Information Request No. 20

GSA Semi-Annual Progress Reports
(July 1, 2021 through July 1, 2023)

KLH
ENGINEERS, INC

January 28, 2022
Ref. No. 123-98

Mr. Shawn Kiskadden
Pennsylvania Department of Environmental Protection
Clean Water Program
230 Chestnut Street
Meadville, PA 16335

Dear Mr. Kiskadden:

Consent Order and Agreement
Semi-Annual Progress Report
Greenville Sanitary Authority
Mercer County

Please find the attached semi-annual progress report for the above referenced Consent Order and Agreement. This report covers the period of July 1, 2021, through January 1, 2022.

The attached report reflects work completed by the Greenville Sanitary Authority and KLH Engineers, Inc. for the reporting period.

If you need additional information, please contact either of the undersigned.

Sincerely,

KLH ENGINEERS, INC.

John Mowry, P.E.

Enclosure

123-98 Semi-Annual Report Transmittal Letter_EFT_ju_01.27.22.doc

5173 Campbells Run Road Pittsburgh, PA 15205 Phone: 412.494.0510 Fax: 412.494.0426 info@klhengineers.com
www.klhengineers.com

SEMI-ANNUAL PROGRESS REPORT
GREENVILLE WASTEWATER TREATEMENT PLANT
GREENVILLE SANITARY AUTHORITY

REPORTING PERIOD
FROM: July 1, 2021 to January 1, 2022

	Task Description	Proposed Start Date	Actual Start Date	Proposed Completion Date	Actual Completion Date	% of Task Complete	Comments
1.	Design Wastewater Treatment Plant Upgrades and Improvements		April 1, 2021	January 1, 2023		60%	
2.	Submit for Part II Permit Application			February 1, 2023		0%	
3.	Begin Construction on WWTP Upgrades and Improvements	January 1, 2024		January 6, 2026		0%	

Based on the above information, are you in compliance with the approved schedule? X Yes _____ No

Greenville Sanitary Authority Official _____ Title Chairman

Signature _____ Date 1/27/2022

KLH
ENGINEERS, INC

July 25, 2022
Ref. No. 123-98

Mr. Shawn Kiskadden
Pennsylvania Department of Environmental Protection
Clean Water Program
230 Chestnut Street
Meadville, PA 16335

Dear Mr. Kiskadden:

Consent Order and Agreement
Greenville Sanitary Authority
Mercer County
Semi-Annual Progress Report

Please find the attached semi-annual progress report for the above referenced Consent Order and Agreement. This report covers the period of January 1, 2022, through July 1, 2022.

The attached report reflects work completed by the Greenville Sanitary Authority and KLH Engineers, Inc. for the reporting period.

If you need additional information, please contact either of the undersigned.

Sincerely,

KLH ENGINEERS, INC.

John Mowry, P.E.

GREENVILLE SANITARY AUTHORITY

Jonathan Bailey, Chairman

Enclosure

123-98_Semi-Annual Report Transmittal Letter_JCM_ju_07.25.22.doc

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www.klhengineers.com

SEMI-ANNUAL PROGRESS REPORT
GREENVILLE WASTEWATER TREATEMENT PLANT
GREENVILLE SANITARY AUTHORITY

REPORTING PERIOD
FROM: January 1, 2022 to July 1, 2022

	Task Description	Proposed Start Date	Actual Start Date	Proposed Completion Date	Actual Completion Date	% of Task Complete	Comments
1.	Design Wastewater Treatment Plant Upgrades and Improvements		April 1, 2021	January 1, 2023		90%	
2.	Submit for Part II Permit Application			February 1, 2023		0%	
3.	Begin Construction on WWTP Upgrades and Improvements	January 1, 2024		January 6, 2026		0%	

Based on the above information, are you in compliance with the approved schedule? X Yes ____ No

Greenville Sanitary Authority Official Jonathan Bailey Title GSA Board Chairman

Signature _____ Date 7-28-22

KLH
ENGINEERS, INC

January 23, 2023
Ref. No.: 123-98

Mr. Shawn Kiskadden
Pennsylvania Department of Environmental Protection
Clean Water Program
230 Chestnut Street
Meadville, PA 16335

Re: Consent Order and Agreement
Semi-Annual Progress Report
Greenville Sanitary Authority
Mercer County

Mr. Kiskadden:

Greenville Borough Sanitary Authority
Semi-Annual Progress Report

Please find the attached semi-annual progress report for the above referenced Consent Order and Agreement. This report covers the period of July 1, 2022 through January 1, 2023.

The attached report reflects work completed by the Greenville Sanitary Authority and KLH Engineers, Inc. for the reporting period.

If you need additional information, please contact either of the undersigned.

Sincerely,

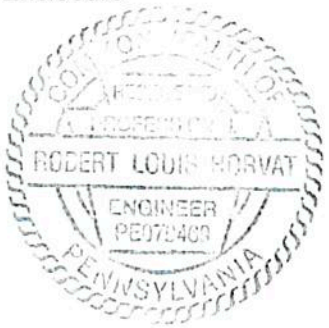
KLH ENGINEERS, INC.

Robert Horvat, P.E.

GREENVILLE SANITARY AUTHORITY

Jonathan Bailey, Chairperson

Enclosure



123-98 Semi-Annual Report Transmittal Letter_RH_cjc_01.24.23

SEMI-ANNUAL PROGRESS REPORT
GREENVILLE WASTEWATER TREATEMENT PLANT
GREENVILLE SANITARY AUTHORITY

REPORTING PERIOD
FROM: July 1, 2022 to January 1, 2023

	Task Description	Proposed Start Date	Actual Start Date	Proposed Completion Date	Actual Completion Date	% of Task Complete	Comments
1.	Design Wastewater Treatment Plant Upgrades and Improvements			January 1, 2023	September 2, 2022	100%	
2.	Submit for Part II Permit Application			February 1, 2023	October 4, 2022	100%	WQM Permit Application No. 4322408
3.	Begin Construction on WWTP Upgrades and Improvements	January 1, 2024		January 6, 2026		0%	

Based on the above information, are you in compliance with the approved schedule? X Yes ____ No

Greenville Sanitary Authority Official Jonathon Bailey Title GSA Board Chairman

Signature [signature] Date 1/26/23

KLH

ENGINEERS, INC

August 21, 2023
Ref. No.: 123-98

Mr. Shawn Kiskadden
Pennsylvania Department of Environmental Protection
Clean Water Program
230 Chestnut Street
Meadville, PA 16335

Re: Consent Order and Agreement
Semi-Annual Progress Report
Greenville Sanitary Authority
Mercer County

Mr. Kiskadden:

Greenville Borough Sanitary Authority
Semi-Annual Progress Report

Please find the attached semi-annual progress report for the above referenced Consent Order and Agreement. This report covers the period of January 1, 2023 through July 1, 2023.

The attached report reflects work completed by the Greenville Sanitary Authority and KLH Engineers, Inc. for the reporting period.

If you need additional information, please contact either of the undersigned.

Sincerely,

KLH ENGINEERS, INC.

Robert Horvat, P.E.

GREENVILLE SANITARY AUTHORITY

Jonathan Bailey, Chairperson

Enclosure

5173 Campbells Run Road Pittsburgh, PA 15205 Phone: 412.494.0510 Fax: 412.494.0426 info@klhengineers.com

www.klhengineers.com

SEMI-ANNUAL PROGRESS REPORT
GREENVILLE WASTEWATER TREATEMENT PLANT
GREENVILLE SANITARY AUTHORITY

REPORTING PERIOD
FROM: January 1, 2023 to July 1, 2023

	Task Description	Proposed Start Date	Actual Start Date	Proposed Completion Date	Actual Completion Date	% of Task Complete	Comments
1.	Design Wastewater Treatment Plant Upgrades and Improvements			January 1, 2023	September 2, 2022	100%	
2.	Submit for Part II Permit Application			February 1, 2023	October 4, 2022	100%	WQM Permit No. 4322408
3.	Begin Construction on WWTP Upgrades and Improvements	January 1, 2024		January 6, 2026		0%	

Based on the above information, are you in compliance with the approved schedule? ✓ Yes ____ No

Greenville Sanitary Authority Official JONATHAN BAILEY Title CHAIRPERSON

Signature _____ Date 8/31/23

Information Request No. 21

1997 Sewage Facilities Planning Module, and 2016 Act 537 Special Study

Pennsylvania Department of Environmental Protection

230 Chestnut Street
Meadville, PA 16335-3481

MAR 24 1997

814-332-6942
Fax: 814-332-6121

Northwest Regional Office

Greenville Borough Council
125 Main Street
Greenville, PA 16125

RE: Official Sewage Plan Revision Approval
Lincoln/Barrett Street; North Front Street; North Mercer Street
Greenville Borough, Mercer County

Gentlemen:

The Department of Environmental Protection hereby approves the sewage facilities planning module for the above-captioned areas of Greenville as an Official Sewage Plan Update revision. The module was prepared by KLH Engineers, Inc. on behalf of the Greenville Sanitary Authority.

Under this Plan, three areas of the Borough presently experiencing public health problems as a result of inadequate on-lot sewage systems will be provided with public sewerage facilities. Permitting and construction is proposed for this spring and summer.

Greenville Borough is responsible for the timely implementation of this Official Sewage Plan Update revision.

Please do not hesitate to contact this office if you have any questions on this matter.

Sincerely,

David E. Milhous

David E. Milhous, P.E.
Regional Manager
Water Management

DEM/WTC/dmw

cc: Greenville Sanitary Authority
Eric Tissue
Mercer Co. Reg. Planning Comm.
Cyndi Ursta
File - Planning/Act 537

WQ-FORM-2
Rev. 1/1/94

MEMO MARCH 21, 1997

logged out 3/24/97 B

SUBJECT: Planning Module Component 3 Approval/Disapproval
Name: Lincoln St/N. Front St/N. Mercer St Sew Exts.
Municipality: Greenville Boro
County: Mercer
Code Number: 4-96-248

TO: David E. Milhous, P.E.
Regional Manager
Water Management

No fee - there are mun. projects to serve areas of existing need. MC

FROM: W Crawford
WQ Specialist Supervisor
Water Management

THROUGH: Jon E. Lester
Planning & Finance Chief
Water Management
3-21-97

Attached for your review is a proposed revision to the Official Sewage Plan of the above-captioned municipality.

Description of Project

- ☐ Tap-in
- ☐ SRSTP/SFSTP
- ☐ STP >2,000 GPD
- ☐ Receiving Stream _____
- ☒ Minor Sewer Extension-No Permit
- ☒ Major Sewer Extension/PS Permit Needed
- ☒ Residential Development 16 EDU's
- ☐ Other ___ GPD

Submittal is complete: ☒ Yes ☐ No.

All Consistency issues including Chapter 94 have been adequately addressed: ☒ Yes ☐ No.

Recommendation

- ☒ The proposal is consistent with Chapter 71 requirements and I recommend approval. An approval letter for your signature is attached.
- ☐ The proposal is not consistent with Chapter 71 requirements and I recommend disapproval. A disapproval letter for your signature is attached.

☐ Yes ☐ No PA Bulletin publication required.

(Over)

3/18/97

PMC 3 REVIEW - SUMMARY AND CONCLUSIONS

Project Name: Greenville Sanitary Auth. Sewer Ext. Code Number: #6-96-248

Developer: Greenville Sanitary Authority

Consultant: KLH Engineers Inc. ☑ ≥ 2/3 Single Family Residential (60 days)

Municipality: Greenville Borough

County: Mercer ☐ Other (120 days)

☐ ≥800 GPD tap-in ____ GPD. (PMC) Part A, D, E, F, H (existing)

★ ☑ Sewer extension 6,400 GPD 16 EDU's. (Narrative - 17 EDU, 6800 GPD) - included one house they found to be connected already

+4 EDU - Potential

☐ SRSTP ☐ Small Flow STP ☐ ≥2000 GPD STP

16+4=20 EDU = 8000 GPD

☐ New land development ☑ Existing needs

Chapter 94 consistency? ☑ Yes ☐ No ☐ N/A

CONSISTENCY with Natural Resource Protection programs:

☑ No inconsistencies.

☐ Inconsistencies have been resolved.

☐ Unresolved inconsistencies exist.

no fee - This is to serve areas of existing need - not for new land development. 3/19 WTC

RECOMMENDATION: ☑ APPROVE ☐ DISAPPROVE

Reasons for disapproval (cite appropriate sections of Chapter 71):

1. ★ Discussed 4 EDU shown on plot plan as potential taps.
2. w/ Richard Houpt, Council President. He had no problem
3. with this even though it was not addressed in the
4. modules.
5. Will be stream crossings with proposed sewer lines. All pump station locations appear to be out of wetland areas. Include wetlands paragraph.

Cynthia L. Krista
Water Quality Specialist Signature

3-14-97
Date

WTC:sn:7/12/91

PMC 3 REVIEW

	Complete? Yes	No	N/A	Technically O.K.? Yes	No	N/A
A. GENERAL INFORMATION	☑	☐		☑	☐	
B. GENERAL NARRATIVE	☑	☐		☑	☐	
C. DRINKING WATER (Already connected to Greenville Water)	☐	☐	✓	☐	☐	✓
D. ALTERNATIVE ANALYSIS	☑	☐		☑	☐	

List of Fatal Deficiencies:

1. _____
2. _____
3. _____

E. PUBLIC NOTIFICATION DOCUMENTS						
1. Copy of Publication	☑	☐	☐	☑	☐	
2. Copies of Comments	☑	☐		☑	☐	____
3. Copies of Responses	☑	☐		☑	☐	____

COMMENTS:

G. SMALL FLOW TREATMENT (<2000 GPD) N/A

	Complete? Yes	No	N/A	Technically OK? Yes	No	N/A
1. Disposal method indicated?	☐	☐		☐	☐	
2. a. Discharge point plotted on topo map?	☐	☐		☐	☐	
c. On-lot unsuitability documented?	☐	☐		☐	☐	
d. Is stream or basin HQ or EV?				☐	☐	
3. WQS/SS/Hydro have observed discharge point?	☐	☐	☐	☐	☐	☐
4. Easements needed:	☐	☐		☐	☐	☐
5. For dry stream discharges:						
a. Groundwater uses plotted 200 ft. either side?	☐	☐		☐	☐	
b. First point of perennial conditions shown on topo?	☐	☐		☐	☐	
6. Alternative analysis narrative	☐	☐		☐	☐	
a. Is this area identified as a "needs" area?				☐	☐	
b. Is it likely this system will be replaced by sewers within 10 years?				☐	☐	
c. If "a" or "b" is yes, has an "abandonment letter" been attached or is abandonment otherwise adequately assured?				☐	☐	☐
d. Is proliferation a concern in this municipality?				☐	☐	
7. Eligible for SRSTP General Permit? (single family residence, domestic sewage only, between 400 and 800 gpd, non SP waters)	☐	☐				

COMMENTS?

COMPONENT 4

		Complete? Yes	No	N/A	Technically O.K.? Yes	No	N/A
1. a.	Local planning commission comments documented?	☑	☐				
b.	Inconsistencies resolved?	☐	☐	☑			
2. a.	County Planning Commission comments documented?	☑	☐				
b.	Inconsistencies resolved?	☐	☐	☑			
3. a.	County Health Department comments documented?	☐	☐	☑			
b.	Inconsistencies resolved?	☐	☐	☑			

COMMENTS:

2. PA Historic Preservation Act N/A < 10 Acres disturbed	Yes	No	N/A
a. PHMC--No impact letter attached or 60 day default documented?	☐	☐	
b. Is a PHMC mitigation program required?	☐	☑	
c. Is a required program attached and satisfactory to PHMC documented?	☐	☐	☑
d. Have historic/archeologic concerns been raised by Comp. 4 of by others?	☐	☑	
e. Does project appear consistent with H/A preservation programs?	☑	☐	

COMMENTS:

3. PA Natural Diversity Inventory	Yes	No	N/A
a. Species encountered?	☐	☑	
b. If species encountered, have approved mitigation plans been attached?	☐	☐	☑
4. Prime Ag Land Preservation			
a. Local program exists?	☑	☐	
b. Local program consistency established?	☑	☐	☐

logged in 1/21/97 B.M.

6-96-248

3640-FM-WQ0355 Rev. 11/95

Transmittal Letter

Code No. _____ DEP USE ONLY

TO: Approving Agency (DEP or delegated local agency)
PA Department of Environmental Protection
230 Chestnut Street
Meadville, PA 16335

Date 1/15/97

Dear Sir:

Attached please find a completed Sewage Facilities Planning Module prepared by ERIC C. TISSUE (Name)

PROJECT MANAGER (Title) for GREENVILLE SANITARY AUTHORITY SEWER (Name) EXTENSIONS

~~residential, commercial, or industrial facility~~ located in GREENVILLE BOROUGH

MERCER (City, Borough, Township) County.

Check one

☒ (i) The Planning Module, as prepared and submitted by the applicant, is approved by the municipality as a proposed ☒ revision ☐ supplement for new land development to its "Official Sewage Facilities Plan", and is ☒ adopted for submission to the Department of Environmental Protection ☐ transmitted to the delegated local agency for approval in accordance with the requirements of Chapter 71 and the Sewage Facilities Act, OR

RECEIVED
JAN 21 1997
ENVIRONMENTAL PROTECTION
NORTHWEST REGIONAL OFFICE

☐ (ii) The Planning Module will not be approved by the municipality as a proposed revision or supplement for new land development to its "Official Sewage Facilities Plan" because the project described therein is unacceptable for the reason(s) checked below.

Check Boxes

☐ Additional studies are being performed by or on behalf of this municipality which may have an effect on the Planning Module as prepared and submitted by the applicant. Attached hereto is the scope of services to be performed and the time schedule for completion of said studies.

☐ The Planning Module as submitted by the applicant fails to meet limitations imposed by other laws or ordinances, officially adopted comprehensive plans and/or environmental plans (e.g., zoning, land use, Chapter 71). Specific reference or applicable segments of such laws or plans are attached hereto.

RECEIVED
JAN 23 1997
ENVIRONMENTAL PROTECTION
OIL CITY/FRANKLIN OFFICE

☐ Other (attach additional sheet giving specifics)

Municipal Secretary: Indicate below by checking appropriate boxes which components are being transmitted to the Approving Agency.

☐ 2. On-lot Disposal
☒ Adoption Resolution
☒ 3. Sewage Collection/Treatment
☐ 3s. Small Flow Treatment Facility
☐ 4. Planning Agency Review

PETER D. NICOLOFF, JR. (Municipal Secretary (print)) _____ (Signature) 01/16/97 (Date)

Note: Please detach and recycle the "Guidance" portion of the Sewage Facilities Planning Module prior to mailing the appropriate completed components and supporting documents to the Approving Agency.

Recycled Paper

RESOLUTION 1997-1

RESOLUTION FOR PLAN REVISION
FOR NEW LAND DEVELOPMENT

RESOLUTION OF THE COUNCILMEN OF THE BOROUGH OF GREENVILLE, MERCER COUNTY, PENNSYLVANIA (HEREINAFTER "THE MUNICIPALITY").

WHEREAS, Section 5 of the Act of January 24, 1966, P.L. 1535, No. 537, known as the "Pennsylvania Sewage Facilities Act", as Amended, and the rules and Regulations of the Pennsylvania Department of Environmental Protection (Department) adopted thereunder, Chapter 71 of Title 25 of the Pennsylvania Code, require the municipality to adopt an Official Sewage Facilities Plan providing for sewage services adequate to prevent contamination of waters of the Commonwealth and/or environmental health hazards from sewage wastes, and to revise said plan whenever it is necessary to determine whether a proposed method of sewage disposal for a new land development conforms to a comprehensive program of pollution control and water quality management, and

WHEREAS, the Borough of Greenville has proposed the construction of sanitary sewer facilities to serve three (3) areas of the Borough that currently do not have service, and described in the attached Sewage Facilities Planning Module, and proposes that such subdivision be served by: (circle all that apply). (sewer tap-ins), (sewer extension), new treatment facility, individual on-lot systems. community on-lot systems, spray irrigation, retaining tanks, other, (please specify) __N/A.

WHEREAS, the Borough of Greenville finds that the subdivision described in the attached Sewage Facilities Planning Module conforms to applicable sewage related zoning and other sewage related municipal ordinances and plans, and to a comprehensive program of pollution control and water quality management.

NOW THEREFORE, BE IT RESOLVED that the Councilmen of the Borough of Greenville hereby adopt and submit to the Department of Environmental Protection for its approval as a revision to the 'Official Sewage Facilities Plan" of the municipality the above referenced Sewage Facilities Planning Module which is attached hereto.

I, _____, Secretary, Borough of Greenville and City
Peter D. Nicoloff, Jr.
Councilmen hereby certify that the foregoing is a true copy of the Borough of Greenville Resolution 1997-1 adopted January 14, 1997.

Municipal Address:
Borough of Greenville
125 Main Street
Greenville, PA 16125
Telephone: (412) 588-4193

_____
Clifford H. Harriger, Mayor

_____
Richard S. Houpt, Council Pres.

B-96-248

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP Code No.

SEWAGE FACILITIES PLANNING MODULE

Component 3. Sewage Collection and Treatment Facilities

(Return completed module package to appropriate municipality)

GENERAL INFORMATION

This Component is used for projects that propose: (1) A subdivision to be served by sewage collection, conveyance or treatment facilities; (2) a tap-in with flows on a lot of 2 EDU's or more to existing collection systems; or (3) The construction or modification of collection, conveyance or wastewater treatment facilities that will require the issuance or modification of a Clean Streams Law permit. This component, along with any other appropriate components specified in the cover letter, must be submitted to the municipality with jurisdiction over their review. All appropriate documentation must be attached before the Sewage Facilities Planning Module package will be considered complete. Refer to the attached guidance document for assistance in completing this component.

NOTE: All projects complete Sections A through G, and Section M. Complete Sections H, I, J, K and/or L only if indicated ☒.

A. GENERAL INFORMATION (See Section A of attached guidance)

1. a. Name of Land Development Project GREENVILLE SANITARY AUTHORITY SEWER EXTENSIONS

   b. Location of land development project. *(Use landmark coordinates, for example, north side of RT 75, 2.0 miles east of intersection of RT 75 and SR 2422)* SEE ATTACHED

   c. County in which project is located MERCER

   Municipality (Township, Boro, etc.) GREENVILLE BOROUGH

2. Nature of Development.

   a. Total Acreage N/A Number of Lots 16 existing + 4 undeveloped - as per Eric Tissue 3/12/97

   b. Check appropriate box and provide flows and population to be served. Indicate how the flow figures were calculated.

☒ Residential.	☐ Commercial.	☐ Industrial.
Total Flows (gpd) 6400 + 11600	Total Flows (gpd)	Total Flows (gpd)
Population Served 48	Population Served	Population Served

3. USGS Topographic Map Identification

   a. Attach original or copy of 7½ minute USGS topographic map which includes the general area of the development and the area of the proposed land development plotted and labeled. All maps should be folded to 8½ x 11 inches in size.

   b. USGS Topographic Map Name: GREENVILLE WEST

   c. Inches up 5 and over 2 from the the bottom right hand corner of the map to the approximate center of the development.

4. Ownership of Land Development

Name(s)	Address(es) & Phone Number(s)
N/A	

5. Applicant (Subdivider, Developer, or Responsible Project Agent)

   Name GREENVILLE SANITARY AUTHORITY

   Address 125 MAIN STREET GREENVILLE PA 16125

6-96-248

1. **COLLECTION SYSTEM**

a. Check appropriate box concerning collection system

☐ New collection system ☒ Extension to existing collection system ☐ Expansion of existing facility

Clean Streams Law Permit Number _____

b. Answer questions below on collection system

Number of EDU's and proposed connections to be served by collection system. EDU's 16

Connections 16

Name of existing collection or conveyance system GREENVILLE SANITARY AUTHORITY

Name of interceptor GREENVILLE SANITARY AUTHORITY

2. **WASTEWATER TREATMENT FACILITY**

Check appropriate box and provide requested information concerning the treatment facility

☐ New facility ☒ Existing facility ☐ Upgrade of existing facility ☐ Expansion of existing facility

Name of existing facility GREENVILLE SANITARY AUTHORITY

NPDES Permit Number for existing facility _____

Location of discharge point for new facility. Latitude 41° 24' N Longitude 80° 23' W

3. **PLOT PLAN**

The following information is to be submitted on a plot plan of the proposed subdivision.

a. Existing and proposed buildings.

b. Lot lines and lot sizes.

c. Adjacent lots.

d. Remainder of tract.

e. Existing and proposed sewerage facilities. Plot location of discharge point if a new facility is proposed.

f. Show tap-in or extension to the point of connection to existing collection system (if applicable).

g. Existing and proposed water supplies and surface water (wells, springs, ponds, streams, etc.)

h. Existing and proposed rights-of-way.

i. Existing and proposed streets, roadways, access roads, etc.

j. Any designated recreational or open space area.

k. Wetlands - from National Wetland Inventory Mapping and USGS Hydric Soils Mapping.

l. Flood plains or Floodprone area soils, floodways, watercourses, water bodies (from Federal Flood Insurance Mapping)

m. Prime Agricultural Land.

n. Any other facilities (pipelines, power lines, etc.

o. Orientation to north.

p. Locations of all site testing activities (soil profile test pits, slope measurements, permeability test sites, background sampling, etc.) (if applicable).

4. **WETLAND PROTECTION**

	Yes	No	
a.	☐	☒	Are there wetlands present in the project area? If yes, indicate these areas on the plot plan as shown in the mapping or through on-site delineation.
b.	☐	☒	Are there any construction activities (encroachments, or obstructions) proposed in, along, or through the wetlands? If yes, contact the DEP Regional Office for information on any additional requirements.

North Front Street	a.Design and/or Permitted Capacity		b. Present Flows		c. Projected Flows in 5 years	
	Average	Peak	Average	Peak	Average	Peak
Collection	0.17	0.44	0.0024	0.006	0.002	0.006
Conveyance	1.73	4.3 MGD	1.0	2.5	1.0	2.5
Treatment	2.8 MGD	11.2	1.95 MGD	6.25 MGD	2.0	6.25

North Mercer Street	a.Design and/or Permitted Capacity		b. Present Flows		c. Projected Flows in 5 years	
	Average	Peak	Average	Peak	Average	Peak
Collection	0.17	0.44	0.002	0.006	0.002	0.006
Conveyance	1.73	4.3 MGD	1.0	2.5	1.0	2.5
Treatment	2.8 MGD	11.2	1.95 MGD	6.25 MGD	2.0	6.25

6-96-248

a. If yes, this planning module for sewage facilities will not be accepted for review by the municipality or the Department until all inconsistencies with Chapter 94 are resolved or unless there is an approved plan and schedule granting an allocation for this project. A letter granting allocations to this project under the plan and schedule must be attached to the module package.

b. If no, the sewer authority, municipality or agency responsible for completing the Chapter 94 report for the collection and conveyance facility must sign below to indicate that the collection and conveyance facilities have adequate capacity and are able to provide service to the proposed development in accordance with Chapter 94 requirements and that this proposal will not impact this status.

c. Collection System

Name of Agency, Authority, Municipality GREENVILLE SANITARY AUTHORITY

Name of Responsible Agent FRED SHOEMAKER

Agent Signature Fred Shoemaker

Date 1/15/97

d. Conveyance System

Name of Agency, Authority, Municipality GREENVILLE SANITARY AUTHORITY

Name of Responsible Agent FRED SHOEMAKER

Agent Signature Fred Shoemaker

Date 1/15/97

4. Treatment Facility

The questions below are to be answered by the facility permittee in coordination with the information in the table and the latest Chapter 94 report.

(Y/N) N If this project proposes the use of an existing wastewater treatment plant for the disposal of sewage, will these actions create a hydraulic or organic overload within 5 years at that facility?

a. If yes, this planning module for sewage facilities will not be reviewed by the municipality or Department until this inconsistency with Chapter 94 is resolved or unless there is an approved plan and schedule granting an allocation for this project. A letter granting allocations to this project under the plan and schedule must be attached to the module package.

b. If no, the treatment facility permittee must sign below to indicate that this facility has adequate treatment capacity and is able to provide wastewater treatment services for the proposed development in accordance with Chapter 94 requirements and that this proposal will not impact this status.

c. Name of Agency, Authority, Municipality GREENVILLE SANITARY AUTHORITY

Name of Responsible Agent FRED SHOEMAKER

Agent Signature Fred Shoemaker

Date 1/15/97

3796-248

☐ M. . FALSE SWEARING STATEMENT

I verify that the statements made in this component are true and correct to the best of my knowledge, information and belief. I understand that false statements in this component are made subject to the penalties of 18 PA C.S.A> §4904 relating to unsworn falsification to authorities.

ERIC TISSUE
Name (Print)

PROJECT MANAGER
Title

Eric Tissue
Signature

KLH ENGINEERS INC.
5173 CAMPBELLS RUN ROAD PITTSBURGH PA 15205
Address

SEPTEMBER 19, 1996
Date

412-494-0510
Telephone Number

LOCATION OF LAND DEVELOPMENT PROJECT

1. Lincoln & Barrett Streets, approximately 1/2 mile south of intersection of Routes 18 and 358.

2. North Front Street, 1/4 mile north of its intersection with Route 18 immediately west of the Shenango River.

3. North Mercer Street, 1/4 mile immediately north of intersection of Route 58 and 18 in downtown Greenville.

INTERIOR-GEOLOGICAL SURVEY, WASHINGTON, D. C.- 1972

GREENVILLE WEST, PA.

N4122.5—W8022.5/7.5

PROJECT NARRATIVE

The Greenville Sanitary Authority is proposing to extend the public sewer system to serve three areas currently utilizing malfunctioning on-lot systems. These areas are designated as the Lincoln/Barrett Street Area, the North Front Street Area, and the North Mercer Street Area. In each case, a small remote pumping station is necessary to convey sewage to the gravity system. The total flow for each area is as follows:

- Lincoln/Barrett Street - 6 EDU's x 400 gal/EDU = 2,400 gal.
- North Front Street - 6 EDU's x 400 gal/EDU = 2,400 gal. (Also - 4 potential lots)
- North Mercer Street - ~~5~~ 4 EDU's x 400 gal/EDU = 2,000 gal.

as per Eric Tissue - 1 house proposed for project was already tapped in & paying sewer bill

The pump stations proposed contain progressive cavity pumps and have provisions for connection of an emergency generator.

An estimate of project costs is attached. The Authority proposes to fund the projects with Authority equity. Plans and specifications have been prepared and will be submitted with a Part II Permit upon approval of the Planning Module. The Authority would like to begin construction in April with completion in May.

ko/123etpr.nar

ALTERNATIVE SEWAGE FACILITIES ANALYSIS

The proposed sewage disposal method of grinder pumps was chosen because of the topography of the service area and the very low flows to the pump stations. The three pump stations will accept 5, 5 and 6 homes respectively. The pump stations will convey sewage to the existing gravity system.

The project is consistent with the Borough's sewage facilities plan because it eliminates three areas of malfunctioning on-lot systems.

No other alternative methods of sewage disposal are applicable to this project that would have represented a more technically and economically feasible option. The progressive cavity pump station is proposed because of the very low flows and the consistent pumping rate at various heads.

The Greenville Sanitary Authority will own the facilities and Greenville Borough will provide operation and maintenance.

agent provides the required notice for publication, the applicant or applicant's agent shall notify the municipality or local agency and the municipality and local agency will be relieved of the obligation to publish.

To complete this section, each of the following questions must be answered with a "yes" or "no". Newspaper publication is required if any of the following are answered "yes".

	Yes	No	
1.	☐	☒	Does the project propose the construction of a sewage treatment facility designed to treat wastewater flows greater than 2000 GPD?
2.	☐	☒	Will the project change the flow at an existing sewage treatment facility by more than 50,000 gallons per day?
3.	☒	☐	Will the project result in a public expenditure for the sewage facilities portion of the project in excess of $100,000?
4.	☐	☒	Will the project lead to a major modification of the existing municipal administrative organizations within the municipal government?
5.	☐	☒	Will the project require the establishment of *new* municipal administrative organizations within the municipal government?
6.	☐	☒	Is the project proposing a subdivision of at least 50 lots (or equivalent)?
7.	☐	☒	Does the project involve a major change in established growth projections as set out in the Municipality's Official Sewage Facilities Plan?
8.	☐	☒	Does the project involve a different land use pattern than that established in the Municipality's Official Sewage Facilities Plan?
9.	☐	☒	Does the project involve the use of large volume on-lot sewage disposal systems (Flow > 10,000 gpd)?
10.	☐	☒	Does the project require resolution of a conflict between the proposed alternative and consistency requirements contained in Chapter 71.21(a)(5)(i), (ii), (iii)?

NOTE: For wetland impacts under Section 71.21(a)(5)(i)(I), if the proposal will qualify for coverage under a general permit, of if mitigation has eliminated wetland impacts and no permit will be required, no newspaper publication is necessary. If an encroachment permit under Chapter 105 is required for the project, publication is required.

Contents of Publication Notice. The following items must be contained in the notice:

1. Name of project.
2. Type of development (residential, multi-residential, commercial, industrial).
3. Location, including road and street markers, municipality and county.
4. Acreage under development and number of equivalent dwelling units proposed.
5. Type of sewage disposal proposed (individual, community or large volume on-lot, holding tanks)
6. Reason why publication was necessary (From question(s) answered "yes", above)
7. Establishment of a 30 day comment and review period.
8. Where and when the land development plan can be seen for comment and review (preferably, the municipal office).
9. Address of municipal office where comments will be accepted.

All comments, the municipal responses to comments, and proof of publication shall be submitted with the Sewage Facilities Planning Module package. If no comments were received, attach a copy of the public notice and check the second box in Section E.

PUBLIC NOTICE

The Greenville Sanitary Authority is proposing the construction of sewerage facilities to serve the Lincoln/Barrett Street area, the North Mercer Street/Penn Avenue area and North Front Street/Hoffman Avenue area in Greenville Borough, Mercer County. The project will serve a total of 16 homes that are currently utilizing on-lot disposal facilities. The project involves the construction of gravity sewers and three small pump stations to serve each area. The proposed total project costs is estimated at $148,000. Comments from the public regarding this project will be accepted for thirty days from this publication at the Greenville Borough Municipal Building, 125 Main Street.

ko/123etpr.nar

Proof of Publication of Notice in The Record-Argus

Under Act No. 587, Approved May 16, 1929

State of Pennsylvania | ss:
County of Mercer |

Robert N. Bracey of Greenville Newspapers, Inc., of the County and State aforesaid, being duly sworn, deposes and says THE RECORD-ARGUS, a newspaper of general circulation published at Greenville, County and State aforesaid, was established in 1848 as a weekly newspaper, and in 1897 as a daily newspaper, since which date said daily newspaper has been regularly issued in said County, and that the printed notice or publication attached hereto is exactly the same as was printed and published in the regular editions and issues of said RECORD-ARGUS on the following dates, viz: 14th, 21st and the 28th day of January A. D., 19 97

Affiant further deposes that he is authorized by Greenville Newspapers, Inc., publisher of said RECORD-ARGUS, a newspaper of general circulation, to verify the foregoing statement under oath, and affiant is not interested in the subject matter of the aforesaid notice or advertisement, and that all allegations in the foregoing statements as to time, place and character of publication are true.

Robert N. Bracey
Affiant for The Record-Argus

Sworn to and subscribed before me this 28th day of January 19 97

Carl L Swartz
Notary Public

My Commission Expires:

NOTARIAL SEAL
Carl L. Swartz II, Notary Public
Greenville Borough, Mercer County
My commission Expires Nov. 6, 2000

Copy of Notice of Publication

LEGAL NOTICE
PUBLIC NOTICE

The Greenville Sanitary Authority is proposing the construction of new sewage facilities to serve the Lincoln/Barker Street area, the North Mercer Street/Penn Avenue area and North Front Street/ Hoffman Avenue area in Greenville Borough, Mercer County. The project will serve a total of 16 homes that are currently utilizing on-lot disposal facilities. The project involves the construction of gravity sewers and three small pump stations to serve each area. The proposed total project cost is estimated at $142,000. Comments from the public regarding this project will be accepted for thirty days from this publication at the Greenville Borough Municipal Building, 125 Main Street.
$15,21,28-31

Statement of Advertising Costs

Borough of Greenville
125 Main Street
Greenville, PA 16125
TO THE RECORD-ARGUS, Dr.

For publishing the notice or publication attached hereto

on the above stated dates	$73.44
Notary fee	$2.00
Total	$75.44

Publisher's Receipt for Advertising Costs

Greenville Newspapers, Inc. publisher of THE RECORD-ARGUS, a newspaper of general circulation hereby acknowledges receipt of the aforesaid notice and publication costs and certifies that the same have been duly paid.

Greenville Newspapers, Inc.

Publisher of THE RECORD-ARGUS.
a Newspaper of General Circulation

By

GREENVILLE
PENNSYLVANIA

RECEIVED
FEB 14 1997

February 12, 1997

Mr. Eric Tissue
KLH Engineers
5173 Campbell's Run Road
Pittsburgh, PA 15205

Re: Construction of Sewage Facilities
Public Notice

Dear Mr. Tissue:

At the close of the business day, the thirty (30) day period for public comments regarding the proposed construction of sewage facilities has expired. During this period of time, the Borough of Greenville and Greenville Sanitary Authority has received one response to the public notification. Questions were raised as to whether tie-in to the new sewage lines was mandatory and what the average cost would be. It was explained that the tie-in would be mandatory and the average cost for the tap-in fee and lateral would be $2,500.00.

If you have any other questions, please feel free to contact me at anytime.

Very truly yours,

Peter D. Nicoloff, Jr.
Borough Manager
Borough of Greenville

PDN/lac
cc: Paul Boyer, Superintendent
Public Works/Greenville

125 Main Street • Greenville, PA 16125
Phone: (412) 588-4193

Greenville Sanitary Authority
Sewer Project Cost Comparison
Lincoln/Barrett St., North Front St., North Mercer St.

Project Costs if each project done separately:

Lincoln/Barrett St.	-	$77,760
North Front St.	-	$65,750
North Mercer St.	-	$48,410
Total	-	$191,920

Project Cost Savings if projects done at one time:

- One-time mobilization costs
- Lower cost/ft likely on sewers
- One Part II Permit
- Lower inspection costs

Estimated Project Costs if projects done at one time (no service laterals):

Construction Cost Estimate:

1035 feet of 8" Gravity Sewer @ $40/ft.	= $41,400
9 manholes @ $2000/ea	= $18,000
305 feet of 2" Force Main in same trench as 8" gravity sewer @ $10/ft.	= $3,050
Pumping Stations (Three) installed	= $30,000
Special Backfill - 370 cy @ $18/cy	= $6,660
Repave 420 sy @ $30/sy	= $12,600
Total Estimated Construction Costs	= $111,710

Engineering Cost Estimate:

Survey	= $2,500
Plans and Specifications	= $9,000
Permits (Part II, PennDot?)	= $500
Inspection	= $7,000
Construction Supervision	= $1,500
Miscellaneous	= $1,000
Total Engineering	= $21,500

Authority Costs:	
Permit (Part II)	= $500
Administration	= $1000
Contingency (10%):	= $13,500
Total Estimated Project Cost	**= $148,181**

3/12/97 As per Eric Tissue, User rates would be based on water useage or a flat rate.

Flat rate = 181.00/year.

The individual completing the component should use the checklist below to assure that all items are included in the module package. The municipality should confirm that the required items have been included within 10 days of receipt, and if complete, sign and date the checklist.

Sewage Collection and Treatment Facilities

- ☒ Name and Address of land development project.
- ☒ U.S.G.S. 7.5 minute topographic map with development area plotted.
- ☒ Project Narrative.
- ☐ Letter from water company (if applicable)
- ☒ Alternative Analysis Narrative.
- ☒ Details of chosen financial assurance method.
- ☐ Proof of Public Notification (if applicable). Pending
- ☒ Name of existing collection and conveyance facilities.
- ☒ Name and NPDES number of existing treatment facility to serve proposed development.
- ☒ Plot plan of project with required information.
- ☐ Pennsylvania Historical and Museum Commission letter documenting resolution of conflict (if applicable).
- ☒ Total sewage flows to facilities table.
- ☒ Signature of existing collection and/or conveyance Chapter 94 report preparer.
- ☒ Signature of existing treatment facility Chapter 94 report preparer.
- ☐ Letter granting allocation to project (if applicable).
- ☒ Signature acknowledging False Swearing Statement.
- ☒ Completed Component 4 (Planning Agency Review) for each existing planning agency and health department.
- ☐ Pennsylvania Natural Diversity Inventory letter documenting resolution of conflict (if applicable).
- ☒ Information on selected treatment and disposal option
- ☐ Permeability information (if applicable)
- ☐ Preliminary hydrogeology (if applicable)
- ☐ Detailed hydrogeology (if applicable)

Municipal Action

- ☒ Component 3 (Sewage Collection and Treatment Facilities)
- ☒ Component 4 (Planning Agency Comments and Responses)
- ☐ Proof of Public Notification. Pending
- ☐ Comments, and responses to comments generated by public notification. Pending
- ☒ Adoption Resolution (for revisions)
- ☒ Transmittal Letter (for revisions)

Signature of Municipal Official

01/16/97

Date submittal determined complete

Recycled Paper

6-96-248

3640-FM-WQ0362a 11/95

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP CODE #

SEWAGE FACILITIES PLANNING MODULE
COMPONENT 4a - MUNICIPAL PLANNING AGENCY REVIEW

Note to Developer: To expedite the review of your proposal, one copy of your completed planning module package and one copy of this *Planning Agency Review Component* should be sent to the existing local municipal planning agency for their comments.

SECTION A. SUBDIVISION NAME (See Section A of attached guidance)

Subdivision Name Greenville Sanitary Authority Sewer Extensions

SECTION B. REVIEW SCHEDULE (See Section B of attached guidance)

1. Date plan received by municipal planning agency. October 16, 1996
2. Date review completed by agency. November 6, 1996

SECTION C. AGENCY REVIEW (See Section C of attached guidance)

Yes	No		
☐	☒	1.	Is there a municipal comprehensive plan adopted under Act 247?
☐	☐	2.	Is this proposed plan consistent with the comprehensive plan for land use?
			If no, describe the inconsistencies A municipal comprehensive plan is currently being reviewed and will be considered for adoption in 1997.
☒	☐	3.	Is there a municipal zoning ordinance?
☒	☐		If yes, does this plan meet the requirements of the ordinance as it relates to the proposed sewage disposal method?
			If no, describe the inconsistencies
☒	☐	4.	Is there a municipal subdivision and land development ordinance?
☒	☐		If yes, does this plan meet the requirements of the ordinance as it relates to the proposed sewage disposal method?
			If no, describe the inconsistencies
☐	☒	5.	Has a waiver of the sewage facilities planning requirements been requested for the residual tract of this subdivision?
☐	☐		If yes, is the proposed waiver consistent with applicable ordinances.
			If no, describe the inconsistencies A waiver has not been requested as the sewer extensions are not part of a subdivision.
☐	☒	6.	Are there any wastewater disposal needs in the area adjacent to the new land development that should be considered by the municipality?
			If yes, describe
☒	☐	7.	Is this plan consistent with the municipal official plan for sewage disposal?
			If no, describe the inconsistencies
☒	☐	8.	Is the proposed plan consistent with the use, development, and protection of water resources as identified in the comprehensive plan?
			If no, describe the inconsistencies
☒	☐	9.	Is the proposed plan consistent with municipal land use planning relative to Prime Agricultural Land Preservation as identified by the comprehensive plan?

LETTER OF TRANSMITTAL

6-96-248

KLH Engineers, Inc.
5173 Campbells Run Road
Pittsburgh, PA 15205

DATE: JANUARY 21, 1997

ATTENTION: BETSY MCGUIGAN

TO:
DEPT OF ENVIRONMENTAL PROTECTION
230 CHESTNUT STREET
MEADVILLE PA 16335-3481

RE:
GREENVILLE SANITARY AUTHORITY
SEWER EXTENSION PROJECTS
PLANNING MODULE

WE ARE SENDING ☒ **ATTACHED** ☐ **UNDER SEPARATE COVER VIA** _____:

- ☐ SAMPLES
- ☐ LITERATURE
- ☐ PLANS
- ☐ PRINTS
- ☐ SHOP DRAWINGS
- ☐ ENGINEERING DRAWINGS
- ☐ CHANGE ORDERS
- ☐ LETTERS
- ☐ CONTRACTS
- ☒ OTHER PLANNING MODULE COMPONENT

COPIES	DATE	NO	DESCRIPTION
1			COMPONENT 4B

THESE ARE BEING SENT:

- ☒ FOR YOUR APPROVAL
- ☒ FOR YOUR USE
- ☐ FOR YOUR REVIEW
- ☐ FOR YOUR COMMENTS
- ☐ FOR YOUR SIGNATURE
- ☐ FOR YOUR _____
- ☐ APPROVED AS NOTED
- ☐ APPROVED AS SUBMITTED
- ☐ APPROVED AS CHANGED
- ☐ REJECTED AS NOTED
- ☐ REJECTED AS CHANGED
- ☐ RETURNED FOR CORRECTIONS
- ☐ RESUBMIT _____ COPIES FOR APPROVAL
- ☐ SUBMIT _____ COPIES FOR DISTRIBUTION
- ☐ RENEW _____ COPIES FOR _____
- ☐ _____

NOTES: THIS WAS INADVERTENTLY LEFT OUT OF THE SUBMITTED PLANNING MODULE PACKET.

COPY TO: FILE

SIGNATURE: Eric C. Tisup

TITLE:

DATE: JANUARY 21, 1997

6-96-248

3640-FM-WQ0362b 11/95

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP CODE #

SEWAGE FACILITIES PLANNING MODULE
COMPONENT 4b - COUNTY PLANNING AGENCY REVIEW
(or Planning Agency with Areawide Jurisdiction)

Note to Developer: To expedite the review of your proposal, one copy of your completed planning module package and one copy of this ***Planning Agency Review Component*** should be sent to the existing county planning agency or planning agency with areawide jurisdiction for their comments.

SECTION A. SUBDIVISION NAME (See Section A of attached guidance)

Subdivision Name: Greenville Sanitary Authority Sewer Extension Project

SECTION B. REVIEW SCHEDULE (See Section B of attached guidance)

1. Date plan received by county planning agency. October 16, 1996
2. Date plan received by planning agency with area wide jurisdiction -na-
   Agency name _____
3. Date review completed by agency October 17, 1996

SECTION C. AGENCY REVIEW (See Section C of attached guidance)

Comp Plan will be adopted late Fall 96.

Yes	No		
☐	☒*	1.	Is there a county or areawide comprehensive plan adopted under Act 247?
☐	☐		If yes, is the proposed plan consistent with the comprehensive plan?
☐	☐		Does the proposed plan meet the goals and objectives of the plan?
			If no, describe goals and objectives that are not met _____
☐	☒'	2.	Is there a county or areawide zoning ordinance?
☐	☐		If yes, does the proposed plan meet the zoning requirements of the county?
			If no, describe inconsistencies _____
☒	☐	3.	Is there a county or areawide subdivision and land development ordinance?
☒	☐		If yes, does the proposed plan meet the requirements of the ordinances as it relates to the proposed sewage disposal method?
			If no, describe which requirements are not met _____
☐	☒	4.	Has a waiver of the sewage facilities planning requirements been requested for the residual tract of this subdivision?
☐	☐		If yes, is the proposed waiver consistent with applicable ordinances.
			If no, describe the inconsistencies _____
☐	☒	5.	Does the county have a stormwater management plan as required by the Stormwater Management Act?
			If yes, will this project plan require the implementation of storm water management measures?
☒	☐	6.	Is the proposed plan consistent with the use, development, and protection of water resources as identified in the comprehensive plan?
			If no, describe inconsistency _____

KLH Engineers, Inc.

5173 Campbells Run Road, Pittsburgh, PA 15205

Telephone (412) 494-0510
Telecopier (412) 494-0426
EMAIL klheng@sgi.net

January 17, 1997
Ref. No. 123

Department of Environmental Protection
230 Chestnut Street
Meadville, PA 16335-3481

Attention: Betsy McGuigan

Gentlemen:

Greenville Sanitary Authority
Sewer Extension Projects
Planning Module

Please find enclosed a Planning Module for the subject project. A Proof of Publication and public comments will be forthcoming in approximately three weeks. Will you please review the Planning Module for completeness with the exception of the Proof of Publication.

Should you have any questions on this matter, please give me a call.

Very truly yours,

KLH ENGINEERS, INC.

Eric C. Tissue

Eric C. Tissue

cc: Greenville Sanitary Auth.

lg/123080ET.ltr

GREENVILLE SANITARY AUTHORITY

Act 537 Sewage Facilities Plan Special Study

February 2016
REV April 2016

KLH ENGINEERS, INC
5173 CAMPBELLS RUN ROAD
PITTSBURGH, PA 15205-9733

GREENVILLE SANITARY AUTHORITY

Act 537 Sewage Facilities Plan Special Study

Table of Contents

TABLES

APPENDICES

ACT 537 SEWAGE FACILITIES PLAN SPECIAL STUDY

GREENVILLE SANITARY AUTHORITY

MERCER COUNTY, PENNSYLVANIA

PLAN SUMMARY

The Pennsylvania Sewage Facilities Act (Act 537) was enacted by the Pennsylvania Legislature in 1966. It requires every municipality in the Commonwealth of Pennsylvania (Commonwealth) to develop and maintain an up-to-date Act 537 Sewage Facilities Plan. The purpose of the Act 537 planning process is to protect the health, safety and welfare of the citizens living in a municipality, to prevent future sewage disposal problems from occurring, and to provide protection for the groundwater and surface waters of the Commonwealth. An Act 537 Plan should be updated when the existing Act 537 Plan is out of date, is inconsistent with other municipal planning, does not provide adequate solutions to resolve existing sewage disposal problems, or is needed to provide for planned growth.

This Act 537 Sewage Facilities Plan Special Study was developed according to the Pennsylvania Department of Environmental Protection (PADEP) guidelines set forth in the PADEP document entitled, *A Guide for Preparing Act 537 Update Revisions*, and includes all applicable information to provide adequate planning, as outlined on the PADEP document entitled, *Act 537 Plan Content and Environmental Assessment Checklist*, provided herein as Appendix B.

The Greenville Sanitary Authority (Authority) Wastewater Treatment Plant (WWTP) provides sewage treatment services to Greenville Borough, Hempfield Township and West Salem Township. The Authority has taken a proactive approach to project planning. An upgrade project is necessary to replace the aging infrastructure of the plant and allow it to continue producing high quality treated effluent.

The current planning effort is intended to be a Special Study focused on the rehabilitation of the WWTP. The WWTP has demonstrated exceptional performance since completion of the last significant upgrade. However, the trickling filters and flocculator clarifiers are nearly 25 years old. The headworks, primary clarifiers, and trickling filter pump station are over 50 years old, far beyond the reasonable operating life of these facilities. Other problems, including issues related to inorganic wastes, grit and grease, safety concerns, mechanical failure of equipment, concrete deterioration, and frequent maintenance requirements, carry significant concern in regards to the WWTP and the effectiveness of the treatment processes and the overall capacity of the plant. These problems, along with the age of the facilities, were the motivation behind the development of this Special Study and the need to evaluate alternatives for the upgrade of the treatment plant. Problems identified at the existing WWTP are discussed in greater detail throughout the Special Study.

The alternatives evaluated for the WWTP improvements are as follows:

1. Alternative 1 – Continued use of the Trickling Filter/Solids Contact (TF/SC) Process
2. Alternative 2 – Convert existing TF/SC to Membrane Bioreactor (MBR)
3. Alternative 3 – Construct new Sequencing Batch Reactor (SBR)
4. Alternative 4 – Construct new Headworks Facility

Alternative 4 was discounted because it does not address the needs identified at the WWTP, including the replacement of aging infrastructure and equipment. Of the remaining alternatives, Alternative 1 (TF/SC) has the lowest estimated project cost. However, considering future total nitrogen limits which will likely be imposed during the design life of the proposed facilities, Alternative 2 (MBR) has the lowest total estimated project cost of $26,584,000. In terms of present worth, Alternative 2 is the most economical under each of the financing methods considered.

Available financing methods considered herein include PENNVEST, bonds and RUS. It is anticipated that PENNVEST will be the primary financing option as it provides the lowest present worth and is the most economical financing option. Because PENNVEST financing is capped at $20.0 Million where more than one municipality is served, however, additional bond financing will also be necessary. In effort to receive adequate funding for the WWTP upgrade project, the Authority will apply for various federal, state and county level grants. If a grant is obtained for the project, this may eliminate the need for additional financing and will decrease projected user rates. The ultimate financing alternative selected will be based upon eligibility under each financing alternative and the most minimal impact on user rates at the time of implementation.

Alternative 2 (MBR) is recommended for implementation. Implementation of the MBR will allow the Authority to continue meeting existing and future wastewater disposal needs in Greenville Borough, Hempfield Township and West Salem Township. The membrane bioreactor alternative provides good process control with automated operation capabilities, and includes the capacity necessary for denitrification. Alternative 2 (MBR) will have a small footprint and will fully utilize existing tankage, while converting to a more efficient and operationally flexible secondary treatment process. The operation and maintenance needs and costs associated with the membrane bioreactor alternative are comparable to those of the other alternatives considered.

The projected user rates were calculated based on the monthly debt service (max over 40 years) and operation and maintenance (O&M) costs (average over 40 years) related to each alternative. The user rates were determined based on the average water use per EDU. The projected user rates for an average residential user for implementation of Alternative 2 (MBR) under the selected financing method are as follows:

- Monthly Debt Service per EDU $18.27
- Monthly O&M per EDU $27.98
- Totally Monthly User Rate per EDU $46.25
- Well Users flat charge $36.13

Implementation of Alternative 2 (MBR) will ensure the effectiveness of the treatment processes and the overall capacity of the WWTP to allow it to continue producing high quality treated effluent. The project will improve and protect the water quality of the Shenango River drainage basin. No environmental mitigation is required for the project other than what would be considered routine as part of a project of this nature. For instance, implementation of Erosion and Sedimentation plans, stormwater management plans, and implementing procedures to ensure compliance with all permits during construction.

There are no significant administrative issues, organizational needs or deficiencies in legal authority necessary for implementation of this Special Study. The proposed improvements will be implemented under the existing authority of the Greenville Sanitary Authority. Upon completion of the WWTP improvements proposed herein, the Greenville Sanitary Authority and the Borough of Greenville will maintain service agreements with Hempfield Township and West Salem Township. These agreements may need to be updated to reflect changes in billing structure.

The anticipated schedule of implementation of the Special Study, contingent upon receiving favorable funding, is included in Table 1 in the Implementation Schedule section of this Special Study below.

MUNICIPAL ADOPTION

Original signed and sealed Resolutions of Adoption of the Act 537 Sewage Facilities Plan Special Study by the Greenville Sanitary Authority, Greenville Borough, Hempfield Township and West Salem Township are included in Appendix C.

PLANNING AGENCY CORRESPONDENCE

General correspondence with the Greenville Planning Commission, Hempfield Township Planning, West Salem Township Planning and the Mercer County Regional Planning Commission is included in Appendix D. All applicable planning agency comments have been addressed within the Special Study as necessary.

PUBLICATION

Proof of Public Notice, which documents the adoption and summary of the Special Study, and the establishment and conduct of a 30-day comment period, is included in Appendix E.

COMMENTS AND RESPONSES

Copies of all written comments received as a result of the public comment period are included in Appendix F. Comments have been addressed within the Special Study as necessary.

IMPLEMENTATION SCHEDULE

The anticipated schedule of implementation of the Special Study, contingent upon receiving favorable funding, is included in Table 1.

Table 1: Schedule of Implementation

Activity	Completion Date
Submit the Special Study to the PADEP	July 2016
PADEP Review and Approval of the Special Study	October 2016
Complete Design	October 2017
Acquire Necessary Permits	April 2018
Obtain Construction Financing	July 2018
Begin Construction	September 2018
Complete Construction	March 2020

CONSISTENCY DETERMINATION

According to Act 537, all technically feasible sewage facility alternatives must be evaluated for consistency with certain acts, programs and policies. There are no expected inconsistencies associated with the upgrade of the Greenville Sanitary Authority WWTP. The sewage treatment technologies identified herein are consistent with the following Acts, programs and policies, and do not require resolution during this planning phase of the project:

- Sections 4 and 5 of the Clean Streams Law
- Section 208 of the Clean Water Act
- Municipal Wasteload Management Under PA Code, Title 25, Chapter 94
- Title II of the Clean Water Act
- Titles II and VI of the Water Quality Act of 1987
- Comprehensive Plans developed under the Pennsylvania Municipalities Planning Code
- Antidegradation requirements as contained in PA Code, Title 25, Chapters 93, 95 and 102
- State Water Plan developed under the Water Resources Planning Act
- Pennsylvania Prime Agricultural Land Policy
- Mercer County Stormwater Management Plan
- Wetlands Protection
- Protection of rare, endangered or threatened plant and animal species as identified by the Pennsylvania Natural Diversity Inventory (PNDI)
- Historical and archaeological resource protection relating to cooperation with public officials with the Pennsylvania Historical and Museum Commission (PMHC)

Additional action may be required to demonstrate consistency with the above named acts, programs and policies. This will occur during the design and permitting phases upon implementation of the selected sewage facilities alternative. For more information, refer to Section VI.A of the Special Study.

I. PREVIOUS WASTEWATER PLANNING

I.A. IMPACT OF PAST WASTEWATER PLANNING ON THE CURRENT PLANNING EFFORT

The Greenville Sanitary Authority has previously undertaken appropriate planning under the Sewage Facilities Act in order to meet the sewage disposal needs in Greenville Borough, Hempfield Township and West Salem Township. The most recent planning activity was the development of the existing Greenville Borough Act 537 Plan, approved by the PADEP on March 15, 1991, which was developed for the upgrade of the WWTP in 1992.

Because of the high flows previously experienced by the plant, the Authority had been operating under a Corrective Action Plan (CAP). The Authority's existing sewer collection and conveyance infrastructure was the focus of numerous repair and rehabilitation projects through efforts to reduce inflow and infiltration resulting from wet weather events. Those projects have resulted in reduction in high wet weather flows. Additionally, the WWTP was re-rated from 2.8 MGD to 4.0 MGD in 2014.

The current planning effort is intended to be a Special Study focused on the rehabilitation of the Greenville Sanitary Authority WWTP. The WWTP has demonstrated exceptional performance since completion of the last significant upgrade. However, the trickling filters and flocculator clarifiers are nearly 25 years old, and the headworks, primary clarifiers, and trickling filter pump station are over 50 years old, which is far beyond the reasonable operating life of these facilities. The Greenville Sanitary Authority has taken a proactive approach to project planning. An upgrade project is necessary to replace the aging infrastructure of the plant and allow it to continue to produce high quality treated effluent.

II. PHYSICAL AND DEMOGRAPHIC ANALYSIS

II.A. IDENTIFICATION OF THE PLANNING AREA

While the planning undertaken in preparation of this Special Study has an inherent impact on the Authority's entire service area throughout Greenville Borough, Hempfield Township and West Salem Township, all construction work for implementation of the proposed wastewater treatment alternatives will be completed only at the site of the Greenville Sanitary Authority WWTP. Thus, the planning area and much of the information covered in the Special Study is specific to that site.

An overall location overview is shown on Exhibit 1 in Appendix G. The location map depicts the tributary communities within the overall service area and the location of the WWTP. The WWTP is located south of Greenville Borough in Hempfield Township.

II.B. PHYSICAL CHARACTERISTICS OF THE PLANNING AREA

Consideration must be given to the environmental impacts of land development activities throughout a watershed. Urbanization has the potential to degrade environmental values of watersheds with protected streams. For this reason, it is important to identify the physical characteristics of the planning area to provide protection for important environmental resources.

The Pennsylvania Code, Title 25, Chapter 93 (Water Quality Standards) contains classifications of every stream in Pennsylvania and orders and promotes their protection. The WWTP discharges treated effluent to the Shenango River, which is classified as a warm water fishery (WWF) under Chapter 93. Chapter 93 defines a WWF as a stream used for the maintenance and propagation of fish species and additional flora and fauna that are indigenous to a warm water habitat. Additional protection measures exist for waters classified as high quality (HQ) or exceptional value (EV). HQ and EV waters or watersheds have excellent quality and features that require special water quality protection measures. It is important to note that the Shenango River is not classified as HQ or EV, but a major goal of this Special Study is to protect the waters of the Commonwealth through the preservation of the overall Shenango River drainage basin to support aquatic life.

II.C. SOILS ANALYSIS

Soils play a key role in determining the appropriateness of various on-lot and community sewage disposal systems, and often pose limitations for construction in various areas. The slope, geologic composition, depth to the restrictive layer, depth to the water table and the drainage characteristics of soils affect the ability to install on-lot or public sewerage systems.

The distribution of general soil classifications for the soil types found at the site of the WWTP is shown on Exhibit 2 in Appendix G. The types and characteristics of the soils were obtained from the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS). The following is a description of the general soil classifications of the soils in the area surrounding the site of the WWTP:

- Braceville gravelly loam, 3 to 8 percent slopes, moderately eroded (BrB2) – This soil type is set on outwash terraces and its parent material is coarse-loamy outwash. The depth to the restrictive feature is 20 to 32 inches to the fragipan. It is moderately well drained and the depth to the water table is about 16 to 28 inches. Mean annual precipitation ranges from 36 to 46 inches.

- Red Hook silt loam, flooded (Rf) – This soil type is set on floodplains at elevations ranging from 200 to 1,500 feet and its parent material is coarse-loamy outwash. The depth to the restrictive feature is more than 80 inches. It is somewhat poorly drained and the depth to the water table is about 6 to 18 inches. Mean annual precipitation ranges from 30 to 46 inches.

- Wayland silt loam, coarse variant (Wa) – This soil type is set on floodplains at elevations ranging from 200 to 1,500 feet and its parent material is recent alluvium. The depth to the restrictive feature is more than 80 inches. It is poorly drained and the depth to the water table is about 10 inches. Mean annual precipitation ranges from 30 to 44 inches.

On-lot System Appropriateness

Discussion of areas suitable for in-ground on-lot systems, elevated sand mounds, individual residential spray irrigation systems, and areas unsuitable for soil dependent systems is irrelevant. Those types of sewage disposal systems are not considered in this Special Study, as it was developed for the upgrade of the WWTP.

Agricultural Areas

Agricultural areas, as defined by the Pennsylvania Code, are areas used primarily for the production of crops and where the soil is without vegetative cover during certain periods of the year. Prime farmland is land that has the best physical and chemical characteristics for the production of food, feed and forage, fiber, and oil seed crops. Pennsylvania's Prime Agricultural Land Policy orders and directs the prevention of irreversible conversion of prime agricultural land to uses that result in its loss as an environmental or essential food production resource. Prime farmlands are important to examine for scenarios in which future development is expected to occur because of the protective measures in existence to preserve this important resource.

It is important to note that there are soil areas classified as prime farmland and farmland of statewide importance at the site of the WWTP, as shown on Exhibit 2 in Appendix G. While the soils are classified as prime farmlands, the site of the WWTP is an existing, previously developed and maintained site which is not used for agricultural purposes. All construction work proposed through the upgrade project will occur only at the site of the existing WWTP, and there will be no impacts on prime agricultural lands through the implementation of this Special Study.

II.D. GEOLOGIC FEATURES

Geologic features impact the ability to install and properly operate on-lot or community sewage disposal facilities. Sinkholes and solution channels provide direct conduits through which sewage may travel and cause contamination of groundwater. Inadequate depth to the water table may indicate that the unsaturated soil zone is too thin to adequately treat wastewater in on-lot system applications. These limitations must be avoided when implementing sewage disposal technologies and necessitate an investigation of geologic features.

Mapping of the underlying geologic features at the site of the WWTP is shown on Exhibit 3 in Appendix G. This mapping shows the most dominant geological formations at the site of the WWTP. These formations are not considered to adversely affect the area and there are no known geologic features in relation to existing or potential nitrate-nitrogen pollution and drinking water sources. The various geologic formations and descriptions of each, obtained from the United States Geological Survey (USGS), are as follows:

- Berea Sandstone through Venango Formation, undivided – This formation is comprised of greenish-yellow and gray sandstone, siltstone, and shale succession, becoming shalier and grayer downward. The bottom of interval is the bottom of Panama Conglomerate. It includes, in descending order: Berea Sandstone, Bedford Shale, Cussewago Sandstone, Riceville Shale and Venango Formation equivalent. It contains marine fossils.

- Cuyahoga Group – This formation is comprised of medium-gray siltstone and dark-gray shale containing interbedded light-gray, flaggy sandstone. It includes, in descending order: Meadville Shale, Sharpsville Sandstone and Orangeville Shale. Marine fossils are common.

II.E. TOPOGRAPHY

The terrain is relatively flat at the site of the WWTP. Discussion of areas with slopes that are suitable for conventional systems or elevated sand mounds, and areas with slopes that are

unsuitable for on-lot systems is irrelevant. Those types of sewage disposal systems are not considered in this Special Study, as it was developed to address the upgrade of the WWTP.

II.F. POTABLE WATER SUPPLIES

Because this Special Study is specific to the WWTP upgrade project at the site of the WWTP, discussion of potable water supplies throughout the service area is not applicable. The site of the WWTP is not served by public water, and instead receives its water supply from two wells at the site of the plant.

II.G. WETLANDS

Wetlands are areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions including swamps, marshes, bogs and similar areas. Wetland areas are considered to be a valuable public water resource and are subject to strict conservation regulations. They provide an environment and habitat for aquatic life including fish, amphibians and waterfowl. Additionally, many endangered plant species are thought to exist in wetlands, and wetlands are essential for the maintenance of surface water quality and quantity. National Wetlands Inventory (NWI) mapping of the area surrounding the site of the WWTP is shown on Exhibit 4 in Appendix G. Minimal wetland areas classified as riverine exist along the Shenango River to the south of the site of the WWTP.

Hydric soils are formed in conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. These soils contain the characteristics necessary for potential wetland existence and may indicate a wetland area. Hydric soils mapping is also shown on Exhibit 4 in Appendix G. The mapping indicates that the soil types at the site of the WWTP are classified as partially hydric.

Based on the wetlands mapping, which indicates that there are no wetlands at the site of the WWTP, there are no expected impacts on wetlands. The Authority will make all attempts to minimize the impact on any ecologically sensitive areas during any construction activities. All work associated with the chosen alternative will be consistent with all applicable state and federal regulations regarding wetlands.

III. EXISTING SEWAGE FACILITIES IN THE PLANNING AREA

III.A. SEWERAGE SYSTEMS IN THE PLANNING AREA

III.A.1 Location, Size and Ownership of Sewerage Facilities in the Planning Area

The Greenville Sanitary Authority WWTP provides wastewater treatment services for residents of Greenville Borough, Hempfield Township and West Salem Township, and is located in Hempfield Township at 183 Hamburg Road, Greenville, PA 16125. In 1992, the WWTP underwent an expansion and upgrade of facilities to eliminate wet weather bypass flows and effect phosphorous removal. The project involved construction of new flocculating clarifiers, chlorine contact tank, chemical feed, solids handling and aeration facilities. Upgrades were performed on primary clarifiers, trickling filters and digesters. In 2004, new raw sewage grinders were installed to replace the aging comminutors.

The WWTP is owned by the Greenville Sanitary Authority and its operation is regulated by National Pollutant Discharge Elimination System (NPDES) Permit No. PA0027367. The plant discharges treated effluent to the Shenango River. The Greenville Sanitary Authority WWTP was previously permitted for a treatment capacity of 2.8 MGD, but was rerated in 2014 to treat average day flow of 4.0 MGD. The NPDES Permit was amended for the rerated hydraulic capacity. The current rated hydraulic capacity of the plant is 4.0 MGD and the organic loading capacity is 5,000 lb BOD/day. The NPDES permit will expire on January 31, 2017. The existing NPDES permitted effluent limits are listed in Table 2:

Table 2: NPDES Permitted Effluent Limits of the WWTP

PARAMETER	CONCENTRATION (mg/l)			
	Average Monthly	Average Weekly	Instantaneous Maximum	Units
FLOW	Monitor and Report			-
TOTAL RESIDUAL CHLORINE	0.37	-	1.2	mg/l
$CBOD_5$				
May 1 through October 31	20	30	40	mg/l
November 1 through April 30	25	40	50	mg/l
TOTAL SUSPENDED SOLIDS	30	45	60	mg/l
AMMONIA NITROGEN				
May 1 through October 31	7	-	14	mg/l
November 1 through April 30	21	-	42	mg/l
FECAL COLIFORM				
May 1 through September 30	200/100 ml as a Geometric Mean			#/100 ml
October 1 through April 30	2,000/100 ml as a Geometric Mean			#/100 ml
TOTAL PHOSPHORUS	1	-	2	mg/l
TOTAL COPPER	0.017	-	0.042	mg/l
pH	Not less than 6.0 nor greater than 9.0			Standard Units

The general condition of the collector and interceptor sewers owned and maintained by the Greenville Sanitary Authority is fair. The sewer system is aging, but no serious problems, concerning breaks or blockages have occurred. Sewers are under constant inspection and maintenance, and the Authority has completed televising of the entire system. Much of the sewers were built before the advent of present day construction materials and techniques and several sewersheds have substantial quantities of infiltration and inflow. Rehabilitation projects are on-going and will continue to improve the infrastructure. A summary of various pipe diameters and the respective length of each throughout the Authority's system are included in Table 3.

Table 3: Greenville Sanitary Authority Sewers

Pipe Diameter (in)	Total Length (LF)
6	1,500
8	85,400
10	27,800
12	14,200
15	3,800
18	6,900
20	2,400
24	3,300
30	8,600

The general condition of the collector and interceptor sewers owned by the West Salem Township Municipal Sewage Authority is good. The West Salem sewage system was installed in 2001, and is maintained by Greenville Borough. The sewer extension project into West Salem Township resulted in the construction of three (3) pump stations. A fourth pump station was constructed in 2004 to serve St. Paul Homes. The pump stations were taken over by the Greenville Sanitary Authority in late 2006. The pump stations are in good condition and will not be a focus of this Special Study.

The general condition of the collector and interceptor sewers owned and maintained by the Hempfield Township Municipal Authority is good. The Hempfield sewer system was originally constructed in 1969, and since that time, numerous developer-built sewer extensions have been constructed. The system consists of approximately 102,000 lineal feet of terra-cotta and PVC collector sewers ranging in size from 8-inch to 10-inch and appurtenant manholes. There is also a section of 2-inch pressure sewer for grinder pump operations. There are no diversion structures or pump stations associated with the Hempfield sewer system.

III.A.2 Narrative & Schematic Diagram of the Facility's Basic Treatment Processes

The Greenville Sanitary Authority WWTP is operated under NPDES Permit No. PA0027367 and discharges treated effluent to the Shenango River. The current rated hydraulic capacity of the plant is 4.0 MGD and the organic loading capacity is 5,000 lb BOD/day. A schematic of the existing basic treatment process of the WWTP is shown on Exhibit 6 in Appendix G, and the existing site plan is shown on Exhibit 7 in Appendix G. The treatment process is outlined as follows:

- Raw sewage enters the WWTP through the headworks facility. The headworks consist of two (2) comminutors (grinders) and four (4) influent pumps. There are no grit or grease removal systems.

- The raw sewage pumps in the influent pump station pump wastewater to the primary clarifiers for primary treatment. The primary clarifiers are designed to remove approximately 35% of the biological oxygen demand (BOD) and 50% of the total suspended solids (TSS) from the incoming wastewater stream. This immediate reduction of the organic load on the WWTP has implications on the effectiveness and capacity of the downstream treatment units. The tanks allow solids to settle while

grease rises to the surface and is skimmed off. The sludge withdrawal system from the primary clarifiers involves the gravity draining of the sludge hoppers located at the end of the tank into a wet well which is located within the control building.

- After primary treatment, flow enters the trickling filter system, which includes the trickling filter pump station and two (2) trickling filters. The trickling filter pump station structure includes a two-chamber wet well and three (3) pumps. The arrangement of the wet well and trickling filter effluent piping allow the trickling filters to be run in parallel or series and the third pump can be operated to apply flow to either filter. During the expansion in 1992, the filters were made taller by constructing glass-fused-to-steel tanks on top of the original concrete structures. The filter media is plastic.

- When flow has made its way through the trickling filter system, it enters the aeration channel. The blowers for the aeration system are housed within the trickling filter pump station building. Solids are returned to the aeration tank from the clarifiers as is done with an activated sludge system. The dissolved oxygen promotes the growth of biological floc that substantially removes organic material.

- Following aeration, there are two (2) flocculator clarifiers. These clarifiers provide the final settling of the solids. The waste sludge collected from the clarifiers is pumped to the gravity belt thickener and then to the digesters.

- The WWTP currently utilizes chlorine gas disinfection. Chlorine is stored in one-ton cylinders and typically 2-3 full cylinders are on site. The disinfection system primarily consists of equipment that dissolves chlorine in a liquid solution that is discharged into the front of the chlorine contact tank.

- Solids are pumped into the anaerobic digesters. There are two (2) anaerobic digesters that are generally run in series. Waste sludge is first run through the sludge thickener and then pumped into digester one. After a period of digestion, sludge is transferred to digester two. There are two (2) pumps that are used to mix the digesters and transfer sludge from one digester to the other.

- Following digestion, sludge is dewatered. The WWTP utilizes two different methods for sludge dewatering. There is a belt filter press that was installed during the 1992 upgrade. There are also covered sludge drying beds and uncovered drying beds.

- The high flow pump station conveys raw sewage flow that bypasses the influent pump station during extreme wet weather events directly to the aeration tank.

III.A.3 Problems with Existing Facilities

There are various problems which carry significant concern in regards to the WWTP. These problems impact the effectiveness of the treatment processes and the overall capacity of the WWTP. These problems, along with the age of the facilities, were the motivation behind the development of this Special Study and the need to evaluate alternatives for the upgrade of the treatment plant. Problems with the existing WWTP are outlined as follows:

- **Headworks**

  Problems associated with the plant begin at the headworks. The influent pumps are original to the plant, constructed in 1958, and the comminutors are in need of a rebuild. Inorganic materials (rags, plastics, etc.) have always been in wastewater stream. However, with the continuing development of disposable cleaning products like Swiffer® products, Clorox Wipes® and other like products, more and more inorganic wastes that do not belong in the wastewater stream are finding their way into the WWTP. Furthermore, the WWTP has never had any grit or grease removal facilities.

  Both the comminuted inorganic waste and grit enter the treatment units and find their way throughout the process. Debris that floats gets carried through the primary clarifiers and into the trickling filters and beyond. This could lead to their ultimate discharge to the Shenango River, although there is a device within the chlorine contact tank that is designed to catch any floatables that have made it through the process. Debris that sinks, including grit, tends to settle out in the primary clarifiers and ends up in the solids disposal stream. The sludge disposal process involves multiple stages of pumping including digester mixing and transfer as well as pumping to the gravity belt thickener, sludge drying beds and belt filter press. The grit causes wear on multiple sets of pumps before it is finally removed from the system.

  Significant problems also exist in regards to the wet well. The wet well is located within the main control building and gases are separated from the lab area by only a single door. The current National Fire Protection Association (NFPA) code considers that a room without physical separation (a door is not considered physical separation) and therefore depending on the ventilation provided, requires the lab and all adjacent rooms to have explosion proof equipment or, at a minimum, hazardous location rated equipment. While the electrical devices within the wet well area are explosion proof, all devices must be appropriately rated and in good working order. A spark from any electrical component could cause an explosion of the off-gases from the raw sewage. It is important to note that the operators of the facility are aware of these hazards and work diligently day-in and day-out to ensure that these potential hazards are minimized. There are four gas detectors in the building that are checked and maintained regularly. The operators are aware of what situations may lead to gas entering the control building and conduct their operations accordingly. While these concerns are closely monitored, the danger and risk of an explosion will always exist within the control building without significant modifications.

- **Primary Clarifiers**

  In the last few years, mechanical failures of the primary clarifier's sludge removal system have led to significant downtime of each of the pairs of primary clarifiers. When this occurs, the trickling filters receive an increased BOD and TSS load for prolonged periods of time. This can affect their performance and ability to biologically remove the BOD and TSS to the limits of the NPDES permit. Fortunately, during both periods of mechanical failure the other set did not fail as well. However, this lack of redundancy and eventual need to remove a pair from service to perform maintenance demonstrates a need to expand the primary clarification capacity and add a third set of primary clarifier tanks. An additional set of tanks will increase the effectiveness of the primary clarifiers in removing BOD and TSS and will increase the capacity of the trickling filters.

Because the sludge drains by gravity from the hoppers to the wet well, the pipes are subject to clogging. Furthermore, due to the depth of the sludge hoppers, the wet well is very deep and obviously contains primary sludge. Primary sludge has the same hazards as raw sewage and per the current NFPA code shall be considered to be an explosion hazard. Again, as with the raw sewage wet well, this primary clarifier sludge wet well is located within the building and not physically separated from the remainder of the building. At minimum, and in addition to the physical separation required, some safety modifications should be made to the wet well which would include the removal of the steps into the wet well.

- **Trickling Filters**

  The original concrete tanks are in fair condition but have a few locations that need some repair work including the slide gates located on each tank. The access stairs and platform are in need of a professional abrasion blast and repaint due to the beginning stages of corrosion.

  The rehabilitation project completed in 1992 utilized the existing trickling filter wet well structure to its fullest extent, but the building is extremely crowded. In the early spring of 2010, a piping joint broke that was a part of the original structure from 1958. This same type of joint (lead and oakum) exists on the opposite side of the structure and could also fail in the same way. Furthermore, while the wet well structure is remarkably efficient in utilizing its footprint and is currently meeting the needs of the WWTP, the pumps cannot be removed without significant mechanical work including the removal of piping. The pumps have not been serviced since 1992 (other than routine type maintenance) and the concrete wet well is beginning to show signs of deterioration above the water line. Because maintenance of the pumps is so difficult due to lack of space and the requirement to remove piping, there is good cause to replace the structure.

- **High Flow Pump Station**

  Sewage bypasses occur only during extreme events of precipitation or mechanical malfunction of equipment. The high flow pump station conveys raw wastewater flow that bypasses the influent pump station during periods of high flow directly to the aeration tank. The PADEP issued a permit for this as part of the 1992 expansion. This process is generally known as blending. However, it is technically not blending because all flow receives biological treatment. The blending method has saved the Authority from the need for significant infrastructure to be constructed to fully treat the wet weather flow, and as the last 20 years of operational data confirms, it is a dependable method to meet discharge limits. However, this blending method of treatment has not been permitted by the PADEP for many (if any) other locations throughout the Commonwealth.

  Through an upgrade of other plant components including the headworks, influent pump station, primary clarifiers and trickling filter pump station, the need for the high flow pump station should be drastically reduced, as the WWTP would have the ability to convey more flow through the full treatment process. However, the high flow pump station should remain in service to handle extreme wet weather events. The pumps in the high flow pump station are aging and could be replaced or rebuilt. The instrumentation and controls could also be replaced with modern equipment. The addition of a magnetic flow meter would be a benefit for tracking the quantity of flow that is blended.

- **Aeration**

  There are no significant problems with the aeration unit at this time.

- **Flocculator Clarifiers**

  One of the flocculators has a sludge collector mechanism that is in need of repair, but the unit is still operating. No significant modifications or additions are required for the clarifiers.

- **Disinfection**

  The chlorine injection equipment is aging. Additionally, if gas chlorine disinfection is maintained, this equipment should be replaced. Chlorine is a very aggressive oxidant and as such is very dangerous to life. The amount of chlorine stored on-site has the potential to cause a serious emergency. The WWTP is equipped with safety equipment to alert of a spill but this alone will not prevent one. There are much safer methods available to disinfect wastewater, and these methods will be assessed as part of the upgrade project.

- **Solids Digestion**

  The biggest concern with the digesters is the decant lines. There are multiple pipes that penetrate each digester at different levels that are used to decant the clear liquid from the top. This operation concentrates the solids so that dewatering can be more efficient. The potential problem comes from the fact that the digesters produce bio-gas, a highly explosive gas similar in properties to natural gas. If a valve is opened for a decant pipe that is above that water line, this bio-gas will enter the facility. Again, as discussed earlier, the control building is equipped with four gas detectors; however, the detectors will only warn of an issue, not prevent one. Also, an exterior ladder without a cage is used to access the roof of the control building and digester lids. This ladder is very treacherous in winter weather and should be replaced with an outdoor staircase.

- **Sludge Dewatering**

  The belt filter press was installed as part of the 1992 upgrade and is generally in good condition. However, at 20 years old, the belt press requires more frequent maintenance. The drying beds are utilized to their fullest extent throughout each year. It should be considered to construct a roof structure over the open beds to improve their performance and achieve greater throughput. Consideration should also be given to the construction of more drying beds. As a comparison, the belt filter press can achieve a solids concentration of approximately 20%; whereas the drying beds achieve solids concentrations approaching 90%. Therefore, when belt filter press sludge is hauled from the WWTP, 80% of the weight is water; and when drying bed sludge is hauled, only 10% of the weight is water.

- **Electrical System**

  The electrical equipment is aging, and in some cases, does not meet current code. The operators have little choice but to use the electrical room at the WWTP as office space, but electrical rooms were not designed to be used this way. Clearances from electrical gear require unobstructed space in front of cabinets. Additionally, it is recommended that changes be made that will declassify the space as requiring explosion proof equipment.

- **Mechanical Systems**

  The internal drain plumbing of the control building is in need of replacement, as identified in the 5-year capital improvement plan. The cast iron drain lines are corroding and failing. Furthermore, potable and process water lines and valves are in need of replacement. Sump pumps throughout the plant are in need of replacement. The pneumatic system is in need of rehabilitation; portable type compressors are used that are not as robust as the service requires.

- **Stormwater Controls**

  Currently site rain water enters the WWTP. Roof conductors, sump pumps and yard drains are all connected to the WWTP. As there is more and more scrutiny from the PADEP on separating storm water flow from sanitary flows, these cross connections should be removed and a storm water control system should be constructed.

III.A.4 Scheduled or In-progress Upgrading or Expansion of Treatment Facilities

There are no scheduled or in-progress upgrades planned for the Greenville Sanitary Authority WWTP. It is the goal of this Special Study to assess the ability of the plant to meet the sewage treatment needs of its regional customer base. This Special Study will evaluate alternative technologies and will make recommendations for the upgrade of the WWTP.

III.A.5 Operation & Maintenance Requirements for Small Flow Treatment Facility Systems

There are no small flow sewage treatment facilities located in Greenville Borough, Hempfield Township or West Salem Township. Therefore, the municipalities do not have any operation and maintenance requirements for such facilities.

III.A.6 Disposal Areas

The Greenville Sanitary Authority WWTP discharges treated effluent to the Shenango River.

III.B. ON-LOT SEWAGE DISPOSAL SYSTEMS IN THE PLANNING AREA

Discussion of individual or community on-lot sewage treatment facilities within Greenville Borough, Hempfield Township and West Salem Township is not included in this Special Study. Discussion of on-lot systems does not pertain to the planning required for the upgrade of the WWTP.

III.C. WASTEWATER SLUDGE AND SEPTAGE GENERATION, TRANSPORT AND DISPOSAL METHODS

III.C.1 Location of Sources of Wastewater Sludge or Septage

Sludge is generated from wastewater treated at the WWTP. Solids are pumped into the anaerobic digesters. There are two (2) anaerobic digesters that are generally run in series. Waste sludge is first run through the sludge thickener and then pumped into digester one. After a period of digestion, sludge is transferred to digester two. Following digestion, sludge is dewatered. The WWTP utilizes two different methods for sludge dewatering. There is a belt filter press that was installed during the 1992 upgrade. There are also covered sludge drying beds and uncovered drying beds.

III.C.2 Quantities of the Types of Sludges or Septage Generated

Table 4 presents the monthly biosolids production at the WWTP for the operating year 2014.

Table 4: WWTP Biosolids Production in the Operating Year 2014

Month	Dry Tons of Biosolids
January	9.48
February	5.31
March	10.50
April	26.96
May	7.60
June	17.67
July	26.13
August	21.12
September	18.21
October	16.11
November	10.51
December	8.66
TOTAL	178.23

III.C.3 Present Disposal Methods, Locations, Capacities and Transportation Methods

Illegal or improper sludge disposal methods have the potential to cause environmental damage and introduce public health hazards. Sludge must be deposited at sites approved and permitted by the PADEP or at permitted sewage treatment plants capable of receiving sludge. The Authority disposes sludge produced to the Carbon Limestone Landfill in Lowellville, Ohio.

IV. FUTURE GROWTH AND LAND DEVELOPMENT

IV.A. MUNICIPAL AND COUNTY PLANNING DOCUMENTS ADOPTED PURSUANT TO THE PENNSYLVANIA MUNICIPALITIES PLANNING CODE (ACT 247)

IV.A.1 Land Use Plans and Zoning Maps

As previously stated, the Greenville Sanitary Authority WWTP provides regional wastewater treatment service to residents in Greenville Borough, Hempfield Township and West Salem Township. It is important to note that the upgrade of the WWTP will not change the land use or zoning of any of the tributary communities. All construction work will occur at the site of the existing WWTP, which is located in an industrial zoned area in Hempfield Township. Therefore, discussion of land use plans and zoning maps that identify residential, commercial, industrial, recreational and open space areas is not relevant to the development of the Special Study. For planning completeness and future reference, however, the following summarizes the zoning districts in each tributary community.

Greenville Borough zoning districts, as shown on the Greenville Borough Zoning Map in Appendix H and established in the Greenville Borough Zoning Ordinance, are outlined as follows:

- Residential Zoning District (R-1) – To provide a zoning district in which the predominate use will be single-family homes with height and area regulations establishing an intensity of land use designed to effect low density residential development therein.

- Residential Family Zoning District (R-2) – To provide a zoning district in which the predominate use will be residential with height and area regulations establishing an intensity of land use designed to encourage the proper development of single and two-family dwellings.

- Residential Medium Density Zoning District (R-3) – To provide a zoning district in which the predominate land use will be residential and provide for dwelling unit types and densities that permit the development of single-family and two-family dwellings and encourage the construction of medium density, multi-family developments.

- Public Institutional Zoning District (PI) – To provide a zoning district that encourages the development of public institutional type uses in an environment conducive to such development and protected from the intrusions of commercial development.

- Commercial – Residential Zoning District 1 (CR-1) – To provide a zoning district which will permit a mixture of commercial and residential uses, encourage reuse and improvement of existing buildings and encourage business development of properties so influenced by adjacent major thoroughfares and historical development patterns while minimizing impact on residential development, encouraging appropriate residential development, and discouraging commercial development more appropriate for the Central Business Zoning District.

- Commercial – Residential Zoning District 2 (CR-2) – To provide a zoning district which will permit a mixture of commercial and residential uses, encourage reuse and improvement of existing buildings and encourage business development of properties so

influenced by adjacent major thoroughfares and historical development patterns while minimizing impact on residential development, encouraging appropriate residential development, and discouraging commercial development more appropriate for the Central Business Zoning District.

- Central Business Zoning District (C) – To provide a zoning district in which will be encouraged the development of an attractive, functional and efficient central shopping and business district containing offices and retail service establishments serving the entire community.

- Light Manufacturing Zoning District (LM) – To provide a zoning district which shall: encourage the establishment and maintenance of business and industrial establishments for the manufacture, assembly, compounding, processing or storage of products; prohibit industrial uses and other uses which are clearly noxious or offensive by reason of odor, smoke, gas vibration, or noise; prohibit residential uses (unless accessory to another use) for the purpose both of preserving the area for its appropriate use.

- Industrial Zoning District (I) – To provide a zoning district which shall: encourage the establishment and maintenance of industrial establishments for the manufacture, assembly, compounding, processing or storage of products; prohibit industrial uses and other uses which are clearly noxious or offensive by reason of odor, smoke, gas, vibration, or noise; prohibit residential uses for the purpose both of preserving the area for its appropriate use and for preventing the location of dwelling units in an area inappropriate for residential use.

Hempfield Township zoning districts, as shown on the Hempfield Township Zoning Map in Appendix H and established in the Hempfield Township Zoning Ordinance, are outlined as follows:

- Residential – Rural Residential & Agriculture (R-1) – Low density rural residential for the purpose of promoting and maintaining agricultural uses of land.

- Residential – Single Family (R-2) – Medium density to provide a balance of available housing and moderate land use.

- Residential – Multi Family (R-3) – Moderate to higher density to provide quality housing at higher densities, concentrate housing in locations where infrastructure is or can be made available, and to provide a buffer between land use types such as residential and business/commercial.

- Commercial (C) – Higher intensity of use to concentrate commercial uses in areas where adequate apace is available.

- Industrial (I) – Provide areas for existing industry to continue and new industries to grow, and avoid residential uses to avoid conflicts.

- Mixed-use (B) – Provide a mixed-use zone to include self-contained indoor industry and office uses and promote the reuse of residential structures for offices and small-scale industry for the purpose of maintaining rural character.

West Salem Township does not have any land use or zoning requirements, as shown on the Mercer County Municipalities with Zoning map in Appendix H.

IV.A.2 Zoning & Subdivision Regulations

Zoning and subdivision regulations that establish lot sizes predicated on sewage disposal methods is not discussed in this Special Study, because on-lot systems are not a concern of the Special Study and there is ample room at the site of the existing plant to construct the upgrades.

IV.A.3 Limitations Related to Floodplain, Stormwater Management and Special Protection Areas

Certain regulations exist in regards to floodplains, stormwater management, and special protection (Chapter 93) areas for the protection of citizen health, safety and welfare, as well as the surrounding environment. Floodplain regulations, stormwater management planning and special protection area regulations are identified below.

- **Floodplain Regulations**

  A flood occurs when the capacity of a stream channel to convey flow within its banks is exceeded and water flows out of the main channel onto and over the adjacent land. This adjacent land is known as the floodplain. In regulating floodplains, the standard is the 100-year flood, the flood that is defined as having a 1% chance of being equaled or exceeded during a given year. Pennsylvania Code regulations set forth limitations related to floodplains. These regulations prohibit encroachments and obstructions, including structures, in the regulated floodway without first obtaining a state Water Obstruction and Encroachment permit. The floodway is the portion of the floodplain adjoining the stream required to carry the 100-year flood event with no more than one (1) foot increase in the 100-year flood level due to encroachment in the floodplain outside the floodway. Floodplain regulations, such as elevating a first floor level above the 100-year floodplain and obtaining necessary local, state and federal permits for construction in these areas, exist for the preservation of citizen well being. Floodplain resources are of significant importance and are vital for maintaining the floodplain ecosystem, and the primary environmental policy in regards to floodplains is the protection of floodplain resource values. Floodplain management focuses on preventative and corrective measures to reduce flood damage.

  A review of the floodplain mapping on Exhibit 5 in Appendix G reveals that the entire site of the WWTP is located within a floodplain area. During the 1992 expansion of the WWTP, the Pittsburgh District of the Army Corps of Engineers (ACoE) provided information regarding flood elevations. The 100-year flood elevation at the WWTP was computed by the ACoE to be 939.0 NGVD, and the 25-year flood elevation was estimated to be 937.0 feet. The 10 and 50-year elevations were estimated to be approximately 936.0 and 938.0 feet, respectively. Design requirements for wastewater treatment facilities are contained in the PADEP's *Domestic Wastewater Facilities Manual*. In regards to flood protection, the manual states that treatment plant structures, electrical and mechanical equipment shall be protected from physical damage by the 100-year flood, and that treatment plants should remain fully operational and accessible during the 25-year flood. The design of the WWTP was based on the 25-year flood frequency of 937.0 feet to maintain process operation. The facility is protected from 100-year floods by floor elevations being set no lower than an elevation of 939.0 feet.

Impacts on floodplains will be minimized to the greatest extent possible, and all construction activities will follow all local, state, and federal regulations regarding floodplains during any proposed upgrades at the WWTP.

- **Stormwater Management Regulations**

  Stormwater runoff is the result of precipitation from rain or melting snow that does not soak into the ground where it falls. It then flows over impervious surfaces (i.e., building, parking lots, driveways, sidewalks, streets, etc.), carrying silt and sediment, litter and debris, and non-point source pollutants such as insecticide, pesticides, solvents, motor oil and other automotive fluids which can degrade ecosystems. Stormwater can result in flooding, property damage and environmental degradation. The Stormwater Management Act of 1978, Act 167, as amended, encourages planning and management of stormwater runoff throughout a watershed which is consistent with sound water and land use practices. Stormwater management has been traditionally defined as measures used by property owners and local governments to limit the amount of stormwater runoff from urban development and control the path of runoff. Stormwater management has also recently included water quality considerations. Concerns of flooding and accelerated erosion are introduced through land development from a permeable, vegetated condition to an impervious, paved condition. The major goal of stormwater management is to protect health, safety, the environment and property from damage. Pursuant to Act 167, the Mercer County Stormwater Management Plan was developed to outline methods to control the flow of stormwater throughout the County.

  The construction of the WWTP upgrade project will result in an increase of impervious surface area at the site of the WWTP. Furthermore, site rain water currently enters the WWTP treatment process. Roof conductors, sump pumps and yard drains are all connected to the process. As there is more and more scrutiny from the PADEP on separating storm water flow from sanitary flows, these cross connections should be removed and a storm water control system should be constructed during the WWTP upgrade. The construction of the project identified within this Special Study will follow all applicable local, state and federal stormwater regulations.

- **Special Protection Areas**

  The WWTP discharges treated effluent to the Shenango River. The Pennsylvania Code, Title 25, Chapter 93 (Water Quality Standards) contains classifications of every stream in Pennsylvania and orders and promotes their protection. These standards, set by the PADEP to establish the water quality standards for each stream, are based upon designated water uses which are protected under the Pennsylvania Clean Streams Law. Chapter 93 classifies the Shenango River as a warm water fishery (WWF). Chapter 93 defines a WWF as a stream used for the maintenance and propagation of fish species and additional flora and fauna that are indigenous to a warm water habitat.

  It is a goal of this Special Study to improve the water quality of the Shenango River to support aquatic life. The PADEP defines high quality (HQ) and exceptional value (EV) waters as streams or watersheds that have excellent quality waters and features that require special water quality protection measures. It is important to note that the planning area is not located within a HQ or EV watershed, but a major goal of this

Special Study is to protect the waters of the Commonwealth through the preservation of the overall drainage basin. All attempts will be made to minimize the impact on any ecologically sensitive areas during any construction activities.

IV.B. LAND USE AND FUTURE GROWTH

IV.B.1 Existing Development

In order to adequately account for the hydraulic and organic loading requirements of the WWTP, an inventory of existing development in Greenville Borough, Hempfield Township and West Salem Township is provided in Table 5, presented as customer counts.

Table 5: Existing EDUs

Community	Current EDUs
Greenville Borough	2,343
Hempfield Township	1,167
West Salem Township	527
TOTAL	4,037

It was determined that an average residential customer who uses 3,520 gallons of water per month represents one equivalent dwelling unit (EDU). Based on historical water use records, the 4,037 customers served by the Authority equates to 7,396 EDU's.

The largest contributor located within the Authority's service area is the St. Paul's Continuing Care Community. The community contains independent living apartments and homes, as well as assisted living facilities, and provides care to thousands of residents. St. Paul's has a significant impact on planning within the Authority's service area.

In a service area with minimal inflow and infiltration, the flow contribution from existing development in each community would generally be based on the total flow at the plant divided by the number of EDUs served in each community. However, the WWTP experiences high flows during wet weather events and a large portion of this flow results from inflow and infiltration. This must be considered in the sizing of equipment and various components of the treatment plant during the upgrades. Therefore, this Special Study defines flows from existing development as the maximum three-month average flow from past five years, 3.179 million gallons per day (MGD).

IV.B.2 Land Use Designations Established Under the Pennsylvania Municipalities Planning Code

The upgrade of the WWTP will not change the land use at the site. All work will be completed within the boundaries of the existing WWTP site.

IV.B.3 Future Growth Areas and Population Projections

Future growth will affect design flows which contain capacity to serve future development throughout the planning period. The design flows incorporate flows from existing development, planned development and future growth. There is no major planned development in any of the tributary municipalities, with the exception being the St. Paul's Continuing Care Community. St. Paul's has indicated it has plans to expand its facilities, but no details were provided and the

growth EDUs resulting from that project are not provided herein. However, the WWTP has adequate capacity to treat additional flow. A summary of future growth areas with EDU and flow projections in each community is outlined in Table 6.

Table 6: Future Growth Projections

Community	Annual Growth EDUs	Total Growth EDUs 20 Years	Average Household Size*	Flow Projections (gpd)**
Greenville Borough	2	40	2.29	9,160
Hempfield Township	25	500	2.34	117,000
West Salem Township	2	40	2.28	9,120
TOTAL	29	580	-----	135,280

*Average household size information was obtained from 2010 census data.
**Flow projections were calculated based on DEP's planning suggestion of 100 gpd/capita x Average Household Size x No. of EDUs.

IV.B.4 Limitations for Use of Land and Water Resources

There are no expected impacts on land use and water resources including public ground or surface water supplies, recreational water use areas, groundwater recharge areas, industrial water use, and wetlands. Therefore, zoning, subdivision regulations, and existing plans relating to development and use of these resources are not discussed in this Special Study.

IV.B.5 Sewage Planning for Future Growth

As previously mentioned, the design flows for the WWTP upgrade incorporate flows from existing development, planned development and future growth. There is no planned development in any of the tributary communities, so the design flow is based solely on existing development and future growth. The maximum three-month average flow during the past five years, 3.179 MGD, is the flow contribution from existing development. As determined in Section IV.B.3, the flow contribution from future growth over the next 20-year planning period is 0.135 MGD. The total projected flow is 3.314 MGD, less than the permitted capacity of 4.0 MGD. All proposed upgrades will be designed based on average day design flow of 4.0 MGD, which will provide sufficient capacity to meet existing and projected hydraulic loadings on the plant.

V. IDENTIFICATION OF ALTERNATIVES TO PROVIDE NEW OR IMPROVED WASTEWATER DISPOSAL FACILITIES

V.A. CONVENTIONAL COLLECTION, CONVEYANCE, TREATMENT AND DISCHARGE ALTERNATIVES

V.A.1 Potential for Regional Wastewater Treatment

The existing Greenville Sanitary Authority WWTP provides regional wastewater treatment for Greenville Borough, Hempfield Township and West Salem Township. The Authority's multi-jurisdictional system has the potential to expand if the need for such a system exists in the future, but expanding the system to serve a larger regional service area is not a goal of this Special Study.

V.A.2 Potential for Extension of Existing Sewage Facilities

There are no current areas in need of new or improved sewage facilities. This Special Study was developed for the upgrade of the WWTP and there is no current need to extend public sewage service.

V.A.3 Potential for Continued Use of Existing Municipal or Non-Municipal Sewage Facilities

The sanitary sewer system is aging, but no serious problems, concerning breaks or blockages have occurred. The condition of the existing sewage collection and conveyance systems is such that there is potential for continued use of those facilities, as is the intent of this Special Study. While much of the sewers were built before the advent of present day construction materials and techniques, and several sewersheds have substantial quantities of infiltration and inflow, the sewer maintenance program is ongoing and involves inspection with cleaning. Repairs are performed as needed, as are annual rehabilitation projects for reduction of infiltration and inflow. Furthermore, Greenville Borough owns and operates a sewer jet truck and a camera truck. All known trouble spots in the collection system that require cleaning, televising, and maintenance were done periodically and also on an emergency basis. The Authority has completed televising of the entire sewer system and repairs have been prioritized. The Authority continues to assess the need for further rehabilitation in the sewer system.

The West Salem and Greenville Borough pump stations are in good condition and are checked daily to record rain fall, flow data, pump hours and the condition of the wet well. Pump station generators are also checked and information is recorded such as fuel level, run hours and control panel alarm system status.

The WWTP has demonstrated exceptional performance since completion of the last significant upgrade. However, the trickling filters and flocculator clarifiers are nearly 25 years old. The headworks, primary clarifiers, and trickling filter pump station are over 50 years old, far beyond the reasonable operating life of these facilities. The Greenville Sanitary Authority has taken a proactive approach to project planning. An upgrade project is necessary to replace the aging infrastructure of the plant and allow it to continue to produce high quality treated effluent.

V.A.4 Repair or Replacement of Existing Collection and Conveyance System Components

As previously discussed, the existing collection and conveyance facilities are generally in fair to good condition and will not be altered through the implementation of the Special Study. The sewer maintenance program is ongoing and involves inspection with cleaning and repairs performed as needed, as well as annual rehabilitation projects. The pump stations are in good condition and are inspected daily. This Special Study was developed for the upgrade of the WWTP and there is no current need to repair or replace existing collection and conveyance system components.

V.A.5 Need for Construction of New Community Sewage Systems

As previously discussed, there is no current need to install new sewer system components. The sewer maintenance program involves inspection with cleaning and repairs performed as needed, as well as annual rehabilitation projects. This Special Study was developed for the upgrade of the WWTP to replace aging treatment components which are far beyond their

reasonable operating lives. The alternatives were developed to address WWTP improvements required to extend the life of the facility for the next 20 years at a minimum. The permitted hydraulic and organic loading capacities of the WWTP are 4.0 MGD and 5,000 lb BOD/day, respectively. Minimal growth is anticipated. The existing and projected loadings are well within the permitted capacities. All proposed upgrades will be designed based on the permitted capacities.

The alternatives evaluated for the WWTP improvements are as follows:

1. Alternative 1 – Continued use of the Trickling Filter/Solids Contact (TF/SC) Process
2. Alternative 2 – Convert existing TF/SC to Membrane Bioreactor (MBR)
3. Alternative 3 – Construct new Sequencing Batch Reactor (SBR)
4. Alternative 4 – Construct new Headworks Facility

The alternatives are discussed in further detail as follows:

Alternative 1

Alternative 1 involves continued to use of the existing Trickling Filter/Solids Contact (TF/SC) process, while replacing equipment as necessary to extend the life of the existing facilities. The proposed treatment schematic and site plan for Alternative 1 are shown on Exhibits 8 and 9 in Appendix G, respectively. Alternative 1 does not include any denitrification. Therefore, an additional project would be required in the future if total nitrogen limits were imposed. The estimated cost for providing denitrification capacity is $4,000,000 to $7,000,000. Alternative 1 includes the following items:

1. New headworks facility
    - Automatic bar screen
    - By-pass static bar screen
    - Grit removal basin
2. Raw sewage pump station – wet well/dry well design
3. Primary clarifier flow distribution box
4. New primary clarifier. The WWTP requires an additional primary clarifier to provide adequate redundancy for system maintenance.
5. Replacement of existing primary clarifier equipment
6. New sludge pumps
7. Removal of existing comminutors, raw sewage pumps and piping
8. Seal primary sludge well from building to eliminate building exposure to hazardous environment
9. New trickling filter pump station. The existing pump station is over 50 years old, and it does not allow for pump removal without disassembly of discharge piping.
10. Trickling Filter improvements – replace trickling filter media and distributor arm
11. Replace flocculator clarifier equipment
12. UV disinfection
    - Convert chlorine contact tank to UV disinfection
    - Construct UV lift station. UV facilities to be constructed above the 100-yr flood elevation. The UV lift station will isolate the entire gravity flow portion of the WWTP from the flood backwater, thus maintaining plant peak treatment capacity during flood conditions.

13. Digester improvements. The existing anaerobic digesters have no mixing system. Lack of mixing results in settling of sludge (reduced capacity) and reduction in process efficiency.
    - Digester cleaning
    - New digester mixing system
    - Seal supernatant sumps
    - Digester lid repair, if required
14. Sludge drying bed improvements
    - Cover existing drying beds
    - Construct new drying beds

Alternative 2

Alternative 2 proposes conversion of the existing TF/SC process to the Membrane Bioreactor (MBR) process. The proposed treatment schematic and site plan for Alternative 2 are shown on Exhibits 10 and 11 in Appendix G, respectively. This alternative repurposes all of the existing tankage, while converting to a more efficient and operationally flexible secondary treatment process. Alternative 2 was developed to provide treatment capacity for potential future total nitrogen limits. Alternative 2 includes the following items:

1. New headworks facility – screening and grit removal (same as Alternative 1)
    - All influent flow up to 6.25 MGD will be pumped to a fine screen facility located near the existing flocculator clarifiers (proposed MBR tanks).
    - Flow in excess of 6.25 MGD will be pumped to the flow storage basins. The existing trickling filter tanks will be converted into flow storage.
2. Fine screen building
3. Flow storage tanks
    - TF tanks will be converted into flow storage tanks.
    - Flow storage tanks will drain to the existing TF pump station which will pump stored volume to the fine screens once flow drops below 6.25 MGD.
4. MBR – existing flocculator clarifiers to be converted into MBRs.
5. Sludge holding tanks. The existing primary clarifiers will be converted into sludge holding tanks.
6. Aerobic digesters. The existing anaerobic digesters will be converted into aerobic digesters.
7. Chlorine disinfection – No disinfection improvements are proposed. MBR effluent typically does not require disinfection. The contact tanks and chlorine system will remain to ensure that permit limits are met.
8. Sludge drying bed improvements
    - Cover existing drying beds
    - Construct new drying beds

Alternative 3

Alternative 3 proposes a new process, the Sequencing Batch Reactor (SBR) Process. The proposed treatment schematic and site plan for Alternative 3 are shown on Exhibits 12 and 13 in Appendix G, respectively. This alternative proposes construction of a new, more efficient and operationally flexible WWTP. The existing WWTP will only be used for solids handling and disinfection. Alternative 3 was also developed to provide treatment capacity for potential future total nitrogen limits. Alternative 3 includes the following items:

1. New headworks facility – screening and grit removal (same as Alternative 1)
2. SBR – Construction of 4, 151' x 51' x 20' SBR basins
3. Tertiary filtration. Drum filters are proposed to achieve existing phosphorus limits.
4. Sludge holding tanks. The existing primary clarifiers will be converted into sludge holding tanks. SBR sludge to be wasted to these tanks prior to thickening.
5. Aerobic digesters. The existing anaerobic digesters will be converted into aerobic digesters.

15. UV disinfection
    - Convert chlorine contact tank to UV disinfection
    - Construct UV lift station. UV facilities to be constructed above the 100-yr flood elevation. The UV lift station will isolate the entire gravity flow portion of the WWTP from the flood backwater, thus maintaining plant peak treatment capacity during flood conditions.
6. Sludge drying bed improvements
    - Cover existing sludge drying beds
    - Construct new sludge drying beds

Alternative 4

Alternative 4 involves the construction of only a new headworks facility. The new headworks facility would include an automatic bar screen, a by-pass static bar screen, and a grit removal basin.

The advantages and disadvantages for each alternative are provided in Table 7.

Table 7: Alternatives Evaluation

Alternative	Advantages	Disadvantages
1 (Existing TF/SC)	• Process is familiar to plant staff • Simple operation	• Difficult upgrade for future denitrification • Limited process control • Need to pump twice
2 (MBR)	• Good process control • Denitrification capacity included • Automated operation • Small footprint • Fully utilizes existing tanks	• High cost equipment • Need to pump twice • Complex manual operation • Flow storage basin required
3 (SBR/Tertiary Filters)	• Good process control • Denitrification capacity included • Automated operation • Pump only once	• Large footprint • Complex manual operation • Drum filters required to meet phosphorus limit • Does not use all existing tanks
4 (Headworks)	• Maintains existing process	• Does not address needs

V.A.6 Use of Innovative or Alternative Methods of Collection and Conveyance

There exists a need to develop alternative wastewater systems in areas where the implementation of conventional systems is impractical, uneconomical, or unfeasible. Alternative methods of collection and conveyance are not discussed in this Special Study, as this Special Study was developed for the upgrade of the WWTP. The existing collection and conveyance facilities are generally in fair to good condition and will not be altered through the implementation of the Special Study.

V.B. USE OF INDIVIDUAL SEWAGE DISPOSAL SYSTEMS

The Pennsylvania Code defines an individual sewage system as a system of piping, tanks or other facilities serving a single lot and collecting and disposing of sewage in whole or in part into the soil or into waters of the Commonwealth or by means of conveyance to another site for final disposal. Individual onsite wastewater treatment/disposal systems have evolved to provide installations that are capable of producing a disinfected effluent. Onsite system technologies are able to remove settleable solids, floatable grease and scum, nutrients and pathogens from wastewater. This capability outlines the importance of such systems to protect human health and environmental resources. However, system owners are often not likely to repair or replace older on-lot systems if sewage pollution is not evident on the property. This is a key concern of individual on-lot system installations.

The installation or repair of on-lot systems is not a goal of this Special Study, as it was developed for the upgrade of the WWTP. The upgrade of the plant will allow it to function for years to come, providing public sanitary sewage service to residents of Greenville Borough, Hempfield Township and West Salem Township, and eliminating concerns related to on-lot sewage disposal.

V.C. USE OF SMALL FLOW SEWAGE TREATMENT FACILITIES

A small flow sewage treatment facility (SFSTF) is designed to treat wastewater from a single-family residence. Like a full scale, community wide sewage treatment facility, SFSTF systems require an NPDES permit and must meet the limits of the permit before discharging treated effluent into a stream or other discharge point. They can treat up to 2,000 GPD. Small flow treatment facilities may only be used when on-lot disposal systems do not and cannot be expected to function satisfactorily because of soil, geologic and groundwater conditions, or there is no public sanitary sewage service availability in a municipality.

The use of small flow sewage treatment facilities was not considered in this Special Study. The upgrade of the WWTP will provide it with adequate capacity to treat wastewater flow from Greenville Borough, Hempfield Township and West Salem Township. This is much more desirable than the installation of small flow sewage treatment facilities.

V.D. USE OF COMMUNITY LAND DISPOSAL ALTERNATIVES

Community land disposal alternatives are similar to individual on-lot sewage disposal systems, in that many of the same technologies exist on a larger scale to serve several homes or an entire community. They allow for primary settling in a community septic tank or tanks for the removal or solids and grit from the wastewater. However, when disposal beds become plugged by solids, there may be little or no room for expansion. Many of the same restrictions apply to community wide systems as they do to individual systems. Soil and site suitability must be met

and hydrogeologic characteristics must be evaluated. Site suitability is an important factor in the consideration of a community land disposal alternative. It is often based on many soil, geologic, and topographic limitations. The majority of the areas are limited in size and not sufficiently large enough to serve an entire community's sewage disposal needs.

The use of community land disposal alternatives was not considered in this Special Study, based on the same principals as the use of an individual on-lot sewage disposal system. The upgrade of the WWTP will allow it to function for years to come, providing public sanitary sewage service to residents of Greenville Borough, Hempfield Township and West Salem Township, and eliminating concerns related to on-lot sewage disposal.

V.E. USE OF RETAINING TANK ALTERNATIVES

Retaining tanks or holding tanks are designed and maintained on the basis of ultimate disposal of sewage at another site and can be installed as a short term solution to malfunctioning on-lot systems in either residential or commercial applications. They require a permit issued by a municipality's sewage enforcement officer (SEO) and require specified operation and maintenance activities to prevent public health or environmental hazards. The tanks require frequent pumping and cleaning, requiring property owners to contract with septage hauling companies to periodically pump their tanks. These companies use pumper trucks to haul the waste from the property and dispose of it at a site approved by the PADEP. Holding tanks must only be used when the construction of a municipal system is imminent and no other alternative exists to correct malfunctioning systems.

The use of retaining tank alternatives was not considered in this Special Study and is not recommended for implementation as a sewage disposal alternative in the Authority's tributary municipalities. This alternative would require the installation of a multitude of retaining tank systems and is extremely labor-intensive, as weekly pumping of the tanks would be required through municipal ordinances or other regulation to maintain functionality of the systems. The goal of this Special Study, rather, is to maintain public sanitary sewage service as the means of sewage disposal through the upgrade of the Authority's WWTP.

V.F. SEWAGE MANAGEMENT PROGRAMS

Sewage Management Programs are developed for use in communities where on-lot sewage disposal systems are installed and regularly maintained. They set guidelines for the operation and maintenance requirements for on-lot systems to ensure the future operational ability of such systems. This Special Study was developed for the upgrade of the WWTP and a sewage management program was not considered.

V.G. NON-STRUCTURAL COMPREHENSIVE PLANNING ALTERNATIVES

Non-structural comprehensive planning alternatives that can be undertaken to assist in meeting existing and future sewage disposal needs were not considered in this Special Study.

V.H. NO ACTION ALTERNATIVE

It can be assumed that the likelihood of contamination of the waters of the Commonwealth and the associated public health risks and environmental impacts will increase if a no-action alternative is undertaken. This, in turn, may impact growth potential, community economic conditions, recreational opportunities, and other environmental and public health considerations.

The Greenville Sanitary Authority has taken a proactive approach to project planning. An upgrade project is necessary to replace the aging infrastructure of the plant and allow it to continue to produce high quality treated effluent. The proactive desire to address the needs at the plant is the primary motive for the development of this Special Study. A "No Action Alternative" is not available for consideration.

VI. EVALUATION OF ALTERNATIVES

VI.A. CONSISTENCY DETERMINATION

According to Act 537, all technically feasible sewage facility alternatives must be evaluated for consistency with certain acts, programs and policies. The technical alternatives for the upgrade of the treatment facility were evaluated for the necessary consistency areas summarized below.

1. Consistency with Sections 4 and 5 of the Clean Streams Law or Section 208 of the Clean Water Act

The primary purpose of the Clean Streams Law is, "to preserve and improve the purity of the waters of the Commonwealth for the protection of public health, animal and aquatic life, and for industrial consumption and recreation." Sections 4 and 5 of the Clean Streams Law require that consideration be given to the following:

- Water quality management in a watershed as a whole
- Present and possible future uses of particular waters
- The feasibility of combined or joint facilities
- The state of scientific and technical knowledge
- Immediate and long-term economic impacts

Section 208 of the Clean Water Act requires the development of plans of the identification of treatment works necessary to meet anticipated municipal and industrial waste treatment needs of an area over a 20-year period. This includes the following:

- Requirements for the acquisition of land for treatment purposes
- Necessary wastewater collection and urban storm water runoff systems
- Programs to provide the necessary financial arrangements for the development of such treatment works
- Identification of open space and recreation opportunities that can be expected to result from improved water quality
- Consideration of potential use of lands associated with treatment works
- Increased access to water-based recreation

Through implementation of this Special Study, the objectives of Sections 4 and 5 of the Clean Streams Law and Section 208 of the Clean Water Act will be achieved. The upgrade project will replace the aging infrastructure of the plant and allow it to continue to produce high quality treated effluent, promoting water quality in the watershed and maintaining the regional treatment capabilities of the plant. Evaluation of the technical alternatives discussed herein will take economic impacts into consideration. There are no proposed changes to existing water use based on the recommendations of this Special Study, and there is sufficient land area for all proposed upgrades. Potential for pollution of the waters of the Commonwealth will be diminished by constructing the upgrade, including necessary stormwater provisions.

Implementation of the proposed upgrade project provides a means for continued positive long-term economic growth and development throughout the planning area. The water quality of the planning area will be improved and be protected for recreational activities for years to come. The upgrade project is consistent with Sections 4 and 5 of the Clean Streams Law and Section 208 of the Clean Water Act.

2. Consistency with Municipal Wasteload Management Corrective Action Plans or Annual Reports Under PA Code, Title 25, Chapter 94

A review of the 2014 Chapter 94 Wasteload Management Report for the Greenville Sanitary Authority WWTP, operated under NPDES Permit No. PA0027367, indicates that the WWTP was not hydraulically or organically overloaded during the operating year 2014, nor is it projected to be overloaded within the next five years. Additionally, the Authority was previously operating under a Corrective Action Plan (CAP) to reduce flow conveyed to the plant. The work completed as a result of the CAP resulted in decreased of flow to the plant. Those efforts, in addition to the rerating of the permitted hydraulic capacity of the plant, resulted in the elimination of the CAP. This Special Study is consistent with Chapter 94 Wasteload Management.

3. Consistency with Title II of the Clean Water Act or Titles II and VI of the Water Quality Act of 1987

Plans developed under Title II of the Clean Water Act contain information of waste treatment management plans and practices providing the following:

- The application of the best practicable waste treatment technology
- The confined disposal of pollutants so they will not migrate to cause water or other environmental pollution
- The consideration of advanced waste treatment techniques

Implementation of the alternatives evaluated in this Special Study will improve and protect the water quality of Greenville Borough, Hempfield Township and West Salem Township. Proposed treatment technologies evaluated herein were developed on the basis of meeting the facility effluent limits contained in the NPDES Permit. The alternatives evaluated in this Special Study are consistent with the objectives of the Clean Water Act and the Water Quality Act.

4. Consistency with Comprehensive Plans Developed Under the Pennsylvania Municipalities Planning Code

There is a very close relationship between the content of a municipality's Comprehensive Plan developed under the Pennsylvania Municipalities Planning Code and the official Sewage Facilities Plan. When an official Sewage Facilities Plan update is being developed, the Comprehensive Plan must be closely evaluated to assure the sewage facilities being proposed are consistent with the land uses contained in the Comprehensive Plan.

The Mercer County Comprehensive Plan makes policy recommendations to update municipal plans and documents including Act 537 Sewage Facilities Plans. Additionally, consistent with the recommendations of the county Comprehensive Plan, the Greenville Borough/Hempfield Township Comprehensive Plan was developed. The comprehensive plans contain existing and future land use requirements. The existing land use at the site of the WWTP is community facility. There is no expected change in the land use or other requirements of the comprehensive plans resulting from the upgrade of the WWTP. This Special Study is consistent with the comprehensive plans developed under the Pennsylvania Municipalities Planning Code.

5. Consistency with Antidegradation Requirements as Contained in PA Code, Title 25, Chapters 93, 95 and 102

Proposed wastewater alternatives must be consistent with the water quality criteria established in Chapter 93 of the Pennsylvania Code, the wastewater treatment requirements of Chapter 95, and the erosion and sedimentation pollution controls regulations of Chapter 102.

Chapter 93 sets forth water quality standards for surface waters of the Commonwealth. These standards are based upon water uses which are to be protected and will be considered by the PADEP in implementing its authority under the Clean Streams Law and other statutes that authorize protection of surface water quality. The water quality standards are implemented through the provisions of Chapter 93 and Chapter 95 under the Clean Streams Law and the National Pollutant Discharge Elimination System (NPDES) permitting process.

The Greenville Sanitary Authority WWTP discharges treated effluent to the Shenango River, which is classified as a warm water fishery (WWF) under Chapter 93. Chapter 93 defines a WWF as being used for the maintenance and propagation of fish species and additional flora and fauna which are indigenous to a warm water habitat and requires its use to be preserved. The requirements of Chapter 93 will be met through the effluent discharge limits established by the PADEP. As part of the Part II Water Quality Management permitting process, a Design Engineer's Report will be developed to verify that the proposed treatment facilities will meet the established effluent requirements.

The provisions of Chapter 95, issued under Section 5 of the Clean Streams Law, contain wastewater treatment requirements. It contains effluent standards for industrial wastes, requirements for extensions of time to achieve water quality based effluent limitations, treatment requirements for discharges to waters affected by abandoned mine drainage, and treatment requirements for new and expanding mass loadings of Total Dissolved Solids (TDS). While these standards do not all apply to the Greenville Sanitary Authority WWTP, compliance with Chapter 95 will be met through the design process of the WWTP upgrade.

The purpose of Chapter 102 is to meet the objectives of the Clean Streams Law. The Clean Streams Law prohibits the discharge of any substance which creates a nuisance, such as sediment, into the waters of the Commonwealth. Sediment is rated the number one pollutant by volume to Pennsylvania's waters. The objective of Chapter 102 regulations is to eliminate or limit sediment pollution created as a result of earth disturbance activities. In order to comply with Chapter 102 regulations, an erosion and sedimentation (E&S) Control Plan will be developed and implemented during the construction activities associated with the WWTP upgrade. E&S pollution control measures will be rendered in accordance with and approved by the Mercer County Conservation District prior to any construction activity.

Each of the alternatives identified in this Special Study are consistent with the antidegradation requirements set forth in Chapter 93 (Water Quality Standards), Chapter 95 (Wastewater Treatment Requirements) and Chapter 102 (Soil Erosion and Sedimentation Control).

6. Consistency with State Water Plans Developed Under the Water Resources Planning Act

The State Water Plan was developed to guide conservation, development and administration of the Commonwealth's water and related land resources. The goal of the State Water Plan is to enhance and protect the waters of the Commonwealth of Pennsylvania. The WWTP is within

the Shenango River Watershed. The Shenango River Watershed originates in a large wetland area in Conneaut Township, Crawford County, and flows south from Pymatuning Lake approximately 70 miles to a point just south of New Castle in Lawrence County. There it joins the Mahoning River to form the Beaver River, which empties into the Ohio River. No different than any other watershed in Pennsylvania, water quality is an important issue in the Shenango River Watershed. Implementation of this Special Study will improve the water qualities of the Commonwealth by improving the quality of the Shenango River. This Special Study is consistent with the State Water Plan.

7. Consistency with the Pennsylvania Prime Agricultural Land Policy

Pennsylvania's Prime Agricultural Land Policy orders and directs the prevention of irreversible conversion of prime agricultural land to uses that result in its loss as an environmental or essential food production resource. Prime farmlands are important to examine for scenarios in which development is expected to occur because of the protective measures in existence to preserve this important resource. It is important to note that there are soil areas classified as prime farmland and farmland of statewide importance at the site of the WWTP, as shown on Exhibit 2 in Appendix G. While the soils are classified as prime farmlands, the site of the WWTP is an existing, previously developed site that is not used for agricultural purposes. All construction work proposed through the upgrade project will occur only at the previously developed site of the existing plant, and there will be no impacts on prime agricultural lands through the implementation of this Special Study. This Special Study is consistent with the Pennsylvania Prime Agricultural Land Policy.

8. Consistency with County Stormwater Management Plans Approved by the PADEP Under the Stormwater Management Act

Inadequate management of accelerated runoff of stormwater resulting from development throughout a watershed increases flood flows and velocities, contributes to erosion and sedimentation overloads the carrying capacity of streams and storm sewers, greatly increases the cost of public facilities to manage and control stormwater, undermines flood plain management and flood control efforts in downstream communities, reduces groundwater recharge, and threatens public health and safety.

The Mercer County Stormwater Management Plan was developed to provide stormwater management guidelines in Mercer County. All construction work involved in the WWTP upgrade project will adhere to all existing stormwater regulations, including those established in the Mercer County Stormwater Management Plan. Activities related to the construction of sewage facilities will comply with E&S control requirements through the issuance of an NPDES permit. In addition, the surface area of all impervious surfaces (i.e., parking lots, driveways, roads, etc.), which may be constructed as part of the WWTP upgrade, will be minimized as much as possible in order to decrease runoff potential. This Special Study is consistent with the Mercer County Stormwater Management Plan.

9. Consistency with Wetlands Protection

Wetland areas are considered to be a valuable public water resource and are subjected to strict conservative practices. They provide an environment for valuable aquatic, waterfowl and wildlife habitat. Many endangered plant species are thought to exist in wetlands, and wetlands are essential for the maintenance of surface water quality and quantity. The Commonwealth has established an intensified effort to protect these natural resources.

Minimal wetland areas classified as riverine exist along the Shenango River to the south of the site of the WWTP. The implementation of this Special Study is not expected to affect wetlands in any way. Although there are no expected impacts on wetlands, all attempts will still be made to minimize the impact on any ecologically sensitive areas during construction activities. The WWTP upgrade project is consistent with wetlands protection regulations.

10. Consistency with Protection of Rare, Endangered or Threatened Plant and Animal Species as Identified by the Pennsylvania Natural Diversity Inventory (PNDI)

There is an increasing effort to protect the habitat of rare, endangered and threatened species. As per the Pennsylvania Natural Heritage Program, the Act 537 process requires review by applicable environmental agencies in an effort to identify and protect environmental values within the project area. These agencies include the following:

- Department of Conservation and Natural Resources – Bureau of Forestry
- Pennsylvania Game Commission
- Pennsylvania Fish and Boat Commission
- U.S. Fish and Wildlife Service

The PNDI Project Environmental Review Receipt for the site of the WWTP is included in Appendix J and indicates that there are no known impacts associated with the project as identified by the Pennsylvania Game Commission and the Pennsylvania Department of Conservation and Natural Resources. However, there were potential impacts identified by the Pennsylvania Fish and Boat Commission and the U.S. Fish and Wildlife Service. The PNDI search results and all correspondence to address potential impacts for the proposed WWTP upgrade project are included in Appendix I. Based on further reviews by these agencies, there were no known impacts associated with the WWTP upgrade project. This Special Study is consistent with the protection of rare, endangered or threatened plant and animal species.

11. Consistency with Historical and Archaeological Resource Protection in Conjunction with the Pennsylvania Historical and Museum Commission (PHMC)

The Pennsylvania Historical Preservation Act of 1978 requires full cooperation with the Pennsylvania Historical and Museum Commission (PHMC) for the preservation, protection and investigation of archaeological resources. A preliminary review by PHMC indicates that there are no known historical structures or archaeological artifacts located within the site of the existing WWTP. The upgrade project is consistent with historical and archaeological resource protection. General correspondence with PHMC is included in Appendix J.

VI.B. RESOLUTION OF INCONSISTENCIES

The alternatives to upgrade the WWTP are consistent with the following Acts, programs and policies, and do not require resolution:

- Sections 4 and 5 of the Clean Streams Law
- Section 208 of the Clean Water Act
- Municipal Wasteload Management Under PA Code, Title 25, Chapter 94
- Title II of the Clean Water Act
- Titles II and VI of the Water Quality Act of 1987

- Comprehensive Plans developed under the Pennsylvania Municipalities Planning Code
- Antidegradation requirements as contained in PA Code, Title 25, Chapters 93, 95 and 102
- State Water Plan developed under the Water Resources Planning Act
- Pennsylvania Prime Agricultural Land Policy
- Mercer County Stormwater Management Plan
- Wetlands Protection
- Protection of rare, endangered or threatened plant and animal species as identified by the Pennsylvania Natural Diversity Inventory (PNDI)
- Historical and archaeological resource protection relating to cooperation with public officials with the Pennsylvania Historical and Museum Commission (PMHC)

Additional action may also be required to demonstrate consistency with the above named acts, programs and policies. This will occur during the design and permitting phases upon implementation of the selected sewage facilities alternative. The flowing actions may be required:

- Preparation of Erosion and Sedimentation (E&S) Pollution Control Plans for the construction of the WWTP upgrades. These plans will be reviewed by the Mercer County Conservation District. In the event that construction will require more than one (1) acre of earth disturbance, the issuance of a General NPDES Permit will be required. E&S plans will be required to incorporate Best Management Practices to demonstrate compliance with Chapter 102.

- A Part I Permit application will be submitted during the design phase of the selected WWTP upgrade alternatives for compliance with Chapter 93 (Water Quality Standards).

- The submission of the Part II Permit will require the preparation of a Design Engineer's Report documenting compliance with applicable PADEP design standards.

- A detailed wetlands evaluation may be required. Appropriate PADEP or Army Corps of Engineers (ACoE) permitting will be performed as necessary. However, this may not be required if it is determined that there are no wetlands within the vicinity of the WWTP, as was determined during the preliminary investigation within this Special Study.

VI.C. EVALUATION OF ALTERNATIVES WITH RESPECT TO APPLICABLE WATER QUALITY STANDARDS, EFFLUENT LIMITATIONS OR OTHER TECHNICAL, LEGISLATIVE OR LEGAL REQUIREMENTS

The upgrade of the WWTP will greatly improve and protect the quality of the waters of the Commonwealth. The alternatives presented within this Special Study were developed on the basis of achieving compliance with all applicable water quality standards, effluent limitations or other technical, legislative or legal requirements. The effluent limitations will be formally established during the PADEP Part I permitting process.

VI.D. COST ESTIMATES, PRESENT WORTH & USER RATE ANALYSIS

Cost estimates were developed for the alternatives identified herein. The cost estimates are included in Appendix K. A summary of the estimated project costs for each alternative is included in Table 8.

Table 8: Estimated Alternative Project Costs

Alternative	Estimated Project Cost
1 (Existing TF/SC)	$24,974,000
2 (MBR)	$26,584,000
3 (SBR/Tertiary Filters)	$32,941,000
4 (Headworks)	$10,860,000

*If denitrification is required in the future, Total Alternative 1 Cost = $33,197,000.

Alternative 4 is the least costly alternative, but does not address the needs identified at the WWTP, including replacement of the aging infrastructure and equipment. Of the remaining alternatives, Alternative 1 (TF/SC) has the lowest estimated project cost. However, considering future total nitrogen limits, which will likely be imposed during the design life of the proposed facilities, Alternative 2 (MBR) has the lowest total estimated project cost.

A 40-year present worth analysis was completed for ongoing administration, operation and maintenance, as well as annual debt service, for the alternatives evaluated herein under various financing methods. The present worth analysis is included in Appendix L. The present worth of each alternative under the various financing methods is shown in Table 9. While Alternative 4 has the lowest present worth under each financing method, this alternative must be discounted as it does not address the needs at the WWTP. Of the remaining alternatives, Alternative 2 (MBR) has the lowest present worth and is the most economical alternative which provides denitrification.

Table 9: Present Worth

Financing Method	Alternative 1 (Existing TF/SC)	Alternative 1 + Denitrification	Alternative 2 (MBR)	Alternative 3 (SBR/Tertiary Filters)	Alternative 4 (Headworks)
PENNVEST	$62,905,330	$79,490,288	$66,740,759	$78,799,996	$42,141,073
Bonds	$78,499,517	$95,084,474	$82,334,945	$94,394,182	$50,608,716
RUS	$70,398,746	$84,316,424	$73,711,942	$83,709,170	$47,086,078

A user rate analysis was also completed for each alternative under the various financing methods. The User Rate Analysis is included in Appendix M. The projected user rates were calculated based on the monthly debt service (max over 40 years) and operation and maintenance (O&M) costs (average over 40 years) related to each alternative. The user rates were determined based on the average water use per Equivalent Dwelling Unit (EDU). One EDU in the Authority's service area is defined as an average residential user which uses 3,520 gallons per month. The projected user rates for an average residential user for implementation of Alternative 2 (MBR) under the selected financing method are as follows:

- Monthly Debt Service per EDU $18.27
- Monthly O&M per EDU $27.98
- Totally Monthly User Rate per EDU $46.25
- Well Users flat charge $36.13

Alternative 2 (MBR) with a combination of PENNVEST and bond financing has the least impact on user rates.

VI.E. ANALYSIS OF FUNDING METHODS

Various funding methods must be examined to determine which is most appropriate and cost effective for a project. The following paragraphs discuss the funding methods considered for the WWTP upgrade project.

- **Pennsylvania Infrastructure Investment Authority (PENNVEST)**

  PENNVEST funding is available for financing costs associated with capital projects, engineering fees, legal fees and right-of-way acquisitions. However, prior to receiving any loan or grant money, all permits necessary for construction activities must be approved by the associated regulatory agency. All fees associated with the permitting and design phase must be financed upfront by the municipality.

  The typical life of a PENNVEST loan is 20 years. Total project funding is capped at $11.0 Million per project if one municipality is served, and may rise to as much as $20.0 Million if more than one municipality is served. In the event the total project cost is above the PENNVEST cap, additional financing alternatives will be necessary. The interest rate of the loan ranges from 1.00% in years 1 through 5 to 1.743% in years 6 through 20 in Mercer County. In some cases the term of the loan may be extended beyond 20 years to as long as 30 years if needed to keep the user fees in line with other similar system user rates. The construction period is added to this term in order to allow for an interest only period. Principal and interest repayments begin after final inspection.

  The first step in the PENNVEST application process is to participate in a planning consultation meeting. At the meeting, the financial status of the client will be evaluated to determine if any grant funding may be issued in the funding package available for the potential client. A grant will be considered only when the PENNVEST Board determines that the applicant's financial condition indicates that the loan repayment is unlikely. If no grant funding can be issued, the potential funding package will be given based upon certain information provided at the meeting.

- **Bond Issuance**

  Bond financing is a form of borrowing that involves an interest-bearing certificate for sale to prospective investors. System owners with taxing power, for example, are authorized to issue general obligation bonds to fund their projects. Secured by the capacity to raise taxes or user fees to meet payment obligation, this class of bonds is capable of attracting investors at lower costs to the borrower. The appeal of a general obligation bond as a financing instrument is offset, to some degree, by stipulations governing their use. Their issuance may require voter and/or legislative approval and, given the existence of state-established debt limits for most governmental units, the issuance of bonds for other purpose projects may be substantially reduced.

  All tax exempt bond issuers, as in the case of an Authority, are encouraged to consider loans from bond pools as a source of funding for capital projects for amounts greater than $2 Million. Bond pools that contain funds created from tax-exempt revenue bonds are issued for the purpose of third-party borrowing. Advantages of pool loans are that

the application consists of standardized forms, there are moderate up-front financing costs, they offer lower interest rates with flexible terms, they allow a finance term length of 10 to 30 years, and they permit projects to progress more rapidly by providing variable rate start-up financing that may be converted to a fixed permanent rate. Pool loans generally require the credit enhancement of bond issuance or a letter of credit from a qualified bank.

These bonds are used for construction and renovations to the WWTP, capitalized interest on bonds, and paying all costs and expenses incident to the issuance and sale of the bonds. This Special Study assumes an interest rate of 5.00% over a 30-year term for bond financing.

- **Rural Utilities Service (RUS)**

  The Rural Utilities Service (RUS), an agency of the United States Department of Agriculture (USDA) under the Rural Development Utilities Program, is authorized to provide financial assistance for water and wastewater disposal systems in rural areas. To be eligible to receive assistance, the applicant must be a public municipal entity and meet the following criteria:

  - Be unable to obtain needed funds from commercial sources at reasonable rates and terms
  - Have legal authority to borrow, repay loans and be financially sound
  - Have ability to operate and maintain the facility or services
  - The project should be consistent with the development plans of the State, County or local municipality in which the proposed project is located

  Funds may be used to acquire, construct, expand or improve water or waste disposal systems and facilities. Other reasonable project costs, such as land acquisition and rights-of-way, legal and engineering fees and equipment are eligible for funding when these costs are related to the development of such facilities.

  The maximum financing term under RUS is 40 years. However, no repayment term will exceed the useful life of the improvement or facility to be financed. The interest rate charge is adjusted on a quarterly basis and is assigned when funds are obligated for each component of the project. The rate will vary in accordance with the average of the Bond Buyers Index. However, after the loan is closed for the project, the rate will remain unchanged for the term of the loan. The loan can be closed at the interest rate at the time of obligation of funds or the rate at the time of closing. Grant funds may be available for projects serving the most financially needy communities for the development of water and wastewater disposal facilities to reduce the user costs to a reasonable rate.

  According to RUS, the blended Median Household Income from the service area is $37,284. This would fall within the poverty range if there was a consent order. However, there is no consent order and the project falls into the intermediate range. The present market rate is 2.625% for 40 years (39 years amortization with 1 year interest only).

- **Grants (Federal, State, and County)**

  In effort to receive adequate funding for the WWTP upgrade project, the Authority will apply for various federal, state, and county level construction grants.

VI.F. ANALYSIS OF NEED FOR IMMEDIATE OR PHASED IMPLEMENTATION OF ALTERNATIVES

The Authority is not intending to phase construction of the WWTP improvements. The WWTP continues to produce high quality effluent meeting permitted limits, but the age of the facility necessitates upgrades. While there are no critical public health hazards pending immediate completion of the WWTP improvements, it may be more beneficial to complete the project in a single phase due to current low interest rates available for financing. The Authority will consider phasing construction based on available financing methods.

VI.G. EVALUATION OF ADMINISTRATIVE ORGANIZATIONS AND LEGAL AUTHORITY NECESSARY FOR PLAN IMPLEMENTATION

The Greenville Sanitary Authority has the legal authority necessary for financing, permitting and construction of the proposed WWTP improvements.

VII. INSTITUTIONAL EVALUATION

VII.A. ANALYSIS OF EXISTING WASTEWATER TREATMENT AUTHORITIES

VII.A.1 Financial and Debt Status

The Greenville Sanitary Authority is in good financial standing. The Authority is responsible for setting the user rates in order to support debt service and O&M costs. The Authority has no existing long term debt.

VII.A.2 Available Staff and Administrative Resources

The Authority employs three (3) full-time certified operators who are responsible for the sanitary sewer system and the WWTP. The operators are listed in Table 10. The Authority will maintain these employees upon implementation of this Special Study.

Table 10: Greenville Sanitary Authority Certified Operators

Name	License No.	Classification
Bill Jamison	S7240	Class A & E, Subclass 1, 2, 3 & 4
Steve Vosler	T2520	Class B & E, Subclass 1, 2, 3 & 4
Kevin Gilfoyle	T2623	Class A & E, Subclass 2, 3 & 4

VII.A.3 Existing Legal Authority

The Authority has the legal authority to implement the WWTP upgrade project. System-wide operation and maintenance activities, setting user fees, negotiation of agreements with other parties, and raising capital for construction and operation and maintenance of facilities is the responsibility of the Authority. The legal authority to take enforcement actions against ordinance violators is the responsibility of each individual municipality.

VII.B. ANALYSIS OF INSTITUTIONAL ALTERNATIVES NECESSARY FOR IMPLEMENTATION

VII.B.1 Need for New Municipal Departments or Municipal Authorities

There is no need for new municipal department or municipal Authorities. The Authority has the full capability to implement the alternatives proposed herein.

VII.B.2 Functions of Existing and Proposed Organizations

The Authority will continue to own, operate and maintain the WWTP upon completion of the upgrade project.

VII.B.3 Cost of Administration, Implementability and the Capability to React to Future Needs

The implementation of the technical alternatives proposed in this Special Study will not affect the Authority's administrative costs. The Authority has the full capability to implement the proposed alternatives and react to future needs of its regional customer base.

VII.C. ADMINISTRATIVE AND LEGAL ACTIVITIES NECESSARY FOR IMPLEMENTATION

VII.C.1 Incorporation of Authorities or Agencies

There are no activities requiring the incorporation of authorities or agencies as part of this Special Study.

VII.C.2 Development of Ordinances, Regulations, Standards and Inter-municipal Agreements

The Authority and the Borough will maintain service agreements with Hempfield Township and West Salem Township. These agreements may need to be updated to reflect changes in billing structure.

VII.C.3 Activities Required to Provide Rights-of-way, Easements and Land Transfers

All construction and improvements discussed within this Special Study will occur on property currently occupied by the Greenville Sanitary Authority. No additional rights-of-way, easements or land transfers are required for implementation of this Special Study.

VII.C.4 Adoption of Other Municipal Sewage Facilities Plans

No additional Municipal Sewage Facilities Plans are required to be adopted under this Special Study.

VII.D. PROPOSED INSTITUTIONAL ALTERNATIVE

There are no significant administrative issues, organizational needs or deficiencies in legal authority. Therefore, the improvements proposed within this Special Study will be implemented under the existing authority of the Greenville Sanitary Authority. The Authority and the Borough will maintain service agreements with Hempfield Township and West Salem Township.

VIII. IMPLEMENTATION SCHEDULE AND JUSTIFICATION FOR SELECTED TECHNICAL & INSTITUTIONAL ALTERNATIVES

VIII.A. BEST TECHNICAL ALTERNATIVE

Alternative 4 was discounted because it does not address the needs identified at the WWTP, including replacement of the aging infrastructure and equipment. Of the remaining alternatives, Alternative 1 (TF/SC) has the lowest estimated project cost. However, considering future total nitrogen limits which will likely be imposed during the design life of the proposed facilities, Alternative 2 (MBR) has the lowest total estimated project cost of $26,584,000. In terms of present worth, Alternative 2 is the most economical under each of the financing methods considered.

Alternative 2 (MBR) is recommended for implementation. Implementation of the MBR will allow the Authority to continue meeting existing and future wastewater disposal needs in Greenville Borough, Hempfield Township and West Salem Township. The membrane bioreactor alternative provides good process control with automated operation capabilities, and includes the capacity necessary for denitrification. Alternative 2 (MBR) will have a small footprint and will fully utilize existing tankage, while converting to a more efficient and operationally flexible secondary treatment process. The operation and maintenance needs and costs associated with the membrane bioreactor alternative are comparable to those of the other alternatives considered.

The projected user rates for implementation of Alternative 2 (MBR) under the selected financing method are as follows:

- Monthly Debt Service per EDU $18.27
- Monthly O&M per EDU $27.98
- Totally Monthly User Rate per EDU $46.25
- Well Users flat charge $36.13

There are no significant administrative issues, organizational needs or deficiencies in legal authority. Implementation of the Special Study may require the existing service agreements with Hempfield and West Salem Township to be updated to reflect changes in billing structure. The improvements proposed herein will be implemented under the existing authority of the Greenville Sanitary Authority.

Implementation of Alternative 2 (MBR) will ensure the effectiveness of the treatment processes and the overall capacity of the WWTP to allow it to continue producing high quality treated effluent. The project will improve and protect the water quality of the Shenango River drainage basin. No environmental mitigation is required for the project other than what would be considered routine as part of a project of this nature. For instance, implementation of Erosion and Sedimentation plans, stormwater management plans, and implementing procedures to ensure compliance with all permits during construction.

VIII.B. CAPITAL FINANCING PLAN CHOSEN FOR IMPLEMENTATION

Available financing methods considered herein include PENNVEST, bonds and RUS. It is anticipated that PENNVEST will be the primary financing option as it provides the lowest present worth and is the most economical financing option. Because PENNVEST financing is capped at $20.0 Million where more than one municipality is served, however, additional bond financing will also be necessary. In effort to receive adequate funding for the WWTP upgrade project, the Authority will apply for various federal, state and county level grants. If a grant is obtained for the project, this may eliminate the need for additional financing and will decrease projected user rates. The ultimate financing alternative selected will be based upon eligibility under each financing alternative and the most minimal impact on user rates at the time of implementation.

VIII.C. IMPLEMENTATION SCHEDULE

The anticipated schedule of implementation of the Special Study, contingent on receiving favorable funding, is included in Table 11.

Table 11: Schedule of Implementation

Activity	Completion Date
Submit the Special Study to the PADEP	July 2016
PADEP Review and Approval of the Special Study	October 2016
Complete Design	October 2017
Acquire Necessary Permits	April 2018
Obtain Construction Financing	July 2018
Begin Construction	September 2018
Complete Construction	March 2020

IX. ENVIRONMENTAL REPORT GENERATED FROM THE UNIFORM ENVIRONMENTAL REVIEW (UER) PROCESS

The Uniform Environmental Review (UER) process is intended to standardize the process for documenting the environmental impacts of proposed drinking water and wastewater infrastructure projects requesting financial assistance from various federal funding sources in the Commonwealth of Pennsylvania. The UER is intended to streamline and coordinate the environmental review of proposed projects to avoid major inconsistencies or duplication of effort. The UER can be utilized by the following specific financial assistance programs and agencies:

- The Clean Water Revolving Fund (PENNVEST, DEP, EPA)
- The Drinking Water State Revolving Fund (PENNVEST, DEP, EPA)
- The RUS Water and Waste Disposal Grant and Loan Program (USDA-RD)
- The Community Development Block Grant Program (DCED, HUD)
- Other Federal Funding Efforts (EPA)

The UER contains a project description and identifies the need for the project. It identifies and compares the technical alternatives considered. It also discusses the various environmental consequences of the selected alternative. Finally, the UER provides a summary of mitigation, if necessary, and discusses efforts for public participation. The UER for this Act 537 Plan Special Study is included in Appendix A.

APPENDIX A

Uniform Environmental Review (UER)

GREENVILLE SANITARY AUTHORITY

Uniform Environmental Review

April 2016

KLH ENGINEERS, INC
5173 CAMPBELLS RUN ROAD
PITTSBURGH, PA 15205-9733

GREENVILLE SANITARY AUTHORITY

Uniform Environmental Review

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UNIFORM ENVIRONMENTAL REVIEW

ACT 537 SEWAGE FACILITIES PLAN SPECIAL STUDY

GREENVILLE SANITARY AUTHORITY

MERCER COUNTY, PENNSYLVANIA

1.0 PROJECT DESCRIPTION AND NEED

1.1 Purpose of and Need for Project

The Greenville Sanitary Authority (Authority) Wastewater Treatment Plant (WWTP) provides sewage treatment services to Greenville Borough, Hempfield Township and West Salem Township. An overall location overview is shown on Exhibit 1 in Attachment A. The location map depicts the tributary communities within the overall service area and the location of the WWTP. The WWTP is located south of Greenville Borough in Hempfield Township. While the project has an inherent impact on the Authority's entire service area throughout all of the tributary communities, all construction work for implementation of the proposed wastewater treatment alternatives will be completed only at the site of the WWTP. Thus, the information provided in this UER is specific to that site. A treatment schematic and the existing site plan of the WWTP are included on Exhibits 6 and 7 in Attachment A, respectively.

The Authority has taken a proactive approach to project planning. An upgrade project is necessary to replace the aging infrastructure of the plant and allow it to continue producing high quality treated effluent. The WWTP has demonstrated exceptional performance since completion of the last significant upgrade. However, the trickling filters and flocculator clarifiers are nearly 25 years old. The headworks, primary clarifiers, and trickling filter pump station are over 50 years old, far beyond the reasonable operating life of these facilities. Other problems, including issues related to inorganic wastes, grit and grease, safety concerns, mechanical failure of equipment, concrete deterioration, and frequent maintenance requirements, carry significant concern in regards to the WWTP and the effectiveness of the treatment processes and the overall capacity of the plant. These problems, along with the age of the facilities, are the motivation behind the project. Further discussion detailing problems identified at the WWTP are included in the Act 537 Plan Special Study which has been prepared for the project.

1.2 Project Description

The proposed project involves conversion of the existing trickling filter/solids contact (TF/SC) process to the membrane bioreactor (MBR) process. This alternative repurposes all of the existing tankage, while converting to a more efficient and operationally flexible secondary treatment process. The proposed upgrades were developed to provide treatment capacity for potential future total nitrogen limits. The proposed project includes the following:

- A new headworks facility will include an automatic bar screen, a by-pass static bar screen, and a grit removal basin. All influent flow up to 6.25 MGD will be pumped to a fine screen facility located near the existing flocculator clarifiers which will be converted into the proposed MBR tanks. Flow in excess of 6.25 MGD will be pumped to the flow storage basins. The existing trickling filter tanks will be converted into flow storage.

- The flow storage tanks will drain to the existing trickling filter pump station which will pump stored volume to the fine screens once flow drops below 6.25 MGD.
- The existing flocculator clarifiers will be converted into MBRs.
- The existing primary clarifiers will be converted into sludge holding tanks.
- The existing anaerobic digesters will be converted into aerobic digesters.
- No disinfection improvements are proposed. MBR effluent typically does not require disinfection. The contact tanks and chlorine system will remain to ensure that permit limits are met.
- Sludge drying bed improvements will include efforts to cover the existing drying beds and construct new drying beds.

The proposed treatment schematic and site plan are included on Exhibits 10 and 11 in Attachment A, respectively.

2.0 SUMMARY OF REASONABLE ALTERNATIVES CONSIDERED

2.1 Alternatives Considered

The following alternatives were evaluated for the WWTP improvements:

1. Alternative 1 – Continued use of the Trickling Filter/Solids Contact (TF/SC) Process
2. Alternative 2 – Convert existing TF/SC to Membrane Bioreactor (MBR)
3. Alternative 3 – Construct new Sequencing Batch Reactor (SBR)
4. Alternative 4 – Construct new Headworks Facility
5. No-Action Alternative

2.2 Comparison of Alternatives

<u>Alternative 1 – Continued use of the Trickling Filter/Solids Contact (TF/SC) Process</u>

Alternative 1 involves continued to use of the existing trickling filter/solids contact (TF/SC) process, while replacing equipment as necessary to extend the life of the existing facilities. Alternative 1 does not include denitrification. Therefore, an additional project would be required in the future if total nitrogen limits were imposed. The estimated cost for providing denitrification capacity is between $4.0 Million and $7.0 Million. Alternative 1 includes the following:

- A new headworks facility including an automatic bar screen, a by-pass static bar screen, and a grit removal basin.
- A new raw sewage pump station.
- Primary clarifier flow distribution box.
- New primary clarifier to provide adequate redundancy for system maintenance.
- Replacement of existing primary clarifier equipment.
- New sludge pumps.
- Removal of existing comminutors, raw sewage pumps and piping.
- Seal primary sludge well from building to eliminate building exposure to hazardous environment.

- New trickling filter pump station to replace the existing pump station which is over 50 years old and does not allow for pump removal without disassembly of discharge piping.
- Trickling Filter improvements including replacement of trickling filter media and distributor arm.
- Replacement of flocculator clarifier equipment.
- Conversion of chlorine contact tank to UV disinfection and construction of a UV lift station. The UV disinfection facilities must be constructed above the 100-yr flood elevation. The UV lift station will isolate the entire gravity flow portion of the WWTP from the flood backwater, thus maintaining plant peak treatment capacity during flood conditions.
- Digester improvements including cleaning, a new mixing system, sealing of supernatant sumps and lid repair.
- Sludge drying bed improvements including efforts to cover the existing drying beds and construct new drying beds.

Alternative 2 – Convert existing TF/SC to Membrane Bioreactor (MBR)

Alternative 2 involves conversion of the existing trickling filter/solids contact (TF/SC) process to the membrane bioreactor (MBR) process. This alternative repurposes all of the existing tankage, while converting to a more efficient and operationally flexible secondary treatment process. The Alternative 2 upgrades were developed to provide treatment capacity for potential future total nitrogen limits. Alternative 2 includes the following:

- A new headworks facility including an automatic bar screen, a by-pass static bar screen, and a grit removal basin. All influent flow up to 6.25 MGD will be pumped to a fine screen facility located near the existing flocculator clarifiers which will be converted into the proposed MBR tanks. Flow in excess of 6.25 MGD will be pumped to the flow storage basins. The existing trickling filter tanks will be converted into flow storage.
- The flow storage tanks will drain to the existing trickling filter pump station which will pump stored volume to the fine screens once flow drops below 6.25 MGD.
- The existing flocculator clarifiers will be converted into MBRs.
- The existing primary clarifiers will be converted into sludge holding tanks.
- The existing anaerobic digesters will be converted into aerobic digesters.
- No disinfection improvements are proposed. MBR effluent typically does not require disinfection. The contact tanks and chlorine system will remain to ensure that permit limits are met.
- Sludge drying bed improvements will include efforts to cover the existing drying beds and construct new drying beds.

Alternative 3 – Construct new Sequencing Batch Reactor (SBR)

Alternative 3 proposes a new process, the Sequencing Batch Reactor (SBR) Process. This alternative proposes construction of a new, more efficient and operationally flexible WWTP. The existing WWTP will only be used for solids handling and disinfection. Alternative 3 was also developed to provide treatment capacity for potential future total nitrogen limits. Alternative 3 includes the following:

- A new headworks facility including an automatic bar screen, a by-pass static bar screen, and a grit removal basin.
- Construction of 4, 151’ x 51’ x 20’ SBR basins.

- Tertiary filtration. Drum filters are proposed to achieve existing phosphorus limits.
- The existing primary clarifiers will be converted into sludge holding tanks. SBR sludge to be wasted to these tanks prior to thickening.
- The existing anaerobic digesters will be converted into aerobic digesters.
- Conversion of chlorine contact tank to UV disinfection and construction of a UV lift station. The UV disinfection facilities must be constructed above the 100-yr flood elevation. The UV lift station will isolate the entire gravity flow portion of the WWTP from the flood backwater, thus maintaining plant peak treatment capacity during flood conditions.
- Sludge drying bed improvements including efforts to cover the existing drying beds and construct new drying beds.

Alternative 4 – Construct new Headworks Facility

Alternative 4 involves the construction of only a new headworks facility. The new headworks facility would include an automatic bar screen, a by-pass static bar screen, and a grit removal basin.

No-Action Alternative

It can be assumed that the likelihood of contamination of the waters of the Commonwealth and the associated public health risks and environmental impacts will increase if a no-action alternative is undertaken. This, in turn, may impact growth potential, community economic conditions, recreational opportunities, and other environmental and public health considerations.

The Authority has taken a proactive approach to project planning. An upgrade project is necessary to replace the aging infrastructure of the WWTP and allow it to continue to produce high quality treated effluent. The proactive desire to address the needs at the WWTP is the primary motive for the project. A "No Action Alternative" is not available for consideration.

The advantages and disadvantages for each alternative are provided in Table 1.

Table 1: Alternatives Evaluation

Alternative	Advantages	Disadvantages
1 (Existing TF/SC)	• Process is familiar to plant staff • Simple operation	• Difficult upgrade for future denitrification • Limited process control • Need to pump twice
2 (MBR)	• Good process control • Denitrification capacity included • Automated operation • Small footprint • Fully utilizes existing tanks	• High cost equipment • Need to pump twice • Complex manual operation • Flow storage basin required
3 (SBR/Tertiary Filters)	• Good process control • Denitrification capacity included • Automated operation • Pump only once	• Large footprint • Complex manual operation • Drum filters required to meet phosphorus limit • Does not use all existing tanks
4 (Headworks	• Maintains existing process	• Does not address needs

Cost estimates were developed for each of the alternatives considered. A summary of the estimated project costs for each alternative is included in Table 2.

Table 2: Estimated Alternative Project Costs

Alternative	Estimated Project Cost
1 (Existing TF/SC)	$24,974,000
2 (MBR)	$26,584,000
3 (SBR/Tertiary Filters)	$32,941,000
4 (Headworks)	$10,860,000

*If denitrification is required in the future, Total Alternative 1 Cost = $33,197,000.

Alternative 4 is the least costly alternative, but does not address the needs identified at the WWTP, including replacement of the aging infrastructure and equipment. Of the remaining alternatives, Alternative 1 (TF/SC) has the lowest estimated project cost. However, considering future total nitrogen limits, which will likely be imposed during the design life of the proposed facilities, Alternative 2 (MBR) has the lowest total estimated project cost. However, the costs for ongoing administration, operation and maintenance of the alternatives considered, in addition to interest charges for various methods of financing, must be considered. A present worth analysis was completed for the alternatives considered.

A present worth analysis was completed for ongoing administration, operation and maintenance, as well as annual debt service, for the alternatives evaluated herein under various financing methods. The present worth of each alternative under the various financing methods is shown in Table 3. While

Alternative 4 has the lowest present worth under each financing method, this alternative must be discounted as it does not address the needs at the WWTP. Of the remaining alternatives, Alternative 2 (MBR) has the lowest present worth and is the most economical alternative which provides denitrification.

Table 3: Present Worth

Financing Method	Alternative 1 (Existing TF/SC)	Alternative 1 + Denitrification	Alternative 2 (MBR)	Alternative 3 (SBR/Tertiary Filters)	Alternative 4 (Headworks)
PENNVEST	$62,905,330	$79,490,288	$66,740,759	$78,799,996	$42,141,073
Bonds	$78,499,517	$95,084,474	$82,334,945	$94,394,182	$50,608,716
RUS	$70,398,746	$84,316,424	$73,711,942	$83,709,170	$47,086,078

3.0 ENVIRONMENTAL CONSEQUENCES OF THE SELECTED ALTERNATIVE

Alternative 2 (MBR) was selected for implementation. The following sections analyze the impacts of the project on various environmental resources of the planning area.

3.1 Land Use/Important Farmland/Formally Classified Lands

The proposed project is consistent with local land use planning and agricultural preservation interests.

Land Use

As previously stated, the Greenville Sanitary Authority WWTP provides regional wastewater treatment service to residents in Greenville Borough, Hempfield Township and West Salem Township. The upgrade of the WWTP will not change land use in any of the tributary communities. All construction work will occur at the site of the existing WWTP, which is located in an industrial zoned area in Hempfield Township.

Prime Agricultural Land

Agricultural areas, as defined by the Pennsylvania Code, are areas used primarily for the production of crops and where the soil is without vegetative cover during certain periods of the year. Prime farmland is land that has the best physical and chemical characteristics for the production of food, feed and forage, fiber, and oil seed crops. Pennsylvania's Prime Agricultural Land Policy orders and directs the prevention of irreversible conversion of prime agricultural land to uses that result in its loss as an environmental or essential food production resource. Prime farmlands are important to examine for scenarios in which future development is expected to occur because of the protective measures in existence to preserve this important resource.

It is important to note that there are soil areas classified as prime farmland and farmland of statewide importance at the site of the WWTP, as shown on Exhibit 2 in Attachment A. While the soils are classified as prime farmlands, the site of the WWTP is an existing, previously developed and maintained site which is not used for agricultural purposes. All construction work proposed through the upgrade

project will occur only at the site of the existing WWTP, and there will be no impacts on prime agricultural lands.

Formally Classified Lands

There will be no impacts on national or state parks, forests or trails. There will be no impacts on registered and eligible national monuments or landmarks.

3.2 Floodplains

A flood occurs when the capacity of a stream channel to convey flow within its banks is exceeded and water flows out of the main channel onto and over the adjacent land. This adjacent land is known as the floodplain. In regulating floodplains, the standard is the 100-year flood, the flood that is defined as having a 1% chance of being equaled or exceeded during a given year. Pennsylvania Code regulations set forth limitations related to floodplains. These regulations prohibit encroachments and obstructions, including structures, in the regulated floodway without first obtaining a state Water Obstruction and Encroachment permit. The floodway is the portion of the floodplain adjoining the stream required to carry the 100-year flood event with no more than one (1) foot increase in the 100-year flood level due to encroachment in the floodplain outside the floodway. Floodplain regulations, such as elevating a first floor level above the 100-year floodplain and obtaining necessary local, state and federal permits for construction in these areas, exist for the preservation of citizen well being. Floodplain resources are of significant importance and are vital for maintaining the floodplain ecosystem. The primary environmental policy in regards to floodplains is the protection of floodplain resource values. Floodplain management focuses on preventative and corrective measures to reduce flood damage.

Floodplain mapping is included on Exhibit 5 in Attachment A. The entire site of the WWTP is located within a floodplain area. During the 1992 expansion of the WWTP, the Pittsburgh District of the Army Corps of Engineers (ACoE) provided information regarding flood elevations. The 100-year flood elevation at the WWTP was computed by the ACoE to be 939.0 NGVD, and the 25-year flood elevation was estimated to be 937.0 feet. The 10 and 50-year elevations were estimated to be approximately 936.0 and 938.0 feet, respectively. Design requirements for wastewater treatment facilities are contained in the PADEP's *Domestic Wastewater Facilities Manual*. In regards to flood protection, the manual states that treatment plant structures, electrical and mechanical equipment shall be protected from physical damage by the 100-year flood, and that treatment plants should remain fully operational and accessible during the 25-year flood. The design of the WWTP was based on the 25-year flood frequency of 937.0 feet to maintain process operation. The facility is protected from 100-year floods by floor elevations being set no lower than an elevation of 939.0 feet.

Direct, Indirect, and Cumulative Effects

Impacts on floodplains will be minimized to the greatest extent possible, and all construction activities will follow all local, state, and federal regulations regarding floodplains during any proposed upgrades at the WWTP.

3.3 Wetlands

Wetlands are areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil

conditions including swamps, marshes, bogs and similar areas. Wetland areas are considered to be a valuable public water resource and are subject to strict conservation regulations. They provide an environment and habitat for aquatic life including fish, amphibians and waterfowl. Additionally, many endangered plant species are thought to exist in wetlands, and wetlands are essential for the maintenance of surface water quality and quantity. National Wetlands Inventory (NWI) mapping of the area surrounding the site of the WWTP is shown on Exhibit 4 in Attachment A. Minimal wetland areas classified as riverine exist along the Shenango River to the south of the site of the WWTP.

Hydric soils are formed in conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. These soils contain the characteristics necessary for potential wetland existence and may indicate a wetland area. Hydric soils mapping is also shown on Exhibit 4 in Attachment A. The mapping indicates that the soil types at the site of the WWTP are classified as partially hydric.

Direct, Indirect, and Cumulative Effects

Based on the wetlands mapping, which indicates that there are no wetlands at the site of the WWTP, there are no expected impacts on wetlands. The Authority will make all attempts to minimize the impact on any ecologically sensitive areas during any construction activities. All work associated with the chosen alternative will be consistent with all applicable state and federal regulations regarding wetlands.

3.4 Historic Resources

The Pennsylvania Historical Preservation Act of 1978 requires full cooperation with the Pennsylvania Historical and Museum Commission (PHMC) for the preservation, protection and investigation of archaeological resources. A preliminary review by PHMC indicates that there are no known historical structures or archaeological artifacts located within the site of the existing WWTP. The upgrade project is consistent with historical and archaeological resource protection. General correspondence with PHMC is included in Attachment B.

Direct, Indirect, and Cumulative Effects

This project is expected to have no impacts on any historic resources.

3.5 Sensitive Biological Resources

There is an increasing effort to protect the habitat of rare, endangered and threatened species. As per the Pennsylvania Natural Heritage Program, projects require review by applicable environmental agencies in an effort to identify and protect environmental values within a project area. These agencies include the following:

- Department of Conservation and Natural Resources – Bureau of Forestry
- Pennsylvania Game Commission
- Pennsylvania Fish and Boat Commission
- U.S. Fish and Wildlife Service

The PNDI Project Environmental Review Receipt for the site of the WWTP is included in Attachment C and indicates that there are no known impacts associated with the project as identified by the Pennsylvania Game Commission and the Pennsylvania Department of Conservation and Natural Resources. However, there were potential impacts identified by the Pennsylvania Fish and Boat Commission and the U.S. Fish and Wildlife Service. The PNDI search results and all correspondence to address potential impacts for the proposed WWTP upgrade project are included in Attachment C. Based on further reviews by these agencies, there were no known impacts associated with the WWTP upgrade project. The upgrade project is consistent with the protection of rare, endangered or threatened plant and animal species.

Direct, Indirect, and Cumulative Effects

This project is expected to have no impacts on any sensitive biological resources.

3.6 Water Quality Issues

The Pennsylvania Code, Title 25, Chapter 93 (Water Quality Standards) contains classifications of every stream in Pennsylvania and orders and promotes their protection. The WWTP discharges treated effluent to the Shenango River, which is classified as a warm water fishery (WWF) under Chapter 93. Chapter 93 defines a WWF as a stream used for the maintenance and propagation of fish species and additional flora and fauna that are indigenous to a warm water habitat. Additional protection measures exist for waters classified as high quality (HQ) or exceptional value (EV). HQ and EV waters or watersheds have excellent quality and features that require special water quality protection measures. It is important to note that the Shenango River is not classified as HQ or EV, but a major goal of this Special Study is to protect the waters of the Commonwealth through the preservation of the overall Shenango River drainage basin to support aquatic life.

Direct, Indirect, and Cumulative Effects

The project will directly improve/protect the water quality of the Shenango River drainage basin, and thereby have a cumulative effect of improving the waters of the Commonwealth.

3.7 Coastal Resources

The project is not located in a coastal zone management area. Therefore, it will have no impact on coastal resources.

Direct, Indirect, and Cumulative Effects

This project will not impact coastal resources.

3.8 Socio-Economic Issues

The project will not impose any disproportionate adverse effects on minority and/or disadvantaged populations. It is the Authority's policy to treat all of its customers equally and to evaluate wastewater service with no regards to socio-economic status.

Direct, Indirect, and Cumulative Effects

This project will not disproportionably impact minority and/or disadvantaged populations.

3.9 Air Quality

The only potential for impacts on air quality resulting from this project may be emissions from construction equipment during construction and fugitive dust from construction activities. The contract documents for the project will include provisions requiring the contractors to control dust and mud as required by local ordinances and best management practices.

Direct, Indirect, and Cumulative Effects

This project will not negatively impact air quality.

3.10 Transportation

There will be minimal increase in traffic from construction vehicles in the project area during the construction period. It is not anticipated that this additional traffic will have any adverse impacts on the project area. After construction is completed, there will be no additional traffic as a result of this project.

Direct, Indirect, and Cumulative Effects

As a result of the construction there will be minimal impact on nearby residents.

3.11 Noise Abatement and Control

There will be additional noise from construction activities during the construction period. The contract documents will contain provisions limiting the construction activities to approved hours as established by local ordinance.

Direct, Indirect, and Cumulative Effects

This project will not impact noise levels other than temporary increase during construction activities.

3.12 Wild and Scenic Rivers

The project will not affect any wild or scenic rivers. Implementation of the project will ensure the effectiveness of the treatment processes and the overall capacity of the plant to allow it to continue to produce high quality treated effluent. The project will improve/protect the water quality of the Shenango River drainage basin.

Direct, Indirect, and Cumulative Effects

This project will not impact any wild or scenic rivers.

3.13 Miscellaneous Environmental Considerations

This project is not anticipated to have any additional miscellaneous environmental impacts.

4.0 SUMMARY OF MITIGATION

No mitigation is required for this project other than what would be considered routine as part of a project of this nature. For instance, implementation of Erosion and Sedimentation plans, stormwater management plans, and implementing procedures to ensure compliance with all permits during construction.

5.0 PUBLIC PARTICIPATION

A public notice describing the project and announcing the Act 537 Plan Special Study will be available for review and comment during a 30-day public comment period will be advertised in the local newspaper.

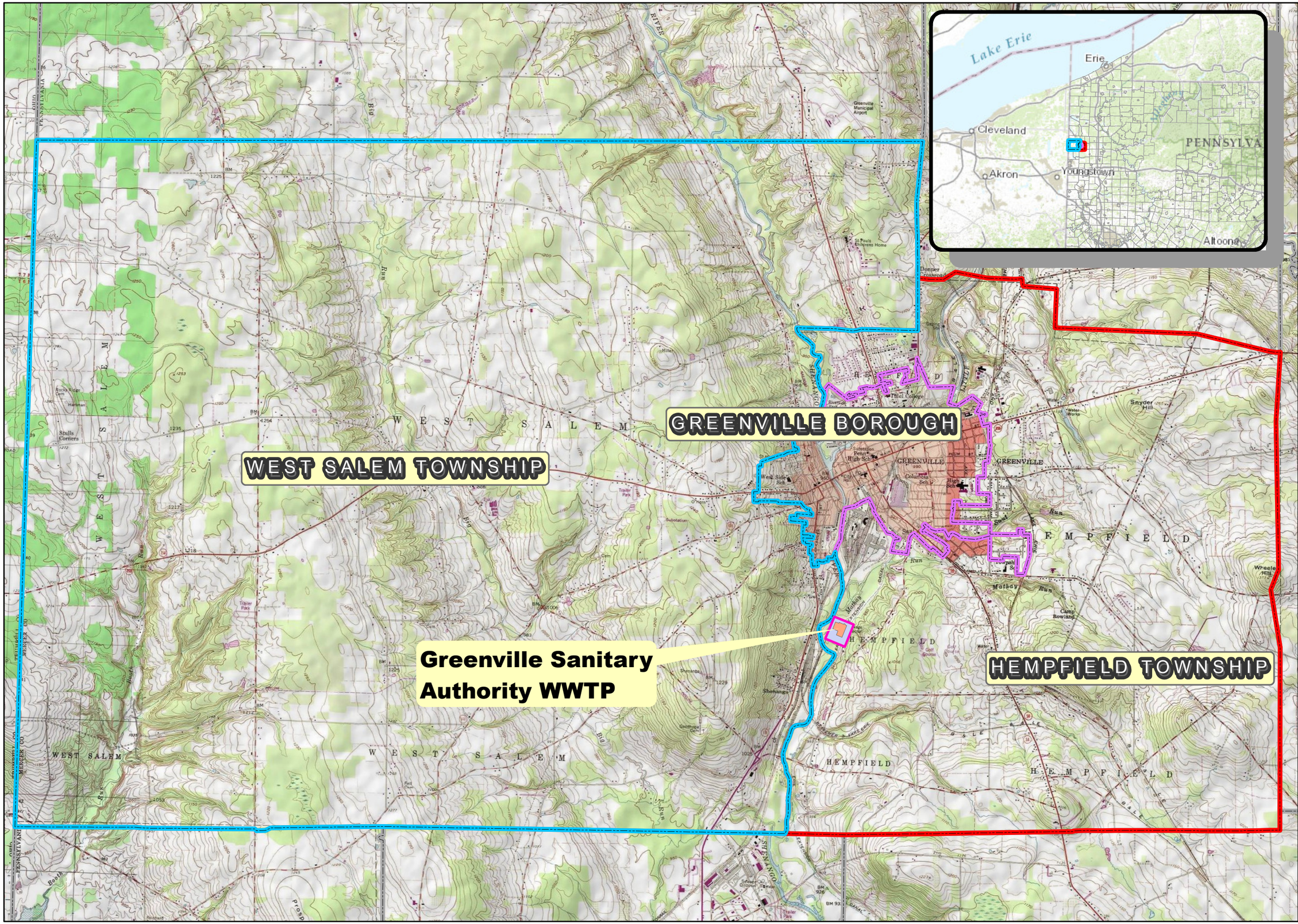
6.0 EXHIBITS/ATTACHMENTS

The Exhibits and Attachments included within this Uniform Environmental Review (UER) were taken directly from the Act 537 Plan Special Study and include the following:

- Attachment A: Exhibits
  - Exhibit 1 – Location Overview
  - Exhibit 2 – Soils & Farmland Evaluation
  - Exhibit 4 – Wetlands & Hydric Soils
  - Exhibit 5 – Floodplains
  - Exhibit 6 – Existing Treatment Schematic
  - Exhibit 7 – Existing Site Plan
  - Exhibit 10 – Proposed Treatment Schematic
  - Exhibit 11 – Proposed Site Plan
- Attachment B: Pennsylvania Historical and Museum Commission Correspondence
- Attachment C: Pennsylvania Natural Diversity Inventory Results

ATTACHMENT A

Exhibits



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www.klhengineers.com

KLH ENGINEERS, INC

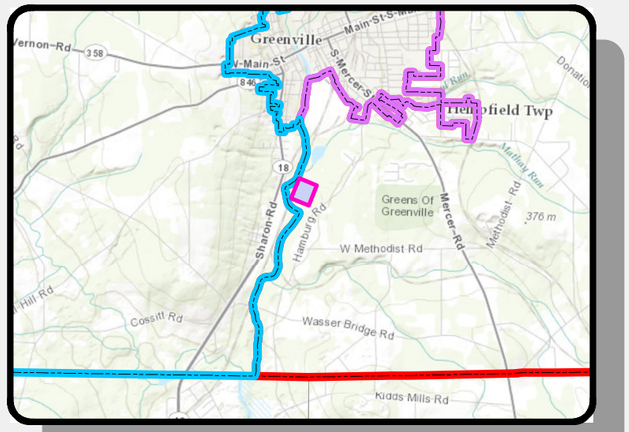
GREENVILLE SANITARY AUTHORITY
MERCER COUNTY, PENNSYLVANIA
ACT 537 PLAN SPECIAL STUDY

0 1,875 3,750
Feet

Author: Rose Volkwein
Date: 4/5/2013
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic

123-66

EXHIBIT 1



Legend

- Roads
- Study Area
- Greenville WWTP

Farmland Description

- All areas are prime farmland
- Farmland of statewide importance
- Not prime farmland

Soil Characteristics

- BrB2
- Rf
- Wa

N

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GREENVILLE SANITARY AUTHORITY
MERCER COUNTY, PENNSYLVANIA
ACT 537 PLAN SPECIAL STUDY
SOILS AND FARMLAND EVALUATION

0 75 150
Feet

Author: Ross Volkwein
Date: 4/8/2013
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic

123-66

EXHIBIT 2

N

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Fax: 412-494-0426
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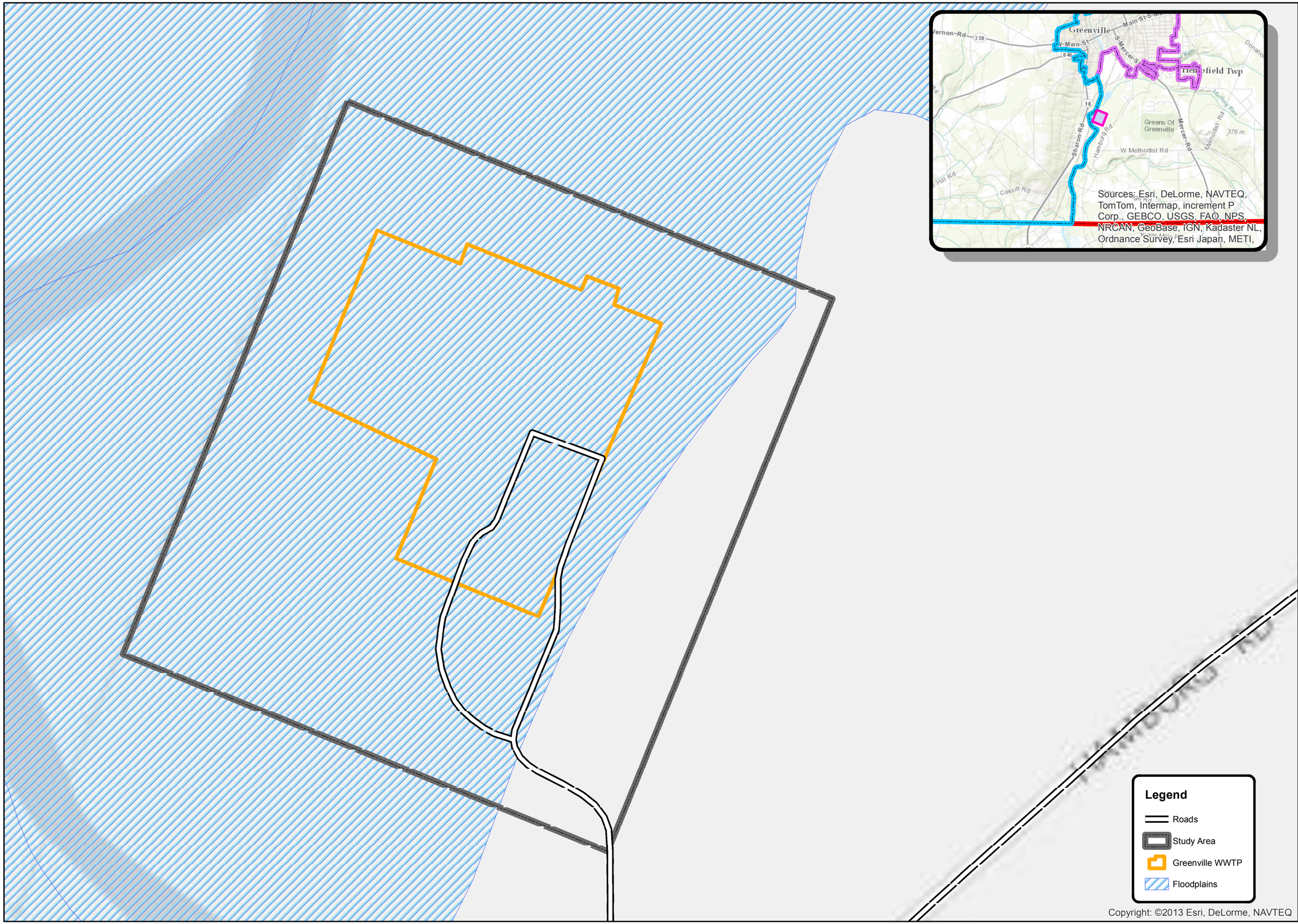
GREENVILLE SANITARY AUTHORITY
MERCER COUNTY, PENNSYLVANIA
ACT 537 PLAN SPECIAL STUDY
WETLANDS AND HYDRIC SOILS

0 75 150 Feet

Author: Ross Volkwein
Date: 4/9/2013
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic

123-66

EXHIBIT 4



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KLH ENGINEERS, INC

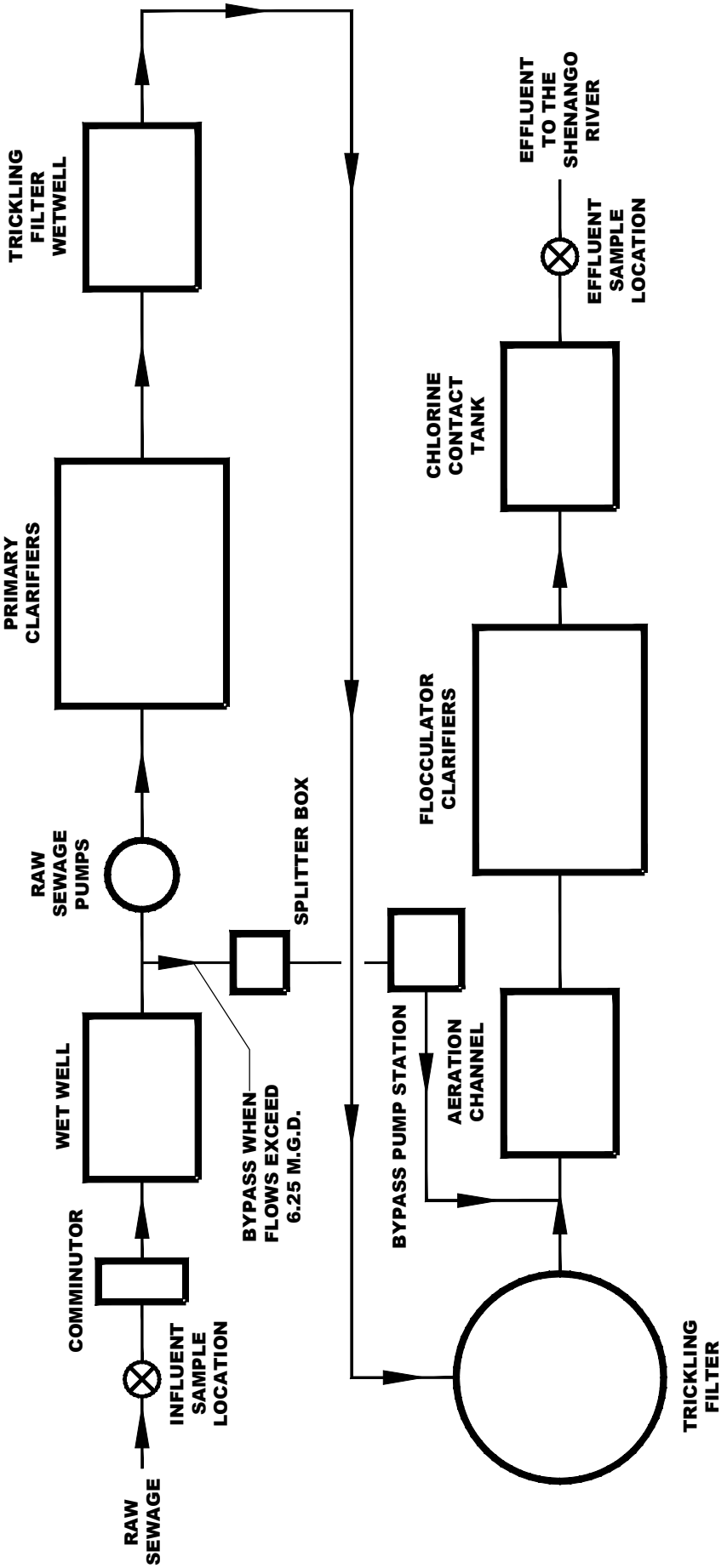
GREENVILLE SANITARY AUTHORITY
MERCER COUNTY, PENNSYLVANIA
ACT 537 PLAN SPECIAL STUDY
FLOODPLAINS

0 75 150
Feet

Author: Ross Volkwein
Date: 4/8/2013
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic

123-66

EXHIBIT 5



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GREENVILLE SANITARY AUTHORITY
MERCER COUNTY, PENNSYLVANIA
ACT 537 PLAN SPECIAL STUDY
W.W.T.P. EXISTING TREATMENT SCHEMATIC

Scale:	N.T.S.
Date:	12/2015
Drawn By:	JDA
Checked By:	SG
Approved By:	SG

Order No.	123-66
Drawing No.	EX6
Sheet No.	1 of 1

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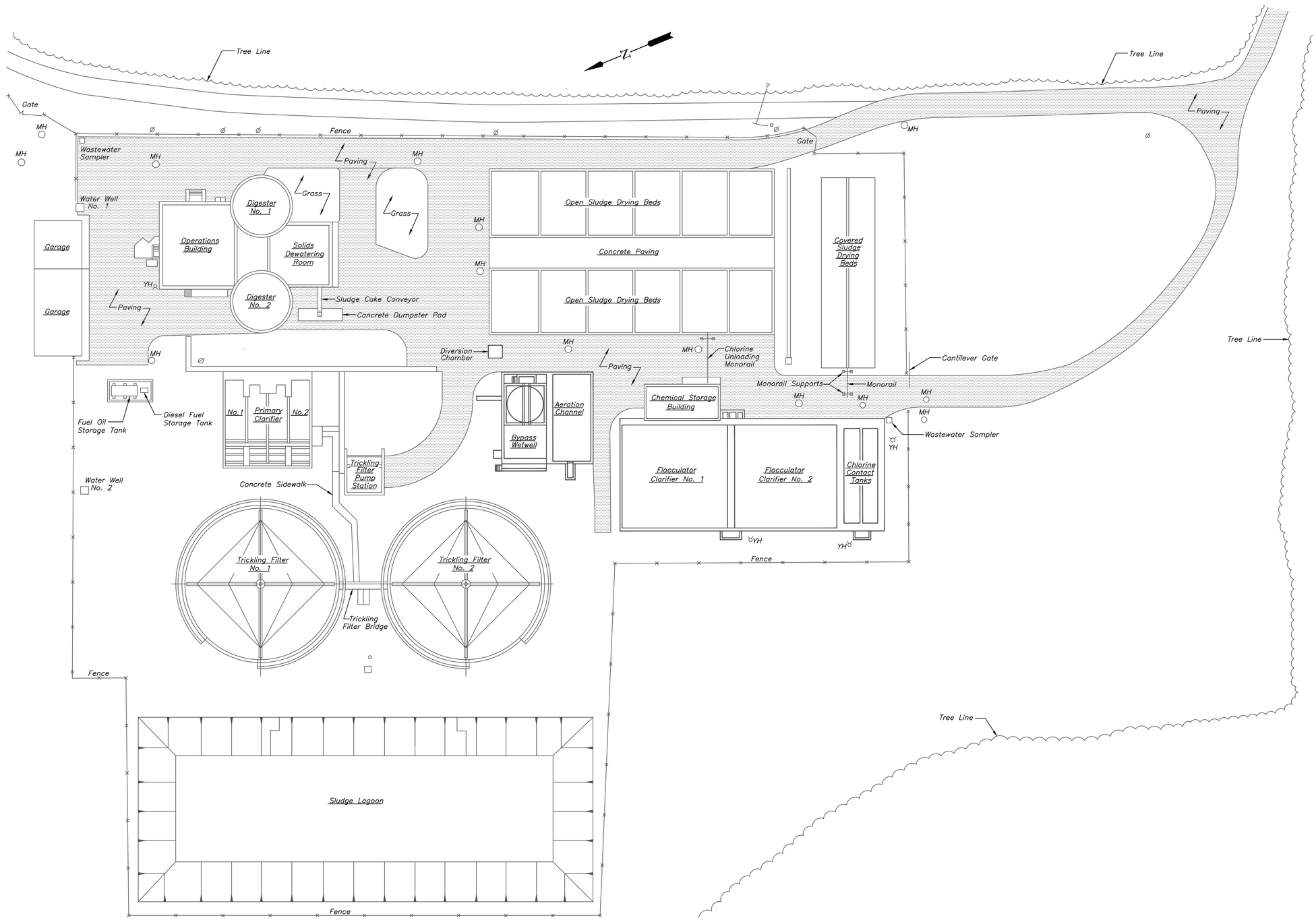

EXISTING SITE PLAN

SCALE: 1" = 30'

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Revisions	Date

5173 Campbells Run Road
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KLH ENGINEERS, INC

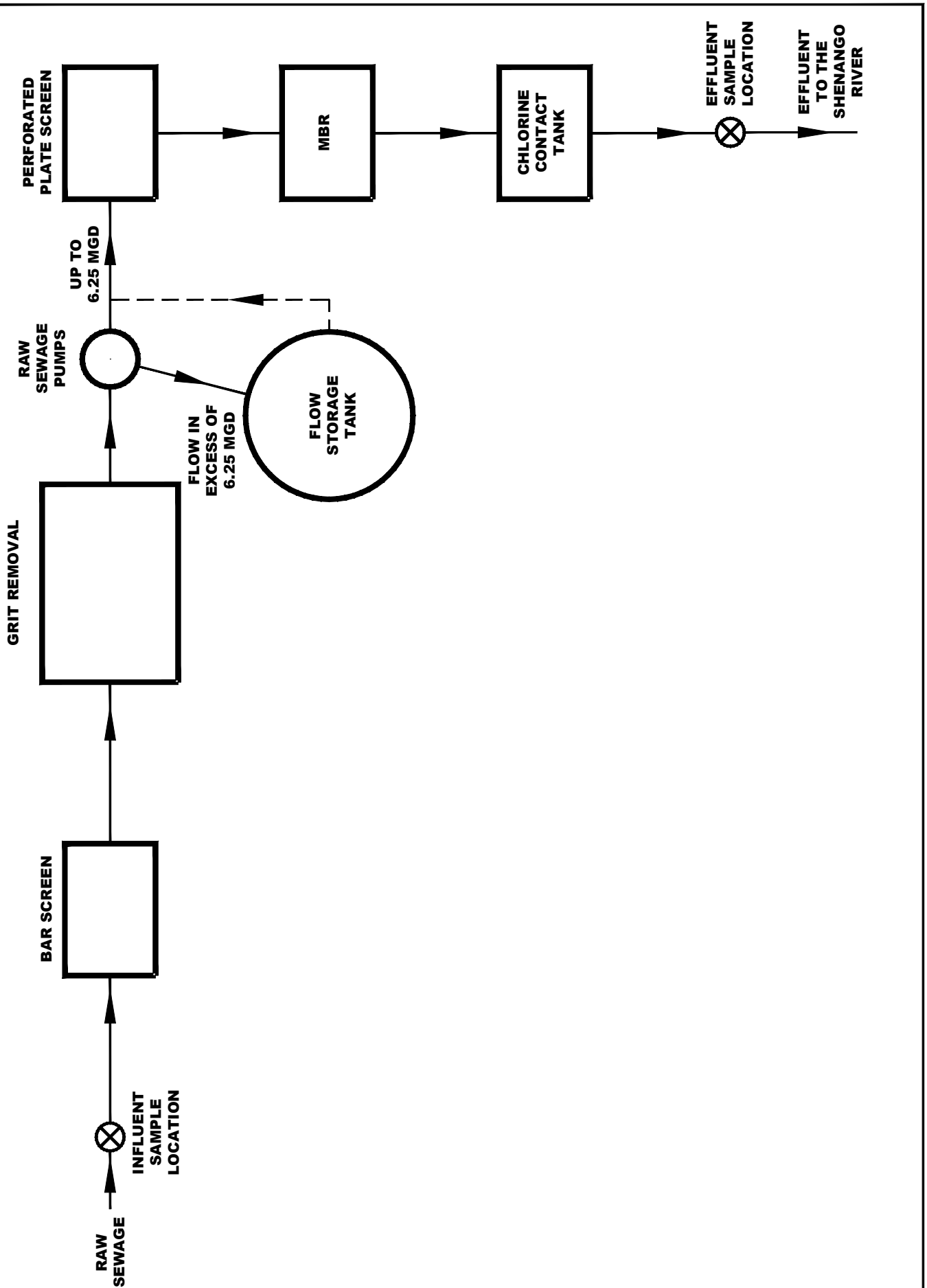
GREENVILLE SANITARY AUTHORITY
MERCER COUNTY, PENNSYLVANIA
ACT 537 PLAN SPECIAL STUDY
WASTE WATER TREATMENT PLANT EXISTING SITE PLAN

Scale:	As Shown
Date:	12/2015
Drawn By:	JDA
Checked By:	SRG
Approved By:	JCM

Order No. **123-66**

Drawing No. **EX7**

Sheet No. **EXHIBIT 7**



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GREENVILLE SANITARY AUTHORITY

MERCER COUNTY, PENNSYLVANIA
ACT 537 PLAN SPECIAL STUDY
W.W.T.P. ALT 2 TREATMENT SCHEMATIC

Scale:	N.T.S.
Date:	12/2015
Drawn By:	JDA
Checked By:	SG
Approved By:	SG

Order No.	123-66
Drawing No.	EX10
Sheet No.	1 of 1

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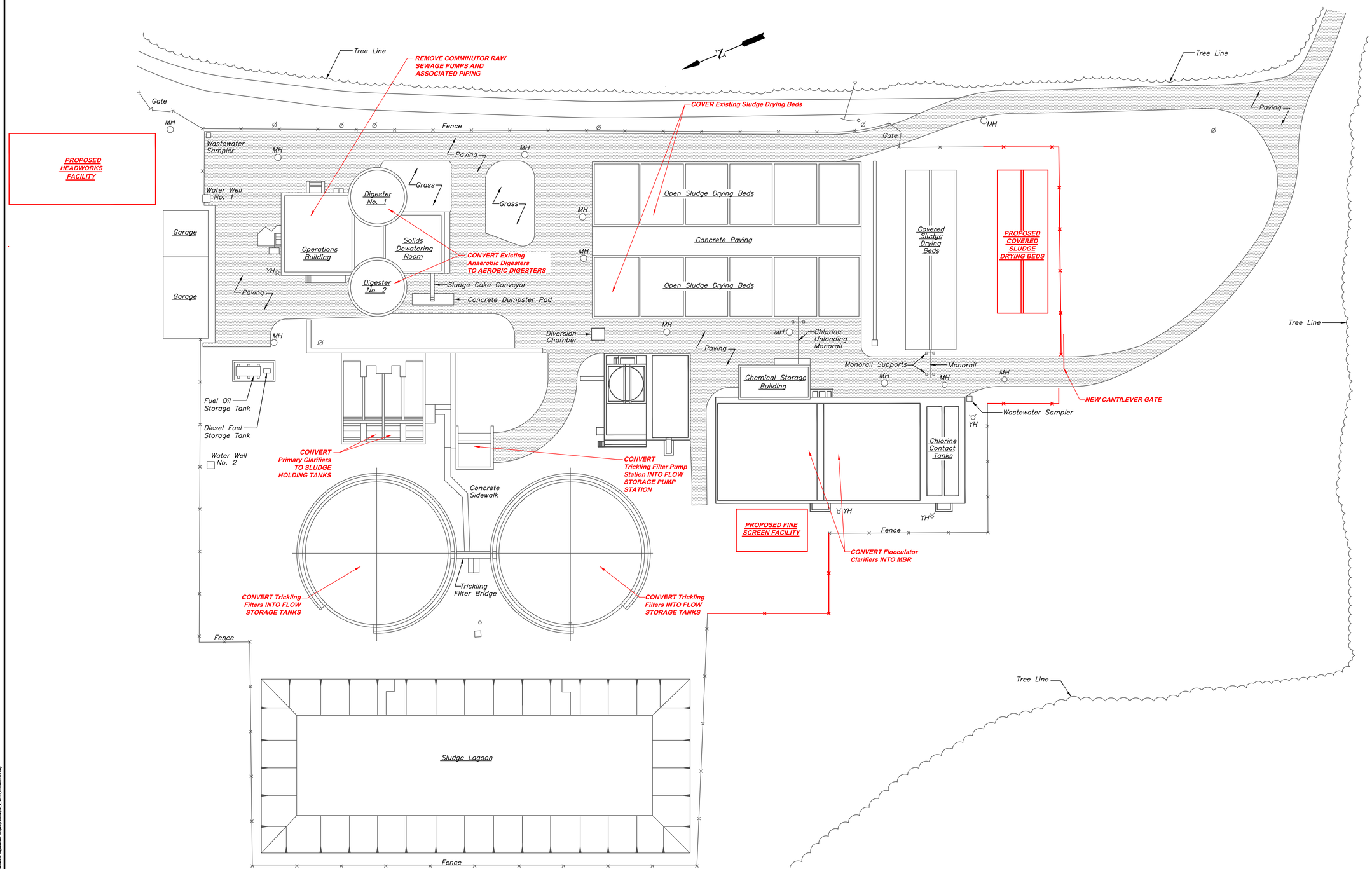
NOTE:
ITEMS IDENTIFIED WITH UPPER CASE TEXT ARE PROPOSED.
Items Identified with Mixed Case Text are Existing.



PROPOSED SITE PLAN
SCALE: 1" = 30'

Revisions	Date
Revisions	Date

5173 Campbells Run Road
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KLH ENGINEERS, INC

GREENVILLE SANITARY AUTHORITY
MERCER COUNTY, PENNSYLVANIA
ALTERNATIVE 2 - MBR
ACT 537 PLAN SPECIAL STUDY
WASTE WATER TREATMENT PLANT UPGRADE

Scale:	As Shown
Date:	12/2015
Drawn By:	JDA
Checked By:	SRG
Approved By:	JCM

Order No. **123-66**
Drawing No. **EX 11**
Sheet No. **EXHIBIT 11**

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ATTACHMENT B

Pennsylvania Historical and Museum
Commission Correspondence

KLH

ENGINEERS, INC.

May 7, 2013
Ref. No. 123-66

Pennsylvania Historical and Museum Commission
Bureau of Historic Preservation
400 North Street, Second Floor
Harrisburg, PA 17120-0093

CERTIFIED RETURN RECEIPT

To Whom It May Concern:

Greenville Sanitary Authority Wastewater Treatment Plant Upgrade
Act 537 Sewage Facilities Plan Special Study
Cultural Resource Notice

On behalf of the Greenville Sanitary Authority (Authority), KLH Engineers, Inc. is providing this Cultural Resource Notice for approval. This is being done in an effort to complete the planning required in preparation of the Act 537 Sewage Facilities Plan Special Study for the upgrade of the Authority's wastewater treatment plant (WWTP) located in Hempfield Township. Your response is greatly appreciated.

Attached to the completed Cultural Resource Notice are the following documents:

- Project Narrative explaining the nature of the proposed project.
- USGS 7.5-minute topographic map showing the location of the WWTP and the existing service area.
- Existing WWTP site plan where all construction work will occur.

Please feel free to contact me at 412-494-0510 ext. 110 or via email at sgibson@klhengineers.com if you have any questions or concerns.

Sincerely,

KLH ENGINEERS, INC.

Samuel R. Gibson, E.I.T.

Enclosure

ER No. 13-1491-085-A
There are NO HISTORIC PROPERTIES in the area of potential effect
Date 5/15/13 Reviewer Mark Shaffer

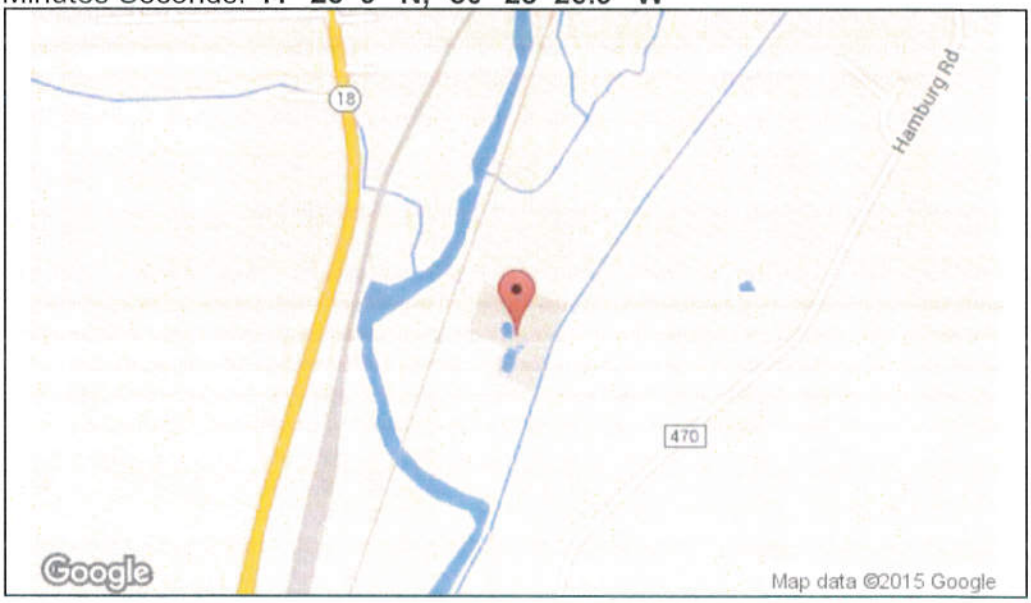
123-66 Cultural Resource Notice trans_SRG_05-07-13.docx

ATTACHMENT C

Pennsylvania Natural Diversity Inventory Results

1. PROJECT INFORMATION

Project Name: **Greenville Sanitary Authority Wastewater Treatment Plant Upgrade**
Date of review: **11/10/2015 2:06:09 PM**
Project Category: **Waste Transfer, Treatment, and Disposal,Liquid waste/Effluent,Sewage module/Act 537 plan**
Project Area: **N/A**
County: **Mercer** Township/Municipality: **Hempfield**
Quadrangle Name: **GREENVILLE WEST** ~ ZIP Code: **16125**
Decimal Degrees: **41.385824 N, -80.390803 W**
Degrees Minutes Seconds: **41° 23' 9" N, -80° 23' 26.9" W**



2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	**Potential Impact**	**FURTHER REVIEW IS REQUIRED, See Agency Response**
U.S. Fish and Wildlife Service	**Potential Impact**	**FURTHER REVIEW IS REQUIRED, See Agency Response**

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for two years** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jursidictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Fish and Boat Commission

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

PFBC Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)
Scientific Name: Amblema plicata
Common Name: Three-ridge
Current Status: Special Concern Species*

Scientific Name: Fusconaia subrotunda
Common Name: Long-solid
Current Status: Special Concern Species*

Scientific Name: Sensitive Species**
Common Name:
Current Status: Endangered

Scientific Name: Sensitive Species**
Common Name:
Current Status: Endangered

U.S. Fish and Wildlife Service

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

* Special Concern Species or Resource - Plant or animal species classified as rare, tentatively undetermined or candidate as well as other taxa of conservation concern, significant natural communities, special concern populations (plants or animals) and unique geologic features.
** Sensitive Species - Species identified by the jurisdictinal agency as collectible, having economic value, or being susceptible to decline as a result of visitation.

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, send the following information to the agency(s) seeking this information (see AGENCY CONTACT INFORMATION).

Check-list of *Minimum* Materials to be submitted:

_✓_ **SIGNED** copy of this Project Environmental Review Receipt
_✓_ Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.
_✓_ Project location information (name of USGS Quadrangle, Township/Municipality, and County)
_✓_ USGS 7.5-minute Quadrangle with project boundary clearly indicated, and quad name on the map

The inclusion of the following information may expedite the review process.
_✓_ A basic site plan(particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)
____ Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)
_✓_ Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. For cases where a "Potential Impact" to threatened and endangered species has been identified before the application has been submitted to DEP, the application should not be submitted until the impact has been resolved. For cases where "Potential Impact" to special concern species and resources has been identified before the application has been submitted, the application should be submitted to DEP along with the PNDI receipt. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. DEP and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at http://www.naturalheritage.state.pa.us.

5. ADDITIONAL INFORMATION

The PNDI environmental review website is a **preliminary** screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources
Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552, Harrisburg, PA. 17105-8552
Fax:(717) 772-0271

U.S. Fish and Wildlife Service
Pennsylvania Field Office
110 Radnor Rd; Suite 101, State College, PA 16801
NO Faxes Please.

PA Fish and Boat Commission
Division of Environmental Services
450 Robinson Lane, Bellefonte, PA. 16823-7437
NO Faxes Please

PA Game Commission
Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA. 17110-9797
Fax:(717) 787-6957

7. PROJECT CONTACT INFORMATION

Name: SAMUEL R. GIBSON, E.I.T.
Company/Business Name: KLH ENGINEERS, INC.
Address: 5173 CAMPBELLS RUN RD.
City, State, Zip: PITTSBURGH, PA 15205
Phone:(412) 494 - 0510 x 110 Fax:(412) 494 - 0426
Email: SGIBSON@KLHENGINEERS.COM

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

applicant/project proponent signature

11/10/15
date

Pennsylvania Fish & Boat Commission
established 1866

Division of Environmental Services
Natural Diversity Section
450 Robinson Lane
Bellefonte, PA 16823
814-359-5237

December 1, 2015

IN REPLY REFER TO
SIR# 45214

KLH Engineers, Inc.
Samuel Gibson
5173 Campbells Run Road
Pittsburgh, Pennsylvania 15205

RE: Species Impact Review (SIR) – Rare, Candidate, Threatened and Endangered Species
PNDI Search No. 20151110538705
Greenville Sanitary Authority Wastewater Treatment Plant Upgrade
MERCER County: Hempfield Township

Dear Samuel Gibson:

This responds to your inquiry about a Pennsylvania Natural Diversity Inventory (PNDI) Internet Database search "potential conflict" or a threatened and endangered species impact review. These projects are screened for potential conflicts with rare, candidate, threatened or endangered species under Pennsylvania Fish & Boat Commission jurisdiction (fish, reptiles, amphibians, aquatic invertebrates only) using the Pennsylvania Natural Diversity Inventory (PNDI) database and our own files. These species of special concern are listed under the Endangered Species Act of 1973, the Wild Resource Conservation Act, and the Pennsylvania Fish & Boat Code (Chapter 75), or the Wildlife Code.

An element occurrence of a rare, candidate, threatened, or endangered species under our jurisdiction is known from the vicinity of the proposed project. However, given the nature of the proposed project, the immediate location, or the current status of the nearby element occurrence(s), no adverse impacts are expected to the species of special concern.

This response represents the most up-to-date summary of the PNDI data and our files and is valid for two (2) years from the date of this letter. An absence of recorded species information does not necessarily imply species absence. Our data files and the PNDI system are continuously being updated with species occurrence information. Should project plans change or additional information on listed or proposed species become available, this determination may be reconsidered, and consultation shall be re-initiated.

If you have any questions regarding this review, please contact Nevin Welte at 412-586-2334 and refer to the SIR # 45214. Thank you for your cooperation and attention to this important matter of species conservation and habitat protection.

Sincerely,

Christopher A. Urban, Chief
Natural Diversity Section

CAU/NTW/dn

PNDI # 20151110538705 USFWS Project # 2013-0768

U.S. FISH AND WILDLIFE SERVICE

110 Radnor Road, Suite 101, State College, PA 16801

This responds to your inquiry about a PNDI Internet Database search that resulted in a potential conflict with a federally listed, proposed or candidate species.

PROJECT LOCATION INFORMATION

County: Mercer

Township: Hempfiled

MISC INFORMATION

Date received by FWS: 11/16/2015

☐ ACTIVE ☐ ARCHIVE

USFWS COMMENTS ☐ FAXED ☐ MAILED

To: Samuel Gibson

Fax #: 412-494-0426

Affiliation: KLH Engineers, Inc.

SPECIFIC PROJECT: ACT 537 Sewage Facilities Plan Special Study

FISH AND WILDLIFE SERVICE COMMENT(s):

X ***NOT LIKELY TO ADVERSELY AFFECT***

The federally listed Clubshell, Snuffbox, & Rabbits Foot occurs or may occur in or near the project area. However, based on our review of the information provided, including the project description and location (Study Only),

no adverse effects to these species are likely to occur. If there is any change in the location, scale, scope, layout or design of the project, further consultation or coordination with the Service will be necessary.

The above determination is valid for two years from the date of this letter. In addition, this response relates only to federally listed, proposed, and candidate species under our jurisdiction, based on an office review of the proposed project's location and anticipated impacts. No field inspection of the project area has been conducted by this office. Consequently, comments on this form are not to be construed as addressing other Service concerns under the Fish and Wildlife Coordination Act or other authorities. *Please reference the above PNDI # and USFWS Project # in any future correspondence regarding this project.*

This review was conducted by the biologist listed below. He/she can be contacted at 814-234-4090.

☐ Robert Anderson (x7447) ☐ Pamela Shellenberger (x7459) ☐ Kayla Easler (x7455)
☐ Jennifer Kagel (x7451) ☐ Melinda Turner (x7449) ☑ Brian Scofield (x7471)

SIGNATURE: Ina L. Smith DATE: 12/14/15

Supervisor, Pennsylvania Field Office

APPENDIX B

Act 537 Plan Content and Environmental Assessment Checklist

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF POINT AND NON-POINT SOURCE MANAGEMENT

Act 537 Plan Content and Environmental Assessment Checklist

PART 1 GENERAL INFORMATION

A. Project Information

1. Project Name Greenville Sanitary Authority Act 537 Sewage Facilities Plan Special Study

2. Brief Project Description The Special Study was completed to evaluate alternatives for the upgrade of the Greenville Sanitary Authority Wastewater Treatment Plant (WWTP).

B. Client (Municipality) Information

Municipality Name	County	City	Boro	Twp
Greenville	Mercer	☐	☒	☐

Municipality Contact Individual - Last Name	First Name	MI	Suffix	Title
Urey	Jasson			

Additional Individual Last Name	First Name	MI	Suffix	Title

Municipality Mailing Address Line 1	Mailing Address Line 2
125 Main Street	

Address Last Line -- City	State	ZIP+4
Greenville	PA	16125

Phone + Ext.	FAX (optional)	Email (optional)
724-588-4193	724-588-1197	

C. Site Information

Site (or Project) Name	(Municipal Name) Act 537 Plan
Act 537 Sewage Facilities Plan Special Study	

Site Location Line 1	Site Location Line 2
Greenville Sanitary Authority WWTP	

D. Project Consultant Information

Last Name	First Name	MI	Suffix
Gibson	Samuel	R	

Title	Consulting Firm Name
Project Engineer / E.I.T.	KLH Engineers, Inc.

Mailing Address Line 1	Mailing Address Line 2
5173 Campbells Run Road	

Address Last Line – City	State	ZIP+4	Country
Pittsburgh	PA	15205	USA

Email	Phone + Ext.	FAX
sgibson@klhengineers.com	412-494-0510 ext. 110	412-494-0426

PART 2 ADMINISTRATIVE COMPLETENESS CHECKLIST

DEP Use Only	Indicate Page #(s) in Plan	In addition to the main body of the plan, the plan must include items one through eight listed below to be accepted for formal review by the department. Incomplete Plans will be returned unless the municipality is clearly requesting an advisory review.
_____	i	1. **Table of Contents**
		2. **Plan Summary**
_____	1	A. Identify the proposed service areas and major problems evaluated in the plan. (Reference - Title 25, §71.21.a.7.i).
_____	2	B. Identify the alternative(s) chosen to solve the problems and serve the areas of need identified in the plan. Also, include any institutional arrangements necessary to implement the chosen alternative(s). (Reference Title 25 §71.21.a.7.ii).
_____	2	C. Present the estimated cost of implementing the proposed alternative (including the user fees) and the proposed funding method to be used. (Reference Title 25, §71.21.a.7.ii).
_____	2	D. Identify the municipal commitments necessary to implement the Plan. (Reference Title 25, §71.21.a.7.iii).
_____	3	E. Provide a schedule of implementation for the project that identifies the MAJOR milestones with dates necessary to accomplish the project to the point of operational status. (Reference Title 25, §71.21.a.7.iv).
_____	3	3. **Municipal Adoption: Original,** signed and sealed Resolution of Adoption by the municipality which contains, at a minimum, alternatives chosen and a commitment to implement the Plan in accordance with the implementation schedule. (Reference Title 25, §71.31.f) Section V.F. of the Planning Guide.
_____	3	4. **Planning Commission / County Health Department Comments**: Evidence that the municipality has requested, reviewed and considered comments by appropriate official planning agencies of the municipality, planning agencies of the county, planning agencies with area wide jurisdiction (where applicable), and any existing county or joint county departments of health. (Reference-Title 25, §71.31.b) Section V.E.1 of the Planning Guide.
_____	3	5. **Publication:** Proof of Public Notice which documents the proposed plan adoption, plan summary, and the establishment and conduct of a 30 day comment period. (Reference-Title 25, §71.31.c) Section V.E.2 of the Planning Guide.
_____	3	6. **Comments and Responses:** Copies of ALL written comments received and municipal response to EACH comment in relation to the proposed plan. (Reference-Title 25, §71.31.c) Section V.E.2 of the Planning Guide.
_____	3	7. **Implementation Schedule:** A complete project implementation schedule with milestone dates specific for each existing and future area of need. Other activities in the project implementation schedule should be indicated as occurring a finite number of days from a major milestone. (Reference-Title 25, §71.31.d) Section V.F. of the Planning Guide. Include dates for the future initiation of feasibility evaluations in the project's implementation schedule for areas proposing completion of sewage facilities for planning periods in excess of five years. (Reference Title 25, §71.21.c).
_____	4	8. **Consistency Documentation:** Documentation indicating that the appropriate agencies have received, reviewed and concurred with the method proposed to resolve identified inconsistencies within the proposed alternative and consistency requirements in 71.21.(a)(5)(i-iii). (Reference-Title 25, §71.31.e). Appendix B of the Planning Guide.

PART 3 GENERAL PLAN CONTENT CHECKLIST

DEP Use Only	Indicate Page #(s) in Plan		Item Required
_____	5	**I.**	**Previous Wastewater Planning**
		A.	Identify, describe and briefly analyze all past wastewater planning for its impact on the current planning effort:
_____	5	1.	Previously undertaken under the Sewage Facilities Act (Act 537). (Reference-Act 537, Section 5 §d.1).
_____	NA	2.	Has not been carried out according to an approved implementation schedule contained in the plans. (Reference-Title 25, §71.21.a.5.i.A-D). Section V.F of the Planning Guide.
_____	5	3.	Is anticipated or planned by applicable sewer authorities or approved under a Chapter 94 Corrective Action Plan. (Reference-Title 25, §71.21.a.5.i.A&B). Section V.D. of the Planning Guide.
_____	NA	4.	Through planning modules for new land development, planning "exemptions" and addenda. (Reference-Title 25, §71.21.a.5.i.A).
_____	5	**II.**	**Physical and Demographic Analysis utilizing written description and mapping** (All items listed below require maps, and all maps should show all current lots and structures and be of appropriate scale to clearly show significant information).
_____	5	A.	Identification of planning area(s), municipal boundaries, Sewer Authority/Management Agency service area boundaries. (Reference-Title 25, §71.21.a.1.i).
_____	5	B.	Identification of physical characteristics (streams, lakes, impoundments, natural conveyance, channels, drainage basins in the planning area). (Reference-Title 25, §71.21.a.1.ii).
_____	6	C.	Soils - Analysis with description by soil type and soils mapping for areas not presently served by sanitary sewer service. Show areas suitable for in-ground onlot systems, elevated sand mounds, individual residential spray irrigation systems, and areas unsuitable for soil dependent systems. (Reference-Title 25, §71.21.a.1.iii). Show Prime Agricultural Soils and any locally protected agricultural soils. (Reference-Title 25, §71.21.a.1.iii).
_____	7	D.	Geologic Features - (1) Identification through analysis, (2) mapping and (3) their relation to existing or potential nitrate-nitrogen pollution and drinking water sources. Include areas where existing nitrate-nitrogen levels are in excess of 5 mg/L. (Reference-Title 25, §71.21.a.1.iii).
_____	7	E.	Topography - Depict areas with slopes that are suitable for conventional systems; slopes that are suitable for elevated sand mounds and slopes that are unsuitable for onlot systems. (Reference-Title 25, §71.21.a.1.ii).
_____	8	F.	Potable Water Supplies - Identification through mapping, description and analysis. Include public water supply service areas and available public water supply capacity and aquifer yield for groundwater supplies. (Reference-Title 25 §71.21.a.1.vi). Section V.C. of the Planning Guide.
_____	8	G.	Wetlands-Identify wetlands as defined in Title 25, Chapter 105 by description, analysis and mapping. Include National Wetland Inventory mapping and potential wetland areas per USDA, SCS mapped hydric soils. Proposed collection, conveyance and treatment facilities and lines must be located and labeled, along with the identified wetlands, on the map. (Reference-Title 25, §71.21.a.1.v). Appendix B, Section II.I of the Planning Guide.

8 **III. Existing Sewage Facilities in the Planning Area - Identifying the Existing Needs**

A. Identify, map and describe municipal and non-municipal, individual and community sewerage systems in the planning area including:

8 1. Location, size and ownership of treatment facilities, main intercepting lines, pumping stations and force mains including their size, capacity, point of discharge. Also include the name of the receiving stream, drainage basin, and the facility's effluent discharge requirements. (Reference-Title 25, §71.21a.2.i.A).

10 2. A narrative and schematic diagram of the facility's basic treatment processes including the facility's NPDES permitted capacity, and the Clean Streams Law permit number. (Reference-Title 25, §71.21.a.2.i.A).

11 3. A description of problems with existing facilities (collection, conveyance and/or treatment), including existing or projected overload under Title 25, Chapter 94 (relating to municipal wasteload management) or violations of the NPDES permit, Clean Streams Law permit, or other permit, rule or regulation of DEP. (Reference-Title 25, §71.21.a.2.i.B).

15 4. Details of scheduled or in-progress upgrading or expansion of treatment facilities and the anticipated completion date of the improvements. Discuss any remaining reserve capacity and the policy concerning the allocation of reserve capacity. Also discuss the compatibility of the rate of growth to existing and proposed wastewater treatment facilities. (Reference-Title 25, §71.21.a.4.i & ii).

15 5. A detailed description of the municipality's operation and maintenance requirements for small flow treatment facility systems, including the status of past and present compliance with these requirements and any other requirements relating to sewage management programs. (Reference-Title 25, §71.21.a.2.i.C).

15 6. Disposal areas, if other than stream discharge, and any applicable groundwater limitations. (Reference-Title 25, §71.21.a.4.i & ii).

15 B. Using DEP's publication titled *Sewage Disposal Needs Identification*, identify, map and describe areas that utilize individual and community onlot sewage disposal and, unpermitted collection and disposal systems ("wildcat" sewers, borehole disposal, etc.) and retaining tank systems in the planning area including:

NA 1. The types of onlot systems in use. (Reference-Title 25, §71.21.a.2.ii.A).

NA 2. A sanitary survey complete with description, map and tabulation of documented and potential public health, pollution, and operational problems (including malfunctioning systems) with the systems, including violations of local ordinances, the Sewage Facilities Act, the Clean Stream Law or regulations promulgated thereunder. (Reference-Title 25, §71.21.a.2.ii.B).

NA 3. A comparison of the types of onlot sewage systems installed in an area with the types of systems which are appropriate for the area according to soil, geologic conditions, topographic limitations sewage flows, and Title 25 Chapter 73 (relating to standards for sewage disposal facilities). (Reference-Title 25, §71.21.a.2.ii.C).

NA 4. An individual water supply survey to identify possible contamination by malfunctioning onlot sewage disposal systems consistent with DEP's *Sewage Disposal Needs Identification* publication. (Reference-Title 25 §71.21.a.2.ii.B).

NA 5. Detailed description of operation and maintenance requirements of the municipality for individual and small volume community onlot systems, including the status of past and present compliance with these requirements and any other requirements relating to sewage management programs. (Reference-Title 25, §71.21.a.2.i.C).

_____ 16 C. Identify wastewater sludge and septage generation, transport and disposal methods. Include this information in the sewage facilities alternative analysis including:

_____ 16 1. Location of sources of wastewater sludge or septage (Septic tanks, holding tanks, wastewater treatment facilities). (Reference-Title 25 §71.71).

_____ 16 2. Quantities of the types of sludges or septage generated. (Reference-Title 25 §71.71).

_____ 16 3. Present disposal methods, locations, capacities and transportation methods. (Reference-Title 25 §71.71).

_____ 17 **IV. Future Growth and Land Development**

A. Identify and briefly summarize all municipal and county planning documents adopted pursuant to the Pennsylvania Municipalities Planning Code (Act 247) including:

_____ 17 1. All land use plans and zoning maps that identify residential, commercial, industrial, agricultural, recreational and open space areas. (Reference-Title 25, §71.21.a.3.iv).

_____ 19 2. Zoning or subdivision regulations that establish lot sizes predicated on sewage disposal methods. (Reference – Title 25§71.21.a.3.iv).

_____ 19 3. All limitations and plans related to floodplain and stormwater management and special protection (Ch. 93) areas. (Reference-Title 25 §71.21.a.3.iv) Appendix B, Section II.F of the Planning Guide.

_____ 21 B. Delineate and describe the following through map, text and analysis.

_____ 21 1. Areas with existing development or plotted subdivisions. Include the name, location, description, total number of EDU's in development, total number of EDU's currently developed and total number of EDU's remaining to be developed (include time schedule for EDU's remaining to be developed). (Reference-Title 25, §71.21.a.3.i).

_____ 21 2. Land use designations established under the Pennsylvania Municipalities Planning Code (35 P.S. 10101-11202), including residential, commercial and industrial areas. (Reference-Title 25,§71.21.a.3.ii). Include a comparison of proposed land use as allowed by zoning and existing sewage facility planning. (Reference-Title 25, §71.21.a.3.iv).

_____ 21 3. Future growth areas with population and EDU projections for these areas using historical, current and future population figures and projections of the municipality. Discuss and evaluate discrepancies between local, county, state and federal projections as they relate to sewage facilities. (Reference-Title 25, §71.21.a.1.iv). (Reference-Title 25, §71.21.a.3.iii).

_____ 22 4. Zoning, and/or subdivision regulations; local, county or regional comprehensive plans; and existing plans of any other agency relating to the development, use and protection of land and water resources with special attention to: (Reference-Title 25, §71.21.a.3.iv).

--public ground/surface water supplies
--recreational water use areas
--groundwater recharge areas
--industrial water use
--wetlands

_____ 22 5. Sewage planning necessary to provide adequate wastewater treatment for five and ten year future planning periods based on projected growth of existing and proposed wastewater collection and treatment facilities. (Reference-Title 25, §71.21.a.3.v).

_____	22	**V. Identify Alternatives to Provide New or Improved Wastewater Disposal Facilities**
		A. Conventional collection, conveyance, treatment and discharge alternatives including:
_____	22	1. The potential for regional wastewater treatment. (Reference-Title 25, §71.21.a.4).
_____	23	2. The potential for extension of existing municipal or non-municipal sewage facilities to areas in need of new or improved sewage facilities. (Reference-Title 25, §71.21.a.4.i).
_____	23	3. The potential for the continued use of existing municipal or non-municipal sewage facilities through one or more of the following: (Reference-Title 25, §71.21.a.4.ii).
_____	23	a. Repair. (Reference-Title 25, §71.21.a.4.ii.A).
_____	23	b. Upgrading. (Reference-Title 25, §71.21.a.4.ii.B).
_____	23	c. Reduction of hydraulic or organic loading to existing facilities. (Reference-Title 25, §71.71).
_____	23	d. Improved operation and maintenance. Reference-Title 25, §71.21.a.4.ii.C).
_____	23	e. Other applicable actions that will resolve or abate the identified problems. (Reference-Title 25, §71.21.a.4.ii.D).
_____	23	4. Repair or replacement of existing collection and conveyance system components. (Reference-Title 25, §71.21.a.4.ii.A).
_____	23	5. The need for construction of new community sewage systems including sewer systems and/or treatment facilities. (Reference-Title 25, §71.21.a.4.iii).
_____	27	6. Use of innovative/alternative methods of collection/conveyance to serve needs areas using existing wastewater treatment facilities. (Reference-Title 25, §71.21.a.4.ii.B).
_____	27	B. The use of individual sewage disposal systems including individual residential spray irrigation systems based on:
_____	NA	1. Soil and slope suitability. (Reference-Title 25, §71.21.a.2.ii.C).
_____	NA	2. Preliminary hydrogeologic evaluation. (Reference-Title 25, §71.21.a.2.ii.C).
_____	NA	3. The establishment of a sewage management program. (Reference-Title 25, §71.21.a.4.iv). See also Part “F” below.
_____	NA	4. The repair, replacement or upgrading of existing malfunctioning systems in areas suitable for onlot disposal considering: (Reference-Title 25, §71.21.a.4).
_____	NA	a. Existing technology and sizing requirements of Title 25 Chapter 73. (Reference-Title 25, §73.31-73.72).
_____	NA	b. Use of expanded absorption areas or alternating absorption areas. (Reference-Title 25, §73.16).
_____	NA	c. Use of water conservation devices. (Reference-Title 25, §71.73.b.2.iii).
_____	27	C. The use of small flow sewage treatment facilities or package treatment facilities to serve individual homes or clusters of homes with consideration of: (Reference-Title 25, §71.64.d).
_____	NA	1. Treatment and discharge requirements. (Reference-Title 25, §71.64.d).
_____	NA	2. Soil suitability. (Reference-Title 25, §71.64.c.l).

_____	NA	3. Preliminary hydrogeologic evaluation. (Reference-Title 25, §71.64.c.2).
_____	NA	4. Municipal, Local, Agency or other controls over operation and maintenance requirements through a Sewage Management Program. (Reference-Title 25, §71.64.d). See Part "F" below.
_____	27	D. The use of community land disposal alternatives including:
_____	NA	1. Soil and site suitability. (Reference-Title 25, §71.21.a.2.ii.C).
_____	NA	2. Preliminary hydrogeologic evaluation. (Reference-Title 25, §71.21.a.2.ii.C).
_____	NA	3. Municipality, Local Agency or Other Controls over operation and maintenance requirements through a Sewage Management Program (Reference-Title25, §71.21.a.2.ii.C). See Part "F" below.
_____	NA	4. The rehabilitation or replacement of existing malfunctioning community land disposal systems. (See Part "V", B, 4, a, b, c above). See also Part "F" below.
_____	28	E. The use of retaining tank alternatives on a temporary or permanent basis including: (Reference- Title 25, §71.21.a.4).
_____	NA	1. Commercial, residential and industrial use. (Reference-Title 25, §71.63.e).
_____	NA	2 Designated conveyance facilities (pumper trucks). (Reference-Title 25, §71.63.b.2).
_____	NA	3. Designated treatment facilities or disposal site. (Reference-Title 25, §71.63.b.2).
_____	NA	4. Implementation of a retaining tank ordinance by the municipality. (Reference-Title 25, §71.63.c.3). See Part "F" below.
_____	NA	5. Financial guarantees when retaining tanks are used as an interim sewage disposal measure. (Reference-Title 25, §71.63.c.2).
_____	28	F. Sewage Management Programs to assure the future operation and maintenance of existing and proposed sewage facilities through:
_____	NA	1. Municipal ownership or control over the operation and maintenance of individual onlot sewage disposal systems, small flow treatment facilities, or other traditionally non-municipal treatment facilities. (Reference-Title 25, §71.21.a.4.iv).
_____	NA	2. Required inspection of sewage disposal systems on a schedule established by the municipality. (Reference-Title 25, §71.73.b.1.).
_____	NA	3. Required maintenance of sewage disposal systems including septic and aerobic treatment tanks and other system components on a schedule established by the municipality. (Reference-Title 25, §71.73.b.2).
_____	NA	4. Repair, replacement or upgrading of malfunctioning onlot sewage systems. (Reference-Title 25, §71.21.a.4.iv) and §71.73.b.5 through:
_____	NA	a. Aggressive pro-active enforcement of ordinances that require operation and maintenance and prohibit malfunctioning systems. (Reference-Title 25, §71.73.b.5).
_____	NA	b. Public education programs to encourage proper operation and maintenance and repair of sewage disposal systems.
_____	NA	5. Establishment of joint municipal sewage management programs. (Reference-Title 25, §71.73.b.8).
_____	NA	6. Requirements for bonding, escrow accounts, management agencies or associations to assure operation and maintenance for non-municipal facilities. (Reference-Title 25, §71.71).

28 G. Non-structural comprehensive planning alternatives that can be undertaken to assist in meeting existing and future sewage disposal needs including: (Reference-Title 25, §71.21.a.4).

1. Modification of existing comprehensive plans involving:

NA a. Land use designations. (Reference-Title 25, §71.21.a.4).

NA b. Densities. (Reference-Title 25, §71.21.a.4).

NA c. Municipal ordinances and regulations. (Reference-Title 25, §71.21.a.4).

NA d. Improved enforcement. (Reference-Title 25, §71.21.a.4).

NA e. Protection of drinking water sources. (Reference-Title 25, §71.21.a.4).

NA 2. Consideration of a local comprehensive plan to assist in producing sound economic and consistent land development. (Reference-Title 25, §71.21.a.4).

NA 3. Alternatives for creating or changing municipal subdivision regulations to assure long-term use of on-site sewage disposal that consider lot sizes and protection of replacement areas. (Reference-Title 25, §71.21.a.4).

NA 4. Evaluation of existing local agency programs and the need for technical or administrative training. (Reference-Title 25, §71.21.a.4).

28 H. A no-action alternative which includes discussion of both short-term and long-term impacts on: (Reference-Title 25, §71.21.a.4).

28 1. Water Quality/Public Health. (Reference-Title 25, §71.21.a.4).

28 2. Growth potential (residential, commercial, industrial). (Reference-Title 25, §71.21.a.4).

28 3. Community economic conditions. (Reference-Title 25, §71.21.a.4).

28 4. Recreational opportunities. (Reference-Title 25, §71.21.a.4).

28 5. Drinking water sources. (Reference-Title 25, §71.21.a.4).

28 6. Other environmental concerns. (Reference-Title 25, §71.21.a.4).

29 **VI. Evaluation of Alternatives**

A. Technically feasible alternatives identified in Section V of this check-list must be evaluated for consistency with respect to the following: (Reference-Title 25, §71.21.a.5.i.).

29 1. Applicable plans developed and approved under **Sections 4 and 5 of the Clean Streams Law or Section 208 of the Clean Water Act** (33 U.S.C.A. 1288). (Reference-Title 25, §71.21.a.5.i.A). Appendix B, Section II.A of the Planning Guide.

30 2. Municipal wasteload management **Corrective Action Plans or Annual Reports** developed under PA Code, Title 25, Chapter 94. (Reference-Title 25, §71.21.a.5.i.B). The municipality's recent Wasteload Management (Chapter 94) Reports should be examined to determine if the proposed alternative is consistent with the recommendations and findings of the report. Appendix B, Section II.B of the Planning Guide.

30 3. Plans developed under **Title II of the Clean Water Act** (33 U.S.C.A. 1281-1299) or **Titles II and VI of the Water Quality Act of 1987** (33 U.S.C.A 1251-1376). (Reference-Title 25, §71.21.a.5.i.C). Appendix B, Section II.E of the Planning Guide.

_____ 30 4. **Comprehensive plans** developed under the Pennsylvania Municipalities Planning Code. (Reference-Title 25, §71.21.a.5.i.D). The municipality's comprehensive plan must be examined to assure that the proposed wastewater disposal alternative is consistent with land use and all other requirements stated in the comprehensive plan. Appendix B, Section II.D of the Planning Guide.

_____ 31 5. **Antidegradation requirements** as contained in PA Code, Title 25, Chapters 93, 95 and 102 (relating to water quality standards, wastewater treatment requirements and erosion control) and the Clean Water Act. (Reference-Title 25, §71.21.a.5.i.E). Appendix B, Section II.F of the Planning Guide.

_____ 31 6. **State Water Plans** developed under the Water Resources Planning Act (42 U.S.C.A. 1962-1962 d-18). (Reference-Title 25, §71.21.a.5.i.F). Appendix B, Section II.C of the Planning Guide.

_____ 32 7. **Pennsylvania Prime Agricultural Land Policy** contained in Title 4 of the Pennsylvania Code, Chapter 7, Subchapter W. Provide narrative on local municipal policy and an overlay map on prime agricultural soils. (Reference-Title 25, §71.21.a.5.i.G). Appendix B, Section II.G of the Planning Guide.

_____ 32 8. **County Stormwater Management Plans** approved by DEP under the Storm Water Management Act (32 P.S. 680.1-680.17). (Reference-Title 25, §71.21.a.5.i.H). Conflicts created by the implementation of the proposed wastewater alternative and the existing recommendations for the management of stormwater in the county Stormwater Management Plan must be evaluated and mitigated. If no plan exists, no conflict exists. Appendix B, Section II.H of the Planning Guide.

_____ 32 9. **Wetland Protection.** Using wetland mapping developed under Checklist Section II.G, identify and discuss mitigative measures including the need to obtain permits for any encroachments on wetlands from the construction or operation of any proposed wastewater facilities. (Reference-Title 25, §71.21.a.5.i.I) Appendix B, Section II.I of the Planning Guide.

_____ 33 10. **Protection of rare, endangered or threatened plant and animal species** as identified by the Pennsylvania Natural Diversity Inventory (PNDI). (Reference-Title 25, §71.21.a.5.i.J). Provide DEP with a copy of the completed Request For PNDI Search document. Also provide a copy of the response letter from the Department of Conservation and Natural Resources' Bureau of Forestry regarding the findings of the PNDI search. Appendix B, Section II.J of the Planning Guide.

_____ 33 11. **Historical and archaeological resource protection** under P.C.S. Title 37, Section 507 relating to cooperation by public officials with the Pennsylvania Historical and Museum Commission. (Reference-Title 25, §71.21.a.5.i.K). Provide the department with a completed copy of a Cultural Resource Notice request of the Bureau of Historic Preservation (BHP) to provide a listing of known historical sites and potential impacts on known archaeological and historical sites. Also provide a copy of the response letter from the BHP. Appendix B, Section II.K of the Planning Guide.

_____ 33 B. Provide for the resolution of any inconsistencies in any of the points identified in Section VI.A. of this checklist by submitting a letter from the appropriate agency stating that the agency has received, reviewed and concurred with the resolution of identified inconsistencies. (Reference-Title 25, §71.21.a.5.ii). Appendix B of the Planning Guide.

_____ 34 C. Evaluate alternatives identified in Section V of this checklist with respect to applicable water quality standards, effluent limitations or other technical, legislative or legal requirements. (Reference-Title 25, §71.21.a.5.iii).

_____ 34 D. Provide cost estimates using present worth analysis for construction, financing, on going administration, operation and maintenance and user fees for alternatives identified in Section V of this checklist. Estimates shall be limited to areas identified in the plan as needing improved sewage facilities within five years from the date of plan submission. (Reference-Title 25, §71.21.a.5.iv).

_____ 36 E. Provide an analysis of the funding methods available to finance the proposed alternatives evaluated in Section V of this checklist. Also provide documentation to demonstrate which alternative and financing scheme combination is the most cost-effective; and a contingency financial plan to be used if the preferred method of financing cannot be implemented. The funding analysis shall be limited to areas identified in the plan as needing improved sewage facilities within five years from the date of the plan submission. (Reference-Title 25, §71.21.a.5.v).

_____ 38 F. Analyze the need for immediate or phased implementation of each alternative proposed in Section V of this checklist including: (Reference-Title 25, §71.21.a.5.vi).

_____ 38 1. A description of any activities necessary to abate critical public health hazards pending completion of sewage facilities or implementation of sewage management programs. (Reference-Title 25, §71.21.a.5.vi.A).

_____ 38 2. A description of the advantages, if any, in phasing construction of the facilities or implementation of a sewage management program justifying time schedules for each phase. (Reference-Title 25, §71.21.a.5.vi.B).

_____ 38 G. Evaluate administrative organizations and legal authority necessary for plan implementation. (Reference - Title 25, §71.21.a.5.vi.D.).

_____ 38 **VII. Institutional Evaluation**

A. Provide an analysis of all existing wastewater treatment authorities, their past actions and present performance including:

_____ 38 1. Financial and debt status. (Reference-Title 25, §71.61.d.2).

_____ 38 2. Available staff and administrative resources. (Reference-Title 25, §71.61.d.2)

_____ 39 3. Existing legal authority to:

_____ 39 a. Implement wastewater planning recommendations. (Reference-Title 25, §71.61.d.2).

_____ 39 b. Implement system-wide operation and maintenance activities. (Reference-Title 25, §71.61.d.2).

_____ 39 c. Set user fees and take purchasing actions. (Reference-Title 25, §71.61.d.2).

_____ 39 d. Take enforcement actions against ordinance violators. (Reference-Title 25, §71.61.d.2).

_____ 39 e. Negotiate agreements with other parties. (Reference-Title 25, §71.61.d.2).

_____ 39 f. Raise capital for construction and operation and maintenance of facilities. (Reference-Title 25,§71.61.d.2).

_____ 39 B. Provide an analysis and description of the various institutional alternatives necessary to implement the proposed technical alternatives including:

_____ 39 1. Need for new municipal departments or municipal authorities. (Reference-Title 25, §71.61.d.2).

_____ 39 2. Functions of existing and proposed organizations (sewer authorities, onlot maintenance agencies, etc.). (Reference-Title 25, §71.61.d.2).

_____ 39 3. Cost of administration, implementability, and the capability of the authority/agency to react to future needs. (Reference-Title 25, §71.61.d.2).

_____ 39 C. Describe all necessary administrative and legal activities to be completed and adopted to ensure the implementation of the recommended alternative including:

_____ 39 1. Incorporation of authorities or agencies. (Reference-Title 25, §71.61.d.2).

_____ 39 2. Development of all required ordinances, regulations, standards and inter-municipal agreements. (Reference-Title 25, §71.61.d.2).

_____ 40 3. Description of activities to provide rights-of-way, easements and land transfers. (Reference-Title 25, §71.61.d.2).

_____ 40 4. Adoption of other municipal sewage facilities plans. (Reference-Title 25, §71.61.d.2).

_____ NA 5. Any other legal documents. (Reference-Title 25, §71.61.d.2).

_____ NA 6. Dates or timeframes for items 1-5 above on the project's implementation schedule.

_____ 40 D. Identify the proposed institutional alternative for implementing the chosen technical wastewater disposal alternative. Provide justification for choosing the specific institutional alternative considering administrative issues, organizational needs and enabling legal authority. (Reference-Title 25, §71.61.d.2).

_____ 40 **VIII. Implementation Schedule and Justification for Selected Technical & Institutional Alternatives**

A. Identify the technical wastewater disposal alternative which best meets the wastewater treatment needs of each study area of the municipality. Justify the choice by providing documentation which shows that it is the best alternative based on:

_____ 40 1. Existing wastewater disposal needs. (Reference-Title 25, §71.21.a.6).

_____ 40 2. Future wastewater disposal needs. (five and ten years growth areas). (Reference-Title 25, §71.21.a.6).

_____ 40 3. Operation and maintenance considerations. (Reference-Title 25, §71.21.a.6).

_____ 40 4. Cost-effectiveness. (Reference-Title 25, §71.21.a.6).

_____ 40 5. Available management and administrative systems. (Reference-Title 25, §71.21.a.6).

_____ 40 6. Available financing methods. (Reference-Title 25, §71.21.a.6).

_____ 40 7. Environmental soundness and compliance with natural resource planning and preservation programs. (Reference-Title 25, §71.21.a.6).

_____ 41 B. Designate and describe the capital financing plan chosen to implement the selected alternative(s). Designate and describe the chosen back-up financing plan. (Reference-Title 25, §71.21.a.6)

_____ 41 C. Designate and describe the implementation schedule for the recommended alternative, including justification for any proposed phasing of construction or implementation of a Sewage Management Program. (Reference – Title 25 §71.31d)

_____ 42 **IX. Environmental Report (ER) generated from the Uniform Environmental Review Process (UER)**

_____ 42 A. Complete an ER as required by the UER process and as described in the DEP Technical Guidance 381-5511-111. Include this document as "Appendix A" to the Act 537 Plan Update Revision. Note: *An ER is required only for Wastewater projects proposing funding through any of the funding sources identified in the UER.*

PENNVEST I.D. No. _____

ADDITIONAL REQUIREMENTS FOR PENNVEST PROJECTS

Municipalities that propose to implement their official sewage facilities plan updates with PENNVEST funds must meet six additional requirements to be eligible for such funds. See A Guide for Preparing Act 537 Update Revisions (362-0300-003), Appendix N for greater detail or contact the DEP regional office serving your county listed in Appendix J of the same publication.

DEP Use Only	Indicate Page #(s) in Plan	Item Required
_____	Appendix A	1. Environmental Impact Assessment. (Planning Phase) The Uniform Environment Review (UER) replaces the Environmental Impact Assessment that was a previous requirement for PENNVEST projects.
_____	35	2. Cost Effectiveness (Planning Phase) The cost-effectiveness analysis should be a present-worth (or equivalent uniform annual) cost evaluation of the principle alternatives using the interest rate that is published annually by the Water Resources Council. Normally, for PENNVEST projects the applicant should select the most cost-effective alternative based upon the above analysis. Once the alternative has been selected the user fee estimates should be developed based upon interest rates and loan terms of the selected funding method.
_____		3. Second Opinion Project Review. (Design Phase)
_____		4. Minority Business Enterprise/Women's Business Enterprise (Construction Phase)
_____		5. Civil Rights. (Construction Phase)
_____		6. Initiation of Operation/Performance Certification. (Post-construction Phase)

APPENDIX C

Resolutions of Adoption

RESOLUTION NO.: 2016-01

DATE ADOPTED: June 16, 2016

A RESOLUTION OF THE GREENVILLE SANITARY AUTHORITY
MERCER COUNTY, PENNSYLVANIA
FOR ACT 537 SEWAGE FACILITIES PLAN REVISION

WHEREAS, Section 5 of the Act of January 24, 1966, P.L. 1535, known as the "Pennsylvania Sewage Facilities Act," as amended, and the Rules and Regulations of the Department of Environmental Protection (Department) adopted thereunder, Chapter 71 of Title 25 of the Pennsylvania Code, requires the municipality to adopt an Official Sewage Facilities Plan providing for sewage services adequate to prevent contamination of waters and/or environmental health hazards with sewage wastes, and to revise said plan whenever it is necessary to meet the sewage disposal needs of the municipality, and

WHEREAS, the Greenville Sanitary Authority (Authority) has prepared an Act 537 Sewage Facilities Plan Special Study which proposes upgrades of the Authority's existing wastewater treatment plant, which provides sewage treatment services to Greenville Borough, Hempfield Township and West Salem Township, and the alternative of choice to be implemented is conversion of the existing treatment process into a membrane bioreactor (MBR) facility, Alternative 2 as presented in the Special Study. Key implementation activities include conversion of the existing flocculator clarifiers into membrane bioreactors (MBR), a new headworks facility, conversion of existing tankage to flow storage, conversion of existing clarifiers into sludge holding tanks, conversion of the existing anaerobic digesters into aerobic digesters, and sludge drying bed improvements. The anticipated schedule upon which implementation of Alternative 2 will occur is as follows:

- Submit the Special Study to the Department – July 2016
- Receive the approval of the Department – October 2016
- Complete design – October 2017
- Apply for and acquire all necessary permits for construction – April 2018
- Obtain construction financing – July 2018
- Begin construction – September 2018
- Complete construction – March 2020

WHEREAS, the Authority finds that the Special Study described above conforms to applicable zoning, subdivision, other municipal ordinances and plans, and to a comprehensive program of pollution control and water quality management.

NOW, THEREFORE, BE IT RESOLVED that the Greenville Sanitary Authority hereby adopts and submits to the Department of Environmental Protection for its approval as a revision to the "Official Plan" of the Authority, the above referenced Special Study. The Authority hereby assures the Department of the complete and timely implementation of the said plan as required by law (Section 5, Pennsylvania Sewage Facilities Act as amended).

ADOPTED AND RESOLVED this 16th day of June, 2016.

SEAL

GREENVILLE SANITARY AUTHORITY

BY: _____
Donald Shaw, Chair

ATTEST:

_____
Jasson Urey, Borough Manager

I, Jasson Urey, Borough Manager of the Borough of Greenville, Mercer County, Pennsylvania, hereby certify that the attached is a true and correct copy of Resolution No. 2016-01, adopted June 16, 2016.

SEAL

GREENVILLE SANITARY AUTHORITY

Jasson Urey, Borough Manager

RESOLUTION NO.: 2016-07

DATE ADOPTED: July 11, 2016

**A RESOLUTION OF THE BOROUGH OF GREENVILLE
MERCER COUNTY, PENNSYLVANIA
FOR ACT 537 SEWAGE FACILITIES PLAN REVISION**

WHEREAS, Section 5 of the Act of January 24, 1966, P.L. 1535, known as the "Pennsylvania Sewage Facilities Act," as amended, and the Rules and Regulations of the Department of Environmental Protection (Department) adopted thereunder, Chapter 71 of Title 25 of the Pennsylvania Code, requires the municipality to adopt an Official Sewage Facilities Plan providing for sewage services adequate to prevent contamination of waters and/or environmental health hazards with sewage wastes, and to revise said plan whenever it is necessary to meet the sewage disposal needs of the municipality, and

WHEREAS, the Greenville Sanitary Authority (Authority) has prepared an Act 537 Sewage Facilities Plan Special Study which proposes upgrades of the Authority's existing wastewater treatment plant, which provides sewage treatment services to Greenville Borough, Hempfield Township and West Salem Township, and the alternative of choice to be implemented is conversion of the existing treatment process into a membrane bioreactor (MBR) facility, Alternative 2 as presented in the Special Study. Key implementation activities include conversion of the existing flocculator clarifiers into membrane bioreactors (MBR), a new headworks facility, conversion of existing tankage to flow storage, conversion of existing clarifiers into sludge holding tanks, conversion of the existing anaerobic digesters into aerobic digesters, and sludge drying bed improvements. The anticipated schedule upon which implementation of Alternative 2 will occur is as follows:

- Submit the Special Study to the Department – July 2016
- Receive the approval of the Department – October 2016
- Complete design – October 2017
- Apply for and acquire all necessary permits for construction – April 2018
- Obtain construction financing – July 2018
- Begin construction – September 2018
- Complete construction – March 2020

WHEREAS, the Borough of Greenville finds that the Special Study described above conforms to applicable zoning, subdivision, other municipal ordinances and plans, and to a comprehensive program of pollution control and water quality management.

NOW, THEREFORE, BE IT RESOLVED that the Borough of Greenville hereby adopts and submits to the Department of Environmental Protection for its approval as a revision to the "Official Plan" of the Authority, the above referenced Special Study. The Borough hereby assures the Department of the complete and timely implementation of the said plan as required by law (Section 5, Pennsylvania Sewage Facilities Act as amended).

ADOPTED AND RESOLVED this 11th day of July, 2016.

SEAL

BOROUGH OF GREENVILLE

BY: _____
Brian Shipley, President

ATTEST:

_____
Jasson Urey, Secretary

I, Jasson Urey, Secretary of the Borough of Greenville, Mercer County, Pennsylvania, hereby certify that the attached is a true and correct copy of Resolution No. 2016-07, adopted July 11, 2016.

SEAL

BOROUGH OF GREENVILLE

Jasson Urey, Secretary

2016-4

A RESOLUTION OF THE TOWNSHIP OF WEST SALEM, MERCER COUNTY, PENNSYLVANIA ADOPTING ACT 537 SEWAGE FACILITIES PLAN REVISION

WHEREAS: Section 5 of the Act of January 24, 1966, P.L. 1535 known as the "Pennsylvania Sewage Facilities Act" as amended, and the Rules and Regulations of the Department of Environmental Protection (the "Department") adopted pursuant thereto, Chapter 71 of the Pennsylvania Code requires the municipality to adopt an official Sewage Facilities Plan providing sewage services adequate to prevent contamination of waters and/or environmental health hazards with sewage wastes, and to revise said plan whenever it is necessary to meet the sewage disposal needs of the municipality, and

WHEREAS: the Greenville Sanitary Authority the "Authority") has prepared an Act 537 Sewage Facilities Plan Special Study which proposes upgrades of the Authority's existing wastewater treatment plant, which provides sewage treatment services to the Borough of Greenville, Hempfield Township and West Salem Township, and

WHEREAS: the alternative choice to be implemented is the conversion of the existing treatment process into a membrane bioreactor ("MBR") facility, as proposed as Alternative 2 in the said Special Study, and

WHEREAS: Key implementation activities include conversion of the existing flocculator clarifiers into membrane bioreactors, conversion of existing tankage to flow storage, conversion of existing clarifiers into sludge holding tanks, conversion of the existing anaerobic digesters into aerobic digesters and improvement of sludge drying beds, and

WHEREAS: the anticipated schedule upon which implementation of alternative 2 will occur is as follows:

* Submit the Special Study to the Department – June 2016
* Receive the approval of the Department – October 2016
* Complete Design – October 2017
* Apply for and acquire all permits for construction – April 2018
* Obtain construction financing – July 2018
* Complete construction – March 2020

WHEREAS: the Township of West Salem finds that the Special Study described above conforms to applicable zoning, subdivision, other municipal ordinances and plans, and to a comprehensive program of pollution control and water quality management.

NOW THEREFORE, BE IT RESOLVED that the Township of West Salem hereby adopts Alternative 2 of the aforementioned Sewage Facilities Plan Special Study and joins in the submission of the same to the Department of Environmental Protection for its approval as a revision to the "Official Plan" of the Authority. The Township assures the Department of the complete and timely implementation of the said plan as required by law (Section 5, Pennsylvania Sewage Facilities Act as amended).

ADOPTED AND RESOLVED by the Board of Supervisors of West Salem Township, Mercer County, Pennsylvania, at its regular Board of Supervisors meeting of the 14 day of June, 2016.

BOARD OF SUPERVISORS OF WEST SALEM TOWNSHIP

By Kenneth B Sherbondy
Kenneth B. Sherbondy, Chairman

By William E Wingard Jr
William E. Wingard, Jr., Supervisor

By_____
James A. Carlson, Supervisor

I Kelly Fenton, Secretary of the Township of West Salem, Mercer County, Pennsylvania, hereby certify that the foregoing is a true and correct copy of Resolution No 2016-4, adopted June 14, 2016

Kelly Fenton
Township Secretary

APPENDIX D

Planning Agency Correspondence

MCRPC Mercer County Regional Planning Commission

June 14, 2016

Samuel R. Gibson, E.I.T.
KLH Engineers, Inc.
5173 Campbells Run Road
Pittsburgh, PA 15205

RE: Greenville Sanitary Authority – Act 537 Sewage Facilities Plan Special Study - April 2016

Dear Mr. Gibson:

As requested by your firm and as required under Pennsylvania's Sewage Facilities Act (Act 537), planning staff has reviewed the Act 537 Sewage Facilities Plan Special Study that was submitted to this office on April 15, 2016. This study outlines and evaluates four possible alternatives for improvements to the Greenville Sanitary Authority's aging Wastewater Treatment Plant, and describes Alternative 2, a Membrane Bioreactor System, as the best long-term choice to be used to update/replace plant components that are between 25 and 60 years old. The study is consistent with both the Mercer County Comprehensive Plan (covering West Salem Township) and the Greenville Borough/Hempfield Township Joint Comprehensive Plan in that the project addresses water quality while not proposing any expansion of the identified service areas. The outlined areas of future development shown in previously approved Sewage Facilities Plans appear to basically be consistent with the future land use maps of both previously mentioned comprehensive plans.

If you have any further questions, please contact me at (724) 981-2412, extension 3207 or at bbarnhizer@mcrpc.com.

Sincerely,

Brian Barnhizer

Brian Barnhizer
Senior Planner

2491 Highland Road, Hermitage, PA 16148
Email: mail@mcrpc.com
Phone: 724-981-2412, Fax: 724-981-7677
Web Site: www.mcrpc.com

KLH
ENGINEERS, INC

April 15, 2016
Ref. No. 123-66

Mercer County Regional Planning Commission
2491 Highland Road
Hermitage, PA 16148

Dear Planning Commission Members:

Greenville Sanitary Authority
Act 537 Sewage Facilities Plan Special Study

On behalf of the Greenville Sanitary Authority, please find enclosed one (1) copy of the Act 537 Sewage Facilities Plan Special Study for your review. Act 537 planning requires the Authority to request, review and consider comments by appropriate planning agencies when updating its official Plan. In fulfillment of this requirement, we are providing the Plan for your review and comments. Planning agencies are allotted sixty (60) days to review and comment on the Plan. Please provide comments by June 14, 2016.

Your complete and timely response is greatly appreciated and will assist in our efforts to submit the Plan to the Pennsylvania Department of Environmental Protection according to the implementation schedule set forth in the Plan. Thank you for your assistance.

If you have any questions or comments, please feel free to contact our office.

Very truly yours,

KLH ENGINEERS, INC.

Samuel R. Gibson, E.I.T.

Enclosure

cc: Greenville Sanitary Authority
John C. Mowry, P.E.

5173 Campbells Run Road Pittsburgh, PA 15205 Phone: 412.494.0510 Fax: 412.494.0426 info@klhengineers.com
www.klhengineers.com

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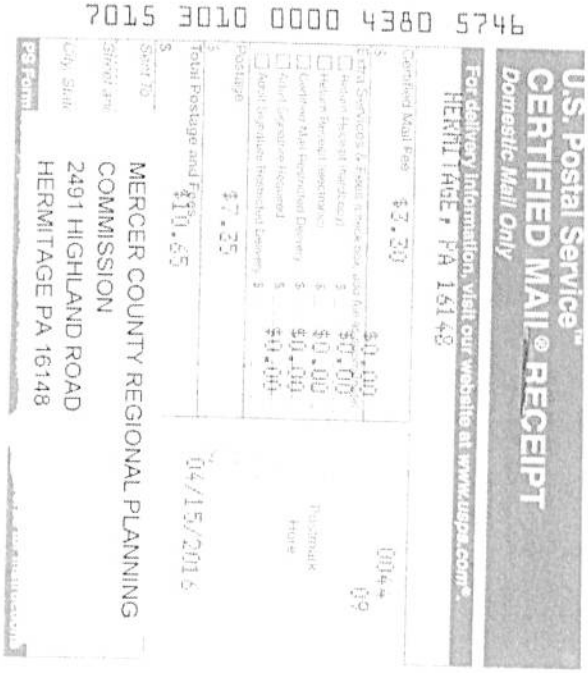
Product & Tracking Information

Postal Product:	Features:	
Priority Mail 2-Day™	Certified Mail™	Up to $50 insurance included Restrictions Apply

April 18, 2016 , 11:33 am	Delivered	HERMITAGE, PA 16148
April 16, 2016 , 8:14 am	Business Closed	HERMITAGE, PA 16148
April 16, 2016 , 5:34 am	Arrived at Unit	HERMITAGE, PA 16148
April 16, 2016 , 3:37 am	Departed USPS Facility	WARRENDALE, PA 15095
April 15, 2016 , 7:54 pm	Arrived at USPS Facility	WARRENDALE, PA 15095
April 15, 2016 , 7:24 pm	Departed USPS Facility	WARRENDALE, PA 15086
April 15, 2016 , 5:44 pm	Arrived at USPS Facility	WARRENDALE, PA 15086
April 15, 2016 , 10:13 am	Acceptance	PITTSBURGH, PA 15244

Available Actions



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Tracking (or receipt) number

Track It

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HEMPFIELD TOWNSHIP MUNICIPAL AUTHORITY

MERCER COUNTY, PENNSYLVANIA

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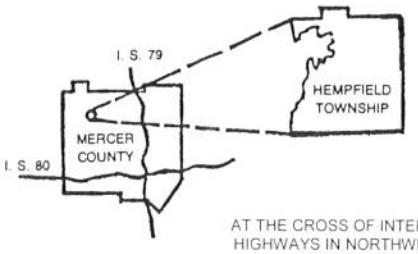
By_____



AT THE CROSS OF INTER-STATE HIGHWAYS IN NORTHWESTERN PENNSYLVANIA

HEMPFIELD TOWNSHIP MUNICIPAL BUILDING
278 South Mercer Street
Greenville, PA 16125-1539

Telephone: (724) 588-5032

July 14, 2016

Mr. Samuel R. Gibson
KLH Engineers, Inc.
5173 Campbells Run Road
Pittsburgh, PA 15205

SUBJECT: GREENVILLE ACT 537 UPDATE

Dear Mr. Gibson:

Hempfield Township Municipal Authority has reviewed the subject document, in accordance with your request, and has the following comments.

1.) The economy within the area served by proposed facilities plan is weak at best. Does it make sense to rebuild a sewage treatment facility that is not showing any signs of problems and place the burden of increased sewage rates on the shoulders of our increasingly aging customers? The rate increase varies from30% for the "edu user rate" to 200% for the "well users".

2.) There are many "anticipated" PA DEP Mandates in the proposed update that are not needed at this time.

3.) Why are "well users" scheduled to pay over 56% more that the "edu user"? The assumption, apparently, that well users use more water just because they are on wells is unfounded. The vast majority of sewer customers in Hempfield, and also West Salem, means that well users in the two Townships would be paying the majority of the cost.

4.) We believe the future development projections are somewhat unrealistic.

In conclusion, we understand that the plant is operating far under maximum allowed flow rates. While an upgrade to some areas of the plant may be justified, we believe that a more realistic approach in regard to total cost as well as increased rates may be warranted.

Sincerely,

Keith R. Hittle
Chairman, HTMA

Cc: Hempfield Township Supervisors

KLH
ENGINEERS, INC

April 15, 2016
Ref. No. 123-66

Hempfield Township Planning Commission
278 South Mercer Street
Greenville, PA 16125

CERTIFIED RETURN

Dear Planning Commission Members:

Greenville Sanitary Authority
Act 537 Sewage Facilities Plan Special Study

On behalf of the Greenville Sanitary Authority, please find enclosed one (1) copy of the Act 537 Sewage Facilities Plan Special Study for your review. Act 537 planning requires the Authority to request, review and consider comments by appropriate planning agencies when updating its official Plan. In fulfillment of this requirement, we are providing the Plan for your review and comments. Planning agencies are allotted sixty (60) days to review and comment on the Plan. Please provide comments by June 14, 2016.

Your complete and timely response is greatly appreciated and will assist in our efforts to submit the Plan to the Pennsylvania Department of Environmental Protection according to the implementation schedule set forth in the Plan. Thank you for your assistance.

If you have any questions or comments, please feel free to contact our office.

Very truly yours,

KLH ENGINEERS, INC.

Samuel R. Gibson, E.I.T.

Enclosure

cc: Greenville Sanitary Authority
John C. Mowry, P.E.

5173 Campbells Run Road Pittsburgh, PA 15205 Phone: 412.494.0510 Fax: 412.494.0426 info@klhengineers.com
www.klhengineers.com

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Tracking Number: 70153010000043805739

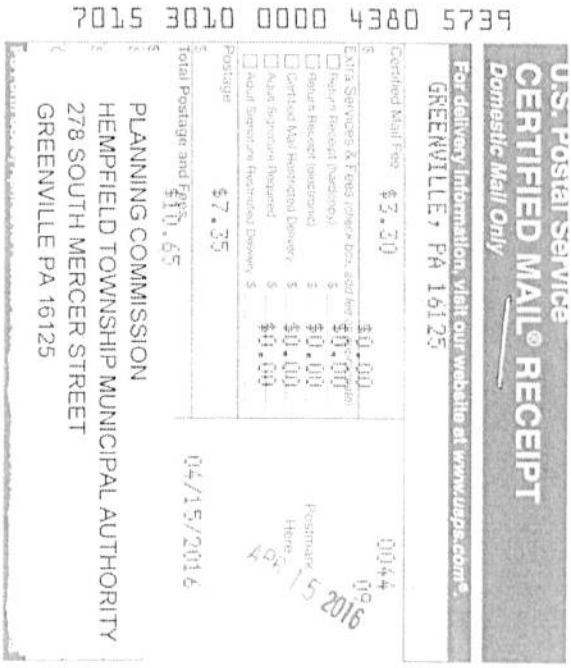
Updated Delivery Day: Saturday, April 16, 2016

Product & Tracking Information

Postal Product:	Features:	
Priority Mail 2-Day™	Certified Mail™	Up to $50 insurance included Restrictions Apply

April 18, 2016 , 12:14 pm	Delivered	GREENVILLE, PA 16125
April 16, 2016 , 8:31 am	Business Closed	GREENVILLE, PA 16125
April 16, 2016 , 6:59 am	Arrived at Unit	GREENVILLE, PA 16125
April 16, 2016 , 3:37 am	Departed USPS Facility	WARRENDALE, PA 15095
April 15, 2016 , 7:58 pm	Arrived at USPS Facility	WARRENDALE, PA 15095
April 15, 2016 , 7:24 pm	Departed USPS Facility	WARRENDALE, PA 15086
April 15, 2016 , 5:44 pm	Arrived at USPS Facility	WARRENDALE, PA 15086
April 15, 2016 , 10:13 am	Acceptance	PITTSBURGH, PA 15244

Available Actions



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KLH
ENGINEERS, INC

5173 CAMPBELLS RUN ROAD
PITTSBURGH, PA 15205
412.494.0510 EXT 106
FAX 412.494.0426
info@klhengineers.com

REF. NO.: 123-66

MEMORANDUM

TO: Greenville Sanitary Authority

DATE: July 14, 2016

SUBJECT: Act 537 Sewage Facilities Plan Update

KLH DISTRIBUTION: Sam Gibson, John Mowry

Act 537 Sewage Facilities Plan Update

No comments were provided by the Borough of Greenville or West Salem Township. Proof of delivery to each community is attached.

End of Memorandum

KLH
ENGINEERS, INC

April 15, 2016
Ref. No. 123-66

Greenville Borough Planning Commission
125 Main Street
Greenville, PA 16125

CERTIFIED RETURN

Dear Planning Commission Members:

Greenville Sanitary Authority
Act 537 Sewage Facilities Plan Special Study

On behalf of the Greenville Sanitary Authority, please find enclosed one (1) copy of the Act 537 Sewage Facilities Plan Special Study for your review. Act 537 planning requires the Authority to request, review and consider comments by appropriate planning agencies when updating its official Plan. In fulfillment of this requirement, we are providing the Plan for your review and comments. Planning agencies are allotted sixty (60) days to review and comment on the Plan. Please provide comments by June 14, 2016.

Your complete and timely response is greatly appreciated and will assist in our efforts to submit the Plan to the Pennsylvania Department of Environmental Protection according to the implementation schedule set forth in the Plan. Thank you for your assistance.

If you have any questions or comments, please feel free to contact our office.

Very truly yours,

KLH ENGINEERS, INC.

Samuel R. Gibson, E.I.T.

Enclosure

cc: Greenville Sanitary Authority
John C. Mowry, P.E.

5173 Campbells Run Road Pittsburgh, PA 15205 Phone: 412.494.0510 Fax: 412.494.0426 info@klhengineers.com
www.klhengineers.com

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Tracking Number: 70153010000043805722

Updated Delivery Day: Saturday, April 16, 2016

Product & Tracking Information

Postal Product:	Features:	
Priority Mail 2-Day™	Certified Mail™	Up to $50 insurance included Restrictions Apply

April 18, 2016 , 9:43 am	Delivered	GREENVILLE, PA 16125
April 16, 2016 , 8:35 am	Business Closed	GREENVILLE, PA 16125
April 16, 2016 , 6:59 am	Arrived at Unit	GREENVILLE, PA 16125
April 16, 2016 , 3:37 am	Departed USPS Facility	WARRENDALE, PA 15095
April 15, 2016 , 7:58 pm	Arrived at USPS Facility	WARRENDALE, PA 15095
April 15, 2016 , 7:24 pm	Departed USPS Facility	WARRENDALE, PA 15086
April 15, 2016 , 5:44 pm	Arrived at USPS Facility	WARRENDALE, PA 15086
April 15, 2016 , 10:13 am	Acceptance	PITTSBURGH, PA 15244

Available Actions

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KLH
ENGINEERS, INC

April 15, 2016
Ref. No. 123-66

West Salem Township Planning Commission
610 Vernon Road
Greenville, PA 16125

CERTIFIED RETURN

Dear Planning Commission Members:

Greenville Sanitary Authority
Act 537 Sewage Facilities Plan Special Study

On behalf of the Greenville Sanitary Authority, please find enclosed one (1) copy of the Act 537 Sewage Facilities Plan Special Study for your review. Act 537 planning requires the Authority to request, review and consider comments by appropriate planning agencies when updating its official Plan. In fulfillment of this requirement, we are providing the Plan for your review and comments. Planning agencies are allotted sixty (60) days to review and comment on the Plan. Please provide comments by June 14, 2016.

Your complete and timely response is greatly appreciated and will assist in our efforts to submit the Plan to the Pennsylvania Department of Environmental Protection according to the implementation schedule set forth in the Plan. Thank you for your assistance.

If you have any questions or comments, please feel free to contact our office.

Very truly yours,

KLH ENGINEERS, INC.

Samuel R. Gibson, E.I.T.

Enclosure

cc: Greenville Sanitary Authority
John C. Mowry, P.E.

123-66 Act 537 trans to West Salem Planning_SRG_4-15-16.docx

5173 Campbells Run Road Pittsburgh, PA 15205 Phone: 412.494.0510 Fax: 412.494.0426 info@klhengineers.com
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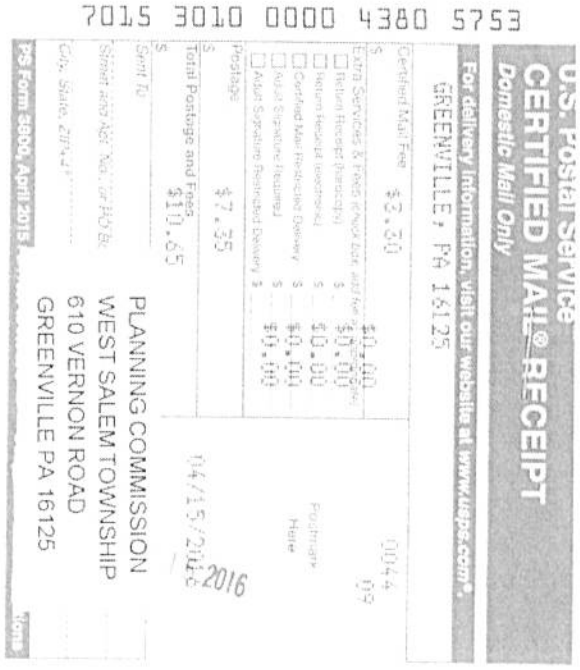
Tracking Number: 70153010000043805753

Product & Tracking Information

Postal Product:	Features:	
Priority Mail 2-Day™	Certified Mail™	Up to $50 insurance included Restrictions Apply

April 22, 2016 , 2:33 pm	Delivered	GREENVILLE, PA 16125
April 18, 2016 , 3:21 pm	Notice Left (No Authorized Recipient Available)	GREENVILLE, PA 16125
April 18, 2016 , 9:45 am	Out for Delivery	GREENVILLE, PA 16125
April 18, 2016 , 8:42 am	Sorting Complete	GREENVILLE, PA 16125
April 18, 2016 , 7:07 am	Arrived at Unit	GREENVILLE, PA 16125
April 17, 2016 , 3:59 am	Departed USPS Facility	WARRENDALE, PA 15095
April 16, 2016 , 11:06 pm	Arrived at USPS Facility	WARRENDALE, PA 15095
April 16, 2016 , 10:45 pm	Departed USPS Facility	WARRENDALE, PA 15086
April 16, 2016 , 9:44 pm	Arrived at USPS Facility	WARRENDALE, PA 15086
April 16, 2016 , 7:54 am	Arrived at USPS Facility	GROVE CITY, PA 16127
April 16, 2016 , 1:09 am	Departed USPS Facility	WARRENDALE, PA 15095
April 15, 2016 , 11:52 pm	Arrived at USPS Facility	WARRENDALE, PA 15095
April 15, 2016 , 11:35 pm	Departed USPS Facility	WARRENDALE, PA 15086
April 15, 2016 , 6:38 pm	Arrived at USPS Facility	WARRENDALE, PA 15086
April 15, 2016 , 10:13 am	Acceptance	PITTSBURGH, PA 15244

Available Actions



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APPENDIX E

Proof of Public Notice

Proof of Publication of Notice in the Record-Argus

Under Act No. 587, Approved May 16, 1929

State of Pennsylvania
County of Mercer } ss:

Steven J. Gargasz of Greenville Newspapers, Inc., of the County and State aforesaid, being duly sworn,deposes and says RECORD-ARGUS, a newspaper of general circulation published at Greenville, County and State aforesaid, was established in 1848 as a weekly newspaper, and in 1897 as a daily newspaper, since which date said daily newspaper has been regularly issued in said County, and that the printed notice or publication attached hereto is exactly the same as was printed and published in the regular editions and issues of said RECORD-ARGUS on the following dates, viz:

19th and the day of April

A.D., 2016

Affiant further deposes that he is authorized by Greenville Newspapers, Inc., publisher of said RECORD-ARGUS, a newspaper of general circulation, to verify the foregoing statement under oath, and affiant is not interested in the subject matter of the aforesaid notice or advertisement, and that all allegations in the foregoing statements as to time, place and character of publication are true.

Steven J Gargasz

Affiant for the Record-Argus

Sworn to and subscribed before me this 19th day of April 2016

Lyn A Merz

Notary Public

My commission expires:

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
Lyn A. Merz, Notary Public
Greenville Boro, Mercer County
My Commission Expires Oct. 29, 2019
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

Copy of Notice of Publication

LEGAL NOTICE
Public Notice

Notice is hereby given that the Greenville Sanitary Authority has prepared an Act 537 Sewage Facilities Plan Special Study for rehabilitation of the wastewater treatment plant serving Greenville Borough, Hempfield Township and West Salem Township. Issues related to inorganic wastes, grit and grease, safety concerns, mechanical failure, concrete deterioration, and frequent maintenance affect the treatment processes and the capacity of the plant. Critical facilities are operating beyond their reasonable operating life, necessitating an upgrade. The proposed alternative involves conversion of the existing flocculator clarifiers into membrane bioreactors (MBR), a new headworks facility, conversion of existing tankage to flow storage, conversion of existing clarifiers into sludge holding tanks, conversion of the existing anaerobic digesters into aerobic digesters, and sludge drying bed improvements. The estimated cost of the project is $26.6 million. It is anticipated that PENNVEST will be the primary financing option with additional bond financing as needed. The projected user rate is approximately $39.00 per month for an average residential user. The Special Study is available for review at the Authority's office located at 125 Main Street, Greenville, PA 16125. A 30-day public comment period will begin on April 19, 2016 and end on May 20, 2016. Questions and comments must be in written form and should be addressed to the Authority at the above address.

A19 1t

Statement of Advertising Costs

Greenville Boro
125 Main St
Greenville, Pa 16125

TO THE RECORD-ARGUS, Dr.

For publishing the notice or publication attached hereto on the above stated dates	$ 83 95
Notary fee	$ 5 00
Total	$ 88 95

lisher's Receipt for Advertising Costs

Greenvil ier of the RECORD-ARGUS, a newspaper of general circulation hereby acknowledges receipt of the aforesaic s and certifies that the same have been duly paid.

Greenville Newspapers, Inc.
Publisher of the RECORD-ARGUS,
a Newspaper of General Circulation

By

R.A. 4/19/16

308 Pools & Spas

19' x 31' above ground pools $899 installed FREE ñ site prep extra 1-800-548-1923

315 Wanted to Buy

CASH for junk cars, trucks, vans etc. Quick pick up/ Call 724-475-3145 or 724-815-7840.

407 Autos for Sale

J. P. Wolford Sales
113 Clarksville St
Buy - Sell - Trade
724-588-7306
jpwolfordsales.com

409 Trucks for Sale

1989 Dodge Ram Pickup with plow, 4WD, auto. $2500. 724-253-2750 leave message.

NEW TODAY!

We now offer these awesome eye catchers that can be added for an additional $3.00 per ad.

411 Auto Accessories

Tires on Sale
Monthly Specials
clancitire.com
Overstocks, close outs, brand names, private labels, imports. Car, SUV & light truck only.
Clanci Brothers Tire Clearance Warehouse across from the Greenville Wal-Mart.
724-588-6096
clancitire.com

511 Pets & Supplies

AKC chocolate lab pups, born 3/10 will be ready mid-May. Dew claws, shots, wormed & vet checked. $500 each, asking $50 non-refundable deposit for early picks. 724-932-3474

601 Freebies

Plastic water barrel $10 724-588-6945

611 Legal Notices

LEGAL NOTICE

The Otter Creek Township Zoning Hearing Board will hold a Variance Hearing On April 25, 2016 at 6:00 pm at the township building, located at 235 Linn Tyro Road, Greenville, PA 16125 to consider the following appeal:

The Request for a variance by Lee M. Curtin and Jenna Malnar of 216 Henry Road, Greenville, PA 16125 from Section 401, Table 401 Setback Requirements of the Otter Creek Township Zoning Ordinance. Property does not meet the setback requirements for building an addition onto the house.

OTTER CREEK TOWNSHIP ZONING HEARING BOARD
Jason Vanderslice, Chairman
A13,19 2t

LEGAL NOTICE
Public Notice

Notice is hereby given that the Greenville Sanitary Authority has prepared an Act 537 Sewage Facilities Plan Special Study for rehabilitation of the wastewater treatment plant serving Greenville Borough, Hempfield Township and West Salem Township. Issues related to inorganic wastes, grit and grease, safety concerns, mechanical failure, concrete deterioration, and frequent maintenance affect the treatment processes and the capacity of the plant. Critical facilities are operating beyond their reasonable operating life, necessitating an upgrade. The proposed alternative involves conversion of the existing flocculator clarifiers into membrane bioreactors (MBR), a new headworks facility, conversion of existing tankage to flow storage, conversion of existing clarifiers into sludge holding tanks, conversion of the existing anaerobic digesters into aerobic digesters, and sludge drying bed improvements. The estimated cost of the project is $26.6 million. It is anticipated that PENNVEST will be the primary financing option with additional bond financing as needed. The projected user rate is approximately $39.00 per month for an average residential user. The Special Study is available for review at the Authority's office located at 125 Main Street, Greenville, PA 16125. A 30-day public comment period will begin on April 19, 2016 and end on May 20, 2016. Questions and comments must be in written form and should be addressed to the Authority at the above address.
A19 1t

FREEBIES

Any single item $100 or less runs 3 days FREE!

*certain restrictions apply

No Pets, Produce or Firewood

** Only 3 FREE ads within a 30 day period

**Must be written up and dropped off or may be mailed to
PO Box 711
Greenville, PA 16125

email:
lmerz@recordargusnews.com
OR
raclassifieds@gmail.com

SUDOKU

Difficulty: 3 (of 5)

1	9						8	
				8		3		
	2		6	1				4
7		1	8					
					7	2		3
			4	6	9	7		
2	5		3					9
	4						2	6
		9			8	5		

4-19-16

HOW TO PLAY:
Each row, column and set of 3-by-3 boxes must contain the numbers 1 through 9 without repetition.

PREVIOUS SOLUTION

4	2	5	6	8	3	9	7	1
7	6	8	2	9	1	5	3	4
3	9	1	7	4	5	8	2	6
1	4	9	3	7	6	2	5	8
6	8	3	4	5	2	7	1	9
2	5	7	9	1	8	6	4	3
9	3	4	8	2	7	1	6	5
5	7	6	1	3	9	4	8	2
8	1	2	5	6	4	3	9	7

Sanitary Authority
Running 4/19/16

Public Notice

Notice is hereby given that the Greenville Sanitary Authority has prepared an Act 537 Sewage Facilities Plan Special Study for rehabilitation of the wastewater treatment plant serving Greenville Borough, Hempfield Township and West Salem Township. Issues related to inorganic wastes, grit and grease, safety concerns, mechanical failure, concrete deterioration, and frequent maintenance affect the treatment processes and the capacity of the plant. Critical facilities are operating beyond their reasonable operating life, necessitating an upgrade. The proposed alternative involves conversion of the existing flocculator clarifiers into membrane bioreactors (MBR), a new headworks facility, conversion of existing tankage to flow storage, conversion of existing clarifiers into sludge holding tanks, conversion of the existing anaerobic digesters into aerobic digesters, and sludge drying bed improvements. The estimated cost of the project is $26.6 million. It is anticipated that PENNVEST will be the primary financing option with additional bond financing as needed. The projected user rate is approximately $39.00 per month for an average residential user. The Special Study is available for review at the Authority's office located at 125 Main Street, Greenville, PA 16125. A 30-day public comment period will begin on April 19, 2016 and end on May 20, 2016. Questions and comments must be in written form and should be addressed to the Authority at the above address.

APPENDIX F

Comments and Responses

KLH
ENGINEERS, INC

5173 CAMPBELLS RUN ROAD
PITTSBURGH, PA 15205
412.494.0510 EXT 106
FAX 412.494.0426
info@klhengineers.com

REF. NO.: 123-66

MEMORANDUM

TO: Greenville Sanitary Authority

DATE: July 13, 2016

SUBJECT: Act 537 Sewage Facilities Plan Update

KLH DISTRIBUTION: Sam Gibson, John Mowry

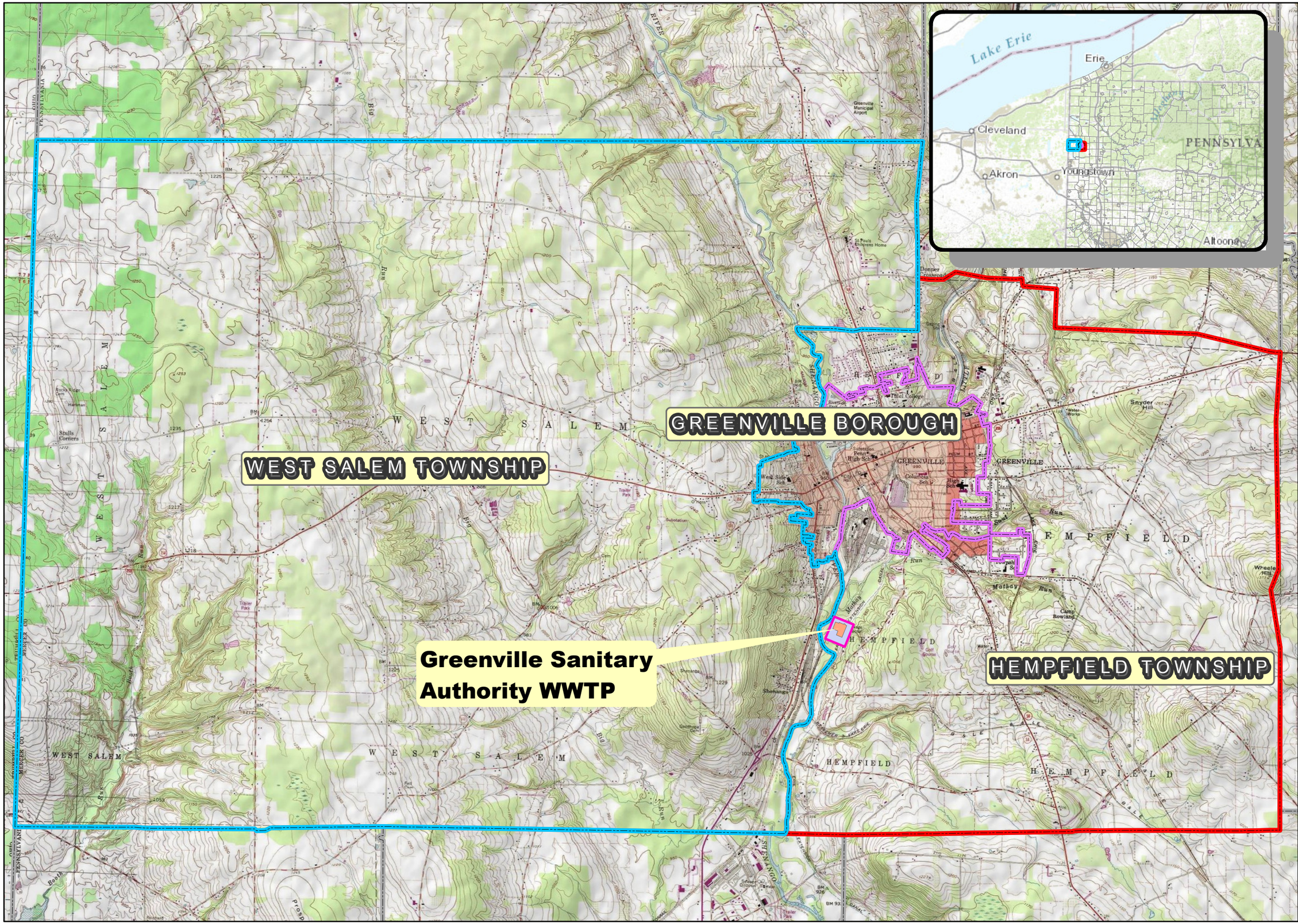
Act 537 Sewage Facilities Plan Update

No comments were received as a result of the 30 day public comment period.

End of Memorandum

APPENDIX G

Exhibits



N

5173 Campbells Run Road
Pittsburgh, PA 15205
Phone: 412-494-0010
Fax: 412-494-0426
www.klhengineers.com

KLH ENGINEERS, INC

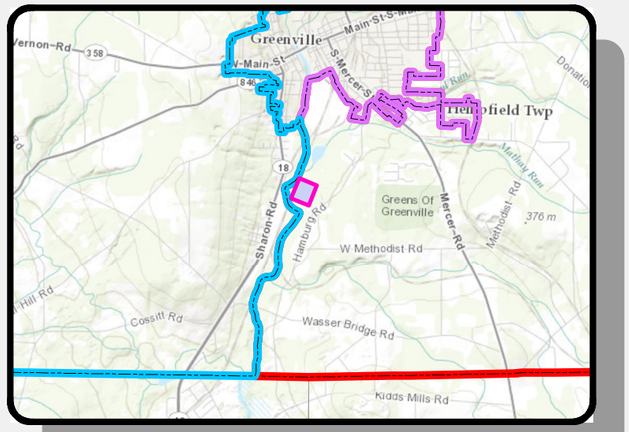
GREENVILLE SANITARY AUTHORITY
MERCER COUNTY, PENNSYLVANIA
ACT 537 PLAN SPECIAL STUDY

0 1,875 3,750
Feet

Author: Rose Volkwein
Date: 4/5/2013
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic

123-66

EXHIBIT 1



Legend

- Roads
- Study Area
- Greenville WWTP

Farmland Description

- All areas are prime farmland
- Farmland of statewide importance
- Not prime farmland

Soil Characteristics

- BrB2
- Rf
- Wa

N

5173 Campbells Run Road
Pittsburgh, PA 15205
Phone: 412-494-0500
Fax: 412-494-0426
www.klhengineers.com

KLH ENGINEERS, INC

GREENVILLE SANITARY AUTHORITY
MERCER COUNTY, PENNSYLVANIA
ACT 537 PLAN SPECIAL STUDY
SOILS AND FARMLAND EVALUATION

0 75 150
Feet

Author: Ross Volkwein
Date: 4/8/2013
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic

123-66

EXHIBIT 2

Legend

- Roads
- Study Area
- Greenville WWTP

Geologic Features

- Berea Sandstone through Venango Formation, undivided
- Cuyahoga Group

0 75 150 Feet

Author: Ross Volkwein
Date: 4/9/2013
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic

N

5173 Campbells Run Road
Pittsburgh, PA 15205
Phone: 412-490-4000
Fax: 412-494-0426
www.klhengineers.com

KLH ENGINEERS, INC

GREENVILLE SANITARY AUTHORITY
MERCER COUNTY, PENNSYLVANIA
ACT 537 PLAN SPECIAL STUDY
GEOLOGIC FEATURES

123-66

EXHIBIT 3

N

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Pittsburgh, PA 15205
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Fax: 412-494-0426
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KLH ENGINEERS, INC

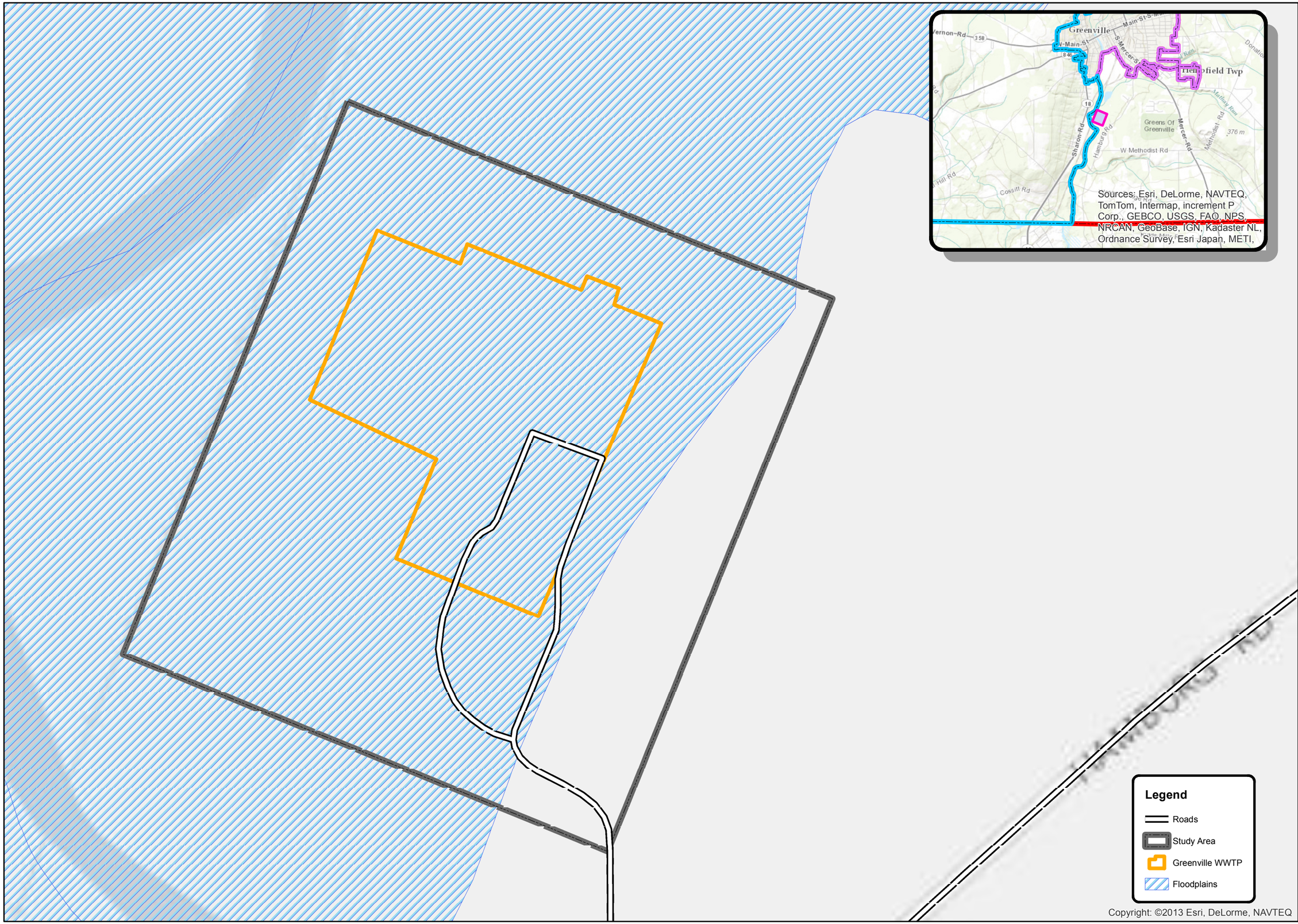
GREENVILLE SANITARY AUTHORITY
MERCER COUNTY, PENNSYLVANIA
ACT 537 PLAN SPECIAL STUDY
WETLANDS AND HYDRIC SOILS

0 75 150 Feet

Author: Ross Volkwein
Date: 4/9/2013
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic

123-66

EXHIBIT 4



N

5173 Campbells Run Road
Pittsburgh, PA 15205
Phone: 412-494-4000
Fax: 412-494-0426
www.klhengineers.com

KLH ENGINEERS, INC

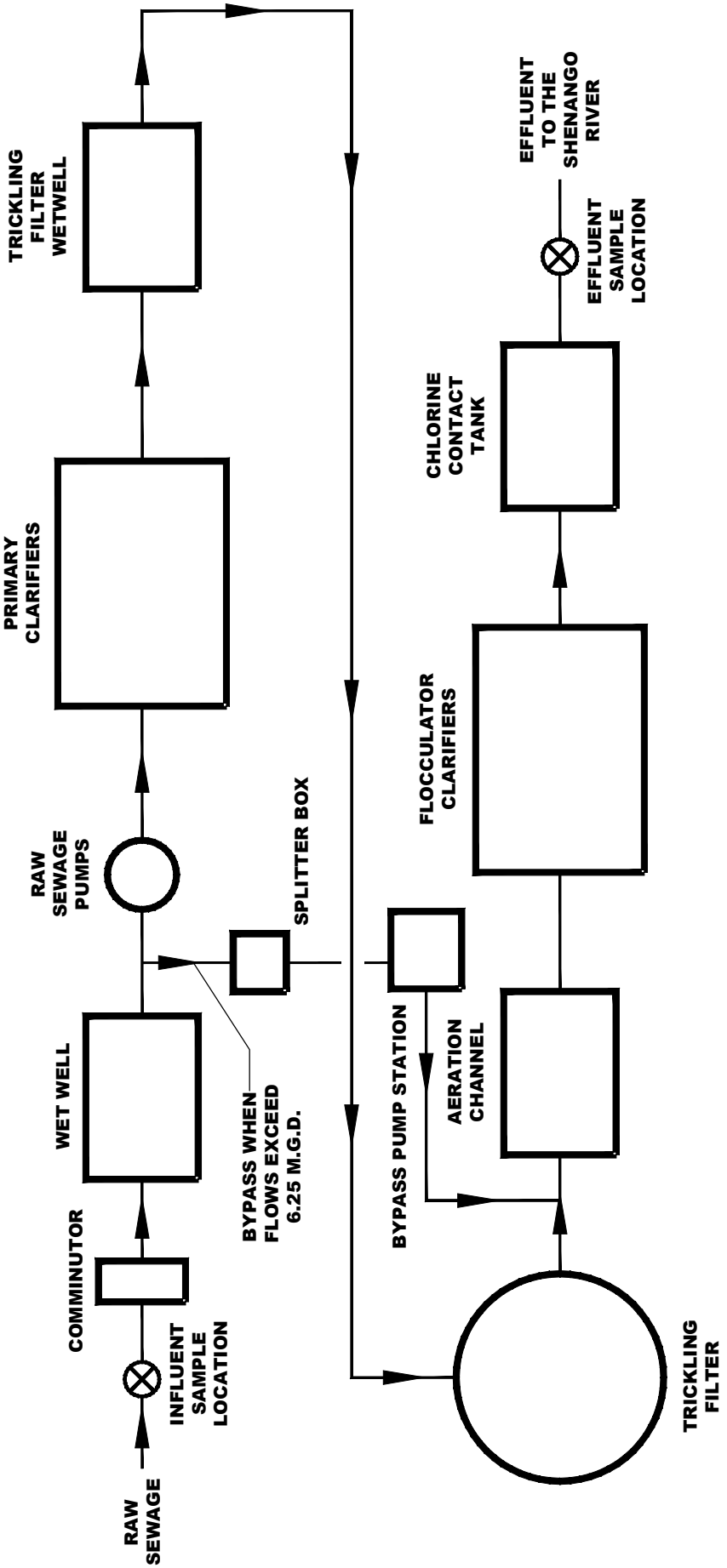
GREENVILLE SANITARY AUTHORITY
MERCER COUNTY, PENNSYLVANIA
ACT 537 PLAN SPECIAL STUDY
FLOODPLAINS

0 75 150
Feet

Author: Ross Volkwein
Date: 4/8/2013
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic

123-66

EXHIBIT 5



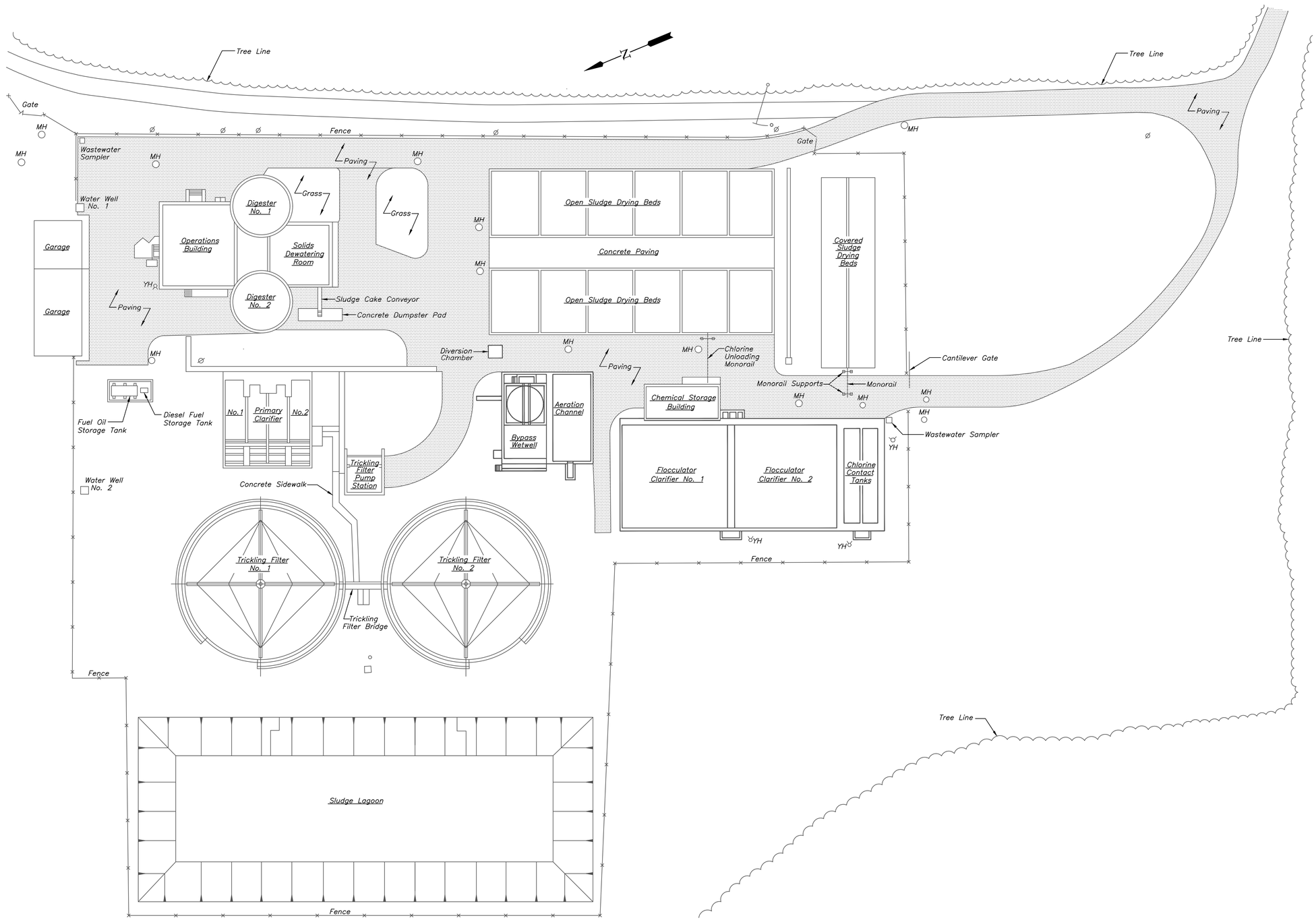
KLH ENGINEERS, INC
5173 Campbells Run Road
Pittsburgh, Pa 15205
Phone: 412-494-0510 - Fax: 412-494-0426
info@klhengineers.com

GREENVILLE SANITARY AUTHORITY
MERCER COUNTY, PENNSYLVANIA
ACT 537 PLAN SPECIAL STUDY
W.W.T.P. EXISTING TREATMENT SCHEMATIC

Scale:	N.T.S.
Date:	12/2015
Drawn By:	JDA
Checked By:	SG
Approved By:	SG

Order No.	123-66
Drawing No.	EX6
Sheet No.	1 of 1

S:\Active Clients\123 Greenville Sanitary Authority\123-66 Headworks Replacement Project\Exhibits\12_4_2015\123-66-EX6.dwg



EXISTING SITE PLAN

SCALE: 1" = 30'

S:\Active Clients\123 Greenville Sanitary Authority\123-66 Headworks Replacement Project\CadData\123_A_2015\123-66-EX7.dwg

Revisions	Date

5173 Campbells Run Road
Pittsburgh, PA 15205
Phone: 412.494.0510
Fax: 412.494.0426
info@klhengineers.com

KLH ENGINEERS, INC

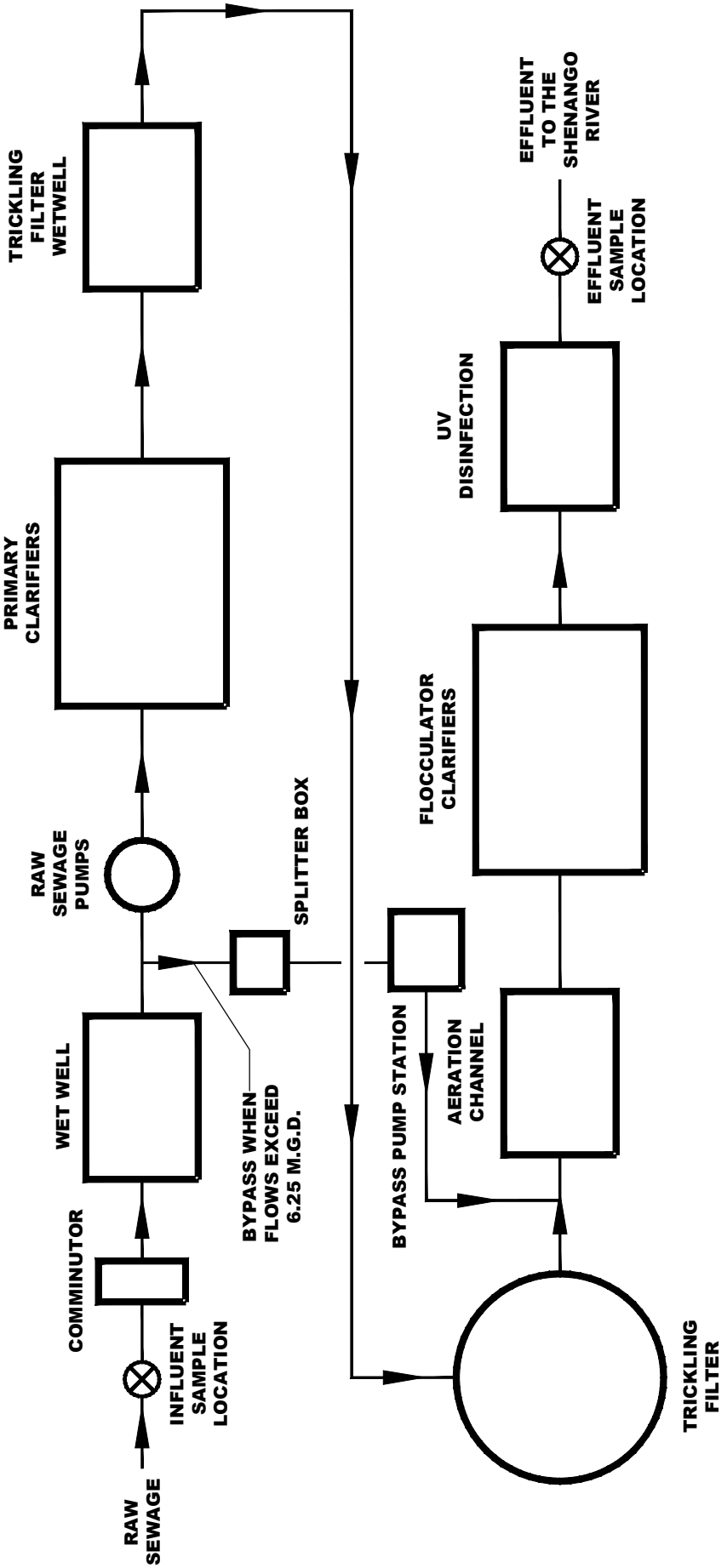
GREENVILLE SANITARY AUTHORITY
MERCER COUNTY, PENNSYLVANIA
ACT 537 PLAN SPECIAL STUDY
WASTE WATER TREATMENT PLANT EXISTING SITE PLAN

Scale:	As Shown
Date:	12/2015
Drawn By:	JDA
Checked By:	SRG
Approved By:	JCM

Order No. **123-66**

Drawing No. **EX7**

Sheet No. **EXHIBIT 7**



KLH ENGINEERS, INC
5173 Campbells Run Road
Pittsburgh, Pa 15205
Phone: 412-494-0510 - Fax: 412-494-0426
info@klhengineers.com

GREENVILLE SANITARY AUTHORITY

MERCER COUNTY, PENNSYLVANIA
ACT 537 PLAN SPECIAL STUDY
W.W.T.P. ALT 1 TREATMENT SCHEMATIC

Scale:	N.T.S.
Date:	12/2015
Drawn By:	JDA
Checked By:	SG
Approved By:	SG

Order No.	123-66
Drawing No.	EX8
Sheet No.	1 of 1

S:\Active Clients\123 Greenville Sanitary Authority\123-66 Headworks Replacement Project\Exhibits\12_4_2015\123-66-EX8.dwg

NOTE:
ITEMS IDENTIFIED WITH UPPER CASE TEXT ARE PROPOSED.
Items Identified with Mixed Case Text are Existing.

PROPOSED HEADWORKS FACILITY

Tree Line
REMOVE COMMINUTOR RAW SEWAGE PUMPS AND ASSOCIATED PIPING
SEAL PRIMARY SLUDGE WELL
INSTALL NEW SLUDGE PUMPS
Gate
MH
Fence
Wastewater Sampler
Water Well No. 1
Garage
Garage
Operations Building
Digester No. 1
Solids Dewatering Room
Digester No. 2
Grass
Grass
Paving
Paving
YH
NEW DIGESTER MIXING SYSTEM, SEAL SUPERNATANT SUMPS, DIGESTER LID REPAIR.
Sludge Cake Conveyor
Concrete Dumpster Pad
COVER
Existing Sludge Drying Beds
Open Sludge Drying Beds
Concrete Paving
Open Sludge Drying Beds
Covered Sludge Drying Beds
PROPOSED COVERED SLUDGE DRYING BEDS
Tree Line
Tree Line
Paving
Gate
Diversion Chamber
PROPOSED PRIMARY CLARIFIER FLOW DISTRIBUTION BOX
Aeration Channel
Bypass Wetwell
Chemical Storage Building
Monorail Supports
Monorail
NEW CANTILEVER GATE
Wastewater Sampler
Fuel Oil Storage Tank
Diesel Fuel Storage Tank
PROPOSED PRIMARY CLARIFIER NO. 3
No. 1
Primary Clarifier
No. 2
REMOVE Existing Trickling Filter Pump Station
Water Well No. 2
REPLACE Existing Primary Clarifier Equipment
Trickling Filter Pump Station
Flocculator Clarifier No. 1
Flocculator Clarifier No. 2
Chlorine Contact Tanks
CONVERT Chlorine Contact Tank TO UV DISINFECTION
YH
YH
YH
Fence
REPLACE Existing Flocculator Clarifier Equipment
Concrete Sidewalk
Trickling Filter No. 1
Trickling Filter No. 2
Trickling Filter Bridge
REPLACE Trickling Filter Media, INSTALL NEW ROTARY DISTRIBUTOR ARM, INSTALL NEW FEED / EFFLUENT PIPING
PROPOSED TRICKLING FILTER PUMP STATION
REPLACE Trickling Filter Media, INSTALL NEW ROTARY DISTRIBUTOR ARM, INSTALL NEW FEED / EFFLUENT PIPING
Fence
Tree Line
Sludge Lagoon
Fence

PROPOSED SITE PLAN
SCALE: 1" = 30'

Revisions	Date

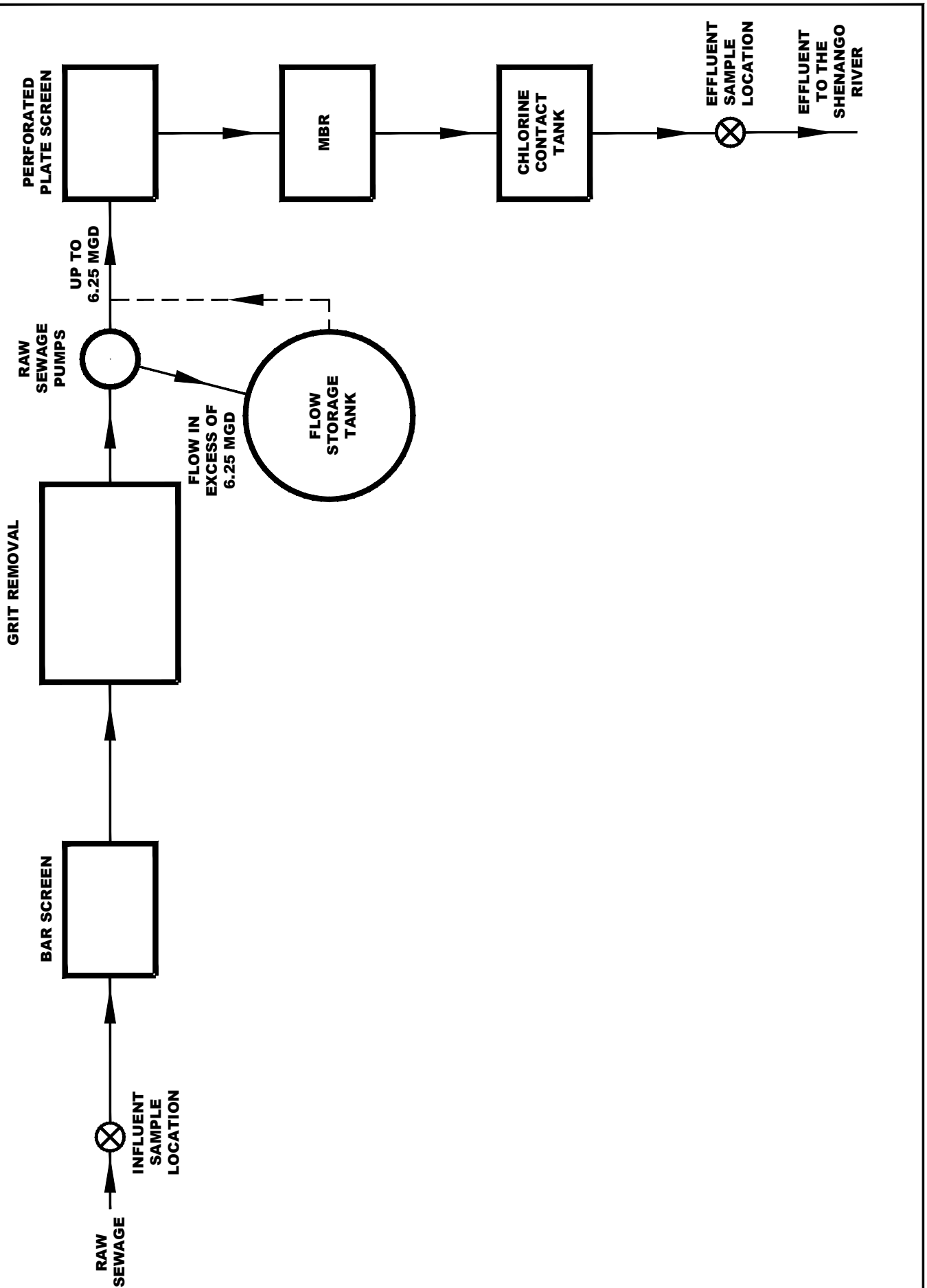
5173 Campbells Run Road
Pittsburgh, PA 15205
Phone: 412.494.0510
Fax: 412.494.0426
info@klhengineers.com
KLH ENGINEERS, INC

GREENVILLE SANITARY AUTHORITY
MERCER COUNTY, PENNSYLVANIA
ALTERNATIVE 1-TF/SC
ACT 537 PLAN SPECIAL STUDY
WASTE WATER TREATMENT PLANT UPGRADE

Scale:	As Shown
Date:	12/2015
Drawn By:	JDA
Checked By:	SRG
Approved By:	JCM

Order No. **123-66**
Drawing No. **EX9**
Sheet No. **EXHIBIT 9**

S:\Active Clients\123 Greenville Sanitary Authority\123-66 Headworks Replacement Project\Exhibits\123_X_2015\123-66-EX9.dwg



KLH ENGINEERS, INC
5173 Campbells Run Road
Pittsburgh, Pa 15205
Phone: 412-494-0510 - Fax: 412-494-0426
info@klhengineers.com

GREENVILLE SANITARY AUTHORITY

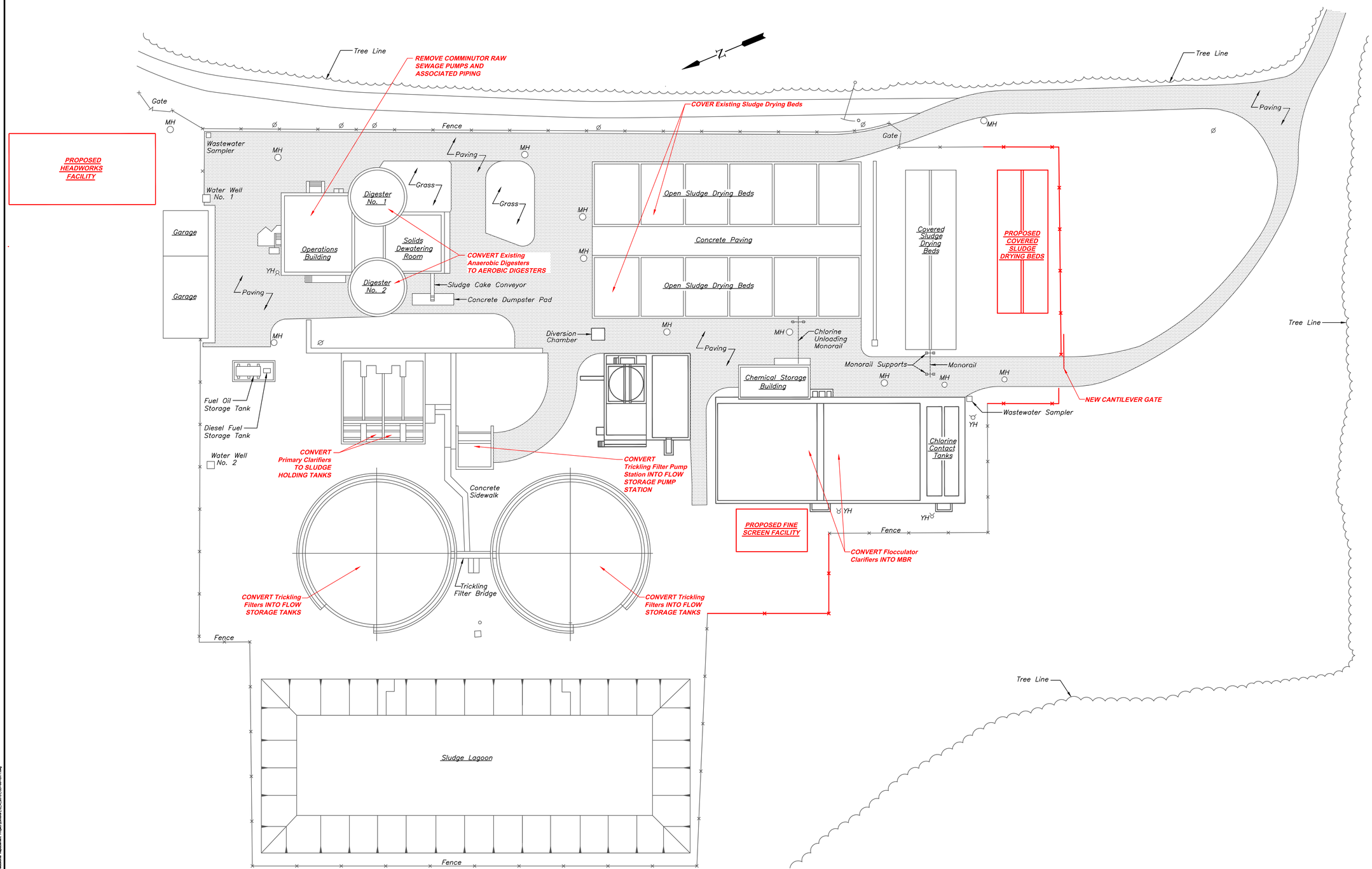
MERCER COUNTY, PENNSYLVANIA
ACT 537 PLAN SPECIAL STUDY
W.W.T.P. ALT 2 TREATMENT SCHEMATIC

Scale:	N.T.S.
Date:	12/2015
Drawn By:	JDA
Checked By:	SG
Approved By:	SG

Order No.	123-66
Drawing No.	EX10
Sheet No.	1 of 1

S:\Active Clients\123 Greenville Sanitary Authority\123-66 Headworks Replacement Project\Exhibits\12_4_2015\123-66-EX10.dwg

NOTE:
ITEMS IDENTIFIED WITH UPPER CASE TEXT ARE PROPOSED.
Items Identified with Mixed Case Text are Existing.



PROPOSED SITE PLAN
SCALE: 1" = 30'

Revisions	Date
Revisions	Date

5173 Campbells Run Road
Pittsburgh, PA 15205
Phone: 412.494.0510
Fax: 412.494.0426
info@klhengineers.com
KLH ENGINEERS, INC

GREENVILLE SANITARY AUTHORITY
MERCER COUNTY, PENNSYLVANIA
ALTERNATIVE 2 - MBR
ACT 537 PLAN SPECIAL STUDY
WASTE WATER TREATMENT PLANT UPGRADE

Scale:	As Shown
Date:	12/2015
Drawn By:	JDA
Checked By:	SRG
Approved By:	JCM

Order No. **123-66**
Drawing No. **EX 11**
Sheet No. **EXHIBIT 11**

S:\Active Clients\133 Greenville Sanitary Authority\133-66 Hadsome Replacement Project\Exhibits\133_6_Ex01\133-66-011.dwg

KLH ENGINEERS, INC
5173 Campbells Run Road
Pittsburgh, Pa 15205
Phone: 412-494-0510 - Fax: 412-494-0426
info@klhengineers.com

GREENVILLE SANITARY AUTHORITY

MERCER COUNTY, PENNSYLVANIA

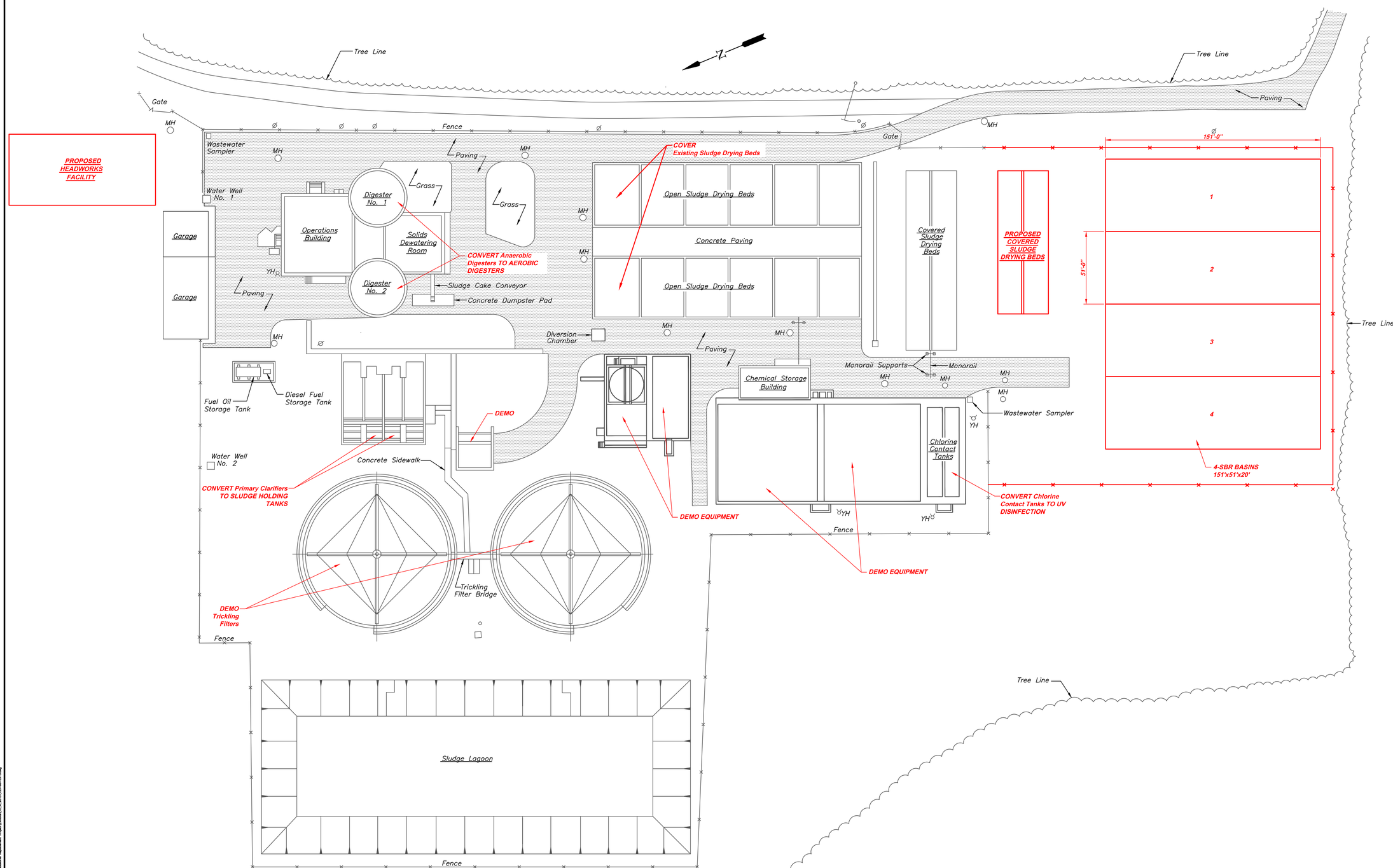
ACT 537 PLAN SPECIAL STUDY

W.W.T.P. ALT 3 TREATMENT SCHEMATIC

Scale:	N.T.S.
Date:	12/2015
Drawn By:	JDA
Checked By:	SG
Approved By:	SG

Order No.	123-66
Drawing No.	EX12
Sheet No.	1 of 1

S:\Active Clients\123 Greenville Sanitary Authority\123-66 Headworks Replacement Project\Exhibits\12_4_2015\123-66-EX12.dwg



PROPOSED SITE PLAN

SCALE: 1" = 30'

Revisions	Date

5173 Campbells Run Road
Pittsburgh, PA 15205
Phone: 412.494.0510
Fax: 412.494.0426
info@klhengineers.com

KLH ENGINEERS, INC

GREENVILLE SANITARY AUTHORITY
MERCER COUNTY, PENNSYLVANIA
ALTERNATE 3 - SBR
ACT 537 PLAN SPECIAL STUDY
WASTE WATER TREATMENT PLANT UPGRADE

Scale:	As Shown
Date:	12/2015
Drawn By:	JDA
Checked By:	SRG
Approved By:	JCM

Order No. **123-66**

Drawing No. **EX13**

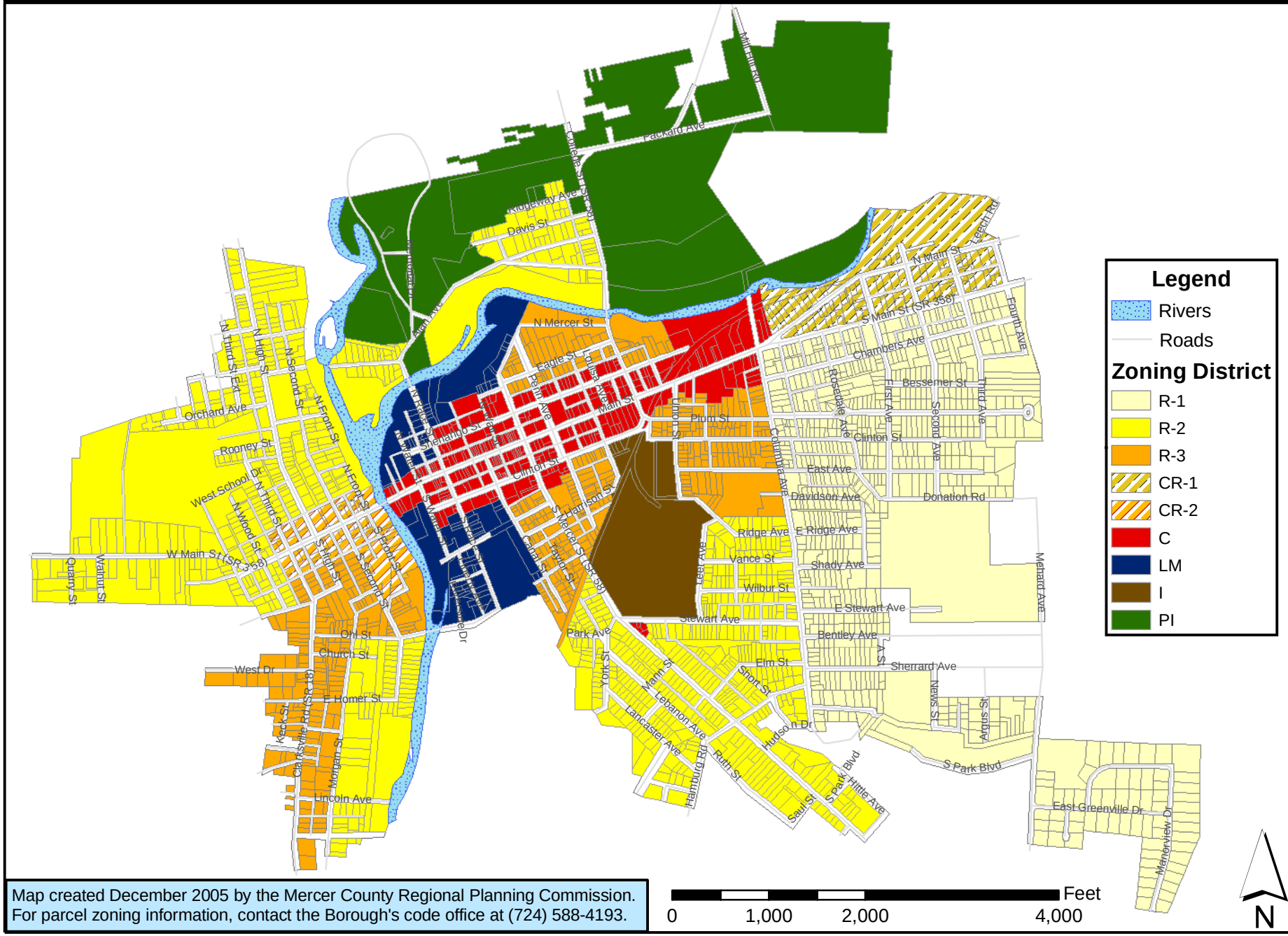
Sheet No. **EXHIBIT 13**

S:\Work Data\123 Greenville Sanitary Authority\123-66 Headworks Replacement Project\Exhibits\13_4_SPC\123-66-EX13.dwg

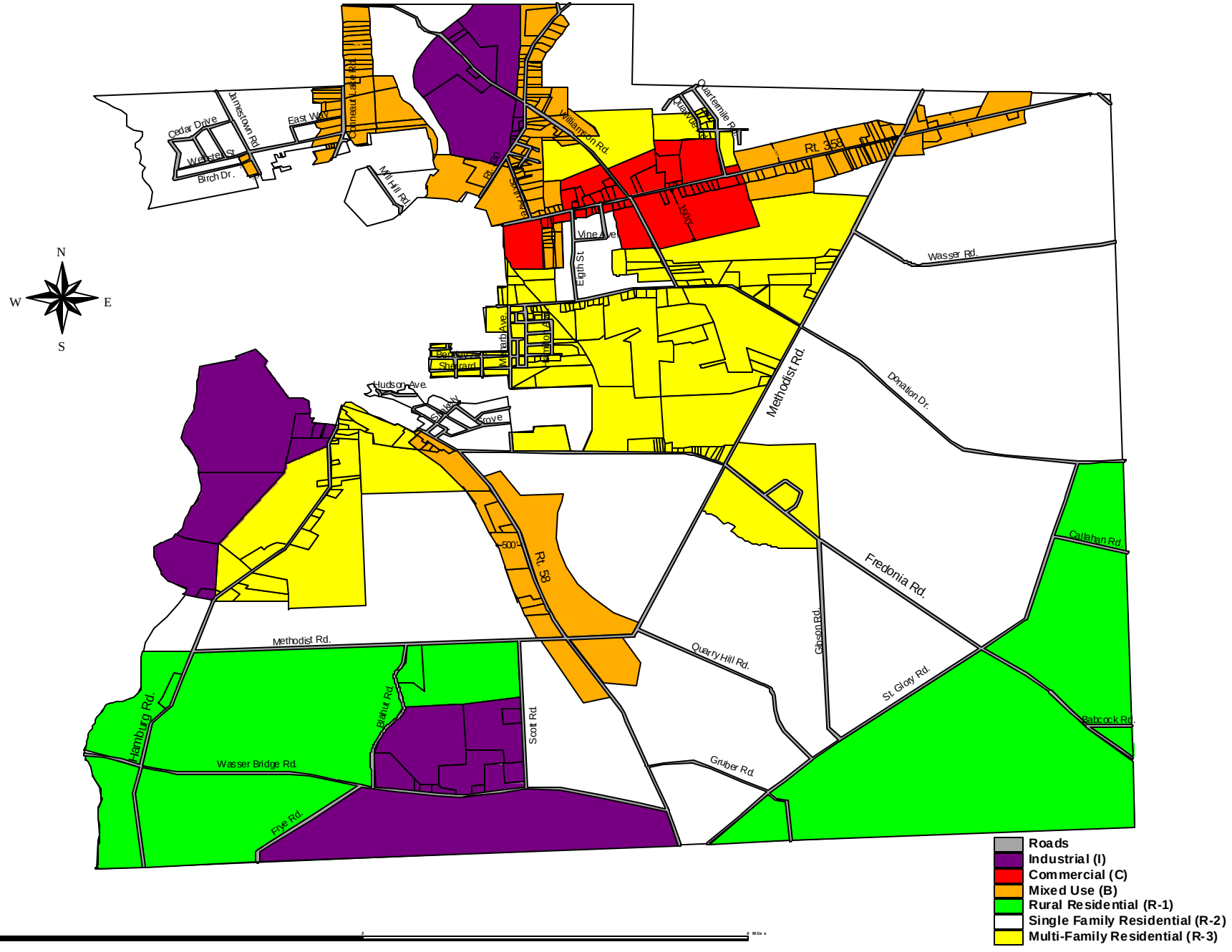
APPENDIX H

Municipal Zoning Maps

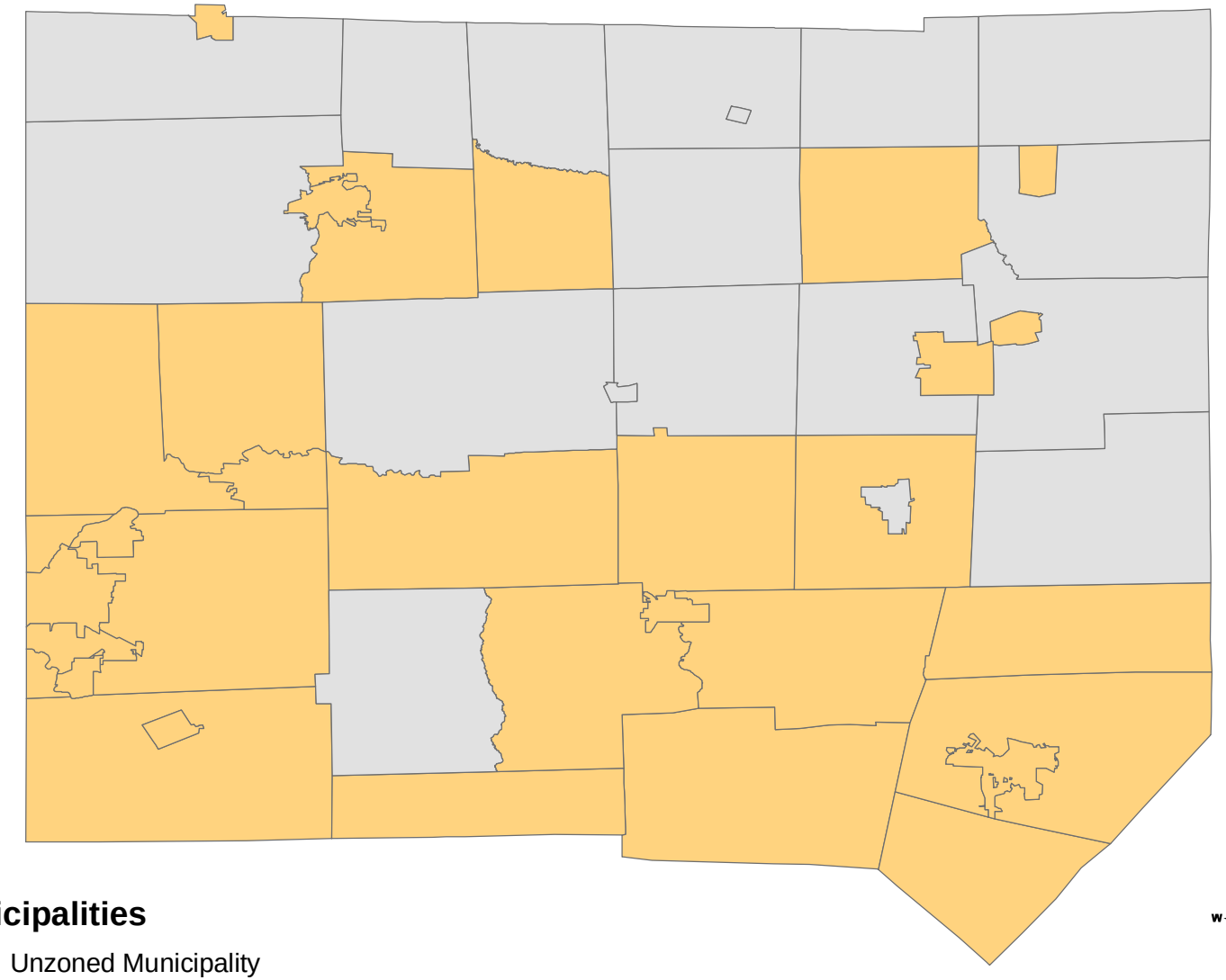
Greenville Borough Zoning Map



Hempfield Township Zoning Map



Mercer County Municipalities With Zoning



Municipalities

- Unzoned Municipality
- Zoning Ordinance Underway
- Zoned Municipality

N
W E
S

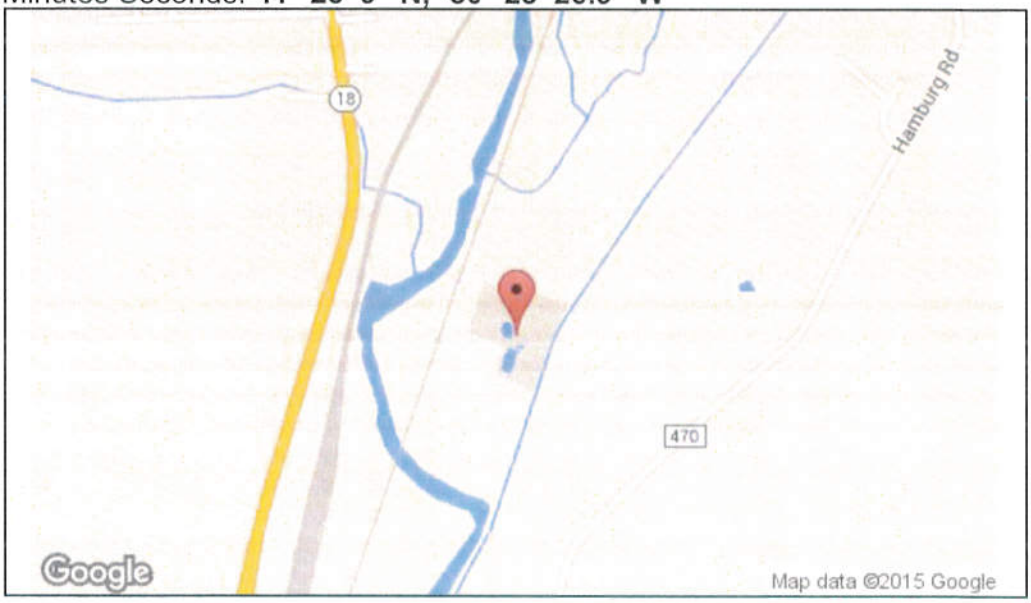
Source: MCRPC
December 2004

APPENDIX I

Pennsylvania Natural Diversity Inventory (PNDI) Search Results and Agency Correspondence

1. PROJECT INFORMATION

Project Name: **Greenville Sanitary Authority Wastewater Treatment Plant Upgrade**
Date of review: **11/10/2015 2:06:09 PM**
Project Category: **Waste Transfer, Treatment, and Disposal,Liquid waste/Effluent,Sewage module/Act 537 plan**
Project Area: **N/A**
County: **Mercer** Township/Municipality: **Hempfield**
Quadrangle Name: **GREENVILLE WEST** ~ ZIP Code: **16125**
Decimal Degrees: **41.385824 N, -80.390803 W**
Degrees Minutes Seconds: **41° 23' 9" N, -80° 23' 26.9" W**



2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	**Potential Impact**	**FURTHER REVIEW IS REQUIRED, See Agency Response**
U.S. Fish and Wildlife Service	**Potential Impact**	**FURTHER REVIEW IS REQUIRED, See Agency Response**

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for two years** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jursidictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Fish and Boat Commission

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

PFBC Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)
Scientific Name: Amblema plicata
Common Name: Three-ridge
Current Status: Special Concern Species*

Scientific Name: Fusconaia subrotunda
Common Name: Long-solid
Current Status: Special Concern Species*

Scientific Name: Sensitive Species**
Common Name:
Current Status: Endangered

Scientific Name: Sensitive Species**
Common Name:
Current Status: Endangered

U.S. Fish and Wildlife Service

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

* Special Concern Species or Resource - Plant or animal species classified as rare, tentatively undetermined or candidate as well as other taxa of conservation concern, significant natural communities, special concern populations (plants or animals) and unique geologic features.
** Sensitive Species - Species identified by the jurisdictinal agency as collectible, having economic value, or being susceptible to decline as a result of visitation.

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, send the following information to the agency(s) seeking this information (see AGENCY CONTACT INFORMATION).

Check-list of *Minimum* Materials to be submitted:

_✓_ **SIGNED** copy of this Project Environmental Review Receipt
_✓_ Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.
_✓_ Project location information (name of USGS Quadrangle, Township/Municipality, and County)
_✓_ USGS 7.5-minute Quadrangle with project boundary clearly indicated, and quad name on the map

The inclusion of the following information may expedite the review process.
_✓_ A basic site plan(particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)
____ Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)
_✓_ Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. For cases where a "Potential Impact" to threatened and endangered species has been identified before the application has been submitted to DEP, the application should not be submitted until the impact has been resolved. For cases where "Potential Impact" to special concern species and resources has been identified before the application has been submitted, the application should be submitted to DEP along with the PNDI receipt. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. DEP and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at http://www.naturalheritage.state.pa.us.

5. ADDITIONAL INFORMATION

The PNDI environmental review website is a **preliminary** screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources
Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552, Harrisburg, PA. 17105-8552
Fax:(717) 772-0271

U.S. Fish and Wildlife Service
Pennsylvania Field Office
110 Radnor Rd; Suite 101, State College, PA 16801
NO Faxes Please.

PA Fish and Boat Commission
Division of Environmental Services
450 Robinson Lane, Bellefonte, PA. 16823-7437
NO Faxes Please

PA Game Commission
Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA. 17110-9797
Fax:(717) 787-6957

7. PROJECT CONTACT INFORMATION

Name: SAMUEL R. GIBSON, E.I.T.
Company/Business Name: KLH ENGINEERS, INC.
Address: 5173 CAMPBELLS RUN RD.
City, State, Zip: PITTSBURGH, PA 15205
Phone:(412) 494 - 0510 x 110 Fax:(412) 494 - 0426
Email: SGIBSON@KLHENGINEERS.COM

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

applicant/project proponent signature

11/10/15
date

Pennsylvania Fish & Boat Commission
established 1866

Division of Environmental Services
Natural Diversity Section
450 Robinson Lane
Bellefonte, PA 16823
814-359-5237

December 1, 2015

IN REPLY REFER TO
SIR# 45214

KLH Engineers, Inc.
Samuel Gibson
5173 Campbells Run Road
Pittsburgh, Pennsylvania 15205

RE: Species Impact Review (SIR) – Rare, Candidate, Threatened and Endangered Species
PNDI Search No. 20151110538705
Greenville Sanitary Authority Wastewater Treatment Plant Upgrade
MERCER County: Hempfield Township

Dear Samuel Gibson:

This responds to your inquiry about a Pennsylvania Natural Diversity Inventory (PNDI) Internet Database search "potential conflict" or a threatened and endangered species impact review. These projects are screened for potential conflicts with rare, candidate, threatened or endangered species under Pennsylvania Fish & Boat Commission jurisdiction (fish, reptiles, amphibians, aquatic invertebrates only) using the Pennsylvania Natural Diversity Inventory (PNDI) database and our own files. These species of special concern are listed under the Endangered Species Act of 1973, the Wild Resource Conservation Act, and the Pennsylvania Fish & Boat Code (Chapter 75), or the Wildlife Code.

An element occurrence of a rare, candidate, threatened, or endangered species under our jurisdiction is known from the vicinity of the proposed project. However, given the nature of the proposed project, the immediate location, or the current status of the nearby element occurrence(s), no adverse impacts are expected to the species of special concern.

This response represents the most up-to-date summary of the PNDI data and our files and is valid for two (2) years from the date of this letter. An absence of recorded species information does not necessarily imply species absence. Our data files and the PNDI system are continuously being updated with species occurrence information. Should project plans change or additional information on listed or proposed species become available, this determination may be reconsidered, and consultation shall be re-initiated.

If you have any questions regarding this review, please contact Nevin Welte at 412-586-2334 and refer to the SIR # 45214. Thank you for your cooperation and attention to this important matter of species conservation and habitat protection.

Sincerely,

Christopher A. Urban, Chief
Natural Diversity Section

CAU/NTW/dn

PNDI # 20151110538705 USFWS Project # 2013-0768

U.S. FISH AND WILDLIFE SERVICE

110 Radnor Road, Suite 101, State College, PA 16801

This responds to your inquiry about a PNDI Internet Database search that resulted in a potential conflict with a federally listed, proposed or candidate species.

PROJECT LOCATION INFORMATION

County: Mercer

Township: Hempfiled

MISC INFORMATION

Date received by FWS: 11/16/2015

☐ ACTIVE ☐ ARCHIVE

USFWS COMMENTS ☐ FAXED ☐ MAILED

To: Samuel Gibson

Fax #: 412-494-0426

Affiliation: KLH Engineers, Inc.

SPECIFIC PROJECT: ACT 537 Sewage Facilities Plan Special Study

FISH AND WILDLIFE SERVICE COMMENT(s):

X ***NOT LIKELY TO ADVERSELY AFFECT***

The federally listed Clubshell, Snuffbox, & Rabbits Foot occurs or may occur in or near the project area. However, based on our review of the information provided, including the project description and location (Study Only),

no adverse effects to these species are likely to occur. If there is any change in the location, scale, scope, layout or design of the project, further consultation or coordination with the Service will be necessary.

The above determination is valid for two years from the date of this letter. In addition, this response relates only to federally listed, proposed, and candidate species under our jurisdiction, based on an office review of the proposed project's location and anticipated impacts. No field inspection of the project area has been conducted by this office. Consequently, comments on this form are not to be construed as addressing other Service concerns under the Fish and Wildlife Coordination Act or other authorities. *Please reference the above PNDI # and USFWS Project # in any future correspondence regarding this project.*

This review was conducted by the biologist listed below. He/she can be contacted at 814-234-4090.

☐ Robert Anderson (x7447) ☐ Pamela Shellenberger (x7459) ☐ Kayla Easler (x7455)
☐ Jennifer Kagel (x7451) ☐ Melinda Turner (x7449) ☑ Brian Scofield (x7471)

SIGNATURE: Ina L. Smith DATE: 12/14/15

Supervisor, Pennsylvania Field Office

APPENDIX J

General Correspondence with the Pennsylvania Historical and Museum Commission (PHMC)

KLH

ENGINEERS, INC.

May 7, 2013
Ref. No. 123-66

Pennsylvania Historical and Museum Commission
Bureau of Historic Preservation
400 North Street, Second Floor
Harrisburg, PA 17120-0093

CERTIFIED RETURN RECEIPT

To Whom It May Concern:

Greenville Sanitary Authority Wastewater Treatment Plant Upgrade
Act 537 Sewage Facilities Plan Special Study
Cultural Resource Notice

On behalf of the Greenville Sanitary Authority (Authority), KLH Engineers, Inc. is providing this Cultural Resource Notice for approval. This is being done in an effort to complete the planning required in preparation of the Act 537 Sewage Facilities Plan Special Study for the upgrade of the Authority's wastewater treatment plant (WWTP) located in Hempfield Township. Your response is greatly appreciated.

Attached to the completed Cultural Resource Notice are the following documents:

- Project Narrative explaining the nature of the proposed project.
- USGS 7.5-minute topographic map showing the location of the WWTP and the existing service area.
- Existing WWTP site plan where all construction work will occur.

Please feel free to contact me at 412-494-0510 ext. 110 or via email at sgibson@klhengineers.com if you have any questions or concerns.

Sincerely,

KLH ENGINEERS, INC.

Samuel R. Gibson, E.I.T.

Enclosure

ER No. 13-1491-085-A
There are NO HISTORIC PROPERTIES in the area of potential effect
Date 5/15/13 Reviewer Mark Shaffer

123-66 Cultural Resource Notice trans_SRG_05-07-13.docx

APPENDIX K

Cost Estimates

Greenville Sanitary Authority
Act 537 Sewage Facilities Plan Special Study
Engineer's Opinion of Probable Project Cost for WWTP Improvements
Alternative 1 - Existing Trickling Filter/Solids Contact (TF/SC)
November 2015

Item	Unit	Unit Price	Qty.	Extend
Headworks/Pump Station (Bar screen, grit removal, wet well/dry well P.S.)	LS	$ 6,100,000	1	$ 6,100,000
Primary Clarifier Distribution Box	LS	$ 100,000	1	$ 100,000
Primary Clarifier	LS	$ 921,000	1	$ 921,000
Existing Primary Clarifier Equipment	LS	$ 350,000	1	$ 350,000
Sludge Pumps	LS	$ 100,000	1	$ 100,000
Existing Headworks/P.S. Demolition	LS	$ 150,000	1	$ 150,000
Seal Sludge Well from Building	LS	$ 35,000	1	$ 35,000
Trickling Filter Pump Station (6.25 MGD P.S., 2 separated wet wells and pumps)	LS	$ 2,000,000	1	$ 2,000,000
Trickling Filter Improvements (New media)	LS	$ 2,193,000	1	$ 2,193,000
Replace Flocculator Clarifier Equipment (New equipment including painting)	LS	$ 830,000	1	$ 830,000
UV Disinfection (Convert chlorine contact tank to UV, including UV lift station)	LS	$ 1,000,000	1	$ 1,000,000
Digester Improvements (Digester cleaning, mixing system, cover repairs and seal supernatent sumps)	LS	$ 600,000	1	$ 600,000
Sludge Drying Bed Improvements (Cover existing beds, construct new covered beds)	LS	$ 529,000	1	$ 529,000
Site Work (Site piping, paving, E&S controls and restoration)	LS	$ 1,000,000	1	$ 1,000,000
Bonds, Mobilization, Insurance and Administration	LS	$ 796,000	1	$ 796,000
Construction Subtotal				$ 16,704,000
Construction Contingency	LS	30%	1	$ 5,012,000
Construction Total				$ 21,716,000
Engineering & Construction Administration	LS	10%	1	$ 2,172,000
Legal & Administrative	LS	5%	1	$ 1,086,000
Project Total				**$ 24,974,000**

Greenville Sanitary Authority
Act 537 Sewage Facilities Plan Special Study
Engineer's Opinion of Probable Project Cost for WWTP Improvements
Alternative 1 - Existing Trickling Filter/Solids Contact (TF/SC) with Denitrification
November 2015

Item	Unit	Unit Price	Qty.	Extend
Headworks/Pump Station (Bar screen, grit removal, wet well/dry well P.S.)	LS	$ 6,100,000	1	$ 6,100,000
Primary Clarifier Distribution Box	LS	$ 100,000	1	$ 100,000
Primary Clarifier	LS	$ 921,000	1	$ 921,000
Existing Primary Clarifier Equipment	LS	$ 350,000	1	$ 350,000
Sludge Pumps	LS	$ 100,000	1	$ 100,000
Existing Headworks/P.S. Demolition	LS	$ 150,000	1	$ 150,000
Seal Sludge Well from Building	LS	$ 35,000	1	$ 35,000
Trickling Filter Pump Station (6.25 MGD P.S., 2 separated wet wells and pumps)	LS	$ 2,000,000	1	$ 2,000,000
Trickling Filter Improvements (New media)	LS	$ 2,193,000	1	$ 2,193,000
Replace Flocculator Clarifier Equipment (New equipment including painting)	LS	$ 830,000	1	$ 830,000
Denitrification Improvements	LS	$ 5,500,000	1	$ 5,500,000
UV Disinfection (Convert chlorine contact tank to UV, including UV lift station)	LS	$ 1,000,000	1	$ 1,000,000
Digester Improvements (Digester cleaning, mixing system, cover repairs and seal supernatent sumps)	LS	$ 600,000	1	$ 600,000
Sludge Drying Bed Improvements (Cover existing beds, construct new covered beds)	LS	$ 529,000	1	$ 529,000
Site Work (Site piping, paving, E&S controls and restoration)	LS	$ 1,000,000	1	$ 1,000,000
Bonds, Mobilization, Insurance and Administration	LS	$ 796,000	1	$ 796,000
Construction Subtotal				$ 22,204,000
Construction Contingency	LS	30%	1	$ 6,662,000
Construction Total				$ 28,866,000
Engineering & Construction Administration	LS	10%	1	$ 2,887,000
Legal & Administrative	LS	5%	1	$ 1,444,000
Project Total				**$ 33,197,000**

Greenville Sanitary Authority
Act 537 Sewage Facilities Plan Special Study
Engineer's Opinion of Probable Project Cost for WWTP Improvements
Alternative 2 - Membrane Bioreactor (MBR)
November 2015

Item	Unit	Unit Price	Qty.	Extend
Headworks/Pump Station (12 MGD - bar screen, grit removal, wet well/dry well P.S.)	LS	$ 6,100,000	1	$ 6,100,000
Fine Screen Building (P.S. to pump up to 6.25 MGD to fine screens, excess flow pumped to storage)	LS	$ 1,100,000	1	$ 1,100,000
Membrane Bioreactor (MBR) (Convert flocculator clarifiers to MBR)	LS	$ 6,200,000	1	$ 6,200,000
Convert Trickling Filters to Flow Storage	LS	$ 525,000	1	$ 525,000
Disinfection Improvements	LS	$ 500,000	1	$ 500,000
Convert Primary Clarifiers to Sludge Holding Tanks	LS	$ 330,000	1	$ 330,000
Convert Anaerobic Digesters to Aerobic Digesters	LS	$ 500,000	1	$ 500,000
Existing Headworks/P.S. Demolition	LS	$ 150,000	1	$ 150,000
Sludge Drying Bed Improvements (Cover existing beds, construct new covered beds)	LS	$ 529,000	1	$ 529,000
Site Work (Site piping, paving, E&S controls and restoration)	LS	$ 1,000,000	1	$ 1,000,000
Bonds, Mobilization, Insurance and Administration	LS	$ 847,000	1	$ 847,000
Construction Subtotal				$ 17,781,000
Construction Contingency	LS	30%	1	$ 5,335,000
Construction Total				$ 23,116,000
Engineering & Construction Administration	LS	10%	1	$ 2,312,000
Legal & Administrative	LS	5%	1	$ 1,156,000
Project Total				**$ 26,584,000**

Greenville Sanitary Authority
Act 537 Sewage Facilities Plan Special Study
Engineer's Opinion of Probable Project Cost for WWTP Improvements
Alternative 3 - Sequencing Batch Reactor (SBR)
November 2015

Item	Unit	Unit Price	Qty.	Extend
Headworks/Pump Station (12 MGD - bar screen, grit removal, wet well/dry well P.S.)	LS	$ 6,100,000	1	$ 6,100,000
Sequencing Batch Reactor (SBR) with Drumlifter (Concrete SBR tanks, drumlifters installed in building)	LS	$ 11,000,000	1	$ 11,000,000
UV Disinfection (Convert chlorine contact tank to UV)	LS	$ 1,000,000	1	$ 1,000,000
Convert Primary Clarifiers to Sludge Holding Tanks	LS	$ 330,000	1	$ 330,000
Convert Anaerobic Digesters to Aerobic Digesters	LS	$ 500,000	1	$ 500,000
Site Work (Site piping, paving, E&S controls and restoration)	LS	$ 1,000,000	1	$ 1,000,000
Existing Headworks/P.S. Demolition	LS	$ 150,000	1	$ 150,000
Demolition of Flocculator Clarifier Equipment	LS	$ 50,000	1	$ 50,000
Demolition of Trickling Filter and Trickling Filter Pump Station	LS	$ 350,000	1	$ 350,000
Sludge Drying Bed Improvements (Cover existing beds, construct new covered beds)	LS	$ 529,000	1	$ 529,000
Bonds, Mobilization, Insurance and Administration	LS	$ 1,024,000	1	$ 1,024,000
Construction Subtotal				$ 22,033,000
Construction Contingency	LS	30%	1	$ 6,610,000
Construction Total				$ 28,643,000
Engineering & Construction Administration	LS	10%	1	$ 2,865,000
Legal & Administrative	LS	5%	1	$ 1,433,000
Project Total				**$ 32,941,000**

Greenville Sanitary Authority
Act 537 Sewage Facilities Plan Special Study
Engineer's Opinion of Probable Project Cost for WWTP Improvements
Alternative 4 - Headworks Facility
December 2015

Item	Unit	Unit Price	Qty.	Extend
Headworks/Pump Station (12 MGD - bar screen, grit removal, wet well/dry well P.S.)	LS	$ 6,100,000	1	$ 6,100,000
Site Work (Site piping, paving, E&S controls and restoration)	LS	$ 700,000	1	$ 700,000
Existing Headworks/P.S. Demolition	LS	$ 150,000	1	$ 150,000
Bonds, Mobilization, Insurance and Administration	LS	$ 313,000	1	$ 313,000
Construction Subtotal				$ 7,263,000
Construction Contingency	LS	30%	1	$ 2,179,000
Construction Total				$ 9,442,000
Engineering & Construction Administration	LS	10%	1	$ 945,000
Legal & Administrative	LS	5%	1	$ 473,000
Project Total				**$ 10,860,000**

APPENDIX L

Present Worth Analysis

Greenville Sanitary Authority
Act 537 Sewage Facilities Plan Special Study
40 Year Present Worth Analysis
PENNVEST - Assumed 1.0% 0 to 5 years, 1.743% 6 to 20 years
Bonds - Assumed 5.0% for 30 years

Description	Alternative 1 Existing TF/SC	Alternative 1 + Denitrification	Alternative 2 MBR	Alternative 3 SBR/Tertiary Filters	Alternative 4 Headworks
Estimated Total Project Cost	$ 24,974,000	$ 33,197,000	$ 26,584,000	$ 32,941,000	$ 10,860,000
PENNVEST Financing	$ 20,000,000	$ 20,000,000	$ 20,000,000	$ 20,000,000	$ 10,860,000
Bond Financing	$ 4,974,000	$ 13,197,000	$ 6,584,000	$ 12,941,000	$ -
PENNVEST Debt Service (20 years) 1.000% 1 to 5 years	$ 1,108,306	$ 1,108,306	$ 1,108,306	$ 1,108,306	$ 601,810
PENNVEST Debt Service (20 years) 1.743% 6 to 20 years	$ 1,193,010	$ 1,193,010	$ 1,193,010	$ 1,193,010	$ 647,804
Bond Debt Service (30 years) 5.00%	$ 323,566	$ 858,484	$ 428,299	$ 841,831	$ -
Estimated Project Cost Present Worth	$ 33,143,650	$ 49,191,189	$ 36,285,634	$ 48,691,594	$ 12,726,114
Estimated Annual O&M Costs	$ 1,287,560	$ 1,310,810	$ 1,317,560	$ 1,302,560	$ 1,272,560
Proposed O&M Present Worth, 3.0% 40 Years	$ 29,761,680	$ 30,299,099	$ 30,455,124	$ 30,108,402	$ 29,414,958
Total Present Worth	$ 62,905,330	$ 79,490,288	$ 66,740,759	$ 78,799,996	$ 42,141,073

Greenville Sanitary Authority
Act 537 Sewage Facilities Plan Special Study
40 Year Present Worth Analysis
Bonds - Assumed 5.0% for 30 years

Description	Alternative 1 Existing TF/SC	Alternative 1 + Denitrification	Alternative 2 MBR	Alternative 3 SBR/Tertiary Filters	Alternative 4 Headworks
Estimated Total Project Cost	$ 24,974,000	$ 33,197,000	$ 26,584,000	$ 32,941,000	$ 10,860,000
Bond Debt Service (30 years) 5.00%	$ 1,624,595	$ 2,159,512	$ 1,729,327	$ 2,142,859	$ 706,459
Estimated Project Cost Present Worth	$ 48,737,836	$ 64,785,375	$ 51,879,821	$ 64,285,780	$ 21,193,758
Estimated Annual O&M Costs	$ 1,287,560	$ 1,310,810	$ 1,317,560	$ 1,302,560	$ 1,272,560
Proposed O&M Present Worth, 3.0% 40 Years	$ 29,761,680	$ 30,299,099	$ 30,455,124	$ 30,108,402	$ 29,414,958
Total Present Worth	$ 78,499,517	$ 95,084,474	$ 82,334,945	$ 94,394,182	$ 50,608,716

Greenville Sanitary Authority
Act 537 Sewage Facilities Plan Special Study
40 Year Present Worth Analysis
RUS - 2.625% for 40 years

Description	Alternative 1 Existing TF/SC	Alternative 1 + Denitrification	Alternative 2 MBR	Alternative 3 SBR/Tertiary Filters	Alternative 4 Headworks
Estimated Total Project Cost	$ 24,974,000	$ 33,197,000	$ 26,584,000	$ 32,941,000	$ 10,860,000
RUS Debt Service (40 years) 2.625%	$ 1,015,927	$ 1,350,433	$ 1,081,420	$ 1,340,019	$ 441,778
Estimated Project Cost Present Worth	$ 40,637,066	$ 54,017,325	$ 43,256,817	$ 53,600,768	$ 17,671,119
Estimated Annual O&M Costs	$ 1,287,560	$ 1,310,810	$ 1,317,560	$ 1,302,560	$ 1,272,560
Proposed O&M Present Worth, 3.0% 40 Years	$ 29,761,680	$ 30,299,099	$ 30,455,124	$ 30,108,402	$ 29,414,958
Total Present Worth	$ 70,398,746	$ 84,316,424	$ 73,711,942	$ 83,709,170	$ 47,086,078

APPENDIX M

User Rate Analysis

User Rate Calculations - PENNVEST & Bonds

EDU Count		7396	Note: 1 EDU = 3520 gallons per month
Alternative 1			
Annual Debt Service	$	1,516,575	Based on maximum over 40 years
Annual Debt Service per EDU	$	205.05	
Monthly Debt Service per EDU	$	17.09	
Monthly O&M per EDU	$	27.35	Based on average O&M over 40 years
Total Monthly User Rate per EDU	$	44.43	
Total Monthly User Rate per Well	$	34.71	
Alternative 1 + Denitrification			
Annual Debt Service	$	2,051,493	Based on maximum over 40 years
Annual Debt Service per EDU	$	277.38	
Monthly Debt Service per EDU	$	23.11	
Monthly O&M per EDU	$	27.84	Based on average O&M over 40 years
Total Monthly User Rate per EDU	$	50.96	
Total Monthly User Rate per Well	$	39.81	
Alternative 2 - *Selected Alternative*			
Annual Debt Service	$	1,621,308	Based on maximum over 40 years
Annual Debt Service per EDU	$	219.21	
Monthly Debt Service per EDU	$	18.27	
Monthly O&M per EDU	$	27.98	Based on average O&M over 40 years
Total Monthly User Rate per EDU	$	46.25	
Total Monthly User Rate per Well	$	36.13	
Alternative 3			
Annual Debt Service	$	2,034,840	Based on maximum over 40 years
Annual Debt Service per EDU	$	275.13	
Monthly Debt Service per EDU	$	22.93	
Monthly O&M per EDU	$	27.67	Based on average O&M over 40 years
Total Monthly User Rate per EDU	$	50.59	
Total Monthly User Rate per Well	$	39.53	
Alternative 4			
Annual Debt Service	$	647,804	Based on maximum over 40 years
Annual Debt Service per EDU	$	87.59	
Monthly Debt Service per EDU	$	7.30	
Monthly O&M per EDU	$	27.03	Based on average O&M over 40 years
Total Monthly User Rate per EDU	$	34.33	
Total Monthly User Rate per Well	$	26.82	

User Rate Calculations - Bonds

EDU Count		7396	Note: 1 EDU = 3520 gallons per month
Alternative 1			
Annual Debt Service	$	1,624,595	Based on maximum over 40 years
Annual Debt Service per EDU	$	219.66	
Monthly Debt Service per EDU	$	18.30	
Monthly O&M per EDU	$	27.35	Based on average O&M over 40 years
Total Monthly User Rate per EDU	$	45.65	
Total Monthly User Rate per Well	$	35.67	
Alternative 1 + Denitrification			
Annual Debt Service	$	2,159,512	Based on maximum over 40 years
Annual Debt Service per EDU	$	291.98	
Monthly Debt Service per EDU	$	24.33	
Monthly O&M per EDU	$	27.84	Based on average O&M over 40 years
Total Monthly User Rate per EDU	$	52.17	
Total Monthly User Rate per Well	$	40.76	
Alternative 2			
Annual Debt Service	$	1,729,327	Based on maximum over 40 years
Annual Debt Service per EDU	$	233.82	
Monthly Debt Service per EDU	$	19.48	
Monthly O&M per EDU	$	27.98	Based on average O&M over 40 years
Total Monthly User Rate per EDU	$	47.46	
Total Monthly User Rate per Well	$	37.08	
Alternative 3			
Annual Debt Service	$	2,142,859	Based on maximum over 40 years
Annual Debt Service per EDU	$	289.73	
Monthly Debt Service per EDU	$	24.14	
Monthly O&M per EDU	$	27.67	Based on average O&M over 40 years
Total Monthly User Rate per EDU	$	51.81	
Total Monthly User Rate per Well	$	40.48	
Alternative 4			
Annual Debt Service	$	706,459	
Annual Debt Service per EDU	$	95.52	
Monthly Debt Service per EDU	$	7.96	
Monthly O&M per EDU	$	27.03	
Total Monthly User Rate per EDU	$	34.99	
Total Monthly User Rate per Well	$	27.34	

User Rate Calculations - RUS

EDU Count		7396	Note: 1 EDU = 3520 gallons per month
Alternative 1			
Annual Debt Service	$	1,015,927	Based on maximum over 40 years
Annual Debt Service per EDU	$	137.36	
Monthly Debt Service per EDU	$	11.45	
Monthly O&M per EDU	$	27.35	Based on average O&M over 40 years
Total Monthly User Rate per EDU	$	38.80	
Total Monthly User Rate per Well	$	30.31	
Alternative 1 + Denitrification			
Annual Debt Service	$	1,350,433	Based on maximum over 40 years
Annual Debt Service per EDU	$	182.59	
Monthly Debt Service per EDU	$	15.22	
Monthly O&M per EDU	$	27.84	Based on average O&M over 40 years
Total Monthly User Rate per EDU	$	43.06	
Total Monthly User Rate per Well	$	33.64	
Alternative 2			
Annual Debt Service	$	1,081,420	Based on maximum over 40 years
Annual Debt Service per EDU	$	146.22	
Monthly Debt Service per EDU	$	12.18	
Monthly O&M per EDU	$	27.98	Based on average O&M over 40 years
Total Monthly User Rate per EDU	$	40.16	
Total Monthly User Rate per Well	$	31.38	
Alternative 3			
Annual Debt Service	$	1,340,019	Based on maximum over 40 years
Annual Debt Service per EDU	$	181.18	
Monthly Debt Service per EDU	$	15.10	
Monthly O&M per EDU	$	27.67	Based on average O&M over 40 years
Total Monthly User Rate per EDU	$	42.77	
Total Monthly User Rate per Well	$	33.41	
Alternative 4			
Annual Debt Service	$	441,778	Based on maximum over 40 years
Annual Debt Service per EDU	$	59.73	
Monthly Debt Service per EDU	$	4.98	
Monthly O&M per EDU	$	27.03	Based on average O&M over 40 years
Total Monthly User Rate per EDU	$	32.01	
Total Monthly User Rate per Well	$	25.01	

O&M Rate Calculations

Water Use Records	Monthly		Bi-Monthly							EDUs
Residential	**Gallons**	**No. Customers**	**Gallons**	**No. Customers**	**Avg. Usage**	**No. Customers**	**Total Usage**			
	1000	95	1000	190	1000	285	285000			81
	4480	29	4600	639	4595	668	3069320			872
	8290	17	8320	580	8319	597	4966530			1411
	12900	8	13020	326	13017	334	4347720			1235
	35250	8	21930	90	23017	98	2255700			641
	96000	3	79000	1	91750	4	367000	15291270	Total Usage	104
Commercial	**Gallons**	**No. Customers**	**Gallons**	**No. Customers**	**Avg. Usage**	**No. Customers**	**Total Usage**			
	1000	4	1000	40	1000	44	44000			13
	5000	2	4000	52	4037	54	218000			62
	7750	4	8210	19	8130	23	186990			53
			12940	16	12940	16	207040			59
	30250	4	34230	22	33618	26	874060			248
	540200	5	160250	4	371333	9	3342000	4872090	Total Usage	949
Industrial	**Gallons**	**No. Customers**	**Gallons**	**No. Customers**	**Avg. Usage**	**No. Customers**	**Total Usage**			
			1000	1	1000	1	1000			0
			17000	1	17000	1	17000	18000	Total Usage	5
Public Utility	**Gallons**	**No. Customers**	**Gallons**	**No. Customers**	**Avg. Usage**	**No. Customers**	**Total Usage**			
			1000	2	1000	2	2000			1
	4000	1	4670	3	4503	4	18010			5
	9000	1	10000	1	9500	2	19000			5
	50300	3	20000	2	38180	5	190900	229910	Total Usage	54
Sewer Only	Gallons	No. Customers	Gallons	No. Customers	Avg. Usage	No. Customers	Total Usage			
			4000	1	4000	1	4000			1
			9000	3	9000	3	27000			8
			16000	1	16000	1	16000			5
	32500	2	22670	3	26602	5	133010			38
			345000	1	345000	1	345000	525010	Total Usage	98
						2184		20936280	Total Monthly Water Use	5948
				Wells		No. Customers	Total Usage			
				Greenville Wells	2750	159	437250			124
				Hempfield Wells	2750	1167	3209250			912
				West Salem Wells	2750	527	1449250	5095750		412
						1853		5095750	Monthly Water Use - Wells	1448
								26032030	**TOTAL MONTHLY WATER USE**	**7396** **TOTAL EDUs**

Alternative	Annual O&M	$/1000 gal	Monthly O&M per EDU
Alt 1	$ 2,427,090	$ 7.77	$ 27.35
Alt 1 + denitrification	$ 2,470,917	$ 7.91	$ 27.84
Alt 2	$ 2,483,641	$ 7.95	$ 27.98
Alt 3	$ 2,455,366	$ 7.86	$ 27.67
Alt 4	$ 2,398,815	$ 7.68	$ 27.03

1 EDU =	3520	gal

Annual Payments - PENNVEST & Bonds

	Alternative 1			Alternative 1 + Denitrification			Alternative 2			Alternative 3			Alternative 4		
	Annual Debt Service	Annual O&M	Annual Total	Annual Debt Service	Annual O&M	Annual Total	Annual Debt Service	Annual O&M	Annual Total	Annual Debt Service	Annual O&M	Annual Total	Annual Debt Service	Annual O&M	Annual Total
1	$ 1,431,872	$ 1,287,560	$ 2,719,432	$ 1,966,790	$ 1,310,810	$ 3,277,600	$ 1,536,605	$ 1,317,560	$ 2,854,164	$ 1,950,137	$ 1,302,560	$ 3,252,696	$ 601,810	$ 1,272,560	$ 1,874,370
2	$ 1,431,872	$ 1,326,186	$ 2,758,058	$ 1,966,790	$ 1,350,134	$ 3,316,924	$ 1,536,605	$ 1,357,086	$ 2,893,691	$ 1,950,137	$ 1,341,636	$ 3,291,773	$ 601,810	$ 1,310,736	$ 1,912,547
3	$ 1,431,872	$ 1,365,972	$ 2,797,844	$ 1,966,790	$ 1,390,638	$ 3,357,428	$ 1,536,605	$ 1,397,799	$ 2,934,404	$ 1,950,137	$ 1,381,885	$ 3,332,022	$ 601,810	$ 1,350,058	$ 1,951,869
4	$ 1,431,872	$ 1,406,951	$ 2,838,823	$ 1,966,790	$ 1,432,357	$ 3,399,147	$ 1,536,605	$ 1,439,733	$ 2,976,338	$ 1,950,137	$ 1,423,342	$ 3,373,479	$ 601,810	$ 1,390,560	$ 1,992,370
5	$ 1,431,872	$ 1,449,160	$ 2,881,032	$ 1,966,790	$ 1,475,328	$ 3,442,118	$ 1,536,605	$ 1,482,925	$ 3,019,530	$ 1,950,137	$ 1,466,042	$ 3,416,179	$ 601,810	$ 1,432,277	$ 2,034,087
6	$ 1,516,575	$ 1,492,634	$ 3,009,210	$ 2,051,493	$ 1,519,587	$ 3,571,081	$ 1,621,308	$ 1,527,413	$ 3,148,721	$ 2,034,840	$ 1,510,023	$ 3,544,864	$ 647,804	$ 1,475,245	$ 2,123,049
7	$ 1,516,575	$ 1,537,413	$ 3,053,989	$ 2,051,493	$ 1,565,175	$ 3,616,668	$ 1,621,308	$ 1,573,235	$ 3,194,543	$ 2,034,840	$ 1,555,324	$ 3,590,164	$ 647,804	$ 1,519,503	$ 2,167,307
8	$ 1,516,575	$ 1,583,536	$ 3,100,111	$ 2,051,493	$ 1,612,130	$ 3,663,624	$ 1,621,308	$ 1,620,432	$ 3,241,740	$ 2,034,840	$ 1,601,984	$ 3,636,824	$ 647,804	$ 1,565,088	$ 2,212,892
9	$ 1,516,575	$ 1,631,042	$ 3,147,617	$ 2,051,493	$ 1,660,494	$ 3,711,988	$ 1,621,308	$ 1,669,045	$ 3,290,353	$ 2,034,840	$ 1,650,043	$ 3,684,884	$ 647,804	$ 1,612,040	$ 2,259,844
10	$ 1,516,575	$ 1,679,973	$ 3,196,549	$ 2,051,493	$ 1,710,309	$ 3,761,802	$ 1,621,308	$ 1,719,116	$ 3,340,425	$ 2,034,840	$ 1,699,545	$ 3,734,385	$ 647,804	$ 1,660,402	$ 2,308,206
11	$ 1,516,575	$ 1,730,372	$ 3,246,948	$ 2,051,493	$ 1,761,618	$ 3,813,112	$ 1,621,308	$ 1,770,690	$ 3,391,998	$ 2,034,840	$ 1,750,531	$ 3,785,371	$ 647,804	$ 1,710,214	$ 2,358,018
12	$ 1,516,575	$ 1,782,283	$ 3,298,859	$ 2,051,493	$ 1,814,467	$ 3,865,960	$ 1,621,308	$ 1,823,810	$ 3,445,119	$ 2,034,840	$ 1,803,047	$ 3,837,887	$ 647,804	$ 1,761,520	$ 2,409,324
13	$ 1,516,575	$ 1,835,752	$ 3,352,327	$ 2,051,493	$ 1,868,901	$ 3,920,394	$ 1,621,308	$ 1,878,525	$ 3,499,833	$ 2,034,840	$ 1,857,138	$ 3,891,979	$ 647,804	$ 1,814,366	$ 2,462,170
14	$ 1,516,575	$ 1,890,825	$ 3,407,400	$ 2,051,493	$ 1,924,968	$ 3,976,461	$ 1,621,308	$ 1,934,881	$ 3,556,189	$ 2,034,840	$ 1,912,853	$ 3,947,693	$ 647,804	$ 1,868,797	$ 2,516,601
15	$ 1,516,575	$ 1,947,549	$ 3,464,125	$ 2,051,493	$ 1,982,717	$ 4,034,210	$ 1,621,308	$ 1,992,927	$ 3,614,235	$ 2,034,840	$ 1,970,238	$ 4,005,078	$ 647,804	$ 1,924,860	$ 2,572,665
16	$ 1,516,575	$ 2,005,976	$ 3,522,551	$ 2,051,493	$ 2,042,198	$ 4,093,692	$ 1,621,308	$ 2,052,715	$ 3,674,023	$ 2,034,840	$ 2,029,345	$ 4,064,185	$ 647,804	$ 1,982,606	$ 2,630,410
17	$ 1,516,575	$ 2,066,155	$ 3,582,730	$ 2,051,493	$ 2,103,464	$ 4,154,958	$ 1,621,308	$ 2,114,296	$ 3,735,604	$ 2,034,840	$ 2,090,226	$ 4,125,066	$ 647,804	$ 2,042,084	$ 2,689,889
18	$ 1,516,575	$ 2,128,140	$ 3,644,715	$ 2,051,493	$ 2,166,568	$ 4,218,062	$ 1,621,308	$ 2,177,725	$ 3,799,033	$ 2,034,840	$ 2,152,932	$ 4,187,773	$ 647,804	$ 2,103,347	$ 2,751,151
19	$ 1,516,575	$ 2,191,984	$ 3,708,559	$ 2,051,493	$ 2,231,565	$ 4,283,059	$ 1,621,308	$ 2,243,057	$ 3,864,365	$ 2,034,840	$ 2,217,520	$ 4,252,361	$ 647,804	$ 2,166,447	$ 2,814,252
20	$ 1,516,575	$ 2,257,743	$ 3,774,319	$ 2,051,493	$ 2,298,512	$ 4,350,006	$ 1,621,308	$ 2,310,349	$ 3,931,657	$ 2,034,840	$ 2,284,046	$ 4,318,886	$ 647,804	$ 2,231,441	$ 2,879,245
21	$ 323,566	$ 2,325,476	$ 2,649,042	$ 858,484	$ 2,367,468	$ 3,225,952	$ 428,299	$ 2,379,659	$ 2,807,958	$ 841,831	$ 2,352,567	$ 3,194,398	$ -	$ 2,298,384	$ 2,298,384
22	$ 323,566	$ 2,395,240	$ 2,718,806	$ 858,484	$ 2,438,492	$ 3,296,976	$ 428,299	$ 2,451,049	$ 2,879,347	$ 841,831	$ 2,423,144	$ 3,264,975	$ -	$ 2,367,336	$ 2,367,336
23	$ 323,566	$ 2,467,097	$ 2,790,663	$ 858,484	$ 2,511,647	$ 3,370,130	$ 428,299	$ 2,524,580	$ 2,952,879	$ 841,831	$ 2,495,839	$ 3,337,669	$ -	$ 2,438,356	$ 2,438,356
24	$ 323,566	$ 2,541,110	$ 2,864,676	$ 858,484	$ 2,586,996	$ 3,445,480	$ 428,299	$ 2,600,318	$ 3,028,616	$ 841,831	$ 2,570,714	$ 3,412,544	$ -	$ 2,511,506	$ 2,511,506
25	$ 323,566	$ 2,617,343	$ 2,940,909	$ 858,484	$ 2,664,606	$ 3,523,090	$ 428,299	$ 2,678,327	$ 3,106,626	$ 841,831	$ 2,647,835	$ 3,489,666	$ -	$ 2,586,851	$ 2,586,851
26	$ 323,566	$ 2,695,864	$ 3,019,430	$ 858,484	$ 2,744,544	$ 3,603,028	$ 428,299	$ 2,758,677	$ 3,186,976	$ 841,831	$ 2,727,270	$ 3,569,101	$ -	$ 2,664,457	$ 2,664,457
27	$ 323,566	$ 2,776,740	$ 3,100,305	$ 858,484	$ 2,826,880	$ 3,685,364	$ 428,299	$ 2,841,437	$ 3,269,736	$ 841,831	$ 2,809,088	$ 3,650,919	$ -	$ 2,744,391	$ 2,744,391
28	$ 323,566	$ 2,860,042	$ 3,183,608	$ 858,484	$ 2,911,687	$ 3,770,171	$ 428,299	$ 2,926,680	$ 3,354,979	$ 841,831	$ 2,893,361	$ 3,735,192	$ -	$ 2,826,722	$ 2,826,722
29	$ 323,566	$ 2,945,843	$ 3,269,409	$ 858,484	$ 2,999,037	$ 3,857,521	$ 428,299	$ 3,014,481	$ 3,442,779	$ 841,831	$ 2,980,162	$ 3,821,993	$ -	$ 2,911,524	$ 2,911,524
30	$ 323,566	$ 3,034,218	$ 3,357,784	$ 858,484	$ 3,089,008	$ 3,947,492	$ 428,299	$ 3,104,915	$ 3,533,214	$ 841,831	$ 3,069,567	$ 3,911,397	$ -	$ 2,998,870	$ 2,998,870
31	$ -	$ 3,125,245	$ 3,125,245	$ -	$ 3,181,679	$ 3,181,679	$ -	$ 3,198,063	$ 3,198,063	$ -	$ 3,161,654	$ 3,161,654	$ -	$ 3,088,836	$ 3,088,836
32	$ -	$ 3,219,002	$ 3,219,002	$ -	$ 3,277,129	$ 3,277,129	$ -	$ 3,294,005	$ 3,294,005	$ -	$ 3,256,503	$ 3,256,503	$ -	$ 3,181,501	$ 3,181,501
33	$ -	$ 3,315,572	$ 3,315,572	$ -	$ 3,375,443	$ 3,375,443	$ -	$ 3,392,825	$ 3,392,825	$ -	$ 3,354,199	$ 3,354,199	$ -	$ 3,276,946	$ 3,276,946
34	$ -	$ 3,415,039	$ 3,415,039	$ -	$ 3,476,706	$ 3,476,706	$ -	$ 3,494,609	$ 3,494,609	$ -	$ 3,454,824	$ 3,454,824	$ -	$ 3,375,254	$ 3,375,254
35	$ -	$ 3,517,491	$ 3,517,491	$ -	$ 3,581,007	$ 3,581,007	$ -	$ 3,599,448	$ 3,599,448	$ -	$ 3,558,469	$ 3,558,469	$ -	$ 3,476,512	$ 3,476,512
36	$ -	$ 3,623,015	$ 3,623,015	$ -	$ 3,688,438	$ 3,688,438	$ -	$ 3,707,431	$ 3,707,431	$ -	$ 3,665,223	$ 3,665,223	$ -	$ 3,580,807	$ 3,580,807
37	$ -	$ 3,731,706	$ 3,731,706	$ -	$ 3,799,091	$ 3,799,091	$ -	$ 3,818,654	$ 3,818,654	$ -	$ 3,775,180	$ 3,775,180	$ -	$ 3,688,232	$ 3,688,232
38	$ -	$ 3,843,657	$ 3,843,657	$ -	$ 3,913,063	$ 3,913,063	$ -	$ 3,933,214	$ 3,933,214	$ -	$ 3,888,435	$ 3,888,435	$ -	$ 3,798,879	$ 3,798,879
39	$ -	$ 3,958,967	$ 3,958,967	$ -	$ 4,030,455	$ 4,030,455	$ -	$ 4,051,210	$ 4,051,210	$ -	$ 4,005,088	$ 4,005,088	$ -	$ 3,912,845	$ 3,912,845
40	$ -	$ 4,077,736	$ 4,077,736	$ -	$ 4,151,369	$ 4,151,369	$ -	$ 4,172,746	$ 4,172,746	$ -	$ 4,125,241	$ 4,125,241	$ -	$ 4,030,230	$ 4,030,230
Total		$ 97,083,608			$ 98,836,688			$ 99,345,646			$ 98,214,627			$ 95,952,589	
Average		$ 2,427,090			$ 2,470,917			$ 2,483,641			$ 2,455,366			$ 2,398,815	
Existing		$ 1,245,060			$ 1,245,060			$ 1,245,060			$ 1,245,060			$ 1,245,060	
Maximum	$ 1,516,575			$ 2,051,493			$ 1,621,308			$ 2,034,840			$ 647,804		

Annual Payments - Bonds

	Alternative 1			Alternative 1 + Denitrification			Alternative 2			Alternative 3			Alternative 4		
	Annual Debt Service	Annual O&M	Annual Total	Annual Debt Service	Annual O&M	Annual Total	Annual Debt Service	Annual O&M	Annual Total	Annual Debt Service	Annual O&M	Annual Total	Annual Debt Service	Annual O&M	Annual Total
1	$ 1,624,595	$ 1,287,560	$ 2,912,154	$ 2,159,512	$ 1,310,810	$ 3,470,322	$ 1,729,327	$ 1,317,560	$ 3,046,887	$ 2,142,859	$ 1,302,560	$ 3,445,419	$ 706,459	$ 1,272,560	$ 1,979,018
2	$ 1,624,595	$ 1,326,186	$ 2,950,781	$ 2,159,512	$ 1,350,134	$ 3,509,646	$ 1,729,327	$ 1,357,086	$ 3,086,414	$ 2,142,859	$ 1,341,636	$ 3,484,496	$ 706,459	$ 1,310,736	$ 2,017,195
3	$ 1,624,595	$ 1,365,972	$ 2,990,566	$ 2,159,512	$ 1,390,638	$ 3,550,150	$ 1,729,327	$ 1,397,799	$ 3,127,126	$ 2,142,859	$ 1,381,885	$ 3,524,745	$ 706,459	$ 1,350,058	$ 2,056,517
4	$ 1,624,595	$ 1,406,951	$ 3,031,546	$ 2,159,512	$ 1,432,357	$ 3,591,869	$ 1,729,327	$ 1,439,733	$ 3,169,060	$ 2,142,859	$ 1,423,342	$ 3,566,201	$ 706,459	$ 1,390,560	$ 2,097,019
5	$ 1,624,595	$ 1,449,160	$ 3,073,754	$ 2,159,512	$ 1,475,328	$ 3,634,840	$ 1,729,327	$ 1,482,925	$ 3,212,252	$ 2,142,859	$ 1,466,042	$ 3,608,902	$ 706,459	$ 1,432,277	$ 2,138,736
6	$ 1,624,595	$ 1,492,634	$ 3,117,229	$ 2,159,512	$ 1,519,587	$ 3,679,100	$ 1,729,327	$ 1,527,413	$ 3,256,740	$ 2,142,859	$ 1,510,023	$ 3,652,883	$ 706,459	$ 1,475,245	$ 2,181,704
7	$ 1,624,595	$ 1,537,413	$ 3,162,008	$ 2,159,512	$ 1,565,175	$ 3,724,688	$ 1,729,327	$ 1,573,235	$ 3,302,562	$ 2,142,859	$ 1,555,324	$ 3,698,183	$ 706,459	$ 1,519,503	$ 2,225,961
8	$ 1,624,595	$ 1,583,536	$ 3,208,130	$ 2,159,512	$ 1,612,130	$ 3,771,643	$ 1,729,327	$ 1,620,432	$ 3,349,759	$ 2,142,859	$ 1,601,984	$ 3,744,843	$ 706,459	$ 1,565,088	$ 2,271,546
9	$ 1,624,595	$ 1,631,042	$ 3,255,636	$ 2,159,512	$ 1,660,494	$ 3,820,007	$ 1,729,327	$ 1,669,045	$ 3,398,372	$ 2,142,859	$ 1,650,043	$ 3,792,903	$ 706,459	$ 1,612,040	$ 2,318,499
10	$ 1,624,595	$ 1,679,973	$ 3,304,568	$ 2,159,512	$ 1,710,309	$ 3,869,822	$ 1,729,327	$ 1,719,116	$ 3,448,444	$ 2,142,859	$ 1,699,545	$ 3,842,404	$ 706,459	$ 1,660,402	$ 2,366,860
11	$ 1,624,595	$ 1,730,372	$ 3,354,967	$ 2,159,512	$ 1,761,618	$ 3,921,131	$ 1,729,327	$ 1,770,690	$ 3,500,017	$ 2,142,859	$ 1,750,531	$ 3,893,390	$ 706,459	$ 1,710,214	$ 2,416,672
12	$ 1,624,595	$ 1,782,283	$ 3,406,878	$ 2,159,512	$ 1,814,467	$ 3,973,979	$ 1,729,327	$ 1,823,810	$ 3,553,138	$ 2,142,859	$ 1,803,047	$ 3,945,906	$ 706,459	$ 1,761,520	$ 2,467,979
13	$ 1,624,595	$ 1,835,752	$ 3,460,347	$ 2,159,512	$ 1,868,901	$ 4,028,413	$ 1,729,327	$ 1,878,525	$ 3,607,852	$ 2,142,859	$ 1,857,138	$ 3,999,998	$ 706,459	$ 1,814,366	$ 2,520,824
14	$ 1,624,595	$ 1,890,825	$ 3,515,419	$ 2,159,512	$ 1,924,968	$ 4,084,480	$ 1,729,327	$ 1,934,881	$ 3,664,208	$ 2,142,859	$ 1,912,853	$ 4,055,712	$ 706,459	$ 1,868,797	$ 2,575,255
15	$ 1,624,595	$ 1,947,549	$ 3,572,144	$ 2,159,512	$ 1,982,717	$ 4,142,229	$ 1,729,327	$ 1,992,927	$ 3,722,254	$ 2,142,859	$ 1,970,238	$ 4,113,097	$ 706,459	$ 1,924,860	$ 2,631,319
16	$ 1,624,595	$ 2,005,976	$ 3,630,570	$ 2,159,512	$ 2,042,198	$ 4,201,711	$ 1,729,327	$ 2,052,715	$ 3,782,042	$ 2,142,859	$ 2,029,345	$ 4,172,205	$ 706,459	$ 1,982,606	$ 2,689,065
17	$ 1,624,595	$ 2,066,155	$ 3,690,750	$ 2,159,512	$ 2,103,464	$ 4,262,977	$ 1,729,327	$ 2,114,296	$ 3,843,624	$ 2,142,859	$ 2,090,226	$ 4,233,085	$ 706,459	$ 2,042,084	$ 2,748,543
18	$ 1,624,595	$ 2,128,140	$ 3,752,734	$ 2,159,512	$ 2,166,568	$ 4,326,081	$ 1,729,327	$ 2,177,725	$ 3,907,052	$ 2,142,859	$ 2,152,932	$ 4,295,792	$ 706,459	$ 2,103,347	$ 2,809,806
19	$ 1,624,595	$ 2,191,984	$ 3,816,578	$ 2,159,512	$ 2,231,565	$ 4,391,078	$ 1,729,327	$ 2,243,057	$ 3,972,384	$ 2,142,859	$ 2,217,520	$ 4,360,380	$ 706,459	$ 2,166,447	$ 2,872,906
20	$ 1,624,595	$ 2,257,743	$ 3,882,338	$ 2,159,512	$ 2,298,512	$ 4,458,025	$ 1,729,327	$ 2,310,349	$ 4,039,676	$ 2,142,859	$ 2,284,046	$ 4,426,905	$ 706,459	$ 2,231,441	$ 2,937,899
21	$ 1,624,595	$ 2,325,476	$ 3,950,070	$ 2,159,512	$ 2,367,468	$ 4,526,980	$ 1,729,327	$ 2,379,659	$ 4,108,986	$ 2,142,859	$ 2,352,567	$ 4,495,427	$ 706,459	$ 2,298,384	$ 3,004,843
22	$ 1,624,595	$ 2,395,240	$ 4,019,834	$ 2,159,512	$ 2,438,492	$ 4,598,004	$ 1,729,327	$ 2,451,049	$ 4,180,376	$ 2,142,859	$ 2,423,144	$ 4,566,004	$ 706,459	$ 2,367,336	$ 3,073,794
23	$ 1,624,595	$ 2,467,097	$ 4,091,692	$ 2,159,512	$ 2,511,647	$ 4,671,159	$ 1,729,327	$ 2,524,580	$ 4,253,908	$ 2,142,859	$ 2,495,839	$ 4,638,698	$ 706,459	$ 2,438,356	$ 3,144,814
24	$ 1,624,595	$ 2,541,110	$ 4,165,705	$ 2,159,512	$ 2,586,996	$ 4,746,508	$ 1,729,327	$ 2,600,318	$ 4,329,645	$ 2,142,859	$ 2,570,714	$ 4,713,573	$ 706,459	$ 2,511,506	$ 3,217,965
25	$ 1,624,595	$ 2,617,343	$ 4,241,938	$ 2,159,512	$ 2,664,606	$ 4,824,118	$ 1,729,327	$ 2,678,327	$ 4,407,655	$ 2,142,859	$ 2,647,835	$ 4,790,695	$ 706,459	$ 2,586,851	$ 3,293,310
26	$ 1,624,595	$ 2,695,864	$ 4,320,458	$ 2,159,512	$ 2,744,544	$ 4,904,056	$ 1,729,327	$ 2,758,677	$ 4,488,004	$ 2,142,859	$ 2,727,270	$ 4,870,130	$ 706,459	$ 2,664,457	$ 3,370,916
27	$ 1,624,595	$ 2,776,740	$ 4,401,334	$ 2,159,512	$ 2,826,880	$ 4,986,393	$ 1,729,327	$ 2,841,437	$ 4,570,765	$ 2,142,859	$ 2,809,088	$ 4,951,948	$ 706,459	$ 2,744,391	$ 3,450,849
28	$ 1,624,595	$ 2,860,042	$ 4,484,636	$ 2,159,512	$ 2,911,687	$ 5,071,199	$ 1,729,327	$ 2,926,680	$ 4,656,008	$ 2,142,859	$ 2,893,361	$ 5,036,220	$ 706,459	$ 2,826,722	$ 3,533,181
29	$ 1,624,595	$ 2,945,843	$ 4,570,438	$ 2,159,512	$ 2,999,037	$ 5,158,550	$ 1,729,327	$ 3,014,481	$ 4,743,808	$ 2,142,859	$ 2,980,162	$ 5,123,021	$ 706,459	$ 2,911,524	$ 3,617,983
30	$ 1,624,595	$ 3,034,218	$ 4,658,813	$ 2,159,512	$ 3,089,008	$ 5,248,521	$ 1,729,327	$ 3,104,915	$ 4,834,243	$ 2,142,859	$ 3,069,567	$ 5,212,426	$ 706,459	$ 2,998,870	$ 3,705,328
31	$ -	$ 3,125,245	$ 3,125,245	$ -	$ 3,181,679	$ 3,181,679	$ -	$ 3,198,063	$ 3,198,063	$ -	$ 3,161,654	$ 3,161,654	$ -	$ 3,088,836	$ 3,088,836
32	$ -	$ 3,219,002	$ 3,219,002	$ -	$ 3,277,129	$ 3,277,129	$ -	$ 3,294,005	$ 3,294,005	$ -	$ 3,256,503	$ 3,256,503	$ -	$ 3,181,501	$ 3,181,501
33	$ -	$ 3,315,572	$ 3,315,572	$ -	$ 3,375,443	$ 3,375,443	$ -	$ 3,392,825	$ 3,392,825	$ -	$ 3,354,199	$ 3,354,199	$ -	$ 3,276,946	$ 3,276,946
34	$ -	$ 3,415,039	$ 3,415,039	$ -	$ 3,476,706	$ 3,476,706	$ -	$ 3,494,609	$ 3,494,609	$ -	$ 3,454,824	$ 3,454,824	$ -	$ 3,375,254	$ 3,375,254
35	$ -	$ 3,517,491	$ 3,517,491	$ -	$ 3,581,007	$ 3,581,007	$ -	$ 3,599,448	$ 3,599,448	$ -	$ 3,558,469	$ 3,558,469	$ -	$ 3,476,512	$ 3,476,512
36	$ -	$ 3,623,015	$ 3,623,015	$ -	$ 3,688,438	$ 3,688,438	$ -	$ 3,707,431	$ 3,707,431	$ -	$ 3,665,223	$ 3,665,223	$ -	$ 3,580,807	$ 3,580,807
37	$ -	$ 3,731,706	$ 3,731,706	$ -	$ 3,799,091	$ 3,799,091	$ -	$ 3,818,654	$ 3,818,654	$ -	$ 3,775,180	$ 3,775,180	$ -	$ 3,688,232	$ 3,688,232
38	$ -	$ 3,843,657	$ 3,843,657	$ -	$ 3,913,063	$ 3,913,063	$ -	$ 3,933,214	$ 3,933,214	$ -	$ 3,888,435	$ 3,888,435	$ -	$ 3,798,879	$ 3,798,879
39	$ -	$ 3,958,967	$ 3,958,967	$ -	$ 4,030,455	$ 4,030,455	$ -	$ 4,051,210	$ 4,051,210	$ -	$ 4,005,088	$ 4,005,088	$ -	$ 3,912,845	$ 3,912,845
40	$ -	$ 4,077,736	$ 4,077,736	$ -	$ 4,151,369	$ 4,151,369	$ -	$ 4,172,746	$ 4,172,746	$ -	$ 4,125,241	$ 4,125,241	$ -	$ 4,030,230	$ 4,030,230
Total		$ 97,083,608			$ 98,836,688			$ 99,345,646			$ 98,214,627			$ 95,952,589	
Average		$ 2,427,090			$ 2,470,917			$ 2,483,641			$ 2,455,366			$ 2,398,815	
Existing		$ 1,245,060			$ 1,245,060			$ 1,245,060			$ 1,245,060			$ 1,245,060	
Maximum	$ 1,624,595			$ 2,159,512			$ 1,729,327			$ 2,142,859			$ 706,459		

Annual Payments - RUS

	Alternative 1			Alternative 1 + Denitrification			Alternative 2			Alternative 3			Alternative 4		
	Annual Debt Service	Annual O&M	Annual Total	Annual Debt Service	Annual O&M	Annual Total	Annual Debt Service	Annual O&M	Annual Total	Annual Debt Service	Annual O&M	Annual Total	Annual Debt Service	Annual O&M	Annual Total
1	$ 1,015,927	$ 1,287,560	$ 2,303,486	$ 1,350,433	$ 1,310,810	$ 2,661,243	$ 1,081,420	$ 1,317,560	$ 2,398,980	$ 1,340,019	$ 1,302,560	$ 2,642,579	$ 441,778	$ 1,272,560	$ 1,714,337
2	$ 1,015,927	$ 1,326,186	$ 2,342,113	$ 1,350,433	$ 1,350,134	$ 2,700,567	$ 1,081,420	$ 1,357,086	$ 2,438,507	$ 1,340,019	$ 1,341,636	$ 2,681,655	$ 441,778	$ 1,310,736	$ 1,752,514
3	$ 1,015,927	$ 1,365,972	$ 2,381,899	$ 1,350,433	$ 1,390,638	$ 2,741,071	$ 1,081,420	$ 1,397,799	$ 2,479,219	$ 1,340,019	$ 1,381,885	$ 2,721,905	$ 441,778	$ 1,350,058	$ 1,791,836
4	$ 1,015,927	$ 1,406,951	$ 2,422,878	$ 1,350,433	$ 1,432,357	$ 2,782,790	$ 1,081,420	$ 1,439,733	$ 2,521,153	$ 1,340,019	$ 1,423,342	$ 2,763,361	$ 441,778	$ 1,390,560	$ 1,832,338
5	$ 1,015,927	$ 1,449,160	$ 2,465,086	$ 1,350,433	$ 1,475,328	$ 2,825,761	$ 1,081,420	$ 1,482,925	$ 2,564,345	$ 1,340,019	$ 1,466,042	$ 2,806,061	$ 441,778	$ 1,432,277	$ 1,874,055
6	$ 1,015,927	$ 1,492,634	$ 2,508,561	$ 1,350,433	$ 1,519,587	$ 2,870,021	$ 1,081,420	$ 1,527,413	$ 2,608,833	$ 1,340,019	$ 1,510,023	$ 2,850,043	$ 441,778	$ 1,475,245	$ 1,917,023
7	$ 1,015,927	$ 1,537,413	$ 2,553,340	$ 1,350,433	$ 1,565,175	$ 2,915,608	$ 1,081,420	$ 1,573,235	$ 2,654,655	$ 1,340,019	$ 1,555,324	$ 2,895,343	$ 441,778	$ 1,519,503	$ 1,961,281
8	$ 1,015,927	$ 1,583,536	$ 2,599,462	$ 1,350,433	$ 1,612,130	$ 2,962,563	$ 1,081,420	$ 1,620,432	$ 2,701,852	$ 1,340,019	$ 1,601,984	$ 2,942,003	$ 441,778	$ 1,565,088	$ 2,006,866
9	$ 1,015,927	$ 1,631,042	$ 2,646,968	$ 1,350,433	$ 1,660,494	$ 3,010,927	$ 1,081,420	$ 1,669,045	$ 2,750,465	$ 1,340,019	$ 1,650,043	$ 2,990,063	$ 441,778	$ 1,612,040	$ 2,053,818
10	$ 1,015,927	$ 1,679,973	$ 2,695,900	$ 1,350,433	$ 1,710,309	$ 3,060,742	$ 1,081,420	$ 1,719,116	$ 2,800,537	$ 1,340,019	$ 1,699,545	$ 3,039,564	$ 441,778	$ 1,660,402	$ 2,102,179
11	$ 1,015,927	$ 1,730,372	$ 2,746,299	$ 1,350,433	$ 1,761,618	$ 3,112,051	$ 1,081,420	$ 1,770,690	$ 2,852,110	$ 1,340,019	$ 1,750,531	$ 3,090,550	$ 441,778	$ 1,710,214	$ 2,151,992
12	$ 1,015,927	$ 1,782,283	$ 2,798,210	$ 1,350,433	$ 1,814,467	$ 3,164,900	$ 1,081,420	$ 1,823,810	$ 2,905,231	$ 1,340,019	$ 1,803,047	$ 3,143,066	$ 441,778	$ 1,761,520	$ 2,203,298
13	$ 1,015,927	$ 1,835,752	$ 2,851,679	$ 1,350,433	$ 1,868,901	$ 3,219,334	$ 1,081,420	$ 1,878,525	$ 2,959,945	$ 1,340,019	$ 1,857,138	$ 3,197,158	$ 441,778	$ 1,814,366	$ 2,256,144
14	$ 1,015,927	$ 1,890,825	$ 2,906,751	$ 1,350,433	$ 1,924,968	$ 3,275,401	$ 1,081,420	$ 1,934,881	$ 3,016,301	$ 1,340,019	$ 1,912,853	$ 3,252,872	$ 441,778	$ 1,868,797	$ 2,310,575
15	$ 1,015,927	$ 1,947,549	$ 2,963,476	$ 1,350,433	$ 1,982,717	$ 3,333,150	$ 1,081,420	$ 1,992,927	$ 3,074,347	$ 1,340,019	$ 1,970,238	$ 3,310,257	$ 441,778	$ 1,924,860	$ 2,366,638
16	$ 1,015,927	$ 2,005,976	$ 3,021,902	$ 1,350,433	$ 2,042,198	$ 3,392,632	$ 1,081,420	$ 2,052,715	$ 3,134,135	$ 1,340,019	$ 2,029,345	$ 3,369,364	$ 441,778	$ 1,982,606	$ 2,424,384
17	$ 1,015,927	$ 2,066,155	$ 3,082,082	$ 1,350,433	$ 2,103,464	$ 3,453,898	$ 1,081,420	$ 2,114,296	$ 3,195,717	$ 1,340,019	$ 2,090,226	$ 3,430,245	$ 441,778	$ 2,042,084	$ 2,483,862
18	$ 1,015,927	$ 2,128,140	$ 3,144,066	$ 1,350,433	$ 2,166,568	$ 3,517,001	$ 1,081,420	$ 2,177,725	$ 3,259,146	$ 1,340,019	$ 2,152,932	$ 3,492,952	$ 441,778	$ 2,103,347	$ 2,545,125
19	$ 1,015,927	$ 2,191,984	$ 3,207,911	$ 1,350,433	$ 2,231,565	$ 3,581,999	$ 1,081,420	$ 2,243,057	$ 3,324,477	$ 1,340,019	$ 2,217,520	$ 3,557,540	$ 441,778	$ 2,166,447	$ 2,608,225
20	$ 1,015,927	$ 2,257,743	$ 3,273,670	$ 1,350,433	$ 2,298,512	$ 3,648,946	$ 1,081,420	$ 2,310,349	$ 3,391,769	$ 1,340,019	$ 2,284,046	$ 3,624,065	$ 441,778	$ 2,231,441	$ 2,673,219
21	$ 1,015,927	$ 2,325,476	$ 3,341,402	$ 1,350,433	$ 2,367,468	$ 3,717,901	$ 1,081,420	$ 2,379,659	$ 3,461,079	$ 1,340,019	$ 2,352,567	$ 3,692,587	$ 441,778	$ 2,298,384	$ 2,740,162
22	$ 1,015,927	$ 2,395,240	$ 3,411,167	$ 1,350,433	$ 2,438,492	$ 3,788,925	$ 1,081,420	$ 2,451,049	$ 3,532,469	$ 1,340,019	$ 2,423,144	$ 3,763,164	$ 441,778	$ 2,367,336	$ 2,809,114
23	$ 1,015,927	$ 2,467,097	$ 3,483,024	$ 1,350,433	$ 2,511,647	$ 3,862,080	$ 1,081,420	$ 2,524,580	$ 3,606,001	$ 1,340,019	$ 2,495,839	$ 3,835,858	$ 441,778	$ 2,438,356	$ 2,880,134
24	$ 1,015,927	$ 2,541,110	$ 3,557,037	$ 1,350,433	$ 2,586,996	$ 3,937,429	$ 1,081,420	$ 2,600,318	$ 3,681,738	$ 1,340,019	$ 2,570,714	$ 3,910,733	$ 441,778	$ 2,511,506	$ 2,953,284
25	$ 1,015,927	$ 2,617,343	$ 3,633,270	$ 1,350,433	$ 2,664,606	$ 4,015,039	$ 1,081,420	$ 2,678,327	$ 3,759,748	$ 1,340,019	$ 2,647,835	$ 3,987,854	$ 441,778	$ 2,586,851	$ 3,028,629
26	$ 1,015,927	$ 2,695,864	$ 3,711,790	$ 1,350,433	$ 2,744,544	$ 4,094,977	$ 1,081,420	$ 2,758,677	$ 3,840,097	$ 1,340,019	$ 2,727,270	$ 4,067,290	$ 441,778	$ 2,664,457	$ 3,106,235
27	$ 1,015,927	$ 2,776,740	$ 3,792,666	$ 1,350,433	$ 2,826,880	$ 4,177,313	$ 1,081,420	$ 2,841,437	$ 3,922,858	$ 1,340,019	$ 2,809,088	$ 4,149,108	$ 441,778	$ 2,744,391	$ 3,186,169
28	$ 1,015,927	$ 2,860,042	$ 3,875,968	$ 1,350,433	$ 2,911,687	$ 4,262,120	$ 1,081,420	$ 2,926,680	$ 4,008,101	$ 1,340,019	$ 2,893,361	$ 4,233,380	$ 441,778	$ 2,826,722	$ 3,268,500
29	$ 1,015,927	$ 2,945,843	$ 3,961,770	$ 1,350,433	$ 2,999,037	$ 4,349,470	$ 1,081,420	$ 3,014,481	$ 4,095,901	$ 1,340,019	$ 2,980,162	$ 4,320,181	$ 441,778	$ 2,911,524	$ 3,353,302
30	$ 1,015,927	$ 3,034,218	$ 4,050,145	$ 1,350,433	$ 3,089,008	$ 4,439,442	$ 1,081,420	$ 3,104,915	$ 4,186,336	$ 1,340,019	$ 3,069,567	$ 4,409,586	$ 441,778	$ 2,998,870	$ 3,440,648
31	$ 1,015,927	$ 3,125,245	$ 4,141,171	$ 1,350,433	$ 3,181,679	$ 4,532,112	$ 1,081,420	$ 3,198,063	$ 4,279,483	$ 1,340,019	$ 3,161,654	$ 4,501,673	$ 441,778	$ 3,088,836	$ 3,530,614
32	$ 1,015,927	$ 3,219,002	$ 4,234,929	$ 1,350,433	$ 3,277,129	$ 4,627,562	$ 1,081,420	$ 3,294,005	$ 4,375,425	$ 1,340,019	$ 3,256,503	$ 4,596,523	$ 441,778	$ 3,181,501	$ 3,623,279
33	$ 1,015,927	$ 3,315,572	$ 4,331,499	$ 1,350,433	$ 3,375,443	$ 4,725,876	$ 1,081,420	$ 3,392,825	$ 4,474,245	$ 1,340,019	$ 3,354,199	$ 4,694,218	$ 441,778	$ 3,276,946	$ 3,718,724
34	$ 1,015,927	$ 3,415,039	$ 4,430,966	$ 1,350,433	$ 3,476,706	$ 4,827,139	$ 1,081,420	$ 3,494,609	$ 4,576,030	$ 1,340,019	$ 3,454,824	$ 4,794,844	$ 441,778	$ 3,375,254	$ 3,817,032
35	$ 1,015,927	$ 3,517,491	$ 4,533,417	$ 1,350,433	$ 3,581,007	$ 4,931,441	$ 1,081,420	$ 3,599,448	$ 4,680,868	$ 1,340,019	$ 3,558,469	$ 4,898,488	$ 441,778	$ 3,476,512	$ 3,918,290
36	$ 1,015,927	$ 3,623,015	$ 4,638,942	$ 1,350,433	$ 3,688,438	$ 5,038,871	$ 1,081,420	$ 3,707,431	$ 4,788,852	$ 1,340,019	$ 3,665,223	$ 5,005,242	$ 441,778	$ 3,580,807	$ 4,022,585
37	$ 1,015,927	$ 3,731,706	$ 4,747,632	$ 1,350,433	$ 3,799,091	$ 5,149,524	$ 1,081,420	$ 3,818,654	$ 4,900,075	$ 1,340,019	$ 3,775,180	$ 5,115,199	$ 441,778	$ 3,688,232	$ 4,130,010
38	$ 1,015,927	$ 3,843,657	$ 4,859,584	$ 1,350,433	$ 3,913,063	$ 5,263,497	$ 1,081,420	$ 3,933,214	$ 5,014,634	$ 1,340,019	$ 3,888,435	$ 5,228,455	$ 441,778	$ 3,798,879	$ 4,240,657
39	$ 1,015,927	$ 3,958,967	$ 4,974,893	$ 1,350,433	$ 4,030,455	$ 5,380,889	$ 1,081,420	$ 4,051,210	$ 5,132,631	$ 1,340,019	$ 4,005,088	$ 5,345,108	$ 441,778	$ 3,912,845	$ 4,354,623
40	$ 1,015,927	$ 4,077,736	$ 5,093,662	$ 1,350,433	$ 4,151,369	$ 5,501,802	$ 1,081,420	$ 4,172,746	$ 5,254,167	$ 1,340,019	$ 4,125,241	$ 5,465,260	$ 441,778	$ 4,030,230	$ 4,472,008
Total		$ 97,083,608			$ 98,836,688			$ 99,345,646			$ 98,214,627			$ 95,952,589	
Average		$ 2,427,090			$ 2,470,917			$ 2,483,641			$ 2,455,366			$ 2,398,815	
Existing		$ 1,245,060			$ 1,245,060			$ 1,245,060			$ 1,245,060			$ 1,245,060	
Maximum	$ 1,015,927			$ 1,350,433			$ 1,081,420			$ 1,340,019			$ 441,778		

Information Request No. 25

Lease Agreement

AGREEMENT OF LEASE

Made and entered into as of January 1, 1984 by and between:

GREENVILLE SANITARY AUTHORITY, a body corporate and politic, organized and existing under the laws of the Commonwealth of Pennsylvania, having its principal office in the Borough of Greenville and County of Mercer in said Commonwealth (hereinafter called the "Authority"), as Lessor, party of the first part,

AND

BOROUGH OF GREENVILLE, Mercer County, Pennsylvania, a municipal corporation, organized and existing under and by virtue of the laws of the Commonwealth of Pennsylvania (hereinafter called the "Borough"), as Lessee, party of the second part.

WHEREAS, the Authority is authorized by law, among other things, to acquire, hold, construct, improve, maintain, operate, own and lease, either in the capacity of lessor or lessee, sewers, sewer systems or parts thereof and sewage treatment works; and,

WHEREAS, the Authority owns the existing sewer system formerly owned by the Borough and has constructed additions to said system, including, among other things, a sewage treatment plant; and,

WHEREAS, the Authority may from time to time hereafter determine to construct or acquire improvements and extensions to said system and for other purposes; and,

WHEREAS, the Authority and the Borough, concurrently with the execution and delivery of this Agreement of Lease, have cancelled all prior leases between the Authority, as lessor, and the Borough, as lessee, and the Borough desires to enter into a new lease of the sewer system from the Authority, and the Authority is willing to lease the same to the Borough pursuant to the terms of this Agreement of Lease.

NOW, THEREFORE, this Agreement of Lease witnesseth that for and in consideration of One Dollar ($1) lawful money of the United States of America paid by each of the parties hereto to each of the other parties hereto at or before the ensealing and delivery of these presents, the receipt of which is hereby acknowledged, and for and in consideration of the respective obligations of the parties hereinafter set forth, the parties hereto, intending to be legally bound hereby, do covenant and agree as follows:

ARTICLE I

LEASE OF THE SEWER SYSTEM

The Authority agrees to lease and hereby does lease to the Borough and the Borough agrees to lease and hereby does lease from the Authority, the Sewer System for the term and upon the conditions hereafter set forth, consisting of the parts and parcels of real property described in the schedule attached hereto and marked Schedule "A", and the buildings and equipment erected, constructed and situated thereon or which may hereafter be erected, constructed and situated thereon and all other sewer property of the Authority, real, personal and mixed, now owned or hereafter acquired by the Authority and used or useful in connection with the furnishing of sewer service including, without limiting the generality of the foregoing, lands, rights of way, easements and similar interests in real property and all buildings, laboratories, improvements, sewage treatment works and sewer systems, outfall sewers, shops, structures, pumping stations, fixtures, ejector stations, engines, boilers, pumps, meters, and transportation and other equipment.

ARTICLE II

TERM OF LEASE

DATE OF TERMINATION

This Agreement of Lease shall be for an initial term beginning January 1, 1984 and ending on December 31, 1984 and from year to year thereafter until the Borough shall give six (6) months notice in writing sent to the Authority by ordinary U. S. Mail of the Borough's intent to terminate this lease. Notice of termination may be given at any time during the term of this lease by the Borough.

ARTICLE III

OPERATION AND MAINTENANCE OF THE SEWER SYSTEM AND PAYMENT OF COSTS

The Borough during the term of this Agreement of Lease and any extension hereof shall continuously operate the Sewer System in an efficient and economical manner and will keep and maintain the Sewer System in a state of good repair without cost to the Authority and will pay all costs and charges necessary for such maintenance and repair and will replace all equipment from time to time as may be necessary, and will return the Sewer System to the Authority at the termination of this Agreement of Lease in the condition in which it was received by it, reasonable wear and tear and acts of God and the public enemy alone excepted. It is understood that this provision applies to all repairs, major as well as minor, without exception.

The Borough will also pay the cost of the annual report and audit of the fiscal affairs of the Authority and all fees and dues payable by the Authority in connection with securing and maintaining membership in the Pennsylvania Municipal Authorities Association.

The Borough shall comply with all lawful acts, rules, regulations, orders and directions of any legislative, executive, administrative or judicial body applicable to the operation, repair and maintenance of the Sewer System and will give prompt written notice to the Authority of any substantial loss or damage to the Sewer System resulting from any cause whatsoever.

ARTICLE IV

RATES AND CHARGES

The Borough covenants that it has enacted and will keep in full force and effect during the term of this Agreement of Lease an ordinance or ordinances providing for the payment of reasonable sewer rates and other charges for use of the facilities of the Sewer System and for services to be rendered by the Borough. Said sewer rates and other charges, together with any periodic payments to be made to the Borough by the Commonwealth of Pennsylvania or an agency thereof for use, or as a contribution towards the cost of construction or operation, of the facilities of the Sewer System, but excluding tapping fees and connection charges, shall be sufficient, after making due and reasonable allowances for prompt payment discounts to consumers, contingencies and a margin of error in the estimates, to insure at all times sufficient funds to provide annually for the following: (i) the payment of the reasonable, proper and necessary costs of operation and maintenance of the Sewer System including, without limiting the generality of the foregoing, administrative, engineering, legal, auditing and insurance expenses, payments to pension or retirement funds, taxes and the costs of such Cappital Additions which, in the opinion of the Consulting Engineer and Authority, shall be necessary to maintain, preserve and keep every part of the Sewer System in good condition, repair and working order; (ii) taxes, if any, levied or assessed against the Authority by reason of its operation or ownership of the Sewer System; and, (iii) an amount equal to 10% of the aggregate of the payments required by clauses (i) and (ii) of this paragraph.

The Borough covenants that it has enacted and will keep in full force and effect during the term of this Agreement of Lease an ordinance requiring all owners of improved property abutting on or adjoining or adjacent to the sewer facilities of the Sewer System or adjoining any street in which a sewer is laid, to connect with said sewer and that said ordinance will impose fines or penalties or otherwise provide for the enforcement of said ordinance as may be permitted by law.

Should the receipts and revenues from the Sewer System be insufficient to enable the Borough to meet its obligations under the foregoing provisions of this Article IV, the Borough covenants that it will increase the sewer rates and charges or otherwise adjust the same so that the receipts and revenues shall be sufficient for such purpose. The Borough further covenants to enforce said ordinance or ordinances and the collection of such sewer rates and charges and, in the event they are not paid, to take all necessary steps to reduce them to liens and to enforce collection of the liens or to enforce collection in any other manner permitted by law.

ARTICLE V

OTHER AVAILABLE CURRENT REVENUES OF THE BOROUGH

The Borough covenants that, if in any year the receipts and revenues from the Sewer System shall have been insufficient to enable the Borough to meet the requirements of Article IV hereof, it will provide from other available current revenues of the Borough within the limitations prescribed by law an amount which, when added to the receipts and revenues of the Sewer System collected by the Borough, will be sufficient to enable the Borough to meet its obligations under this Agreement of Lease as the same may from time to time be supplemented.

ARTICLE VI

SEWER SYSTEM FUND AND INVESTMENT OF MONEYS THEREIN

The Borough shall deposit all receipts and revenues from the Sewer System hereafter received or collected by the Borough, including any payments received by the Borough from the Commonwealth of Pennsylvania or an agency thereof in respect of the cost of construction or for the use of the facilities of the Sewer System, all tapping fees and connection charges, all other moneys received under the ordinance or ordinances referred to in Article IV hereof, and any moneys appropriated out of the current revenues of the Borough pursuant to Article V hereof, in an account (hereinafter called the "Sewer System Fund") separate and distinct from all other accounts of the Borough, which has heretofore been established and shall be continued with an authorized depositary. All moneys in the Sewer System Fund shall be used by the Borough solely for the purposes of meeting its obligations under this Agreement of Lease. The Borough shall withdraw from the Sewer System Fund from time to time such amounts as shall be necessary to meet said obligations. To the extent that money is available in the fund, the Borough shall pay all invoices sent to it by the Authority to pay obligations incurred by the Authority for any legal purpose.

If on December 1 of any year after the date hereof, the Borough shall have made all payments then and theretofore required to be made from the Sewer System Fund, and there shall remain on deposit in the Sewer System Fund an amount equal to or in excess of the next succeeding annual lease rental payment, such amount may from time to time be invested by the Borough in direct

obligations of the United States of America or the Commonwealth of Pennsylvania or in other legal investments, which shall mature or which shall be subject to redemption by the holder thereof at the option of such holder not later than two (2) years after the date of such investment. Obligations purchased as an investment of moneys in the Sewer System Fund shall be deemed at all times to be a part of said Fund, and the interest accruing thereon and any profit realized therefrom shall be credited to said Fund, and any loss resulting from such investment shall be charged to said Fund. For the purpose of determining the amount at any time on deposit to the credit of said Fund all such investments shall be deemed to constitute unexpended moneys in said Fund and shall be valued at the cost thereof, including in such cost accrued interest and premiums, if any, paid at the time of the purchase of such investments. Such investments shall at all times be kept free and clear of all liens, charges and encumbrances and the Borough covenants that it will from time to time sell so much of said investments as may be necessary to provide funds with which to meet its obligations under this Agreement of Lease.

ARTICLE VII

RENTAL

The Borough shall pay to the Authority as annual rental hereunder the sum of One Dollar ($1) on June 1, 1984, and a like sum of One Dollar ($1) on June 1 of each succeeding year during the term of this lease. Provided, however, the Authority may increase the annual rental amount by giving the Borough six (6) months notice of such increased rental at any time. Without limiting the generality of the foregoing the Borough will assume the payment of, and shall punctually and faithfully pay, as if the Borough were primarily liable for the same, all taxes and assessments, including income, profits, property or excise taxes, which may during the term of this Agreement of Lease be levied or assessed by the Federal, State or any municipal government against the Authority upon, or by reason of the payment or receipt of, the rental payments herein agreed to be paid by the Borough to the Authority, or upon this Agreement of Lease, or upon the Sewer System, or upon any franchises, businesses, transactions, income, earnings, receipts, gross or net, or otherwise of the Authority in connection with the Sewer System, for the payment or collection of which taxes or assessments the Authority would otherwise be liable or accountable under any lawful authority whatever by reason of its ownership of, or its earnings, profits or receipts from, or the leasing of, the Sewer System.

Such rentals shall continue to be payable at the times and in the amounts herein specified, irrespective of whether or not any or all of the structures or improvements upon the demised premises shall have been wholly or partially destroyed, and there shall be no abatement of any rental by reason thereof.

ARTICLE VIII

TRANSFER OF SURPLUS MONEYS IN THE SEWER SYSTEM FUND TO CAPITAL IMPROVEMENT FUND

If on December 1 of any year the Borough shall have made all payments then and theretofore required to be made from the Sewer System Fund, the Borough shall withdraw from the Sewer System Fund and deposit in the Sewer System Capital Improvement Fund all moneys then in the Sewer System Fund in excess of an amount equal to twenty-five percent (25%) of the annual operating budget; and, the establishment of such capital improvement fund is hereby authorized.

ARTICLE IX

NO PRIOR CHARGE ON REVENUES

The Borough covenants and agrees that during the term of this Agreement of Lease it will not create any charges on the receipts and revenues derived from the Sewer System prior to the obligations of the Borough under this Agreement of Lease.

ARTICLE X

NO COMPETITION

The Borough covenants and agrees that during the term of this Agreement of Lease it will not construct or permit or join in the construction of sewer facilities which will compete with the Sewer System owned by the Authority and leased to the Borough.

ARTICLE XI

RECORDS, AUDITS, REPORTS AND BUDGETS

The Borough covenants that it will keep accurate records of the receipts and revenues derived from the operation of the Sewer System and of the expenses of operation and maintenance thereof. The Borough further covenants that it will furnish to the Authority on the 1st day of each May, August, November and February of each year during the term of this Agreement of Lease commencing May 1, 1984, quarterly operating statements of such receipts, revenues and expenses for the preceding calendar quarter and that, with respect to each fiscal year of the Borough it shall cause a complete audit to be made of such receipts, revenues and expenses and will furnish signed copies of such complete audit to the Authority or before April 1 of each year. The complete audit (and the quarterly statements if so requested in writing by the Authority) shall be prepared by the Independent Public Accountant and the cost of such audit and operating statements shall be paid out of moneys in the Sewer System Fund.

The Borough covenants that it will employ the Consulting Engineer appointed by the Board of the Authority to perform such duties as are imposed on the Consulting Engineer by the provisions of this Agreement of Lease. It shall be the duty of the Consulting Engineer to file with the Borough on or before November 1 of each year during the term of this Agreement of Lease, a report setting forth:

(a) his advice and recommendation as to:

(i) the proper maintenance, repair and operation of the Sewer System during the next fiscal year of the Borough;

(ii) the Capital Additions that should be made during said fiscal year to keep the Sewer System in good condition, repair and working order;

(iii) any necessary or advisable revision of the sewer rates and charges;

(b) his estimate for said fiscal year of the amounts of money that should be expended to comply with the recommendations set forth in said report;

(c) his estimate of the receipts and revenues to be derived during said fiscal year from the operation of the Sewer System;

(d) his estimate of the operating expenses of the Sewer System for said fiscal year; and,

(e) his report as to compliance by the Borough with its covenants concerning insurance under Article XII hereof and his advice and recommendations as to the Borough's future obligations thereunder.

A copy of said report shall also be filed with the Authority. The fees and expenses of said Consulting Engineer shall be payable out of the moneys in the Sewer System Fund. The aforesaid report of the Consulting Engineer shall be used by the Borough as the basis for the preparation of that part of the budget for the next succeeding fiscal year of the Borough appertaining to the Sewer System. Upon adoption of the budget a copy thereof shall be filed with the Authority.

ARTICLE XII

INSURANCE

To the extent that such insurance shall be reasonably obtainable, the Borough will insure and keep insured all the property of the Sewer System which is of a character usually insured by persons operating properties of a similar nature in a responsible insurance company or companies authorized and qualified under the laws of the Commonwealth of Pennsylvania to assume the risks thereof against loss or damage thereto by fire or other hazards to the extent that such properties are usually insured by persons operating properties of similar nature in the same or similar localities.

The amount of such insurance in each case and the provisions of each insurance policy shall be subject to the approval of the Consulting Engineer. All such policies shall be for the benefit of the Borough and the Authority, as their interests shall appear.

The Borough will maintain public liability insurance in respect of the Sewer System in such amounts and containing such terms and provisions as shall be approved by the Consulting Engineer.

ARTICLE XIII

CAPITAL ADDITIONS

If the Borough shall at any time deem it necessary or advisable that the Authority construct or otherwise acquire Capital Additions, the Borough shall forthwith file with the Authority the following:

(a) A copy of a resolution of the Borough Council certified by the Secretary of the Borough, requesting that the Authority construct or otherwise acquire such Capital Additions; and,

(b) A certificate of the Consulting Engineer to the effect that such Capital Additions are necessary or advisable to preserve, develop or improve the Sewer System or to maintain adequate service to the public.

ARTICLE XIV

ADDITIONS TO SEWER SYSTEM

All Capital Additions and all repairs and maintenance in respect of the Sewer System hereafter made, whether by the Borough or the Authority, shall be the property of the Authority and shall constitute a part of the Sewer System and shall be covered by this Agreement of Lease.

ARTICLE XV

DEFAULT

If the Borough shall default in the due and punctual payment of any rental due under this Agreement of Lease or any supplemental agreement of lease and such default shall continue for a period of thirty (30) days, or if the Borough shall default in the due and punctual performance or observance of any of the other covenants, conditions, agreements or provisions contained in this Agreement of Lease or in any supplemental agreement of lease on the part of the Borough required to be kept, performed or observed, and any such default shall continue for a period of thirty (30) days after written notice thereof shall have been given to the Boarough by the Authority, then, in either such event, the Authority shall have the right to terminate this Agreement of Lease and each supplemental agreement of lease and to take over the operation of the Sewer System with the exclusive right to charge and collect sewer rates and charges therefrom and to take such other action as may be permitted by the Indenture or at law, in equity or otherwise.

ARTICLE XVI

REDELIVERY OF POSSESSION

Upon the termination of this Agreement of Lease under the provisions hereof, either by reason of default or by the expiration of the term, the Borough covenants that it will deliver up peacable possession of the Sewer System without delay upon demand made therefor by the Authority in good order and repair.

IN WITNESS WHEREOF, Greenville Sanitary Authority has caused this Agreement of Lease to be executed on its behalf by its Chairman or Vice-Chairman and its Authority seal to be hereunto affixed and attested by its Secretary or its Assistant Secretary, and the Borough of Greenville has caused this Agreement of Lease to be executed on its behalf by its Mayor and its President of Council and its Borough seal to be hereunto affixed and

attested by its Secretary, all as of the day and year first above written.

Attest:

GREENVILLE SANITARY AUTHORITY

Robert C. Pugh
Secretary

By John H. Brenneman
Chairman

Attest:

BOROUGH OF GREENVILLE

By Joseph P. Walton
Mayor

Marie N Julian
Secretary

By Jean L. Hodge
President of Council

Commonwealth of Pennsylvania)
) ss.
County of Mercer)

On this, the 18 day of June, 1984, before me, the undersigned officer, personally appeared John H Brenneman, who acknowledged himself to be the Chairman of Greenville Sanitary Authority, and that he as such Chairman, being authorized to do so, executed the foregoing instruments for the purposes therein contained by signing the name of the Authority by himself as Chairman.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

Marie Julian (SEAL)

MARIE JULIAN, Notary Public
Greenville, Mercer Co., Pa.
My Commission Expires August 21, 1986

Commonwealth of Pennsylvania)
) ss.
County of Mercer)

On this, the 12 day of June, 1984, before me, the undersigned officer, personally appeared Joseph P Walton and Jean L. Lodge, who acknowledged themselves to be the Mayor and President of Council respectively of the Borough of Greenville, and that they as such Mayor and President of Council, being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing the name of the Borough by themselves as Mayor and President of Council

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

Marie Julian (SEAL)

MARIE JULIAN, Notary Public
Greenville, Mercer Co., Pa.
My Commission Expires August 21, 1986

SCHEDULE "A"

PARCEL I: ALL that certain piece or parcel of land situate in Hempfield Township, Mercer County, Pennsylvania, being more particularly bounded and described as follows:

Beginning at a point on line of land herein described and land now owned by the Borough of Greenville which point is the northeast corner of said land owned by said Borough of Greenville; thence North 67° 10' West along land of the Borough of Greenville a distance of 366.0 feet to a point; thence South 22° 50' West along land of the Borough of Greenville a distance of 926.9 feet to a point in the center of the Shenango River; thence North 47° 02' West along the center of said Shenango River a distance of 267.55 feet to a point on right of way of Erie Railroad Company; thence North 22° 50' East along right of way of Erie Railroad Company a distance of 1127.9 feet to a point; thence South 67° 10' East along remaining land of Greenville Steel Car Company a distance of 663.8 feet to a point on the west slope of the old tow path; thence South 32° 49' West along the west slope of said old tow path a distance of 101.2 feet to a point; thence South 26° 50' West along the west slope of the old tow path a distance of 100.0 feet to a point; thence South 24° 48' West along said west slope of said old tow path a distance of 101.6 feet to a point which is the place of beginning, containing 9.90 acres of land.

PARCEL II: ALL that certain piece or parcel of land situate in Hempfield Township, Mercer County, Pennsylvania, being more particularly bounded and described as follows:

Beginning at a point on the easterly line of land owned by the Borough of Greenville on the west slope of the old tow path which point is South 22° 27' West a distance of 40.3 feet from the point of beginning mentioned in Parcel I above; thence South 00° 38' East a distance of 319.9 feet to a point; thence South 37° 17' West a distance of 193.6 feet to a point; thence South 22° 32' West a distance of 205.5 feet to a point; thence South 71° 50' East a distance of 14.4 feet to a point; thence South 19° 16' West a distance of 214.0 feet to a point; thence South 28° 19' West a distance of 387.27 feet to a point; thence South 31° 19' West a distance of 323.2 feet to a point; thence South 36° 19' West a distance of 229.6 feet to a point; thence North 76° 14' West a distance of 250.0 feet to a point in the center of the Shenango River; thence northerly along the center of Shenango River a distance of 920 feet to a point on line of land now owned by the Borough of Greenville; thence in a westerly direction along said land of the Borough of Greenville a distance of 95.0 feet, plus or minus, to a point which is the southeast corner of property now owned by the Borough of Greenville; thence northerly along the easterly line of land now owned by the Borough of Greenville a distance of 986.0 feet to a point which is the place of beginning, containing 5.2 acres of land.

Subject to rights of way reserved by Greenville Steel Car Company across the land above described.

The above described Parcels I and II being the same property conveyed to the Borough of Greenville by deed from Greenville Steel Car Company dated January 2, 1958 and duly recorded in the office of the Recorder of Deeds for Mercer County in Deed Book O, Vol. 31, Page 593.

PARCEL III: ALL that certain piece or parcel of land situate in Hempfield Township, Mercer County, Pennsylvania, bounded and described as follows:

On the North by Parcel I above described; on the East by the old Erie Canal; on the South by the center of Shenango Creek; and on the West by Parcel I above described, containing 8 acres, more or less.

Being the same property conveyed to the Borough of Greenville by deed from Board of Trade Land Company dated April 28, 1915 and duly recorded in the office of the Recorder of Deeds for Mercer County in Deed Book I, Vol. 10, Page 180.

PARCEL IV: ALL that certain tract or parcel of land situate in Hempfield Township, Mercer County, bounded and described as follows:

Being a strip of land 16½ feet wide measured southerly at right angles from northerly fence line on land now or formerly of Dennis F. Crowley, Jr., a part of which is herein described and beginning in the center line of the Hamburg public road; thence westerly along lands now or formerly of Carnegie Land Company the width of 16½ feet for a distance of about 1,029 feet to a point in the west fence line of land now or formerly of Crowley at the east foot of the old canal tow path slope; thence in a southerly direction of the width of 52 feet for a distance of about 450 feet running parallel to and along west fence line of land now or formerly of Crowley, said fence being the east foot of slope of said tow path.

Being the same property conveyed to the Borough of Greenville by deed from Dennis F. Crowley, Jr., et ux, dated January 6, 1917 and duly recorded in the office of the Recorder of Deeds for Mercer County in Deed Book M, Vol. 10, Page 326.

PARCEL V: ALL that certain piece or parcel of land situate in Hempfield Township, Mercer County, Pennsylvania, bounded on the North by lands now or formerly belonging to Franklin Cooper; on the East by an alley (private road); on the South by lands now or formerly belonging to Franklin Cooper; and on the West by land of the old Erie Canal, being Parcel II above described; being the lock house and lot at Lock 20 Shenango line of said canal and all appurtenances.

Being the same property conveyed to the Borough of Greenville by deed from Kate E. Mathay, widow, dated November 20, 1917, and recorded in the office of the Recorder of Deeds for Mercer County in Deed Book W, Vol. 10, Page 241.

PARCEL VI: ALL that certain piece or parcel of land situate in Hempfield Township, Mercer County, Pennsylvania, being more particularly bounded and described as follows:

On the North by Parcel V above described; on the East by a lane (private road); on the South by land now or formerly of Dunton; and on the West by Parcel II above described, containing 1⅓ acres of land, more or less.

Being the same property conveyed to the Borough of Greenville by deed from Johanna Thatcher, et con., dated May 16, 1925 and recorded in the office of the Recorder of Deeds for Mercer County in Deed Book I, Vol. 13, Page 30.

Information Request No. 27

Amended Exhibit F1 (Intermunicipal Agreement with Maps)

EXHIBIT F1

(AMENDED)

INTER MUNICIPAL SEWAGE AGREEMENT

THIS AGREEMENT, made and entered into this 28 day of October, 1998, by, between and among:

BOROUGH OF GREENVILLE, a municipal corporation of Mercer County, Pennsylvania, hereinafter referred to as "Borough", party of the first part;

AND

GREENVILLE SANITARY AUTHORITY, a municipal authority incorporated under the Municipal Authorities Act of 1945, as amended, hereinafter referred to as "Greenville Authority", party of the second part;

AND

THE TOWNSHIP OF WEST SALEM, a second class township of Mercer County, Pennsylvania, hereinafter referred to as "Township", party of the third part;

AND

WEST SALEM TOWNSHIP MUNICIPAL SEWAGE AUTHORITY, a muncipal authority incorporated under the Municipal Authorities Act of 1945, as amended, hereinafter referred to as "West Salem Authority", party of the fourth part.

WHEREAS, the Greenville Authority owns a sanitary sewerage system situate in the Borough of Greenville which consists of collection and interceptor sewers, a sewage treatment plant and related facilities; and,

WHEREAS, the Borough is the lessee and operator of the Greenville Authority sanitary sewer system; and,

WHEREAS, the West Salem Authority proposes to design, construct and own a sanitary sewerage system in the specific areas of the Township as specified on the map attached hereto as an Exhibit, which will consist of collection and interceptor sewers and related facilities; and,

WHEREAS, before the West Salem Authority can proceed with construction contracts, it must be assured that the Greenville Authority and Borough will accept the sanitary sewage generated by the West Salem Authority sewage collection system as the West Salem Authority and Township do not desire to construct and operate their own sewage treatment plant; and,

WHEREAS, the Greenville Authority has expanded its sewage treatment plant and related facilities and is willing to provide the necessary capacity at the sewage treatment plant to serve the residents of West Salem Township who will be required by the Township to connect into the sewage collection system to be constructed by the West Salem Authority for reasons of public health and safety; and,

WHEREAS, the West Salem Authority, at its sole expense, will construct a sewage collection system in West Salem Township and interceptor sewers to points on the corporate boundary line of the Borough of Greenville which shall be approved by the Greenville Authority; and,

WHEREAS, the Greenville Authority, at the expense of West Salem Authority, will connect to and receive sewage flow from the interceptor sewers constructed by West Salem Authority; and,

WHEREAS, it is the purpose of this Agreement to provide for the acceptance by Greenville Authority of the sewage from those portions of West Salem Township within the purview of the contemplated construction by the West Salem Authority and to set the rates for the processing of same, all contingent upon the ability of the Township and the West Salem Authority to secure the necessary approvals and construction financing;

NOW, THEREFORE, in consideration of the mutual covenants herein contained, to be fully kept and performed by the respective parties hereto, their successors and assigns, it is agreed by, between and among the parties as follows:

ARTICLE I - DEFINITIONS

The terms defined in this Article I shall, for all purposes of this Agreement, have the meanings herein specified, unless the context clearly otherwise requires:

Acceptable Industrial Wastes: The term "acceptable industrial wastes" shall include all wastes discharged by any industrial, commercial or other user except such wastes as are now or may hereafter be designated as unacceptable in Ordinance No. 736 of the Council of the Borough of Greenville, duly enacted and approved on January 24, 1958, or as subsequently amended or reenacted.

Agreement of Lease: The term "agreement of lease" shall mean that certain lease dated as of January 1, 1958, of the Borough Authority Sanitary Sewerage System from the Borough Authority, as lessor, to the Borough, as lessee, as from time to time supplemented by any agreements of lease supplemental thereto.

Approved Wastewater: The term "approved wastewater" shall mean acceptable industrial waste and domestic sewage as defined herein.

Domestic Sewage: The term "domestic sewage" shall include sanitary wastes discharged by any domestic user, including sanitary wastes discharged by churches, clubs, hotels, motels, schools, hospitals, municipal and other public buildings, and other institutional users, but shall not include such wastes as are now or hereafter designated as unacceptable by Ordinances of the Council of the Borough of Greenville duly enacted and approved or as subsequently adopted, amended, or reenacted, which Ordinances are effective throughout the territorial limits of Greenville Borough upon the same classes of users described in this definition.

Domestic User: The term "domestic user" shall mean each dwelling unit of an apartment house, each dwelling unit of a duplex or multiple dwelling, each dwelling unit of a trailer

park, each part of a combined business and residence building used for resident purposes, or any other accommodation used as a separate or individual dwelling unit, which shall be defined as any room, group of rooms, or other enclosure occupied or intended for occupancy by a family or other group of persons living together, or by persons living alone.

Billing and Collecting Expense: The term "billing and collecting" expense shall mean the amount charged per customer for billing and collecting for sewer service charges.

Public Accountant: The term "public accountant" shall mean a person, firm or corporation which is engaged in the accounting profession and is a Certified Public Accountant under the laws of the Commonwealth of Pennsylvania.

Surcharge for Industrial Wastes: The term "surcharge for industrial wastes" shall mean that charge to a customer that is made in addition to the ordinary and usual charge for the same class of service, said charge being imposed on the basis of excessive strength of sewage or acceptable industrial wastes discharged by each customer.

ARTICLE II - SEWAGE SERVICE

2.1 Provided that construction of the West Salem sewage collection system is completed within five (5) years from the date hereof, the Greenville Authority shall receive and West Salem Authority shall deliver to the intercepting system of the Greenville Authority for conveyance and treatment all approved wastewater, acceptable domestic and industrial wastewater as previously defined in Article I hereof. The West Salem Authority may request an extension of time for completion but any such extension shall be at the sole option of the Greenville Authority.

2.2 After this Agreement first becomes effective, the Agreement shall remain in effect for an indefinite period of time in the future. This Agreement may thereafter be terminated only by mutual concurrence of all parties (Greenville Authority, Borough, West Salem Authority and

Township) or by Greenville Authority, only, if the Township or West Salem Authority shall violate or fail to perform any of the requirements or duties required by the terms hereof. In like manner, West Salem Authority may terminate this agreement should Greenville Authority or Greenville Borough fail to perform any of the requirements or duties required by the terms hereof.

ARTICLE III - PROVISIONS FOR CONNECTIONS

3.1 It is understood by the parties hereto that Greenville Authority shall have the right to approve the plans and specifications prepared for West Salem Authority by its Consulting Engineer and, in addition, shall have the right of inspection or approval as to any construction work undertaken by the West Salem Authority pursuant to this Agreement. Greenville Authority, at its own expense, shall provide such project observers as it determines necessary and such observers shall at all times have free access to the West Salem Authority sewer construction project. Greenville Authority may report to West Salem Authority any unacceptable conditions or construction defects noted by such observers and West Salem Authority shall cause the contractor to correct such conditions or defects to the satisfaction of Greenville Authority within the time specified in the contract specifications after receiving written notice of same from Greenville Authority. If the defects or conditions thereafter remain uncorrected, Greenville Authority shall not be required to accept any domestic sewage or industrial wastewater from the defective portion of the West Salem sewage collection system. The Greenville Authority agrees to accept wastewater as soon as it is necessary in order to permit West Salem Authority to commence and complete its sewer project and West Salem Authority agrees to deliver domestic sewage and acceptable industrial wastewaters. The points of connection of Greenville Authority and West Salem Authority sewers shall be agreed upon prior to the design of said sewers, which agreement shall set forth maximum allowable flows and pipe sizes.

3.2 The average daily flow, over a consecutive three (3) month period, required to be accepted by the Greenville Authority from West Salem Authority shall not exceed the approved wastewater generated by the current construction contemplated by West Salem Authority, which is a maximum of three hundred fifty (350) equivalent dwelling units, each of which shall produce a maximum daily

wastewater flow of four hundred (400) gallons per day; and, the average daily flow of approved wastewater which must be accepted by Greenville Authority from West Salem Authority at any connection point or pump station shall not exceed the flow that would be produced by the number of equivalent dwelling units tributary to the connection point times 400 gpd per EDU, the basis of these flows to be determined from recording flow meters. West Salem Authority must first make a written request and obtain the consent of Greenville Authority before any additional connections are made to the sewage collection system of West Salem Authority in excess of the three hundred fifty (350) equivalent dwelling units included in the current construction project of West Salem Authority. Provided adequate capacity exists at the wastewater treatment plant at the time of such request, Greenville Authority shall grant such request but the actual connection to the system must be made within six (6) months of the date of any consent given by the Greenville Authority.

3.3 West Salem Authority shall be solely responsible for the design, permits, easement acquisition, installation, and construction of all pump stations, interceptor sewers and collector sewers to the connection points on the Borough corporate boundary. The Borough will operate, maintain and pay for the utility charges of the West Salem Authority system after completion of construction of same, the cost being included as part of the rate to be charged by the Borough to the Township for each equivalent dwelling unity (EDU) in service. The Borough shall also be solely responsible for the replacement of all West Salem Authority owned pump station equipment, interceptor sewers and collector sewers constructed under the current project when required by the process of age or accident. The Borough shall not be responsible for the replacement of any West Salem Authority owned pump station equipment, interceptor sewers, or collector sewers caused by the addition of new customers.

3.4 Upon the completion of construction of any portion of its sewer system and upon the giving of one (1) month prior written notice to the Greenville Authority, West Salem Authority, at its own expense, will make the necessary proper connections with the sewerage system of the Greenville Authority at the points as approved by the Greenville Authority.

3.5 The Greenville Authority agrees to execute any documents necessary for West Salem Authority and Township to acquire permits to construct sewers in West Salem Township.

3.6 Actual connections as herein provided for shall not be made until all foreign substances that may have entered during construction have been cleared from the West Salem Authority sewage collection system. Videos showing the internal condition of the new lines in the system shall be provided to the Borough by the West Salem Authority.

3.7 West Salem Authority covenants that any sewers constructed by it shall be in accordance with the requirements herein contained and it shall use such materials and construction techniques as will assure the delivery of no more than the flows permitted by this Agreement.

3.8 West Salem Authority shall be responsible at all times to see to it that only acceptable domestic sewage and industrial wastes shall be allowed to enter its sewerage collection system. To accomplish this purpose, West Salem Authority and Township agree to adopt ordinances and resolutions consistent with regulations adopted by the Greenville Authority for these purposes and to prosecute faithfully any offenders under the same to insure compliance therewith.

3.9 West Salem Authority and Township will budget and pay from available current revenues such amounts as are necessary to pay to the Greenville Authority the funds required to be paid hereunder.

3.10 West Salem Authority shall certify to the Greenville Authority, by October 15th of each year, the number of domestic users and the number, type and description of commercial, industrial and institutional users serviced by the Greenville Authority's sewage treatment plant that were connected to the West Salem sewerage system on September 1st of the same year.

3.11 As West Salem Township customers are permitted to connect to their respective collecting sewer systems, notice thereof and copies of all permits issued shall be given to the Greenville

Authority, and in the case of industrial or commercial users, specific information as to the type of sewage or waste to be discharged to the sewers and the rates to be charged therefor, including surcharges if any, shall be furnished by West Salem Authority to the Greenville Authority. Greenville Borough shall have the right to approve West Salem Authority's service lateral specifications prior to connection of customers. West Salem Authority shall only employ lateral inspectors that demonstrate experience and or proper training in inspection techniques. Greenville Borough reserves the right to inspect service lateral installations in West Salem Township to insure that only sewage is being deposited into the system and that there are no interconnections of roof or foundation drainage into the sewage lateral. Greenville Authority also reserves the right to install flow meters at connection points of the West Salem sewer system to the Greenville system for purposes of monitoring flows in accordance with paragraph 3.2 of this Agreement.

ARTICLE IV - METERS

4.1 West Salem Authority shall install recording sewage flow meters, including a flow totalizer, at all pump stations. Greenville Authority will operate and maintain the flow meters, including cost of replacement of same, should same become necessary.

ARTICLE V - BILLING AND COLLECTION

Rates

(a) The Township covenants and agrees to pay to the Borough for the use of the Borough's sewage disposal service, as herein provided for, rates the same as those charged by the Borough to its own residents and industries within the Borough, which rate may from time to time fluctuate, less 15% for West Salem Administration and billing expense. The current average residential user rate and the initial bi-monthly rate to be charged to West Salem Township users shall be $30.30 per user, less 15% or $25.75. The Borough shall have the right to adjust the rate when the reasonable costs of operating and maintaining the total system prudently requires same.

defined as Greenville : West Salem : Hempfield

(b) Said rates or charges shall be paid bi-monthly by the Township and shall be due and owing on or before the last day of the month following the preceding month. The initial bi-monthly payment under this Agreement shall be pro-rated as may be agreed upon by the parties' engineers. West Salem shall be responsible for collection of rates for West Salem residents.

(c) The Borough shall have the sole and absolute right and authority to establish the rates that shall be charged to its own residents and industries, which rates shall be applicable to Township users as herein provided, all in accordance with good accounting, engineering and business practices.

(d) In the event that the Borough, at some future time, by reason of paying its operating costs from general tax funds or for other reasons, ceases to charge its customers within the Borough any sewer rental, the rates thereafter to be charged the Township for its customers, shall be renegotiated between the parties, and shall thereafter not be greater than the last annual charge made by the Borough to its customers within its corporate limits.

(e) Each user, or EDU, in West Salem Township shall pay a tapping fee to Greenville Authority of $1,200.00 upon the connection of such user to the West Salem sewer collection system. This fee shall be collected by the Township and paid to the Borough within thirty (30) days after the connection permit is granted by the Township and/or West Salem Authority to each user of the system. The Township shall pay interest to the Borough at the rate of fifteen percent (15%) per annum for any tapping fees not paid within the time limits herein provided.

(f) The West Salem Authority shall establish its own billing and collection process to the residents of the Township using the system and shall add to the monthly user rate charged by the Borough such amount as the West Salem Authority deems necessary to cover all additional costs.

ARTICLE IV - ARBITRATION

Any controversy or claim arising out of or relating to this contract, or the breach thereof, shall be settled by arbitration in accordance with the Rules of the American Arbitration Association, and judgment upon the award tendered by the Arbitrator shall be final and binding and may be entered in the records of any court having jurisdiction thereof. The place of arbitration shall be in Mercer County, Pennsylvania, and the number of arbitrators shall be one (1).

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by their officials duly authorized by proper corporate resolutions, as reference to the minutes of the meetings of said parties shall disclose, each intending to be legally bound hereby.

ATTEST:

BOROUGH OF GREENVILLE

By

GREENVILLE SANITARY AUTHORITY

By

TOWNSHIP OF WEST SALEM

By

WEST SALEM TOWNSHIP MUNICIPAL SEWAGE AUTHORITY

By

UTILITY NOTICE

IN ACCORDANCE WITH PA ACT 187 OF 1996, THE CONTRACTOR MUST NOTIFY UTILITIES PRIO TO CONSTRUCTION USING PA ONE CALL, (800)242-1776. SERIAL NUMBER: 0290891, 0290896, 0290902, 0290923, 0910509. EVERY REASONABLE EFFORT HAS BEEN MADE DURING THE DESIGN OF THE PROPOSED FACILITIES TO COMPLY WITH PA ACT 187 OF 1996 TO INDICATE THE LOCATION OF EXISTING UNDERGROUND UTILITIES. HOWEVER, DUE TO THE NATURE OF UTILITY COMPANY RECORDS AND EXTENT OF THEIR MARKED FIELD LOCATIONS, THE ACCURACY OF THE INFORMATION CANNOT BE GUARANTEED. THEREFORE, PRIOR TO CONSTRUCTION STAKEOUT, THE CONTRACTOR SHALL DIG TEST PITS ALONG THE ROUTE OF THE PROPOSED FACILITY TO LOCATE UNDERGROUND UTILITIES. TEST PITS SHALL BE SUFFICIENT DEPTH, QUANTITY AND LOCATION TO DETERMINE THE LOCATION AND EXISTENCE OF ANY UNDERGROUND UTILITIES AND POSSIBLE INTERFERENCE WITH THE PROPOSED FACILITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL UTILITIES FROM DAMAGE WHETHER OR NOT THEY ARE SHOWN ON THE DRAWINGS. ANY NEEDED ADJUSTMENT TO PROPOSED FACILITY ALIGNMENT AND GRADES SHALL BE MADE BY THE ENGINEER AS EXPEDITIOUSLY AS POSSIBLE. NO ADDITIONAL PAYMENT WILL BE MADE TO THE CONTRACTOR FOR TEST PIT EXCAVATIONS OR MINOR ADJUSTMENTS TO THE PROPOSED FACILITY CAUSED BY THE ACTUAL LOCATION OF UTILITIES FOUND DURING CONSTRUCTION.

NOTES

1. MANHOLES IN PENNDOT RIGHTS-OF-WAY SHALL BE INSTALLED SO THAT THEY DO NOT INTERFERE WITH THE FLOW IN DITCHES AND THE FUTURE MAINTENANCE OF THE DITCH LINE.
2. MANHOLES NEAR PAVEMENT AREAS MAY REQUIRE STABILIZATION PAVING WHERE DIRECTED BY PENNDOT.

NO.	DESCRIPTION	DATE	BY
10			
9			
8			
7			
6			
5	RECORD SET		
4	R/W REVISIONS	8/15/00	J.E.M.
3	R/W REVISIONS	1/28/00	J.E.M.
2	PENNDOT REVISIONS	1/14/00	J.E.M.
1	RUS REVISIONS	11/15/99	J.E.M.

REVISIONS

SEAL

WEST SALEM TOWNSHIP MUNICIPAL SEWAGE AUTHORITY
MERCER COUNTY, PENNSYLVANIA

WATER POLLUTION CONTROL PROJECT

CONTRACT NO. 5 – NORTH SANITARY SEWERS INDEX MAP AND TRAFFIC CONTROL PLAN

Killam Associates • Consulting Engineers — PITTSBURGH, PENNSYLVANIA

DRAWN	CHECKED	DATE	SCALE	PROJECT NO.	DRAWING NO.
PLB	WJM	AUGUST,1999	1" = 500'	123217	1 OF 14

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UTILITY NOTICE

IN ACCORDANCE WITH PA ACT 187 OF 1996, THE CONTRACTOR MUST NOTIFY UTILITIES PRIO TO CONSTRUCTION USING PA ONE CALL, (800)242-1776. SERIAL NUMBER: 0290891, 0290896, 0290902, 0290923, 0910509. EVERY REASONABLE EFFORT HAS BEEN MADE DURING THE DESIGN OF THE PROPOSED FACILITIES TO COMPLY WITH PA ACT 187 OF 1996 TO INDICATE THE LOCATION OF EXISTING UNDERGROUND UTILITIES. HOWEVER, DUE TO THE NATURE OF UTILITY COMPANY RECORDS AND EXTENT OF THEIR MARKED FIELD LOCATIONS, THE ACCURACY OF THE INFORMATION CANNOT BE GUARANTEED. THEREFORE, PRIOR TO CONSTRUCTION STAKEOUT, THE CONTRACTOR SHALL DIG TEST PITS ALONG THE ROUTE OF THE PROPOSED FACILITY TO LOCATE THE UNDERGROUND UTILITIES. TEST PITS SHALL BE SUFFICIENT DEPTH, QUANTITY AND LOCATION TO DETERMINE THE LOCATION AND EXISTENCE OF ANY UNDERGROUND UTILITIES AND POSSIBLE INTERFERENCE WITH THE PROPOSED FACILITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL UTILITIES FROM DAMAGE WHETHER OR NOT THEY ARE SHOWN ON THE DRAWINGS. ANY NEEDED ADJUSTMENT TO PROPOSED FACILITY ALIGNMENT AND GRADES SHALL BE MADE BY THE ENGINEER AS EXPEDITIOUSLY AS POSSIBLE. NO ADDITIONAL PAYMENT WILL BE MADE TO THE CONTRACTOR FOR TEST PIT EXCAVATIONS OR MINOR ADJUSTMENTS TO THE PROPOSED FACILITY CAUSED BY THE ACTUAL LOCATION OF UTILITIES FOUND DURING CONSTRUCTION.

NOTES

1. MANHOLES IN PENNDOT RIGHTS-OF-WAY SHALL BE INSTALLED SO THAT THEY DO NOT INTERFERE WITH THE FLOW IN DITCHES AND THE FUTURE MAINTENANCE OF THE DITCH LINE.
2. MANHOLES NEAR PAVEMENT AREAS MAY REQUIRE STABILIZATION PAVING WHERE DIRECTED BY PENNDOT.

NO.	DESCRIPTION	DATE	BY
10			
9			
8			
7			
6			
5			
4	RECORD SET		
3	R/W REVISIONS	8/15/00	J.E.M.
2	PENNDOT REVISIONS	1/14/00	J.E.M.
1	RUS REVISIONS	11/16/99	J.E.M.

REVISIONS

SEAL

WEST SALEM TOWNSHIP MUNICIPAL SEWAGE AUTHORITY
MERCER COUNTY, PENNSYLVANIA

WATER POLLUTION CONTROL PROJECT

CONTRACT NO. 4 – WEST SANITARY SEWERS
INDEX MAP AND TRAFFIC CONTROL PLAN

Killam Associates • Consulting Engineers — PITTSBURGH, PENNSYLVANIA

DRAWN	CHECKED	DATE	SCALE	PROJECT NO.	DRAWING NO.
PLB	WJM	AUGUST,1999	1" = 500'	123217	1 OF 19

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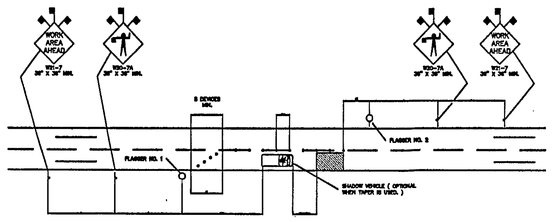


SYMBOLS

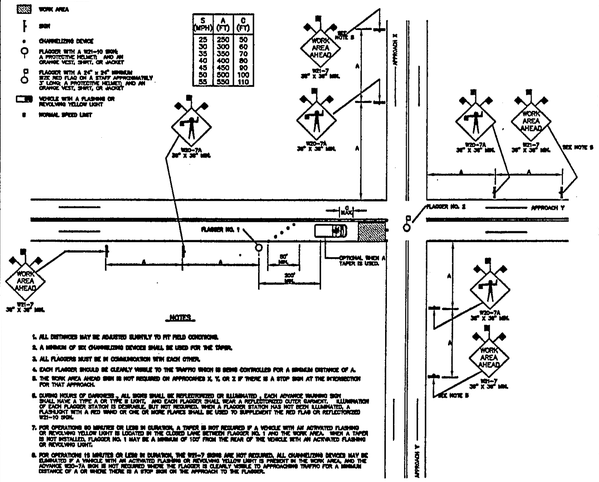
WORK AREA
SIGN
CHANNELIZING DEVICE
FLAGGER WITH A W20-7 SIGN, HARD HAT, VEST, SHIRT, OR JACKET
FLAGGER WITH A 24" X 24" WHEELS (OR 2X2 FLAG ON A STAFF APPROXIMATELY 3' LONG), A PROTECTIVE HELMET, AND AN ORANGE VEST, SHIRT, OR JACKET
VEHICLE WITH A FLASHER OR REVOLVING YELLOW LIGHT
S NORMAL SPEED LIMIT

S (MPH)	A (FT)	C (FT)
25	250	55
30	300	60
35	350	70
40	400	80
45	450	90
50	500	100
55	550	110

NOTES

1. ALL DISTANCES MAY BE ADJUSTED SLIGHTLY TO FIT FIELD CONDITIONS.
2. ALL FLAGGERS MUST BE IN COMMUNICATION WITH EACH OTHER.
3. EACH FLAGGER SHOULD BE CLEARLY VISIBLE TO THE TRAFFIC WHICH IS BEING CONTROLLED FOR A MINIMUM DISTANCE OF A.
4. DURING HOURS OF DARKNESS, ALL SIGNS SHALL BE RETROLECTORIZED OR ILLUMINATED ; EACH ADVANCE WARNING SIGN SHALL HAVE A TYPE A OR TYPE B LIGHT ; AND EACH FLAGGER SHALL WEAR RETROLECTORIZED OUTER GARMENTS. ILLUMINATION OF EACH FLAGGED STATION IS DESIRABLE, BUT NOT REQUIRED. WHEN A FLAGGER STATION HAS NOT BEEN ILLUMINATED, A FLASHLIGHT WITH A RED WAND OR ONE OR MORE FLARES SHALL BE USED TO SUPPLEMENT THE RETROLECTORIZED W20-7A SIGN.
5. FOR OPERATIONS 30 MINUTES OR LESS IN DURATION, A TAPER IS NOT REQUIRED IF A VEHICLE WITH AN ACTIVATED FLASHING OR REVOLVING YELLOW LIGHT IS LOCATED BY THE CLOSED LANE BETWEEN FLAGGER NO. 1 AND THE WORK AREA. WHEN A TAPER IS NOT INSTALLED, FLAGGER NO. 1 MAY BE A MINIMUM OF 100' FROM THE REAR OF THE VEHICLE WITH AN ACTIVATED FLASHING OR REVOLVING LIGHT.
6. FOR OPERATIONS 30 MINUTES OR LESS IN DURATION, THE FOLLOWING APPLIES:
   A. THE W20-7 SIGNS ARE NOT REQUIRED.
   B. ALL CHANNELIZING DEVICES MAY BE ELIMINATED IF A VEHICLE WITH AN ACTIVATED FLASHING OR REVOLVING YELLOW LIGHT IS PRESENT IN ADVANCE OF THE WORK AREA.
   C. THE W20-7A SIGN IS NOT REQUIRED WHEN THE FLAGGER IS CLEARLY VISIBLE TO APPROACHING TRAFFIC FOR A MINIMUM DISTANCE OF A.

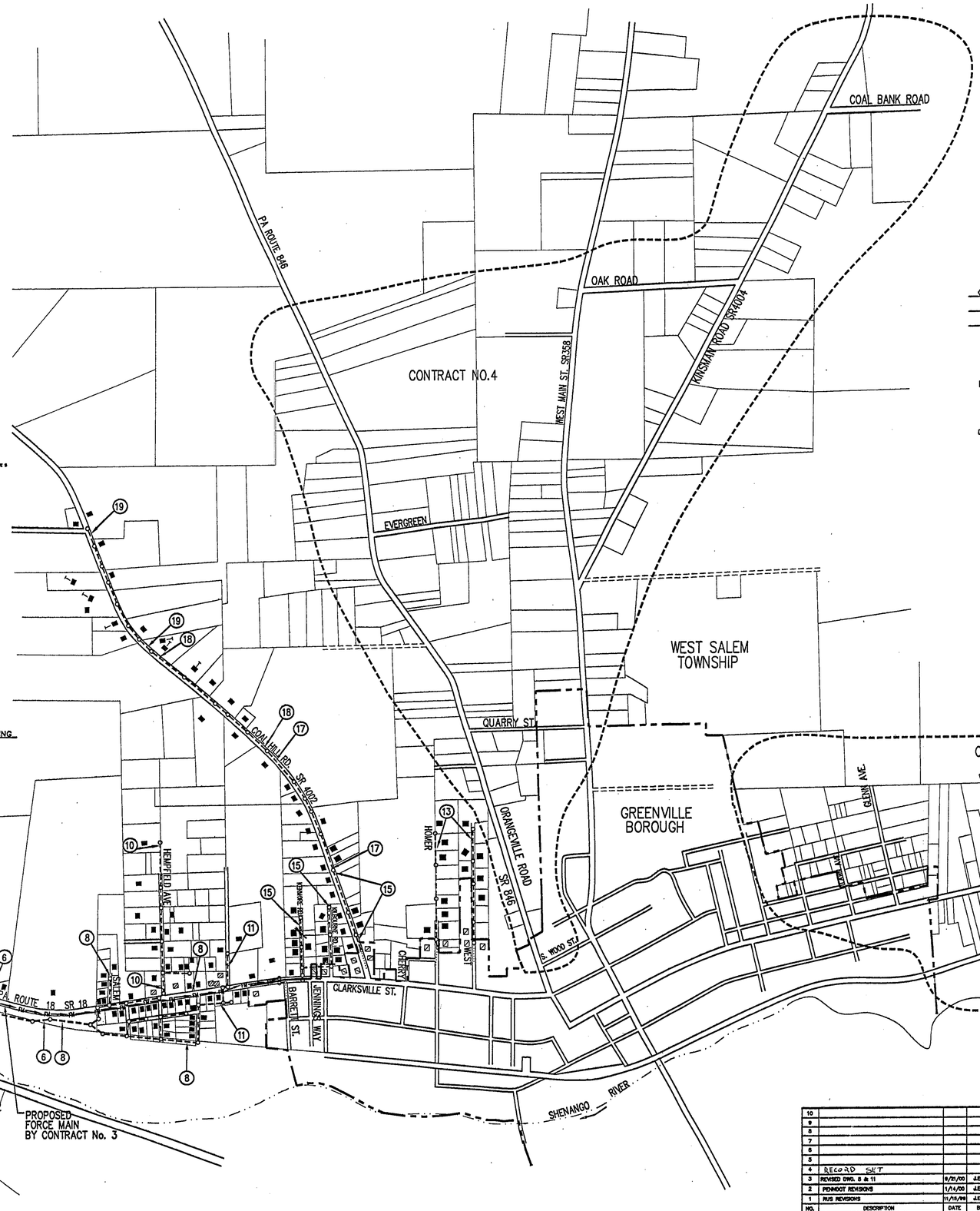
STATIONARY SHORT-TERM OPERATION — TWO-LANE, TWO-WAY ROADWAY — FLAGGING



NOTES

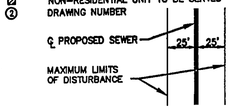
1. ALL DISTANCES MAY BE ADJUSTED SLIGHTLY TO FIT FIELD CONDITIONS.
2. A MINIMUM OF SIX CHANNELIZING DEVICES SHALL BE USED FOR THE TAPER.
3. ALL FLAGGERS MUST BE IN COMMUNICATION WITH EACH OTHER.
4. EACH FLAGGER SHOULD BE CLEARLY VISIBLE TO THE TRAFFIC WHICH IS BEING CONTROLLED FOR A MINIMUM DISTANCE OF A.
5. THE W3R2 (RED) SIGN IS NOT REQUIRED ON APPROACHES X, Y, OR Z IF THERE IS A STOP SIGN AT THE INTERSECTION FOR THAT APPROACH.
6. DURING HOURS OF DARKNESS, ALL SIGNS SHALL BE RETROLECTORIZED OR ILLUMINATED ; EACH ADVANCE WARNING SIGN SHALL HAVE A TYPE A OR TYPE B LIGHT ; AND EACH FLAGGER SHALL WEAR RETROLECTORIZED OUTER GARMENTS. ILLUMINATION OF EACH FLAGGED STATION IS DESIRABLE, BUT NOT REQUIRED. WHEN A FLAGGER STATION HAS NOT BEEN ILLUMINATED, A FLASHLIGHT WITH A RED WAND OR ONE OR MORE FLARES SHALL BE USED TO SUPPLEMENT THE RETROLECTORIZED W20-7A SIGN.
7. FOR OPERATIONS 30 MINUTES OR LESS IN DURATION, A TAPER IS NOT REQUIRED IF A VEHICLE WITH AN ACTIVATED FLASHING OR REVOLVING YELLOW LIGHT IS LOCATED BY THE CLOSED LANE BETWEEN FLAGGER NO. 1 AND THE WORK AREA. WHEN A TAPER IS NOT INSTALLED, FLAGGER NO. 1 MAY BE A MINIMUM OF 100' FROM THE REAR OF THE VEHICLE WITH AN ACTIVATED FLASHING OR REVOLVING LIGHT.
8. FOR OPERATIONS 30 MINUTES OR LESS IN DURATION, THE W20-7 SIGNS ARE NOT REQUIRED. ALL CHANNELIZING DEVICES MAY BE ELIMINATED IF A VEHICLE WITH A FLASHING OR REVOLVING YELLOW LIGHT IS PRESENT IN THE WORK AREA, AND THE ADVANCE W20-7A SIGN IS NOT REQUIRED WHERE THE FLAGGER IS CLEARLY VISIBLE TO APPROACHING TRAFFIC FOR A MINIMUM DISTANCE OF A OR WHERE THERE IS A STOP SIGN ON THE APPROACH TO THE FLAGGER.

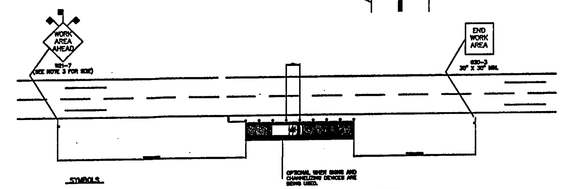
STATIONARY SHORT-TERM OPERATION — TWO-LANE, TWO-WAY ROADWAYS — INTERSECTION FLAGGING



LEGEND

- EXISTING GREENVILLE SANITARY SEWER
- PROPOSED SEWER
- PROPOSED PRESSURE MAIN
- PROPOSED FORCE MAIN
- PROPOSED GRINDER PUMP
- RESIDENTIAL UNIT TO BE SERVED
- UNIT SERVED BY EXISTING
- NON-RESIDENTIAL UNIT TO BE SERVED
- DRAWING NUMBER





SYMBOLS

WORK AREA
SIGN
CHANNELIZING DEVICE
FLAGGER WITH A W20-7 SIGN, HARD HAT, VEST, SHIRT, OR JACKET
FLAGGER WITH A 24" X 24" WHEELS (OR 2X2 FLAG ON A STAFF APPROXIMATELY 3' LONG), A PROTECTIVE HELMET, AND AN ORANGE VEST
VEHICLE WITH A FLASHER OR REVOLVING YELLOW LIGHT
S NORMAL SPEED LIMIT

S (MPH)	A (FT)	C (FT)	D (FT)
25	250	80	125
30	300	90	150
35	350	70	175
40	400	80	200
45	450	90	225
50	500	100	250
55	550	110	275

NOTES

1. THIS FIGURE APPLIES FOR STATIONARY SHORT-TERM OPERATIONS ADJACENT TO ANY ROADWAY, HOWEVER THE TRAFFIC CONTROL DEVICES PRESCRIBED IN THIS FIGURE MAY NOT BE SUFFICIENT IF THE WORK IS WITHIN OR NEAR AN INTERSECTION, ON A FREEWAY-EXPRESSWAY, ON A TWO-WAY ROADWAY WITH NO CENTERLINE, OR IF THE WORK IS WITHIN OR NEAR THE ZONE OF INFLUENCE OF A RAILROAD GRADE CROSSING, WORK THAT REQUIRES CLOSURE OF A TRAFFIC LANE, OR WORK THAT EXTENDS FOR MORE THAN THE ZONE OF ROADWAY.
2. ALL DISTANCES MAY BE ADJUSTED SLIGHTLY TO FIT FIELD CONDITIONS.
3. WORK AREA (WORK ZONE) SHALL BE A MINIMUM SIZE OF 48"X48" FOR FREEWAYS AND EXPRESSWAYS, AND 36"X36" MINIMUM FOR ALL OTHER ROADWAYS.
4. FOR STATIONARY OPERATIONS AND ONE-WAY ROADWAYS WHERE IT IS PHYSICALLY POSSIBLE, ADVANCE WARNING SIGNS SHOULD ALSO BE PLACED ON THE LEFT-HAND SIDE OF THE ROADWAY.
5. THE CW (WORK AHEAD) SIGNS MAY BE REPLACED WITH OTHER APPROPRIATE SIGNS (LOW SHOULDER SIGN, NO SIDE RAIL, AND SO FORTH).
6. DURING HOURS OF DARKNESS, ALL SIGNS SHALL BE RETROLECTORIZED OR ILLUMINATED, AND EACH ADVANCE WARNING SIGN SHALL HAVE A TYPE A OR TYPE B LIGHT.
7. FOR OPERATIONS 60 MINUTES OR LESS IN DURATION, ALL SIGNS AND CHANNELIZING DEVICES MAY BE ELIMINATED IF VEHICLE WITH AN ACTIVATED FLASHING OR REVOLVING YELLOW LIGHT IS USED.

STATIONARY SHORT-TERM OPERATION — ADJACENT TO ANY ROADWAY

UTILITY NOTICE

IN ACCORDANCE WITH PA ACT 187 OF 1996, THE CONTRACTOR MUST NOTIFY UTILITIES PRIO TO CONSTRUCTION USING PA ONE CALL, (800)242-1776, SERIAL NUMBER: 0290891, 0290896, 0280902, 0280923, 0970509. EVERY REASONABLE EFFORT HAS BEEN MADE DURING THE DESIGN OF THE PROPOSED FACILITIES TO COMPLY WITH PA ACT 187 OF 1996 TO INDICATE THE LOCATION OF EXISTING UNDERGROUND UTILITIES. HOWEVER, DUE TO THE NATURE OF UTILITY COMPANY RECORDS AND EXTENT OF THEIR MARKED FIELD LOCATIONS, THE ACCURACY OF THE INFORMATION CANNOT BE GUARANTEED, THEREFORE, PRIOR TO CONSTRUCTION STAKEOUT, THE CONTRACTOR SHALL DIG TEST PITS ALONG THE ROUTE OF THE PROPOSED FACILITY TO LOCATE THE UNDERGROUND UTILITIES. TEST PITS SHALL BE SUFFICIENT DEPTH, QUANTITY AND LOCATION TO DETERMINE THE LOCATION AND EXISTENCE OF ANY UNDERGROUND UTILITIES AND POSSIBLE INTERFERENCE WITH THE PROPOSED FACILITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL UTILITIES FROM DAMAGE, WHETHER OR NOT THEY ARE SHOWN ON THE DRAWINGS. ANY NEEDED ADJUSTMENT TO PROPOSED FACILITY ALIGNMENT AND GRADES SHALL BE MADE BY THE ENGINEER AS EXPEDITIOUSLY AS POSSIBLE. NO ADDITIONAL PAYMENT WILL BE MADE TO THE CONTRACTOR FOR TEST PIT EXCAVATIONS OR MINOR ADJUSTMENTS TO THE PROPOSED FACILITY CAUSED BY THE ACTUAL LOCATION OF UTILITIES FOUND DURING CONSTRUCTION.

NOTES

1. MANHOLES IN PENNDOT RIGHTS-OF-WAY SHALL BE INSTALLED SO THAT THEY DO NOT INTERFERE WITH THE FLOW IN DITCHES AND THE FUTURE MAINTENANCE OF THE DITCH LINE.
2. MANHOLES NEAR PAVEMENT AREAS MAY REQUIRE STABILIZATION PAVING WHERE DIRECTED BY PENNDOT.

NO.	DESCRIPTION	DATE	BY
10			
9			
8			
7			
6			
5			
4	RECORD SET		
3	REVISED DWG. 8 & 11	9/21/00	JEM.
2	PENNDOT REVISIONS	1/11/00	JEM.
1	RUS REVISIONS	11/15/99	JEM.

REVISIONS

SEAL

WEST SALEM TOWNSHIP MUNICIPAL SEWAGE AUTHORITY
MERCER COUNTY, PENNSYLVANIA

WATER POLLUTION CONTROL PROJECT

CONTRACT NO. 3 — SOUTH SANITARY SEWERS INDEX MAP AND TRAFFIC CONTROL PLAN

D.E. Killam Associates = Consulting Engineers — PITTSBURGH, PENNSYLVANIA

DRAWN	CHECKED	DATE	SCALE	PROJECT NO.	DRAWING NO.
JEM	WJM	AUGUST,1999	1" = 500'	123217	1 OF 20

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