; proposed and potential future acreages:

For the proposed collection lines the areas served are tabulated on PP. 17 and 19 according to their respective Townships.

For the proposed trunk lines the areas served are tabulated on PP. 18, 20, and 21.

c), d) Per capita sewage contribution. Infiltration:

100 gallon per capita per day average sewage contribution was considered. This figure is assumed to cover infiltration.

e) Basic factor used for industrial waste contribution:

For the immediate flow of the existing industrial establishments the flow figure obtained from the management is used. Proper allowance was made in agreement with the management to allow for future increase.

For the underdeveloped areas the average flow figures derived in the July 1964 Feasibility Report (PP. 22-24) were used; Upper Gwynedd Township 1,150 gallons per acre per day, Towamencin Township 1000 gallons per acre per day. These flow figures are based on the zoning regulations of the Townships and on the actual flow data of a near by industrial park.

f) Design flow rates and hydraulic calculation:

Laterals and sub-main sewers	4 x average flow
Main, trunk and outfall sewers	2.5x average flow

The hydraulic calculation was made according to the 5 groups of the lines enumerated on page 16:

Non-assessable Collection Lines in Towamencin Township jointly used by both Townships: UT Trunk Line and UT-6 Trunk Line Branch.

Non-assessable Collection Lines in Towamencin Township used exclusively by Towamencin Township: T Trunk Line.

Non-assessable Collection Lines in Upper Gwynedd Township used exclusively by Upper Gwynedd Township: U Trunk Line.

Assessable Collection Lines in Towamencin Township

Assessable Collection Lines in Upper Gwynedd Township.

While for Trunk Lines the characteristic flows were checked between the stations denoted in the tables, the flow computations for the Collection Lines were completed only when the flow exceeded that of running full at minimum slope as shown on the following table:

	Average Flow MGD	Design Flow MGD	Ø in.	Grade	Kutter's Formula-N=0.013 Design Flow Depth in.	Design Flow Velocity ft/sec	Running Full MGD	Running Full Velocity ft/sec
Ø 8" Pipe at min. slope	0.115	0.460	8	0.0040			0.460	2.05
Ø 10" Pipe at min. slope	0.175	0.700	10	0.0028			0.700	2.00

Drawings No: 1,2, ... 10

NON-ASSESSABLE COLLECTION LINES - TOWAMENCIN TOWNSHIP

UT Line Stations	Avg. MGD	Design MGD	ø in.	Min. Grade	Kutter's Formula-N=0.013 Design Flow Depth in.	Design Flow V. Ft./ Sec.	Running Full MGD	Running Full V. Ft./ Sec.
9+38 - 24+93	2.02	5.05	21	.0022			4.80	3
24+93 - 34+95	2.00	5.00	21	.00275	16.4	3.9	5.2	3.4
34+95 - 49+90	1.97	4.93	18	.0050			4.8	4.2
49+90 - 63+15	1.92	4.80	18	.0050			4.8	4.2
63+15 - 70+15	1.88	4.70	21	.0023	16.6	3.5	4.8	3.1
70+15 - 74+37	1.64	4.10	18	.0060	11.9	5.0	5.2	4.5
74+37 - 89+41	1.59	3.98	18	.0045	13.0	4.4	4.5	3.9
89+41 - 102+26	1.57	3.93	18	.0055	11.9	4.8	5.0	4.3
102+26 - 112+31	1.42	3.55	18	.0041	12.6	4.2	4.2	3.7

NOTE--UT Sta. 3+50 Preliminary = UT Sta. 12+00 Final; therefore add 850 ft. to Preliminary Stations to determine location of final flows.

UT-6 TRUNK LINE

0+0 - 3+72	.12	.30	8	.012	3.7	3.8	.8	3.4
3+72 - 6+22			8	.038				
6+22 - 10+47			8	.025				

Drawings: 101, 102, ... 114

NON-ASSESSABLE COLLECTION LINES - TOWAMENCIN TOWNSHIP

Station T-line	Avg. MGD	Design MGD	ø in.	Min. Grade	Kutter's Formula N=0.013 Design Flow Running Full: Depth in.	V. Ft./ Sec.	MGD	V. Ft./ Sec.
0+00 - 9+69	1.18	2.95	18	.005	10.3	4.5	4.7	4.2
9+69 - 14+68	1.16	2.90	18	.004	10.8	4.0	4.2	3.7
14+68 - 26+68	1.15	2.87	15	.0043			2.7	3.4
26+68 - 33+68	1.11	2.77	15	.0041			2.6	3.3
33+68 - 41+43	1.10	2.75	15	.0046	11.9	4.0	2.8	3.5
41+43 - 53+37	1.05	2.63	15	.006	10.2	4.5	3.2	4.0
53+37 - 64+48	.96	2.40	15	.0034			2.4	3.0
64+48 - 70+13	.91	2.28	15	.0067	9.0	4.5	3.4	4.2
70+13 - 85+94	.73	1.80	12	.0064			1.8	3.5
85+94 - 93+48	.64	1.60	12	.0060	9.0	3.9	1.7	3.4
93+48 - 105+45	.61	1.52	12	.0055	8.9	3.7	1.65	3.2
105+45 - 120+64	.51	1.28	10	.0100	6.4	4.2	1.7	3.8
120+64 - 130+73	.30	0.75	8	.0120	6.1	3.9	.8	3.4
130+73 - 139+34	.26	0.65	8	.013	5.3	3.9	.82	3.5

NOTE: T Sta. 4+00 Preliminary = T Sta. 0+0 Final; therefore subtract 400 ft. from preliminary station to determine location of final flows.

UPPER GWYNEDD TOWNSHIP
NON-ASSESSABLE LINES (U-TRUNK LINE & U-5 TRUNK LINE BRANCH)

Drawings: 201, 202,...206

U-Trunk Line Stations	Average Flow MGD	Design Flow MGD	Ø in.	Grade	Kutter's Formula-N=0.013 Design Flow Depth in.	Design Flow Velocity ft/sec	Running Full MGD	Running Full Velocity ft/sec
0+00 - 10+58	0.986	2.470	15	0.004	11.40	3.77	2.60	3.25
10+58-10+28	0.786	1.965	15	0.006	8.40	4.24	3.20	4.00
20+28-24+82	0.749	1.872	15	0.006	8.30	4.21	3.20	4.00
24+82-36+82	0.564	1.410	12	0.008	7.32	4.14	2.00	3.80
36+82-44+08	0.506	1.265	12	0.006	7.66	3.77	1.70	3.40
44+08-48+ 8	0.456	1.140	10	0.015	5.80	5.04	1.75	4.70
48+08-58+72	0.256	0.640	10	0.011	4.60	3.30	1.49	3.95
58+72-62+1	0.198	0.495	10	0.006	4.80	2.89	1.05	2.95

Drawing: 210

U-5-Trunk Line Branch Stations	Average Flow MGD	Design Flow MGD	Ø in.	Grade	Kutter's Formula-N=0.013 Design Flow Depth in.	Design Flow Velocity ft/sec	Running Full MGD	Running Full Velocity ft/sec
0+00-6+75	0.229	0.573	10	0.017	3.80	4.35	1.84	5.00
6+75-10+58	0.219	0.548	10	0.015	3.82	4.10	1.75	4.70

NON-ASSESSABLE COLLECTION LINES - TOWAMENCIN TOWNSHIP

Station T-line	Avg. MGD	Design MGD	Ø in.	Grade	Kutter's Formula N=0.013 Design Flow Depth in.	Design Flow Velocity ft/sec	Running Full MGD	Running Full Velocity ft/sec
0+00 - 9+69	1.18	2.95	18	0.005				

Drawings: 301, 302, ..., 310
320, 321, 322

ASSESSABLE COLLECTION LINES - TOWAMENCIN TOWNSHIP

					Kutter's Formula N=0.013			
					Design Flow		Running Full	
Sumneytown Pike	Avg. MGD	Design MGD	ø in.	Grade	Depth in.	V. Ft./ Sec.	MGD	V. Ft./ Sec.
Anders Road Min. Slope=.008	.003	.012	8					
Forty Foot Road Min. Slope=.004	.048	.192	8					
Franklin Street Min. Slope=.004	.007	.026	8					
Hillside Avenue Min. Slope=.01	.003	.012	8					
Montgomery Avenue Min. Slope=.004	.003	.012	8					
Reiff Road Min. Slope=.004	.017	.068	8					
Sumneytown Pike Min. Slope=.004	.114	.456	8	.004	6.4	2.36	.460	2.05
	.135	.540	10	.004	5.7	2.12	.840	2.40

Drawings: 401, 401,... 408; 410, 411..414
420, 421,... 428; 430, 431..435

Assessable Collection Lines - Upper Gwynedd Township

	Average Flow MGD	Design Flow MGD	Ø in.	Kutter's Formula-N=0.013 Grade	Design Flow Depth	Design Flow Velocity ft/sec	Running Full MGD	Running Full Velocity ft/sec
Jack's Lane	0.0151	0.060	8	0.006			0.570	2.50
Clearview Rd.	0.0048	0.020	8	0.015			0.968	3.85
Clearbrook Rd.	0.0056	0.022	8	0.030			1.228	5.50
Geyer Rd.	0.0020	0.008	8	0.006			0.570	2.50
Garfield Ave.	0.0278	0.111	8	0.0062			0.580	2.60
Gen. Nash Dr.	0.0055	0.0220	8	0.031			1.260	5.55
State St.	0.016	0.064	8	0.023			1.162	9.80
Rosemont Ave.	0.022	0.088	8	0.006			0.570	2.50
Broad St.	0.040	0.1605	8	0.008	2.80	2.34	0.630	2.85
Broad St. & Gwynedd Sq.	0.017	0.068	8	0.0225			1.160	4.75
Sumneytown Pk.								
St.0+00-St.5+23	0.0148	0.0592	8	0.047			1.910	7.60
St.5+29-St.7+50	0.1851	0.7404	10	0.004	7.30	2.76	0.820	2.40
St.7+50-St.22+44	0.1851	0.7404	8	0.020	4.80	4.90	1.100	4.50
	0.1770	0.708	10	0.004	7.10	2.75	0.820	2.40
St.22+44-St.39+10	0.1434	0.5736	8	0.014	4.62	3.36	0.904	3.70
			10	0.004	6.10	2.62	0.820	2.40
St.39+10-St.51+20	0.0718	0.287	8	0.004	4.57	2.25	0.460	2.10
Park Ave.	0.0016	0.0064	8	0.011			0.768	3.35
Green St. Allentown Rd.								
St.0.00-St.4+67	0.0574	0.2296	8	0.010	3.12	2.85	0.750	3.20
St.4+67-St.27+00	0.0471	0.1884	8	0.004	3.60	2.01	0.460	2.10
Valley Forge Rd.								
St.9+75-St.18+00	0.0044	0.0176	8	0.008			0.630	2.85
"18+00- "26+34	0.0192	0.0768	8	0.010			0.750	3.20
"33+32- "42+17	0.0374	0.1496	8	0.0154			1.022	3.95

VI. PROPOSED SEWAGE TREATMENT WORKS.

The proposed treatment plant is a two stage trickling filter type of plant, and will treat mixed domestic sewage and industrial waste.

The immediate industrial waste will be a dairy waste with high dissolved BOD, and variable pH. Therefore, an equalizing, mixing and aeration unit is proposed at the influent end of the treatment works.

No existing treatment facilities are involved, except the proposed treatment works will treat the sewage of the fully developed Inglewood area presently diverted by a pumping station to the Lansdale Borough sewerage system and the dairy waste of the Martin Century Farms, Inc, presently disposed by irrigation and lagooning.

The proposed treatment work is the first stage of a two or three stage plant. Therefore, the possible ultimate number and capacity of the treatment units, etc. was also calculated where it seemed to be advantageous.

Furthermore, it is believed, that over sizing some treatment units might also be undesirable, therefore the estimated immediate actual loads were also considered when it seemed to be advantageous.

The Sewer Authority is contemplating to deposite a certain portion of the incoming revenue into a sinking fund to provide for plant extensions. This financial structure allows a great deal of flexibility in the design in as much as there will be always funds available to improve the plant operation.

FLOW DIAGRAM

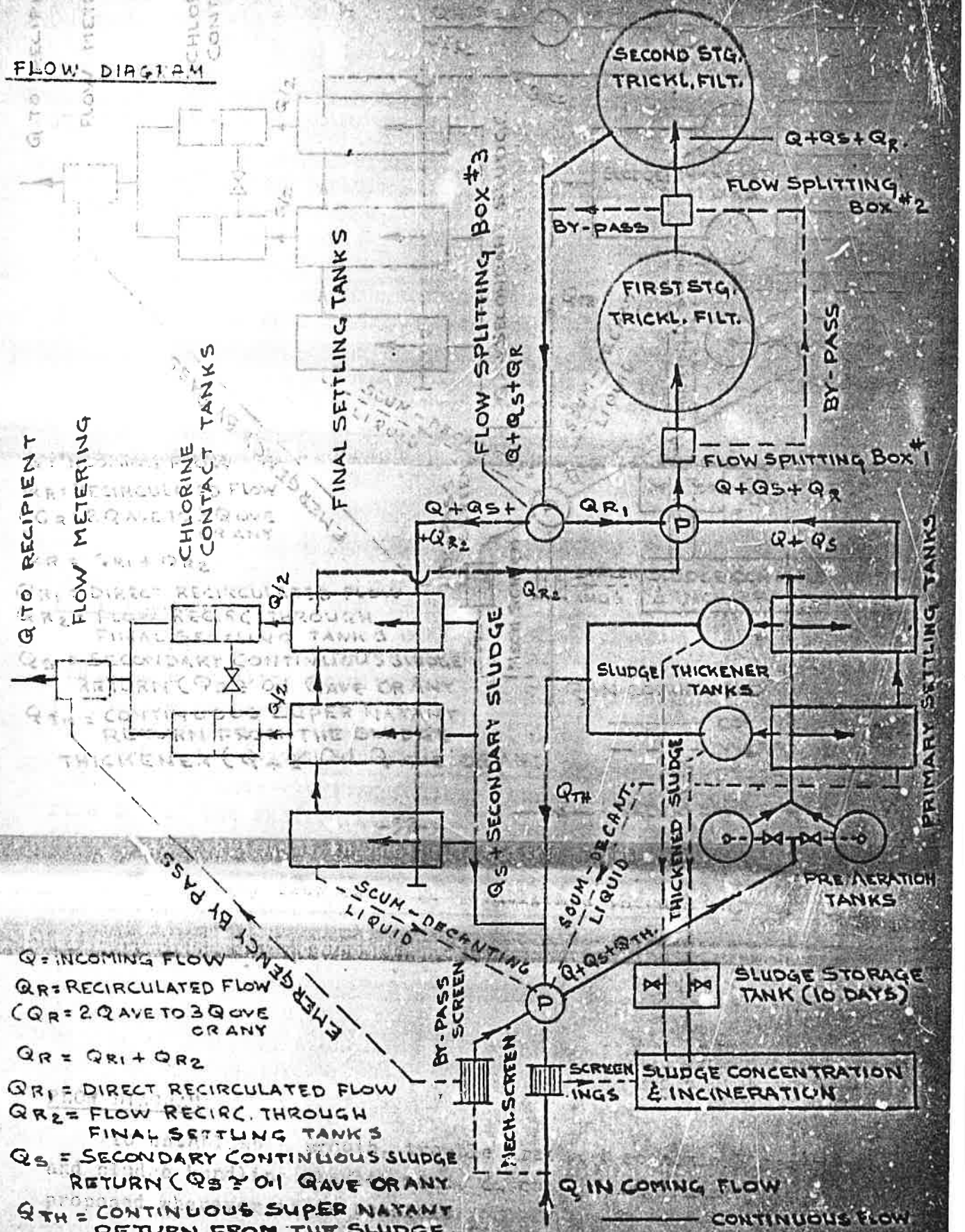
To establish a smooth, trouble free and economical sewage and sludge handling gravity feed, discharge and transportation is proposed wherever it is possible.

Local conditions would permit gravity flow through the first and second stage trickling filters, final settling tank and chlorine tank. The recirculated portion of the second stage trickling filter, however, must be recirculated by pumping.

If a gravity flow could be established through the bar screen, preaeration tank and primary settling the effluent of the primary settling tank could be combined with the recirculated secondary filter effluent and single pumping would be sufficient. This solution, however, would push the entire primary treatment deep into the ground and rock excavation and ground water problems would increase the construction costs; some difficulties in the operation might also arise. Therefore, a second pumping will be necessary.

With two pumpings the more simple solution would be to put the aeration tank and primary settling tank on the hill side, high enough to secure gravity flow through the entire plant. This solution, however, would extend the working area of the operator very much and would require long connection lines between the treatment units.

The best solution seems to be to elevate the screened raw sewage only slightly above the water level of the secondary settling tank, and by securing a gravity flow through the preaeration and primary settling tank to pump the combined primary effluent and recirculated filter effluent to the first stage filter. This solution will allow all treatment units to combine where daily routine work should be performed in one small area close to the service building, this will provide the shortest collection line between the treatment units.



Q = INCOMING FLOW

Q_R = RECIRCULATED FLOW

(Q_R = 2 Q_{AVE} TO 3 Q_{AVE} OR ANY

$Q_R = Q_{R1} + Q_{R2}$

Q_{R1} = DIRECT RECIRCULATED FLOW

Q_{R2} = FLOW RECIRC. THROUGH FINAL SETTLING TANKS

Q_S = SECONDARY CONTINUOUS SLUDGE RETURN ($Q_S \geq 0.1\ Q_{AVE}$ OR ANY

Q_{TH} = CONTINUOUS SUPER NATANT RETURN FROM THE SLUDGE THICKENER ($Q_{TH} \geq 0.1\ Q_{AVE}$ OR ANY

Flexibility incorporated:

Trickling Filters:

Although the filters are designed to be two stage high-rate trickling filters, the flow may be split at the Flow Splitting Box #1 in any desired ratio and the two filters may be used as single stage filters with equal or different flows, or one of them may be used as standard rate, the other as a high-rate filter.

Recirculation: $Q_R = Q_{R1} + Q_{R2}$

The flow may be split at Flow Splitting Box #3 in any desired ratio. One portion may be direct recirculated, the other portion, which of course must be larger than the incoming flow, may be recirculated through the final settling tanks. The ratio of direct recirculation, or that of the recirculation through the final settling tank may be zero if desired.

Increasing the amount of the Q_S flow an increased recirculation through the primary settling tank may be achieved. Since the Q_S flow is withdrawn immediately as it enters the final settling it does not effect the operation of the final settling tank.

Secondary Sludge Return: Q_S + Sludge

The secondary sludge may be returned into the plant influent intermittently or continuously by telescoping valves. In the latter case the returned flow must be at least $0.1Q_{Ave}$ to avoid clogging.

Thickener Supernatant Return: Q_{TH}

The primary sludge may be drawn into the thickener intermittently or continuously by telescoping valves. In the latter case the drawn flow must be approximately at least $0.1Q_{Ave}$ to avoid clogging.

Proposed Treatment Units

Screening Devices
Raw Sewage Pump Well
Equalizing, Neutralizing and Preaeration Tank
Primary Settling Tanks
Sludge Thickeners
Two Stage Trickling Filters
Final Settling Tanks
Chlorine Contact Tanks - Chlorination Facilities and Chlorine Bldg.
Flow Measuring Facilities
By-pass Line and Outfall Line
Sludge Dewatering and Incineration Facilities
Pumping Facilities
Control and Service Building

Basis of Design

a) Design year: 1980

b) Design population total:

POPULATION	DESIGN			IMMEDIATE			ULTIMATE		
	EQUIVALENT CAPITA								
	Upper Gwynd	Towa-men.	Total	Upper Gwynd	Towa-men.	Total	Upper Gwynd	Towa-men.	Total
Residential									
Industrial									
Commercial	3,200	5,000	8,200	2,300	3,200	5,500			
Schools									
Industrial									
Wastes Popu-lation Equi.	1,800	-----	1,800	900	-----	900			
Total									
Equivalent	5,000	5,000	10,000	3,200	3,200	6,400	11,800	17,200	32,000

c) Strength of Sewage:

Domestic sewage: BOD 0.17 lb/day/cap - 203 ppm (ml/l)
S.S.0.20 lb/day/cap - 238 ppm (ml/l)

Industrial waste: A recent chemical analysis of the industrial waste is shown on the next page. Two full day composite sample was analyzed. The sample with low pH, high BOD and solid content was collected on a typical day when cheese operations were conducted. The sample with high pH and lower BOD and solid content was collected on a typical day when no cheese operation was performed. In the very near future the Martin Co. will transfer all of the cheese operations to another plant, and will double its milk bottling operation. Therefore, for design purposes the "No Cheese" chemical analysis was considered with a doubled waste flow amount.

Garbage load was not considered.

d) Total sewage flows:

For design purposes 100/cap/day flow was considered, and the industrial wastes equivalent population was computed on this basis. This flow incorporates an allowance for infiltration.

For computing the immediate and ultimate minimum flows 70 gal/cap/day flow was considered including infiltration.

TOTAL DAILY FLOWS - MGD				
	IMMEDIATE FLOW		ULTIMATE FLOW	
	100	70	100	70
Design Flow	GAL/DAY/CAPITA		GAL/DAY/CAPITA	
1.00	0.64	0.52	3.20	2.24

M. J. REIDER ASSOCIATES

Industrial Consultants • Research Chemists

Process Research and Development
Industrial Waste Treatment
Textile Processing
Quality Control
Detergents
Water

107 ANGELICA STREET
READING, PA.
Telephone
374-6129

November 2, 1964

CERTIFICATE OF ANALYSIS

Two Industrial Waste Samples from Martin Century Farms

Submitted for Analysis

	No Cheese 10/26/64 to 10/27/64 (Composite)		Cheese 10/27/64 to 10/28/64 (Composite)	
pH	12.0		4.7	
Total Solids	2913	p.p.m.	7891	p.p.m.
Volatile Solids	1710	p.p.m.	7020	p.p.m.
Fixed Solids	1203	p.p.m.	871	p.p.m.
Settleable Solids	0.2	ml/L	2.5	ml/L
B.O.D. (5 Day)	1035	p.p.m.	5184	p.p.m.
"P" Alkalinity as Calcium Carbonate	1000	p.p.m.	—	
"M" Alkalinity as Calcium Carbonate	1425	p.p.m.	—	
Acidity as Calcium Carbonate	—		455	p.p.m.

Respectfully submitted,

M. J. REIDER ASSOCIATES

Malcolm J. Reider, Ph.D.

FOR: Mr. John Liptak
510 Davisville Road
Willow Grove, Pennsylvania

Lab Work Order #7886

e) Design flow rates:

DESIGN FLOW	MGD	GPH	GPM	GPS	CFH	CFS
Average Flow	1.00	41,670	695	11.58	5,560	1.55
Low Flow 0.4 x Ave.Flow	0.40	16,670	278	5.65	2,220	0.74
16 Hrs.Ave.Flow 1.5 Ave. Flow	1.50	62,500	1,040	17.37	8,330	2.32
High Flow 2 x Ave. Flow	2.00	83,330	1,390	23.16	11,110	3.10
Peak Flow 3 x Ave. Flow	3.00	125,000	2,080	34.74	16,670	4.65

Since the average design flow is 1.0 MGD, the above tabulated flows might be multiplied by the daily flow amounts shown in the table of d) Total sewage flows, to obtain the corresponding immediate, or ultimate flow values.

IMMEDIATE FLOW	MGD	GPH	GPM	GPS	CFH	CFS
Average Flow	0.640	26,600	445	7.40	3,560	1.00
	0.52	21,600	362	6.02	2,880	0.80
Low Flow	0.256	10,500	178	2.96	1,425	0.40
0.4 x Ave. Flow	0.208	8,650	140	2.41	1,150	0.32
16 Hrs.Ave.Flow	0.96	39,900	668	11.10	5,340	1.50
1.5 Ave. Flow	0.78	32,400	543	9.03	4,320	1.20
High Flow	1.28	53,200	890	14.80	7,120	2.00
2 x Ave. Flow	1.04	43,200	724	12.04	5,760	1.60
Peak Flow	1.92	79,800	1,336	22.20	10,680	3.00
3 x Ave. Flow	1.56	64,800	1,086	18.06	8,640	2.40

ULTIMATE FLOW	MGD	GPH	GPM	GPS	CFH	CFS
Average Flow	3.20	133,500	2,220	37.00	17,800	4.95
	2.24	93,500	1,555	26.00	12,500	3.46
Low Flow	1.28	53,400	890	14.80	7,100	1.98
0.4 x Ave. Flow	0.90	3,740	625	10.40	5,000	1.40
16 Hrs.Ave.Flow	4.80	200,250	3,330	45.50	26,700	7.42
1.5 Ave. Flow	3.36	140,250	2,333	39.00	18,750	5.19
High Flow	6.40	267,000	4,440	74.00	35,600	9.90
2 x Ave. Flow	4.48	187,000	3,110	52.00	25,000	6.92
Peak Flow	9.69	400,500	6,660	91.00	53,400	14.84
3 x Ave. Flow	6.72	280,500	4,666	78.00	37,500	10.38

SCREENING DEVICES

The heavier particles in the sewage often are grinded and comminuted at the entrance of the treatment plant. Some portion of these heavier particles then will dissolve and/or disperse as very fine colloidal matter and must be removed later in the secondary treatment highly diluted with water as a fine humus sludge. Most of the heavier particles, however, settle in the primary tank and are removed along with large amounts of water as primary sludge.

Instead of comminuting and disintegrating the heavier particles, they can be removed in their bulky stage at the entrance of the treatment plant by screening. For this purpose, fine screens would seem to be the most suitable. Two types of fine screens were studied: Revolving Disc Screen as manufactured by the Link Belt Co., and a revolving drum type screen. Both achieved the cleaning of the screens by water spraying and the screening is mixed with large amounts of water. Furthermore, the fine screens seem to require excessive effort to keep them clean and the relatively small additional solids removed might not justify the increased maintenance and operation costs involved. Therefore, mechanically cleaned bar screen with 5/8 in. clear opening is proposed. This screen will remove the most troublesome portion of the heavier material.

a) Number of units: One unit with hand-cleaned auxiliary screen and automatic by-pass channel.

b) Type: Mechanically cleaned bar screen with 5/8 in. clear openings, intermittently operated by clock control.

c) Screenings: It is expected that the amount of the screenings will be between 4 to 8 cu. ft/mil. gal.
The screenings will be disposed of by incinerator.

d) Incoming pipe: Designed for the ultimate flow. To save elevation 19" high, 30" wide low head concrete pipe is proposed (equivalent to dia. 24" circular pipe.) Approximate length 120 ft; approximate slope 0.0042. (Min. slope 0.0008).

a) Hydraulics of mechanical screen: 5/8" clear opening between bars; 2" x 2/8" bars; clear opening 5/7 x 100 = 71.5%. Design max. flow = 2.00 MGD = 3.10 cfs. Depth of flow = H = 5.07" + 4.00" = 9.07 " = 0.755 ft. Width of channel W = 2.50 ft. through flow velocity = v = $\frac{3.10 \text{ cfs}}{0.755 \text{ ft.} \times 2.50 \text{ ft.} \times 0.715}$ = 2.30 fps

f) By-pass channel: By-pass channel with hand-cleaned auxiliary screen will be provided. An adjustable weir will be located between the main channel accommodating the mechanical screen and the by-pass channel. In case the water level in the main channel would rise by any reason above a pre-set level the excess flow amount will drop automatically into the by-pass channel. The flow in the main channel can be blocked off by T & G planks if required for repair or maintenance of the mechanical screen.

The clear opening between the bars of the hand-cleaned auxiliary screen is 1½". Using ½"x2" bars the clear opening is $\frac{1.5}{1.75} \times 100 = 85.5\%$, and assuming that at 1.55 CFS average the flow in the incoming pipe is 4.37 in the velocity through the screen may be calculated as follows:

H= 8.37" = 0.70' W = 2.5'

$$v = \frac{Q}{H \cdot W \cdot 0.85} = \frac{1.55 \text{ cu ft/sec}}{0.70 \text{ ft} \cdot 2.50 \text{ ft} \cdot 0.85} = 1.03 \text{ ft/sec}$$

SCREENING DEVICES

The heavier particles in the sewage flow are [illegible] comminuted at the entrance of the treatment [illegible] of these heavier particles then will discourage [illegible] very fine colloidal matter [illegible] secondary treatment [illegible]

RAW SEWAGE PUMP WELL

a) Number of units: One

b) Main dimension:

Inside diameter = 12' -0"
Water depth: at low water level = 5.50 + 5.00 = 10.50 ft.
at high water level =6.50 + 5.00 = 11.50 ft.

c) Surface area = 6.0^2 x 3.14 = 113 sq.ft.

d) Capacity:

At low water level = 848 cu. ft. = 6,350 gallons
At high water level = 960 cu. ft. = 7,200 gallons
Average water level = 904 cu. ft. = 6,775 gallons

e) Detention time at average water level:

Design: Average flow = 8.2 minutes
High flow = 4.5 minutes

f) Discharge piping:

Diameter 10" pipe is proposed for the combined flow and diameter 8" for the individual preservation units.

g) Pump selection:

In selection of the pumps, sizes which are economical in the low pumping ranges at immediate flows are proposed in order to obtain driving motors with low HP for the units operating most of the time. Two 400 gpm plus two 800 gpm pump are proposed.

One 400 gpm pump would run all the time. During extreme low flow periods the recirculated flow amounts may be increased to provide for the continuous pumping. The second pump will run intermittently when the flows are higher than 400 gpm, and in case of peak flows the large pump will operate for a very short period of time.

Later, when the flows increase, keeping the same pumps the rpm might be increased to provide for 500-500 and 1,000 gpm, or 600-600-1,200 gpm pumping.

EQUALIZING, NEUTRALIZING AND PREAERATION TANK: Grit removal

This treatment unit has several purposes. It serves as:

equalizing tanks
neutralizing tanks
preaeration tanks
grit removing tanks

a) Number of units: two

b) Main dimensions:

inside diameter = 12'-0"
side water depth = 10'-9"
depth of cone = 6'-0"; truncated cone depth = 5'-6"

c) Surface area:

one unit = 6.00^2 x 3.14 = 113 sq. ft.
two units = = 226 sq. ft.

d) Capacity:

one unit: cylinder = 113 x 10.75 = 1,214 cu.ft. = 9,100 gal.
cone = 113 x 6.00/3 = 226 cu.ft. = 1,700 gal.

e) Detention time:*

Low immediate:	Low flow	= 79.0 min.
	Average flow	= 43.3 min.
Design immediate:	Average flow	= 37.2 min.
	High flow	= 21.0 min.
Design flow:	Average flow	= 26.0 min.
	High flow	= 14.3 min.
Low immediate:	Average flow	= 10.8 min.
	High flow	= 6.1 min.

f) Preaeration:

Blowers: two Sutorbilt - California Series Horizontal Type 7M blowers or approved equal, with 10 HP electric motor each, V-belt drive. Capable of delivering 260, or 350 cfs air each.

Maximum amount of air: 700 cfs
Minimum amount of air: 260 cfs

Diameter 27 in. draft-tube in each tank, with 18 Link Belt "Adjustair" diffusers or approved equal.

g) Neutralization:

Pre-neutralization of the Martin industrial waste will be required.

For fine pH adjustment Leeds & Northrup Speedmax H electro-pneumatic - current adjusting pipe - controller is proposed to keep the pH in the preaeration tank between the desired levels.

* Assuming Q_s=0.1 $Q_{Design\ Ave}$=0.1 MGD=Q_{TH} for the Low Immediate, Design Immediate and Design Flows, and Q_s=0.32MGD=Q_{TH} for the Low Ultimate Flow.

PRIMARY SETTLING TANKS:

a) Number of units: two; 16'-0" wide, 60'-0" long and 7'-0" high

b) Main dimensions:

width = 16'-0"; length = 60'-0", depth = 7'-0"

c) Capacity of each unit:

w/o sludge hopper:	$16.0 \times 60.0 \times (7.0+6.25)/2$	= 6,350cu.ft.=	47,600gal.
sludge hopper:	$2 \times 3.75 \times 8.0 \times 6.85/3$	= 137cu.ft.=	1,030gal.
	$2 \times 2.5 \times 2.5 (8.0+5.3)/2$	= 83cu.ft.=	620gal.
	$2 \times 2.5 \times 5.30 \times 4.27/3$	= 37cu.ft.=	270gal.
		6,607cu.ft.=	49,520gal.

d) Detention time: Q_s=0.05 mgd per tank.

Design average flow = 2.16 hr. = 2h. 10 min.

e) Surface settling rate:

Design average flow with Q_s=0.05 mgd ... 573 gpd/sq.ft.

f) Weir overflow rates:

Design average flow with Q_s=0.05 mgd ...8,600 gpd/lin.ft.

g) Sludge and scum collecting and removal facilities:

Link Belt "Straightline" or approved equal sludge collectors are proposed.

Sludge removal by telescoping valves, intermittently or continuously operated.

Link Belt "Rotoline", or approved equal scum collectors are proposed. The scum is collected in a scum box and may be removed intermittently.

SLUDGE THICKENER

a) Number of units: two

b) Main dimensions:

diameter: 12'-0"
side water depth = 7'-6"; total depth 9'-0"
sludge hopper: diameter 4'-0", depth 2'-9"
surface area = $6.0^2 \times 3.14 = 113$ sq.ft.

c) Capacity of one unit:

cylindrical portion 113 x 7.5	= 848cu.ft.	=6,350gal.
conical portion $(113 \times 2.25 - 12.5 \times 0.75)/3$	= 81cu.ft.	= 610gal.
	929cu.ft.	=6,960gal.
sludge hopper 12.50 x 2.75	= 35cu.ft.	= 260gal.
	964cu.ft.	=7,220gal.

d) Detention period, based on $Q_{TH}=0.1Q_{Design\ Ave}=0.1MGD$

One unit Q_{TH} = 0.05MGD = 2,080 gph

Detention time = $6,350/2,080 = 3.06$ hr.

At increased Q_{TH} the detention time is proportionally shorter.

e) Surface settling rate, based on $Q_{TH}=0.1MGD$

One unit Q_{TH} = 0.05MGD

Surface settling rate = $50,000/113 = 442$ gpd/sq.ft.

f) Weir overflow rates, based on $Q_{TH}=0.1MGD$

Weir length = $2 \times 0.67 + 5.33 \times 3.14/2 = 9.66$ ft.

Weir overflow rates = 5,180 gpd/lin.ft.

g) Sludge collection and removing facilities:

The sludge will be concentrated by a picket fence type thickener - Infilco WS thickener, or approved equal. The thickened sludge will be drawn by ø 6 in. gravity sludge line. Available head 14.75 ft. to 6.75 ft. Provisions for flushing the sludge lines with either primary or preaeration tank liquor were made.

TWO STAGE HIGH RATE TRICKLING FILTER

a) Number of units: Two

b) Type: High rate trickling filter. The rate of recirculation is variable by automatic step control using the signals of the flow meter.

c) Operation:

Series operation: The filters are designed to operate in series.

Parallel operation: The extremely cold weather, or for any reason the filters may be operated parallel.

d) Main dimensions:

Diameter = 90 ft.

Average depth = 6'-2"

e) Surface area:

One filter = 45^2 x 3.14 = 6,350 sq.ft. = 0.146 acre
Two filter = 12,700 sq.ft. = 0.292 acre

f) Volume of media:

One filter = 38,850 cu.ft. = 0.88 acre ft. = 1,425 cu.yd.
Two filter = 77,700 cu.ft. = 1.76 acre ft. = 2,850 cu.yd.

g) Applied BOD load on total filter media volume

	CONTRIBUTING POPULATION			
	Design	Immediate with Martin Co. Expansion	Immediate without Martin Co. Expansion	Ultimate
Domestic Capita	8,200	4,600	4,600	30,000
Martin Equi.Cap.	1,800	1,800	900	1,800
Total Equi. Capita	10,000	6,400	5,500	32,000

	BOD LOAD IN LBS.			
	Design	Immediate with Martin Co. Expansion	Immediate without Martin Co. Expansion	Ultimate
Domestic Load @ 0.17 lb/cap/day	1,392	782	782	5,142
Martin Load @ 1,035 PPM*	1,558	1,558	778	1,558
Total Per Day	2,950	2,340	1,560	6,700
Removed in Primary S.T. 35 %				
Effect of Aeration & Immediate Screening Rem. 5 % / 40 %	1,180	940	625	---
Total Appld.BOD	1,770	1,400	935	---
lb/day/cu. yard	0.62	0.49	0.33	---
lb/day/1,000cu.ft.	22.8	18.0	12.0	---
lb/day/acre ft.	1,005	795	531	---

h) Recirculation ratio:

The average BOD load in the combined raw sewage will be

Design flow (0.82x203+0.18x1,035)/1.0=355 ppm

Immediate flow

With Martin expansion (0.46x203+0.18x1,035)/0.64=440 ppm

w/o Martin expansion (0.46x203+0.09x1,035)/0.55=343 ppm

The average BOD load applied to the filters will be:

Design flow 0.60 x 355 = 214 ppm

Immediate flow

with Martin expansion 0.60 x 440 = 265 ppm

w/o Martin expansion 0.60 x 343 = 206 ppm

To treat a waste with such a higher than conventional BOD strength a recirculation rate higher than the conventional 1:1 will be required. The plant is designed to allow practically any recirculation rate, and the most suitable will be selected by experimentation. For the purpose of the present design it is assumed that a 3:1 recirculation rate will be required for the immediate load and a 2:1 recirculation for the ultimated load.

i) Hydraulic loading on filter surface:

Using the above mentioned recirculation rates the hydraulic loading may be calculated as follows:

Design ave.flow = 1.00 MGD + 2 x ave. design flow = 3.00 MGD

Design peak flow= 2.50 MGD + 2 x ave. design flow = 4.50 MGD

Immed. ave. flow= 0.64 MGD + 3 x ave. design flow = 2.56 MGD

Immed.peak flow = 2.5x0.64 MGD + 3 x ave. " " = 3.52 MGD

and the hydraulic loading for:

Design average flow	= 20.6 MGD/acre
Design peak flow	= 30.9 MGD/acre
Immediate average flow	= 17.55 MGD/acre
Immediate peak flow	= 23.20 MGD/acre

The hydraulic loading on filter surface is between 25 and 29 MGD/acre. It is on the high side, but it should be considered that the recirculation rate is high.

j) Type of sewage distribution facilities:

Rotary distributor with four arms and mechanical (spring loaded neoprene) seal. Arm dia. 8 in. center column diameter 16 in. The nozzles will be spaced at uneven distances in order to provide uniform distribution over the entire surface area of the filters.

Design flow rates 2.5 MGD to 5.00 MGD

k) Facilities for actuating distributor:

Static head

l) Type and size of filter media.

Crushed stone - trap rock - to meet the requirements of the 71-14 paragraph of the Sewerage Manual

Size:	Passing	4½" screen	100%	by weight
	Retained on	3" "	95%-100%	" "
	Passing	2" "	0 -2%	" "
	Passing	1" "	0 -1%	" "

m) Type of under-drainage system:

High rate trickling filter tile floor, to meet the requirements of the 71.15 paragraph of the Sewerage Manual.

FINAL SETTLING TANKS.

a) Number of units: Three

b) Main dimensions:

width 16'-0"
length 60'-0"
depth 7'-0"

c) Capacity of each unit:

w/o sludge hopper:	16.0x60.0x(7.0+6.25)/2 =	6,350 cu.ft.	= 47,600 gal.
sludge hopper:	2x3.75x8.0x6.85/3 =	137 " "	= 1,030 "
	2x2.5x2.5(8.0+5.3)/2 =	83 " "	= 620 "
	2x2.5x5.30x4.27/3 =	37 " "	= 270 "
		6,607 cu.ft.	= 49,520 gal.

d) Detention time:

The arrangement at the pump well is such that a selected portion of the flow recirculated through the trickling filters may be introduced into the final settling tank. Assuming that this flow (Q_{R1}) is equal to Q_{Ave} the detention times are tabulated below. The detention times for $Q_{R1}=0$ and $Q_{R1}=2\ Q_{Ave}$ were also computed.

		DETENTION TIMES Capacity = 49,520 gal/tank			
		Design average	Design high	Immediate average	Immediate low
		FLOW			
$Q+Q_{R2}$	Flow gph	27,800	41,700	17,720	12,360
$Q_{R2}=Q_{Ave}$	Hrs.	1.79	1.19	2.79	4.01
$Q+Q_{R2}$	Flow gph	13,900	27,800	8,860	3,500
$Q_{R2}=0$	Hrs.	3.57	1.79	5.60	14.20
$Q+Q_{R2}$	Flow gph	41,700	55,600	26,580	21,220
$Q_{R2}=2Q_{Ave}$	Hrs.	1.19	0.89	1.86	2.33

Notes:

1, $Q_{Ave\ Design}$ = 13,900 gph; $Q_{Ave\ Immed.}$ = 8,860 gph.

2, The flow withdrawn from the sludge hoppers, denoted by

Q_s in the flow diagram, is removed immediately after entering the settling tank, therefore, this flow amount was neglected when the detention time was calculated.

e) Surface settling rates:

The surface settling rates were calculated for the same flows, for which the detention times were computed:

		SURFACE SETTLING RATES Surface Area = 16x60 = 960 sq.ft./tank			
		Design average	Design high	Immediate average	Immediate low
$Q+Q_{R2}$	Flow gpd	666,700	1,000,000	426,000	298,000
$Q_{R2}= Q_{Ave}$	gpd/sq.ft.	695	1,040	442	310
$Q+Q_{R2}$	Flow gpd	333,300	666,700	213,000	85,000
$Q_{R2}=0$	gpd/sq.ft.	348	695	221	88
$Q+Q_{R2}$	Flow gpd	1,000,000	1,333,300	639,000	511,000
$Q_{R2}=2Q_{Ave}$	gpd/sq.ft.	1,040	1,390	663	534

Note:

1, $Q_{Ave\ Design}$ = 333,300 gpd; $Q_{Ave\ Immed.}$ = 213,000 gpd

FINAL SETTLING TANKS

a) Number of units: Three

b) Main dimensions:

width 16'-0"
length 60'-0"
depth 7'-0"

c) Capacity of each unit

f) Weir overflow rates:

The weir overflow rates were calculated for the same flow, for which the detention times and surface settling rates were computed:

			WEIR OVERFLOW RATES weir length = 4 x 16 = 64 ft/tank			
			Design average	Design high	Immediate average	Immediate low
			FLOW			
$Q+Q_{R2}$	Flow	gpd	666,700	1,000,000	426,000	298,000
$Q_{R2}=Q_{Ave}$		gpd/lin.ft.	10,400	15,650	6,660	4,650
$Q+Q_{R2}$	Flow	gpd	333,300	666,700	213,000	85,000
$Q_{R2}=0$		gpd/lin.ft.	5,200	10,400	3,330	1,330
$Q+Q_{R2}$	Flow	gpd	1,000,000	1,333,300	639,000	511,000
$Q_{R2}=2Q_{Ave}$		gpd/lin.ft.	15,650	20,800	9,990	8,000

g) Sludge and scum collecting and removal facilities:

Sludge collectors: Link Belt "Straightline", or approved equal.

Sludge removal by telescoping valves operated intermittently or continuously.

Scum collectors: Link Belt "Rotoline", or approved equal.

Scum removal continuously or intermittently into the scum box.

CHLORINE CONTACT TANKS - CHLORINATION FACILITIES

a) Number of chlorination units: One unit

b) Type and manufacturers rated capacity: Wallace and Tiernan Series A-731 solution feed, vacuum type chlorinator; variable vacuum signals will be given by the flow metering instrument to provide a chlorine feed proportional to the flow.
Capacity 150 lb/24 hrs.

c) Point of application: Post chlorination fed into the chlorine contact tanks. 4'-6" below the water level of the tanks.

d) Chlorine contact units:
Two units divided into two parts each; 16'-0" long, 7'-9" wide and 7'-0" and 6'-0" ft. deep each.
Capacity: 2 x 16.00 x 7.75 x (7.00 + 6.00) = 3,220 cu.ft. =
=24,100 gal.

Detention time: At design ave. flow of 1.0 MDG -
0.57 hr. = 34.7 min.

At design high flow of 20 MGD -
0.285 hr = 17.3 min.

FLOW MEASURING FACILITIES

a) Number of units: one

b) Type: Penn Meter ML, or approved equal; float operated, Range 0.3 to 3 MGD; 12" recording chart; 10" indicator; totalizer; vacuum transmitter for control of chlorine; auxiliary relay contacts for recirculating pumping.

BY-PASS LINE AND OUTFALL LINE

By-pass line: At the incoming manhole a short Ø 21 in. by-pass line is proposed to discharge above the existing stream bed. In case the water level in the manhole due to failure of the raw sewage pumps or for any reason would rise above 184.00 the excess flow amount may be by-passed into the Kulpsville Branch.

To protect the plant at time of floods the by-pass line is closed with a sluice gate.

Outfall line: The outfall line, as proposed, will discharge below the low water level of the receiving stream.

SLUDGE DEWATERING AND INCINERATION FACILITIES

Sludge dewatering:

a) Number of units: ~~one with space for a future unit.~~ Two

b) Type: Komline-Sanderson 7'x2'-10"(60 sq.ft.) coil spring or approved equivalent with a vacuum pump of 180 cfm at 13" Hg. vacuum, rotative speed of 725 rpm driven by 10 HP motor, with 2½" water separator, with 25 gal. conditioning tank, with 5 to 20 gpm sludge pump at 25 ft. TDH. driven by 1½ HP variable speed motor, with 0 to 75 gph KSCP ferric chloride pump and 150 gal. capacity tank with belt conveyor and with electrical controls, with 0.5 to 20 gph capacity line slurry pump and 250gal. capacity tank.

c) Manufacturer's rated capacity: 420 pounds dry solids per hour. Cake moisture content to be 70 to 75 %.

Incinerator:

a) Number of units: one.

b) Type: Nichols Herreshoff six hearth furnace or approved equal.

c) Manufacturer's rated capacity: 600# filter- cake per hour.

PUMPING FACILITIES

Raw Sewage Pumps:

a) Number of units: two 400 gpm and one 800 gpm with one 800 gpm stand-by unit.

b) Type: Horizontal dry pit pumps with non-clog impellers.

Recirculating Pumps:

a) Number of units: three 500 gpm and one 1,000 gpm.

b) Type: Vertical vet pit pumps with non-clog impellers.

SERVICE BUILDING

The proposed service building will have an approximately 150 sq.ft. office room, one 150 sq.ft. laboratory room, one locker room for 5 persons, shower and toilet facilities, a combined shop room and garage.

HYDRAULIC GRADIENT

The hydraulic gradient of the treatment work is shown on the drawing No. UG-T-64-009.

RECEIVING STREAM

a) The point of the effluent discharge:

The point of the effluent discharge is shown on the accompanying drawing No. UG-T-64-001. The plant is located close to the recipient stream.

Main Branch of the Towamencin Creek, which is a tributary of Skippack Creek and Schuylkl River. The water level at the point of discharge is approximately 181.60 MSL determined 1/26/65, with an approximate water depth of 24 inches.

b) Tributary watershed above point of discharge:

	acres	sq.mi.
in Upper Gwynedd Township	1,643	2.56
in Lansdale Borough	173	0.27
in Towamencin Township	3,885	6.03
in Hatfield Township	287	0.45
in Worcester Township	709	1.22
	6,797	10.53

c) Stream flow data:

Without having reliable flow measuring data the average flow of the stream was estimated using a widely used rule of thumb based on the tributary watershed as follows:

Average low flow Q=10.53 cfs = 6.78 MGD
Extreme low flow Q=1.053 cfs = 0.68 MGD

d) Flood elevation data:

According to field investigation - inquiring from the neighbors and Township Engineer - the max. flood elevation is considered to be 186.50.

e) Stream usage below point of discharge:

No public water supply use, no public bathing place below the point of discharge. One recreation area, the so called "Fischer's pool", is located below the proposed discharge point and the stream is used for occasional boating purposes at this recreation area.

EFFECTIVENESS OF TREATMENT WORK

It is hard to predict the effectiveness of a treatment work, because it will depend on many factors difficult to consider. It will depend very much, for instance, on the operation. The proposed treatment plant is provided with facilities to recirculate the flow within the plant through the aeration tank, through the

primary settling tank, through the trickling filters and through the final settling tanks, or through some combination of these units, providing additional future treatment at every stage.

Although the proposed treatment plant was designed to be a trickling filter type of plant, great care was exercised to provide aerobic conditions at the entrance of the plant and to keep the sewage and sludge aerobic through the entire plant. This and the provided secondary sludge recirculation and possibly primary sludge recirculation will have an excellent activated sludge treatment effect. The proposed plant eliminates the draw backs of the activated sludge process as far as the problems of the light secondary sludge is concerned, because after having a 30 minute contact time in the preaeration tanks the heavy and light particles are separated in the primary settling tanks; the heavy particles are removed from the treatment as primary sludge; the light particles which tend to float out as secondary sludge in the activated sludge process, will be treated and concentrated in the trickling filters and after separation in the secondary settling tanks they will be returned immediately as activated sludge into the raw sewage pump well and preaeration tanks.

I. The expected BOD removal:

Neglecting first the activated sludge effects of the treatment the mean value of the expected BOD removal as trickling filter type of plant was calculated using the NRC formula:

Design flow 1.00 MGD, recirculation ratio 1:2 average BOD .335ppm (page 46), applied BOD = 1,770 lb filter media = 0.88 acre-ft.

E1 = fractional efficiency of the primary settling and preaeration=
= 0.40 ..... 40%

E2 = fractional efficiency of the first stage filter.

$$E2 = \frac{1}{1+0.0085\sqrt{\frac{W}{VxF}}}$$

where W = applied BOD in pounds
V = filter media of the first stage filter
and F = the recirculation factor =

$$= \frac{1+\text{ recirculation ratio}}{(1+0.1\text{ recirc. ratio})^2} = \frac{1+R}{1+0.1R^2} = \frac{3}{1.2^2} = 2.08$$

$$E_2 = \frac{1}{1+0.0085\sqrt{\frac{1770}{0.88 \times 2.08}}} = 0795 \text{ ..... } 79.5\%$$

$$E_3 = \frac{1}{1+0.0085\frac{1}{1-E_2}\sqrt{\frac{W'}{V+F}}}$$

E_3 = fractional efficiency of the second stage filter

where W' = applied BOD = (1-0.805) x 1,770 = 345 lb.

$$E_3 = \frac{1}{1+0.0085\frac{1}{0.205}\sqrt{\frac{345}{0.88 \times 2.08}}} = 0.637 \text{ ..... } 63.7\%$$

The expected over all plant efficiency =

= 40% + 0.795 x 60% + 0.637 x 124% = 40% + 47.6% + 7.9% = 95.5%

BOD in the effluent = 0.045 x 335 = 14.6 ppm

It should be noted that this calculation does not consider the activated sludge treatment effects of the proposed process, nor does it consider the BOD removal achieved by the chlorination and finally it does not consider the improvement caused by the aeration of the effluent in the chlorine contact tanks (expected increase in disolved oxygen content is 4-5 ppm).

Considering the effects of these factors it could be expected that the effluent will have a quality comparable to that of the natural stream.

Finally, it could be mentioned that it is believed that the plant will have a reserve capacity which will allow the operation of the plant far above design capacity producing BOD removal close to 95%.

II. The expected suspended solid removal:

The expected SS removal is between 95 and 98%.

III. Dilution in the receiving stream:

Considering the activated sludge treatment effects in the proposed process, the BOD removal by chlorination and DO increase due to the aeration in the chlorine contact tank, and noting that

additional recirculation and therefore further treatment than that considered in the above calculations is only a matter of economy, it could be stated that by proper operation of the plant an effluent quality equivalent to that of the natural stream may be obtained by the plant, and therefore the plant effluent might be suitable to discharge into the recipient stream without requiring a dilution.

STREAM ENCROACHMENT

An application for stream encroachment is under preparation and it will be filed in the very near future with the Water and Power Resources Board of the Pennsylvania Department of Forests and Waters.

SUPPORTING PLANS

All plans prepared in connection with the present application bear the general identifying title:

UPPER GWYNEDD - TOWAMENCIN
MUNICIPAL AUTHORITY

Montgomery County, Pennsylvania

and the general sub-title:

COLLECTION SYSTEM
or
TREATMENT PLAN

Appropriate sub-titles indicate the specific details covered by each sheet:
the following is the enumeration of the sub-titles of the plans:

SEWERAGE
UPPER GWYNEDD-TOWAMENCIN MUNICIPAL AUTHORITY
UPPER GWYNEDD-TOWAMENCIN TOWNSHIPS
SEWERS AND SEWAGE TREATMENT WORKS
APPLICATION NO. 765S13

May 17, 1965

APPLICANT: Upper Gwynedd-Towamencin Municipal Authority
Upper Gwynedd & Towamencin Townships
Montgomery County

APPLICATION: Dated: February 26, 1965
Attested: February 26, 1965
Signed By: John B. Taylor, Jr., Chairman
Address: Upper Gwynedd Township Bldg.
West Point, Pa.
Received: Region VII Office March 1, 1965
Complete and Accepted: March 23, 1965

APPLICANT'S REQUEST: "The construction of sewers and appurtenances and a sewage treatment works to serve portions of Upper Gwynedd and Towamencin Townships, Montgomery County".

DESCRIPTION OF PROJECT: The construction of collecting sewers, interceptor sewers and a sewage treatment works to serve an equivalent population of 10,000 persons in sections of Upper Gwynedd and Towamencin Townships, Montgomery County, with discharge of the treated effluent to the Towamencin Creek.

PLANS: Two (2) folios; 41 & 75 sheets.

REPORTS: ~~One~~ (1) volumes.

SPECIFICATIONS: One (1) volume.

DESIGN ENGINEER: The plans, reports and specifications were prepared by Janos Liptak & Associates, Consulting Engineers and bear the seal and/or signature of Janos Liptak, Registered Professional Engineer.

RECEIVING STREAM AND DEGREE OF TREATMENT: Towamencin Creek (Complete) to Skippack Creek (Complete) to Perkiomen Creek (Complete) to the Schuylkill River (Complete) on the Delaware River Basin.

PREVIOUS ORDERS AND PERMITS: None.

GENERAL CONDITIONS: Upper Gwynedd (First Class) and Towamencin (Second Class) Townships are adjoining townships situated in the northeast section of Montgomery County on the Towamencin Creek and Wissahickon Creek watersheds. According to the 1960 census Upper Gwynedd had a population of 4661 persons and Towamencin had a population of 3724 persons.

Public water is supplied to some of the more populated areas of the two (2) townships by the North Wales Water Authority and the Lansdale Municipal Authority. The newly created North Penn Water Authority is working on long range plans to provide water to the entire area which is subject of this sewerage application.

EXISTING SANITARY SEWER SYSTEM: A small area in the Inglewood section of Towamencin Township, adjoining Lansdale Borough, is pumped to Lansdale Borough for treatment. The pumping station is to be abandoned and the existing sewers will discharge to the herein proposed interceptors and sewage treatment works.

The section of Upper Gwynedd Township situated on the Wissahickon Creek watershed is sewered and receives treatment at the Upper Gwynedd Township Authority sewage treatment works. The herein proposed sewers in Upper Gwynedd Township will serve only the area of Upper Gwynedd Township on the Towamencin Creek watershed.

EXISTING SEWAGE TREATMENT WORKS: None by the Upper Gwynedd-Towamencin Authority. Upper Gwynedd Township Authority operates a sewage treatment works which serves the section of Upper Gwynedd Township on the Wissahickon Creek watershed.

PROPOSED SEWERAGE FACILITIES: It is proposed to construct collecting sewers, intercepting sewers and a sewage treatment works to serve an equivalent population of 10,000 persons in Towamencin Township and the Towamencin Creek watershed area of Upper Gwynedd Township with discharge of the treated effluent to the Towamencin Creek.

A description of the proposed facilities follows:

PROPOSED COLLECTING SEWERS:
It is proposed to presently construct the following collection sewers:

Approximately 10,500 ft. of 8" sewer to serve the area near Forty-Foot Road and Sumneytown Pike in the northwest section of Towamencin Township. The sewers will discharge to the proposed Towamencin Creek (Main Branch) interceptor at Sumneytown Pike.

Approximately 18,000 ft. of 8" sewer to serve the area near Valley Forge Road and Sumneytown Pike in the southern section of Towamencin Township. The sewers will discharge to the proposed Towamencin Creek (Lansdale Branch) interceptor at Sumneytown Pike.

Approximately 8,400 ft. of 8" sewer to serve the area near Broad Street and Allentown Road in the northeast section of Upper Gwynedd Township. The sewers will discharge to the proposed Towamencin Creek (Lansdale Branch) interceptor at Broad Street and Allentown Road.

All sewers are designed on the basis of 400 g.p.c.d. flowing full.

PROPOSED INTERCEPTORS:

It is proposed to construct the following two (2) intercepting sewers to convey sewage to the herein proposed sewage treatment works:

Approximately 13,700 ft. of 8", 10", 12", 15" and 18" intercepting sewer from the proposed sewage treatment works site at Kriebel Road and Towamencin Creek along the main branch of Towamencin Creek and along the Kulpsville branch of Towamencin Creek to Woodlawn Drive in the Inglewood section of Towamencin Township. The interceptor is designed to serve an ultimate population of 11,841 persons @ 250 g.p.c.d. flowing full.

Approximately 15,800 ft. of 10", 12", 15", 18" 21" and 24" intercepting sewer from the proposed sewage treatment works site at Kriebel Road and Towamencin Creek along the Lansdale Branch of the Towamencin Creek to Broad Street and Allentown Road just west of Lansdale Borough. The interceptor is designed to serve an ultimate population of 20,323 persons @ 250 g.p.c.d. flowing full.

For further details see Engineer's Summary Report.

PROPOSED SEWAGE TREATMENT WORKS:

It is proposed to construct a sewage treatment works of the two (2) stage high rate trickling filter type to serve Towamencin Township and the portion of Upper Gwynedd Township on the Towamencin Creek watershed with discharge of the treated effluent to Towamencin Creek. The treatment works consists basically of one (1) mechanical bar screen, one (1) raw sewage wet well and pumping station, two (2) pre-aeration tanks, two (2) primary settling tanks, two (2) trickling filters, three (3) final settling tanks, two (2) chlorine contact tanks, a flow metering chamber, two (2) sludge thickening tanks, one (1) thickened sludge well, two (2) vacuum filters and one (1) incinerator. A description of the proposed sewage treatment works follows:

Location

At Kriebel Road and Towamencin Creek in the western section of Towamencin Township.

Basis of Design

Design Year	-	1980
Design Population	-	8,200 persons
Equivalent Population(Hydraulically)-		8200 persons
		1900 industry
		10000 persons
Design Flow @ 100 g.p.c.d.	-	1.0 M.G.D.

Maximum Flow @ 200% - 2.0 M.G.D.
B.O.D. - people - 8,200 @ 0.17 - 1,392 lbs./day
-industrial(milk wastes)- 1,558 lbs./day
Total - 2,950 lbs./day

Bar Screen
One (1) mechanically cleaned bar screen with 5/8" clear openings.
Location: Ahead of raw sewage,wet well.
Screenings: Disposed of by incineration.
By-Pass channel with hand cleaned bar screen provided around unit.

Raw Sewage Pumping Facilities
Number: One (1) circular raw sewage wet well in vacuum filtration and incineration building.
Size: 12' diameter with 5.5' s.w.d. and 5' hopper.
Capacity: 622 cu. ft. or 4700 gallons.
Pump Facilities: Four (4) pumps; two (2) 800 g.p.m. and two (2) 400 g.p.m. capacities; two (2) 400 g.p.m. or one (1) 800 g.p.m. can be used as stand-by.
Discharge Point: To two (2) pre-aeration tanks.

Pre-Aeration Tanks
Number: Two (2) circular tanks.
Size: 12' diameter and 11.25' s.w.d..
Capacity: Each unit 10,800 gal.; combined 21,600 gal..
Detention time: 31 minutes @ average design flow of 1.0 m.g.d..
Air Supply: Two (2) blowers, each rated at 260 to 350 c.f.m. each.
Air Application Rates: Utilizing 10 c.f.m. for raw sludge lift in primary settling tank, the remaining 250 c.f.m. provides an application rate of 130 cu. ft./lb. per day with one blower in operation and allowing 5% B.O.D. removal in Bar Screen Grit Chamber.

Primary Settling Tanks
Number: Two (2) mechanically cleaned rectangular tanks operating in parallel.
Size: Each 16' by 60' by 7' s.w.d..
Capacity: Each 47,600 gal.; combined 95,200 gal.
Detention Time: 2.3 hrs. based on average design flow of 1.0 m.g.d..
Surface Settling Rate: 520 gal./sq.ft./day.
Weir Overflow Rate: 7,900 gal./ft./day.
Sludge: Primary sludge removed from hopper to sludge thickening tank by air lifts.

High Rate Trickling Filters
Number: Two (2) circular filters (secondary filter is 11.5' lower than primary).
Size: 90' diameter.
Total Surface Area: 0.292 acres or 12,700 sq. ft.
Total Volume: 1.76 acre ft. or 78,200 cu. ft.
B.O.D. Loading: 1000 lbs./day/acre ft. or 23 lbs./day/1000 cu.ft. based on applied B.O.D. load of 1770 lbs./day assuming 40% roduction of raw B.O.D. in primary tanks.

Hydraulic Loading: 20.5 M.G.D./acre ft. at 3 M.G.D. applied to each filter.

Final Settling Tanks
Number: Three (3) rectangularly cleaned tanks operating in parallel.
Size: 16' by 60' by 7' deep.
Capacity: Combined 19,050 fu. ft. or 142,800 gallons.
Detention Time: 1.71 hrs. based on 1.0 M.G.D. average design flow plus 1.0 m.g.d. recirculation.
Surface Settling Rate: 700 gal./day/sq. ft.
Weir Overflow: 10,400 gal./day/ft.

Chlorine Contact Tanks
Chlorinators: One (1) solution feed, vacuum type gas chlorinator with a capacity of 150 lbs./24 hrs.
Point of Application: At influent end of chlorine contact tanks.
Chlorine Contact Tanks: Two (2) parallel rectangular tanks, each tank divided into two (2) separate level tanks. Total capacity of 24,100 gallons provides a 35 minute detention time at average design flow of 1.0 M.G.D.

Metering Chamber
Location: After chlorine contact tank.
Size: 3' by 8.5' by 1.2' deep channel equipped with 90° "V"-notch weir and flow recording and totalizing facility.

Sludge Thickening Tanks
Number: Two (2) circular tanks.
Location: Adjacent to influent end of primary settling tanks.
Size: Each tank 12' diameter with 7.5' s.w.d. and 1.5' hopper depth.
Capacity: Combined 12,700 gallons.
Detention Time: 3.0 hrs. based on continual draw-off of sludge amounting to 0.1 M.G.D..
Overflow: To raw sewage wet well at head of plant.
Thickened Sludge: Drawn by gravity to sludge well at control building.

Raw Sludge Well
Location: Adjacent to Control Building.
Size: 12' diameter by 9' s.w.d. and 14.5' overall depth.
Operation: Receives thickened sludge from thickening tanks and sludge is withdrawn from this tank for vacuum filtration.

Sludge Dewatering Equipment
Vacuum Filter: Two (2) 7' diameter by 2'-10" wide vacuum filters each containing 60 sq. ft. of filter surface.
Filtrate Discharge: To head end of plant.

Sludge Incineration Facilities
Number: One (1) Herreshoff multiple hearth incinerator.

Capacity: 600 lbs. filter cake/hr.
Ash Removal: Mechanical ash handling system to remove ash to hopper where it will be hauled away.
Fly-ash system: Fly ash contained by recirculation system, a discharge from which is to the head end of the sewage treatment works, when the solids content in the fly-ash system warrants.

Buildings
One (1) 62.5' by 33.3' vacuum filtration and incineration building which will house the raw sewage pumping facilities, the vacuum filtration facilities and the incineration facilities.
One (1) 22' by 50' service building which includes a laboratory, an office, lavatory facilities and a work and service area.
One (1) 12.5' by 20' chlorine building which will house chlorination facilities.

Pumping Facilities
Raw Sewage Pumps: Four (4) vertical pumps with non-clog impellers; two (2) 300 g.p.m. pumps and two (2) 400 g.p.m. pumps.
Recirculation Pumps: Four (4) vertical pumps with non-clog impellers; three (3) 500 g.p.m. pumps and one (1) 1000 g.p.m. pumps.

Outfall Sewer
Approximately 225' of 21" concrete pipe.

CONDITION AND USE OF THE RECEIVING STREAM: The effluent from the proposed sewage treatment works will be discharged to the Towamencin Creek. The receiving stream has a watershed area of approximately 10.5 square miles and assuming a minimum flow of 0.1 c.f.s./sq. mi. would have a minimum flow of 1.05 c.f.s.. The Towamencin Creek is confluent with Skippack Creek, approximately two (2) miles downstream, and the Skippack has its confluence with the Perkiomen Creek about 6.5 miles below. The Towamencin and Skippack Creeks flow through rural areas and are not utilized for public water supply. Perkiomen Creek flows about 2.5 miles to the Schuylkill River. Just prior to its confluence with the Schuylkill River the Perkiomen Creek is utilized as a source of public water supply by the Philadelphia Suburban Water Company.

It is the professional opinion of the design engineer that the herein considered treatment plant will produce a 95% reduction in B.O.D. and a 95 to 98% reduction in S.S..
For further information see pages 54 to 57 of the Engineer's Summary Report.

STREAM ENCROACHMENTS: Application has been made to the Water and Power Resources Board for the stream encroachment involved in this project.

DISCUSSION: A study of the plans and supporting data and the results of a field investigation show the proposed sewerage facilities to be of generally satisfactory design meeting the requirements of the Department and can be approved, subject to certain conditions:

It is the opinion of the Regional Office that the herein proposed sewage treatment works will produce an effluent satisfactory for the receiving stream and can be approved subject to certain conditions.

RECOMMENDATIONS: It is recommended that a permit be issued to the Upper Gwynedd Towamencin Municipal Authority approving the construction and operation of the subject sewer system and sewage treatment to serve Towamencin Township and part of Upper Gwynedd Township, Montgomery County, as set forth and described in the aforementioned plans, report and specifications subject to the following conditions:

✓ Standard Conditions: Sewerage (1942): 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26 & 27.

✓ Special Condition: "A" - Complete Treatment.

RECORDING THE PERMIT: The subject permit should be recorded by the County Recorder of Deeds.

Respectfully submitted,

J. N. Maiorano
Sanitary Engineer

APPROVED:

C. T. Beechwood
Asst. Reg. Sanitary Eng'r.-Facilities

APPROVED:

G. A. Elias
Regional Sanitary Engineer
Region VII

JJM:s

HSE-6304 REV. 2/62

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH-SANITARY WATER BOARD

SEWERAGE APPLICATION AND PERMIT

1. APPLICATION AND PERMIT NO. 765513

APPLICANT

2. APPLICANT Upper Gwynedd-Towamencin Municipal Authority
3. MAILING ADDRESS Upper Gwynedd Township Bldg., West Point, Penna.

HEREBY APPLIES FOR

4. APPROVAL OF PLANS AND PERMIT FOR CONSTRUCTION OF: [X] SEWERS AND APPURTENANCES [X] SEWAGE TREATMENT PLANT
5. PERMIT FOR DISCHARGE: [X] CONTINUOUS [ ] INTERMITTENT [ ] EMERGENCY [ ] NONE
6. DEGREE OF TREATMENT: [X] COMPLETE [ ] INTERMEDIATE [ ] PRIMARY [ ] NONE
7. TO SERVE Portions of Upper Gwynedd and Towamencin Townships
8. IN (MUNICIPALITY)
9. COUNTY Montgomery

AND SUBMITS AS PART OF THE APPLICATION THE ACCOMPANYING PLANS, REPORTS AND SPECIFICATIONS

10. DATE 2-26-65
11. SIGNATURE OF APPLICANT OR AUTHORIZED OFFICER John B Taylor Jr
12. TITLE Chairman

13. RECEIVED REGION VII CORPORATE SEAL MAR 1 - 1965 PHILADELPHIA OFFICE

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA
COUNTY OF MONTGOMERY SS

I, (14) JOHN B TAYLOR JR, BEING DULY SWORN, ACCORDING TO LAW, DEPOSE AND SAY THAT I (AM THE APPLICANT) (AM AN OFFICER OR OFFICIAL OF THE APPLICANT) (HAVE THE AUTHORITY TO MAKE THIS APPLICATION) AND THAT THE PLANS, REPORTS AND DOCUMENTS SUBMITTED AS PART OF THE APPLICATION ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

SWORN AND SUBSCRIBED TO BEFORE ME THIS
16. 26 DAY OF Feb 1965
17. Floyd O. Collins Jr NOTARY PUBLIC PA.

15. SIGNATURE John B Taylor Jr.

REGIONAL ENGINEER

REGIONAL ENGINEER'S REVIEW

18. POPULATION TO BE SERVED 6400 INITIAL 10000 DESIGN
19. PLANS-NO. FOLIOS Three (3)
20. REPORT-NO. VOLUMES Two (2)
21. SPECIFICATIONS-NO. VOLUMES One (1)

DISCHARGE TO SEWER SYSTEM OF

22. NAME Upper Gwynedd-Towamencin Mun. Auth.
23. MUNICIPALITY Upper Gwynedd-Towamencin Twps.
24. COUNTY Montgomery
25. DOES SYSTEM HAVE ADEQUATE CAPACITY? [X] YES [ ] NO
26. COMPLIANCE STATUS: [X] IN COMPLIANCE [ ] VIOLATION S.P. [ ] VIOLATION U.P.

TREATED AT TREATMENT PLANT OF

27. NAME OF PLANT RECEIVING SEWAGE Upper-Gwynedd Towamencin Municipal Auth.
28. CONSTRUCTION STATUS: [ ] EXISTING [ ] UNDER CONSTRUCTION [X] PROPOSED
29. IS PLANT CAPACITY SUFFICIENT TO PREVENT POLLUTION AND COMPLY WITH PERMIT WHEN OPERATING UNDER PROPOSED LOAD? [X] YES [ ] NO
30. CASE NAME Upper Gwynedd Towamencin Mun. Auth.
31. CASE COMPLIANCE STATUS: [X] IN COMPLIANCE [ ] VIOLATION S.P. [ ] VIOLATION U.P.
32. TREATMENT PROVIDED: [X] COMPLETE [ ] INTERMEDIATE [ ] PRIMARY [ ] NONE
33. RECEIVING STREAM Towamencin Creek
34. CLASSIFICATION OF RECEIVING STREAM: [X] COMPLETE [ ] INTERMEDIATE [ ] PRIMARY [ ] NOT CLASSIFIED
35. TRIBUTARY OF Skippack Creek
36. DRAINAGE BASIN Delaware River
37. WILL PROPOSED FACILITIES COMPLY WITH THE REGULATIONS OF THE SANITARY WATER BOARD AND DEPARTMENT OF HEALTH AND AVERT POLLUTION OF THE WATERS OF THE COMMONWEALTH? [X] YES [ ] NO

RECOMMENDATION AND ACTION

	APPROVE-ISSUE IN REGION	APPROVE-ISSUE IN CENTRAL OFFICE	REFUSE	POSTPONE		DATE
38.	[ ]	[X]	[ ]	[ ]	REVIEWING ENGINEER J. N. Marzano	5/19/65
39.	[ ]	[X]	[ ]	[ ]	FACILITIES ENGINEER	5-20-65
40.	[ ]	[X]	[ ]	[ ]	REGIONAL ENGINEER (Exec. Secretary)	5-20-65
41. NO OBJECTION TO AD INTERIM	[ ]	[X] WGM.	[ ]	[ ]	SEWERAGE SECTION Paul R. Detweiler	5-28-65
42.	[ ]	[ ]	[ ]	[ ]	DIVISION	
43.	[ ]	[ ]	[ ]	[ ]	SANITARY WATER BOARD ACTION	6/16/65

44. APPLICATION [ ] APPROVED [X] APPROVED SUBJECT TO CONDITIONS ATTACHED
45. BY S/S Floyd O. Collins Jr.
46. TITLE Secretary, Sanitary Water Board
47. DATE JAN 5 1966

REGION FILE

SEWERAGE PERMIT

No. 765313

This permit is subject to the following special condition:

A. The plant hereby approved is required to effect complete treatment of the sewage which it receives. The term "complete treatment" is defined as such treatment of sewage as, in the opinion of the Board, will remove practically all of the suspended solids; will remove at least eighty-five per cent of the organic pollution load as measured by the biochemical oxygen demand test; will accomplish the removal of oils, greases, acids, alkalis, toxic, putrescible, taste and odor-producing substances, and other substances inimical to the public interest in the receiving stream; will provide effective disinfection to control disease-producing germs; will provide satisfactory disposal of sludge; and will produce a final effluent that is suitable for discharge into the receiving stream.

This permit is also subject to the following STANDARD CONDITIONS RELATING TO SEWERAGE effective November 1, 1942, attached hereto:

2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26 and 27.

It is required by law that this permit before being operative shall be recorded in the office of the Recorder of Deeds in Montgomery County.

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF HEALTH
P. O. BOX 90
HARRISBURG 17120

CERTIFIED MAIL

JAN 5 1966

Upper Gwynedd and Towamencin Townships
Montgomery County

Upper Gwynedd-Towamencin Municipal Authority
Upper Gwynedd Township Building
West Point, Pennsylvania

ATT: John B. Taylor, Jr., Chairman
SUBJECT: Sewerage Permit No. 765913

Gentlemen:

The Sanitary Water Board in accordance with the provisions of the law authorized the issuance of the enclosed permit.

We believe the permit is self-explanatory. It should be carefully studied and if any conditions are not clear, please contact the Regional Sanitary Engineer in your area.

You will note that before this permit becomes operative, it must be recorded in the office of the Recorder of Deeds in the County where the discharge is located. For this purpose, we have enclosed a blank certificate and business reply envelope. Will you please have the Recorder of Deeds complete the certificate, sign it, attach his seal and return it within ten (10) days, in the enclosed envelope.

Very truly yours,

Floyd O. Collins, Jr., Chief
Staff Services Section
Division of Sanitary Engineering

cc: Sewerage Section
San.Eng.Reg.VII
Staff Services(2)
File

MC:hr
Enclosures - Permit
Standard Conditions
Certificate
Return Envelope

RECEIVED
REGION VII
JAN - 6 1966
PHILADELPHIA OFFICE

HSE 6307

Upper Gwynedd, Towamencin Twps.
Montgomery County
765813

Commonwealth of Pennsylvania
Department of Health
Sanitary Water Board

RECORDER OF DEEDS CERTIFICATE

I hereby certify that on January 1, 1966 (Date)

there was recorded in Book 3354 DEED

page 191 the sewerage permit issued

to UPPER GWYNEDD-TOWAMENCIN MUNICIPAL AUTHORITY

bearing date of JUNE 16, 1965

Thomas F. Meigs
DEPUTY Recorder of Deeds for

MONTGOMERY County

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF HEALTH

CERTIFIED MAIL

JAN 5 1966

HSE - 6308

STATE OF PENNSYLVANIA }
COUNTY OF DAUPHIN } SS

On the day of in the year one thousand nine hundred and before me, the Subscriber, a Notary Public, came the above named Floyd O. Collins, Jr., and duly acknowledged the foregoing permit to be his act and deed and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year aforesaid.

NOTARY PUBLIC

ER-EP-21: 10/86

START

DEPARTMENT OF ENVIRONMENTAL RESOURCES

ENVIRONMENTAL PROTECTION

START

BUREAU/PROGRAM Water Quality Management

DIVISION

COUNTY/MUNICIPALITY 46949

PROGRAM Sew

CASE NAME Upper Gwynedd-Towamencin Municipal Authority

FILE

PERMIT NO.

BUREAU/PROGRAM Water Quality Management

DIVISION

COUNTY/MUNICIPALITY 46949

PROGRAM Sew

CASE NAME Upper Gwynedd-Towamencin Municipal Authority

FILE

PERMIT NO. 765513 Amendment #1

EDM CONSULTANTS, INC.
Century Plaza, Suite 204
100 West Main Street, Lansdale, PA 19446 (215) 362-0360

DER-RECEIVED NORRISTOWN
JUN 22 1987

June 18, 1987

Board of Supervisors
Towamencin Township
1655 Sumneytown Pike
P.O. Box 303
Kulpsville, PA 19443

Re: Sumneytown Pike
Sanitary Sewer

File: 101.025 (1.00)

Gentlemen:

In conformance with Act 14 requirements, this letter is to inform the Towamencin Township Board of Supervisors that Towamencin Township proposes to replace approximately 1300 linear feet of sanitary sewer along Sumneytown Pike from Green Lane Road to the Kulpsville Branch Towamencin Creek in Towamencin, Pennsylvania.

This 10-inch sewer line will replace an existing 8" sewer constructed under a previous sewer permit, however, the Township or UGTMA have no records indicating the sewer permit number. The sewer is in immediate need of replacement due to its extremely poor structural condition. The size is being increased to 10-inch diameter to relieve manhole surcharging which presently occurs during periods of heavy flows. The project is part of the Township's Sewer Plan to rehabilitate existing sewers.

Very truly yours,

EDM CONSULTANTS, INC.

William K. Dingman, P.E.

WKD:sb

cc: Mr. J. Newbold - PaDER
Upper Gwynedd Township Authority

DEPARTMENT OF ENVIRONMENTAL RESOURCES
ENGINEERING DESIGN MANAGEMENT
Civil and Environmental Services
ENVIRONMENTAL

EDM CONSULTANTS, INC.
Century Plaza, Suite 204
100 West Main Street, Lansdale, PA 19446 (215) 362-0360

RECEIVED
JUN 22 11 41 AM '87
MONTGOMERY COUNTY
COMMISSIONERS
RECEIVED-RECEIVED
NORRISTOWN
JUL 10 1987

June 18, 1987

Montgomery County Commissioners
Montgomery County Court House
Norristown, PA 19404

Re: Sumneytown Pike
Sanitary Sewer

File: 101.025 (1.00)

Gentlemen:

In conformance with Act 14 requirements, this letter is to inform the Montgomery County Commissioners that Towamencin Township proposes to replace approximately 1300 linear feet of sanitary sewer along Sumneytown Pike from Green Lane Road to the Kulpsville Branch Towamencin Creek in Towamencin, Pennsylvania.

This 10-inch sewer line will replace an existing 8" sewer constructed under a previous sewer permit, however, the Township or UGTMA have no records indicating the sewer permit number. The sewer is in immediate need of replacement due to its extremely poor structural condition. The size is being increased to 10-inch diameter to relieve manhole surcharging which presently occurs during periods of heavy flows. The project is part of the Township's Sewer Plan to rehabilitate existing sewers.

Very truly yours,

EDM CONSULTANTS, INC.

WK Dingman

William K. Dingman, P.E.

WKD:sb

cc: Mr. J. Newbold - PaDER
Upper Gwynedd Township Authority

Gerald J. Hoff, Jr., Director
Public Works Department
June 23, 1987

EDM CONSULTANTS, INC.
Century Plaza, Suite 204
100 West Main Street, Lansdale, PA 19446 (215) 362-0360

June 24, 1987

RECEIVED
NORRISTOWN
JUN 24 1987

Mr. James Newbold
PaDER
1875 New Hope Street
Norristown, PA 19401

Re: Sumneytown Pike -
Towamencin Township
Sewer Replacement

File: 101.025 (1.00)

Dear Mr. Newbold:

In accordance with our June 17, 1987 conversation we have enclosed two (2) sets of plans and specifications for the replacement of sanitary sewers along Sumneytown Pike from Green Lane Road to the Kulpsville Branch Towamencin Creek.

The Township is requesting an amendment to the sewer permit issued for these sewers as follows:

1. Manhole Reach 304 to 303

   Existing - 10-inch diameter sewer
   Proposed - 10-inch diameter sewer at the same slope as the existing sewer

2. Manhole Reach 303 to 301A

   Existing - 8-inch diameter sewer
   Proposed - 10-inch diameter sewer at the same slope as the existing sewer

3. Manhole Reach 301A to 116

   Existing - 8-inch diameter sewer
   Proposed - 10-inch diameter sewer at the same slope as the existing sewer

The Township and Upper Gwynedd-Towamencin Municipal Authority have researched their records to determine the permit number under which the original sewers were constructed but have been unsuccessful. Previous engineers have been contacted and they too were unable to identify the permit number. We therefore are requesting PaDER to determine the appropriate sewer permit number and advise.

The existing sewers are in extremely poor structural condition. The Township has experienced collapses or blockages at 23 separate locations since December, 1986 in this sewer reach and the approximate 5,000 linear feet of sewer upstream of this sewer reach. Immediate repair is required to maintain an effective sanitary sewer system. The Township completed Insituform lining of the approximately 5,000 linear feet of sewers upstream of this location on June 18, 1987. The sewer to be replaced under this contract was televised and found to be in a condition which will not allow lining, therefore complete replacement is being proposed.

The current proposal to replace the sewer in kind except the pipe material is being changed to PVC and the diameter is being increased to 10-inch diameter. The increased diameter is consistent with the upstream sections which are 12 and 10-inch diameter sewers. The existing 8-inch sewer has experienced two blockages since May 1987, therefore, to prevent future blockages and surcharges we are proposing the 10-inch diameter sewer.

The project is presently being bid with bids to be received on July 9, 1987. Municipal notification letters in accordance with Act 14 were sent to Towamencin Township and the Montgomery County Commissioners on June 18, 1987. Upon receipt of confirmation of the Act 14 letter, the municipality will send same to your office. Since the sewers are in such poor condition and additional collapses are probable with associated sewer overflows to adjacent waterways we request your earliest review of the material.

Should you require additional information please contact the undersigned.

Very truly yours,

EDM CONSULTANTS, INC.

William K. Dingman

William K. Dingman, P.E.

WKD:sb

cc: Ms. Cecile Daniel, Township Manager - Towamencin Township
Mr. Lewis Shallcross, Administrator - UGTMA

EDM CONSULTANTS, INC.
Century Pl. za. Suite 204
100 West Main Street, Lansdale, PA 19446

June 24, 1987

RECEIVED
MONTGOMERY
JUN 24 1987

Mr. James Newbold
PaDER
1875 New Hope Street
Norristown, PA 19401

EDM CONSULTANTS, INC.
Century Plaza, Suite 204
100 West Main Street, Lansdale, PA 19446 (215) 362-0360

RECEIVED
MONTGOMERY
JUL 10 1987

July 7, 1987

Mr. James Newbold
PaDER
1875 New Hope Street
Norristown, PA 19401

Re: Sumneytown Pike -
Towamencin Township
Sewer Replacement

File: 101.025 (1.00)

Dear Mr. Newbold:

In accordance with Act 14 requirements and our correspondence to you dated June 24, 1987, enclosed please find copies of confirmation of receipt of notification to the Towamencin Board of Supervisors and Montgomery County Commissioners regarding the above project.

The municipal notification letters were directed to the addressees June 18, 1987 without having a return receipt requested. We verbally requested the addressees to execute their letters and confirmed our request by certified mail, return receipt requested on June 23, 1987, thus the duplication of confirmation as per attached.

very truly yours,

EDM CONSULTANTS, INC.

Wm K. Dingman pb

William K. Dingman, P.E.

WKD:sb

Attachment(s)

7. Date of Delivery JUN 2 9 1987

PS Form 3811, Feb. 1986 DOMESTIC RETURN R

RECEIVED NORRISTOWN JUL 10 1987

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.
Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.
1. ☑ Show to whom delivered, date, and addressee's address. 2. ☐ Restricted Delivery.

3. Article Addressed to:
County Communications
montgomery county
court House
norristown Pa 19404

4. Article Number
P 526 480563

Type of Service:
☐ Registered ☐ Insured
☑ Certified ☐ COD
☐ Express Mail

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature – Addressee
X [signature]

6. Signature – Agent
X

7. Date of Delivery JUN 2 9 1987

8. Addressee's Address (ONLY if requested and fee paid)

PS Form 3811, Feb. 1986 DOMESTIC RETURN RECEIPT

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.
Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.
1. ☒ Show to whom delivered, date, and addressee's address. 2. ☐ Restricted Delivery.

3. Article Addressed to:
Board of Supervisors
Towamencin Twp
1655 Sumneytown Pk
PO Box 303
Kulpsville Pa 19443

4. Article Number
P 526 480564

Type of Service:
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature – Addressee
X

6. Signature – Agent
X [signature]

7. Date of Delivery

8. Addressee's Address (ONLY if requested and fee paid)
P.O. Box 303

PS Form 3811, Feb. 1986 DOMESTIC RETURN RECEIPT

EDM CONSULTING INC
Center Plaza, Suite 204
100 West

RECEIVED NORRISTOWN JUL 10 1987

July 7, 1987

Mr. James Newbold
PaDER
1875 New Hope Street
Norristown, PA 19401

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
Norristown, PA 19401
215 270-1975

July 18, 1987

Upper Gwynedd-Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Attention: Mr. Lewis Shallcross
Administrator

Re: Sewerage Permit No. 765S13
Amendment No. 1
Upper Gwynedd-Towamencin Municipal
Authority
Towamencin Township
Montgomery County

Gentlemen:

On June 24, 1987 we received from William K. Dingman, P.E. of EDM Consultants, Inc. on behalf of the UGTMA a request to amend the subject permit for the replacement of sanitary sewers along Sumneytown Pike from Green Lane Road to the Kulpsville Branch Towamencin Creek. The request was due to the 23 separate pipe collapses and blockages experienced in this section. Revised plans and specifications were submitted relative to the referenced permit.

The proposed changes to be addressed by this amendment include:

1. Replacement of approximately 1500 ft. of the existing sanitary sewer between MH304 and MH116 by 10" diameter PVC pipe to be laid at the same slope as the existing sewer line.

Please be advised that Special Condition "A" of the original permit which included Standard Conditions relating to Sewerage is superseded by the conditions numbered 1 through 6, 9, 14, 16, 20, 21, 22 of the Standard Conditions Relating to Sewerage dated September 2, 1983 and conditions numbered 1 through 12 of the Erosion Control Standard Conditions dated 1985 which are enclosed and made part of this Permit Amendment No. 1.

Enclosures: Standard Conditions Relating to Sewerage (9-2-83)
Standard Conditions Relating to Erosion Control (1985)

cc: EDM Consultants, Inc.
Towamencin Township
Re 30 (MCL)188.4

Upper Gwynedd-Towamencin
July 18, 1987
- 2 -

As a result of our review of the revised documents, we find the proposed changes acceptable and you are hereby notified that Permit No. 765S13 is amended subject to the provisions and conditions therein.

Very truly yours,

Joseph A. Feola

JOSEPH A. FEOLA
Regional Water Quality Manager

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES

BOARD OF SUPERVISORS
TOWAMENCIN TOWNSHIP

1655 SUMNEYTOWN PIKE
BOX 303 • KULPSVILLE, PA 19443-0303
PHONE: (215) 368-7602

Supervisors:
Michael J. Becker — Chr.
Colin M. Hannings — V. Chr.
Thomas J. Ciesielka
Charles J. O'Reilly
Edward J. Furman

Gregory E. Prowant
Manager

July 21, 1987

Sohen Garg
Department of Environmental Resources
1875 New Hope Street
Norristown, PA 19401

Dear Mr. Garg:

In conformance with Act 14, Towamencin Township has received a letter from EDM Consultants concerning the sewer work to be done on Sumneytown Pike. Please be advised that the Township has no comments regarding this project.

Should you need anything further, please call.

Sincerely,

Cecile M. Daniel

Cecile M. Daniel

CMD/fho

Upper Gwynedd-Towamencin
July 18, 1987
- 2 -

As a result of our review of the revised [illegible] acceptable and you are hereby notified [illegible] to the provisions and conditions [illegible]

3800-PM-WSFR0015 1/2011
Permit

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER STANDARDS AND FACILITY REGULATION

WATER QUALITY MANAGEMENT PERMIT

PERMIT NO. 4612408
AMENDMENT NO. _____
APS ID. 796922
AUTH. ID. 951634

A. PERMITTEE (Name and Address): CLIENT ID#: 52551	B. PROJECT/FACILITY (Name):
Upper Gwynedd & Towamencin Municipal Authority **2225 Kriebel Road** **Lansdale, PA 19446**	**Upper Gwynedd Towamencin STP**

C. LOCATION (Municipality, County): SITE ID#: 451588
Towamencin Township, Montgomery County

D. This permit approves the construction of sewage facilities consisting of: the construction of 1500 linear feet of 24 inch DIP replacing the existing 18 inch sanitary sewer along with the addition of 8 manholes. The sanitary sewer will run parallel to an unnamed tributary to the Towamencin Creek and cross the stream 4 times from an existing manhole at the treatment plant to a new manhole No.103A.

Pump Stations: _____	Manure Storage:	Sewage Treatment Facility:
Design Capacity: _____ GPM	Volume: _____ MG	Annual Average Flow: _____ MGD
	Freeboard: _____ inches	Design Hydraulic Capacity: _____ MGD
		Design Organic Capacity: _____ lb/day

E. APPROVAL GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING:

1. **New Permits:** All construction, operations and procedures shall be in accordance with the Water Quality Management Permit application dated November 15, 2012, its supporting documentation and addendums dated _____, which are hereby made a part of this permit.

   Amendments: All construction, operations and procedures shall be in accordance with the Water Quality Management Permit Amendment application dated _____ and its supporting documentation and addendums dated _____, which are hereby made a part of this amendment.

   Except for any herein approved modifications, all terms, conditions, supporting documentation and addendums approved under Water Quality Management Permit No. _____ dated _____ shall remain in effect.

   Transfers: Water Quality Management Permit No. _____ dated _____ and conditions, supporting documentation and addendums are also made part of this transfer.

2. Permit Conditions Relating to Sewerage are attached and made part of this permit.
3. Special Conditions _____ are attached and made part of this permit.

F. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. If there is a conflict between the application or its supporting documents and amendments and the attached conditions, the attached conditions shall apply.
2. Failure to comply with the rules and regulations of DEP or with the terms or conditions of this permit shall void the authority given to the permittee by the issuance of this permit.
3. This permit is issued pursuant to the Clean Streams Law Act of June 22, 1937, P.L. 1987, as amended 35 P.S. §691.1 *et seq.* Issuance of this permit shall not relieve the permittee of any responsibility under any other law.

PERMIT ISSUED: February 13, 2013

BY: _____
TITLE: Clean Water Program Manager
Southeast Regional Office

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

SOUTHEAST REGIONAL OFFICE
CLEAN WATER PROGRAM

WATER QUALITY MANAGEMENT INTERNAL REVIEW AND RECOMMENDATIONS

Application Type	New	Application No.	4612408
Facility Type	Conveyance	APS ID	796922
WQM Type	Permit	Authorization ID	951634

Applicant and Facility Information

Applicant Name	Upper Gwynedd & Towamencin Municipal Authority	Facility Name	Upper Gwynedd Towamencin STP
Applicant Address	2225 Kriebel Road Lansdale, PA 19446	Facility Address	2225 Kriebel Road Lansdale, PA 19446
Applicant Contact	Steve Hickman	Facility Contact	
Applicant Phone	(215) 855-8165	Facility Phone	
Client ID	52551	Site ID	451588
SIC Code	4952	Municipality	Towamencin Township
SIC Description	Trans. & Utilities - Sewerage Systems	County	Montgomery
Purpose of Application	Construction of approximately 1500 lF of parallel 24" DIP Sanitary Sewer and 8 Manholes.		

Internal Review and Recommendations

This applicant requests permit approval for the replacement of an existing gravity sanitary sewer. The new sanitary sewer will replace the 18 inch diameter with a 24 inch diameter ductile iron pipe, approximately 1500 linear feet. It will run along a tributary to the Towamencin Creek crossing it four times from an existing junction box at the Upper Gwynedd - Towamencin Municipal Authority Treatment Plant to a new manhole MH no.103A.There will also be the installation of 8 manholes along this line and an average daily flow increase of 1.61 MGD with an instantaneous peak flowrate of 6.24MGD.

This sanitary sewer will be located in Towamencin Township, Montgomery County and the project will be known as the Towamencin Creek Interceptor.

It is the opinion of the Department that this permit application meets the requirements of the Department's Domestic Wastewater Facilities Manual.

Approve	Return	Deny	Signatures	Date
X			Karen McDaniel / Environmental Engineer	January 24, 2013
X			/ Environmental Engineer Manager	1/31/13
X			/ Program Manager	2-12-13

3800-PM-WSFR0015a Rev. 1/2011
Conditions Sewerage

Permit No. 4612408

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER STANDARDS AND FACILITY REGULATION

PERMIT CONDITIONS RELATING TO SEWERAGE

For use in Water Quality Management Permits

(Place a √ in the box that applies)

General

☒ 1. The Department of Environmental Protection's (DEP) considers the registered Professional Engineer whose seal is affixed to the design documents to be fully responsible for the adequacy of all aspects of the facility design.

☐ 2. The permittee shall adopt and enforce an ordinance requiring the abandonment of privies, cesspools or similar receptacles for human waste and onlot sewage disposal systems on the premises of occupied structures accessible to public sewers. All such structures must be connected to the public sewers.

☐ 3. The outfall sewer or drain shall be extended to the low water mark of the receiving body of water. Where necessary to ensure proper mixing and waste assimilation, an outfall sewer or drain may be extended with appurtenances below the low water mark and into the bed of a navigable stream provided that the permittee has secured an easement, right-of-way, license or lease from DEP in accordance with Section 15 of the Dam Safety and Encroachments Act, the Act of November 26, 1978, P.L. 1375, as amended.

☒ 4. The approval is specifically made contingent on the permittee acquiring all necessary property rights, by easement or otherwise, providing for the satisfactory construction, operation, maintenance and replacement of all sewers or sewerage structures in, along or across private property with full rights of ingress, egress and regress.

☐ 5. When construction of the approved sewerage facilities is completed and before they are placed in operation, the permittee shall notify DEP in writing so that a DEP representative may inspect the facilities.

☒ 6. If, at any time, the sewerage facilities covered by this permit create a public nuisance, including but not limited to, causing malodors or causing environmental harm to waters of the Commonwealth, DEP may require the permittee to adopt appropriate remedial measures to abate the nuisance or harm.

☐ 7. If, after the issuance of this permit, DEP approves a municipal sewage facilities official plan or an amendment to an official plan under Act 537 (Pennsylvania Sewage Facilities Act, the Act of January 24, 1966, P.L. 1535 as amended) in which sewage from the herein approved facilities will be treated and disposed of at other planned facilities, the permittee shall, upon notification from the municipality or DEP, provide for the conveyance of its sewage to the planned facilities, abandon use and decommission the herein approved facilities including the proper disposal of solids, and notify DEP accordingly. The permittee shall adhere to schedules in the approved official plan, amendments to the plan, or other agreements between the permittee and municipality. This permit shall then, upon notice from DEP, terminate and become null and void and shall be relinquished to DEP.

☒ 8. This permit does not relieve the permittee of its obligations to comply with all federal, interstate, state or local laws, ordinances and regulations applicable to the sewerage facilities.

☒ 9. This permit does not give any real or personal property rights or grant any exclusive privileges, nor shall it be construed to grant or confirm any right, easement or interest in, on, to or over any lands which belong to the Commonwealth.

☐ 10. The authority granted by this permit is subject to all effluent requirements, monitoring requirements and other conditions as set forth in NPDES Permit No. **PA**_____ and all subsequent amendments and renewals. No discharge is authorized from these facilities unless approved by an NPDES Permit.

Construction

☒ 11. An Erosion and Sedimentation (E&S) Plan must be developed prior to construction of the permitted facility, pursuant to Title 25 Pa. Code Chapter 102, and implemented during and after the earth disturbance activity.

If the activity involves 5 or more acres of earth disturbance, or from 1 to 5 acres of earth disturbance with a point source discharge to surface waters of the Commonwealth, an NPDES permit for the Discharge of Stormwater Associated with Construction Activity is required.

In addition to the state NPDES permitting requirements, some municipalities, through local ordinances, require the E&S Control Plan to be reviewed and approved by the local County Conservation District office prior to construction. For specific information regarding E&S control planning approval and NPDES permitting requirements, please contact your local County Conservation District office.

Permit No. 4612408

☒ 12. The facilities shall be constructed under the supervision of a Pennsylvania registered Professional Engineer in accordance with the approved reports, plans and specifications.

☒ 13. A Pennsylvania registered Professional Engineer shall certify that construction of the permitted facilities was completed in accordance with the application and design plans submitted to DEP, using "Post Construction Certification" (3800-PM-WSFR0179a). It is the permittee's responsibility to ensure that a Professional Engineer is on-site to provide the necessary oversight and/or inspections to certify the facilities. The certification must be submitted to DEP before the facility is placed in operation. If requested, "as-built" drawings, photographs (if available) and a description of any DEP-approved deviations from the application and design plans must be submitted to DEP within 30 days of certification.

☒ 14. Manhole inverts shall be formed to facilitate the flow of the sewage and to prevent the stranding of sewage solids. The manhole structure shall be built to prevent undue infiltration, entrance of street wash or grit and provide safe access to facilitate manhole maintenance activities.

☒ 15. The local Waterways Conservation Officer of the Pennsylvania Fish and Boat Commission (PFBC) shall be notified when the construction of any stream crossing and/or outfall is started and completed. A written permit must be secured from the PFBC if the use of explosives in any waterways is required and the permittee shall notify the local Waterways Conservation Officer when explosives are to be used.

Operation and Maintenance

☒ 16. The permittee shall maintain records of "as-built" plans showing all the treatment facilities as actually constructed together with facility operation and maintenance (O&M) manuals and any other relevant information that may be required. Upon request, the "as-built" plans and O&M manuals shall be filed with DEP.

☒ 17. The sewers shall have adequate foundation support as soil conditions require. Trenches shall be back-filled to ensure that sewers will have proper structural stability, with minimum settling and adequate protection against breakage. Concrete used in connection with these sewers shall be protected from damage by water, freezing, drying or other harmful conditions until cured.

☒ 18. Stormwater from roofs, foundation drains, basement drains or other sources shall not be admitted directly to the sanitary sewers.

☒ 19. The approved sewers shall be maintained in good condition, kept free of deposits by flushing or other cleaning methods and repaired when necessary.

☐ 20. The sewerage facilities shall be properly operated and maintained to perform as designed.

☒ 21. The attention of the permittee is called to the highly explosive nature of certain gases generated by the digestion of sewage solids when these gases are mixed in proper proportions with air and to the highly toxic character of certain gases arising from such digestion or from sewage in poorly ventilated compartments or sewers. Therefore, at all places throughout the sewerage facilities where hazard of fire, explosion or danger from toxic gases may occur, the permittee shall post conspicuous permanent and legible warnings. The permittee shall instruct all employees concerning the aforesaid hazards, first aid and emergency methods of meeting such hazards and shall make all necessary equipment and material accessible.

☐ 22. An operator certified in accordance with the Water and Wastewater Systems Operator Certification Act of February 21, 2002, 63 P.S. §§1001, *et seq.* shall operate the sewage treatment plant.

☒ 23. The permittee shall properly control any industrial waste discharged into its sewerage system by regulating the rate and quality of such discharge, requiring necessary pretreatment and excluding industrial waste, if necessary, to protect the integrity or operation of the permittee's sewerage system.

☒ 24. There shall be no physical connection between a public water supply system and a sewer or appurtenance to it which would permit the passage of any sewage or polluted water into the potable water supply. No water pipe shall pass through or come in contact with any part of a sewer manhole.

☐ 25. All connections to the approved sanitary sewers must be in accordance with the corrective action plan as contained in the approved Title 25 Pa. Code Chapter 94 Municipal Wasteload Management Annual Report.

☐ 26. Collected screenings, slurries, sludge and other solids shall be handled and disposed of in compliance with Title 25 Pa. Code Chapters 271, 273, 275, 283 and 285 (related to permits and requirements for land filling, land application, incineration and storage of sewage sludge), Federal Regulations 40 CFR 257 and the Federal Clean Water Act and its amendments.

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

RECEIVED
SEP 24 2018
Bursich Associates Inc

September 19, 2018

CERTIFIED MAIL NO. 7001 2510 0006 1769 6348

Brent Wagner
Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446-5019

Re: WQM Permit - Sewage
Towamencin Municipal Authority STP
Permit No. 4602408- A2
Authorization ID No. 1244637
Towamencin Township, Montgomery County

Dear Mr. Wagner:

Your Water Quality Management (WQM) permit is enclosed. You must comply with all Standard and Special Conditions attached to this Permit. Construction must be done in accordance with the permit application and all supporting documentation. Please review the permit conditions and the supporting documentation submitted with your application before starting construction.

Please note that you are responsible for securing all other required permits, approvals and/or registrations associated with the project, if applicable, under Chapters 102 (erosion and sedimentation control), 105 (stream obstructions and encroachments) and 106 (floodplains) of DEP's regulations. Construction may not proceed until all other required permits have been obtained.

Any person aggrieved by this action may appeal the action to the Environmental Hearing Board (Board), pursuant to Section 4 of the Environmental Hearing Board Act, 35 P.S. § 7514, and the Administrative Agency Law, 2 Pa.C.S. Chapter 5A. The Board's address is:

Environmental Hearing Board
Rachel Carson State Office Building, Second Floor
400 Market Street
P.O. Box 8457
Harrisburg, PA 17105-8457

TDD users may contact the Environmental Hearing Board through the Pennsylvania Relay Service, 800-654-5984.

Appeals must be filed with the Board within 30 days of receipt of notice of this action unless the appropriate statute provides a different time. This paragraph does not, in and

of itself, create any right of appeal beyond that permitted by applicable statutes and decisional law.

A Notice of Appeal form and the Board's rules of practice and procedure may be obtained online at http://ehb.courtapps.com or by contacting the Secretary to the Board at 717-787-3483. The Notice of Appeal form and the Board's rules are also available in braille and on audiotape from the Secretary to the Board.

IMPORTANT LEGAL RIGHTS ARE AT STAKE. YOU SHOULD SHOW THIS DOCUMENT TO A LAWYER AT ONCE. IF YOU CANNOT AFFORD A LAWYER, YOU MAY QUALIFY FOR FREE PRO BONO REPRESENTATION. CALL THE SECRETARY TO THE BOARD AT 717-787-3483 FOR MORE INFORMATION. YOU DO NOT NEED A LAWYER TO FILE A NOTICE OF APPEAL WITH THE BOARD.

IF YOU WANT TO CHALLENGE THIS ACTION, YOUR APPEAL MUST BE FILED WITH AND RECEIVED BY THE BOARD WITHIN 30 DAYS OF RECEIPT OF NOTICE OF THIS ACTION.

During construction or upon completing construction, please contact Karen McDaniel at 484.250.5126 or kmcdaniel@pa.gov so that an inspection of the facilities may be conducted, at DEP's discretion.

Sincerely,

Thomas Magge

Thomas L. Magge
Environmental Program Manager
Clean Water Program

Enclosures

cc: Montgomery County Health Department
Mr. Corkle, P.E., Bursich Associates, Inc.
Operations, SERO- PADEP
Re

3850-PM-BCW0015d 3/2016
Permit

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

PERMIT NO. 4602408

AMENDMENT NO. A2

APS ID. 968491

AUTH. ID. 1244637

WATER QUALITY MANAGEMENT PERMIT

A. PERMITTEE (Name and Address): CLIENT ID#: **52551** **Towamencin Municipal Authority** **2225 Kriebel Road** **Lansdale, PA 19446-5019**	B. PROJECT/FACILITY (Name): **Stage I Phosphorous Removal/ Towamencin Municipal Authority STP**
C. LOCATION (Municipality, County): **Towamencin Township, Montgomery County**	SITE ID#: **451588**

D. This permit approves the modification of sewage facilities consisting of: the addition of polyaluminum chloride (PACL) for the removal of Phosphorous from the stage I treatment train of the Towamencin Wastewater Treatment Plant.

Pump Stations: _____	Manure Storage:	Sewage Treatment Facility:	
Design Capacity: _____ GPM	Volume: _____ MG	Annual Average Flow:	**6.5** MGD
	Freeboard: _____ inches	Design Hydraulic Capacity:	**7.3** MGD
		Design Organic Capacity:	**16,263** lb/day

E. APPROVAL GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING:

1. **New Permits:** All construction, operations and procedures shall be in accordance with the Water Quality Management Permit application dated _____, its supporting documentation and addendums dated _____, which are hereby made a part of this permit.

   Amendments: All construction, operations and procedures shall be in accordance with the Water Quality Management Permit Amendment application dated **04/27/2018** and its supporting documentation and addendums dated _____, which are hereby made a part of this amendment.

   Except for any herein approved modifications, all terms, conditions, supporting documentation and addendums approved under Water Quality Management Permit No. _____ dated _____ shall remain in effect.

   Transfers: Water Quality Management Permit No. _____ dated _____ and conditions, supporting documentation and addendums are also made part of this transfer.
2. Permit Conditions Relating to Sewerage are attached and made part of this permit.
3. Special Conditions _____ are attached and made part of this permit.

F. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. If there is a conflict between the application or its supporting documents and amendments and the attached conditions, the attached conditions shall apply.
2. Failure to comply with the rules and regulations of DEP or with the terms or conditions of this permit shall void the authority given to the permittee by the issuance of this permit.
3. This permit is issued pursuant to the Clean Streams Law Act of June 22, 1937, P.L. 1987, as amended 35 P.S. §691.1 *et seq.* Issuance of this permit shall not relieve the permittee of any responsibility under any other law.
4. This permit shall expire on _____. The permittee shall submit an application to renew the permit no later than 180 days prior to the permit expiration date.

PERMIT ISSUED: September 19, 2018

BY: Thomas Magge

TITLE: Thomas L. Magge
Clean Water Program Manager
Southeast Regional Office

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Towamencin Municipal Authority
NOV 25 2016

November 21, 2016

CERTIFIED MAIL NO. 7016 3010 0001 5161 9464

Brent Wagner, L.O.
Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Re: WQM Permit - Sewage
Towamencin Municipal Authority STP
Permit No. 4616402
Authorization ID No. 1148882
Towamencin Township, Montgomery County

Dear Mr. Wagner:

Your Water Quality Management (WQM) permit is enclosed. You must comply with all Standard and Special Conditions attached to this Permit. Construction must be done in accordance with the permit application and all supporting documentation. Please review the permit conditions and the supporting documentation submitted with your application before starting construction.

Please note that you are responsible for securing all other required permits, approvals and/or registrations associated with the project, if applicable, under Chapters 102 (erosion and sedimentation control), 105 (stream obstructions and encroachments) and 106 (floodplains) of DEP's regulations. Construction may not proceed until all other required permits have been obtained.

Any person aggrieved by this action may appeal, pursuant to Section 4 of the Environmental Hearing Board Act, 35 P.S. Section 7514, and the Administrative Agency Law, 2 Pa.C.S. Chapter 5A, to the Environmental Hearing Board, Second Floor, Rachel Carson State Office Building, 400 Market Street, P.O. Box 8457, Harrisburg, PA 17105-8457, 717.787.3483. TDD users may contact the Board through the Pennsylvania Relay Service, 800.654.5984. Appeals must be filed with the Environmental Hearing Board within 30 days of receipt of written notice of this action unless the appropriate statute provides a different time period. Copies of the appeal form and the Board's rules of practice and procedure may be obtained from the Board. The appeal form and the Board's rules of practice and procedure are also available in braille or on audiotape from the Secretary to the Board at 717.787.3483. This paragraph does not, in and of itself, create any right of appeal beyond that permitted by applicable statutes and decisional law.

IF YOU WANT TO CHALLENGE THIS ACTION, YOUR APPEAL MUST REACH THE BOARD WITHIN 30 DAYS. YOU DO NOT NEED A LAWYER TO FILE AN APPEAL WITH THE BOARD.

IMPORTANT LEGAL RIGHTS ARE AT STAKE, HOWEVER, SO YOU SHOULD SHOW THIS DOCUMENT TO A LAWYER AT ONCE. IF YOU CANNOT AFFORD A LAWYER, YOU MAY QUALIFY FOR FREE PRO BONO REPRESENTATION. CALL THE SECRETARY TO THE BOARD (717.787.3483) FOR MORE INFORMATION.

During construction or upon completing construction, please contact Karen McDaniel at 484.250.5126 or kmcdaniel@pa.gov so that an inspection of the facilities may be conducted, at DEP's discretion.

Sincerely,

Jenifer L. Fields, P.E.
Environmental Program Manager
Clean Water Program

Enclosures

cc:

Towamencin Township
Montgomery County Health Department
M. Mc Corkle, Bursich associates, Inc.
Ms. Lashley, SERO
Operations
Re

3800-PM-WSFR0015 1/2011
Permit

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF POINT AND NON-POINT SOURCE MANAGEMENT

PERMIT NO. 4616402

AMENDMENT NO. _____

APS ID. 921878

AUTH. ID. 1148882

WATER QUALITY MANAGEMENT PERMIT

A. PERMITTEE (Name and Address): CLIENT ID#: 322637 **Towamencin Municipal Authority** **2225 Kriebel Road** **Lansdale, PA 19446**	B. PROJECT/FACILITY (Name): **Towamencin Municipal Authority STP**
C. LOCATION (Municipality, County): **Towamencin Township, Montgomery County**	SITE ID#: **451588**

D. This permit approves the construction of sewage facilities consisting of: upgrade of 6,293 linear feet of the Kriebel Interceptor and the Turnpike Trunk Line sanitary sewers. The upgrades will include increasing the sanitary sewer diameters to 24in and 30in along the Kriebel Interceptor and 12 in along the Turnpike Trunk Line. The increase of these sanitary sewers will allow for the system to be able to handle large wet weather events preventing SSO's.

Pump Stations: _____	Manure Storage:	Sewage Treatment Facility:
Design Capacity: _____ GPM	Volume: _____ MG	Annual Average Flow: _____ MGD
	Freeboard: _____ inches	Design Hydraulic Capacity: _____ MGD
		Design Organic Capacity: _____ lb/day

E. APPROVAL GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING:

1. **New Permits:** All construction, operations and procedures shall be in accordance with the Water Quality Management Permit application dated 08/16/2016, its supporting documentation and addendums dated _____, which are hereby made a part of this permit.

   Amendments: All construction, operations and procedures shall be in accordance with the Water Quality Management Permit Amendment application dated _____ and its supporting documentation and addendums dated _____, which are hereby made a part of this amendment.

   Except for any herein approved modifications, all terms, conditions, supporting documentation and addendums approved under Water Quality Management Permit No. _____ dated _____ shall remain in effect.

   Transfers: Water Quality Management Permit No. _____ dated _____ and conditions, supporting documentation and addendums are also made part of this transfer.

2. Permit Conditions Relating to Sewerage are attached and made part of this permit.
3. Special Conditions _____ are attached and made part of this permit.

F. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. If there is a conflict between the application or its supporting documents and amendments and the attached conditions, the attached conditions shall apply.
2. Failure to comply with the rules and regulations of DEP or with the terms or conditions of this permit shall void the authority given to the permittee by the issuance of this permit.
3. This permit is issued pursuant to the Clean Streams Law Act of June 22, 1937, P.L. 1987, as amended 35 P.S. §691.1 *et seq.* Issuance of this permit shall not relieve the permittee of any responsibility under any other law.
4. This permit shall expire on _____. The permittee shall submit an application to renew the permit no later than 180 days prior to the permit expiration date.

PERMIT ISSUED: November 21, 2016

BY: _____

TITLE: Jenifer L. Fields, P.E.
Clean Water Program Manager
Southeast Regional Office

Permit No. 4616402

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF POINT AND NON-POINT SOURCE MANAGEMENT

PERMIT CONDITIONS RELATING TO SEWERAGE

For use in Water Quality Management Permits

(Check boxes that apply)

General

☒ 1. The Department of Environmental Protection (DEP) considers the licensed Professional Engineer whose seal is affixed to the design documents to be fully responsible for the adequacy of all aspects of the facility design.

☒ 2. The permittee shall adopt and enforce an ordinance requiring the abandonment of privies, cesspools or similar receptacles for human waste and onlot sewage disposal systems on the premises of occupied structures accessible to public sewers. All such structures must be connected to the public sewers.

☐ 3. The outfall sewer or drain shall be extended to the low water mark of the receiving body of water. Where necessary to ensure proper mixing and waste assimilation, an outfall sewer or drain may be extended with appurtenances below the low water mark and into the bed of a navigable stream provided that the permittee has secured an easement, right-of-way, license or lease from DEP in accordance with Section 15 of the Dam Safety and Encroachments Act, the Act of November 26, 1978, P.L. 1375, as amended.

☒ 4. The approval is specifically made contingent on the permittee acquiring all necessary property rights, by easement or otherwise, providing for the satisfactory construction, operation, maintenance and replacement of all sewers or sewerage structures in, along or across private property with full rights of ingress, egress and regress.

☒ 5. When construction of the approved sewerage facilities is completed and before they are placed in operation, the permittee shall notify DEP in writing so that a DEP representative may inspect the facilities.

☒ 6. The approval of the plans, and the authority granted in this permit, if not specifically extended, shall cease and be null and void 2 years from the issuance date of this permit unless construction or modification of the facilities covered by this permit has begun on or before the second anniversary of the permit date.

☒ 7. If, at any time, the sewerage facilities covered by this permit create a public nuisance, including but not limited to, causing malodors or causing environmental harm to waters of the Commonwealth, DEP may require the permittee to adopt appropriate remedial measures to abate the nuisance or harm.

☒ 8. If, after the issuance of this permit, DEP approves a municipal sewage facilities official plan or an amendment to an official plan under Act 537 (Pennsylvania Sewage Facilities Act, the Act of January 24, 1966, P.L. 1535 as amended) in which sewage from the herein approved facilities will be treated and disposed of at other planned facilities, the permittee shall, upon notification from the municipality or DEP, provide for the conveyance of its sewage to the planned facilities, abandon use and decommission the herein approved facilities including the proper disposal of solids, and notify DEP accordingly. The permittee shall adhere to schedules in the approved official plan, amendments to the plan, or other agreements between the permittee and municipality. This permit shall then, upon notice from DEP, terminate and become null and void and shall be relinquished to DEP.

☒ 9. This permit does not relieve the permittee of its obligations to comply with all federal, interstate, state or local laws, ordinances and regulations applicable to the sewerage facilities.

☒ 10. This permit does not give any real or personal property rights or grant any exclusive privileges, nor shall it be construed to grant or confirm any right, easement or interest in, on, to or over any lands which belong to the Commonwealth.

☐ 11. The authority granted by this permit is subject to all effluent requirements, monitoring requirements and other conditions as set forth in NPDES Permit No. and all subsequent amendments and renewals. No discharge is authorized from these facilities unless approved by an NPDES Permit.

Construction

☒ 12. This permit is issued under the authorization of The Clean Streams Law and 25 Pa. Code Chapter 91. The permittee shall obtain all necessary permits, approvals and/or registrations under 25 Pa. Code Chapters 102, 105 and 106 prior to commencing construction of the facilities authorized by this permit, as applicable. The permittee should contact the DEP office that issued this permit if there are any questions concerning the applicability of additional permits.

☒ 13. The facilities shall be constructed under the supervision of a Pennsylvania licensed Professional Engineer in accordance with the approved reports, plans and specifications.

☒ 14. A Pennsylvania licensed Professional Engineer shall certify that construction of the permitted facilities was completed in accordance with the application and design plans submitted to DEP, using "Post Construction Certification" form (3800-PM-WSFR0179a). It is the permittee's responsibility to ensure that a Professional Engineer is on-site to provide the necessary oversight and/or inspections to certify the facilities. The certification must be submitted to DEP before the facility is placed in operation. As-built drawings, photographs (if available) and a description of all deviations from the application and design plans must be submitted to DEP within 30 days of certification.

☒ 15. Manhole inverts shall be formed to facilitate the flow of the sewage and to prevent the stranding of sewage solids. The manhole structure shall be built to prevent undue infiltration, entrance of street wash or grit and provide safe access to facilitate manhole maintenance activities.

☒ 16. The local Waterways Conservation Officer of the Pennsylvania Fish and Boat Commission (PFBC) shall be notified when the construction of any stream crossing and/or outfall is started and completed. A written permit must be secured from the PFBC if the use of explosives in any waterways is required and the permittee shall notify the local Waterways Conservation Officer when explosives are to be used.

Operation and Maintenance

☒ 17. The permittee shall maintain records of "as-built" plans showing all the treatment facilities as actually constructed together with facility operation and maintenance (O&M) manuals and any other relevant information that may be required. Upon request, the "as-built" plans and O&M manuals shall be filed with DEP.

☒ 18. The sewers shall have adequate foundation support as soil conditions require. Trenches shall be back-filled to ensure that sewers will have proper structural stability, with minimum settling and adequate protection against breakage. Concrete used in connection with these sewers shall be protected from damage by water, freezing, drying or other harmful conditions until cured.

☒ 19. Stormwater from roofs, foundation drains, basement drains or other sources shall not be admitted directly to the sanitary sewers.

☒ 20. The approved sewers shall be maintained in good condition, kept free of deposits by flushing or other cleaning methods and repaired when necessary.

☒ 21. The sewerage facilities shall be properly operated and maintained to perform as designed.

☒ 22. The attention of the permittee is called to the highly explosive nature of certain gases generated by the digestion of sewage solids when these gases are mixed in proper proportions with air and to the highly toxic character of certain gases arising from such digestion or from sewage in poorly ventilated compartments or sewers. Therefore, at all places throughout the sewerage facilities where hazard of fire, explosion or danger from toxic gases may occur, the permittee shall post conspicuous permanent and legible warnings. The permittee shall instruct all employees concerning the aforesaid hazards, first aid and emergency methods of meeting such hazards and shall make all necessary equipment and material accessible.

☐ 23. An operator certified in accordance with the Water and Wastewater Systems Operator Certification Act of February 21, 2002, 63 P.S. §§1001, *et seq.* shall operate the sewage treatment plant.

☒ 24. The permittee shall properly control any industrial waste discharged into its sewerage system by regulating the rate and quality of such discharge, requiring necessary pretreatment and excluding industrial waste, if necessary, to protect the integrity or operation of the permittee's sewerage system.

☒ 25. There shall be no physical connection between a public water supply system and a sewer or appurtenance to it which would permit the passage of any sewage or polluted water into the potable water supply. No water pipe shall pass through or come in contact with any part of a sewer manhole.

☒ 26. All connections to the approved sanitary sewers must be in accordance with the official Act 537 Plan and, if applicable, a corrective action plan as contained in the approved Title 25 Pa. Code Chapter 94 Municipal Wasteload Management Annual Report.

☒ 27. Collected screenings, slurries, sludge and other solids shall be handled and disposed of in compliance with Title 25 Pa. Code Chapters 271, 273, 275, 283 and 285 (related to permits and requirements for land filling, land application, incineration and storage of sewage sludge), Federal Regulations 40 CFR 257 and the Federal Clean Water Act and its amendments.

3800-PM-WSFR0179a 9/2005
Post Construction Certification

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF POINT AND NON-POINT SOURCE MANAGEMENT

WATER QUALITY MANAGEMENT
POST CONSTRUCTION CERTIFICATION

PERMITTEE IDENTIFIER	
Permittee	Towamencin Municipal Authority
Municipality	Towamencin Township
County	Montgomery
WQM Permit No.	4616402
Facility Type	Sewage

All of the above information should be taken directly from the Water Quality Management Permit.

CERTIFICATION

This certification must be completed and returned to the permits section of the DEP's regional office issuing the WQM permit within 30 days of completion of the project and received by DEP prior to operation, and if requested, as-built drawings, photographs (if available) and a discussion of any DEP-approved deviations from the design plans during construction.

I, being a Registered Professional Engineer in Pennsylvania, do hereby certify to the best of my knowledge and belief, based upon personal observation and interviews, that the above facility approved under the Water Quality Management Permit has been constructed in accordance with the plans, specifications and modifications approved by DEP.

Construction Completion Date (MM/DD/YYYY): _____

Professional Engineer
Name _____ (Please Print or Type)
Signature
Date
License Expiration Date
Firm or Agency
Telephone
Permittee or Authorized Representative
Name _____ (Please Print or Type)
Signature
Title
Telephone

Engineer's Seal

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Towamencin Municipal Authority
JUL 5 2019

July 1, 2019

CERTIFIED MAIL NO. 7018 0040 0000 0097 9685
9590 9402 3852 8060 3803 01

Brent Wagner
Upper Gwynedd & Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446-5019

Re: WQM Permit - Sewage
Towamencin Municipal Authority STP
Permit No. 4619403
Authorization ID No. 1278221
Towamencin Township, Montgomery County

Dear Mr. Wagner:

Your Water Quality Management (WQM) permit is enclosed. You must comply with all Standard and Special Conditions attached to this Permit. Construction must be done in accordance with the permit application and all supporting documentation. Please review the permit conditions and the supporting documentation submitted with your application before starting construction.

Please note that you are responsible for securing all other required permits, approvals and/or registrations associated with the project, if applicable, under Chapters 102 (erosion and sedimentation control), 105 (stream obstructions and encroachments) and 106 (floodplains) of DEP's regulations. Construction may not proceed until all other required permits have been obtained.

Any person aggrieved by this action may appeal the action to the Environmental Hearing Board (Board), pursuant to Section 4 of the Environmental Hearing Board Act, 35 P.S. § 7514, and the Administrative Agency Law, 2 Pa.C.S. Chapter 5A. The Board's address is:

Environmental Hearing Board
Rachel Carson State Office Building, Second Floor
400 Market Street
P.O. Box 8457
Harrisburg, PA 17105-8457

TDD users may contact the Environmental Hearing Board through the Pennsylvania Relay Service, 800-654-5984.

Appeals must be filed with the Board within 30 days of receipt of notice of this action unless the appropriate statute provides a different time. This paragraph does not, in and of itself, create any right of appeal beyond that permitted by applicable statutes and decisional law.

A Notice of Appeal form and the Board's rules of practice and procedure may be obtained online at http://ehb.courtapps.com or by contacting the Secretary to the Board at 717-787-3483. The Notice of Appeal form and the Board's rules are also available in braille and on audiotape from the Secretary to the Board.

IMPORTANT LEGAL RIGHTS ARE AT STAKE. YOU SHOULD SHOW THIS DOCUMENT TO A LAWYER AT ONCE. IF YOU CANNOT AFFORD A LAWYER, YOU MAY QUALIFY FOR FREE PRO BONO REPRESENTATION. CALL THE SECRETARY TO THE BOARD AT 717-787-3483 FOR MORE INFORMATION. YOU DO NOT NEED A LAWYER TO FILE A NOTICE OF APPEAL WITH THE BOARD.

IF YOU WANT TO CHALLENGE THIS ACTION, YOUR APPEAL MUST BE FILED WITH AND RECEIVED BY THE BOARD WITHIN 30 DAYS OF RECEIPT OF NOTICE OF THIS ACTION.

During construction or upon completing construction, please contact Vasantha Palakurti at 484-250-5198 or vpalakurti@pa.gov so that an inspection of the facilities may be conducted, at DEP's discretion.

Sincerely,

for Thomas L. Magge
Environmental Program Manager
Clean Water Program

Enclosures

cc: McCorkle, Bursich Associates Inc.
Operations
File

3850-PM-BCW0015d 3/2016
Permit

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

PERMIT NO. 4619403

AMENDMENT NO. _____

APS ID. 990991

AUTH. ID. 1278221

WATER QUALITY MANAGEMENT PERMIT

A. PERMITTEE (Name and Address): CLIENT ID#: **52551** **Upper Gwynedd & Towamencin Municipal Authority** **2225 Kriebel Road** **Lansdale, PA 19446-5019**	B. PROJECT/FACILITY (Name): **Towamencin Municipal Authority STP** **Rag Compactor Installation**
C. LOCATION (Municipality, County): **Towamencin Township, Montgomery County**	SITE ID#: **451588**

D. This permit approves the modification of sewage facilities consisting of: the installation of Rag Compactor for the removal of rags that are accumulating in the sludge holding tank at the Towamencin Wastewater Treatment Plant.

Pump Stations: _____	Manure Storage:	Sewage Treatment Facility:
Design Capacity: _____ GPM	Volume: _____ MG	Annual Average Flow: **6.5** MGD
	Freeboard: _____ inches	Design Hydraulic Capacity: **7.3** MGD
		Design Organic Capacity: **16,263** lb/day

E. APPROVAL GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING:

1. **Amendments:** All construction, operations and procedures shall be in accordance with the Water Quality Management Permit Amendment application dated **March 22, 2019.**
2. Permit Conditions Relating to Sewerage are attached and made part of this permit.

F. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. If there is a conflict between the application or its supporting documents and amendments and the attached conditions, the attached conditions shall apply.
2. Failure to comply with the rules and regulations of DEP or with the terms or conditions of this permit shall void the authority given to the permittee by the issuance of this permit.
3. This permit is issued pursuant to the Clean Streams Law Act of June 22, 1937, P.L. 1987, as amended 35 P.S. §691.1 *et seq.* Issuance of this permit shall not relieve the permittee of any responsibility under any other law.

PERMIT ISSUED: July 1, 2019

BY: Sachin Shankar for

TITLE: Thomas L. Magge
Clean Water Program Manager
Southeast Regional Office

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF POINT AND NON-POINT SOURCE MANAGEMENT

PERMIT CONDITIONS RELATING TO SEWERAGE

For use in Water Quality Management Permits

(Check boxes that apply)

General

☒ 1. The Department of Environmental Protection (DEP) considers the licensed Professional Engineer whose seal is affixed to the design documents to be fully responsible for the adequacy of all aspects of the facility design.

☐ 2. The permittee shall adopt and enforce an ordinance requiring the abandonment of privies, cesspools or similar receptacles for human waste and onlot sewage disposal systems on the premises of occupied structures accessible to public sewers. All such structures must be connected to the public sewers.

☐ 3. The outfall sewer or drain shall be extended to the low water mark of the receiving body of water. Where necessary to ensure proper mixing and waste assimilation, an outfall sewer or drain may be extended with appurtenances below the low water mark and into the bed of a navigable stream provided that the permittee has secured an easement, right-of-way, license or lease from DEP in accordance with Section 15 of the Dam Safety and Encroachments Act, the Act of November 26, 1978, P.L. 1375, as amended.

☒ 4. The approval is specifically made contingent on the permittee acquiring all necessary property rights, by easement or otherwise, providing for the satisfactory construction, operation, maintenance and replacement of all sewers or sewerage structures in, along or across private property with full rights of ingress, egress and regress.

☒ 5. When construction of the approved sewerage facilities is completed and before they are placed in operation, the permittee shall notify DEP in writing so that a DEP representative may inspect the facilities.

☒ 6. The approval of the plans, and the authority granted in this permit, if not specifically extended, shall cease and be null and void 2 years from the issuance date of this permit unless construction or modification of the facilities covered by this permit has begun on or before the second anniversary of the permit date.

☒ 7. If, at any time, the sewerage facilities covered by this permit create a public nuisance, including but not limited to, causing malodors or causing environmental harm to waters of the Commonwealth, DEP may require the permittee to adopt appropriate remedial measures to abate the nuisance or harm.

☒ 8. If, after the issuance of this permit, DEP approves a municipal sewage facilities official plan or an amendment to an official plan under Act 537 (Pennsylvania Sewage Facilities Act, the Act of January 24, 1966, P.L. 1535 as amended) in which sewage from the herein approved facilities will be treated and disposed of at other planned facilities, the permittee shall, upon notification from the municipality or DEP, provide for the conveyance of its sewage to the planned facilities, abandon use and decommission the herein approved facilities including the proper disposal of solids, and notify DEP accordingly. The permittee shall adhere to schedules in the approved official plan, amendments to the plan, or other agreements between the permittee and municipality. This permit shall then, upon notice from DEP, terminate and become null and void and shall be relinquished to DEP.

☒ 9. This permit does not relieve the permittee of its obligations to comply with all federal, interstate, state or local laws, ordinances and regulations applicable to the sewerage facilities.

☒ 10. This permit does not give any real or personal property rights or grant any exclusive privileges, nor shall it be construed to grant or confirm any right, easement or interest in, on, to or over any lands which belong to the Commonwealth.

☒ 11. The authority granted by this permit is subject to all effluent requirements, monitoring requirements and other conditions as set forth in the NPDES Permit and all subsequent amendments and renewals. No discharge is authorized from these facilities unless approved by an NPDES Permit.

Construction

☒ 12. This permit is issued under the authorization of The Clean Streams Law and 25 Pa. Code Chapter 91. The permittee shall obtain all necessary permits, approvals and/or registrations under 25 Pa. Code Chapters 102, 105 and 106 prior to commencing construction of the facilities authorized by this permit, as applicable. The permittee should contact the DEP office that issued this permit if there are any questions concerning the applicability of additional permits.

☒ 13. The facilities shall be constructed under the supervision of a Pennsylvania licensed Professional Engineer in accordance with the approved reports, plans and specifications.

☒ 14. A Pennsylvania licensed Professional Engineer shall certify that construction of the permitted facilities was completed in accordance with the application and design plans submitted to DEP, using the "Post Construction Certification" form (3800-PM-WSFR0179a). It is the permittee's responsibility to ensure that a Professional Engineer is on-site to provide the necessary oversight and/or inspections to certify the facilities. The certification must be submitted to DEP before the facility is placed in operation. As-built drawings, photographs (if available) and a description of all deviations from the application and design plans must be submitted to DEP within 30 days of certification.

☐ 15. Manhole inverts shall be formed to facilitate the flow of the sewage and to prevent the stranding of sewage solids. The manhole structure shall be built to prevent undue infiltration, entrance of street wash or grit and provide safe access to facilitate manhole maintenance activities.

☒ 16. The local Waterways Conservation Officer of the Pennsylvania Fish and Boat Commission (PFBC) shall be notified when the construction of any stream crossing and/or outfall is started and completed. A written permit must be secured from the PFBC if the use of explosives in any waterways is required and the permittee shall notify the local Waterways Conservation Officer when explosives are to be used.

Operation and Maintenance

☒ 17. The permittee shall maintain records of "as-built" plans showing all the treatment facilities as actually constructed together with facility operation and maintenance (O&M) manuals and any other relevant information that may be required. Upon request, the "as-built" plans and O&M manuals shall be filed with DEP.

☐ 18. The sewers shall have adequate foundation support as soil conditions require. Trenches shall be back-filled to ensure that sewers will have proper structural stability, with minimum settling and adequate protection against breakage. Concrete used in connection with these sewers shall be protected from damage by water, freezing, drying or other harmful conditions until cured.

☐ 19. Stormwater from roofs, foundation drains, basement drains or other sources shall not be admitted directly to the sanitary sewers.

☐ 20. The approved sewers shall be maintained in good condition, kept free of deposits by flushing or other cleaning methods and repaired when necessary.

☒ 21. The sewerage facilities shall be properly operated and maintained to perform as designed.

☒ 22. The attention of the permittee is called to the highly explosive nature of certain gases generated by the digestion of sewage solids when these gases are mixed in proper proportions with air and to the highly toxic character of certain gases arising from such digestion or from sewage in poorly ventilated compartments or sewers. Therefore, at all places throughout the sewerage facilities where hazard of fire, explosion or danger from toxic gases may occur, the permittee shall post conspicuous permanent and legible warnings. The permittee shall instruct all employees concerning the aforesaid hazards, first aid and emergency methods of meeting such hazards and shall make all necessary equipment and material accessible.

☒ 23. An operator certified in accordance with the Water and Wastewater Systems Operator Certification Act of February 21, 2002, 63 P.S. §§1001, *et seq.* shall operate the sewage treatment plant.

☒ 24. The permittee shall properly control any industrial waste discharged into its sewerage system by regulating the rate and quality of such discharge, requiring necessary pretreatment and excluding industrial waste, if necessary, to protect the integrity or operation of the permittee's sewerage system.

☒ 25. There shall be no physical connection between a public water supply system and a sewer or appurtenance to it which would permit the passage of any sewage or polluted water into the potable water supply. No water pipe shall pass through or come in contact with any part of a sewer manhole.

☒ 26. All connections to the approved sanitary sewers must be in accordance with the official Act 537 Plan and, if applicable, a corrective action plan as contained in the approved Title 25 Pa. Code Chapter 94 Municipal Wasteload Management Annual Report.

☒ 27. Collected screenings, slurries, sludge and other solids shall be handled and disposed of in compliance with Title 25 Pa. Code Chapters 271, 273, 275, 283 and 285 (related to permits and requirements for land filling, land application, incineration and storage of sewage sludge), Federal Regulations 40 CFR 257 and the Federal Clean Water Act and its amendments.

3800-PM-WSFR0179a 9/2005
Post Construction Certification

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

WATER QUALITY MANAGEMENT
POST CONSTRUCTION CERTIFICATION

PERMITTEE IDENTIFIER	
Permittee	Upper Gwynedd & Towamencin Municipal Authority
Municipality	Towamencin Township
County	Montgomery
WQM Permit No.	4619403
Facility Type	Sewage

All of the above information should be taken directly from the Water Quality Management Permit.

CERTIFICATION

This certification must be completed and returned to the permits section of the DEP's regional office issuing the WQM permit within 30 days of completion of the project and received by DEP prior to operation, and if requested, as-built drawings, photographs (if available) and a discussion of any DEP-approved deviations from the design plans during construction.

I, being a Registered Professional Engineer in Pennsylvania, do hereby certify to the best of my knowledge and belief, based upon personal observation and interviews, that the above facility approved under the Water Quality Management Permit has been constructed in accordance with the plans, specifications and modifications approved by DEP.

Construction Completion Date (MM/DD/YYYY): _____

Professional Engineer
Name _____ (Please Print or Type)
Signature
Date
License Expiration Date
Firm or Agency
Telephone
Permittee or Authorized Representative
Name _____ (Please Print or Type)
Signature
Title
Telephone

3800-PM-WSFR0015 1/2011
Permit

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER STANDARDS AND FACILITY REGULATION

WATER QUALITY MANAGEMENT PERMIT

PERMIT NO. 4612408
AMENDMENT NO. _____
APS ID. 796922
AUTH. ID. 951634

A. PERMITTEE (Name and Address): CLIENT ID#: 52551
Upper Gwynedd & Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

B. PROJECT/FACILITY (Name):
Upper Gwynedd Towamencin STP

C. LOCATION (Municipality, County): SITE ID#: 451588
Towamencin Township, Montgomery County

D. This permit approves the construction of sewage facilities consisting of: the construction of 1500 linear feet of 24 inch DIP replacing the existing 18 inch sanitary sewer along with the addition of 8 manholes. The sanitary sewer will run parallel to an unnamed tributary to the Towamencin Creek and cross the stream 4 times from an existing manhole at the treatment plant to a new manhole No.103A.

Pump Stations: _____	Manure Storage:	Sewage Treatment Facility:
Design Capacity: _____ GPM	Volume: _____ MG	Annual Average Flow: _____ MGD
	Freeboard: _____ inches	Design Hydraulic Capacity: _____ MGD
		Design Organic Capacity: _____ lb/day

E. APPROVAL GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING:

1. **New Permits:** All construction, operations and procedures shall be in accordance with the Water Quality Management Permit application dated November 15, 2012, its supporting documentation and addendums dated _____, which are hereby made a part of this permit.

   Amendments: All construction, operations and procedures shall be in accordance with the Water Quality Management Permit Amendment application dated _____ and its supporting documentation and addendums dated _____, which are hereby made a part of this amendment.

   Except for any herein approved modifications, all terms, conditions, supporting documentation and addendums approved under Water Quality Management Permit No. _____ dated _____ shall remain in effect.

   Transfers: Water Quality Management Permit No. _____ dated _____ and conditions, supporting documentation and addendums are also made part of this transfer.

2. Permit Conditions Relating to Sewerage are attached and made part of this permit.
3. Special Conditions _____ are attached and made part of this permit.

F. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. If there is a conflict between the application or its supporting documents and amendments and the attached conditions, the attached conditions shall apply.
2. Failure to comply with the rules and regulations of DEP or with the terms or conditions of this permit shall void the authority given to the permittee by the issuance of this permit.
3. This permit is issued pursuant to the Clean Streams Law Act of June 22, 1937, P.L. 1987, as amended 35 P.S. §691.1 *et seq.* Issuance of this permit shall not relieve the permittee of any responsibility under any other law.

PERMIT ISSUED: February 13, 2013

BY: _____
TITLE: Clean Water Program Manager
Southeast Regional Office

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

SOUTHEAST REGIONAL OFFICE
CLEAN WATER PROGRAM

WATER QUALITY MANAGEMENT INTERNAL REVIEW AND RECOMMENDATIONS

Application Type	New	Application No.	4612408
Facility Type	Conveyance	APS ID	796922
WQM Type	Permit	Authorization ID	951634

Applicant and Facility Information

Applicant Name	Upper Gwynedd & Towamencin Municipal Authority	Facility Name	Upper Gwynedd Towamencin STP
Applicant Address	2225 Kriebel Road Lansdale, PA 19446	Facility Address	2225 Kriebel Road Lansdale, PA 19446
Applicant Contact	Steve Hickman	Facility Contact	
Applicant Phone	(215) 855-8165	Facility Phone	
Client ID	52551	Site ID	451588
SIC Code	4952	Municipality	Towamencin Township
SIC Description	Trans. & Utilities - Sewerage Systems	County	Montgomery
Purpose of Application	Construction of approximately 1500 lF of parallel 24" DIP Sanitary Sewer and 8 Manholes.		

Internal Review and Recommendations

This applicant requests permit approval for the replacement of an existing gravity sanitary sewer. The new sanitary sewer will replace the 18 inch diameter with a 24 inch diameter ductile iron pipe, approximately 1500 linear feet. It will run along a tributary to the Towamencin Creek crossing it four times from an existing junction box at the Upper Gwynedd - Towamencin Municipal Authority Treatment Plant to a new manhole MH no.103A.There will also be the installation of 8 manholes along this line and an average daily flow increase of 1.61 MGD with an instantaneous peak flowrate of 6.24MGD.

This sanitary sewer will be located in Towamencin Township, Montgomery County and the project will be known as the Towamencin Creek Interceptor.

It is the opinion of the Department that this permit application meets the requirements of the Department's Domestic Wastewater Facilities Manual.

Approve	Return	Deny	Signatures	Date
X			Karen McDaniel / Environmental Engineer	January 24, 2013
X			/ Environmental Engineer Manager	1/31/13
X			/ Program Manager	2-12-13

3800-PM-WSFR0015a Rev. 1/2011
Conditions Sewerage

Permit No. 4612408

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER STANDARDS AND FACILITY REGULATION

PERMIT CONDITIONS RELATING TO SEWERAGE

For use in Water Quality Management Permits

(Place a √ in the box that applies)

General

☒ 1. The Department of Environmental Protection's (DEP) considers the registered Professional Engineer whose seal is affixed to the design documents to be fully responsible for the adequacy of all aspects of the facility design.

☐ 2. The permittee shall adopt and enforce an ordinance requiring the abandonment of privies, cesspools or similar receptacles for human waste and onlot sewage disposal systems on the premises of occupied structures accessible to public sewers. All such structures must be connected to the public sewers.

☐ 3. The outfall sewer or drain shall be extended to the low water mark of the receiving body of water. Where necessary to ensure proper mixing and waste assimilation, an outfall sewer or drain may be extended with appurtenances below the low water mark and into the bed of a navigable stream provided that the permittee has secured an easement, right-of-way, license or lease from DEP in accordance with Section 15 of the Dam Safety and Encroachments Act, the Act of November 26, 1978, P.L. 1375, as amended.

☒ 4. The approval is specifically made contingent on the permittee acquiring all necessary property rights, by easement or otherwise, providing for the satisfactory construction, operation, maintenance and replacement of all sewers or sewerage structures in, along or across private property with full rights of ingress, egress and regress.

☐ 5. When construction of the approved sewerage facilities is completed and before they are placed in operation, the permittee shall notify DEP in writing so that a DEP representative may inspect the facilities.

☒ 6. If, at any time, the sewerage facilities covered by this permit create a public nuisance, including but not limited to, causing malodors or causing environmental harm to waters of the Commonwealth, DEP may require the permittee to adopt appropriate remedial measures to abate the nuisance or harm.

☐ 7. If, after the issuance of this permit, DEP approves a municipal sewage facilities official plan or an amendment to an official plan under Act 537 (Pennsylvania Sewage Facilities Act, the Act of January 24, 1966, P.L. 1535 as amended) in which sewage from the herein approved facilities will be treated and disposed of at other planned facilities, the permittee shall, upon notification from the municipality or DEP, provide for the conveyance of its sewage to the planned facilities, abandon use and decommission the herein approved facilities including the proper disposal of solids, and notify DEP accordingly. The permittee shall adhere to schedules in the approved official plan, amendments to the plan, or other agreements between the permittee and municipality. This permit shall then, upon notice from DEP, terminate and become null and void and shall be relinquished to DEP.

☒ 8. This permit does not relieve the permittee of its obligations to comply with all federal, interstate, state or local laws, ordinances and regulations applicable to the sewerage facilities.

☒ 9. This permit does not give any real or personal property rights or grant any exclusive privileges, nor shall it be construed to grant or confirm any right, easement or interest in, on, to or over any lands which belong to the Commonwealth.

☐ 10. The authority granted by this permit is subject to all effluent requirements, monitoring requirements and other conditions as set forth in NPDES Permit No. **PA**_____ and all subsequent amendments and renewals. No discharge is authorized from these facilities unless approved by an NPDES Permit.

Construction

☒ 11. An Erosion and Sedimentation (E&S) Plan must be developed prior to construction of the permitted facility, pursuant to Title 25 Pa. Code Chapter 102, and implemented during and after the earth disturbance activity.

If the activity involves 5 or more acres of earth disturbance, or from 1 to 5 acres of earth disturbance with a point source discharge to surface waters of the Commonwealth, an NPDES permit for the Discharge of Stormwater Associated with Construction Activity is required.

In addition to the state NPDES permitting requirements, some municipalities, through local ordinances, require the E&S Control Plan to be reviewed and approved by the local County Conservation District office prior to construction. For specific information regarding E&S control planning approval and NPDES permitting requirements, please contact your local County Conservation District office.

Permit No. 4612408

☒ 12. The facilities shall be constructed under the supervision of a Pennsylvania registered Professional Engineer in accordance with the approved reports, plans and specifications.

☒ 13. A Pennsylvania registered Professional Engineer shall certify that construction of the permitted facilities was completed in accordance with the application and design plans submitted to DEP, using "Post Construction Certification" (3800-PM-WSFR0179a). It is the permittee's responsibility to ensure that a Professional Engineer is on-site to provide the necessary oversight and/or inspections to certify the facilities. The certification must be submitted to DEP before the facility is placed in operation. If requested, "as-built" drawings, photographs (if available) and a description of any DEP-approved deviations from the application and design plans must be submitted to DEP within 30 days of certification.

☒ 14. Manhole inverts shall be formed to facilitate the flow of the sewage and to prevent the stranding of sewage solids. The manhole structure shall be built to prevent undue infiltration, entrance of street wash or grit and provide safe access to facilitate manhole maintenance activities.

☒ 15. The local Waterways Conservation Officer of the Pennsylvania Fish and Boat Commission (PFBC) shall be notified when the construction of any stream crossing and/or outfall is started and completed. A written permit must be secured from the PFBC if the use of explosives in any waterways is required and the permittee shall notify the local Waterways Conservation Officer when explosives are to be used.

Operation and Maintenance

☒ 16. The permittee shall maintain records of "as-built" plans showing all the treatment facilities as actually constructed together with facility operation and maintenance (O&M) manuals and any other relevant information that may be required. Upon request, the "as-built" plans and O&M manuals shall be filed with DEP.

☒ 17. The sewers shall have adequate foundation support as soil conditions require. Trenches shall be back-filled to ensure that sewers will have proper structural stability, with minimum settling and adequate protection against breakage. Concrete used in connection with these sewers shall be protected from damage by water, freezing, drying or other harmful conditions until cured.

☒ 18. Stormwater from roofs, foundation drains, basement drains or other sources shall not be admitted directly to the sanitary sewers.

☒ 19. The approved sewers shall be maintained in good condition, kept free of deposits by flushing or other cleaning methods and repaired when necessary.

☐ 20. The sewerage facilities shall be properly operated and maintained to perform as designed.

☒ 21. The attention of the permittee is called to the highly explosive nature of certain gases generated by the digestion of sewage solids when these gases are mixed in proper proportions with air and to the highly toxic character of certain gases arising from such digestion or from sewage in poorly ventilated compartments or sewers. Therefore, at all places throughout the sewerage facilities where hazard of fire, explosion or danger from toxic gases may occur, the permittee shall post conspicuous permanent and legible warnings. The permittee shall instruct all employees concerning the aforesaid hazards, first aid and emergency methods of meeting such hazards and shall make all necessary equipment and material accessible.

☐ 22. An operator certified in accordance with the Water and Wastewater Systems Operator Certification Act of February 21, 2002, 63 P.S. §§1001, *et seq.* shall operate the sewage treatment plant.

☒ 23. The permittee shall properly control any industrial waste discharged into its sewerage system by regulating the rate and quality of such discharge, requiring necessary pretreatment and excluding industrial waste, if necessary, to protect the integrity or operation of the permittee's sewerage system.

☒ 24. There shall be no physical connection between a public water supply system and a sewer or appurtenance to it which would permit the passage of any sewage or polluted water into the potable water supply. No water pipe shall pass through or come in contact with any part of a sewer manhole.

☐ 25. All connections to the approved sanitary sewers must be in accordance with the corrective action plan as contained in the approved Title 25 Pa. Code Chapter 94 Municipal Wasteload Management Annual Report.

☐ 26. Collected screenings, slurries, sludge and other solids shall be handled and disposed of in compliance with Title 25 Pa. Code Chapters 271, 273, 275, 283 and 285 (related to permits and requirements for land filling, land application, incineration and storage of sewage sludge), Federal Regulations 40 CFR 257 and the Federal Clean Water Act and its amendments.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT

NO. 4691419

A. PERMITTEE: (Name and Address)

Upper Gwynedd-Towamencin Municipal Auth.
2225 Kriebel Road
Lansdale, PA 19446

B. PROJECT LOCATION

Municipality: Towamencin Township

County: Montgomery

C. TYPE OF FACILITY (For industrial wastes: type of establishment)

Sanitary Sewer Extension

D. NAME OF PLANT, AREA SERVED, OUTFALL NO., ETC.

Charlestown (ARA Towamencin Village - Sections 11, 12, 13 and 14)

THIS PERMIT APPROVES:

1. Plans For Construction Of:
   a. [X] ~~Pump Stations~~: Sewers and Appurtenances
   b. [ ] Sewage Treatment Facilities
   c. [ ] Industrial Wastes Treatment Facilities
   d. [ ] Injection Well
   e. [ ] Outfall & Headwall
   f. [X] Stream Crossing
   g. [ ] Impoundment

2. The Discharge Of: a. [ ] Treated N/A b. [ ] Untreated c. [ ] Sewage d. [ ] Industrial Wastes

3. Discharge To:
   a. [ ] Surface Water
   b. [ ] Ground Water
   N/A — Name of Stream to which discharged or drainage area in which groundwater discharge takes place or impoundment is located.

4. Preparedness, Prevention, Contingency (PPC) Plan [ ] N/A

5. An Erosion and Sedimentation Control Plan [X]
   Project Area is 67.06 Acres

F. THIS APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:

1. ALL CONSTRUCTION, OPERATIONS, PROCEDURES AND DISCHARGE SHALL BE IN ACCORDANCE WITH APPLICATION NO. 4691419 DATED 07/26/91 ITS SUPPORTING DOCUMENTATION, AND AMENDMENTS DATED _____. SUCH APPLICATION, ITS SUPPORTING DOCUMENTATION AND AMENDMENTS ARE HEREBY MADE A PART OF THIS PERMIT.

2. CONDITIONS NUMBERED 1 thru 7, 9, 13, 14, 16, 17, 18, 20 thru 22 OF THE Sewerage STANDARD CONDITIONS DATED 09/02/83, AND CONDITIONS NUMBERED 1 thru 12 OF THE EROSION CONTROL STANDARD CONDITIONS DATED August 1991 WHICH CONDITIONS ARE ATTACHED AND MADE PART OF THIS PERMIT.

3. SPECIAL CONDITIONS DESIGNATED I, II WHICH ARE ATTACHED AND ARE MADE A PART OF THIS PERMIT.

G. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. IF THERE IS A CONFLICT BETWEEN THE APPLICATION ON ITS SUPPORTING DOCUMENTS AND AMENDMENTS AND THE STANDARD OR SPECIAL CONDITIONS, THE STANDARD OR SPECIAL CONDITIONS SHALL APPLY.

2. FAILURE TO COMPLY WITH THE RULES AND REGULATIONS OF THE DEPARTMENT OR WITH THE TERMS OR CONDITIONS OF THIS PERMIT SHALL VOID THE AUTHORITY GIVEN TO THE PERMITTEE BY THE ISSUANCE OF THE PERMIT.

3. THIS PERMIT IS ISSUED PURSUANT TO THE CLEAN STREAMS LAW, ACT OF JUNE 22, 1937, P.L. 1987 AS AMENDED 35 P.S. §691.1 ET SEQ. AND/OR THE DAM SAFETY AND ENCROACHMENTS ACT OF NOVEMBER 26, 1978, P.L. 1375, AS AMENDED, 32 P.S. §693.1 ET SEQ. ISSUANCE OF THIS PERMIT SHALL NOT RELIEVE THE PERMITTEE OF ANY RESPONSIBILITY UNDER ANY OTHER LAW.

DEPARTMENT OF ENVIRONMENTAL RESOURCES

PERMIT ISSUED

DATE 11/21/91

BY Joseph A. Feola

Joseph A. Feola

TITLE Regional Water Quality Manager

(WOM).1

Sewerage Permit No. 4691419
Charlestowne (AKA Towamencin Village
- Section 11, 12, 13 and 14)
Towamencin Township
Montgomery County

This permit is subject to the following Special Condition(s):

I. a. The stream bed shall not be used as a roadway for moving machinery from one site to another. Temporary stream crossings must be provided for equipment that must cross the stream during construction. Any structures are to be removed and the stream bed returned to its original condition when the project is completed.

b. Siltation control shall be provided for during construction and bank stabilization shall be undertaken by planting of grasses, shrubbery, or trees immediately after completion of each phase of the project.

c. Trenches excavated for the installation of sewer lines shall be the minimum width necessary. As soon as the line is installed and tested to ascertain no leakage, appropriate new or previously excavated backfill material shall be placed in the trench and the area restored to its original condition and elevation and stabilized. Backfill material stored in connection with the installation must be properly retained out of the floodway so as to prevent its discharge, washings or runoff from entering the waterway prior to its placement as backfill.

d. Adequate measures shall be used to prevent sedimentation from the trench from entering the stream.

e. The backfilling of the trench in which the pipe will be laid shall be done so as to eliminate the formation of a permanent ridge in the stream bed.

f. During construction activities, all public and private property including existing vegetation, landscape features and monuments within, along and adjacent to the work area, shall be protected and preserved to the maximum degree possible. This shall include, but not be limited to, precautions taken to minimize damage, erosion, injury, or destruction; prevent pollution; provide protection of all trees and other woody plants; special care being taken to protect the natural vegetation and surroundings to include all natural drainageways, ponds, lakes, swamps, woods and fields; and storage of materials in such manner to prevent leaching which would be injurious to soils and to plants. Precautions should be taken to prevent damage to pipes, conduits and other underground structures.

g. Owners shall investigate for drinking water intakes or reservoirs for public and private water supplies within five (5) miles downstream of the crossing and written notice shall be given at least ten (10) days prior to construction to operators of any such intakes or reservoirs. Owners must notify public and private water supply operators immediately and no longer than one (1) hour after an occurrence at the crossing site which results in the release of suspended solids and turbidity to the stream.

h. Deposition of dredged or excavated materials and all earthwork operations will be carried out in such a way as to minimize erosion of the material and preclude its entering into any wetland adjacent to the sewer line crossing.

i. Sewer line crossings of streams should be accomplished so that the line is at a right angle to the stream where possible, unless the crossing is installed on an existing bridge.

j. Whenever possible, in accordance with best construction methods, stream crossings are to be made "in the dry" by installing sandbag and plastic dams and piping stream flow through the affected area.

k. Prior to the use of explosives in a watercourse or body of water the permittee shall secure a written permit from the Fish Commission, under the Pennsylvania Fish and Boat Code, 30 Pa. C.S. §2906 (relating to permits for use of explosives). Requests should be directed to the Fish Commission, Bureau of Administrative Services, P.O. Box 1673, Harrisburg, PA 17120, Telephone 717-657-4522.

II. A permit must be secured from the Pennsylvania Fish Commission in Harrisburg, if the use of explosives is required. The following P.F.C. Waterways Patrolman must be notified when the project is started, when explosives are to be used, and when the project is completed for final inspection:

Jeff Bridi
P.O. Box 307
Zieglerville, PA 19492
Telephone (717) 626-0228

ER-BWQ-43:Rev. 6/76

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

For Department Use Only

INTERNAL REVIEW AND RECOMMENDATIONS

NAME OF APPLICANT: U. Gwynedd-Towamencin Municipal Authority
PROJECT LOCATION: Towamencin Township Montgomery County
APPLICATION NUMBER: 4691419

BRIEF DESCRIPTION OF PROJECT AND DISCUSSION (Use Additional Sheets if Necessary)

The applicant requests approval for the construction of a sanitary sewer extension to serve Charlestowne (AKA Towamencin Village - Section 11, 12, 13 and 14) located in Towamencin Township, Montgomery County. The proposed development of 301 units will generate 125,700 gpd of sewage. The sewer line will have enough capacity to carry the sewage.

Sewage from the proposed sewer extension will be conveyed to the Upper Gwynedd-Towamencin Sewer Authority STP via existing Upper Gwynedd-Towamencin Municipal Authority sewers covered under Permit No. 4687464✓ The sewage will be afforded tertiary treatment before discharge to the Wissahickon Creek. The proposed sewer extension will serve 1,257 people initially and ultimately. The soil erosion and sedimentation control plan has been reviewed and approved by the Montgomery County Conservation District. This project has stream crossing. The stream crossing have been reviewed and approved by PA Fish Commission.

Montgomery County Commissioners received notification on June 10, 1991 by certified mail regarding submission of this application to our Department.

Towamencin Township received notification of June 10, 1991 by certified mail regarding submission of this application to our Department.

CURRENT ESTIMATE OF COMPLETION DATE OF PROJECT (Industrial Wastes Only)

RECOMMENDATION AND ACTION

Approve – Issue By Region	Approve– Issue By Central Office	Refuse	Signature	Date
☒	☐	☐	REVIEWING ENGINEER K. P. Thake	11-14-91
☒	☐	☐	REGIONAL FACILITIES SECTION CHIEF Karen Hall	11/20/91
☒	☐	☐	REGIONAL ENGINEER/WATER QUALITY MANAGER Joseph R. Feola	11/21/91
	☐	☐	DIVISION FACILITIES ENGINEER	
	☐	☐	DIVISION CHIEF	

PERMIT CONDITIONS:

1. STANDARD –
   Erosion Control (1985) 1 thru 12
   Sewerage (09/02/83) 1-7, 9, 13-14, 16, 17, 18, 20-22

2. SPECIAL (Use Additional Sheets If Necessary) –

ER-BWQ-15-Rev. 11/85

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT

NO. 4689423

A. PERMITTEE: (Name and Address)

Upper Gwynedd-Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

B. PROJECT LOCATION

Municipality: Towamencin Township

County: Montgomery

C. TYPE OF FACILITY (For industrial wastes: type of establishment)

Sanitary Sewer Extension

D. NAME OF PLANT, AREA SERVED, OUTFALL NO., ETC.

Towamencin Village Square Shopping Center

E. THIS PERMIT APPROVES:

1. Plans For Construction Of: a. [X] ~~Pump Stations~~: Sewers and Appurtenances b. [ ] Sewage Treatment Facilities c. [ ] Industrial Wastes Treatment Facilities d. [ ] Injection Well e. [ ] Outfall & Headwall f. [X] Stream Crossing g. [ ] Impoundment

2. The Discharge Of: a. [ ] Treated N/A b. [ ] Untreated c. [ ] Sewage d. [ ] Industrial Wastes

3. Discharge To: a. [ ] Surface Water b. [ ] Ground Water — N/A — Name of Stream to which discharged or drainage area in which groundwater discharge takes place or impoundment is located.

4. Preparedness, Prevention, Contingency (PPC) Plan [ ] N/A

5. An Erosion and Sedimentation Control Plan [X] Project Area is 29 Acres

F. THIS APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:

1. ALL CONSTRUCTION, OPERATIONS, PROCEDURES AND DISCHARGE SHALL BE IN ACCORDANCE WITH APPLICATION NO. 4689423 DATED 3/9/89 ITS SUPPORTING DOCUMENTATION, AND AMENDMENTS DATED 4/3/89. SUCH APPLICATION, ITS SUPPORTING DOCUMENTATION AND AMENDMENTS ARE HEREBY MADE A PART OF THIS PERMIT.

2. CONDITIONS NUMBERED 1 thru 7, 9, 13, 14, 16, 20 thru 22 OF THE Sewerage STANDARD CONDITIONS DATED 09/02/83 AND CONDITIONS NUMBERED 1 thru 12 OF THE EROSION CONTROL STANDARD CONDITIONS DATED 1985 WHICH CONDITIONS ARE ATTACHED AND MADE PART OF THIS PERMIT.

3. SPECIAL CONDITIONS DESIGNATED I WHICH ARE ATTACHED AND ARE MADE A PART OF THIS PERMIT.

G. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. IF THERE IS A CONFLICT BETWEEN THE APPLICATION ON ITS SUPPORTING DOCUMENTS AND AMENDMENTS AND THE STANDARD OR SPECIAL CONDITIONS, THE STANDARD OR SPECIAL CONDITIONS SHALL APPLY.

2. FAILURE TO COMPLY WITH THE RULES AND REGULATIONS OF THE DEPARTMENT OR WITH THE TERMS OR CONDITIONS OF THIS PERMIT SHALL VOID THE AUTHORITY GIVEN TO THE PERMITTEE BY THE ISSUANCE OF THE PERMIT.

3. THIS PERMIT IS ISSUED PURSUANT TO THE CLEAN STREAMS LAW, ACT OF JUNE 22, 1937, P.L. 1987 AS AMENDED 35 P.S. §691.1 ET SEQ. AND/OR THE DAM SAFETY AND ENCROACHMENTS ACT OF NOVEMBER 26, 1978, P.L. 1375, AS AMENDED, 32 P.S. §693.1 ET SEQ. ISSUANCE OF THIS PERMIT SHALL NOT RELIEVE THE PERMITTEE OF ANY RESPONSIBILITY UNDER ANY OTHER LAW.

DEPARTMENT OF ENVIRONMENTAL RESOURCES

PERMIT ISSUED

DATE 6/15/89

BY Joseph A. Feola

Joseph A. Feola
Regional Water Quality Manager

TITLE

(MCL6)118.16.1

Sewerage Permit No. 4689423
Upper Gwynedd-Towamencin Municipal Authority
Towamencin Township, Montgomery County

This permit is subject to the following Special Condition(s):

I. The stream bed shall not be used as a roadway for moving machinery from one site to another. Temporary stream crossings must be provided for equipment that must cross the stream during construction. Any structures are to be removed and the stream bed returned to its original condition when the project is completed.

Siltation control shall be provided for during construction and bank stabilization shall be undertaken by planting of grasses, shrubbery, or trees immediately after completion of each phase of the project.

When channel changes occur, the stream bed shall not exceed the original width and if a greater cross sectional area is required, an elevated flood plain must be put into use.

All material and debris removed from the stream bed shall be moved entirely out of the flood plain area.

A permit must be secured from the Pennsylvania Fish Commission in Harrisburg, if the use of explosives is required. The following P.F.C. Waterways Patrolman must be notified when the project is started, when explosives are to be used, and when the project is completed for final inspection:

Jeff Bridi
P.O. Box 307
Zieglerville, PA 19492
Telephone (215) 754-6368

(MCL6)118.16.2

ER-BWQ-43:Rev. 6/76

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

For Department Use Only

INTERNAL REVIEW AND RECOMMENDATIONS

NAME OF APPLICANT: Upper Gwynedd-Towamencin Municipal Authority
PROJECT LOCATION: Towamencin Township Montgomery County
APPLICATION NUMBER: 4689423

BRIEF DESCRIPTION OF PROJECT AND DISCUSSION (Use Additional Sheets if Necessary)

The Applicant requests approval for the construction of a sanitary sewer extension to serve the Towamencin Village Square Shopping Center, located on 29.5 acres on the west corner of Forty Foot Road at Allentown Road. The project will generate 5250 gallons of sewage per day. The Pennsylvania Fish Commission was sent plans on April 6, 1989. No comments were received. The applicant also applied to BDWM for a permit for construction of a culvert within the 100-year floodplain. BDWM replied that the permit would qualify for a waiver but approval for construction would have to come from PennDOT.

Sewage from the proposed sewer extension will be conveyed to the Upper Gwynedd-Towamencin Municipal Authority STP via existing Upper Gwynedd-Towamencin M.A. sewers covered under Permit No. 765S013. The sewage will be afforded tertiary treatment before discharge to the Towamencin Creek. The soil erosion and sedimentation control plan has been reviewed and approved by the Montgomery County Conservation District.

Montgomery County Board of Commissioners received notification on March 15, 1989 by certified mail regarding submission of this application to our Department.

Towamencin Township Board of Supervisors received notification on March 15, 1989 by certified mail regarding submission of this application to our Department.

CURRENT ESTIMATE OF COMPLETION DATE OF PROJECT (Industrial Wastes Only)

RECOMMENDATION AND ACTION

Approve – Issue By Region	Approve– Issue By Central Office	Refuse	Signature	Date
☑	☐	☐	REVIEWING ENGINEER Jesse Hohberg	5/8/89
☒	☐	☐	REGIONAL FACILITIES SECTION CHIEF James Kreidler	6/13/89
☒	☐	☐	REGIONAL ENGINEER/WATER QUALITY MANAGER Dwight A. Fiedler	6/15/89
	☐	☐	DIVISION FACILITIES ENGINEER	
	☐	☐	DIVISION CHIEF	

PERMIT CONDITIONS:

1. STANDARD –

   Erosion Control (1985) 1 thru 12
   Sewerage (09/02/83) 1-7, 9, 13-14, 16, 20-22

2. SPECIAL (Use Additional Sheets If Necessary) –

PA-3WQ-15-Rev. 11/85

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT NO. 4689415

A. PERMITTEE (Name and Address)

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

B. PROJECT LOCATION

Municipality: Towamencin Township
County: Montgomery

C. TYPE OF FACILITY (For industrial wastes: type of establishment)

Sanitary Sewer Extension

D. NAME OF PLANT, AREA SERVED, OUTFALL NO., ETC.

Winding Brook Estates (Phase I)

THIS PERMIT APPROVES:

1. Plans For Construction Of:
   a. [X] Pump Stations: Sewers and Appurtenances
   b. [ ] Sewage Treatment Facilities
   c. [ ] Industrial Wastes Treatment Facilities
   d. [ ] Injection Well
   e. [ ] Outfall & Headwall
   f. [ ] Stream Crossing
   g. [ ] Impoundment

2. The Discharge Of: a. [ ] Treated N/A b. [ ] Untreated c. [ ] Sewage d. [ ] Industrial Wastes

3. Discharge To:
   a. [ ] Surface Water
   b. [ ] Ground Water
   N/A — Name of Stream to which discharged or drainage area in which groundwater discharge takes place or impoundment is located.

4. Preparedness, Prevention, Contingency (PPC) Plan [ ] N/A

5. An Erosion and Sedimentation Control Plan [X]
   Project Area is 20± Acres

F. THIS APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:

1. ALL CONSTRUCTION, OPERATIONS, PROCEDURES AND DISCHARGE SHALL BE IN ACCORDANCE WITH APPLICATION NO. 4689415 DATED 02/14/89 ITS SUPPORTING DOCUMENTATION, AND AMENDMENTS DATED 02/02/89. SUCH APPLICATION, ITS SUPPORTING DOCUMENTATION AND AMENDMENTS ARE HEREBY MADE A PART OF THIS PERMIT.

2. CONDITIONS NUMBERED 1 thru 7, 9, 13, 14, 16, 20 thru 22 OF THE Sewerage STANDARD CONDITIONS DATED 09/02/83 AND CONDITIONS NUMBERED 1 thru 12 OF THE EROSION CONTROL STANDARD CONDITIONS DATED 1985 WHICH CONDITIONS ARE ATTACHED AND MADE PART OF THIS PERMIT.

3. SPECIAL CONDITIONS DESIGNATED I WHICH ARE ATTACHED AND ARE MADE A PART OF THIS PERMIT.

I. This permit is for the construction of Phase I only.

G. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. IF THERE IS A CONFLICT BETWEEN THE APPLICATION ON ITS SUPPORTING DOCUMENTS AND AMENDMENTS AND THE STANDARD OR SPECIAL CONDITIONS, THE STANDARD OR SPECIAL CONDITIONS SHALL APPLY.

2. FAILURE TO COMPLY WITH THE RULES AND REGULATIONS OF THE DEPARTMENT OR WITH THE TERMS OR CONDITIONS OF THIS PERMIT SHALL VOID THE AUTHORITY GIVEN TO THE PERMITTEE BY THE ISSUANCE OF THE PERMIT.

3. THIS PERMIT IS ISSUED PURSUANT TO THE CLEAN STREAMS LAW, ACT OF JUNE 22, 1937, P.L. 1987 AS AMENDED 35 P.S. §691.1 ET SEQ. AND/OR THE DAM SAFETY AND ENCROACHMENTS ACT OF NOVEMBER 26, 1978, P.L. 1375, AS AMENDED, 32 P.S. §693.1 ET SEQ. ISSUANCE OF THIS PERMIT SHALL NOT RELIEVE THE PERMITTEE OF ANY RESPONSIBILITY UNDER ANY OTHER LAW.

DEPARTMENT OF ENVIRONMENTAL RESOURCES

PERMIT ISSUED
DATE 8/18/89

BY Joseph A. Feola
Joseph A. Feola
TITLE Regional Water Quality Manager

(MCL6)119.5.1

TF-BWQ-43:Rev. 6/76

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

For Department Use Only

INTERNAL REVIEW AND RECOMMENDATIONS

NAME OF APPLICANT: Upper Gwynedd-Towamencin Municipal Authority
PROJECT LOCATION: Towamencin Township Montgomery
APPLICATION NUMBER: 4689415

BRIEF DESCRIPTION OF PROJECT AND DISCUSSION (Use Additional Sheets if Necessary)

The Applicant requests approval for the construction of a sanitary sewer extension to serve 23 residential units located on approximately 20 acres located on the west side of Keller Road approximately 846 feet north of Troxell Road. The project is called Winding Brook Estates (Phase I).

Sewage from the proposed sewer extension will be conveyed to the Upper Gwynedd-Towamencin STP via existing Upper Gwynedd-Towamencin Municipal Authority sewers covered under an unknown Permit No., but known as Towamencin Creek Interceptor. The sewage will be afforded tertiary treatment before discharge to the Towamencin. The proposed sewer extension will serve 80 people initially and ultimately. The soil erosion and sedimentation control plan has been reviewed and approved by the Montgomery County Conservation District. Application is in coordination with BDWM.

Montgomery County received notification on October 7, 1989 by certified mail regarding submission of this application to our Department.

Towamencin Township received notification on October 7, 1989 by certified mail regarding submission of this application to our Department.

CURRENT ESTIMATE OF COMPLETION DATE OF PROJECT (Industrial Wastes Only)

RECOMMENDATION AND ACTION

Approve -- Issue By Region	Approve-- Issue By Central Office	Refuse	Signature	Date
☒	☐	☐	REVIEWING ENGINEER	5/1/89
☒	☐	☐	REGIONAL FACILITIES SECTION CHIEF	5/2/89
☒	☐	☐	REGIONAL ENGINEER/WATER QUALITY MANAGER	5/2/89
	☐	☐	DIVISION FACILITIES ENGINEER	
	☐	☐	DIVISION CHIEF	

PERMIT CONDITIONS:

1. STANDARD —
   Erosion Control (1985) 1 thru 12
   Sewerage (09/02/83) 1-7, 9, 13-14, 16, 20-22

2. SPECIAL (Use Additional Sheets If Necessary) —

ER-BWQ-15-Rev. 11/85

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT

NO. 4689407

A. PERMITTEE (Name and Address)

Upper Gwynedd Towamencin
Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

B. PROJECT LOCATION

Municipality: Towamencin Township

County: Montgomery County

C. TYPE OF FACILITY (For industrial wastes: type of establishment

Sanitary Sewer Extension

D. NAME OF PLANT, AREA SERVED, OUTFALL NO., ETC.

Towamencin Village Section 1, 2, 3, 4, 5, 8, 9

E. THIS PERMIT APPROVES:

1. Plans For Construction Of:
   a. [X] ~~Pump Stations~~: Sewers and Appurtenances
   b. [ ] Sewage Treatment Facilities
   c. [ ] Industrial Wastes Treatment Facilities
   d. [ ] Injection Well
   e. [ ] Outfall & Headwall
   f. [X] Stream Crossing
   g. [ ] Impoundment

2. The Discharge Of: a. [ ] Treated N/A b. [ ] Untreated c. [ ] Sewage d. [ ] Industrial Wastes

3. Discharge To:
   a. [ ] Surface Water
   b. [ ] Ground Water
   N/A — Name of Stream to which discharged or drainage area in which groundwater discharge takes place or impoundment is located.

4. Preparedness, Prevention, Contingency (PPC) Plan [ ] N/A

5. An Erosion and Sedimentation Control Plan [X]
   Project Area is 189.06 Acres

F. THIS APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:

1. ALL CONSTRUCTION, OPERATIONS, PROCEDURES AND DISCHARGE SHALL BE IN ACCORDANCE WITH APPLICATION NO. 4689407 DATED 01/30/89 ITS SUPPORTING DOCUMENTATION, AND AMENDMENTS DATED 3/16/89. SUCH APPLICATION, ITS SUPPORTING DOCUMENTATION AND AMENDMENTS ARE HEREBY MADE A PART OF THIS PERMIT.

2. CONDITIONS NUMBERED 1 thru 7, 9, 13, 14, 16, 17, 18, 20 thru 22 OF THE Sewerage STANDARD CONDITIONS DATED 09/02/83 AND CONDITIONS NUMBERED 1 thru 12 OF THE EROSION CONTROL STANDARD CONDITIONS DATED 1985 WHICH CONDITIONS ARE ATTACHED AND MADE PART OF THIS PERMIT.

3. SPECIAL CONDITIONS DESIGNATED I WHICH ARE ATTACHED AND ARE MADE A PART OF THIS PERMIT.

G. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. IF THERE IS A CONFLICT BETWEEN THE APPLICATION ON ITS SUPPORTING DOCUMENTS AND AMENDMENTS AND THE STANDARD OR SPECIAL CONDITIONS, THE STANDARD OR SPECIAL CONDITIONS SHALL APPLY.

2. FAILURE TO COMPLY WITH THE RULES AND REGULATIONS OF THE DEPARTMENT OR WITH THE TERMS OR CONDITIONS OF THIS PERMIT SHALL VOID THE AUTHORITY GIVEN TO THE PERMITTEE BY THE ISSUANCE OF THE PERMIT.

3. THIS PERMIT IS ISSUED PURSUANT TO THE CLEAN STREAMS LAW, ACT OF JUNE 22, 1937, P.L. 1987 AS AMENDED 35 P.S. §691.1 ET SEQ. AND/OR THE DAM SAFETY AND ENCROACHMENTS ACT OF NOVEMBER 26, 1978, P.L. 1375, AS AMENDED, 32 P.S. §693.1 ET SEQ. ISSUANCE OF THIS PERMIT SHALL NOT RELIEVE THE PERMITTEE OF ANY RESPONSIBILITY UNDER ANY OTHER LAW.

PERMIT ISSUED

DATE 3/27/89

DEPARTMENT OF ENVIRONMENTAL RESOURCES

BY Joseph A. Feola

Joseph A. Feola

TITLE Regional Water Quality Manager

(DAC3)80

Sewerage Permit No. 4689407
Towamencin Village Sections 1, 2, 3, 4, 5, 8 & 9
Towamencin Township, Montgomery County

This permit is subject to the following Special Condition(s):

I. The stream bed shall not be used as a roadway for moving machinery from one site to another. Temporary stream crossings must be provided for equipment that must cross the stream during construction. Any structures are to be removed and the stream bed returned to its original condition when the project is completed.

Siltation control shall be provided for during construction and bank stabilization shall be undertaken by planting of grasses, shrubbery, or trees immediately after completion of each phase of the project.

When channel changes occur, the stream bed shall not exceed the original width and if a greater cross sectional area is required, an elevated flood plain must be put into use.

All material and debris removed from the stream bed shall be moved entirely out of the flood plain area.

A permit must be secured from the Pennsylvania Fish Commission in Harrisburg, if the use of explosives is required. The following P.F.C. Waterways Patrolman must be notified when the project is started, when explosives are to be used, and when the project is completed for final inspection:

Jeff Bridi
P.O. Box 307
Zieglerville, PA 19492
Telephone (215) 754-6368

(DAC3)80.1

ER-BWQ-43:Rev. 6/76

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT

For Department Use Only

INTERNAL REVIEW AND RECOMMENDATIONS

NAME OF APPLICANT Upper Gwynedd-Towamencin Municipal Authority
PROJECT LOCATION Towamencin Township Montgomery County
APPLICATION NUMBER 4689407

BRIEF DESCRIPTION OF PROJECT AND DISCUSSION (Use Additional Sheets if Necessary)

The Applicant requests approval for the construction of a sanitary sewer extension to serve Towamencin Village, Section 1, 2, 3, 4, 5, 8 & 9, a 449 unit residential subdivision located between Old Forty Foot Road and Bustard Rd. in Towamencin Township. The project will generate 125,700 gallons of sewage per day.

Sewage from the proposed sewer extension will be conveyed to the Upper Gwynedd Towamencin Municipal Authority STP via existing Upper Gwynedd-Towamencin Municipal Authority sewers covered under Permit No. 4687464. The sewage will be afforded tertiary treatment before discharge to the Towamencin Creek. The proposed sewer extension will serve 1,257 people initially and ultimately. The soil erosion and sedimentation control plan has been reviewed and approved by the Montgomery County Conservation District on February 11, 1988 for Sections 1 & 2, on October 29, 1987 for Sections, 3, 4, and 5, and on November 1, 1987 for Sections 8 and 9. It is stated on the plans that the project will be phased and that less than 25 acres will be disturbed at one time. Ed Bender of BDWM signed off on all permits from their Department on October 27, 1988, but did issued General Permit GP-8 for temporary road crossings of the streams. There is no coordination involved with this project. Plans sent to PFC on February 21, 1989 and no comments were received.

Montgomery County received notification on February 15, 1988 by certified mail regarding submission of this application to our Department.

Towamencin Township received notification on February 15, 1989 by certified mail regarding submission of this application to our Department.

CURRENT ESTIMATE OF COMPLETION DATE OF PROJECT (Industrial Wastes Only)

RECOMMENDATION AND ACTION

Approve -- Issue By Region	Approve-- Issue By Central Office	Refuse	Signature	Date
☒	☐	☐	REVIEWING ENGINEER	3/22/89
☒	☐	☐	REGIONAL FACILITIES SECTION CHIEF	3/23/89
☒	☐	☐	REGIONAL ENGINEER/WATER QUALITY MANAGER	3/27/89
	☐	☐	DIVISION FACILITIES ENGINEER	
	☐	☐	DIVISION CHIEF	

PERMIT CONDITIONS:

1. STANDARD —

Erosion Control (1985) 1 thru 12
Sewerage (09/02/83) 1-7, 9, 13-14, 16, 20-22

2. SPECIAL (Use Additional Sheets If Necessary) —

3800-PM-BPNPSM0012 Rev. 5/2014
Permit

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF POINT AND NON-POINT SOURCE MANAGEMENT

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM DISCHARGE REQUIREMENTS FOR PUBLICLY OWNED TREATMENT WORKS (POTWs)

NPDES PERMIT NO: PA0039004

In compliance with the provisions of the Clean Water Act, 33 U.S.C. Section 1251 *et seq.* ("the Act") and Pennsylvania's Clean Streams Law, as amended, 35 P.S. Section 691.1 *et seq.*,

Upper Gwynedd-Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

is authorized to discharge from a facility known as **Upper Gwynedd Towamencin STP**, located in **Towamencin Township, Montgomery County**, to **Unnamed Tributary to Towamencin Creek and Towamencin Creek** in Watershed(s) **3-E** in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts A, B and C hereof.

THIS PERMIT SHALL BECOME EFFECTIVE ON **SEPTEMBER 1, 2014**

THIS PERMIT SHALL EXPIRE AT MIDNIGHT ON **AUGUST 31, 2019**

The authority granted by this permit is subject to the following further qualifications:

1. If there is a conflict between the application, its supporting documents and/or amendments and the terms and conditions of this permit, the terms and conditions shall apply.

2. Failure to comply with the terms, conditions or effluent limitations of this permit is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. (40 CFR 122.41(a))

3. A complete application for renewal of this permit, or notice of intent to cease discharging by the expiration date, must be submitted to DEP at least 180 days prior to the above expiration date (unless permission has been granted by DEP for submission at a later date), using the appropriate NPDES permit application form. (40 CFR 122.41(b), 122.21(d))

   In the event that a timely and complete application for renewal has been submitted and DEP is unable, through no fault of the permittee, to reissue the permit before the above expiration date, the terms and conditions of this permit, including submission of the Discharge Monitoring Reports (DMRs), will be automatically continued and will remain fully effective and enforceable against the discharger until DEP takes final action on the pending permit application. (25 Pa. Code 92a.7(b), (c))

4. This NPDES permit does not constitute authorization to construct or make modifications to wastewater treatment facilities necessary to meet the terms and conditions of this permit.

DATE PERMIT ISSUED August 7, 2014 **ISSUED BY** /s/

Jenifer L. Fields, P.E.
Clean Water Program Manager
Southeast Regional Office

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. A. For Outfall 001 , **Latitude** 40° 13' 46.00" , **Longitude** 75° 21' 6.00" , **River Mile Index** 2.0 , **Stream Code** 01066

Receiving Waters: Towamencin Creek

Type of Effluent: Treated Sewage from Upper-Gwynedd Towamencin STP

1. The permittee is authorized to discharge during the period from September 1, 2014 through August 31, 2019.

2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	6.0	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine	XXX	XXX	XXX	0.014	XXX	0.047	1/day	Grab
CBOD5 Influent	Report	XXX	XXX	Report	XXX	XXX	3/week	24-Hr Composite
CBOD5 May 1 - Oct 31	540	815 Wkly Avg	XXX	10	15 Wkly Avg	20	3/week	24-Hr Composite
CBOD5 Nov 1 - Apr 30	1,085	1,625 Wkly Avg	XXX	20	30 Wkly Avg	40	3/week	24-Hr Composite
BOD5 Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Total Suspended Solids Influent	Report	XXX	XXX	Report	XXX	XXX	3/week	24-Hr Composite

Outfall 001, Continued (from September 1, 2014 through August 31, 2019)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Total Suspended Solids	1,625	2,440 Wkly Avg	XXX	30	45 Wkly Avg	60	3/week	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Osmotic Pressure (mOs/kg)	XXX	XXX	XXX	Report	XXX	52	1/month	Grab
Fecal Coliform (CFU/100 ml)	XXX	XXX	XXX	200 Geo Mean	XXX	1,000 (*)	3/week	Grab
Ammonia-Nitrogen May 1 - Oct 31	54	XXX	XXX	1.0	XXX	2.0	3/week	24-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	108	XXX	XXX	2.0	XXX	4.0	3/week	24-Hr Composite
Total Phosphorus Apr 1 - Oct 31	51	XXX	XXX	1.0	XXX	2.0	3/week	24-Hr Composite
Total Phosphorus Nov 1 - Mar 31	102	XXX	XXX	2.0	XXX	4.0	3/week	24-Hr Composite
Total Aluminum	Report	Report	XXX	Report	Report	XXX	See Permit (**)	24-Hr Composite
Total Copper	1.14	1.73	XXX	0.021	0.032	0.042	1/week	24-Hr Composite
Total Iron	84.5	132	XXX	1.56	2.44	3.12	1/week	24-Hr Composite

Outfall 001, Continued (from September 1, 2014 through August 31, 2019)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Sulfate	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Chloride	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Bromide	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Chronic Toxicity - Ceriodaphnia Survival (TUc)	XXX	XXX	XXX	XXX	1.04	XXX	See Permit	See Permit
Chronic Toxicity - Ceriodaphnia Reproduction (TUc)	XXX	XXX	XXX	XXX	1.04	XXX	See Permit	See Permit
Chronic Toxicity - Pimephales Survival (TUc)	XXX	XXX	XXX	XXX	1.04	XXX	See Permit	See Permit
Chronic Toxicity - Pimephales Growth (TUc)	XXX	XXX	XXX	XXX	1.04	XXX	See Permit	See Permit

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): Outfall 001 (See Part C Requirement I.H related to sampling required only while outfall is operated under High Flow Management Plan)

(*) See part C Requirement I.K for instructions regarding October thru April reporting of maximum fecal coliform values
(**) See part C Requirement I.L for instructions regarding sampling for Total Aluminum.

Permit No. PA0039004

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. B. For Outfall 002 , **Latitude** 40° 13' 46.00" , **Longitude** 75° 21' 6.00" , **River Mile Index** 2.0 , **Stream Code** 01066

Receiving Waters: Towamencin Creek

Type of Effluent: Treated Sewage from Upper-Gwynedd Towamencin STP

1. The permittee is authorized to discharge during the period from September 1, 2014 through August 31, 2019.

2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	6.0	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine	XXX	XXX	XXX	0.014	XXX	0.047	1/day	Grab
CBOD5 Influent	Report	XXX	XXX	Report	XXX	XXX	3/week	24-Hr Composite
CBOD5 May 1 - Oct 31	540	815 Wkly Avg	XXX	10	15 Wkly Avg	20	3/week	24-Hr Composite
CBOD5 Nov 1 - Apr 30	1,085	1,625 Wkly Avg	XXX	20	30 Wkly Avg	40	3/week	24-Hr Composite
BOD5 Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Total Suspended Solids Influent	Report	XXX	XXX	Report	XXX	XXX	3/week	24-Hr Composite

Outfall 002, Continued (from September 1, 2014 through August 31, 2019)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Total Suspended Solids	1,625	2,440 Wkly Avg	XXX	30	45 Wkly Avg	60	3/week	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Osmotic Pressure (mOs/kg)	XXX	XXX	XXX	Report	XXX	52	1/month	Grab
Fecal Coliform (CFU/100 ml)	XXX	XXX	XXX	200 Geo Mean	XXX	1,000 (*)	3/week	Grab
Ammonia-Nitrogen May 1 - Oct 31	54	XXX	XXX	1.0	XXX	2.0	3/week	24-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	108	XXX	XXX	2.0	XXX	4.0	3/week	24-Hr Composite
Total Phosphorus Apr 1 - Oct 31	51	XXX	XXX	1.0	XXX	2.0	3/week	24-Hr Composite
Total Phosphorus Nov 1 - Mar 31	102	XXX	XXX	2.0	XXX	4.0	3/week	24-Hr Composite
Total Aluminum	Report	Report	XXX	Report	Report	XXX	See Permit (**)	24-Hr Composite
Total Copper	1.14	1.73	XXX	0.021	0.032	0.042	1/week	24-Hr Composite
Total Iron	84.5	132	XXX	1.56	2.44	3.12	1/week	24-Hr Composite

Outfall 002, Continued (from September 1, 2014 through August 31, 2019)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Sulfate	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Chloride	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Bromide	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Chronic Toxicity - Ceriodaphnia Survival (TUc)	XXX	XXX	XXX	XXX	1.04	XXX	See Permit	See Permit
Chronic Toxicity - Ceriodaphnia Reproduction (TUc)	XXX	XXX	XXX	XXX	1.04	XXX	See Permit	See Permit
Chronic Toxicity - Pimephales Survival (TUc)	XXX	XXX	XXX	XXX	1.04	XXX	See Permit	See Permit
Chronic Toxicity - Pimephales Growth (TUc)	XXX	XXX	XXX	XXX	1.04	XXX	See Permit	See Permit

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): Outfall 002 (See Part C Requirement I.H related to sampling required only while outfall is operated under High Flow Management Plan)

(*) See part C Requirement I.K for instructions regarding October thru April reporting of maximum fecal coliform values
(**) See part C Requirement I.L for instructions regarding sampling for Total Aluminum.

Permit No. PA0039004

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. C. For Outfall 003 , **Latitude** 40° 13' 44.99" , **Longitude** 75° 21' 38.81" , **River Mile Index** 1.5 , **Stream Code** 01066

Receiving Waters: Towamencin Creek

Type of Effluent: Treated Sewage from Upper-Gwynedd Towamencin STP

1. The permittee is authorized to discharge during the period from September 1, 2014 through August 31, 2019.

2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	6.0	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine	XXX	XXX	XXX	0.014	XXX	0.047	1/day	Grab
CBOD5 Influent	Report	XXX	XXX	Report	XXX	XXX	3/week	24-Hr Composite
CBOD5 May 1 - Oct 31	540	815 Wkly Avg	XXX	10	15 Wkly Avg	20	3/week	24-Hr Composite
CBOD5 Nov 1 - Apr 30	1,085	1,625 Wkly Avg	XXX	20	30 Wkly Avg	40	3/week	24-Hr Composite
BOD5 Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Total Suspended Solids Influent	Report	XXX	XXX	Report	XXX	XXX	3/week	24-Hr Composite

Outfall 003, Continued (from September 1, 2014 through August 31, 2019)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Total Suspended Solids	1,625	2,440 Wkly Avg	XXX	30	45 Wkly Avg	60	3/week	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Osmotic Pressure (mOs/kg)	XXX	XXX	XXX	Report	XXX	52	1/month	Grab
Fecal Coliform (CFU/100 ml)	XXX	XXX	XXX	200 Geo Mean	XXX	1,000 (*)	3/week	Grab
Ammonia-Nitrogen May 1 - Oct 31	54	XXX	XXX	1.0	XXX	2.0	3/week	24-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	108	XXX	XXX	2.0	XXX	4.0	3/week	24-Hr Composite
Total Phosphorus Apr 1 - Oct 31	51	XXX	XXX	1.0	XXX	2.0	3/week	24-Hr Composite
Total Phosphorus Nov 1 - Mar 31	102	XXX	XXX	2.0	XXX	4.0	3/week	24-Hr Composite
Total Aluminum	Report	Report	XXX	Report	Report	XXX	See Permit (**)	24-Hr Composite
Total Copper	1.14	1.73	XXX	0.021	0.032	0.042	1/week	24-Hr Composite
Total Iron	84.5	132	XXX	1.56	2.44	3.12	1/week	24-Hr Composite

Outfall , Continued (from September 1, 2014 through August 31, 2019)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Sulfate	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Chloride	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Bromide	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Chronic Toxicity - Ceriodaphnia Survival (TUc)	XXX	XXX	XXX	XXX	1.04	XXX	See Permit	See Permit
Chronic Toxicity - Ceriodaphnia Reproduction (TUc)	XXX	XXX	XXX	XXX	1.04	XXX	See Permit	See Permit
Chronic Toxicity - Pimephales Survival (TUc)	XXX	XXX	XXX	XXX	1.04	XXX	See Permit	See Permit
Chronic Toxicity - Pimephales Growth (TUc)	XXX	XXX	XXX	XXX	1.04	XXX	See Permit	See Permit

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): Outfall 003

(*) See part C Requirement I.K for instructions regarding October thru April reporting of maximum fecal coliform values
(**) See part C Requirement I.L for instructions regarding sampling for Total Aluminum.

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. D. For Outfall 004 , **Latitude** 40° 13' 47.30" , **Longitude** 75° 21' 3.30" , **River Mile Index** 2.0 , **Stream Code** 01066

Receiving Waters: Unnamed Tributary to Towamencin Creek

Type of Effluent: Stormwater runoff from Upper Gwynedd-Towamencin STP property

1. The permittee is authorized to discharge during the period from September 1, 2014 through August 31, 2019.

2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly		Minimum	Annual Average		Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	Report	XXX	Report	Upon Request	Grab
CBOD5	XXX	XXX	XXX	Report	XXX	Report	Upon Request	Grab
Chemical Oxygen Demand	XXX	XXX	XXX	Report	XXX	Report	Upon Request	Grab
Total Suspended Solids	XXX	XXX	XXX	Report	XXX	Report	Upon Request	Grab
Oil and Grease	XXX	XXX	XXX	Report	XXX	Report	Upon Request	Grab
Fecal Coliform (CFU/100 ml)	XXX	XXX	XXX	Report	XXX	Report	Upon Request	Grab
Total Kjeldahl Nitrogen	XXX	XXX	XXX	Report	XXX	Report	Upon Request	Grab
Total Phosphorus	XXX	XXX	XXX	Report	XXX	Report	Upon Request	Grab
Dissolved Iron	XXX	XXX	XXX	Report	XXX	Report	Upon Request	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 004 (see Part C Requirement VI related to stormwater sampling from representative stormwater outfall)

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. E. For Outfall 005 , **Latitude** 40° 13' 46.30" , **Longitude** 75° 21' 4.30" , **River Mile Index** 2.0 , **Stream Code** 01066

Receiving Waters: Unnamed Tributary to Towamencin Creek

Type of Effluent: Stormwater runoff from Upper Gwynedd-Towamencin STP property

1. The permittee is authorized to discharge during the period from September 1, 2014 through August 31, 2019.

2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly		Minimum	Annual Average		Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	Report	XXX	Report	1/year	Grab
CBOD5	XXX	XXX	XXX	Report	XXX	Report	1/year	Grab
Chemical Oxygen Demand	XXX	XXX	XXX	Report	XXX	Report	1/year	Grab
Total Suspended Solids	XXX	XXX	XXX	Report	XXX	Report	1/year	Grab
Oil and Grease	XXX	XXX	XXX	Report	XXX	Report	1/year	Grab
Fecal Coliform (CFU/100 ml)	XXX	XXX	XXX	Report	XXX	Report	1/year	Grab
Total Kjeldahl Nitrogen	XXX	XXX	XXX	Report	XXX	Report	1/year	Grab
Total Phosphorus	XXX	XXX	XXX	Report	XXX	Report	1/year	Grab
Dissolved Iron	XXX	XXX	XXX	Report	XXX	Report	1/year	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 005 (see Part C Requirement VI related to stormwater sampling from representative stormwater outfall)

Permit No. PA0039004

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. F. **For Outfall** 006 , **Latitude** 40° 13' 45.60" , **Longitude** 75° 21' 7.50" , **River Mile Index** 2.0 , **Stream Code** 01066

Receiving Waters: Towamencin Creek

Type of Effluent: Stormwater runoff from Upper Gwynedd-Towamencin STP property

1. The permittee is authorized to discharge during the period from September 1, 2014 through August 31, 2019.

2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly		Minimum	Annual Average		Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	Report	XXX	Report	Upon Request	Grab
CBOD5	XXX	XXX	XXX	Report	XXX	Report	Upon Request	Grab
Chemical Oxygen Demand	XXX	XXX	XXX	Report	XXX	Report	Upon Request	Grab
Total Suspended Solids	XXX	XXX	XXX	Report	XXX	Report	Upon Request	Grab
Oil and Grease	XXX	XXX	XXX	Report	XXX	Report	Upon Request	Grab
Fecal Coliform (CFU/100 ml)	XXX	XXX	XXX	Report	XXX	Report	Upon Request	Grab
Total Kjeldahl Nitrogen	XXX	XXX	XXX	Report	XXX	Report	Upon Request	Grab
Total Phosphorus	XXX	XXX	XXX	Report	XXX	Report	Upon Request	Grab
Dissolved Iron	XXX	XXX	XXX	Report	XXX	Report	Upon Request	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 006 (see Part C Requirement VI related to stormwater sampling from representative stormwater outfall)

Permit No. PA0039004

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. G. For Outfall 007 , **Latitude** 40° 13' 47.10" , **Longitude** 75° 21' 10.00" , **River Mile Index** 2.0 , **Stream Code** 01066

Receiving Waters: Towamencin Creek

Type of Effluent: Stormwater runoff from Upper Gwynedd-Towamencin STP property

1. The permittee is authorized to discharge during the period from September 1, 2014 through August 31, 2019.

2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly		Minimum	Annual Average		Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	Report	XXX	Report	Upon Request	Grab
CBOD5	XXX	XXX	XXX	Report	XXX	Report	Upon Request	Grab
Chemical Oxygen Demand	XXX	XXX	XXX	Report	XXX	Report	Upon Request	Grab
Total Suspended Solids	XXX	XXX	XXX	Report	XXX	Report	Upon Request	Grab
Oil and Grease	XXX	XXX	XXX	Report	XXX	Report	Upon Request	Grab
Fecal Coliform (CFU/100 ml)	XXX	XXX	XXX	Report	XXX	Report	Upon Request	Grab
Total Kjeldahl Nitrogen	XXX	XXX	XXX	Report	XXX	Report	Upon Request	Grab
Total Phosphorus	XXX	XXX	XXX	Report	XXX	Report	Upon Request	Grab
Dissolved Iron	XXX	XXX	XXX	Report	XXX	Report	Upon Request	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 007 (see Part C Requirement VI related to stormwater sampling from representative stormwater outfall)

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS (Continued)

Additional Requirements

1. The permittee may not discharge:

   a. Floating solids, scum, sheen or substances that result in observed deposits in the receiving water. (25 Pa Code 92a.41(c))

   b. Oil and grease in amounts that cause a film or sheen upon or discoloration of the waters of this Commonwealth or adjoining shoreline, or that exceed 15 mg/l as a daily average or 30 mg/l at any time (or lesser amounts if specified in this permit). (25 Pa. Code 92a.47(a)(7) and 95.2(2))

   c. Substances in concentration or amounts sufficient to be inimical or harmful to the water uses to be protected or to human, animal, plant or aquatic life. (25 Pa Code 93.6(a))

   d. Foam or substances that produce an observed change in the color, taste, odor or turbidity of the receiving water, unless those conditions are otherwise controlled through effluent limitations or other requirements in this permit. (25 Pa Code 92a.41(c))

2. The monthly average percent removal of BOD_5 or $CBOD_5$ and TSS must be at least 85% for POTW facilities on a concentration basis except where 25 Pa. Code 92a.47(g) and (h) are applicable to facilities with combined sewer overflows (CSOs) or as otherwise specified in this permit. (25 Pa. Code 92a.47(a)(3))

3. If the permit requires the reporting of average weekly statistical results, the maximum weekly average concentration and maximum weekly average mass loading shall be reported, regardless of whether the results are obtained for the same or different weeks.

4. The permittee shall monitor the sewage effluent discharge(s) for the effluent parameters identified in the Part A limitations table(s) during all bypass events at the facility, using the sample types that are specified in the limitations table(s). Where the required sample type is “composite”, the permittee must commence sample collection within one hour of the start of the bypass, wherever possible. The results shall be reported on the Daily Effluent Monitoring supplemental form (3800-FM-BPNPSM0435) and be incorporated into the calculations used to report self-monitoring data on Discharge Monitoring Reports (DMRs).

Footnotes

(1) When sampling to determine compliance with mass effluent limitations, the discharge flow at the time of sampling must be measured and recorded.

(2) This is the minimum number of sampling events required. Permittees are encouraged, and it may be advantageous in demonstrating compliance, to perform more than the minimum number of sampling events.

Supplemental Information

(1) The hydraulic design capacity of 7.3 million gallons per day for the treatment facility is used to prepare the annual Municipal Wasteload Management Report to help determine whether a "hydraulic overload" situation exists, as defined in Title 25 Pa. Code Chapter 94.

(2) The effluent limitations for Outfalls 001, 002 and 003 were determined using effluent discharge rates of 6.5 MGD, 6.5 MGD and 6.5 MGD, respectively.

(3) The organic design capacity of 16263 lbs BOD_5 per day for the treatment facility is used to prepare the annual Municipal Wasteload Management Report to determine whether an “organic overload” condition exists, as defined in 25 Pa. Code Chapter 94.

(4) Total Nitrogen is the sum of Total Kjeldahl-N (TKN) plus Nitrite-Nitrate as N (NO_2+NO_3-N), where TKN and NO_2+NO_3-N are measured in the same sample.

II. DEFINITIONS

At Outfall (XXX) means a sampling location in outfall line XXX below the last point at which wastes are added to outfall line (XXX), or where otherwise specified.

Average refers to the use of an arithmetic mean, unless otherwise specified in this permit. (40 CFR 122.41(l)(4)(iii))

Best Management Practices (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures and other management practices to prevent or reduce the pollution to surface waters of the Commonwealth. BMPs also include treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. (25 Pa. Code 92a.2)

Bypass means the intentional diversion of waste streams from any portion of a treatment facility. (40 CFR 122.41(m)(1)(i))

Calendar Week is defined as the seven consecutive days from Sunday through Saturday, unless the permittee has been given permission by DEP to provide weekly data as Monday through Friday based on showing excellent performance of the facility and a history of compliance. In cases when the week falls in two separate months, the month with the most days in that week shall be the month for reporting.

Clean Water Act means the Federal Water Pollution Control Act, as amended (33 U.S.C.A. §§1251 to 1387).

Composite Sample (for all except GC/MS volatile organic analysis) means a combination of individual samples (at least eight for a 24-hour period or four for an 8-hour period) of at least 100 milliliters (mL) each obtained at spaced time intervals during the compositing period. The composite must be flow-proportional; either the volume of each individual sample is proportional to discharge flow rates, or the sampling interval is proportional to the flow rates over the time period used to produce the composite. (EPA Form 2C)

Composite Sample (for GC/MS volatile organic analysis) consists of at least four aliquots or grab samples collected during the sampling event (not necessarily flow proportioned). The samples must be combined in the laboratory immediately before analysis and then one analysis is performed. (EPA Form 2C)

Daily Average Temperature means the average of all temperature measurements made, or the mean value plot of the record of a continuous automated temperature recording instrument, either during a calendar day or during the operating day if flows are of a shorter duration.

Daily Discharge means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the day. (25 Pa. Code 92a.2, 40 CFR 122.2)

Daily Maximum Discharge Limitation means the highest allowable "daily discharge."

Discharge Monitoring Report (DMR) means the DEP or EPA supplied form(s) for the reporting of self-monitoring results by the permittee. (25 Pa. Code 92a.2 and 40 CFR 122.2)

Estimated Flow means any method of liquid volume measurement based on a technical evaluation of the sources contributing to the discharge including, but not limited to, pump capabilities, water meters and batch discharge volumes.

Geometric Mean means the average of a set of n sample results given by the n^{th} root of their product.

Grab Sample means an individual sample of at least 100 mL collected at a randomly selected time over a period not to exceed 15 minutes. (EPA Form 2C)

Hauled-In Wastes means any waste that is introduced into a treatment facility through any method other than a direct connection to the sewage collection system. The term includes wastes transported to and disposed of within the treatment facility or other entry points within the collection system.

Hazardous Substance means any substance designated under 40 CFR Part 116 pursuant to Section 311 of the Clean Water Act. (40 CFR 122.2)

Immersion Stabilization (i-s) means a calibrated device is immersed in the wastewater until the reading is stabilized.

Indirect Discharger means a non-domestic discharger introducing pollutants to a Publicly Owned Treatment Works (POTW) or other treatment works. (25 Pa. Code 92a.2 and 40 CFR 122.2)

Industrial User means a source of Indirect Discharge. (40 CFR 403.3)

Instantaneous Maximum Effluent Limitation means the highest allowable discharge of a concentration or mass of a substance at any one time as measured by a grab sample. (25 Pa. Code 92a.2)

Measured Flow means any method of liquid volume measurement, the accuracy of which has been previously demonstrated in engineering practice, or for which a relationship to absolute volume has been obtained.

Monthly Average Discharge Limitation means the highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month. (25 Pa. Code 92a.2)

Municipality means a city, town, borough, county, township, school district, institution, authority or other public body created by or pursuant to State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes. (25 Pa. Code 92a.2)

Municipal Waste Garbage, refuse, industrial lunchroom or office waste and other material, including solid, liquid, semisolid or contained gaseous material resulting from operation of residential, municipal, commercial or institutional establishments and from community activities; and sludge not meeting the definition of residual or hazardous waste under this section from a municipal, commercial or institutional water supply treatment plant, waste water treatment plant or air pollution control facility. (25 Pa. Code 271.1)

Publicly Owned Treatment Works (POTW) means a treatment works as defined by §212 of the Clean Water Act, owned by a state or municipality. The term includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. The term also includes sewers, pipes or other conveyances if they convey wastewater to a POTW providing treatment. The term also means the municipality as defined in section 502(4) of the Clean Water Act, which has jurisdiction over the indirect discharges to and the discharges from such a treatment works. (25 Pa Code 92a.2 and 40 CFR 122.2)

Residual Waste Garbage, refuse, other discarded material or other waste, including solid, liquid, semisolid or contained gaseous materials resulting from industrial, mining and agricultural operations and sludge from an industrial, mining or agricultural water supply treatment facility, wastewater treatment facility or air pollution control facility, if it is not hazardous. The term does not include coal refuse as defined in the Coal Refuse Disposal Control Act. The term does not include treatment sludges from coal mine drainage treatment plants, disposal of which is being carried on under and in compliance with a valid permit issued under the Clean Streams Law. (25 Pa Code 287.1)

Severe Property Damage means substantial physical damage to property, damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 CFR 122.41(m)(1)(ii))

Stormwater means the runoff from precipitation, snow melt runoff, and surface runoff and drainage. (25 Pa. Code 92a.2)

Stormwater Associated With Industrial Activity means the discharge from any conveyance that is used for collecting and conveying stormwater and that is directly related to manufacturing, processing or raw materials storage areas at an industrial plant, and as defined at 40 CFR §122.26(b)(14)(i) – (ix) and (xi) and 25 Pa. Code 92a.2.

Toxic Pollutant means those pollutants, or combinations of pollutants, including disease-causing agents, which after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains may, on the basis of information available to DEP cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions, including malfunctions in reproduction, or physical deformations in these organisms or their offspring. (25 Pa. Code 92a.2)

Weekly Average Discharge Limitation means the highest allowable average of "daily discharges" over a calendar week, calculated as the sum of all "daily discharges" measured during a calendar week divided by the number of "daily discharges" measured during that week.

III. SELF-MONITORING, REPORTING AND RECORDKEEPING

A. Representative Sampling

1. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity (40 CFR 122.41(j)(1)). Representative sampling includes the collection of samples, where possible, during periods of adverse weather, changes in treatment plant performance and changes in treatment plant loading. If possible, effluent samples must be collected where the effluent is well mixed near the center of the discharge conveyance and at the approximate mid-depth point, where the turbulence is at a maximum and the settlement of solids is minimized. (40 CFR 122.48 and 25 Pa. Code § 92a.61)

2. Records Retention (40 CFR 122.41(j)(2))

   Except for records of monitoring information required by this permit related to the permittee's sludge use and disposal activities which shall be retained for a period of at least 5 years, all records of monitoring activities and results (including all original strip chart recordings for continuous monitoring instrumentation and calibration and maintenance records), copies of all reports required by this permit, and records of all data used to complete the application for this permit shall be retained by the permittee for 3 years from the date of the sample measurement, report or application, unless a longer retention period is required by the permit. The 3-year period shall be extended as requested by DEP or the EPA Regional Administrator.

3. Recording of Results (40 CFR 122.41(j)(3))

   For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

   a. The exact place, date and time of sampling or measurements.
   b. The person(s) who performed the sampling or measurements.
   c. The date(s) the analyses were performed.
   d. The person(s) who performed the analyses.
   e. The analytical techniques or methods used; and the associated detection level.
   f. The results of such analyses.

4. Test Procedures (40 CFR 122.41(j)(4))

   Facilities that test or analyze environmental samples used to demonstrate compliance with this permit shall be in compliance with laboratory accreditation requirements of Act 90 of 2002 (27 Pa. C.S. §§4101-4113) and 25 Pa. Code Chapter 252, relating to environmental laboratory accreditation. Unless otherwise specified in this permit, the test procedures for the analysis of pollutants shall be those approved under 40 CFR Part 136 (or in the case of sludge use or disposal, approved under 40 CFR Part 136, unless otherwise specified in 40 CFR Part 503 or Subpart J of 25 Pa. Code Chapter 271), or alternate test procedures approved pursuant to those parts, unless other test procedures have been specified in this permit.

5. Quality/Assurance/Control

   In an effort to assure accurate self-monitoring analyses results:

   a. The permittee, or its designated laboratory, shall participate in the periodic scheduled quality assurance inspections conducted by DEP and EPA. (40 CFR 122.41(e), 122.41(i)(3))

   b. The permittee, or its designated laboratory, shall develop and implement a program to assure the quality and accurateness of the analyses performed to satisfy the requirements of this permit, in accordance with 40 CFR Part 136. (40 CFR 122.41(j)(4))

B. Reporting of Monitoring Results

1. The permittee shall effectively monitor the operation and efficiency of all wastewater treatment and control facilities, and the quantity and quality of the discharge(s) as specified in this permit. (40 CFR 122.41(e), 122.44(i)(1))

2. Discharge Monitoring Reports (DMRs) must be completed in accordance with DEP's published DMR Instructions (3800-FM-BPNPSM0463). DMRs are based on calendar reporting periods unless Part C of this permit requires otherwise. DMR(s) must be received by the agency(ies) specified in paragraph 3 below in accordance with the following schedule:

   - Monthly DMRs must be received within 28 days following the end of each calendar month.

   - Quarterly DMRs must be received within 28 days following the end of each calendar quarter, i.e., January 28, April 28, July 28, and October 28.

   - Semiannual DMRs must be received within 28 days following the end of each calendar semiannual period, i.e., January 28 and July 28.

   - Annual DMRs must be received by January 28, unless Part C of this permit requires otherwise.

3. The permittee shall complete all Supplemental Reporting forms (Supplemental DMRs) provided by DEP in this permit (or an approved equivalent), and submit the signed, completed forms as an attachment to the DMR(s). If the permittee elects to use DEP's electronic DMR (eDMR) system, one electronic submission may be made for DMRs and Supplemental DMRs. If paper forms are used, the completed forms shall be mailed to:

   Department of Environmental Protection
   Clean Water Program
   2 East Main Street
   Norristown, PA 19401

   NPDES Enforcement Branch (3WP42)
   Office of Permits & Enforcement
   Water Protection Division
   U.S. EPA - Region III
   1650 Arch Street
   Philadelphia, PA 19103-2029

4. If the permittee elects to begin using DEP's eDMR system to submit DMRs required by the permit, the permittee shall, to assure continuity of business operations, continue using the eDMR system to submit all DMRs and Supplemental Reports required by the permit, unless the following steps are completed to discontinue use of eDMR:

   a. The permittee shall submit written notification to the regional office that issued the permit that it intends to discontinue use of eDMR. The notification shall be signed by a principal executive officer or authorized agent of the permittee.

   b. The permittee shall continue using eDMR until the permittee receives written notification from DEP's Central Office that the facility has been removed from the eDMR system, and electronic report submissions are no longer expected.

5. The completed DMR Form shall be signed and certified by either of the following applicable persons, as defined in 25 Pa. Code § 92a.22:

   - For a corporation - by a principal executive officer of at least the level of vice president, or an authorized representative, if the representative is responsible for the overall operation of the facility from which the discharge described in the NPDES form originates.

- For a partnership or sole proprietorship - by a general partner or the proprietor, respectively.
- For a municipality, state, federal or other public agency - by a principal executive officer or ranking elected official.

If signed by a person other than the above, written notification of delegation of DMR signatory authority must be submitted to DEP in advance of or along with the relevant DMR form. (40 CFR 122.22(b))

6. If the permittee monitors any pollutant at monitoring points as designated by this permit, using analytical methods described in Part A III.A.4. herein, more frequently than the permit requires, the results of this monitoring shall be incorporated, as appropriate, into the calculations used to report self-monitoring data on the DMR. (40 CFR 122.41(l)(4)(ii))

C. Reporting and Notification Requirements

1. Planned Changes to Physical Facilities – The permittee shall give notice to DEP as soon as possible but no later than 30 days prior to planned physical alterations or additions to the permitted facility. A permit under 25 Pa. Code Chapter 91 may be required for these situations prior to implementing the planned changes. A permit application, or other written submission to DEP, can be used to satisfy the notification requirements of this section.

   Notice is required when:

   a. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR §122.29(b). (40 CFR 122.41(l)(1)(i))

   b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are not subject to effluent limitations in this permit. (40 CFR 122.41(l)(1)(ii))

   c. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 CFR 122.41(l)(1)(iii))

   d. The planned change may result in noncompliance with permit requirements. (40 CFR 122.41(l)(2))

2. Planned Changes to Waste Stream – Under the authority of 25 Pa. Code 92a.24(a) and 40 CFR 122.42(b), the permittee shall provide notice to DEP and EPA as soon as possible but no later than 45 days prior to any planned changes in the volume or pollutant concentration of its influent waste stream as a result of indirect discharges or hauled-in wastes, as specified in paragraphs 2.a. and 2.b., below. Notice shall be provided on the “Planned Changes to Waste Stream” Supplemental Report (3800-FM-BPNPSM0482), available on DEP’s website. The permittee shall provide information on the quality and quantity of waste introduced into the POTW, and any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW (40 CFR 122.42(b)(3)). The Report shall be sent via Certified Mail or other means to confirm DEP’s receipt of the notification. DEP will determine if the submission of a new application and receipt of a new or amended permit is required.

   a. Introduction of New Pollutants (25 Pa. Code 92a.24(a), 40 CFR 122.42(b)(1))

      New pollutants are defined as parameters that meet one or more of the following criteria:

      (i) Any pollutants that were not detected in the facilities’ influent waste stream as reported in the permit application; and have not been approved to be included in the permittee’s influent waste stream by DEP in writing.

(ii) Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to Sections 301 or 306 of the Clean Water Act if it were directly discharging those pollutants (40 CFR 122.42(b)(1)).

The permittee shall provide notification of the introduction of new pollutants in accordance with paragraph 2 above. The permittee may not authorize the introduction of new pollutants until the permittee receives DEP's written approval.

b. Increased Loading of Approved Pollutants (25 Pa. Code 92a.24(a), 40 CFR 122.42(b)(2))

Approved pollutants are defined as parameters that meet one or more of the following criteria:

(i) Were detected in the facilities' influent waste stream as reported in the permittee's permit application; or have been previously approved to be included in the permittee's influent waste stream by DEP in writing.

(ii) Have an effluent limitation or monitoring requirement in this permit.

The permittee shall provide notification of the introduction of increased influent loading (lbs/day) of approved pollutants in accordance with paragraph 2 above when (1) the cumulative increase in influent loading (lbs/day) exceeds 20% of the maximum loading reported in the permit application, or a loading previously approved by DEP and/or EPA, or (2) may cause an exceedance in the effluent of Effluent Limitation Guidelines (ELGs) or limitations in Part A of this permit, or (3) may cause interference or pass through at the POTW, or (4) may cause exceedances of the applicable water quality standards in the receiving stream. Unless specified otherwise in this permit, if DEP does not respond to the notification within 30 days of its receipt, the permittee may proceed with the increase in loading. The acceptance of increased loading of approved pollutants may not result in an exceedance of ELGs or effluent limitations, may not result in a hydraulic or organic overload condition as defined in 25 Pa. Code 94.1, and may not cause exceedances of the applicable water quality standards in the receiving stream.

3. Reporting Requirements for Hauled-In Wastes

a. Receipt of Residual Waste

(i) The permittee shall document the receipt of all hauled-in residual wastes (including but not limited to wastewater from oil and gas wells, food processing waste, and landfill leachate), as defined at 25 Pa. Code § 287.1, that are received for processing at the treatment facility. The permittee shall report hauled-in residual wastes on a monthly basis to DEP on the "Hauled In Residual Wastes" Supplemental Report (3800-FM-BPNPSM0450) as an attachment to the DMR. If no residual wastes were received during a month, submission of the Supplemental Report is not required.

The following information is required by the Supplemental Report. The information used to develop the Report shall be retained by the permittee for five years from the date of receipt and must be made available to DEP or EPA upon request.

(1) The dates that residual wastes were received.

(2) The volume (gallons) of wastes received.

(3) The license plate number of the vehicle transporting the waste to the treatment facility.

(4) The permit number(s) of the well(s) where residual wastes were generated, if applicable.

(5) The name and address of the generator of the residual wastes.

(6) The type of wastewater.

The transporter of residual waste must maintain these and other records as part of the daily operational record (25 Pa. Code § 299.219). If the transporter is unable to provide this information or the permittee has not otherwise received the information from the generator, the residual wastes shall not be accepted by the permittee until such time as the permittee receives such information from the transporter or generator.

(ii) The following conditions apply to the characterization of residual wastes received by the permittee:

(1) If the generator is required to complete a chemical analysis of residual wastes in accordance with 25 Pa. Code § 287.51, the permittee must receive and maintain on file a chemical analysis of the residual wastes it receives. The chemical analysis must conform to the Bureau of Waste Management's Form 26R except as noted in paragraph (2), below. Each load of residual waste received must be covered by a chemical analysis if the generator is required to complete it.

(2) For wastewater generated from hydraulic fracturing operations ("frac wastewater") within the first 30 production days of a well site, the chemical analysis may be a general frac wastewater characterization approved by DEP. Thereafter, the chemical analysis must be waste-specific and be reported on the Form 26R.

b. Receipt of Municipal Waste

(i) The permittee shall document the receipt of all hauled-in municipal wastes (including but not limited to septage and liquid sewage sludge), as defined at 25 Pa. Code § 271.1, that are received for processing at the treatment facility. The permittee shall report hauled-in municipal wastes on a monthly basis to DEP on the "Hauled In Municipal Wastes" Supplemental Report (3800-FM-BPNPSM0437) as an attachment to the DMR. If no municipal wastes were received during a month, submission of the Supplemental Report is not required.

The following information is required by the Supplemental Report:

(1) The dates that municipal wastes were received.

(2) The volume (gallons) of wastes received.

(3) The BOD_5 concentration (mg/l) and load (lbs) for the wastes received.

(4) The location(s) where wastes were disposed of within the treatment facility.

(ii) Sampling and analysis of hauled-in municipal wastes must be completed to characterize the organic strength of the wastes, unless composite sampling of influent wastewater is performed at a location downstream of the point of entry for the wastes. The influent BOD_5 characterization for the treatment facility, as reported in the annual Municipal Wasteload Management Report per 25 Pa. Code Chapter 94, must be representative of the hauled-in municipal wastes received.

4. Unanticipated Noncompliance or Potential Pollution Reporting

   a. Immediate Reporting - The permittee shall immediately report any incident causing or threatening pollution in accordance with the requirements of 25 Pa. Code Sections 91.33 and 92a.41(b).

      (i) If, because of an accident, other activity or incident a toxic substance or another substance which would endanger users downstream from the discharge, or would otherwise result in pollution or create a danger of pollution or would damage property, the permittee shall immediately notify DEP by telephone of the location and nature of the danger. Oral notification to the Department is required as soon as possible, but no later than 4 hours after the permittee becomes aware of the incident causing or threatening pollution.

      (ii) If reasonably possible to do so, the permittee shall immediately notify downstream users of the waters of the Commonwealth to which the substance was discharged. Such notice shall include the location and nature of the danger.

      (iii) The permittee shall immediately take or cause to be taken steps necessary to prevent injury to property and downstream users of the waters from pollution or a danger of pollution and, in addition, within 15 days from the incident, shall remove the residual substances contained thereon or therein from the ground and from the affected waters of this Commonwealth to the extent required by applicable law.

   b. The permittee shall report any noncompliance which may endanger health or the environment in accordance with the requirements of 40 CFR 122.41(l)(6). These requirements include the following obligations:

      (i) 24 Hour Reporting - The permittee shall orally report any noncompliance with this permit which may endanger health or the environment within 24 hours from the time the permittee becomes aware of the circumstances. The following shall be included as information which must be reported within 24 hours under this paragraph (40 CFR 122.41(l)(6)(ii)):

         (1) Any unanticipated bypass which exceeds any effluent limitation in the permit;

         (2) Any upset which exceeds any effluent limitation in the permit; and

         (3) Violation of the maximum daily discharge limitation for any of the pollutants listed in the permit as being subject to the 24-hour reporting requirement.

      (ii) Written Report - A written submission shall also be provided within 5 days of the time the permittee becomes aware of any noncompliance which may endanger health or the environment. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

      (iii) Waiver of Written Report - DEP may waive the written report on a case-by-case basis if the associated oral report has been received within 24 hours from the time the permittee becomes aware of the circumstances which may endanger health or the environment. Unless such a waiver is expressly granted by DEP, the permittee shall submit a written report in accordance with this paragraph. (40 CFR 122.41(l)(6)(iii))

5. Other Noncompliance

   The permittee shall report all instances of noncompliance not reported under paragraph C.4 of this section or specific requirements of compliance schedules, at the time DMRs are submitted, on the Non-Compliance Reporting Form (3800-FM-BPNPSM0440). The reports shall contain the information listed in paragraph C.4.b.(ii) of this section. (40 CFR 122.41(l)(7))

PART B

I. MANAGEMENT REQUIREMENTS

A. Compliance Schedules (25 Pa. Code 92a.51, 40 CFR 122.47(a))

1. The permittee shall achieve compliance with the terms and conditions of this permit within the time frames specified in this permit.

2. The permittee shall submit reports of compliance or noncompliance, or progress reports as applicable, for any interim and final requirements contained in this permit. Such reports shall be submitted no later than 14 days following the applicable schedule date or compliance deadline. (40 CFR 122.47(a)(4))

B. Permit Modification, Termination, or Revocation and Reissuance

1. This permit may be modified, terminated, or revoked and reissued during its term in accordance with 25 Pa. Code 92a.72 and 40 CFR 122.41(f).

2. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition. (40 CFR 122.41(f))

3. In the absence of DEP action to modify or revoke and reissue this permit, the permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time specified in the regulations that establish those standards or prohibitions. (40 CFR 122.41(a)(1))

C. Duty to Provide Information

1. The permittee shall furnish to DEP, within a reasonable time, any information which DEP may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. (40 CFR 122.41(h))

2. The permittee shall furnish to DEP, upon request, copies of records required to be kept by this permit. (40 CFR 122.41(h))

3. Other Information - Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to DEP, it shall promptly submit the correct and complete facts or information. (40 CFR 122.41(l)(8))

4. The permittee shall provide the following information in the annual Municipal Wasteload Management Report, required under the provisions of Title 25 Pa. Code Chapter 94:

a. The requirements identified in 25 Pa. Code 94.12.

b. The identity of any indirect discharger(s) served by the POTW which are subject to pretreatment standards adopted under Section 307(b) of the Clean Water Act; the POTW shall also specify the total volume of discharge and estimated concentration of each pollutant discharged into the POTW by the indirect discharger.

c. A “Solids Management Inventory” if specified in Part C of this permit.

d. The total volume of hauled-in residual and municipal wastes received during the year, by source.

e. The Annual Report requirements for permittees required to implement an industrial pretreatment program listed in Part C, as applicable.

D. General Pretreatment Requirements

1. Any POTW (or combination of POTWs operated by the same authority) with a total design flow greater than 5 million gallons per day (MGD) and receiving from industrial users pollutants which pass through or interfere with the operation of the POTW or are otherwise subject to Pretreatment Standards will be required to establish a POTW Pretreatment Program unless specifically exempted by the Approval Authority. A POTW with a design flow of 5 MGD or less may be required to develop a POTW Pretreatment Program if the Approval Authority finds that the nature or volume of the industrial influent, treatment process upsets, violations of effluent limitations, contamination of sludge, or other circumstances warrant in order to prevent interference or pass through. (40 CFR 403.8)

2. Each POTW with an approved Pretreatment Program pursuant to 40 CFR 403.8 shall develop and enforce specific limits to implement the prohibitions listed in 40 CFR 403.5(a)(1) and (b), and shall continue to develop these limits as necessary and effectively enforce such limits. This condition applies, for example, when there are planned changes to the waste stream as identified in Part A III.C.2. If the permittee is required to develop or continue implementation of a Pretreatment Program, detailed requirements will be contained in Part C of this permit.

3. For all POTWs, where pollutants contributed by indirect dischargers result in interference or pass through, and a violation is likely to recur, the permittee shall develop and enforce specific limits for indirect dischargers and other users, as appropriate, that together with appropriate facility or operational changes, are necessary to ensure renewed or continued compliance with this permit or sludge use or disposal practices. Where POTWs do not have an approved Pretreatment Program, the permittee shall submit a copy of such limits to DEP when developed. (25 Pa. Code 92a.47(d))

E. Proper Operation and Maintenance

1. The permittee shall employ operators certified in compliance with the Water and Wastewater Systems Operators Certification Act (63 P.S. §§1001-1015.1).

2. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance includes, but is not limited to, adequate laboratory controls including appropriate quality assurance procedures. This provision also includes the operation of backup or auxiliary facilities or similar systems that are installed by the permittee, only when necessary to achieve compliance with the terms and conditions of this permit. (40 CFR 122.41(e))

F. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge, sludge use or disposal in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment. (40 CFR 122.41(d))

G. Bypassing

1. Bypassing Not Exceeding Permit Limitations - The permittee may allow a bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions in paragraphs two, three and four of this section. (40 CFR 122.41(m)(2))

2. Other Bypassing - In all other situations, bypassing is prohibited and DEP may take enforcement action against the permittee for bypass unless:

   a. A bypass is unavoidable to prevent loss of life, personal injury or "severe property damage." (40 CFR 122.41(m)(4)(i)(A))

   b. There are no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise

of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance. (40 CFR 122.41(m)(4)(i)(B))

c. The permittee submitted the necessary notice required in paragraph G.4 below. (40 CFR 122.41(m)(4)(i)(C))

3. DEP may approve an anticipated bypass, after considering its adverse effects, if DEP determines that it will meet the conditions listed in paragraph G.2 above. (40 CFR 122.41(m)(4)(ii))

4. Notice

a. Anticipated Bypass – If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible, at least 10 days before the bypass. (40 CFR 122.41(m)(3)(i))

b. Unanticipated Bypass – The permittee shall submit oral notice of any other unanticipated bypass within 24 hours, regardless of whether the bypass may endanger health or the environment or whether the bypass exceeds effluent limitations. The notice shall be in accordance with Part A III.C.4.b.

H. Sanitary Sewer Overflows (SSOs)

An SSO is an overflow of wastewater, or other untreated discharge from a separate sanitary sewer system (which is not a combined sewer system), which results from a flow in excess of the carrying capacity of the system or from some other cause prior to reaching the headworks of the sewage treatment facility. SSOs are not authorized under this permit. The permittee shall immediately report any SSO to DEP in accordance with Part A III.C.4 of this permit.

II. PENALTIES AND LIABILITY

A. Violations of Permit Conditions

Any person violating Sections 301, 302, 306, 307, 308, 318 or 405 of the Clean Water Act or any permit condition or limitation implementing such sections in a permit issued under Section 402 of the Act is subject to civil, administrative and/or criminal penalties as set forth in 40 CFR §122.4l(a)(2).

Any person or municipality, who violates any provision of this permit; any rule, regulation or order of DEP; or any condition or limitation of any permit issued pursuant to the Clean Streams Law, is subject to criminal and/or civil penalties as set forth in Sections 602, 603 and 605 of the Clean Streams Law.

B. Falsifying Information

Any person who does any of the following:

- Falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit, or

- Knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit (including monitoring reports or reports of compliance or noncompliance)

Shall, upon conviction, be punished by a fine and/or imprisonment as set forth in *18 Pa.C.S.A § 4904* and 40 CFR §122.41(j)(5) and (k)(2).

C. Liability

Nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance pursuant to Section 309 of the Clean Water Act or Sections 602, 603 or 605 of the Clean Streams Law.

Nothing in this permit shall be construed to preclude the institution of any legal action or to relieve the permittee from any responsibilities, liabilities or penalties to which the permittee is or may be subject to under the Clean Water Act and the Clean Streams Law.

D. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. 40 CFR 122.41(c)

III. OTHER RESPONSIBILITIES

A. Right of Entry

Pursuant to Sections 5(b) and 305 of Pennsylvania's Clean Streams Law, and Title 25 Pa. Code Chapter 92a and 40 CFR §122.41(i), the permittee shall allow authorized representatives of DEP and EPA, upon the presentation of credentials and other documents as may be required by law:

1. To enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit; (40 CFR 122.41(i)(1))

2. To have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit; (40 CFR 122.41(i)(2))

3. To inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices or operations regulated or required under this permit; and (40 CFR 122.41(i)(3))

4. To sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act or the Clean Streams Law, any substances or parameters at any location. (40 CFR 122.41(i)(4))

B. Transfer of Permits

1. Transfers by modification. Except as provided in paragraph 2 of this section, a permit may be transferred by the permittee to a new owner or operator only if this permit has been modified or revoked and reissued, or a minor modification made to identify the new permittee and incorporate such other requirements as may be necessary under the Clean Water Act. (40 CFR 122.61(a))

2. Automatic transfers. As an alternative to transfers under paragraph 1 of this section, any NPDES permit may be automatically transferred to a new permittee if:

   a. The current permittee notifies DEP at least 30 days in advance of the proposed transfer date in paragraph 2.b. of this section; (40 CFR 122.61(b)(1))

   b. The notice includes the appropriate DEP transfer form signed by the existing and new permittees containing a specific date for transfer of permit responsibility, coverage and liability between them; and (40 CFR 122.61(b)(2))

   c. DEP does not notify the existing permittee and the proposed new permittee of its intent to modify or revoke and reissue this permit, the transfer is effective on the date specified in the agreement mentioned in paragraph 2.b. of this section. (40 CFR 122.61(b)(3))

   d. The new permittee is in compliance with existing DEP issued permits, regulations, orders and schedules of compliance, or has demonstrated that any noncompliance with the existing permits has been resolved by an appropriate compliance action or by the terms and conditions of the permit (including compliance schedules set forth in the permit), consistent with 25 Pa. Code 92a.51 (relating to schedules of compliance) and other appropriate Department regulations. (25 Pa. Code 92a.71)

3. In the event DEP does not approve transfer of this permit, the new owner or operator must submit a new permit application.

C. Property Rights

The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege. (40 CFR 122.41(g))

D. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for a new permit. (40 CFR 122.41(b))

E. Other Laws

The issuance of this permit does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations.

IV. ANNUAL FEE

Permittees shall pay an annual fee in accordance with 25 Pa. Code § 92a.62. Annual fee amounts are specified in the following schedule and are due on each anniversary of the effective date of the most recent new or reissued permit. All flows identified in the schedule are annual average design flows. (25 Pa. Code 92a.62)

Small Flow Treatment Facility (SRSTP and SFTF)	$0
Minor Sewage Facility < 0.05 MGD (million gallons per day)	$250
Minor Sewage Facility ≥ 0.05 and < 1 MGD	$500
Minor Sewage Facility with CSO (Combined Sewer Overflow)	$750
Major Sewage Facility ≥ 1 and < 5 MGD	$1,250
Major Sewage Facility ≥ 5 MGD	$2,500
Major Sewage Facility with CSO	$5,000

As of the effective date of this permit, the facility covered by the permit is classified in the following fee category: **Major Sewage Facility >=5 MGD**.

Invoices for annual fees will be mailed to permittees approximately three months prior to the due date. In the event that an invoice is not received, the permittee is nonetheless responsible for payment. Throughout a five year permit term, permittees will pay four annual fees followed by a permit renewal application fee in the last year of permit coverage. Permittees may contact the DEP at 717-787-6744 with questions related to annual fees. The fees identified above are subject to change in accordance with 25 Pa. Code 92a.62(e).

Payment for annual fees shall be remitted to DEP at the address below by the anniversary date. Checks should be made payable to the Commonwealth of Pennsylvania.

PA Department of Environmental Protection
Bureau of Point and Non-Point Source Management
Re: Chapter 92a Annual Fee
P.O. Box 8466
Harrisburg, PA 17105-8466

PART C

I. OTHER REQUIREMENTS

A. No storm water from pavements, area ways, roofs, foundation drains or other sources shall be directly admitted to the sanitary sewers associated with the herein approved discharge.

B. The approval herein given is specifically made contingent upon the permittee acquiring all necessary property rights by easement or otherwise, providing for the satisfactory construction, operation, maintenance or replacement of all sewers or sewerage structures associated with the herein approved discharge in, along, or across private property, with full rights of ingress, egress and regress.

C. Collected screenings, slurries, sludges, and other solids shall be handled and disposed of in compliance with 25 Pa. Code, Chapters 271, 273, 275, 283, and 285 (related to permits and requirements for landfilling, land application, incineration, and storage of sewage sludge), Federal Regulation 40 CFR 257, Pennsylvania Clean Streams Law, Pennsylvania Solid Waste Management Act of 1980, and the Federal Clean Water Act and its amendments. The permittee is responsible to obtain or assure that contracted agents have all necessary permits and approvals for the handling, storage, transport, and disposal of solid waste materials generated as a result of wastewater treatment.

D. The permittee shall optimize chlorine dosages used for disinfection or other purposes to minimize the concentration of Total Residual Chlorine (TRC) in the effluent, meet applicable effluent limitations, and reduce the possibility of adversely affecting the receiving waters. Optimization efforts may include an evaluation of wastewater characteristics, mixing characteristics, and contact times, adjustments to process controls, and maintenance of the disinfection facilities. If DEP determines that effluent TRC is causing adverse water quality impacts, DEP may reopen this permit to apply new or more stringent effluent limitations and/or require implementation of control measures or operational practices to eliminate such impacts.

   Where the permittee does not use chlorine for primary or backup disinfection, but proposes the use of chlorine for cleaning or other purposes, the permittee shall notify DEP prior to initiating use of chlorine and monitor TRC concentrations in the effluent on each day in which chlorine is used. The results shall be submitted as an attachment to the DMR.

E. The attention of the permittee is directed to the fact that effluent is discharged to a location with little or no assimilative capacity or dilution during critical periods. If the effluent creates a health hazard or nuisance, the permittee shall, upon notice from DEP, provide such additional treatment as may be required by DEP.

F. Notification of the designation of the responsible operator must be submitted to the permitting agency by the permittee within 60 days after the effective date of the permit and from time to time thereafter as the operator is replaced.

G. The permittee shall develop a treatment facility operations and maintenance (O&M) plan addressing key wastewater processes. The plan shall be reviewed annually and updated when appropriate. The plan shall be submitted to DEP for review upon request. For the purpose of this paragraph, a key wastewater process includes any equipment or process that, if it fails, may cause the discharge of raw wastewater or wastewater that fails to meet NPDES permit discharge requirements, or a failure that may threaten human or environmental health. The O&M plan shall include the following, at a minimum:

   1. A process control strategy that includes a schedule for process control sampling, monitoring, testing, and recordkeeping.

   2. A plan that identifies how key wastewater processes shall be monitored and adjusted while the facility is staffed.

   3. A plan that identifies how key wastewater processes will be monitored while the treatment facility is not staffed.

4. For treatment plants that are impacted by wet weather flows, the permittee shall develop and implement a wet weather operations strategy that minimizes or eliminates the wash out of solids from the treatment system while maximizing the flow through the treatment plant.

5. An emergency plan that identifies how the facility will be operated during times of emergency. For example, the plan shall detail how key wastewater processes will be repaired or replaced in the event of a failure while minimizing loss of life and property damage to the facility. This plan shall also include emergency contact numbers for local emergency response agencies, plant personnel, critical suppliers and vendors, and DEP contacts, at a minimum.

6. A preventative maintenance plan that includes a schedule for preventative maintenance for all equipment within the treatment system. A spare parts inventory shall be included as part of this plan.

7. A solids management plan that identifies how solids produced by the facility will be wasted, treated, and ultimately disposed of.

H. The permittee shall develop a High Flow Management Plan (HFMP) to be used to address the impact of high flows to the treatment plant during wet weather. The HFMP shall contain a process for treating the maximum amount of flow through the plant while protecting the components of the treatment plant and minimizing the potential impact to the receiving stream. The HMFP shall include measures to be taken when wet weather is predicted to prepare the plant for the high flow conditions as well as operational activities to be undertaken when high flows actually occur. The HMFP shall identify peak instantaneous flow that can be handled by the limiting plant unit and indicate how long that flow can be maintained without a bypass or overflow. The HFMP shall be reviewed and updated as part of each NPDES permit renewal application.

   Outfalls 001 and 002 have been identified as outfalls that only discharge during emergencies or while the HMFP is being implemented during flooding conditions. Sampling from outfalls 001 and 002 is required only while discharging through either of these outfalls.

I. Osmotic Pressure: An osmole, a standard unit of osmotic pressure, is defined as the number of particles (6.0224×10^{23}) required to lower the freezing point of one kilogram of water to -1.858 ^{0}C. The term “freezing point” in osmometry and cryoscopy is that unique temperature, at atmospheric pressure, at which the solid and liquid phases will co-exist in equilibrium. Osmotic pressure is reported in mOsm/Kg (milliosmoles per kilogram).

J. Total Dissolved Solids: The Delaware River Basin Commission’s (DRBC) water quality regulations includes a maximum total dissolved solids (TDS) requirement of 1,000 mg/l. [DRBC 3.10.4D.2]. The permittee should investigate the possible causes of elevated TDS and possible solutions which may be implemented to reduce the concentrations in the effluent. If the facility is unable to meet DRBC’s TDS requirement of 1,000 mg/l, the permittee is responsible to apply for a TDS determination from the DRBC.

K. The seasonal effluent limitations for fecal coliform are based on Chapter 92a (Section 92a.47(4) and (5)) of DEP’s regulations and Delaware River Basin Commission’s (DRBC’s) Water Quality Regulations at Section 4.30.4.A. DEP’s regulations govern the summer limits for fecal coliform while the winter limits are based on DRBC’s regulations. The DRBC regulations state that during winter season from October through April, the instantaneous maximum concentration of fecal coliform organisms shall not be greater than 1,000 per 100 milliliters in more than 10 percent of the samples tested. For reporting purposes, a copy of the guidelines on the 10 percent rule is enclosed with the permit.

L. The monitoring for Total Aluminum is required only when and if UGTMA begins the use of Alum or other aluminum salts in the treatment process.

II. TRC EFFLUENT LIMITATIONS BELOW DETECTION LIMITS

A. The calculated limits for Total Residual Chlorine (TRC) as specified in this permit are the final limits necessary to comply with state water quality standards. These effluent limits are lower than the Method Detection Limit (MDL) of the most sensitive existing EPA-approved (40 CFR Part 136) test method or other

DEP-approved method. If the sensitivity of the specified method improves or a more sensitive test method becomes available, DEP may modify the permit to require use of the more sensitive method.

B. All samples shall be analyzed using one of the specified EPA methods identified in paragraph C or another equivalent test method, as approved by DEP. When a laboratory determines that the result of an analysis is below the detection limit (or quantitation limit), it will report the result as < (less than) the detection limit value. These "non-detect" values should be handled as follows:

1. If all the reported sample results are non-detect values for the reporting period, report the average non-detect value on the DMR.

2. If both non-detect values and values above the detection limit are reported by the laboratory during the reporting period and must be averaged, use zero (0) in the calculation for each non-detect value, and report the calculated average on the DMR, even if it is below the detection limit. Do not report the result with the less than (<) symbol.

3. Report all non-detect values exactly as reported by the lab (e.g., < 0.1 μg/L) on the Daily Effluent Monitoring supplemental report.

4. Do not report zero (0) or "ND" on the DMR for any field. Always report a numerical value (e.g., < 0.1 μg/L).

C. TRC shall be analyzed using one of the following test methods below, or an approved equivalent, to achieve an MDL of no greater than 0.02 mg/l:

- EPA 330.5 Spectrophotometric, DPD (SM 4500-Cl G, DPD Colorimetric Method)

- EPA 330.4 Titrimetric, DPD-FAS (SM 4500-Cl F, DPD Ferrous Titrimetric Method)

D. The permittee may develop a site-specific alternate MDL pursuant to the procedure contained in 40 CFR Part 136 Appendix B. DEP should be contacted for guidance before initiating this procedure.

III. POTW PRETREATMENT PROGRAM IMPLEMENTATION

A. General Requirement – The permittee shall operate and implement a POTW pretreatment program in accordance with the federal Clean Water Act, the Pennsylvania Clean Streams Law, and the federal General Pretreatment Regulations at 40 CFR Part 403. The program shall also be implemented in accordance with the permittee's approved pretreatment program and any modifications thereto submitted by the permittee and approved by the Approval Authority.

B. Annual Report and Other Requirements – The permittee shall submit a Pretreatment Annual Report by March 31 of each year to EPA that describes the permittee's pretreatment activities for the previous calendar year. The Pretreatment Annual Report shall include a description of pretreatment activities in all municipalities from which wastewater is received at the permittee's POTW. The Pretreatment Annual Report shall include the following information, at minimum:

1. Industrial Listing – The Annual Report shall contain an updated industrial listing providing the names and addresses of all current Significant Industrial Users (SIUs) and Non-Significant Categorical Industrial Users (NSCIUs), as defined in 40 CFR 403.3, and the categorical standard, if any, applicable to each. The listing must: (1) identify any users that are subject to reduced reporting requirements under 40 CFR 403.12(e)(3); (2) identify which users are NSCIUs; (3) identify any users that have been granted a monitoring waiver in accordance with 40 CFR 403.12(e)(2) as well as the pollutants for which the waiver was granted and the date of the last POTW sampling event for each pollutant; and (4) identify any categorical industrial users that have been given mass-based limits in place of concentration-based categorical limits in accordance with 40 CFR 403.6(c)(5) or concentration-based limits in place of mass-based categorical limits in accordance with 40 CFR 403.6(c)(6).

   In addition, the Annual Report shall contain a summary of any hauled-in wastes accepted at the POTW including the source of the wastes (domestic, commercial or industrial) and the receiving location for acceptance of the wastes. For each industrial source (whether or not classified as an SIU), the report

shall indicate (1) the name and address of the industrial source; (2) the average daily amount of wastewater received; (3) a brief description of the type of process operations conducted at the industrial facility; (4) whether the source facility is a categorical industrial user (including NSCIU), significant industrial users, or non-significant industrial user; and (5) any controls imposed on the user.

2. Control Mechanism Issuance – The Annual Report shall contain a summary of SIU control mechanism issuance, including a list of issuance, effective, and expiration dates for each SIU control mechanism. For each general control mechanism issued, provide the names of all SIUs covered by the general control mechanism and an explanation of how the users meet the criteria of 40 CFR 403.8(f)(1)(iii)(A) for issuance of a general control mechanism.

3. Sampling and Inspection – The Annual Report shall contain a summary of the number and types of inspections and sampling events of SIUs by the permittee, including a list of all SIUs either not sampled or not inspected, and the reason that the sampling and/or inspection was not conducted. For any user subject to reduced reporting under 40 CFR 403.12(e)(3), the list shall include the date of the last POTW sampling event and the date of the last POTW inspection of the user. In addition, the report shall include a summary of the number of self-monitoring events conducted by each SIU and the number required to be conducted, including a list of all SIUs that did not submit the required number of reports and the reason why the reports were not submitted. For NSCIUs, the report shall provide the date of the compliance certification required under 40 CFR 403.12(q).

4. Industrial User Compliance and POTW Enforcement – The Annual Report shall contain a summary of the number and type of violations of pretreatment standards and requirements, including local limits, and the actions taken by the permittee to obtain compliance, including compliance schedules, penalty assessments and actions for injunctive relief. The report shall state whether each SIU was in significant noncompliance, as that term is defined in 40 CFR Section 403.8(f)(2)(viii), and include the parameter(s) in violation, the period of violation, the actions taken by the POTW in response to the violations, and the compliance status at the end of the reporting period. A copy of the publication of users meeting the significant noncompliance criteria shall be included. In addition, the report shall provide a list of users previously designated as NSCIUs that have violated (to any extent) any pretreatment standard or requirement during the year and the date and description of the violation(s).

5. Summary of POTW Operations – The Annual Report shall contain a summary of any interference, pass-through, or permit violations by the POTW and indicate the following: (1) which, if any, permit violations may be attributed to industrial users; (2) which IU(s) are responsible for such violations; and (3) the actions taken to address these events. The report shall also include all sampling and analysis of POTW treatment plant influent, effluent, and sludge conducted during the year for local limit and priority pollutants identified pursuant to Section 303(d) of the Clean Water Act, 33 U.S.C. 1313(d).

6. Pretreatment Program Changes – The Annual Report shall contain a summary of any changes made or proposed to the approved program during the period covered by the report and the date of submission to the Approval Authority.

A summary of pretreatment activities shall be incorporated into the permittee's Annual Municipal Wasteload Management Report required by 25 Pa. Code Chapter 94 and referenced in Part B I.C.4 of this permit.

C. Routine Monitoring – The permittee shall conduct monitoring at its treatment plant that, at a minimum, includes quarterly influent, effluent, and sludge analysis for all pollutants for which local limits have been established, and an annual priority pollutant scan for influent and sludge.

D. Notification of Pass Through or Interference – The permittee shall notify EPA and DEP, in writing, of any instance of pass through or interference, as defined at 40 CFR 403.3(p) and (k), respectively, known or suspected to be related to a discharge from an IU into the POTW. The notification shall be attached to the DMR submitted to EPA and DEP and shall describe the incident, including the date, time, length, cause (including responsible user if known), and the steps taken by the permittee and IU (if identified) to address the incident. A copy of the notification shall also be sent to the EPA at the address provided below.

E. Headworks Analysis – The permittee shall submit to EPA a reevaluation of its local limits based on a headworks analysis of its treatment plant within one (1) year of permit issuance, and provide a revised

submission within three (3) months of receipt of comments from EPA or DEP unless a longer period of time is granted in writing by EPA or DEP. In order to ensure that the permittee's discharge complies with water quality standards, the reevaluation of local limits shall consider, at a minimum, all water quality standards under 25 Pa. Code Chapter 93 applicable to the pollutants included in the reevaluation, unless the POTW is subject to an effluent limitation for the pollutant in Part A of this permit. The list of pollutants to be evaluated, as well as a sampling plan for collection of necessary data, shall be submitted to EPA within three (3) months of permit issuance. Unless otherwise approved in writing, the list of pollutants shall include arsenic, cadmium, chromium, copper, cyanide, lead, mercury, molybdenum, nickel, selenium, silver, zinc, BOD_5, TSS, ammonia, any pollutants for which a local limit currently exists, any pollutant limited in this permit, as well as any other pollutants that have been identified in the POTW through monitoring or the receipt of indirect discharges and hauled-in wastes in quantities that have the potential to cause pass through and/or interference. For example, facilities receiving residual waste from oil and gas operations should include pollutants such as Total Dissolved Solids (TDS), specific ions such as chlorides and sulfates, specific radionuclides, metals such as barium and strontium, and other pollutants that could reasonably be expected to be present. Within four (4) months of acceptance of the headworks analysis by the Approval Authority, the permittee shall adopt the revised local limits and, if necessary to ensure that the limits are enforceable throughout the service area, notify all contributing municipalities of the need to adopt the revised local limits.

F. Changes to Pretreatment Program – EPA and DEP may require the permittee to submit for approval changes to its pretreatment program if any one or more of the following conditions is present:

1. The program is not implemented in accordance with 40 CFR Part 403;

2. Problems such as interference, pass through or sludge contamination develop or continue;

3. The POTW proposes to introduce new pollutants or an increased loading of approved pollutants as described in Part A III.C.2 of this permit;

4. Federal, State, or local requirements change;

5. Changes are needed to assure protection of waters of the Commonwealth.

Program modification is necessary whenever there is a significant change in the operation of the pretreatment program that differs from the information contained in the permittee's submission, as approved under 40 CFR 403.11.

G. Procedure for Pretreatment Program Changes – Upon submittal by the permittee, and written notice of approval by the Approval Authority to the permittee of any changes to the permittee's approved pretreatment program, such changes are effective and binding upon the permittee unless the permittee objects within 30 days of receipt of the written notice of approval. Any objection must be submitted in writing to EPA and DEP.

H. Correspondence – The Approval Authority shall be EPA at the following address:

Pretreatment Coordinator (3WP41)
U.S. Environmental Protection Agency
1650 Arch Street
Philadelphia, PA 19103-2029

IV. WHOLE EFFLUENT TOXICITY (WET)

A. General Requirements

1. The permittee shall conduct Chronic WET tests as specified in this section. The permittee shall collect discharge samples and perform WET tests to generate chronic survival and reproduction data for the cladoceran, *Ceriodaphnia dubia* and chronic survival and growth data for the fathead minnow, *Pimephales promelas*.

2. Samples shall be collected at Outfall 003 in accordance with paragraph E.

3. The permittee shall perform testing using the following dilution series: 100%, 96%, 72%, 48%, and 24% effluent, with a control, where 96% is the facility-specific Target In-Stream Waste Concentration (TIWC).

4. The determination of whether a test endpoint passes or fails shall be made using DEP's WET Analysis Spreadsheet (available at www.depweb.state.pa.us/wett) by comparing replicate data for the control with replicate data for the TIWC dilution or any dilution greater than the TIWC.

5. The permittee shall submit only valid WET test results to DEP.

B. Test Frequency and Reporting

1. WET testing shall be conducted quarterly, beginning with the calendar quarter three months after the permit effective date and continuing until four tests have been completed. Tests shall be completed within calendar quarters, i.e., one test each during the periods of January 1 – March 31, April 1 – June 30, July 1 – September 30, and October 1 – December 31. A complete WET test report shall be submitted to the DEP regional office that issued the permit within 45 days of test completion. A complete WET test report submission shall include the information contained in paragraph H, below.

2. If no endpoint failures occur in the initial four quarterly tests, the permittee may reduce WET monitoring to annually during the period January 1 – December 31. This minimum WET monitoring frequency will remain in place until the permit is reissued, unless more frequent monitoring is triggered in accordance with paragraph B.5. The permittee must continue annual WET monitoring, at a minimum, during the permit renewal review period and during any period of administrative extension of this permit.

3. If a test failure is determined for any endpoint during quarterly or annual monitoring, the permittee shall initiate a re-test for the species with the failure, at a minimum, within 45 days of test completion. All endpoints for the species shall be evaluated in the re-test. The results of the re-test shall be submitted to the DEP regional office that issued the permit.

4. If a passing result is determined for all endpoints in a re-test, the permittee may resume quarterly or annual monitoring, as applicable.

5. If there is a failure for one or more endpoints in a re-test, the permittee shall initiate or continue quarterly WET testing for both species until there are four consecutive passing results for all endpoints. The results of all tests shall be submitted to the DEP regional office that issued the permit. In addition, the permittee shall initiate a Phase I Toxicity Reduction Evaluation (TRE) as specified in paragraph C, below.

6. The permittee must report the results of each test endpoint that has a WET limit in Part A of this permit on the Discharge Monitoring Report (DMR). Test results shall be reported on the DMR in terms of acute or chronic Toxicity Units (TUa or TUc), where TUa is used for acute tests and TUc is used for chronic tests. If DEP's WET Analysis Spreadsheet indicates a passing result for an endpoint, report the value obtained from the expression "1/TIWC", which is equivalent to the permit limit. If the Spreadsheet indicates a failure, report the value obtained from the expression "> 1/TIWC". If a dilution higher than the TIWC dilution is used for the comparison with the control, report the value obtained from the expression "1/dilution". For example, an acute test endpoint failure at a TIWC dilution of 50% would be reported as "> 2.0 TUa" (1/0.5).

7. The permittee shall attach a completed WET Analysis Spreadsheet for the latest four consecutive WET tests to the NPDES permit renewal application that is submitted to DEP at least 180 days prior to the permit expiration date.

C. Phase I Toxicity Reduction Evaluation (TRE)

1. The Phase I TRE trigger is one WET endpoint failure followed by a re-test that confirms the failure for the same species. When the Phase I TRE process is triggered, quarterly WET testing shall be initiated for both species and continue until there are four consecutive passing results for all endpoints. The

Phase I TRE may include a Toxicity Identification Evaluation (TIE) if the permittee cannot immediately identify the possible causes of the effluent toxicity and the possible sources of the causative agents.

2. The permittee shall, within one year following the Phase I TRE trigger, submit a Phase I TRE report to the DEP regional office that issued the permit. The Phase I TRE shall be conducted in accordance with EPA's guidance, "Toxicity Reduction Evaluation for Municipal Wastewater Treatment Plants" (EPA/833B-99/002), "Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations" (EPA/600/2-88/070), and other relevant EPA guidance, as applicable. If a TIE is conducted as part of the Phase I TRE, it shall conform to EPA's guidance, "Methods for Aquatic Toxicity Identification Evaluations Phase I" (EPA/600/6-91/003), "Phase II" (EPA/600/R-92/080), "Phase III" (EPA/600/R-92/081) and other relevant EPA guidance. The Phase I TRE report shall be submitted with the fourth quarterly WET test report that is completed following the Phase I TRE trigger. The TRE report shall include all activities undertaken to identify the cause(s) and source(s) of toxicity and any control efforts.

3. If all four quarterly WET tests produce passing results for all endpoints during the Phase I TRE process, performance of a Phase II TRE is not required, and annual WET testing in accordance with paragraph B.2 may be initiated or resume.

4. If the four WET tests produce at least one failing result during the Phase I TRE process, the permittee shall continue quarterly WET monitoring for both species and initiate a Phase II TRE in accordance with paragraph D. In this case, the Phase I TRE must include a schedule for completion of the Phase II TRE. The schedule must include interim milestones and a final completion date not to exceed two years from the initiation of the Phase II TRE. The permittee shall implement the Phase II TRE in accordance with the schedule unless DEP issues written approval to modify the schedule or cease performance of the Phase II TRE.

5. Re-tests during the TRE process are required for invalid tests but are optional and at the discretion of the permittee for valid tests. The results of all re-tests must be submitted to the DEP regional office that issued the permit along with the required elements in paragraph H.

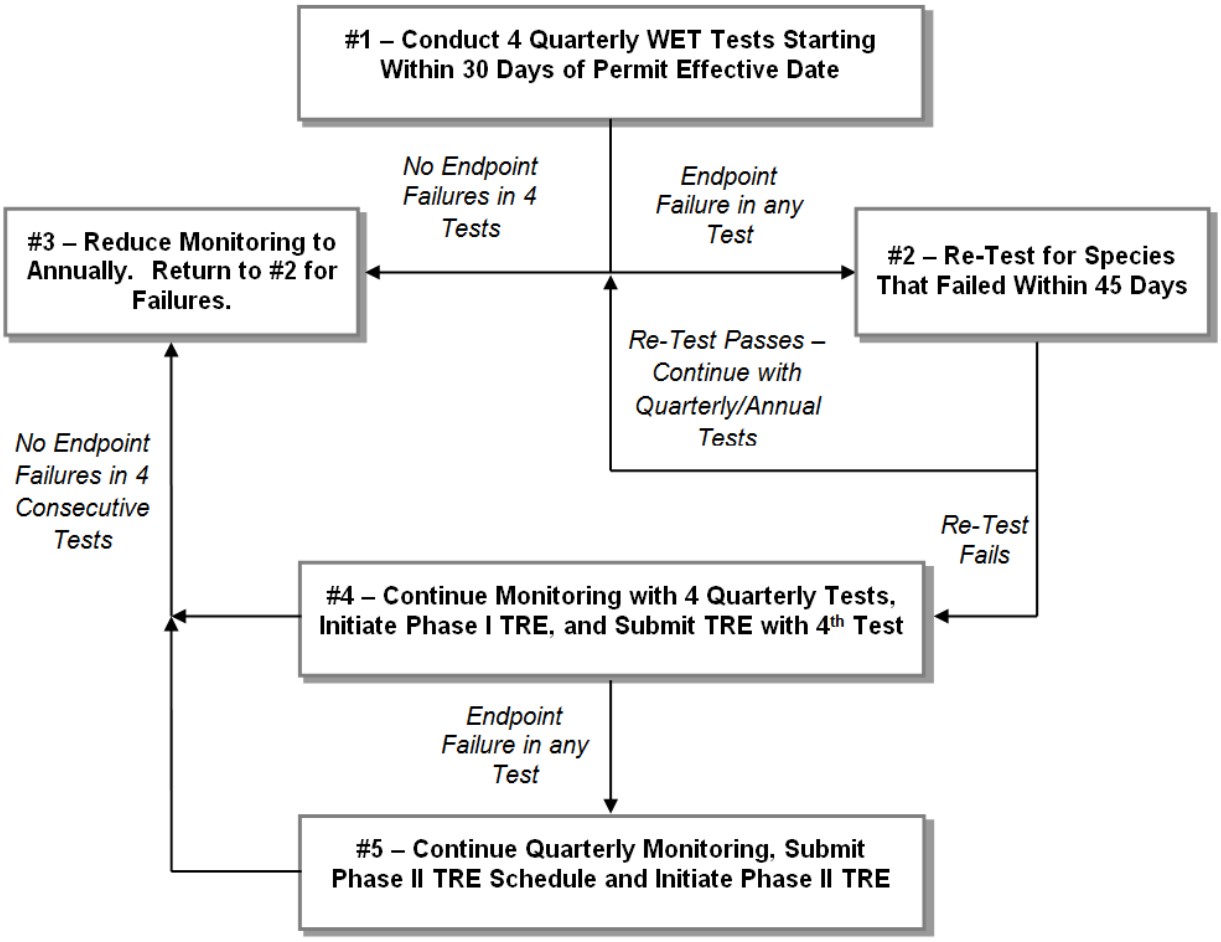
D. Phase II Toxicity Reduction Evaluation (TRE)

1. The Phase II TRE trigger is one WET endpoint failure during performance of the Phase I TRE. A Phase II TRE, if required, shall conform to EPA's guidance, "Toxicity Reduction Evaluation for Municipal Wastewater Treatment Plants" (EPA/833B-99/002), "Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations" (EPA/600/2-88/070), and other relevant EPA guidance, as applicable. A Phase II TRE evaluates the possible control options to reduce or eliminate the effluent toxicity and the implementation of controls.

2. Once initiated, the Phase II TRE must continue until the source(s) of toxicity are controlled as evidenced by four consecutive WET test passing results for all endpoints, and a final TRE report must be submitted on or before the date specified in the schedule, unless otherwise approved by DEP in writing.

3. If four consecutive quarterly WET tests produce passing results for all endpoints during the Phase II TRE process, annual WET testing in accordance with paragraph B.2 may be initiated or resume.

An overview of the process described in paragraphs B, C and D is presented below:



E. Sample Collection

For each acute testing event, a 24-hour flow-proportioned composite sample shall be collected. For each chronic testing event, three 24-hour flow-proportioned, composite samples shall be collected over a seven day exposure period. The samples must be collected at a frequency of not greater than every two hours and must be flow-proportioned. The samples must be collected at the permit compliance sampling location. Samples must be analyzed within 36 hours from the end of the compositing period and must be placed on ice and held at ≤ 6°C. Refer to the sample handling and preservation regulations set forth in 40 CFR 136, 25 Pa. Code Chapter 252, The NELAC Institute (TNI) Standard, and the appropriate EPA methods.

F. Test Conditions and Methods

Laboratories must be accredited by the DEP Laboratory Accreditation Program in order to perform and report WET tests for NPDES permit compliance. Laboratories must be either State or NELAP accredited.

1. Acute tests shall be completed in accordance with EPA's "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms" (EPA-821-R-02-012, latest edition). Forty eight (48) hour static non-renewal tests shall be used.

2. Chronic tests shall be completed in accordance with EPA's "Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms" (EPA-821-R-02-013, latest edition). Seven (7) day tests shall be used with renewal every 24 hours.

3. The quality assurance and control (QA/QC) requirements and test acceptability standards specified in EPA's test methods and the requirements set forth in 25 Pa Code Chapter 252 or the TNI Standard must be followed

4. If the permittee or its accredited laboratory determines that QA/QC requirements and/or test acceptability standards have not been met, a re-test shall be initiated within 45 days. Original test data must be maintained by the laboratory and be submitted to DEP upon request. The justification for a re-test must be clearly documented and kept on file with the sample results.

G. Chemical Analyses

Chemical analyses must follow the requirements of the EPA methods and applicable State and/or Federal regulations.

1. Chemical analysis on effluent samples shall include pH, Conductivity, Total Alkalinity, Total Hardness, Total Residual Chlorine, Total Ammonia (Unionized Ammonia), Dissolved Oxygen and temperature. Chemical analyses as described in the EPA Methods (above) shall be performed for each sampling event, including each new batch of dilution water and each testing event.

2. In addition to the chemical analyses required above, those parameters listed in Part A of the NPDES permit for the outfall(s) tested shall be analyzed concurrently with the WET test by using the method(s) specified in the permit.

H. WET Report Elements

WET test reports that are submitted to DEP must include the requirements identified in 25 Pa. Code § 252.401(j)(1) – (15) or in the TNI Standard, or equivalent, as well as the following information:

1. A general test description, including the origin and age of test organisms, dates and results of reference toxicant tests, light and temperature regimes, and other documentation that QA and test acceptability criteria as specified in EPA's methods and DEP's QA Summaries have been met.

2. A description of sample collection procedures and sampling location.

3. Name(s) of individual(s) collecting and transporting samples, including sample renewals, and the date(s) and time(s) of sample collection.

4. All chemical and physical data including laboratory quantitation limits and observations made on the species. The hardness shall be reported for each test condition.

5. Copies of raw data sheets and/or bench sheets with data entries and signatures.

6. When effluents are dechlorinated, dechlorination procedures must be described and if applicable a thiosulfate control used in addition to the normal dilution water control. If the thiosulfate control results are significantly different from the normal control, as determined using DEP's WET Analysis Spreadsheet, the thiosulfate control shall be used in the spreadsheet for comparison with the TIWC condition. The WET report must specify which control was used to determine whether the test result is pass or fail.

7. A description of all observations or test conditions that may have affected the test outcome.

8. Control charts for the species tested regarding age, temperature test range, mortality data and all reference toxicant tests.

9. A completed WET test summary report (3800-FM-BPNPSM0485).

10. A DEP WET Analysis Spreadsheet printout that provides control and TIWC replicate data and displays the outcome of the test (pass or fail) for each endpoint tested.

    WETT reports shall be submitted to the DEP regional office that issued the permit and, for discharges to the Delaware River basin, the Delaware River Basin Commission (DRBC).

V. REQUIREMENTS APPLICABLE TO STORMWATER OUTFALLS

H. The permittee is authorized to discharge non-polluting stormwater from its site, alone or in combination with other wastewaters, through the following outfalls: 004, 005, 006, and 007

Monitoring requirements and effluent limitations for these outfalls are specified in Part A of this permit, if applicable.

I. Preparedness, Prevention and Contingency (PPC) Plan

The permittee must develop and implement a PPC Plan in accordance with 25 Pa. Code § 91.34 following the guidance contained in DEP's "Guidelines for the Development and Implementation of Environmental Emergency Response Plans" (DEP ID 400-2200-001), its NPDES-specific addendum and the minimum requirements below. For existing facilities, the PPC Plan must be developed prior to permit issuance. For new facilities, the PPC Plan must be submitted to DEP no later than prior to startup of facility operation.

1. The PPC Plan must identify all potential sources of pollutants that may reasonably be expected to affect the quality of stormwater discharges from the facility.

2. The PPC Plan must describe preventative measures and best management practices (BMPs) that will be implemented to reduce or eliminate pollutants from coming into contact with stormwater resulting from routine site activities and spills.

3. The PPC Plan must address actions that will be taken in response to on-site spills or other pollution incidents.

4. The PPC Plan must identify areas which, due to topography or other factors, have a high potential for soil erosion, and identify measures to limit erosion. Where necessary, erosion and sediment control measures must be developed and implemented in accordance with 25 Pa. Code Chapter 102 and DEP's "Erosion and Sediment Pollution Control Manual" (DEP ID 363-2134-008).

5. The PPC Plan must address security measures to prevent accidental or intentional entry which could result in an unintentional discharge of pollutants.

6. The PPC Plan must include a plan for training employees and contractors on pollution prevention, BMPs, and emergency response measures.

7. If the facility is subject to SARA Title III, Section 313, the PPC Plan must identify releases of "Water Priority Chemicals" within the previous three years. Water Priority Chemicals are those identified in EPA's "Guidance for the Determination of Appropriate Methods for the Detection of Section 313 Water Priority Chemicals" (EPA 833-B-94-001, April 1994). The Plan must include an evaluation of all activities that may result in the stormwater discharge of Water Priority Chemicals.

8. Spill Prevention Control and Countermeasure (SPCC) plans may be used to meet the requirements of this section if the minimum requirements are addressed.

9. The PPC Plan shall be evaluated and if necessary updated on an annual basis, at a minimum, and when one or more of the following occur:

   a. Applicable DEP or federal regulations are revised, or this permit is revised;

   b. The Plan fails in an emergency;

   c. There is a change in design, industrial process, operation, maintenance, or other circumstances, in a manner that materially increases the potential for fires, explosions or releases of toxic or hazardous constituents; or which changes the response necessary in an emergency;

   d. The list of emergency coordinators or equipment changes; or

   e. When notified in writing by DEP.

All updates must be kept on-site and be made available to DEP upon request.

C. Minimum Required BMPs

In addition to BMPs identified in the PPC Plan, the permittee shall implement the following minimum BMPs relating to stormwater pollution prevention:

1. If applicable, post-construction stormwater BMPs that are required under 25 Pa. Code Chapter 102 must be maintained.

2. For industrial facilities, the BMPs in the applicable Appendix to the NPDES PAG-03 General Permit for Discharges of Stormwater Associated with Industrial Activities that is currently in effect.

3. For POTWs, all of the following:

   a. Manage sludge in accordance with all applicable permit requirements.

   b. Store chemicals in secure and covered areas on impervious surfaces away from storm drains.

   c. For new facilities and upgrades, design wastewater treatment facilities to avoid, to the maximum extent practicable, stormwater commingling with sanitary wastewater, sewage sludge, and biosolids.

   d. Efficiently use herbicides for weed control. Where practicable, use the least toxic herbicide that will achieve pest management objectives. Do not apply during windy conditions.

   e. Do not wash parts or equipment over impervious surfaces that wash into storm drains.

   f. Implement infiltration techniques, including infiltration basins, trenches, dry wells, porous pavement, etc., wherever practicable.

D. Annual Inspection and Compliance Evaluation

1. The permittee shall conduct an annual inspection of each outfall identified in paragraph A and record the results on the “Annual Inspection Form for NPDES Permits for Discharges of Stormwater Associated with Industrial Activities” (3800-PM-WSFR0083v). The permittee shall submit a copy of the completed and signed Annual Inspection Form to DEP at the address provided in Part A III.B.3 of this permit by January 28 of each year.

2. Areas contributing to a stormwater discharge associated with industrial activity shall be visually inspected for evidence of, or the potential for, pollutants entering the drainage system. BMPs in the PPC Plan and required by this permit shall be evaluated to determine whether they are adequate and properly implemented in accordance with the terms of this permit or whether additional control measures are needed.

E. Stormwater Sampling Requirements

If stormwater sampling is required in Part A of this permit, the following requirements apply:

1. The permittee shall record stormwater sampling event information on the “Additional Information for the Reporting of Stormwater Discharge Monitoring” form (3800-PM-WSFR0083t) and submit the form as an attachment to the DMR.

2. All samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event. The 72-hour storm interval is waived when the preceding storm did not yield a measurable discharge, or if the permittee is able to document that a less than 72-hour interval is representative for local storm events during the sample period.

3. Grab samples shall be taken during the first 30 minutes of the discharge. If the collection of a grab sample during the first 30 minutes is not possible, a grab sample can be taken during the first hour of the discharge, in which case the discharger shall provide an explanation of why a grab sample during the first 30 minutes was not possible.

4. When a facility has two or more outfalls that may be reasonably be believed to discharge substantially identical effluents, based on a consideration of features and activities within the area drained by the outfall, the permittee may sample one such outfall and report that the quantitative data also applies to the substantially identical outfalls. Outfall 005 has been determined to be representative of outfalls 004, 006, and 007.

VI. Site-Specific Copper Criteria

The copper limits contained in this permit are based on site-specific copper criteria recommended in a Biotic Ligand Model (BLM) study by Tichler/Kocurek (August 2011). The BLM method for developing site-specific copper criteria is recommended by the federal EPA's in their updated aquatic life criteria for copper. The BLM study recommended site-specific total copper criteria of 30.6 ug/l (CMC) and 19 mg/l (CCC). Copper limits were developed based on the recommended criteria using the Department's PENTOXSD model. Based on a design stream flow (Q_{7-10}) of 0.43-cfs, the site-specific water-quality based effluent limit (WQBEL) for total copper was calculated as 21 mg/l (average monthly) and 32 mg/l (daily maximum).

Since the reported effluent copper concentrations are close to the recommended site-specific criteria, the permittee is required to submit an updated site-specific copper criteria study within the term of this permit. In lieu of submission of an updated site-specific copper criteria study, the permittee shall develop and implement measures necessary to achieve compliance with the final limit (e.g. Toxics Reduction Evaluation (TRE)). These measures may include, but are not limited to, activities such as a source reduction evaluation, changes to the treatment processes, and/or physical modifications to the treatment plant.

The permittee shall complete the required actions and milestones in accordance with the following schedule:

1. Submit a proposed plan of study for site-specific criteria [25 Pa Code 93.8d(d)], or a TRE work plan, to the Department within 36 months of permit issuance.

2. Submit a scientific study progress report [25 Pa Code 93.8d(b)], or a TRE progress report, to the Department within 48 months of permit issuance.

3. Submit a completed scientific study [25 Pa Code 93.8d(b)], or a final TRE report, to the Department with the permit renewal application due 6 months prior to permit expiration.

DOCKET NO. D-2002-029 CP-4

DELAWARE RIVER BASIN COMMISSION

Towamencin Municipal Authority
Wastewater Treatment Plant
Towamencin Township, Montgomery County, Pennsylvania

PROCEEDINGS

This docket is issued in response to an application submitted to the Delaware River Basin Commission (DRBC or Commission) on May 16, 2018 (Application), for renewal of the docket holder's existing wastewater treatment plant (WWTP) and its discharge. The discharge is permitted by the Pennsylvania Department of Environmental Protection (PADEP) in National Pollutant Discharge Elimination System (NPDES) Permit No. PA0039004.

The application was reviewed for continuation of the project in the Comprehensive Plan and approval under Section 3.8 of the *Delaware River Basin Compact*. The Montgomery County Planning Commission has been notified of pending action. A public hearing on this project was held by the DRBC on November 10, 2021.

A. DESCRIPTION

1. **Purpose**. The purpose of this docket is to renew approval of the docket holder's existing 6.5 million gallons per day (mgd) WWTP and its discharge.

2. **Location**. The docket holder's WWTP is located on Kriebel Road between its intersections with Bustard Road and Greens Lane Road in Towamencin Township, Montgomery County, Pennsylvania. The WWTP will continue to discharge treated effluent to Towamencin Creek, which is tributary to Skippack Creek, which is tributary to Perkiomen Creek, which is tributary to the Schuylkill River, at River Mile 92.47 – 32.3 – 3.0 – 7.6 – 1.4 (Delaware River – Schuylkill River – Perkiomen Creek – Skippack Creek – Towamencin Creek).

Specific location information has been withheld for security reasons.

3. **Area Served**. The docket holder's WWTP will continue to serve Towamencin and Upper Gwynedd Townships and portions of the adjacent municipalities of Worcester, Lower Salford, and Hatfield Township, and Lansdale Borough in Montgomery County, Pennsylvania.

For the purpose of defining the Area Served, Section B (Type of Discharge) and D (Service Area) of the docket holder's Application are incorporated herein by reference, to the extent consistent with all other conditions contained in the DECISION Section of this docket.

4. **Design Criteria**. The docket holder's 6.5 mgd WWTP utilizes an advanced secondary level treatment system consisting of various physical, biological and chemical processes, including trickling filters and an activated sludge treatment system, addition of ferric chloride and polymer to enhance solids settling, chlorine disinfection, and dechlorination.

The WWTP discharges to Towamencin Creek through Outfall 003, which is located just downstream from a dam, unless stream flow is substantial, in which case two (2) upstream outfalls (Outfalls 001 & 002) are utilized.

The WWTP is designed for an annual average flow of 6.5 mgd, and a hydraulic design capacity of 7.3 mgd.

5. Facilities. The existing WWTP facilities consist of two (2) parallel treatment units and includes the following facilities: three (3) comminutors, eight (8) rotating screens, eight (8) pre-aeration tanks, eight (8) aeration tanks, six (6) intermediate settling tanks, eight (8) final settling tanks, 13 chlorine contact tanks, and a sodium bisulfate dechlorination unit. PADEP issued Part II WQM Permit No. 4619403, which approved the addition of a Rag Compactor to the solids handling portion of the treatment train in 2019.

The project facilities are not located in the 100-year floodplain.

Wasted sludge will continue to be handled in accordance to NPDES Permit No. PA0039004.

6. **Water withdrawals**. The potable water supply in the project service area is provided by a series of groundwater wells owned and operated by North Penn Water Authority. The docket holder's water withdrawal is described in detail in Docket No. D-1992-044 CP-4, which was approved on September 16, 2015.

7. **NPDES / DRBC Effluent Requirements**. NPDES Permit No. PA0039004 issued by the PADEP includes final effluent limitations for the project discharge to surface waters classified by the PADEP as supporting trout stocking fishes (TSF). EFFLUENT TABLES C-1 & C-2 included in Section C. DECISION Condition C.1. of this docket, contain effluent requirements for DRBC parameters that must be met as a condition of this approval. Effluent requirements for Outfall No. 001,002, & 003 are based on a discharge rate of 6.5 mgd.

8. Relationship to the Comprehensive Plan. The existing WWTP was added to the Comprehensive Plan by Docket No. D-1964-061 CP-1 on June 24, 1964 which approved the construction of the WWTP (1.0 mgd design flow). The WWTP approval was renewed / modified by the dockets below. Issuance of this docket will renew and continue the WWTP and its discharge in the Comprehensive Plan.

DOCKET NO.	APPROVAL DATE	WWTP MODIFICATION
D-1972-109 CP-1	April 25, 1973	Expansion (1.0 to 6.5 mgd)
D-1973-206 CP-1	January 24, 1974	Interim re-rating (prior to above expansion)
D-2002-029 CP-1	March 3, 2004	Hydraulic re-rate (6.5 to 7.3 mgd)
D-2002-029 CP-2	December 8, 2011	Renewal
D-2002-029 CP-3	June 11, 2014	Renewal

B. FINDINGS

The docket holder submitted an application to renew approval of their existing 6.5 mgd WWTP and its discharge.

Total Dissolved Solids (TDS).

Section 3.10.4.D.2 of the Commission's Water Quality Regulations (WQR) states the following:

"Total dissolved solids shall not exceed 1000 mg/l, or a concentration established by the Commission which is compatible with designated water uses and stream quality objectives and recognizes the need for reserve capacity to serve future dischargers. "

The docket holder was required by Docket No. D-2002-029 CP-3 to perform monthly total dissolved solids (TDS) monitoring and to meet an effluent concentration limit of 1,000 mg/l. In addition, the docket holder was required to perform a track down that investigates the possible causes of elevated TDS and possible solutions which may be implemented to reduce the concentrations of TDS in effluent and submit a progress report on the track down and a TDS questionnaire to the DRBC.

On July 23, 2021, DRBC received a third periodic update to the TDS Determination Submission from Towamencin Municipal Authority (TMA). The updates indicate TMA's adoption of revised "Local Limits", which included TDS as a regulated parameter, which was issued to all Significant Industrial Users (SIU) discharging wastewater to the WWTP. Upper Gwynedd Township (UGT) had also begun the process to redirect as much as 90-percent of their previous permitted wastewater flow to TMA's system over the coming of the third quarter of 2021 for treatment of their flows at UGT's expanded existing WWTF. This diversion of flow includes two SIUs; Merk Inc. and Lehigh Valley Dairies. The TDS contributions to TMA's treatment

facility were negligible from these SIU's. As last reported, all SIU's, other than Clemens Food Group (CFG (a.k.a Hatfield Meats)) facilities are continuing to meet their "Local Limits" discharge parameter for TDS.

CFG entered into a Consent Agreement with the TMA on October 9, 2017 for the reduction of TDS in their process wastewater discharging to the TMA's WWTP, which mandates compliance with the currently permitted TDS daily maximum limit of 3,950 mg/l by September 2022 (now extended to September 2023 by Amendment). The events unfolding during 2020 and the first half of 2021 with COVID 19 and the related social and economic impacts, also impacted CFG's key strategy for reducing the strength of their TDS, which is why a year extension was requested and granted by TMA.

Monitoring results indicate that TDS in effluent continues to exceed 1000 mg/l. Based on this information, the docket holder is required to continue weekly TDS monitoring and reporting and will also continue to monitor potential sources of TDS and update DRBC staff with annual track down reports (See Section C. Condition C.1).

2. <u>Other</u>

At the docket holder's WWTP discharge, the Towamencin Creek has an estimated seven-day low flow with a recurrence interval of ten years ($Q_{7\text{-}10}$) of 0.25 mgd (0.39 cfs). The ratio of this low flow to the annual average flow of 6.5 mgd WWTP is 0.04 to 1 (0.25 mgd/6.5 mgd).

The nearest surface water intake of record for public water supply is located on Perkiomen Creek stream approximately 12 River Miles downstream of the docket holder's WWTP and is operated by Aqua Pennsylvania.

The project does not conflict with the Comprehensive Plan and is designed to prevent substantial adverse impact on the water resources related environment, while sustaining the current and future water uses and development of the water resources of the Basin.

The effluent limits in the NPDES Permit conform with Commission effluent quality requirements, where applicable.

The project is designed to produce a discharge that meets the effluent requirements as set forth in the Commission's *Water Quality Regulations* (*WQR)*.

C. DECISION

Effective on the approval date for Docket No. D-2002-029-CP4 below, the project described in Docket No. D-2002-029-CP3 is removed from the Comprehensive Plan to the extent that they are not included in Docket No. D-2002-029-CP4; Docket No. D-2002-029-CP3 is terminated and replaced by Docket No. D-2002-029-CP4; and the project and the appurtenant facilities described in Section A "DESCRIPTION" of this docket shall be continued in the Comprehensive Plan. The project and appurtenant facilities as described in Section A of this docket are approved pursuant to Section 3.8 of the *Compact*, subject to the following conditions:

Monitoring and Reporting

1. The docket holder shall comply with the requirements contained in the EFFLUENT TABLES below. The docket holder shall submit the required monitoring results electronically to the DRBC Project Review Section via email **aemr@drbc.gov** on the **Annual Effluent Monitoring Report Form** located at this web address: https://www.nj.gov/drbc/programs/project/docket-app-info.html#3. The monitoring results shall be submitted annually, absent any observed limit violations, by January 31. If a DRBC effluent limit is violated, the docket holder shall submit the result(s) to the DRBC within 30 days of the violation(s) and provide a written explanation that states the action(s) the docket holder has taken to correct the violation(s) and protect against any future violations. The following average monthly effluent limits are among those listed in the NPDES Permit and meet or are more stringent than the effluent requirements of the DRBC.

EFFLUENT TABLE C-1: DRBC Parameters Included in NPDES Permit

OUTFALL 001,002,003 (Towamencin Creek)		
PARAMETER	**LIMIT**	**MONITORING**
pH (Standard Units)	6 to 9 at all times	As required by NPDES Permit
Total Suspended Solids	30 mg/l	As required by NPDES Permit
Dissolved Oxygen	6.0 mg/l (minimum at all times)	As required by NPDES Permit
$CBOD_5$ (at 20° C) 5/01-10/31 11/01-4/30	10 mg/l 20 mg/l	As required by NPDES Permit
$CBOD_5$ (at 20° C) Influent	Monitor & Report	As required by NPDES Permit
Ammonia Nitrogen (5-1 to 10-31) (11-1 to 4-30)	1.0 mg/l 2.0 mg/l	As required by NPDES Permit
Fecal Coliform	200 colonies per 100 ml as a geo. avg.	As required by NPDES Permit
Phosphorus (4-1 to 10-31) (Nov 1 to 3-31)	1.0 mg/l 2.0 mg/l	As required by NPDES Permit
Total Dissolved Solids*	Monitor and Report	As required by NPDES Permit

* See Section C. DECISION Condition C.4

The following monitoring requirements and average monthly effluent limits are for DRBC parameters not listed in the NPDES Permit.

EFFLUENT TABLE C-2: DRBC Parameters Not Included in NPDES Permit

OUTFALL 001,002,003 (Towamencin Creek)		
PARAMETER	**LIMIT**	**MONITORING**
$CBOD_5$ (at 20° C)	85% Minimum Removal	Monthly
$CBOD_5$ (at 20° C) Influent	Monitor & Report	Monthly

Other Conditions

2. Nothing in this docket constitutes a defense to any penalty action for past conduct of the docket holder or ongoing activity not authorized by this approval. In particular, renewal of this docket does not resolve violations – whether in the past or continuing – of provisions of the Delaware River Basin Compact ("Compact") or any rule, regulation, order or approval duly issued by the Commission or the Executive Director pursuant to the Compact. The Commission reserves its right to take appropriate enforcement action against the docket holder, including but not limited to recovery of financial penalties consistent with Section 14.17 of the Compact, for any and all such prior or continuing violations.

3. Except as otherwise authorized by this docket, if the docket holder seeks relief from any limitation based upon a DRBC water quality standard or minimum treatment requirement, the docket holder shall apply for approval from the Executive Director or for a docket revision in accordance with Section 3.8 of the *Compact* and the *Rules of Practice and Procedure*.

4. The docket holder may request of the Executive Director in writing the substitution of specific conductance for TDS. The request should include information that supports the effluent specific correlation between TDS and specific conductance. Upon review, the Executive Director may modify the docket to allow the substitution of specific conductance for TDS monitoring.

5. The docket holder is responsible for timely submittal to the DRBC of a docket renewal application on the appropriate application form including the appropriate docket application filing fee (see 18 CFR 401.43) at least 6 months in advance of the docket expiration date set forth below. The docket holder will be subject to late filed renewal surcharges in the event of untimely submittal of its renewal application, whether or not DRBC issues a reminder notice in advance of the deadline or the docket holder receives such notice. In the event that a timely and complete application for renewal has been submitted and the DRBC is unable, through no fault of the docket holder, to reissue the docket before the expiration date below, the terms and conditions of the current docket will remain fully effective and enforceable against the docket holder pending the grant or denial of the application for docket approval.

6. The docket holder is permitted to treat and discharge wastewater as set forth in the Area Served Section of this docket, which incorporates by reference Sections B (Type of Discharge) and D (Service Area) of the docket holder's Application to the extent consistent with all other conditions of this DECISION Section.

7. The docket holder is prohibited from treating/pre-treating any hydraulic fracturing wastewater from sources in or out of the Basin at this time. Should the docket holder wish to treat/pre-treat hydraulic fracturing wastewater in the future, the docket holder will need to first apply to the Commission to renew this docket and be issued a revised docket allowing such treatment and an expanded service area. Failure to obtain this approval prior to treatment/pre-treatment will result in action by the Commission.

8. The facility and operational records shall be available at all times for inspection by the DRBC.

9. The facility shall be operated at all times to comply with the requirements of the Commission's WQR.

10. If at any time the receiving treatment plant proves unable to produce an effluent that is consistent with the requirements of this docket approval, no further connections shall be permitted until the deficiency is remedied.

11. Nothing herein shall be construed to exempt the docket holder from obtaining all necessary permits and/or approvals from other State, Federal or local government agencies having jurisdiction over this project.

12. The docket holder shall discharge wastewater in such a manner as to avoid injury or damage to fish or wildlife and shall avoid any injury to public or private property.

13. No sewer service connections shall be made to newly constructed premises with plumbing fixtures and fittings that do not comply with water conservation performance standards contained in Resolution No. 88-2 (Revision 2).

14. The issuance of this docket approval shall not create any private or proprietary rights in the waters of the Basin, and the Commission reserves the right to amend, suspend or rescind the docket for cause, in order to ensure proper control, use and management of the water resources of the Basin.

15. The docket holder shall be subject to applicable DRBC regulatory program fees, in accordance with duly adopted DRBC resolutions and/or regulations (see 18 CFR 401.43).

16. This approval is transferable by request to the DRBC Executive Director provided that the project purpose and area served approved by the Commission in this docket will not be materially altered because of the change in project ownership. The request shall be submitted on the appropriate form and be accompanied by the appropriate fee (see 18 CFR 401.43).

17. The docket holder shall request a name change of the entity to which this approval is issued if the name of the entity to which this approval is issued changes its name. The request for name change shall be submitted on the appropriate form and be accompanied by the appropriate fee (see 18 CFR 401.43).

18. The Executive Director may modify or suspend this approval or any condition thereof, or require mitigating measures pending additional review, if in the Executive Director's judgment such modification or suspension is required to protect the water resources of the Basin.

19. Any person who objects to a docket decision by the Commission may request a hearing in accordance with Article 6 of the Rules of Practice and Procedure. In accordance with Section 15.1(p) of the *Delaware River Basin Compact*, cases and controversies arising under the *Compact* are reviewable in the United States district courts.

BY THE COMMISSION

APPROVAL DATE: **December 8, 2021**

EXPIRATION DATE: **August 31, 2026**

Rev. 5/2015

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF POINT AND NON-POINT SOURCE MANAGEMENT

APPROVAL FOR COVERAGE UNDER THE GENERAL PERMIT (PAG-08) FOR BENEFICIAL USE OF BIOSOLIDS BY LAND APPLICATION

PERMIT NO: PAG-080008

In accordance with the provisions of the Federal Clean Water Act (33 U.S.C.A §§1251-1387), the Clean Streams Law (35 P.S. §§691.1 - 691.1001), Sections 1905-A, 1917-A and 1920-A of the Administrative Code of 1929 (71 P.S. §§510-5, 510-17 and 510-20), the Solid Waste Management Act (35 P.S. §§6018.101 - 6018.1003), and the Municipal Waste Planning, Recycling and Waste Reduction Act (53 P.S. §§4000.101 - 4000.1904), the Department of Environmental Protection (DEP) hereby approves the Notice of Intent (NOI) submitted for coverage by:

INSERT APPLICANT NAME AND ADDRESS BELOW	INSERT FACILITY NAME AND ADDRESS BELOW
Towamencin Municipal Authority	Towamencin Municipal Authority
2225 Kriebel Road	2225 Kriebel Road
Lansdale, PA 19446	Lansdale, PA 19446

to beneficially use biosolids that will be land applied in the Commonwealth of Pennsylvania. Approval of coverage for the land application of biosolids generated at this facility is subject to DEP's enclosed General Permit (PAG-08) which incorporates several standards including, but not limited to, general requirements, pollutant limitations, management practices, operational standards, pathogen and vector attraction reduction requirements, and other terms and conditions for biosolids prepared at the facility and that will be land applied in the Commonwealth.

All recordkeeping, monitoring and reporting requirements specified in this General Permit and DEP's approval for coverage under this General Permit shall apply to all beneficial uses of biosolids generated at the facility.

APPROVAL FOR COVERAGE UNDER THE GENERAL PERMIT IS AUTHORIZED BEGINNING ON April 1, 2018 **. WHEN THE GENERAL PERMIT IS RENEWED, REISSUED OR MODIFIED, THE FACILITY OR ACTIVITY COVERED BY THE APPROVAL FOR COVERAGE MUST COMPLY WITH THE FINAL RENEWED, REISSUED OR MODIFIED GENERAL PERMIT.**

COVERAGE APPROVAL DATE: March 9, 2018

BY: Sachin Shankar

SACHIN SHANKAR
Printed Name

TITLE: Assistant Regional Director

REGION: Southeast

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Bureau of Environmental Cleanup and Brownfields
Storage Tanks Search Results

4/28/2023 3:41:20 PM

Site ID: **584776**
Other ID: **46-45170**
Name: **UPPER GWYNEDD TOWAMENCIN MUNI AUTH**
Address: **2225 KRIEBEL RD**
Address2:
City: **LANSDALE**
State: **PA**
Zip: **19446-5019**
County: **Montgomery**
Municipality Name: **Towamencin Twp**
Registration Expiration Date: **02/04/2024**

Client: **52551**
Client Name: **UPPER GWYNEDD & TOWAMENCIN MUNI AUTH**
Address: **2225 KRIEBEL RD**
Address2:
City: **LANSDALE**
State: **PA**
Zip: **19446-5019**

Click Here For Tank Components

SEQ NUMBER	TANK CODE	DATE INSTALLED	CAPACITY	SUB CODE	TANK STATUS	PERMIT TYPE	PERMIT STATUS	DATE LAST INSPECTION	NEXT INSPECTION DUE
691274 - 001	UST	02/01/1990	8,000	DIESL	C	OPR	APPR	02/24/2023	FOI - 02/24/2026
691275 - 001A	AST	10/01/1990	12,000	HZSUB	C	OPR	APPR	12/23/2014	IS - 12/23/2024
691276 - 002A	AST	10/01/1990	12,000	HZSUB	C	OPR	APPR	12/23/2014	IS - 12/23/2024
691278 - 004A	AST	06/18/2001	1,000	HZSUB	C	OPR	APPR	No Inspection Date	
691279 - 005A	AST	05/20/2002	1,000	HZSUB	C	OPR	APPR	No Inspection Date	

Permit Status Codes - Approved (APPR), Suspended (SUSPD), Revoked (REVOK), Denied (DENI), Withheld (WITHH), Withdrawn (WITHD), Withheld Registration To Remove (WRR)

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Bureau of Environmental Cleanup and Brownfields
Tank Components

4/28/2023 3:44:22 PM

FACILITY ID	PRIMARY FACILITY NAME	SEQ NUMBER	TANK CODE	TANK SYSTEM COMPONENT	TANK COMPONENT	DATE BEGIN
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691274 - 001	UST	1 - TANK CONSTRUCTION	1F - FIBERGLASS (DOUBLE WALL)	04/20/2001
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691274 - 001	UST	3 - AG PIPING CONSTRUCTION & CORROSION PROTECTION	3A - CARBON STEEL	06/13/2011
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691274 - 001	UST	4 - PUMP/DELIVERY SYSTEM	4A - SUCTION: CHECK VALVE AT PUMP	04/20/2001
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691274 - 001	UST	5 - PIPE RELEASE DETECTION METHOD	5I - EXEMPT	04/16/2008
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691274 - 001	UST	6 - SPILL PREVENTION	6Y - YES	04/20/2001
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691274 - 001	UST	7 - OVERFILL PREVENTION	7A - OVERFILL ALARM	03/08/2002
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691274 - 001	UST	12 - TANK RELEASE DETECTION METHOD	12E - AUTOMATIC TANK GAUGING	04/20/2001
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691274 - 001	UST	18 - UST TOTAL SECONDARILY CONTAINED	18Y - YES	04/20/2001
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691274 - 001	UST	19 - STAGE I VAPOR RECOVERY	19N - NONE OR INCOMPLETE	04/20/2001
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691274 - 001	UST	20 - STAGE II VAPOR RECOVERY	20N - NONE	04/20/2001
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691274 - 001	UST	21 - TANK-TOP CONTAINMENT SUMPS	21A - AT ALL PENETRATIONS	06/13/2011
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691274 - 001	UST	22 - UNDER-DISPENSER CONTAINMENT	22N - NONE	04/16/2008
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691274 - 001	UST	23 - LINE LEAK DETECTOR SHUTS OFF PUMP	23N - NO	06/13/2014
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691274 - 001	UST	25 - EMERGENCY GENERATOR	25Y - YES - EMER GEN	04/02/2020
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691274 - 001	UST	26 - FLEX - TANK END	26I - COMPLETELY INSIDE CONTAINMENT SUMP, SECONDARY PIPE OR LINER	04/16/2008
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691274 - 001	UST	27 - FLEX - DISPENSER END	27N - NOT IN CONTACT W/ GROUND	04/16/2008
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691274 - 001	UST	28 - UG SINGLE / INNER WALL PIPING	28D - FRP	04/20/2001

Bureau of Environmental Cleanup and Brownfields
Tank Components

4/28/2023 3:44:22 PM

FACILITY ID	PRIMARY FACILITY NAME	SEQ NUMBER	TANK CODE	TANK SYSTEM COMPONENT	TANK COMPONENT	DATE BEGIN
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691274 - 001	UST	29 - UG OUTER WALL PIPING	29D - FRP, OUTER	04/20/2001
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691275 - 001A	AST	1 - TANK CONSTRUCTION	1E - FIBERGLASS (SINGLE WALL)	08/24/2004
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691275 - 001A	AST	2 - UG PIPING CONSTRUCTION	2G - NONE	08/24/2004
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691275 - 001A	AST	3 - AG PIPING CONSTRUCTION & CORROSION PROTECTION	399 - OTHER	08/24/2004
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691275 - 001A	AST	5 - PIPE RELEASE DETECTION METHOD	5G - VISUAL INSPECTION	08/24/2004
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691275 - 001A	AST	7 - OVERFILL PREVENTION	7Y - YES	08/24/2004
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691275 - 001A	AST	12 - TANK RELEASE DETECTION METHOD	12P - VISUAL INSPECTION (ASTS ONLY)	08/24/2004
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691275 - 001A	AST	16 - AG EMERGENCY CONTAINMENT	16Y - YES	08/24/2004
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691275 - 001A	AST	17 - AG SECONDARY CONTAINMENT	17Y - YES	08/24/2004
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691276 - 002A	AST	1 - TANK CONSTRUCTION	1E - FIBERGLASS (SINGLE WALL)	08/24/2004
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691276 - 002A	AST	2 - UG PIPING CONSTRUCTION	2G - NONE	08/24/2004
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691276 - 002A	AST	3 - AG PIPING CONSTRUCTION & CORROSION PROTECTION	399 - OTHER	08/24/2004
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691276 - 002A	AST	5 - PIPE RELEASE DETECTION METHOD	5G - VISUAL INSPECTION	08/24/2004
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691276 - 002A	AST	7 - OVERFILL PREVENTION	7Y - YES	08/24/2004
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691276 - 002A	AST	12 - TANK RELEASE DETECTION METHOD	12P - VISUAL INSPECTION (ASTS ONLY)	08/24/2004
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691276 - 002A	AST	16 - AG EMERGENCY CONTAINMENT	16Y - YES	08/24/2004
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691276 - 002A	AST	17 - AG SECONDARY CONTAINMENT	17Y - YES	08/24/2004
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691278 - 004A	AST	1 - TANK CONSTRUCTION	1R - MOLDED PLASTIC FORM (ASTS ONLY)	06/18/2001

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Bureau of Environmental Cleanup and Brownfields
Tank Components

4/28/2023 3:44:22 PM

FACILITY ID	PRIMARY FACILITY NAME	SEQ NUMBER	TANK CODE	TANK SYSTEM COMPONENT	TANK COMPONENT	DATE BEGIN
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691278 - 004A	AST	3 - AG PIPING CONSTRUCTION & CORROSION PROTECTION	3F - PVC	06/18/2001
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691278 - 004A	AST	4 - PUMP/DELIVERY SYSTEM	4B - SUCTION: CHECK VALVE AT TANK	06/18/2001
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691278 - 004A	AST	6 - SPILL PREVENTION	6Y - YES	06/18/2001
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691278 - 004A	AST	7 - OVERFILL PREVENTION	7Y - YES	06/18/2001
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691278 - 004A	AST	11 - VAPOR RECOVERY	11D - NONE	06/18/2001
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691278 - 004A	AST	16 - AG EMERGENCY CONTAINMENT	16Y - YES	06/18/2001
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691278 - 004A	AST	17 - AG SECONDARY CONTAINMENT	17Y - YES	06/18/2001
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691279 - 005A	AST	1 - TANK CONSTRUCTION	1R - MOLDED PLASTIC FORM (ASTS ONLY)	05/20/2002
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691279 - 005A	AST	3 - AG PIPING CONSTRUCTION & CORROSION PROTECTION	3F - PVC	05/20/2002
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691279 - 005A	AST	4 - PUMP/DELIVERY SYSTEM	4A - SUCTION: CHECK VALVE AT PUMP	05/20/2002
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691279 - 005A	AST	4 - PUMP/DELIVERY SYSTEM	4C - PRESSURE	05/20/2002
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691279 - 005A	AST	7 - OVERFILL PREVENTION	7Y - YES	05/20/2002
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691279 - 005A	AST	11 - VAPOR RECOVERY	11D - NONE	05/20/2002
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691279 - 005A	AST	16 - AG EMERGENCY CONTAINMENT	16Y - YES	05/20/2002
46-45170	UPPER GWYNEDD TOWAMENCIN MUNI AUTH	691279 - 005A	AST	17 - AG SECONDARY CONTAINMENT	17Y - YES	05/20/2002

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

07/14/2023

ISSUED VIA ELECTRONIC MAIL

Michael McGann
Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

Re: WQM Permit - Sewage
Hollis Hills San Sewer Pump St
Permit No. WQG02462306
Authorization ID No. 1446247
Worcester Township, Montgomery County

Dear Mr. McGann:

Your Water Quality Management (WQM) permit is enclosed. You must comply with all Standard and Special Conditions attached to this Permit.

Please note that you are responsible for securing all other required permits, approvals and/or registrations associated with the project, if applicable, under Chapters 102 (erosion and sedimentation control), 105 (stream obstructions and encroachments) and 106 (floodplains) of DEP's regulations. Construction may not proceed until all other required permits have been obtained.

Any person aggrieved by this action may appeal the action to the Environmental Hearing Board (Board), pursuant to Section 4 of the Environmental Hearing Board Act, 35 P.S. § 7514, and the Administrative Agency Law, 2 Pa.C.S. Chapter 5A. The Board's address is:

Environmental Hearing Board
Rachel Carson State Office Building, Second Floor
400 Market Street
P.O. Box 8457
Harrisburg, PA 17105-8457

TDD users may contact the Environmental Hearing Board through the Pennsylvania Relay Service, 800-654-5984.

Appeals must be filed with the Board within 30 days of receipt of notice of this action unless the appropriate statute provides a different time. This paragraph does not, in and of itself, create any right of appeal beyond that permitted by applicable statutes and decisional law.

A Notice of Appeal form and the Board's rules of practice and procedure may be obtained online at http://ehb.courtapps.com or by contacting the Secretary to the Board at 717-787-3483. The Notice of Appeal form and the Board's rules are also available in braille and on audiotape from the Secretary to the Board.

IMPORTANT LEGAL RIGHTS ARE AT STAKE. YOU SHOULD SHOW THIS DOCUMENT TO A LAWYER AT ONCE. IF YOU CANNOT AFFORD A LAWYER, YOU MAY QUALIFY FOR FREE PRO BONO REPRESENTATION. CALL THE SECRETARY TO THE BOARD AT 717-787-3483 FOR MORE INFORMATION. YOU DO NOT NEED A LAWYER TO FILE A NOTICE OF APPEAL WITH THE BOARD.

IF YOU WANT TO CHALLENGE THIS ACTION, YOUR APPEAL MUST BE FILED WITH AND RECEIVED BY THE BOARD WITHIN 30 DAYS OF RECEIPT OF NOTICE OF THIS ACTION.

Please contact Karen McDaniel at 484.250.5126 or kmcdaniel@pa.gov if there are any questions or concerns.

Sincerely,

Thomas L. Magge

Thomas L. Magge
Environmental Program Manager
Clean Water Program

Enclosures

cc: Worcester Township
Montgomery County Health Department
Mr. Dingman, P.E., Gilmore Associates
Operations Section, SERO, PA DEP
Re

3850-PM-BCW0045f Rev. 4/2018
Permit

Permit No. WQG02462306

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

WQG-02
WATER QUALITY MANAGEMENT
GENERAL PERMIT FOR SEWER EXTENSIONS AND PUMP STATIONS

PERMIT NUMBER WQG02462306

A. PERMITTEE (Name and Address):

Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446

CLIENT ID# 322637

B. PROJECT/FACILITY (Name):

Hollis Hills San Sewer Pump Station

C. LOCATION (County, Municipality):

Worcester Township, Montgomery County

D. This General Permit approves the construction and operation of:

☐ **SEWER EXTENSION**

☒ **PUMP STATION (Existing unpermitted pump station)**

E. APPROVAL GRANTED BY THIS GENERAL PERMIT IS SUBJECT TO THE FOLLOWING:

1. All construction, operations and procedures shall be in accordance with the *Domestic Wastewater Facilities Manual*.

   Transfers: In the event the permittee plans to transfer ownership of the facility to another entity, the permittee and the transferee shall submit an application for such transfer to DEP. If the transfer is approved by DEP, the transferee is subject to the terms and conditions of this General Permit.
2. The attached conditions apply to this General Permit and are hereby made part of same.

F. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. If there is a conflict between the NOI or its supporting documents and amendments and the attached conditions, the attached conditions shall apply.
2. Failure to comply with the rules and regulations of DEP or with the terms or conditions of this General Permit shall void the authority given to the permittee by the issuance of this General Permit.
3. This General Permit is issued pursuant to the Clean Streams Law, Act of June 22, 1937, P.L. 1987, as amended 35 P.S. §691.1 *et seq*. Issuance of this General Permit shall not relieve the permittee of any responsibility under any other law.

PERMIT ISSUED: 07/14/2023

BY: Thomas L. Magge

TITLE: Clean Water Program Manager

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

WQG-02
WATER QUALITY MANAGEMENT
GENERAL PERMIT FOR SEWER EXTENSIONS AND PUMP STATIONS

PERMIT CONDITIONS

General

1. DEP considers the licensed professional engineer whose seal is affixed to the design documents to be fully responsible for the adequacy of all aspects of the facility's design.
2. The approval is specifically made contingent on the permittee acquiring all necessary property rights, by easement or otherwise, providing for the satisfactory construction, operation, maintenance and replacement of all sewers or sewerage structures in, along or across private property with full rights of ingress, egress and regress.
3. If, at any time, the sewer extension and/or pump station covered by this General Permit creates a public nuisance, including but not limited to, causing malodors or causing environmental harm to waters of the Commonwealth, DEP may require the permittee to adopt appropriate remedial measures to abate the nuisance or harm.
4. The approval of the plans, and the authority granted in this permit, if not specifically extended, shall cease and be null and void 2 years from the issuance date of this permit unless construction or modification of the facilities covered by this permit has begun on or before the second anniversary of the permit date.
5. This permit does not relieve the permittee of its obligations to comply with all federal, interstate, state or local laws, ordinances and regulations applicable to the facilities.
6. This General Permit does not give any real or personal property rights or grant any exclusive privileges, nor shall it be construed to grant or confirm any right, easement or interest in, on, to, or over any lands which belong to the Commonwealth.
7. No discharge is authorized from these facilities unless approved by an NPDES Permit.

Construction

8. A permit or approval is required under Chapter 102 for most earth disturbance activities. A permit or registration under Chapter 105 is required for stream obstructions, crossings, etc. The permittee must secure the necessary permits, approvals or registrations under Chapters 102 and 105 prior to beginning construction.
9. Prior to beginning any construction or excavation, the locations of all utility lines must be identified through notification to the PA One Call system (www.paonecall.org). The notification shall not be less than three nor more than 10 working days in advance of beginning the construction or excavation.
10. The local waterways conservation officer of the Pennsylvania Fish and Boat Commission (PFBC) shall be notified when the construction of any stream crossing and/or outfall is started and completed. A written permit must be secured from the PFBC if there is any use of explosives in any waterways and the permittee shall notify the local waterways conservation officer when explosives are to be used.
11. Manhole inverts shall be formed to facilitate the flow of the sewage and to prevent the stranding of sewage solids. The whole manhole structure shall be built to prevent undue infiltration, entrance of street wash or grit and provide safe access to facilitate manhole maintenance activities.
12. The facilities shall be constructed under the supervision of a Pennsylvania licensed Professional Engineer in accordance with the approved reports, plans and specifications.

13. A Pennsylvania licensed Professional Engineer shall certify that construction of the permitted facilities was completed in accordance with the application and design plans submitted to DEP, using "Post Construction Certification" (3800-PM-WSFR0179a). It is the permittee's responsibility to ensure that a Professional Engineer is on-site to provide the necessary oversight and/or inspections to certify the facilities. The certification must be submitted to DEP before the facility is placed in operation. If requested, "as-built" drawings, photographs (if available) and a description of any DEP-approved deviations from the application and design plans must be submitted to DEP within 30 days of certification. Construction must be completed within two years of permit issue date.

Operation and Maintenance

14. The permittee shall maintain sewer extension and/or pump station operation and maintenance (O&M) manuals at the facility and ensure proper O&M of the permitted facility. The permittee shall file the O&M manuals with DEP upon request.
15. Stormwater from roofs, foundation drains, basement drains or other sources shall not be admitted directly to the sewer extension or pump station.
16. The sewer extension shall have adequate foundation support as soil conditions require. Trenches shall be back-filled to ensure that sewers will have proper structural stability, with minimal settling and adequate protection against breakage. Concrete used in connection with these sewers shall be protected from damage by water, freezing, drying or other harmful conditions until cured.
17. The approved sewer extensions and/or pump stations shall be maintained in good condition, kept free of deposits by flushing or other cleaning methods and repaired when necessary.
18. The sewer extension and/or pump station shall be properly operated and maintained so that the facility will perform as designed.
19. The attention of the permittee is called to the highly explosive nature of certain gases generated by the digestion of sewage solids when these gases are mixed in proper proportions with air and to the highly toxic character of certain gases arising from such digestion or from sewage in poorly ventilated compartments or sewers. Therefore, at all places throughout the facilities where hazard of fire, explosion or danger from toxic gases may occur, the permittee shall post conspicuous permanent and legible warnings. The permittee shall instruct all employees concerning the aforesaid hazards, first aid and emergency methods of meeting such hazards and shall make all necessary equipment and material accessible.
20. There shall be no physical connection between a public water supply system and a sewer or appurtenance to it which would permit the passage of any sewage or polluted water into the potable water supply. No water pipe shall pass through or come in contact with any part of the sewer extension and/or pump station.
21. Collected screenings, slurries, sludge and other solids shall be handled and disposed of in compliance with Title 25 Pa. Code, Chapters 271, 273, 275, 283 and 285 (related to permits and requirements for land filling, land application, incineration and storage of sewage sludge), Federal Regulations 40 CFR Part 257 and the Federal Clean Water Act and its amendments.

3800-PM-WSFR0179a 9/2005
Post Construction Certification

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER STANDARDS AND FACILITY REGULATION

WATER QUALITY MANAGEMENT

POST CONSTRUCTION CERTIFICATION

PERMITTEE IDENTIFIER	
Permittee	Towamencin Municipal Authority
Municipality	Worcester Township
County	Montgomery
WQM Permit No.	WQG02462306
Facility Type	Sewage

All of the above information should be taken directly from the Water Quality Management Permit.

CERTIFICATION

This certification must be completed and returned to the permits section of the DEP's regional office issuing the WQM permit within 30 days of completion of the project and received by DEP prior to operation, and if requested, as-built drawings, photographs (if available) and a discussion of any DEP-approved deviations from the design plans during construction.

I, being a Registered Professional Engineer in Pennsylvania, do hereby certify to the best of my knowledge and belief, based upon personal observation and interviews, that the above facility approved under the Water Quality Management Permit has been constructed in accordance with the plans, specifications and modifications approved by DEP.

Construction Completion Date (MM/DD/YYYY): _____

Engineer's Seal

Professional Engineer
Name _____ (Please Print or Type)
Signature
Date
License Expiration Date
Firm or Agency
Telephone
Permittee or Authorized Representative
Name _____ (Please Print or Type)
Signature
Title
Telephone

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

July 18, 2023

ISSUED VIA ELECTRONIC MAIL

Michael McGann
Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446-5019

Re: WQM Permit - Sewage
Milestone San Sewer PS
Permit No. WQG02462307
Authorization ID No. 1446273
Worcester Township, Montgomery County

Dear Mr. McGann:

Your Water Quality Management (WQM) permit is enclosed. You must comply with all Standard and Special Conditions attached to this Permit.

Please note that you are responsible for securing all other required permits, approvals and/or registrations associated with the project, if applicable, under Chapters 102 (erosion and sedimentation control), 105 (stream obstructions and encroachments) and 106 (floodplains) of DEP's regulations. Construction may not proceed until all other required permits have been obtained.

Any person aggrieved by this action may appeal the action to the Environmental Hearing Board (Board), pursuant to Section 4 of the Environmental Hearing Board Act, 35 P.S. § 7514, and the Administrative Agency Law, 2 Pa.C.S. Chapter 5A. The Board's address is:

Environmental Hearing Board
Rachel Carson State Office Building, Second Floor
400 Market Street
P.O. Box 8457
Harrisburg, PA 17105-8457

TDD users may contact the Environmental Hearing Board through the Pennsylvania Relay Service, 800-654-5984.

Appeals must be filed with the Board within 30 days of receipt of notice of this action unless the appropriate statute provides a different time. This paragraph does not, in and of itself, create any right of appeal beyond that permitted by applicable statutes and decisional law.

A Notice of Appeal form and the Board's rules of practice and procedure may be obtained online at http://ehb.courtapps.com or by contacting the Secretary to the Board at 717-787-3483. The Notice of Appeal form and the Board's rules are also available in braille and on audiotape from the Secretary to the Board.

IMPORTANT LEGAL RIGHTS ARE AT STAKE. YOU SHOULD SHOW THIS DOCUMENT TO A LAWYER AT ONCE. IF YOU CANNOT AFFORD A LAWYER, YOU MAY QUALIFY FOR FREE PRO BONO REPRESENTATION. CALL THE SECRETARY TO THE BOARD AT 717-787-3483 FOR MORE INFORMATION. YOU DO NOT NEED A LAWYER TO FILE A NOTICE OF APPEAL WITH THE BOARD.

IF YOU WANT TO CHALLENGE THIS ACTION, YOUR APPEAL MUST BE FILED WITH AND RECEIVED BY THE BOARD WITHIN 30 DAYS OF RECEIPT OF NOTICE OF THIS ACTION.

Please contact Karen McDaniel at 484.250.5126 or kmcdaniel@pa.gov if you have any questions or concerns.

Sincerely,

Thomas L. Magge

Thomas L. Magge
Environmental Program Manager
Clean Water Program

Enclosures

cc: Worcester Township
Montgomery County Health Department
Mr. Dingman, P.E., Gilmore & Associates, Inc.
Operations, SERO, Pa DEP
Re

3850-PM-BCW0045f Rev. 4/2018
Permit

Permit No. WQG02462307

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

WQG-02
WATER QUALITY MANAGEMENT
GENERAL PERMIT FOR SEWER EXTENSIONS AND PUMP STATIONS

PERMIT NUMBER WQG02462307

A. PERMITTEE (Name and Address):
Towamencin Municipal Authority
2225 Kriebel Road
Lansdale, PA 19446-5019

CLIENT ID# 322637

B. PROJECT/FACILITY (Name):
Milestone San Sewer Pump Station

C. LOCATION (County, Municipality):
Worcester Township, Montgomery County

D. This General Permit approves the construction and operation of:

☐ **SEWER EXTENSION**

☒ **PUMP STATION (Existing unpermitted pump station)**

E. APPROVAL GRANTED BY THIS GENERAL PERMIT IS SUBJECT TO THE FOLLOWING:

1. All construction, operations and procedures shall be in accordance with the *Domestic Wastewater Facilities Manual*.
   Transfers: In the event the permittee plans to transfer ownership of the facility to another entity, the permittee and the transferee shall submit an application for such transfer to DEP. If the transfer is approved by DEP, the transferee is subject to the terms and conditions of this General Permit.
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PERMIT ISSUED: July 18, 2023

BY: Thomas L. Magge

TITLE: Clean Water Program Manager

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

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WQG-02
WATER QUALITY MANAGEMENT
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3800-PM-WSFR0179a 9/2005
Post Construction Certification

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

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BUREAU OF WATER STANDARDS AND FACILITY REGULATION

WATER QUALITY MANAGEMENT
POST CONSTRUCTION CERTIFICATION

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Construction Completion Date (MM/DD/YYYY): _____

Engineer's Seal

Professional Engineer
Name _____ (Please Print or Type)
Signature
Date
License Expiration Date
Firm or Agency
Telephone
Permittee or Authorized Representative
Name _____ (Please Print or Type)
Signature
Title
Telephone