Application of Pennsylvania-American Water Company for Acquisition of Substantially All of the Assets, Properties and Rights Related to the Wastewater System Owned and Operated by the City of Pittston

66 Pa. C.S. §1329
Application Filing Checklist – Water/Wastewater
Docket No. A-2025-3056419

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

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

RESPONSE:

b. A DEP file review performed in the fall of 2025 revealed one WQM Permit (No. 4009402) for a 2009 sanitary sewer system improvement project. Please refer to **Appendix A-20-b**. The Wyoming Valley Sanitary Authority (WVSA), which serves as the sewer treatment provider, is the permit holder for the outfall chambers and maintains the NPDES permit, a copy of which we do not have.

APPENDIX A-20-b

OP

Regional Office
383 Wyoming Avenue
Kingston, Pennsylvania 18704

March 15, 1974

Anthony Ferrari
City Clerk
City of Pittston
City Hall
Pittston, Pennsylvania

Dear Mr. Ferrari:

The sewer plan submitted to our Department by the Luzerne County Planning Commission for your municipality has been reviewed, and Qualified Approval has been given the plan as it relates to your municipality, since there is a need for further studies of the sewage needs in your municipality.

In your particular case, separation of storm and sanitary sewage lines should be scheduled. The plan indicates that during the period 1973-1975 a study should be done to determine the feasibility of such a project.

In order to change your plan status from Qualified Approval to Approval without Qualification, the submission to our Department of a "Scope of Services" within 120 days and completion of the feasibility study no later than December 1974 will permit us to change your plan status.

The "Scope of Services" mentioned above will indicate to your municipality what services the consulting engineer will perform.

If you have any questions on the above matter, please feel free to contact me.

Respectfully yours,

George N. Livingstone
Sewage Facilities Consultant

GNL/bm

RESOLUTION OF THE City of Pittston
Municipality

LUZERNE COUNTY, PENNSYLVANIA, ON THE PLANNING REQUIREMENTS OF ACT 537, PENNSYLVANIA SEWAGE FACILITIES ACT:

WHEREAS, the General Assembly of Pennsylvania has passed the Pennsylvania Sewage Facilities Act, Act 537, and it was signed into law by the Governor of the Commonwealth; and

WHEREAS, Act 537 requires that each municipality in the Commonwealth shall submit to the Department of Environmental Resources an officially adopted plan for sewage systems serving areas within its jurisdiction; and

WHEREAS, the Department of Environmental Resources has recommended that the planning be accomplished at the County level by the Planning Commission; and

WHEREAS, the Department of Housing and Urban Development required that the sewer study be expanded to a sewer and water study of Luzerne County, to obtain areawide certification of sewer and water plans, and to establish priorities, and

WHEREAS, the Planning Commission of Luzerne County has completed and adopted a Water Supply and Waste Water Management Plan for Luzerne County for municipal review;

NOW, THEREFORE, BE IT RESOLVED THAT THE City of Pittston
Municipality
hereby adopts the Sewer Section of the Master Plan for Water Supply and Waste Water Management as prepared by the Luzerne County Planning Commission, Court House, Wilkes-Barre, Pennsylvania, being a plan for a sewage system to serve the City of Pittston
Municipality

and the City of Pittston
Municipality
hereby designates the Luzerne County Planning Commission, Court House, Wilkes-Barre, Pennsylvania, as its Agent to submit said plan either to the Pennsylvania Department of Environmental Resources in fulfillment of the planning requirement of Act 537 for the City of Pittston
Municipality
, and/or the Department of Housing and Urban Development for areawide certification as the plan for the City of Pittston
Municipality

DATED: October 10, 1973

ATTEST: _____
Secretary

_____
MAYOR
Board of Township Supervisors
Board of Township Commissioners
Borough Council
City Council

OP 537

Pennsylvania Department of Environmental Protection

2 Public Square
Wilkes-Barre, PA 18711-0790

December 4, 2009

Northeast Regional Office

570-826-2511
Fax 570-830-3016

Mr. Ronald G. Mortimer, City Clerk
City of Pittston
35 Broad Street
Pittston, PA 18640

Re: Categorical Exclusion Approval
City of Pittston, Luzerne County

Dear Mr. Mortimer:

The Department has received and reviewed your November 20, 2009 (received November 24, 2009) correspondence containing proof of public notification and a statement that no comments were received. The Department had previously indicated to the City, in a letter dated August 4, 2009, that the project appeared to qualify to be categorically excluded from the State Environmental Review Process (SERP).

The Public Notice contained the appropriate notification information that would permit the public to comment on the project for a 30-day period. There appear to have been no public comments, as attested to by the City.

Due to the nature of the project and the information provided previously by Reilly Associates and the City. it appears that this project will not individually, cumulatively over time, or in conjunction with other federal, state, local or private actions, have a significant effect on the quality of the environment.

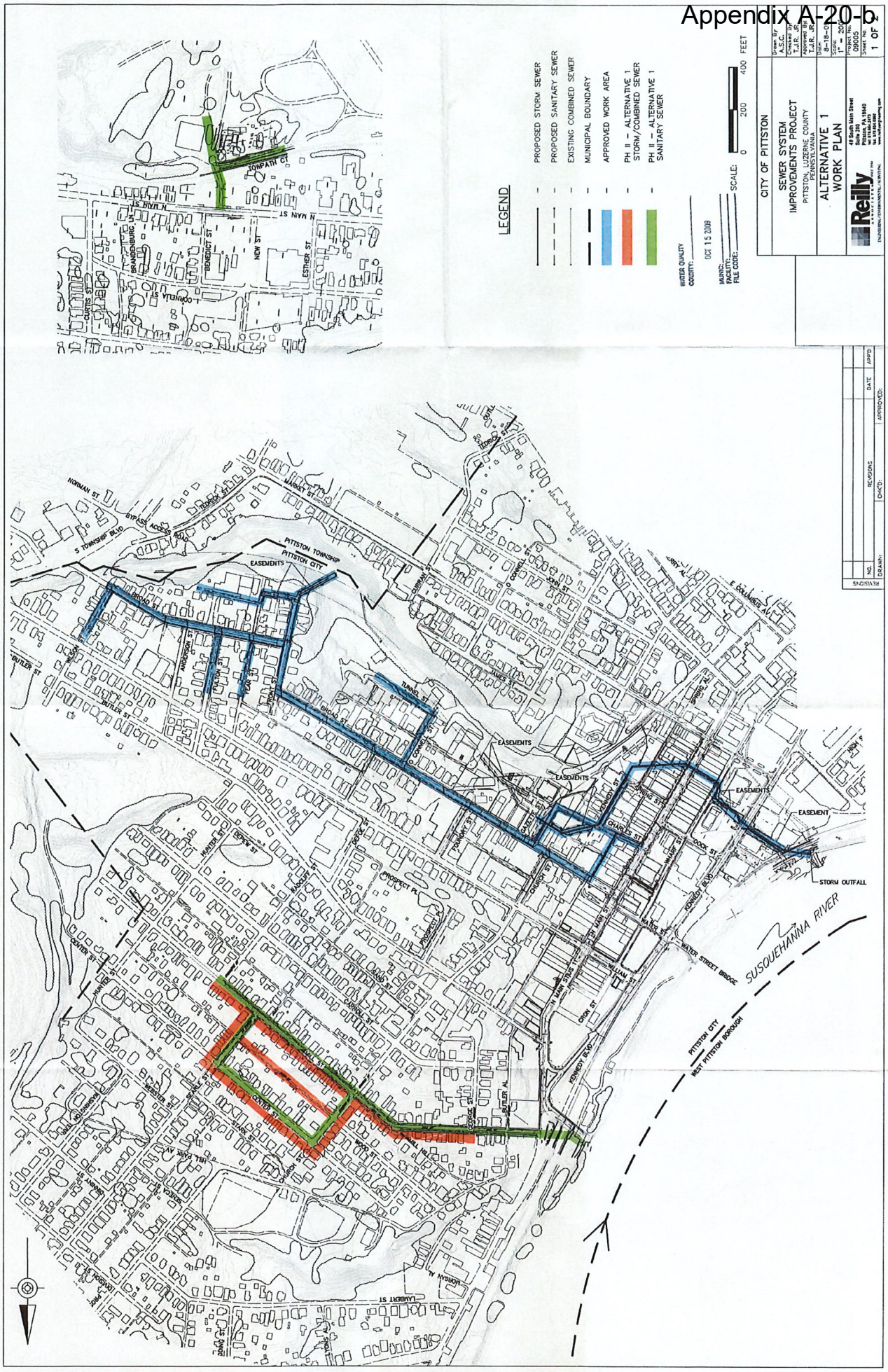
With the preceding facts in mind, the Department hereby categorically excludes the proposed combined sewer separation project from the SERP.

If you have any questions regarding this matter, please contact me at 570-826-2576.

Sincerely,

Darryl Fritz
Acting Environmental Group Manager
Planning Section
Water Management Program

cc: Mr. Jeremy Nelson, Reilly Associates
Mr. Michael J. Gallagher Sr., P.E., PENNVEST


LEGEND
PROPOSED STORM SEWER
PROPOSED SANITARY SEWER
EXISTING COMBINED SEWER
MUNICIPAL BOUNDARY
APPROVED WORK AREA
PH II – ALTERNATIVE 1 STORM/COMBINED SEWER
PH II – ALTERNATIVE 1 SANITARY SEWER
WATER QUALITY
COUNTY:
OCT 15 2009
MUNIC:
FACILITY:
FILE CODE:
SCALE:
0
200
400
FEET
CITY OF PITTSTON
SEWER SYSTEM IMPROVEMENTS PROJECT
PITTSTON, LUZERNE COUNTY PENNSYLVANIA
ALTERNATIVE 1 WORK PLAN
Reilly
49 South Main Street
Suite 200
Pittston, PA 18640
Sheet No.
1 OF 2
PITTSTON TOWNSHIP
PITTSTON CITY
EASEMENTS
STORM OUTFALL
SUSQUEHANNA RIVER
WATER STREET BRIDGE
PITTSTON CITY
WEST PITTSTON BOROUGH
TOWPATH CT
N MAIN ST
BRANDENBURG LN
BENEDICT ST
NEW ST
ESTHER ST
CORNELIA ST
CURTIS ST
NORMAN ST
BYPASS ACCESS ROAD
S TOWNSHIP BLVD
MARKET ST
TEDRICK ST
BROAD ST
ANDERSON ST
FULTON ST
FEAR ST
FRONT ST
BUTLER ST
TUNNEL ST
O CONNELL ST
JOHN ST
CURRAN ST
E COLUMBUS AV
SPRING AL
KENNEDY ST
CHARLES ST
DOCK ST
WHARF ST
KENNEDY BLVD
WATER ST
WILLIAM ST
CRON ST
N MAIN STRAIT ST
CHURCH ST
PROSPECT PL
HUNTER ST
DEPEW ST
RADCLIFF ST
CENTER ST
CARROLL ST
HILL ST
GEORGE ST
BUTLER AL
MORGAN AL
LAMBERT ST
DOWNS ST
PROF
REVISIONS
NO.
DRAWN:
CHK'D:
APPROVED:
DATE
APP'D

DEPARTMENT OF ENVIRONMENTAL PROTECTION

ENVIRONMENTAL PROTECTION

START FILE

BOX No.*
57

AGENCY*
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Bureau#*
CLEAN WATER CW

Records retention codes*
CLEAN WATER CASE FILES(115)

☐ See All

REGION*
NORTHEAST REGIONAL OFFICE

COUNTY*
LUZERNE

MUNICIPALITY*
PITTSTON CITY

Start Sheet #
46338

PERMIT # / PROJECT # – Or other unique identifier*
4009402

DOCUMENT TYPE:*
NPDES

CASE NAME – This is the name of the project or the client*
PITTSTON CITY 09-10

YEAR:*
2010

File Breakdowns

Facility ID#

* Before hitting submit, please print Start Sheet.

☑ I printed Start Sheet*

Pennsylvania Department of Environmental Protection

2 Public Square
Wilkes-Barre, PA 18711-0790
January 27, 2010

Northeast Regional Office

570-826-2511
Fax 570-830-3016

Mr. Savino J. Bonita, City Clerk
City of Pittston
City Hall
35 Broad Street
Pittston, PA 18640

[redacted]

Re: Sewage
City of Pittston
Luzerne County

Dear Mr. Bonita:

The Department has received information provided with correspondence dated October 13, 2009 from Mr. Jeremy A. Nelson, with Reilly Associates, describing additional gravity sanitary sewer system construction proposed along Mill Street and a low pressure sanitary sewer extension proposed to serve Towpath Court. The Department has also received engineering plans and specifications for this additional work, dated November 2009. This work consists of approximately 2000 LF of gravity sewer and appurtenances along Mill Street, and approximately 600 LF of low pressure sewer with individual grinder pumps to serve properties along Towpath Court.

The Department has reviewed this information and wishes to notify you that a Water Quality Management Permit Application is not necessary for this additional work. We will retain these documents in our files with Water Quality Management Permit No. 4009402.

If there are any questions regarding this letter, please contact Michael Brunamonti at 570-826-2318.

Sincerely,

Kate Crowley
Program Manager
Water Management Program

cc: Mr. Jeremy Nelson/Reilly Associates

bcc: D. Fritz/S. Novatnak
K. Crowley
M. Brunamonti
File

KC:MJB:kab
WP: R4-9781.doc
H(Ashare): 1/19/2010
T(F): 1/20/2010
R(F): 1/27/2010, 1/28/2010

Brunamonti, Michael

From: Jeremy Nelson [jnelson@reillyengineering.com]
Sent: Wednesday, October 28, 2009 8:51 AM
To: Brunamonti, Michael
Cc: jdurkin@reillyengineering.com; treilly@reillyengineering.com; jkostik@reillyengineering.com; 'Casey Cawley'
Subject: Pittston and West Pittston

Mike,
This is just to confirm our conversation yesterday regarding the additional work for the Pittston and West Pittston Sewer Improvement Projects. PA DEP will not require a separate WQM Part II permit submission for the work in these areas, but would rather include these areas as an addendum to the original WQM Part II permit issued to each Municipality. PA DEP would still require submission of the design plans and specs to the WQM department when complete and the current WQM Part II permit conditions would apply to these additional work areas as well.

If you have any additional comments please let me know. Thank you for your assistance on this project.

Jeremy Nelson, P.E.
Reilly Associates
49 S. Main Street, Suite 200
Pittston, PA 18640
570.654.2473 (Main)
570.8831175 ext 207 570.654.6880 (fax)
jnelson@reillyengineering.com
800.493.1165

The information transmitted is intended only for the persons or entity to which it is addressed and may contain confidential and/or privileged material. Any review, transmission, dissemination and or other use of, or taking of any action in reliance upon, this information by persons or entities other than the intended recipient is prohibited. If you received this in error, please contact the sender and delete the material from any computer.

Reilly ASSOCIATES SINCE 1930

ENGINEERING / ENVIRONMENTAL / SURVEYING

October 13, 2009

Pennsylvania Department of Environmental Protection
2 Public Square
Wilkes-Barre, PA 18711

WATER QUALITY
COUNTY: _____

OCT 15 2009

MUNIC: _____
FACILITY: _____
FILE CODE: _____

Attn: Mr. Michael Brunamonti, P.E.
Permit Chief, Water Quality Management

RE: City of Pittston
Sanitary Sewer System Improvement
WQM Part II Permit Application

Dear Mike:

In our July 30, 2009 meeting with PA DEP it was discussed that a WQM Part II permit is required for the Mill Street sewered areas. At the time of our meeting we proposed approximately 9,800 feet of 8" and 12" sanitary sewers serving approximately 277 sewer connections on Mill Street and a number of other adjoining streets. We have refined the design to include both sanitary and storm piping. This is to correct the possible problem of old pipes on Mill Street leaking into abandoned mine voids and having the potential to create future sinkholes in this area. The sanitary system has been reduced to approximately 3,740 feet of 8" and 12" sanitary sewers serving approximately 100 sewers connections. The storm sewers would consist of approximately 3,500 feet of 18" to 54"storm piping. The sanitary sewer pipe will connect to the existing WVSA system, downstream of the existing diversion chamber. The enclosed overall plan shows the locations of the storm and sanitary sewer piping.

The work at Towpath Court will remain a low pressure sewer extension to the existing municipal system to serve 4 existing homes and a business. It was discussed that this project would not require a permit due to the small number of EDUs.

Please advise if we will need a WQM Part II permit for the Mill Street work. If you need any additional information or have any questions, please feel free to contact us.

Sincerely,
REILLY ASSOCIATES

Jeremy A. Nelson

Enclosures
Cc: Ron Mortimer – Pittston City
Robert Elliott – PA DEP Planning

z:\09005\phase ii work\ltr dep part ii 10-13-09.doc

49 South Main St. Suite 200, Pittston, PA 18360 570 654-2473 FAX 570 654-6880

Pennsylvania Department of Environmental Protection

2 Public Square
Wilkes-Barre, PA 18711-0790
April 23, 2009

Northeast Regional Office

570-826-2511
Fax 570-830-3016

CERTIFIED MAIL NO. 7008 3230 0002 4876 8473

City of Pittston
35 Broad Street
Pittston, PA 18640

Attention: Mr. Joseph P. Keating, Mayor

Re: Sewage
Sanitary Sewer System Improvement Project
WQM Part II Permit No. 4009402
APS ID No. 686356
Authorization No. 782092
City of Pittston, Luzerne County

Dear Mayor Keating:

Your Water Quality Management permit is enclosed.

You must comply with all Standard and Special Conditions attached to this Permit. Construction must be done in accordance with the permit application and all supporting documentation. Please review the permit conditions and the supporting documentation submitted with your application before starting construction. Also, please note Special Condition A requiring steps to be taken to insure that all existing sources of stormwater from roofs, foundation drains, basement drains, or other sources are disconnected from the building sanitary sewer laterals before connecting them to the new sanitary sewers.

Enclosed is the "Water Quality Management Post Construction Certification" form. A Pennsylvania-registered Professional Engineer must sign and complete this form prior to startup of the facilities (see Permit Condition No. 13). You or your authorized representative must also sign the form. This certification and other post-construction documentation must be submitted to the Department within 30 days following startup of the facilities.

Any person aggrieved by this action may appeal, pursuant to Section 4 of the Environmental Hearing Board Act, 35 P.S. Section 7514, and the Administrative Agency Law, 2 Pa.C.S. Chapter 5A, to the Environmental Hearing Board, Second Floor, Rachel Carson State Office Building, 400 Market Street, P.O. Box 8457, Harrisburg, PA 17105-8457, 717-787-3483. TDD users may contact the Board through the Pennsylvania Relay Service, 800-654-5984. Appeals must be filed with the Environmental Hearing Board within 30 days of receipt of written notice of this action unless the appropriate statute provides a different time period. Copies of the appeal form and the Board's rules of practice and procedure may be obtained from the Board. The appeal form and the Board's rules of practice and

procedure are also available in Braille or on audiotape from the Secretary to the Board at 717-787-3483. This paragraph does not, in and of itself, create any right of appeal beyond that permitted by applicable statutes and decisional law.

IF YOU WANT TO CHALLENGE THIS ACTION, YOUR APPEAL MUST REACH THE BOARD WITHIN 30 DAYS. YOU DO NOT NEED A LAWYER TO FILE AN APPEAL WITH THE BOARD.

IMPORTANT LEGAL RIGHTS ARE AT STAKE, HOWEVER, SO YOU SHOULD SHOW THIS DOCUMENT TO A LAWYER AT ONCE. IF YOU CANNOT AFFORD A LAWYER, YOU MAY QUALIFY FOR FREE PRO BONO REPRESENTATION. CALL THE SECRETARY TO THE BOARD (717-787-3483) FOR MORE INFORMATION.

If you have any questions, please call Philip J. Amico, P.E., P.L.S. at 570-826-2310.

Sincerely,

Kate Crowley

Kate Crowley
Program Manager
Water Management Program

Enclosures

cc: Reilly Associates

bcc: Monitoring & Compliance Section
[redacted]

KC:MJB:PA:kab
WP: 4009402.doc (Part II Permit File Under "G")
H: 4/16/2009
T(F): 4/17/2009
R(F): 4/23/2009

3800-PM-WSWM0015 Rev. 6/2004
Permit

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER SUPPLY AND WASTEWATER MANAGEMENT

PERMIT NO. 4009402
AMENDMENT NO. _____
APS ID. 686356
AUTH. ID. 782092

WATER QUALITY MANAGEMENT PERMIT

A. PERMITTEE (Name and Address): CLIENT ID#: 87560	B. PROJECT/FACILITY (Name):
City of Pittston 35 Broad Street Pittston, PA 18640	Sanitary Sewer System Improvement Project
C. LOCATION (Municipality, County): SITE ID#: 717831	
City of Pittston, Luzerne County	

D. This permit approves the construction and operation of sewerage facilities consisting of:

Approximately 11,500 L.F. of 8-inch through 15-inch diameter PVC gravity sanitary sewer lines and 54 manholes. This work is associated with the separation of the City's combined sewer system in the vicinity of Broad Street, Main Street and Kennedy Boulevard. The proposed gravity sanitary sewer system will connect to an existing manhole and sanitary system along the Susquehanna River near Kennedy Boulevard. Sewage will ultimately be conveyed to the Wyoming Valley Sanitary Authority Wastewater Treatment Plant in Hanover Township, Luzerne County for treatment and disposal.

Pump Stations: N/A	Manure Storage:	Industrial Wastewater/Sewage Treatment Facility:
Design Capacity: _____ GPM	Volume: N/A MG	Annual Average Flow: N/A MGD
	Freeboard: _____ inches	Design Hydraulic Capacity: _____ MGD
		Design Organic Capacity: _____ lb/day

E. APPROVAL GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING:

1. **New Permits:** All construction, operations and procedures shall be in accordance with the Water Quality Management Permit application dated **February 17, 2009**, its supporting documentation and addendums dated **April 7 and April 15, 2009**, which are hereby made a part of this permit.
2. Permit Conditions Relating to Sewerage are attached and made part of this permit.
3. Special Condition A is attached and made part of this permit.

F. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. If there is a conflict between the application or its supporting documents and amendments and the attached conditions, the attached conditions shall apply.
2. Failure to comply with the rules and regulations of DEP or with the terms or conditions of this permit shall void the authority given to the permittee by the issuance of this permit.
3. This permit is issued pursuant to the Clean Streams Law Act of June 22, 1937, P.L. 1987, as amended 35 P.S. §691.1 *et seq.* Issuance of this permit shall not relieve the permittee of any responsibility under any other law.

PERMIT ISSUED: **April 23, 2009**

BY: Kate Crowley

Kate Crowley

TITLE: **Water Management Program Manager**

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER SUPPLY AND WASTEWATER MANAGEMENT

PERMIT CONDITIONS RELATING TO SEWERAGE

For use in Water Quality Management Permits

(Place a √ in the box that applies)

General

☒ 1. Consistent with the Department of Environmental Protection's (DEP) technical guidance document *Conducting Technical Reviews of Water Quality Management Permit Wastewater Treatment Facilities*, DEP ID: 362-2000-007 available on DEP's website at www.dep.state.pa.us, DEP did not conduct a detailed technical review of this application. DEP considers the registered Professional Engineer whose seal is affixed to the design documents to be fully responsible for the adequacy of all aspects of the facility design.

☐ 2. The permittee shall adopt and enforce an ordinance requiring the abandonment of privies, cesspools or similar receptacles for human waste and onlot sewage disposal systems on the premises of occupied structures accessible to public sewers. All such structures must be connected to the public sewers.

☐ 3. The outfall sewer or drain shall be extended to the low water mark of the receiving body of water. Where necessary to ensure proper mixing and waste assimilation, an outfall sewer or drain may be extended with appurtenances below the low water mark and into the bed of a navigable stream provided that the permittee has secured an easement, right-of-way, license or lease from DEP in accordance with Section 15 of the Dam Safety and Encroachments Act, the Act of November 26, 1978, P.L. 1375, as amended.

☒ 4. The approval is specifically made contingent on the permittee acquiring all necessary property rights, by easement or otherwise, providing for the satisfactory construction, operation, maintenance and replacement of all sewers or sewerage structures in, along, or across private property with full rights of ingress, egress and regress.

☒ 5. When construction of the approved sewerage facilities is completed and before they are placed in operation, the permittee shall notify DEP in writing so that a DEP representative may inspect the facilities.

☒ 6. If, at any time, the sewerage facilities covered by this permit create a public nuisance, including but not limited to, causing malodors or causing environmental harm to waters of the Commonwealth, DEP may require the permittee to adopt appropriate remedial measures to abate the nuisance or harm.

☐ 7. This permit authorizes the construction and operation of the proposed sewerage facilities until such time as facilities for conveyance and treatment at a more suitable location are installed and capable of receiving and treating the permittee's sewage. Such facilities must be in accordance with the applicable municipal official plan adopted pursuant to Section 5 of the Pennsylvania Sewage Facilities Act, the Act of January 24, 1966, P.L. 1535 as amended. When such municipal sewerage facilities become available, the permittee shall provide for the conveyance of the sewage to these sewerage facilities, abandon the use of these approved facilities and notify DEP accordingly. This permit shall then, upon notice from DEP, terminate and become null and void, and shall be relinquished to DEP.

☒ 8. This permit does not relieve the permittee of its obligations to comply with all federal, interstate, state or local laws, ordinances and regulations applicable to the sewerage facilities.

☒ 9. This permit does not give any real or personal property rights or grant any exclusive privileges, nor shall it be construed to grant or confirm any right, easement or interest in, on, to, or over any lands which belong to the Commonwealth.

☐ 10. The authority granted by this permit is subject to all effluent requirements, monitoring requirements, and other conditions as set forth in NPDES Permit No. **PA**_____ and all subsequent amendments and renewals. No discharge is authorized from these facilities unless approved by an NPDES Permit.

Construction

☒ 11. An Erosion and Sedimentation (E&S) Plan must be developed prior to construction of the permitted facility, pursuant to Title 25 Pa. Code Chapter 102, and implemented during and after the earth disturbance activity.

If the activity involves 5 or more acres of earth disturbance, or from 1 to 5 acres of earth disturbance with a point source discharge to surface waters of the Commonwealth, an NPDES permit for the Discharge of Stormwater Associated with Construction Activity is required.

In addition to the state NPDES permitting requirements, some municipalities, through local ordinances, require the E&S Control Plan to be reviewed and approved by the local County Conservation District office prior to construction. For specific information regarding E&S control planning approval and NPDES permitting requirements, please contact your local County Conservation District office.

☒ 12. The facilities shall be constructed under the supervision of a Pennsylvania registered Professional Engineer in accordance with the approved reports, plans and specifications.

☒ 13. A Pennsylvania registered Professional Engineer shall certify that construction of the permitted facilities was completed in accordance with the application and design plans submitted to DEP, using "Post Construction Certification" (3800-PM-WSFR0179a). It is the permittee's responsibility to ensure that a Professional Engineer is on-site to provide the necessary oversight and/or inspections to certify the facilities. The certification must be submitted to DEP before the facility is placed in operation. If requested, "as-built" drawings, photographs (if available) and a description of any DEP-approved deviations from the application and design plans must be submitted to DEP within 30 days of certification.

☒ 14. Manhole inverts shall be formed to facilitate the flow of the sewage and to prevent the stranding of sewage solids. The manhole structure shall be built to prevent undue infiltration, entrance of street wash or grit and provide safe access to facilitate manhole maintenance activities.

☐ 15. The local Waterways Conservation Officer of the Pennsylvania Fish and Boat Commission (PFBC) shall be notified when the construction of any stream crossing and/or outfall is started and completed. A written permit must be secured from the PFBC if the use of explosives in any waterways is required and the permittee shall notify the local Waterways Conservation Officer when explosives are to be used.

Operation and Maintenance

☒ 16. The permittee shall maintain records of "as-built" plans showing all the treatment facilities as actually constructed together with facility operation and maintenance (O&M) manuals and any other relevant information that may be required. Upon request, the "as-built" plans and O&M manuals shall be filed with DEP.

☒ 17. The sewers shall have adequate foundation support as soil conditions require. Trenches shall be back-filled to ensure that sewers will have proper structural stability, with minimum settling and adequate protection against breakage. Concrete used in connection with these sewers shall be protected from damage by water, freezing, drying or other harmful conditions until cured.

☒ 18. Stormwater from roofs, foundation drains, basement drains or other sources shall not be admitted directly to the sanitary sewers.

☒ 19. The approved sewers shall be maintained in good condition, kept free of deposits by flushing or other cleaning methods and repaired when necessary.

☒ 20. The sewerage facilities shall be properly operated and maintained to perform as designed.

☐ 21. The attention of the permittee is called to the highly explosive nature of certain gases generated by the digestion of sewage solids when these gases are mixed in proper proportions with air and to the highly toxic character of certain gases arising from such digestion or from sewage in poorly ventilated compartments or sewers. Therefore, at all places throughout the sewerage facilities where hazard of fire, explosion or danger from toxic gases may occur, the permittee shall post conspicuous permanent and legible warnings. The permittee shall instruct all employees concerning the aforesaid hazards, first aid and emergency methods of meeting such hazards and shall make all necessary equipment and material accessible.

☐ 22. An operator certified in accordance with the Water and Wastewater Systems Operator Certification Act of February 21, 2002, 63 P.S. §§1001, *et seq.* shall operate the sewage treatment plant.

☒ 23. The permittee shall properly control any industrial waste discharged into its sewerage system by regulating the rate and quality of such discharge, requiring necessary pretreatment and excluding industrial waste, if necessary, to protect the integrity or operation of the permittee's sewerage system.

☒ 24. There shall be no physical connection between a public water supply system and a sewer or appurtenance to it which would permit the passage of any sewage or polluted water into the potable water supply. No water pipe shall pass through or come in contact with any part of a sewer manhole.

☐ 25. All connections to the approved sanitary sewers must be in accordance with the corrective action plan as contained in the approved Title 25 Pa. Code Chapter 94 Municipal Wasteload Management Annual Report.

☐ 26. Collected screenings, slurries, sludge and other solids shall be handled and disposed of in compliance with Title 25 Pa. Code Chapters 271, 273, 275, 283 and 285 (related to permits and requirements for land filling, land application, incineration and storage of sewage sludge), Federal Regulations 40 CFR 257 and the Federal Clean Water Act and its amendments.

SPECIAL CONDITION

A. The permittee shall take the necessary steps to insure that all existing sources of stormwater from roofs, foundation drains, basement drains, or other sources are disconnected from the building sanitary sewer laterals before connecting them to the new sanitary sewers. The permittee's signature on the "Post Construction Certification" shall constitute proof that this was accomplished.

3800-PM-WSFR0179a 9/2005
Post Construction Certification

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER STANDARDS AND FACILITY REGULATION

WATER QUALITY MANAGEMENT
POST CONSTRUCTION CERTIFICATION

PERMITTEE IDENTIFIER	
Permittee	City of Pittston
Municipality	City of Pittston
County	Luzerne
WQM Permit No.	4009402
Facility Type	Sanitary Sewer System Improvement Project

All of the above information should be taken directly from the Water Quality Management Permit.

CERTIFICATION

This certification must be completed and returned to the permits section of the DEP's regional office issuing the WQM permit within 30 days of completion of the project and received by DEP prior to operation, and if requested, as-built drawings, photographs (if available) and a discussion of any DEP-approved deviations from the design plans during construction.

I, being a Registered Professional Engineer in Pennsylvania, do hereby certify to the best of my knowledge and belief, based upon personal observation and interviews, that the above facility approved under the Water Quality Management Permit has been constructed in accordance with the plans, specifications and modifications approved by DEP.

Construction Completion Date (MM/DD/YYYY): _____

Engineer's Seal

Professional Engineer

Name _____
(Please Print or Type)

Signature

Date

License Expiration Date

Firm or Agency

Telephone

Permittee or Authorized Representative

Name _____
(Please Print or Type)

Signature

Title

Telephone

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER MANAGEMENT PROGRAM

Internal Review and Recommendations

Name of Applicant	City of Pittston	Project Location	City of Pittston, Luzerne County	Application Number	4009402

BRIEF DESCRIPTION OF PROJECT AND DISCUSSION (Use Additional Sheets If Necessary)

This WQM permit application is for a new sanitary sewage collection and conveyance system to serve areas in the vicinity of Broad Street, Main Street and Kennedy Boulevard. Approximately 11,500 L.F. of 8-inch through 15-inch diameter gravity PVC sanitary sewer lines and 54 manholes will be installed as part of the separation of the City's combined sewer system. The new sanitary sewer line will ultimately convey flow to an existing manhole and sanitary sewer line along the Susquehanna River near Kennedy Boulevard. There is no new wastewater treatment plant associated with this project since sewage will continue to be delivered to the Wyoming Valley Sanitary Authority wastewater treatment plant in Hanover Township, Luzerne County for treatment and disposal.

Key components of the proposed sewage collection and conveyance system were reviewed to verify compliance with the Department's Domestic Wastewater Facilities Manual. As a result of review comments, revised design plans were submitted on April 7 and April 15, 2009, which were subsequently found to be in general compliance with the Department's Manual.

A Public Notice is not required to be published in the PA Bulletin for sewer extension applications - only a final Action notice is required.

The technical review of Ch. 105 Water Obstruction and Encroachment Permit No. E40-679A is still pending at this time. A coordination letter will be sent informing the City that issuance of WQM Permit No. 4009402 will be held up until all Department approvals are obtained.

Approval is recommended.

RECOMMENDATION AND ACTION

Approve Issue By Region	Approve Issue by Central Office	Refuse	Signature	Date
☒	☐	☐	Philip J. Amico, P.E., P.L.S. REVIEWING ENGINEER	4/23/2009
☒	☐	☐	Michael J. Brunamonti, P.E., Chief PERMITS SECTION	4/23/2009
☒	☐	☐	KATE CROWLEY PROGRAM MANAGER	4/23/2009

ACTION-TYPE 1

WQM Permit No. 4009402, Sewerage, City of Pittston, 35 Broad Street, Pittston, PA 18640.

This proposed facility is located in the City of Pittston, Luzerne County.

Description of Proposed Action/Activity: Issuance of Water Quality Management Permit for a sanitary sewer system improvement project consisting of approximately 11,500 L.F. of 8-inch through 15-inch diameter PVC gravity sanitary sewer lines and 54 manholes. This work is associated with the separation of the City's combined sewer system in the vicinity of Broad Street, Main Street and Kennedy Boulevard.

KC:MJB:PA:kab
WP: 4009402.doc (Part II Permit File Under "G")
H: 4/16/2009
T(F): 4/17/2009
R(F): 4/23/2009

PA
Priority

DATE APPLICATION RECEIVED: 2-17-09

ADMIN. REVIEW DATE: 2-18-09

DATE APPLICATION ACCEPTED COMPLETE: 2-18-09

EXPIRATION DATE (FOR RENEWALS): _____

APPLICATION PERMIT NUMBER 4009-402

APPLICANT NAME City of Pittston

APS # 686356

CLIENT # 87560

SITE # 717831

AUTH # 782092

ACCOUNT # 652810

AUTH. TYPE:	WQ2PS
MASTER AUTH.: (FOR RENEWALS)	

Amico

Commonwealth Of Pennsylvania
Department of Environmental Protection
Water Management Program
Wilkes-Barre Northeast Regional Office

SUBJECT: Compliance History Investigation [redacted]
APP(s) _____
CLIENT(s) _____
SITE(s) _____
APS(s) _____
AUTH(s) _____
PERMIT(s) _____

TO: File

FROM: Stephen D. Brokenshire Stephen D. Brokenshire DATE: 3-31-09
Environmental Protection Compliance Specialist
Water Management Program

Compliance History Investigation Results

I. No Violations Noted For Those Records Searched _____

Violations Noted For Those Records Searched As Summarized Below (EFACTS Reports Attached):

A. Closed Violations Noted For Those Records Searched (See Attached)_____

Air Quality	_____	Enforcements	_____
Safe Drinking Water	_____	Enforcements	_____
Waste Management	_____	Enforcements	_____
Mining	_____	Enforcements	_____
Water Resources	_____	Enforcements	_____
Water Pollution Control	_____	Enforcements	_____
Oil & Gas	_____	Enforcements	_____
Radiation Protection	_____	Enforcements	_____
Storage Tanks	_____	Enforcements	_____

Numerous Closed Violations

B. Open Violations Noted For Those Records Searched (See Attached)_____

Air Quality	_____	Enforcements	_____
Safe Drinking Water	_____	Enforcements	_____
Waste Management	_____	Enforcements	_____
Mining	_____	Enforcements	_____
Water Resources	_____	Enforcements	_____
Water Pollution Control	_____	Enforcements	_____
Oil & Gas	_____	Enforcements	_____
Radiation Protection	_____	Enforcements	_____
Storage Tanks	_____	Enforcements	_____

Do any of the above violations warrant the Department's use of Section 609 of the CSL? Y or N

609 Issue Resolved or Superceded:_____

Comments: See attached Compliance History Report(s)

EFACTS – Clients/Sites/Primary Facilities Record Search

CLIENT 87560 — Pittston City Luzerne Cnty
SITE _____ PRIM FAC 35 Broad St Pittston PA 18640-1825
SITE _____ PRIM FAC
SITE _____ PRIM FAC
SITE _____ PRIM FAC
SITE 694161 PRIM FAC Pittston City Flooding Repair proj
SITE _____ PRIM FAC

CLIENT 167576 — Pittston City Housing Auth Luzerne Cnty
SITE _____ PRIM FAC 500 Kennedy Blvd
SITE _____ PRIM FAC Pittston PA 18640-1734
SITE _____ PRIM FAC
SITE _____ PRIM FAC
SITE _____ PRIM FAC
SITE _____ PRIM FAC

CLIENT 140525 — Pittston City Redev Auth Luzerne Cnty
SITE _____ PRIM FAC 35 Broad St
SITE _____ PRIM FAC Pittston PA 18640-1825
SITE _____ PRIM FAC
SITE _____ PRIM FAC
SITE _____ PRIM FAC
SITE _____ PRIM FAC

CLIENT 185284 — Pittston City Street Dept Luzerne Cnty
SITE _____ PRIM FAC Tunnel St
SITE _____ PRIM FAC Pittston PA 18640
SITE _____ PRIM FAC
SITE _____ PRIM FAC
SITE _____ PRIM FAC
SITE _____ PRIM FAC

CLIENT _____
SITE _____ PRIM FAC
SITE _____ PRIM FAC
SITE _____ PRIM FAC
SITE _____ PRIM FAC
SITE _____ PRIM FAC
SITE _____ PRIM FAC

CLIENT _____
SITE _____ PRIM FAC
SITE _____ PRIM FAC
SITE _____ PRIM FAC
SITE _____ PRIM FAC
SITE _____ PRIM FAC
SITE _____ PRIM FAC

Compliance History Report

Report Parameters:

Client Id -	87560
Client AKA -	All
ICS Organization -	All
Program Code -	All
Related Clients Indicator -	N
Enforcement Type -	All
Pending Indicator -	All
Date Referred -	All
Progress Date -	All
Date Receipt -	All
Date Final -	All
Date Executed -	All

Appendix A-20-b

Current Client

Client Id: 87560 Client Name: PITTSTON CITY LUZERNE CNTY

ICS Organization: 4200 EP NE Rgnl Off Wilkes **Program:** WPCNP WPC NPDES

Program Specific Id: 659939

Enf Id: 199970 **Tracking #:** **Enf Type:** Notice of Violation

Date Executed: 07/29/2005 **Date Receipt:** **Date Referred:**

Date Progress: **Date Final:** 08/10/2005 **Final Status:** Comply/Closed

Appeal Ind: N **Pen Amt:** **Enf Comment:**

Violation Type	Violation Type Description	Violation Date	Date Resolved	Inspection Id	Entity AKA/Other Id
201BYPASS	Untreated or inadequately treated sewage was discharged.	07/21/2005	08/10/2005	1476009	

Program Specific Id: 87560

Enf Id: 206388 **Tracking #:** **Enf Type:** Notice of Violation

Date Executed: 03/28/2006 **Date Receipt:** **Date Referred:**

Date Progress: **Date Final:** 07/14/2007 **Final Status:** Comply/Closed

Appeal Ind: N **Pen Amt:** **Enf Comment:**

Violation Type	Violation Type Description	Violation Date	Date Resolved	Inspection Id	Entity AKA/Other Id
92.51(4)O&M	Operation and Maintenance violations were present.	03/28/2006	07/14/2007	1526609	87560

Summary Section:

Client Id: 87560 Client Name: PITTSTON CITY LUZERNE CNTY

Enforcement Type	# of Enforcements
Notice of Violation	2
Total # of Enforcements:	2

Report Printed: 03/31/2009 05:24 pm

Compliance History Report

Report Parameters:

Client Id -	167576
Client AKA -	All
ICS Organization -	All
Program Code -	All
Related Clients Indicator -	N
Enforcement Type -	All
Pending Indicator -	All
Date Referred -	All
Progress Date -	All
Date Receipt -	All
Date Final -	All
Date Executed -	All

Appendix A-20-b

Current Client

Client Id: 167576 Client Name: PITTSTON CITY HOUSING AUTH LUZERNE CNTY

Compliance History Report

Report Parameters:

Client Id -	140525
Client AKA -	All
ICS Organization -	All
Program Code -	All
Related Clients Indicator -	N
Enforcement Type -	All
Pending Indicator -	All
Date Referred -	All
Progress Date -	All
Date Receipt -	All
Date Final -	All
Date Executed -	All

Current Client

[redacted] 140525 Client Name: PITTSTON CITY REDEV AUTH LUZERNE CNTY

Compliance History Report

Report Parameters:

Client Id -	185284
Client AKA -	All
ICS Organization -	All
Program Code -	All
Related Clients Indicator -	N
Enforcement Type -	All
Pending Indicator -	All
Date Referred -	All
Progress Date -	All
Date Receipt -	All
Date Final -	All
Date Executed -	All

Appendix A-20-b

Current Client

Client Id: 185284 Client Name: PITTSTON CITY STREET DEPT LUZERNE CNTY

ICS Organization: 4200 EP NE Rgnl Off Wilkes **Program:** STSTA WM Storage Tanks

Program Specific Id: 40-52479

Enf Id: 214871 **Tracking #:** **Enf Type:** Notice of Violation

Date Executed: 11/15/2006 **Date Receipt:** **Date Referred:**

Date Progress: **Date Final:** 06/10/2007 **Final Status:** Comply/Closed

Appeal Ind: N **Pen Amt:** **Enf Comment:**

Violation Type	Violation Type Description	Violation Date	Date Resolved	Inspection Id	Entity AKA/Other Id
245.21	Failure to conduct required inspection	10/23/2006	06/06/2007	1579520	40-52479

Summary Section:

Client Id: 185284 Client Name: PITTSTON CITY STREET DEPT LUZERNE CNTY

Enforcement Type	# of Enforcements
Notice of Violation	1
Total # of Enforcements:	1

Pennsylvania Department of Environmental Protection

2 Public Square
Wilkes-Barre, PA 18711-0790
April 23, 2009

Northeast Regional Office

570-826-2511
Fax 570-830-3016

City of Pittston
35 Broad Street
Pittston, PA 18640

Attention: Mr. Joseph P. Keating, Mayor

Re: Permit Coordination
Sewage
WQM Permit Application No. 4009402
Sanitary Sewer System Improvement Project
City of Pittston, Luzerne County

Dear Mayor Keating:

We are pleased to inform you that the technical review of the above-referenced Water Quality Management (WQM) permit application has been completed and your application has been found to be in compliance with the Department's rules and regulations.

However, the permit cannot be released at this time because its issuance must be coordinated with Water Obstruction and Encroachment Permit No. E40-679A. If you have any questions regarding the review status of Permit Application No. E40-679A, please contact Mr. Bharat Patel, P.E., Watershed Management Program, at phone number 570-826-2499. Upon obtaining all approvals, your WQM permit will be released.

If you have any questions, feel free to contact me at 570-826-2310.

Sincerely,

Philip J. Amico, P.E., P.L.S.
Environmental Engineer
Water Management Program

cc: Reilly Associates

bcc: M. Brunamonti / K. Crowley
J. Buczynski
B.R. Patel
[redacted]

Reilly ASSOCIATES SINCE 1930

ENGINEERING / ENVIRONMENTAL / SURVEYING

April 14, 2009

Department of Environmental Protection
Northeast Regional Office
2 Public Square
Wilkes-Barre, PA 18711-0790

WATER QUALITY
COUNTY: _____

APR 15 2009

MUNIC: _____
FACILITY: _____
FILE CODE: _____

Attn: Philip J. Amico, P.E., P.L.S.
Environmental Engineer

Re: Sewer System Improvements Project
City of Pittston
Water Quality Management (WQM)
Part II Application No. 4009402

Dear Phil:

We are in receipt of your Technical Review Comments of the above referenced permit application sent via email to my attention on April 8, 2009. We have reviewed the comments and have made the necessary revisions to the application. Please find enclosed the following for your review:

- Two (2) copies - Revised Construction Plans (Sheets 1, 2, 4, 6-8, 12-13, 15, 19-21, 23-25, 27-31)
- Two (2) copies – Comment response table listing all of your comments followed by an explanation of our revisions

If you have any questions please do not hesitate to contact me.

Sincerely,

REILLY ASSOCIATES

Martin A. Musso, P.E.

Enclosures

cc: Joseph Keating – City of Pittston Mayor

49 South Main Street, Pittston, PA 18640 570 654 2473 FAX 570 654 6880

TYPE OF SUBMISSION	PROJECT	DATE
Water Quality Management (WQM) Part II Application No. 4009402 Review 2	**City of Pittston Sewer System Improvements Project**	**April 14, 2009**
REVIEWER	**CONSULTANT**	**PHONE**
Philip J. Amico, P.E., P.L.S. Department of Environmental Protection	**Reilly Associates**	**(570) 654-2473**

COMMENT NO.	DRAWING NO.	COMMENTS
1	1, 2, 6-8, 12-13, 15, 19-21, 23-25, 27-31	Thanks for adding the existing utilities to the profiles. A number of conflicts have been identified that will help the Contractor during construction. Most of the water, gas and ex. sanitary lines that are in conflict with the new sanitary and stormwater systems have a note near them explaining if the utility is to be either "relocated" or "abandoned." However, there are still utility line conflicts that do not have an appropriate note near them. (e.g. On Sheet No. 27, two 6" water lines and an 18" sanitary line conflict.) There are a few on other drawings as well. Please add the necessary notes. **Response: Additional utility crossings were added to the profiles and the conflicts were addressed. Also, a general note was added to sheet 1 regarding the removal of the existing combined system.**
3	19	The new sanitary line is still missing from the 72" RCP profile drawing on Sheet No. 19. **Response: The proposed sanitary line was added to the 72" RCP profile on sheet 19.**
8	4	The invert out for SAN MH 217 needs to be changed to 689.59 on Sheet No. 4. **Response: The invert out label for manhole 217 was revised on sheet 4.**

TYPE OF SUBMISSION	PROJECT	DATE
Water Quality Management (WQM) Part II Application No. 4009402 Review 2	**City of Pittston Sewer System Improvements Project**	**April 14, 2009**
REVIEWER	**CONSULTANT**	**PHONE**
Philip J. Amico, P.E., P.L.S. Department of Environmental Protection	**Reilly Associates**	**(570) 654-2473**

COMMENT NO.	DRAWING NO.	COMMENTS
1	1, 2, 6-8, 12-13, 15, 19-21, 23-25, 27-31	Thanks for adding the existing utilities to the profiles. A number of conflicts have been identified that will help the Contractor during construction. Most of the water, gas and ex. sanitary lines that are in conflict with the new sanitary and stormwater systems have a note near them explaining if the utility is to be either "relocated" or "abandoned." However, there are still utility line conflicts that do not have an appropriate note near them. (e.g. On Sheet No. 27, two 6" water lines and an 18" sanitary line conflict.) There are a few on other drawings as well. Please add the necessary notes. **Response: Additional utility crossings were added to the profiles and the conflicts were addressed. Also, a general note was added to sheet 1 regarding the removal of the existing combined system.**
3	19	The new sanitary line is still missing from the 72" RCP profile drawing on Sheet No. 19. **Response: The proposed sanitary line was added to the 72" RCP profile on sheet 19.**
8	4	The invert out for SAN MH 217 needs to be changed to 689.59 on Sheet No. 4. **Response: The invert out label for manhole 217 was revised on sheet 4.**

REILLY ASSOCIATES, Consulting Engineers
49 South Main Street, Suite 200, Pittston, PA 18640
(570) 654-2473 (570) 654-6880 (Fax)

LETTER OF TRANSMITTAL

TO: Department of Environmental Protection
Northeast Regional Office
Attn: Philip J. Amico, P.E., P.L.S.
Environmental Engineer
2 Public Square
Wilkes-Barre, PA 18711-0790

DATE: April 14, 2009
RE: Sewer System Improvements Project
City of Pittston
Water Quality Management (WQM)
Part II Application No. 4009403

We are transmitting the following to you:

- ☒ Attached
- ☐ Under Separate Cover
- ☐ Shop Drawings
- ☐ Prints
- ☒ Plans
- ☐ Specifications
- ☐ Change Order
- ☐ Samples
- ☒ Other

COPIES	DESCRIPTION
2	Index of Drawings
	WATER QUALITY
	COUNTY:
	APR 15 2009
	MUNIC:
	FACILITY:
	FILE CODE:

THESE ARE TRANSMITTED as checked below:

- ☐ For Approval
- ☐ For Review
- ☐ For Your Use
- ☐ For Review and Comment
- ☐ FOR BIDS DUE _____
- ☐ Approved As Submitted
- ☐ Approved As Noted
- ☐ Returned For Corrections
- ☐ PRINTS RETURNED AFTER LOAN TO US
- ☐ Resubmit ___ Copies For Approval
- ☐ Submit ___ Copies For Distribution
- ☐ Return ___ Corrected Prints

REMARKS:

SENT VIA:

- ■ Hand Deliver
- ☐ Overnight
- ☐ First Class Mail

COPY TO: Joseph Keating – City of Pittston Mayor

SIGNED: Martin A. Musso, P.E.

Amico, Philip

From: Amico, Philip
Sent: Wednesday, April 08, 2009 2:40 PM
To: 'mmusso@reillyengineering.com'
Subject: PITTSTON CITY Sewer System Improvement Project

Marty,

I wasn't going to bother you guys with a few more minor revisions, but I just noticed the drawings for the work in Pittston weren't signed or dated by Tom. Since the cover sheet needs to be revised, I'll also explain a few other changes. I'll point out the previous comment # that relates to my new comment and you can take it from there...

Comment 1
Thanks for adding the existing utilities to the profiles. A number of conflicts have been identified that will help the Contractor during construction. Most of the water, gas and ex. sanitary lines that are in conflict with the new sanitary and stormwater systems have a note near them explaining if the utility is to be either "relocated" or "abandoned." However, there are still utility line conflicts that do not have an appropriate note near them. (e.g. On Sheet No. 27, two 6" water lines and an 18" sanitary line conflict.) There are a few on other drawings as well. Please add the necessary notes.

Comment 3
The new sanitary line is still missing from the 72" RCP profile drawing on Sheet No. 19.

Comment 8
The invert out for SAN MH 217 needs to be changed to 689.59 on Sheet No. 4.

You can just resubmit 2 copies of the plan sheets that you revise and I'll insert them into the set that I have here in our office. Just remember to put a revision date on the sheets you will be changing.

Thanks,

Phil

Philip J. Amico, P.E., P.L.S. | Environmental Engineer
Department of Environmental Protection
Northeast Regional Office
2 Public Square | Wilkes-Barre, PA 18711-0790
Phone: 570.826.2310 | Fax: 570.830.3016
www.depweb.state.pa.us

Reilly ASSOCIATES SINCE 1930

ENGINEERING / ENVIRONMENTAL / SURVEYING

April 7, 2009

Department of Environmental Protection
Northeast Regional Office
2 Public Square
Wilkes-Barre, PA 18711-0790

WATER QUALITY
COUNTY: _____

APR 07 2009

MUNIC: _____
FACILITY: _____
FILE CODE: _____

Attn: Philip J. Amico, P.E., P.L.S.
Environmental Engineer

Re: Sewer System Improvements Project
City of Pittston
Water Quality Management (WQM)
Part II Application No. 4009402

Dear Phil:

We are in receipt of your Technical Review Comments of the above referenced permit application sent via email to Mayor Keating on March 9, 2009. We have reviewed the comments and have made the necessary revisions to the application. Please find enclosed the following for your review:

- Two (2) copies - Revised Construction Plans (Sheets 1 thru 38)
- Two (2) copies – Comment response table listing all of your comments followed by an explanation of our revisions

If you have any questions please do not hesitate to contact me.

Sincerely,

REILLY ASSOCIATES

Martin A. Musso, P.E.

Enclosures

cc: Joseph Keating – City of Pittston Mayor

Z:\09005\Correspondence\Ltr DEP 04-07-09.doc

49 South Main Street, Pittston, PA 18640 570 654 2473 FAX 570 654 6880

TYPE OF SUBMISSION	PROJECT	DATE
Water Quality Management (WQM) Part II Application No. 4009402 Review 1	**City of Pittston Sewer System Improvements Project**	**April 7, 2009**
REVIEWER	**CONSULTANT**	**PHONE**
Philip J. Amico, P.E., P.L.S. Department of Environmental Protection	**Reilly Associates**	**(570) 654-2473**

COMMENT NO.	DRAWING NO.	COMMENTS
1	2-31	Please include all utility lines (water, gas, stormwater, electric...) on the profile drawings to help prevent accidents/damage during construction. If the vertical separation distance between water mains and sewer lines required by Section 28.32 of the Department's Domestic Wastewater Facilities Manual (DWFM) is not met, portions of the new sewer lines must be encased in concrete. **Response: Existing utility lines have been added to the profiles at all crossing locations.** **Where conflicts exist a note to relocate the existing utility was added.**
2	19	On Sheet No 19 it appears the sewer line between sanitary manholes 208.2 and 208.1 conflicts with the location of the existing 6" water line and 1-1/4" gas line. The entire sewer line may need to be encased in concrete if the required vertical separation distance between the water line and sewer line cannot be achieved. **Response: The proposed sewer line location was shifted to the east in order to avoid the existing utility lines.**
3	19	Provide a profile drawing for the sewer line between sanitary manholes 211.1 and 211 proposed along Gazette Street (see Sheet No. 19). Be sure to include the 72" diameter RCP stream enclosure on the profile. **Response: A profile between manholes 211.1 and 211 has been added to sheet 19. The 72" RCP location is included in the profile.**
4	8	Please correct the invert elevations for the sewer lines in sanitary manhole 217.2. The invert out elevation is higher than the incoming sewer elevation. **Response: The invert elevations in manhole 217.2 have been revised.**
5	23, 28, 29 & 31	The invert elevations of the sewer lines in San MH 204.2 (Sheet No. 23), San MH 205 (Sheet No. 28) and San MH 204 (Sheet No. 29) need to be revised in accordance with Section 25.5 of the DWFM. **Response: The invert elevations in manholes 204.2, 205 and 204 have been revised to be in accordance with Section 25.5 of the DWFM using the approximate method of placing the 0.8 depth point of the sewers at the same elevation.**
6	28	On Sheet 28, please include a pipe size for the sewer line exiting San MH 205. **Response: A 10" PVC label was added to the sewer line exiting**

		manhole 205.
7	4 & 6	The station and invert elevations for sanitary manhole 219 shown on Sheet Nos. 4 and 6 do not agree. **Response: The invert labels for manhole 219 were revised on sheet 4.**
8	4 & 9	The invert elevations of the sewers in sanitary manhole 217 shown on Sheet Nos. 4 and 9 do not agree. **Response: The invert labels for manhole 217 were revised on sheet 4.**
9	2-31	Please include invert elevations for all sewer lines in a given manhole. For example, on some sheets where two sewers enter a manhole and one exits, there are three invert elevations specified - which is preferred. Yet, callouts for manholes on other sheets do not include invert elevations for each of the two incoming sewers. Revise accordingly. **Response: All missing invert labels have been added to the plans.**
10	2-31	Include a notation on the plans/profiles for those manholes that are "drop type" manholes. When the incoming sewer line is 24 inches or more above the manhole invert, a drop pipe must be provided (see Section 26.2 of the DWFM). The following manholes appear to need a drop pipe: 202, 208.1, 209, 211.2, 212, 214, 216, 217, existing SAN MH 201... **Response: Drop manholes have been labeled on the plan where required.**
11	33-34	Consider adding a note to the "Utility Crossings" detail on Sheet No. 34 to specify when concrete encasement is needed and cross-reference the concrete encasement detail on Sheet No. 33. Also, verify the correct dimensions for the sanitary sewer concrete encasement. On page 1A-2 of the Technical Specifications, the encasement is specified as 12 inches min. at any point around the pipe; however, the detail on Sheet No. 33 indicates the concrete encasement will vary from 4"-8". Please revise accordingly. **Response: Additional notes have been added to the Utility Crossing detail on sheet 34 as suggested. The Sanitary Sewer Concrete Encasement detail on sheet 33 has been revised to agree with the Technical Specifications.**
12		General comments on plans: - include a north arrow on Sheet No. 1 and on each of the large scale plans where one is missing - matchlines would help orient adjoining plan sheets and would aid the contractor during construction **Response: All missing north arrows have been added. Matchlines were added to the plan views.**

Amico, Philip

From: Amico, Philip
Sent: Monday, March 30, 2009 11:09 AM
To: 'jdurkin@reillyengineering.com'
Subject: FW: City of Pittston Sewer System Improvement Project

Joe,

Just checking in to see you've had a chance to go through my comments. Our Supervisors were asking about the status of both the Pittston and West Pittston sewer improvement projects.

Phil

Philip J. Amico, P.E., P.L.S. | Environmental Engineer
Department of Environmental Protection
Northeast Regional Office
2 Public Square | Wilkes-Barre, PA 18711-0790
Phone: 570.826.2310 | Fax: 570.830.3016
www.depweb.state.pa.us

-----Original Message-----
From: Amico, Philip
Sent: Monday, March 09, 2009 1:49 PM
To: 'ronmort046@aol.com'
Cc: 'jdurkin@reillyengineering.com'
Subject: City of Pittston Sewer System Improvement Project

Mayor Keating,

The Department has performed a Technical Review of Water Quality Management (WQM) Part II Application No. 4009402 for the above project and the following deficiencies need to be addressed:

1. Please include all utility lines (water, gas, stormwater, electric...) on the profile drawings to help prevent accidents/damage during construction. If the vertical separation distance between water mains and sewer lines required by Section 28.32 of the Department's Domestic Wastewater Facilities Manual (DWFM) is not met, portions of the new sewer lines must be encased in concrete.

2. On Sheet No 19., it appears the sewer line between sanitary manholes 208.2 and 208.1 conflicts with the location of the existing 6" water line and 1-1/4" gas line. The entire sewer line may need to be encased in concrete if the required vertical separation distance between the water line and sewer line can not be achieved.

3. Provide a profile drawing for the sewer line between sanitary manholes 211.1 and 211 proposed along Gazette Street (see Sheet No. 19). Be sure to include the 72" diameter RCP stream enclosure on the profile.

4. Please correct the invert elevations for the sewer lines in sanitary manhole 217.2. The invert out elevation is higher than the incoming sewer elevation.

5. The invert elevations of the sewer lines in San MH 204.2 (Sheet No. 23), San MH 205 (Sheet No. 28) and San MH 204 (Sheet No. 29) need to be revised in accordance with Section 25.5 of the DWFM.

6. On Sheet 28, please include a pipe size for the sewer line exiting San MH 205.

7. The station and invert elevations for sanitary manhole 219 shown on Sheet Nos. 4 and 6 do not agree.

8. The invert elevations of the sewers in sanitary manhole 217 shown on Sheet Nos. 4 and 9 do not agree.

9. Please include invert elevations for all sewer lines in a given manhole. For example, on some sheets where two sewers enter a manhole and one exits, there are three invert elevations specified - which is preferred. Yet, callouts for manholes on other sheets do not include invert elevations for each of the two incoming sewers. Revise accordingly.

10. Include a notation on the plans/profiles for those manholes that are "drop type" manholes. When the incoming sewer line is 24 inches or more above the manhole invert, a drop pipe must be provided (see Section 26.2 of the DWFM). The following manholes appear to need a drop pipe: 202, 208.1, 209, 211.2, 212, 214, 216, 217, existing SAN MH 201..,

11. Consider adding a note to the "Utility Crossings" detail on Sheet No. 34 to specify when concrete encasement is needed and cross-reference the concrete encasement detail on Sheet No. 33.

Also, verify the correct dimensions for the sanitary sewer concrete encasement. On page 1A-2 of the Technical Specifications, the encasement is specified as 12 inches min. at any point around the pipe; however, the detail on Sheet No. 33 indicates the concrete encasement will vary from 4"-8". Please revise accordingly.

12. General comments on plans:
- include a north arrow on Sheet No. 1 and on each of the large scale plans where one is missing
- matchlines would help orient adjoining plan sheets and would aid the contractor during construction

Please provide two copies of the revised documents.

If you have any questions, feel free to contact me.

Phil

Philip J. Amico, P.E., P.L.S. | Environmental Engineer
Department of Environmental Protection
Northeast Regional Office
2 Public Square | Wilkes-Barre, PA 18711-0790
Phone: 570.826.2310 | Fax: 570.830.3016
www.depweb.state.pa.us

Amico, Philip

From: Brunamonti, Michael
Sent: Thursday, March 19, 2009 7:51 AM
To: Buczynski, Joseph; Amico, Philip; Novatnak, Scott
Cc: Myers, Tiffann
Subject: RE: West Pittston and Pittston Part II permits

Thanks Phil. Sounds good to me too. I'm thinking we may also want to include a statement in the transmittal letter drawing their attention to this.

-----Original Message-----
From: Buczynski, Joseph
Sent: Thursday, March 19, 2009 7:39 AM
To: Amico, Philip; Novatnak, Scott
Cc: Brunamonti, Michael; Myers, Tiffann
Subject: RE: West Pittston and Pittston Part II permits

Thanks Phil. I like it.

Scott, do you have any suggestions?

-----Original Message-----
From: Amico, Philip
Sent: Wednesday, March 18, 2009 2:59 PM
To: Buczynski, Joseph
Cc: Brunamonti, Michael; Myers, Tiffann
Subject: RE: West Pittston and Pittston Part II permits

Joe,

I still haven't heard from Reilly Associates regarding my plan deficiencies, but I wanted to take a shot at addressing your concerns before I prepare a "draft" of the WQM permit.

Our permit already contains Conditions 13. and 18. that discuss a "Post Construction Certification" required to be completed by the Engineer and eliminating stormwater inputs to the sewer line. I'm suggesting the following additional language to Condition 18. :

18. Stormwater from roofs, foundation drains, basement drains or other sources shall not be admitted directly to the sanitary sewers. All existing stormwater piping shall be disconnected from the building sanitary sewer laterals prior to connecting them to the new sanitary sewers. Completion of the "Post Construction Certification", required by Condition 13. above, shall constitute proof that this was accomplished.

Let me know what you guys think.

Phil

-----Original Message-----
From: Brunamonti, Michael
Sent: Wednesday, February 25, 2009 8:10 AM
To: Amico, Philip; Myers, Tiffann
Cc: Buczynski, Joseph
Subject: FW: West Pittston and Pittston Part II permits

Phil & Tiffann:

Please make a note that we need to do this.

-----Original Message-----
From: Buczynski, Joseph
Sent: Wednesday, February 25, 2009 8:05 AM

To: Brunamonti, Michael
Cc: Crowley, Kate; Novatnak, Scott
Subject: West Pittston and Pittston Part II permits

Mike,

Just a thought not to forget about our discussions regarding adding special conditions to both of these stormwater/sewer separation projects to ensure that all stormwater inputs (sump pumps, basement drains, rain leaders, or other stormwater inflow sources) are all disconnected from each residential and commerical structure prior to connecting the laterals from those parcels to the new sanitary lines. I would suggest to task the project's engineer with providing the Department with a certification that that has been accomplished.

We are fearful that without such a certification, the first rainstorm will overwhelm the new sanitary lines and cause more problems than currently exist.

We can assist in commenting on the proposed language if you'd like.

Thanks.

Joseph J. Buczynski, P.E. | Environmental Engineer Manager, Planning Section
Department of Environmental Protection
Northeast Regional Office
2 Public Square | Wilkes-Barre, PA 18711-0790
Phone: 570-826-2333 | Fax: 570-830-3016
www.depweb.state.pa.us

Amico, Philip

From: Amico, Philip
Sent: Monday, March 09, 2009 1:49 PM
To: 'ronmort046@aol.com'
Cc: 'jdurkin@reillyengineering.com'
Subject: City of Pittston Sewer System Improvement Project
Tracking:

Recipient	Read
'ronmort046@aol.com'	
'jdurkin@reillyengineering.com'	
Brunamonti, Michael	Read: 3/9/2009 3:08 PM
Buczynski, Joseph	

Mayor Keating,

The Department has performed a Technical Review of Water Quality Management (WQM) Part II Application No. 4009402 for the above project and the following deficiencies need to be addressed:

1. Please include all utility lines (water, gas, stormwater, electric...) on the profile drawings to help prevent accidents/damage during construction. If the vertical separation distance between water mains and sewer lines required by Section 28.32 of the Department's Domestic Wastewater Facilities Manual (DWFM) is not met, portions of the new sewer lines must be encased in concrete.

2. On Sheet No 19., it appears the sewer line between sanitary manholes 208.2 and 208.1 conflicts with the location of the existing 6" water line and 1-1/4" gas line. The entire sewer line may need to be encased in concrete if the required vertical separation distance between the water line and sewer line can not be achieved.

3. Provide a profile drawing for the sewer line between sanitary manholes 211.1 and 211 proposed along Gazette Street (see Sheet No. 19). Be sure to include the 72" diameter RCP stream enclosure on the profile.

4. Please correct the invert elevations for the sewer lines in sanitary manhole 217.2. The invert out elevation is higher than the incoming sewer elevation.

5. The invert elevations of the sewer lines in San MH 204.2 (Sheet No. 23), San MH 205 (Sheet No. 28) and San MH 204 (Sheet No. 29) need to be revised in accordance with Section 25.5 of the DWFM.

6. On Sheet 28, please include a pipe size for the sewer line exiting San MH 205.

7. The station and invert elevations for sanitary manhole 219 shown on Sheet Nos. 4 and 6 do not agree.

8. The invert elevations of the sewers in sanitary manhole 217 shown on Sheet Nos. 4 and 9 do not agree.

9. Please include invert elevations for all sewer lines in a given manhole. For example, on some sheets where two sewers enter a manhole and one exits, there are three invert elevations specified - which is preferred. Yet, callouts for manholes on other sheets do not include invert elevations for each of the two incoming sewers. Revise accordingly.

10. Include a notation on the plans/profiles for those manholes that are "drop type" manholes. When the incoming sewer line is 24 inches or more above the manhole invert, a drop pipe must be provided (see Section 26.2 of the DWFM). The following manholes appear to need a drop pipe: 202, 208.1, 209, 211.2,

212, 214, 216, 217, existing SAN MH 201...

11. Consider adding a note to the "Utility Crossings" detail on Sheet No. 34 to specify when concrete encasement is needed and cross-reference the concrete encasement detail on Sheet No. 33.

Also, verify the correct dimensions for the sanitary sewer concrete encasement. On page 1A-2 of the Technical Specifications, the encasement is specified as 12 inches min. at any point around the pipe; however, the detail on Sheet No. 33 indicates the concrete encasement will vary from 4"-8". Please revise accordingly.

12. General comments on plans:
- include a north arrow on Sheet No. 1 and on each of the large scale plans where one is missing
- matchlines would help orient adjoining plan sheets and would aid the contractor during construction

Please provide two copies of the revised documents.

If you have any questions, feel free to contact me.

Phil

Philip J. Amico, P.E., P.L.S. | Environmental Engineer
Department of Environmental Protection
Northeast Regional Office
2 Public Square | Wilkes-Barre, PA 18711-0790
Phone: 570.826.2310 | Fax: 570.830.3016
www.depweb.state.pa.us

Amico, Philip

From: Brunamonti, Michael
Sent: Wednesday, February 25, 2009 8:10 AM
To: Amico, Philip; Myers, Tiffann
Cc: Buczynski, Joseph
Subject: FW: West Pittston and Pittston Part II permits

Phil & Tiffann:

Please make a note that we need to do this.

-----Original Message-----
From: Buczynski, Joseph
Sent: Wednesday, February 25, 2009 8:05 AM
To: Brunamonti, Michael
Cc: Crowley, Kate; Novatnak, Scott
Subject: West Pittston and Pittston Part II permits

Mike,

Just a thought not to forget about our discussions regarding adding special conditions to both of these stormwater/sewer separation projects to ensure that all stormwater inputs (sump pumps, basement drains, rain leaders, or other stormwater inflow sources) are all disconnected from each residential and commerical structure prior to connecting the laterals from those parcels to the new sanitary lines. I would suggest to task the project's engineer with providing the Department with a certification that that has been accomplished.

We are fearful that without such a certification, the first rainstorm will overwhelm the new sanitary lines and cause more problems than currently exist.

We can assist in commenting on the proposed language if you'd like.

Thanks.

Joseph J. Buczynski, P.E. | Environmental Engineer Manager, Planning Section
Department of Environmental Protection
Northeast Regional Office
2 Public Square | Wilkes-Barre, PA 18711-0790
Phone: 570-826-2333 | Fax: 570-830-3016
www.depweb.state.pa.us

Pennsylvania Department of Environmental Protection

2 Public Square
Wilkes-Barre, PA 18711-0790
February 24, 2009

Northeast Regional Office

570-826-2511
Fax 570-830-3016

City of Pittston
35 Broad Street
Pittston, PA 18640

Attention: Mr. Joseph P. Keating, Mayor

Re: Acceptance/Administrative Completeness Letter
Application # 4009402
City of Pittston
Pittston City, Luzerne County

Dear Mr. Keating:

On February 17, 2009, the Department of Environmental Protection (DEP) received the above referenced application. We have determined that the application contains the necessary documents and is administratively complete.

The administrative completeness review is the first in a series of reviews conducted by DEP. To help you better understand the application review process, a brief explanation of the permit application review process and approximate times are outlined on the enclosed Permit Application Review Process Fact Sheet.

Your permit application is eligible for the Department's Money Back Guarantee Program. For your information, I have enclosed a DEP Fact Sheet and Governor's Office Executive Order explaining the program, and permit processing time frames.

I hope you find this information helpful in understanding the application review process. If you have additional questions about your application, please contact Mr. Philip Amico at 570-826-2310 and refer to application number 4009402.

Sincerely,

Mike Brunamonti/pla

Mike Brunamonti, P.E.
Chief, Permits Section
Water Management Program

Enclosure

cc: Mr. Joseph Durkin/Reilly Associates

bcc: M. Bedrin
S. Brokenshire (Part II's Only)
File

Reilly ASSOCIATES SINCE 1930

ENGINEERING / ENVIRONMENTAL / SURVEYING

February 20, 2009

Pennsylvania Department of
Environmental Protection
Water Quality
2 Public Square
Wilkes-Barre, PA 18711

WATER QUALITY
COUNTY: _____

FEB 23 2009

MUNIC: _____
FACILITY: _____
FILE CODE: _____

Attn: Ms. Jean Demko

RE: City of Pittston
Sanitary Sewer System Improvement
WQM Part II Permit Application

Dear Ms. Demko:

Please find enclosed three (3) copies of the Act 14 letters and United States Postal Service Certified Mail Return Receipts from Luzerne County and the City of Pittston for the Water Quality Management Part II Permit Application for the City of Pittston Sanitary Sewer System Improvement Project in, Luzerne County, PA.

If you need any additional information or have any questions, please feel free to contact us.

Sincerely,

REILLY ASSOCIATES

Casey Cawley

Enclosures

Cc: File (w/o encl)

z:\09005\part ii permit\ltr dep part ii act 14 2-20-09.doc

49 South Main Street, Pittston, PA 18640 570 654 2473 FAX 570 654 6880

Reilly ASSOCIATES SINCE 1930

ENGINEERING / ENVIRONMENTAL / SURVEYING

February 17, 2009

CERTIFIED MAIL NO. 7155 5474 4100 7595 5558

City of Pittston
35 Broad Street
Pittston, PA 18640
Attn: Joseph P. Keating, Mayor

RE: **City of Pittston Sewer System Improvements**
Sanitary and Storm Sewer
Pittston, Luzerne County, PA

Mayor Keating:

This municipal notice is to inform you that the City of Pittston is applying for a Part II Water Quality Management Permit for a sewer extension from the Pennsylvania Department of Environmental Protection's (DEP) Northeast Regional Office for the following project:

Applicant Contact: City of Pittston, City Hall, 35 Broad Street, Pittston PA 18640.

Project Location: On and surrounding Broad Street and South Main Street

Project Description: The proposed project consists of replacing existing combined sewers and separating portions of the system into storm sewers and sanitary sewers. The pipes under construction are undersized and in need of replacement due to age. The new storm sewers would consist of approximately 12,000 feet of 18 to 72 inch pipes, new concrete street inlets and manholes. The new sanitary sewers would consist of approximately 11,500 feet of 8 to 18 inch pipes, new concrete manholes, 600 feet of 2 inch to 2.5 inch low pressure sewer pipe, grinder pumps, and lateral connections. All work will be conducted within existing roads or City Right-of-Ways or easements.

49 South Main Street, Pittston, PA 18640 570 654 2473 FAX 570 654 6880

Acts 67, 68 and 127 of 2000 amended the Municipalities Planning Code (MPC) and directs state agencies to consider comprehensive plans and zoning ordinances when reviewing applications for permitting of facilities or infrastructure, and specifies that state agencies may rely upon comprehensive plans and zoning ordinances under certain conditions as describes in Sections 619.2 and 1105 of the MPC.

Enclosed is an attached sheet containing answers to the Land Use Information questions found in the DEP General Information Form (GIF). DEP invites you to review the attached application and comment on the accuracy of answers provided with regard to land use aspects of this project; please be specific to DEP and focus on the relationship to zoning ordinances. If you wish to submit comments to DEP to become a part of a land use review of this project, you must respond within 30 days to the DEP regional office referenced in this letter. If there are no land uses comments received by the end of the comment period, DEP will assume that there are no substantive land use conflicts and proceed with the normal application review process.

For more information about this land use review process, visit DEP's website at www.dep.state.pa.us, Keyword: "DEP Land Use Reviews."

Sincerely,

REILLY ASSOCIATES

Casey Cawley

Enclosures

Cc: File (w/ encl)

U.S. Postal Service
Certified Mail Receipt

ARTICLE NUMBER
7155 5474 4100 7595 5558

ARTICLE ADDRESS TO:
City of Pittston
Attn: Joseph P. Keating, Mayor
35 Broad St
Pittston PA 18640-1825

FEES
Postage per piece $0.42
Certified Fee 2.70
Total Postage & Fees: $3.12

PITTSTON PA 18640
FEB 17 2009
Postmark Here

Attn: Joseph P. Keating, Mayor
35 Broad St
Pittston PA 18640-1825

CERTIFIED MAIL

PS Form 3800, 2/04

7155 5474 4100 7595 5558

RETURN RECEIPT REQUESTED

COMPLETE THIS SECTION ON DELIVERY

A. Signature: (☐ Addressee or ☐ Agent)
X Jeanne McKinney

B. Received By: (Please Print Clearly)
Jeanne McKinney

C. Date of Delivery
2-18-9

D. Addressee's Address (If Different From Address)

Secondary Address / Suite / Apt. / Floor (Please Print)

Delivery Address

City State ZIP + 4 Code

City of Pittston
Attn: Joseph P. Keating, Mayor
35 Broad St
Pittston PA 18640-1825

Postmark Here

File

Reilly ASSOCIATES SINCE 1930

ENGINEERING / ENVIRONMENTAL / SURVEYING

February 12, 2009

CERTIFIED MAIL NO. 71555474410075950386

Luzerne County Commissioners
200 North River Street
Wilkes-Barre, PA 18711

RE: City of Pittston Sewer System Improvements
Sanitary and Storm Sewer
Pittston, Luzerne County, PA

Dear Commissioners:

This municipal notice is to inform you that the City of Pittston is applying for a Part II Water Quality Management Permit for a sewer extension from the Pennsylvania Department of Environmental Protection's (DEP) Northeast Regional Office for the following project:

Applicant Contact: City of Pittston, City Hall, 35 Broad Street, Pittston PA 18640.

Project Location: On and surrounding Broad Street and South Main Street

Project Description: The proposed project consists of replacing existing combined sewers and separating portions of the system into storm sewers and sanitary sewers. The pipes under construction are undersized and in need of replacement due to age. The new storm sewers would consist of approximately 12,000 feet of 18 to 72 inch pipes, new concrete street inlets and manholes. The new sanitary sewers would consist of approximately 11,500 feet of 8 to 18 inch pipes, new concrete manholes, 600 feet of 2 inch to 2.5 inch low pressure sewer pipe, grinder pumps, and lateral connections. All work will be conducted within existing roads or City Right-of-Ways or easements.

49 South Main Street, Suite 200, Pittston, PA 18640 · 570 654 2473 FAX 570 654 6880

Acts 67, 68 and 127 of 2000 amended the Municipalities Planning Code (MPC) and directs state agencies to consider comprehensive plans and zoning ordinances when reviewing applications for permitting of facilities or infrastructure, and specifies that state agencies may rely upon comprehensive plans and zoning ordinances under certain conditions as describes in Sections 619.2 and 1105 of the MPC.

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For more information about this land use review process, visit DEP's website at www.dep.state.pa.us, Keyword: "DEP Land Use Reviews."

Sincerely,

REILLY ASSOCIATES

Jared M. Kozemko (MZ)

Jared M. Kozemko, E.I.T.

Enclosures

C: City of Pittston

U.S. Postal Service
Certified Mail Receipt

ARTICLE NUMBER
7155 5474 4300 7595 0386

ARTICLE ADDRESS TO:
LUZERNE COUNTY COMMISSIONERS
200 N RIVER ST
WILKES BARRE PA 18711-1001

FEES

Postage per piece	$1.34
Certified Fee	2.70
Return Receipt Fee	2.20
Total Postage & Fees:	$6.24

Postmark Here
FEB 2009

49 S MAIN ST. STE 200
PITTSTON, PA 18640

PS Form 3

CERTIFIED MAIL

7155 5474 4300 7595 0386

RETURN RECEIPT REQUESTED

COMPLETE THIS SECTION ON DELIVERY

A. Signature: (☐ Addressee or ☐ Agent)
X

B. Received By: (Please Print Clearly)
SB

C. Date of Delivery
2-18-09

D. Addressee's Address (If Different From Address Used by Sender.)

Secondary Address / Suite / Apt. / Floor (Please Print Clearly)

Delivery Address

City State ZIP + 4 Code

Article Addressed To:

LUZERNE COUNTY COMMISSIONERS
200 N RIVER ST
WILKES BARRE PA 18711-1001

Record Fee Payments - Role : FC

Fee Payment Screen

Payment Information

Payment Type	Amount Paid	Reference Number	Date Paid	Date on Check	Deposit Method	Paid By Client	Payer		Address List
CHECK	$100.00	021219	02/17/2009	02/17/2009	TR	N	12508	REILLY A:	

Retrieval Criteria

Account Id	Invoice Id	Client Id	Client AKA	Client Name	Program	Auth Id	PF/SF Other Id	
		87560				782092		

Get Client | Retrieve | Next Query

Transaction Payments

Account Id	Feetrans Id	Auth Id	PF/SF Other Id		Trans Reason	Billing Year	Date Due	Balance	Amount Applied	Rev Code	Trans Details
652810	1810420	782092			PRMI		02/18/2009	$0.00	$100.00	0014	

Allocate Fees | Total Applied $100.00 | Total Amount of Payments $100.00

Back | Go To

Reilly ASSOCIATES SINCE 1930

ENGINEERING/ENVIRONMENTAL/SURVEYING
49 South Main St., Suite 200 • Pittston, PA 18640

021219

PNC Bank, N.A.030
Northeast, PA
60-1/313 501

CHECK DATE
February 17, 2009

PITTSTON - 08040

PAY One Hundred and 00/100 Dollars

AMOUNT
$100.00

TO COMMONWEALTH OF PA DEP
2 PUBLIC SQUARE
WILKES-BARRE PA 18701

AUTHORIZED SIGNATURE

⑈021219⑈

Invoice Number	Date	Voucher	Amount	Discounts	Previous Pay	Net Amount
09005-Pittston	2/17/09	2657	100.00	0.00	0.00	100.00
COMMONWEALTH OF PA DEP EXPENSE 4 79		Totals	100.00	0.00	0.00	100.00

WATER QUALITY
COUNTY: _____

FEB 17 2009

MUNIC: _____
FACILITY: _____
FILE CODE: _____

Engineering

Environmental

Surveying

PENNSYLVANIA DEPARTMENT OF ENVIRONMETAL PROTECTION WATER QUALITY MANAGEMENT

PART II PERMIT APPLICATION AND DESIGN REPORT

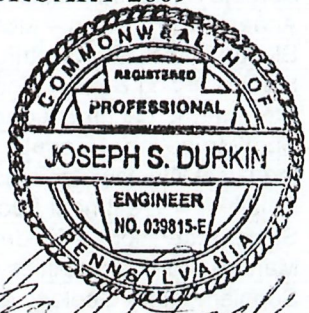
FOR

CITY OF PITTSTON SEWER SYSTEM IMPROVEMENTS PROJECT

Pittston, Luzerne County, Pennsylvania

FEBRUARY 2009

WATER QUALITY
COUNTY:
FEB 17 2009
MUNIC:
FACILITY:
FILE CODE:



Applicant:
City of Pittston
35 Broad Street
Pittston, PA 18640

Prepared By:

Reilly Associates
49 South Main St.
Pittston, PA 18640

Job Number 09005

Reilly ASSOCIATES SINCE 1930

3800-PM-WSFR0400b 9/2005
Permit Application

Applicant Name: City of Pittston

4009402

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER STANDARDS AND FACILITY REGULATION

APPLICATION FOR WATER QUALITY MANAGEMENT PERMIT

Before completing this form, read the step-by-step instructions provided in this application package.

Related ID#s (If Known)		DEP USE ONLY
Client ID# 87560	APS ID# 686356	Date Received & General Notes
Site ID# 717831	Auth ID# 782092	4009402 FEB 19 2009
Facility ID# ____		AIC 2-19-09

APPLICANT IDENTIFIER

Applicant Name: City of Pittston

Current Mailing Address: 35 Broad Street, Pittston, PA 18640

Current Phone Number: (570) 6540513

FACILITY TYPE (Check all appropriate boxes below)

- ☐ Treatment Plant Summary – Module 1
- ☒ Sewer System – Module 2
- ☐ Flow Equalization and Grit Chambers – Module 3
- ☐ Screening and Settling – Module 4
- ☐ Trickling Filters and Aeration – Module 5
- ☐ Chemical Treatment – Module 6
- ☐ Rapid Sand Filters – Module 7
- ☐ Other Filters and Disinfection – Module 8
- ☐ Aerobic Digestion Tanks – Module 9
- ☐ Anaerobic Digestion – Module 10
- ☐ Sludge Filters and Centrifuges – Module 11
- ☐ Sludge Drying Beds – Module 12
- ☐ Stream Encroachment and Crossings – Module 13
- ☐ Spray Irrigation – Module 14
- ☐ Industrial Wastewater Treatment Facility – Module 15
- ☐ Small Flow Treatment Facility – Module 16
- ☐ Sewer Extensions – Module 17
- ☐ Manure Storage Facilities – Module 18
- ☐ Supplementary Geology and Groundwater Information – Module 19
- ☐ Impoundments – Module 20
- ☐ Sequencing Batch Reactor – Module 21
- ☐ Pump Stations – Module 22

COMPLIANCE HISTORY REVIEW

Is/was the facility owner or operator in violation of any DEP regulation, permit, order or schedule of compliance at this or any other facility? ☐ Yes ☒ No

If "Yes," list each permit, order and schedule of compliance and provide compliance status. Use additional sheets to provide information on all permits.

Permit Program	Permit No.
Brief Description of Noncompliance	

Steps Taken to Achieve Compliance	Date(s) Compliance Achieved

Current Compliance Status ☐ In Compliance ☐ In Noncompliance

3800-PM-WSFR0400b 9/2005
Permit Application

Applicant Name: City of Pittston

CERTIFICATION (Check appropriate box below.)

I certify under penalty of law that I

- ☐ am the applicant
- ☐ am an officer or official of the applicant
- ☐ have the authority to make this application (attach delegation of signatory authority) and that the plans, reports and documents designated and attached here with part of the application are true and correct to the best of my knowledge and belief.

Joseph P. Keating	MAYOR
Name (type or print legibly)	Official Title
Joseph P. Keating	2/17/09
Signature	Date

(Use corporate or professional seal as appropriate.)

Taken, sworn and subscribed before me, this 17th day of February 2009

Notary Seal

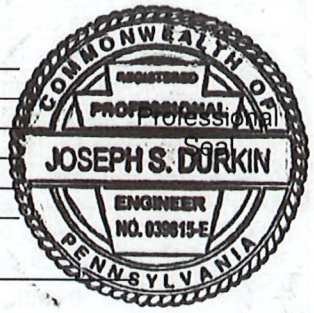
COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
MARIANNE M. ZELONIS, NOTARY PUBLIC
PITTSTON CITY., LUZERNE COUNTY, PA.
MY COMMISSION EXPIRES FEBRYARY 07, 2012

Marianne M. Zelonis

REGISTERED PROFESSIONAL ENGINEER

This is to certify that I have personally reviewed all engineering information contained in the accompanying modules, drawings, specifications and other documents which are part of this application and that I have found it to be of good engineering quality, true and correct, and is in conformance with the requirements of the Department of Environmental Protection (DEP), and it does not, to the best of my knowledge, withhold information that is pertinent to a determination of compliance with the requirements of DEP.

Name of Design Engineer:	Joseph S. Durkin
Design Firm:	Reilly Associates
Mailing Address:	49 S. Main Street Suite 200
	Pittston, PA 18640
Telephone Number:	(570) 654-2473
E-mail Address:	jdurkin@reillyengineering.com



Signature of Professional Engineer

NOTICE: It is an offense under Pennsylvania Criminal Code to affirm a false statement in documents submitted to DEP.

DEP will consider the registered professional engineer whose seal is affixed to design documents to be fully responsible for the adequacy of all aspects of facility designs. The application and supporting documentation submitted for sewerage projects will be reviewed to ensure general consistency with good engineering practices, and the applicable design guidelines of DEP.

3800-PM-WSFR0400b 9/2005
Permit Application

Applicant Name: City of Pittston

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER STANDARDS AND FACILITY REGULATION

4009402
Ak 2/18/09 jc

APPLICATION FOR WATER QUALITY MANAGEMENT PERMIT

Before completing this form, read the step-by-step instructions provided in this application package.

Related ID#s (If Known)		DEP USE ONLY
Client ID# 87560	APS ID# 681035	Date Received & General Notes
Site ID# 417831	Auth ID# 782092	4009402 FEB 17 2009
Facility ID# ____		

APPLICANT IDENTIFIER

Applicant Name: City of Pittston

Current Mailing Address: 35 Broad Street, Pittston, PA 18640

Current Phone Number: (570) 6540513

FACILITY TYPE (Check all appropriate boxes below)

- ☐ Treatment Plant Summary – Module 1
- ☒ Sewer System – Module 2
- ☐ Flow Equalization and Grit Chambers – Module 3
- ☐ Screening and Settling – Module 4
- ☐ Trickling Filters and Aeration – Module 5
- ☐ Chemical Treatment – Module 6
- ☐ Rapid Sand Filters – Module 7
- ☐ Other Filters and Disinfection – Module 8
- ☐ Aerobic Digestion Tanks – Module 9
- ☐ Anaerobic Digestion – Module 10
- ☐ Sludge Filters and Centrifuges – Module 11
- ☐ Sludge Drying Beds – Module 12
- ☐ Stream Encroachment and Crossings – Module 13
- ☐ Spray Irrigation – Module 14
- ☐ Industrial Wastewater Treatment Facility – Module 15
- ☐ Small Flow Treatment Facility – Module 16
- ☐ Sewer Extensions – Module 17
- ☐ Manure Storage Facilities – Module 18
- ☐ Supplementary Geology and Groundwater Information – Module 19
- ☐ Impoundments – Module 20
- ☐ Sequencing Batch Reactor – Module 21
- ☐ Pump Stations – Module 22

COMPLIANCE HISTORY REVIEW

Is/was the facility owner or operator in violation of any DEP regulation, permit, order or schedule of compliance at this or any other facility? ☐ Yes ☒ No

If "Yes," list each permit, order and schedule of compliance and provide compliance status. Use additional sheets to provide information on all permits.

Permit Program	Permit No.
Brief Description of Noncompliance	

Steps Taken to Achieve Compliance	Date(s) Compliance Achieved

Current Compliance Status ☐ In Compliance ☐ In Noncompliance

3800-PM-WSFR0400b 9/2005
Permit Application

Applicant Name: City of Pittston

CERTIFICATION (Check appropriate box below.)

I certify under penalty of law that I

- ☐ am the applicant
- ☐ am an officer or official of the applicant
- ☐ have the authority to make this application (attach delegation of signatory authority) and that the plans, reports and documents designated and attached here with part of the application are true and correct to the best of my knowledge and belief.

Joseph P. Keating	MAYOR
Name (type or print legibly)	Official Title
Joseph P. Keating	2/17/09
Signature	Date

(Use corporate or professional seal as appropriate.)

Taken, sworn and subscribed before me, this 17th day of February 2009

Notary Seal

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
MARIANNE M. ZELONIS, NOTARY PUBLIC
PITTSTON CITY., LUZERNE COUNTY, PA.
MY COMMISSION EXPIRES FEBRYARY 07, 2012

Marianne M. Zelonis

REGISTERED PROFESSIONAL ENGINEER

This is to certify that I have personally reviewed all engineering information contained in the accompanying modules, drawings, specifications and other documents which are part of this application and that I have found it to be of good engineering quality, true and correct, and is in conformance with the requirements of the Department of Environmental Protection (DEP), and it does not, to the best of my knowledge, withhold information that is pertinent to a determination of compliance with the requirements of DEP.

Name of Design Engineer:	Joseph S. Durkin
Design Firm:	Reilly Associates
Mailing Address:	49 S. Main Street Suite 200
	Pittston, PA 18640
Telephone Number:	(570) 654-2473
E-mail Address:	jdurkin@reillyengineering.com

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH S. DURKIN
ENGINEER
NO. 039615-E

Signature of Professional Engineer

NOTICE: It is an offense under Pennsylvania Criminal Code to affirm a false statement in documents submitted to DEP.

DEP will consider the registered professional engineer whose seal is affixed to design documents to be fully responsible for the adequacy of all aspects of facility designs. The application and supporting documentation submitted for sewerage projects will be reviewed to ensure general consistency with good engineering practices, and the applicable design guidelines of DEP.

3800-PM-WSFR0400c 9/2005
Checklist

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER STANDARDS AND FACILITY REGULATION

CHECKLIST FOR WATER QUALITY MANAGEMENT PERMIT

		APPLICANT'S √ CHECKLIST	
APPLICANT NAME	City of Pittston		

Check the following list to make sure that you have included all the required information. Place a checkmark in the column provided for all items completed and/or provided. Failure to provide all of the requested information will delay the processing of the application.

ENCLOSE THIS CHECKLIST WITH YOUR APPLICATION FORM.

		Check √ If Included	DEP Use Only
1.	General Information Form (GIF).	☒	
2.	Appropriate application fee.	☒	
3.	Two (2) copies (original and 1 copy) of application, design module(s), and accompanying drawings and plans.	☒	
	a. Certification and proper signatures.	☒	
	b. Engineer's professional seal.	☒	
	c. *Design Engineer's Report*	☒	
	d. Properly notarized (original).	☒	
	e. Additional copy for Delaware River Basin or Erie and Allegheny counties (if required).	☐	
4.	Supplemental Information:		
	a. General Layout Diagram.	☒	
	b. Sizes, Capacities and Dimensions Diagram.	☒	
5.	Design Modules.	☒	
6.	Topographic map with appropriate details.	☒	
7.	Act 14 Notification.	☒	
8.	Act 537 Approval (if required).	☐	
9.	Acts 67, 68 and 127 Notification (IW and Manure Storage Facilities only).	☐	
10.	Proof of Public Notification (IW and Manure Storage Facilities only)	☐	
11.	DRBC Notification (if required).	☐	
12.	Other (specify):	☐	

3800-PM-WSFR0400e 9/2005
Module 2

Applicant Name: City of Pittston

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER STANDARDS AND FACILITY REGULATION

SEWER SYSTEM
MODULE 2

APPLICANT NAME	City of Pittston		
SEWER SYSTEM			
1. CLASS OF CONSTRUCTION: ☐ NEW SYSTEM ☒ REPLACEMENT OF EXISTING SYSTEM ☒ SANITARY			
If other than a new system, list the WQM permit number ammended by this application.			
2. List the WQM permit number of the sewer to which this system connects.			
3. List the WQM permit number of the treatment facility receiving flow from this system.			PA-0026107
4. What is the reserve capacity of the most limiting component between this connection and the treatment facility?			1.700 MGD
5. INITIAL POPULATION: 4260		DESIGN YEAR POPULATION:	4260
6. DESIGN FLOW DATA:			
a. Laterals and Submain Sewers	(GPCD)	100	
b. Interceptors	(GPCD)	---	
c. Average Daily Flow	(mgd)	0.426	
d. Infiltration/Inflow (I/I)	(mgd)	---	
e. Industrial Waste Flow	(mgd)	0.084	
f. Total Average Design Flow	(mgd)	0.510	
g. Maximum Expected Flowrate (Peak Instantaneous)	(mgd)	2.039	
7. GENERAL INFORMATION:			
a. Describe measures taken to reduce I/I in the system including leakage test and reference applicable portion of the specifications. Air testing of sanitary pipes, vacuum testing of manholes, construction inspection.			
b. Describe any overflows within the system. There will not be any overflows in new section; other areas of existing city system has overflows			
c. If applicable, describe capacity of receiving sewers and pumping station. Unknown			

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CHECKLIST

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

GENERAL INFORMATION FORM -- AUTHORIZATION APPLICATION
APPLICANT'S CHECKLIST

This final checklist is to assist the applicant in assuring that all requests for responses, contacts, additional documentation, etc. have been addressed. Please check the following list to make sure that you have included all the required information. Failure to provide all of the requested information will delay the processing of the application and may result in the application being placed on hold with no action, or will be considered withdrawn and the application file closed. This applicant's checklist need not be returned to DEP with your completed application.

REQUIREMENTS

☒ **1. ATTACHMENTS.** The completion of the GIF may require the submission of some or all of the following. Where appropriate, include the appropriate attachment(s) with the completed GIF.

- ☒ **a) Site Information, Written Directions to Site** - Attach additional sheets as necessary.
- ☒ **b) Facility Information, Latitude/Longitude** – Attach additional sheets as necessary.
- ☒ **c) Project Information, Project Description** – Attach additional sheets as necessary.
- ☒ **d) Project Information, Time Schedules** -- Attach additional sheets as necessary.
- ☒ **e) Land Use Information** – If the project has already received local planning approvals, building permits or special exemptions or conditional approvals to the local zoning ordinance, attach such documentation if possible. If the site is "grand-fathered" as a pre-existing use or a vested right, document that information as well. If the early opt-out option is being used, attach approval letters from local municipality(ies) and county(ies) where project is being proposed. For more information on this, see the GIF Instructions and the Department's policy on the land use review process for permitting – Document ID: 012-0200-001.
- ☒ **f) Coordination Information** - If land is disturbed, it may be the applicant's responsibility to also notify the PA Historical and Museum Commission, Bureau of Historic Preservation, 400 North Street, Floor 2, Harrisburg, PA 17120-0093, (717) 787-3362.

  PHMC notification is required for:

  1) purposes of construction activities for Individual NPDES permits disturbing 10 or more acres; and
  2) Erosion & Sediment Control permits.

  General NPDES permits disturbing 10 or more acres are exempt from PHMC notification. For additional information, see Cultural Resource Notice instructions to determine whether submission of information to PHMC is required for this permit application.
- ☐ **g) Coordination Information, Question 9.0.1** – Attach copy– Act 537 Approval Letter. Note: Approval required prior to 105/NPDES approval.
- ☐ **h) Coordination Information, Question 16.0.2** – Attach copy - Public Water Supplier's Agreement Letter to Serve the Project.

☒ **2. CONTACTS MADE.** According to information provided in the Coordination Information section, the appropriate DEP office may need to be contacted; as well as some agencies outside DEP. See the Instructions document for appropriate contact per coordination question.

In addition to contacts referenced above, prior to proceeding with any project, DEP encourages applicants to be in touch with municipal and county governments to get information on and secure, if possible, any local permits or approvals that might be required for the project. By doing so, potential conflicts at the local level can be resolved prior to application submission to DEP.

☒ **3. BEFORE YOU DIG -- CONTACT.** Pennsylvania One Call System at 1-800-242-1776.

☒ **4. APPLICATION SUBMITTED.** Application has been completed and properly signed according to instructions and type codes; and will be submitted to the appropriate DEP office.

4809402

APS 686356

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FORM

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF ENVIRONMENTAL PROTECTION
GENERAL INFORMATION FORM – AUTHORIZATION APPLICATION

Before completing this General Information Form (GIF), read the step-by-step instructions provided in this application package. This version of the General Information Form (GIF) must be completed and returned with any program-specific application being submitted to the Department.

Related ID#s (If Known)				DEP USE ONLY
Client ID#	87560	APS ID#	686356	Date Received & General Notes
Site ID#	117831	Auth ID#	782092	4809402 FEB 17 2009
Facility ID#				IC 2-18-09

CLIENT INFORMATION

DEP Client ID# | **Client Type / Code**

Organization Name or Registered Fictitious Name: City of Pittston | **Employer ID#** (EIN) | **Dun & Bradstreet ID#**

Individual Last Name | **First Name** | **MI** | **Suffix** | **SSN**

Additional Individual Last Name | **First Name** | **MI** | **Suffix** | **SSN**

Mailing Address Line 1: 35 Broad Street | **Mailing Address Line 2**

Address Last Line – City: Pittston | **State**: PA | **ZIP+4**: 18640 | **Country**: United States

Client Contact Last Name: Keating | **First Name**: Joseph | **MI**: P. | **Suffix**

Client Contact Title: Mayor of City of Pittston | **Phone**: 570-654-0513 | **Ext**

Email Address: ronmort046@aol.com | **FAX**: 570-602-8246

SITE INFORMATION

DEP Site ID# | **Site Name**: City of Pittston Sewer System Improvements Project

EPA ID# | **Estimated Number of Employees to be Present at Site**

Description of Site
The City of Pittston has proposed to separate portions of its combined sewer system and replace it with new or rehabilitated storm water and sanitary sewer collection systems throughout the City

County Name	Municipality	City	Boro	Twp	State
Luzerne	City of Pittston	☒	☐	☐	
		☐	☐	☐	

Site Location Line 1: In around Broad Street, Front Street, Fear Street, Fulton Street, Anderson Street, Wilson Street, Foundry Street, Tunnel Street, O'Connell Street, Gazette Street, Charles Street,

Site Location Line 2: Kennedy Street, Spring Street, South Main Street, Dock Street, Cron Street, Wharf Street, Market Street, Unnamed Alleys and Kennedy Boulevard in Pittston, Luzerne County, PA.

Site Location Last Line – City: City of Pittston | **State**: PA | **ZIP+4**: 18640

Detailed Written Directions to Site
U.S. Route 11 north to City of Pittston (see GIF Narrative for detailed directions)

Site Contact Last Name: Keating | **First Name**: Joseph | **MI**: P. | **Suffix**

Site Contact Title: Mayor City of Pittston | **Site Contact Firm**: N/A

Mailing Address Line 1: 35 Broad Street | **Mailing Address Line 2**

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Mailing Address Last Line – City			State	ZIP+4
Pittston			PA	18640
Phone	**Ext**	**FAX**	**Email Address**	
570-654-0513		570-602-8246	ronmort046@aol.com	

NAICS Codes (Two- & Three-Digit Codes – List All That Apply): 23

6-Digit Code (Optional): 237110, 237990

Client to Site Relationship: N/A

FACILITY INFORMATION

Modification of Existing Facility

		Yes	No
1.	**Will this project modify an existing facility, system, or activity?**	☐	☒
2.	**Will this project involve an addition to an existing facility, system, or activity?**	☐	☒

If "Yes", check all relevant facility types and provide DEP facility identification numbers below.

	Facility Type	DEP Fac ID#		Facility Type	DEP Fac ID#
☐	Air Emission Plant		☐	Industrial Minerals Mining Operation	
☐	Beneficial Use (water)		☐	Laboratory Location	
☐	Blasting Operation		☐	Land Recycling Cleanup Location	
☐	Captive Hazardous Waste Operation		☐	MineDrainageTrmt/LandRecyProjLocation	
☐	Coal Ash Beneficial Use Operation		☐	Municipal Waste Operation	
☐	Coal Mining Operation		☐	Oil & Gas Encroachment Location	
☐	Coal Pillar Location		☐	Oil & Gas Location	
☐	Commercial Hazardous Waste Operation		☐	Oil & Gas Water Poll Control Facility	
☐	Dam Location		☐	Public Water Supply System	
☐	Deep Mine Safety Operation -Anthracite		☐	Radiation Facility	
☐	Deep Mine Safety Operation -Bituminous		☐	Residual Waste Operation	
☐	Deep Mine Safety Operation -Ind Minerals		☐	Storage Tank Location	
☐	Encroachment Location (water, wetland)		☐	Water Pollution Control Facility	
☐	Erosion & Sediment Control Facility		☐	Water Resource	
☐	Explosive Storage Location		☐	Other:	

Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
	41	19	10	75	46	47

Horizontal Accuracy Measure: Feet --or-- Meters

Horizontal Reference Datum Code
- ☒ North American Datum of 1927
- ☐ North American Datum of 1983
- ☐ World Geodetic System of 1984

Horizontal Collection Method Code

Reference Point Code

Altitude: Feet 600 --or-- Meters

Altitude Datum Name
- ☒ The National Geodetic Vertical Datum of 1929
- ☐ The North American Vertical Datum of 1988 (NAVD88)

Altitude (Vertical) Location Datum Collection Method Code

Geometric Type Code

Data Collection Date

Source Map Scale Number: 1 Inch(es) = 2000 Feet

--or-- Centimeter(s) = Meters

PROJECT INFORMATION

Project Name
City of Pittston Sewer System Improvements Project

8000-PM-IT0001 Rev 06/07/2002

Project Description

The City of Pittston has proposed to separate portions of its combined sewer system and replace it with new or rehabilitated storm water and sanitary sewer collection systems throughout the City.The City of Pittston is proposing to separate the Broad Street Combined Sewer System. The pipes under construction are undersized and in need of replacement due to age. The city will replace and extend the new FEMA culvert with a 72 inch diameter RCCP approximately 2,200 feet to convey storm water to the Susquehanna River. The other portions of its combined sewer system will be separated into a new storm sewer system and a new sanitary sewer system. The storm sewer system will be comprised of approximately 10,000 feet of 18 inch to 48 inch diameter storm lines and 120 inlets. The sanitary sewer system will entail approximately 11,500 lineal feet of 8 inch through 15 inch diameter of new sanitary mains and 54 manholes.

Project Consultant Last Name	**First Name**	**MI**	**Suffix**
Durkin	Joseph		

Project Consultant Title	**Consulting Firm**
Vice President	Reilly Associates

Mailing Address Line 1	**Mailing Address Line 2**
49 South Main Street	Suite 200

Address Last Line – City	**State**	**ZIP+4**
Pittston	PA	18640

Phone	**Ext**	**FAX**	**Email Address**
570-654-2473		570-654-6880	jdurkin@reillyengineering.com

Time Schedules	**Project Milestone (Optional)**
July 2009	Begin Construction
July 2010	Complete Construction

1.	**Is this application for an authorization type on the list of authorizations affected by the land use policy?**	☒	Yes	☐	No
	Note: If "Yes", you must complete the following Land Use Information section, unless exempted by Questions 2 or 3 below. If "No", skip Questions 2 & 3 below as well as the following Land Use Information section. For referenced list, see Appendix A attached to the GIF Instructions.				
2.	**For an Air program authorization only. All other authorizations continue with Question 3 below. Will the permit authorize the construction of facilities outside an existing permitted area?**	☐	Yes	☐	No
	Note: If "Yes", you must complete the following Land Use Information section unless exempted by Question 3 below. If "No", skip Question 3 below as well as the following Land Use Information section.				
3.	**Have you attached or submitted municipal and county 'Early Opt Out' approval letters for the project?**	☐	Yes	☒	No
	Note: If "Yes" to Question 3, skip the following Land Use Information section. This should only be checked "Yes" if applicant is choosing the early opt-out option. Required approval letters described in the GIF Checklist and Instructions should be attached. If "No" to Question 3, continue with the following Land Use Information section.				

LAND USE INFORMATION

Note: Applicants are encouraged to submit copies of local land use approvals or other evidence of compliance with local comprehensive plans and zoning ordinances.

1.	**Is there a municipal comprehensive plan(s)?**	☒	Yes	☐	No
2.	**Is there a county comprehensive plan(s)?**	☒	Yes	☐	No
3.	**Is there a multi-municipal or multi-county comprehensive plan?**	☐	Yes	☒	No
4.	**Is the proposed project consistent with these plans?** If no plan(s) exists, answer "Yes".	☒	Yes	☐	No
5.	**Is there a municipal zoning ordinance(s)?**	☒	Yes	☐	No
6.	**Is there a joint municipal zoning ordinance(s)?**	☐	Yes	☒	No
7.	**Will the proposed project require a zoning approval (e.g., special exception, conditional approval, re-zoning, variance)?** If zoning approval has already been received, attach documentation.	☐	Yes	☒	No

8.	**Are any zoning ordinances that are applicable to this project currently the subject of any type of legal proceeding?**	☐	Yes	☒	No
9.	**Will the project be located on a site that has been or is being remediated under DEP's Land Recycling Program?**	☐	Yes	☒	No
10.	**Will the project result in reclamation of abandoned mine lands through re-mining or as part of DEP's Reclaim PA Program?**	☐	Yes	☒	No
11.	**Will the project be located in an agricultural security area or an area protected under an agricultural conservation easement?**	☐	Yes	☒	No
12.	**Will the project be located in a Keystone Opportunity Zone or Enterprise Development Area?**	☐	Yes	☒	No
13.	**Will the project be located in a Designated Growth Area as defined by the Municipalities Planning Code?**	☐	Yes	☒	No

COORDINATION INFORMATION

Note: The PA Historical and Museum Commission must be notified of proposed projects in accordance with DEP Technical Guidance Document 012-0700-001 and the accompanying Cultural Resource Notice Form.

If the activity will be a mining project (i.e., mining of coal or industrial minerals, coal refuse disposal and/or the operation of a coal or industrial minerals preparation/processing facility), respond to questions 1.0 through 2.5 below.

If the activity will not be a mining project, skip questions 1.0 through 2.5 and begin with question 3.0.

1.0	**Is this a coal mining project?** If "Yes", respond to 1.1-1.6. If "No", skip to Question 2.0. (DEP Use/48y1)	☐	Yes	☒	No
1.1	**Will this coal mining project involve coal preparation/ processing activities in which the total amount of coal prepared/processed will be equal to or greater than 200 tons/day?** (DEP Use/4x70)	☐	Yes	☐	No
1.2	**Will this coal mining project involve coal preparation/ processing activities in which the total amount of coal prepared/processed will be greater than 50,000 tons/year?** (DEP Use/4x70)	☐	Yes	☐	No
1.3	**Will this coal mining project involve coal preparation/ processing activities in which thermal coal dryers or pneumatic coal cleaners will be used?** (DEP Use/4x70)	☐	Yes	☐	No
1.4	**For this coal mining project, will sewage treatment facilities be constructed and treated waste water discharged to surface waters?** (DEP Use/4x62)	☐	Yes	☐	No
1.5	**Will this coal mining project involve the construction of a permanent impoundment meeting one or more of the following criteria: (1) a contributory drainage area exceeding 100 acres; (2) a depth of water measured by the upstream toe of the dam at maximum storage elevation exceeding 15 feet; (3) an impounding capacity at maximum storage elevation exceeding 50 acre-feet?** (DEP Use/3140)	☐	Yes	☐	No
1.6	**Will this coal mining project involve underground coal mining to be conducted within 500 feet of an oil or gas well?** (DEP Use/4z41)	☐	Yes	☐	No
2.0	**Is this a non-coal (industrial minerals) mining project?** If "Yes", respond to 2.1-2.6. If "No", skip to Question 3.0. (DEP Use/48y1)	☐	Yes	☒	No
2.1	**Will this non-coal (industrial minerals) mining project involve the crushing and screening of non-coal minerals other than sand and gravel?** (DEP Use/4x70)	☐	Yes	☐	No
2.2	**Will this non-coal (industrial minerals) mining project involve the crushing and/or screening of sand and gravel with the exception of wet sand and gravel operations (screening only) and dry sand and gravel operations with a capacity of less than 150 tons/hour of unconsolidated materials?** (DEP Use/4x70)	☐	Yes	☐	No
2.3	**Will this non-coal (industrial minerals) mining project involve the construction, operation and/or modification of a portable non-metallic (i.e., non-coal) minerals processing plant under the authority of the General Permit for Portable Non-metallic Mineral Processing Plants (i.e., BAQ-PGPA/GP-3)?** (DEP Use/4x70)	☐	Yes	☐	No

2.4	**For this non-coal (industrial minerals) mining project, will sewage treatment facilities be constructed and treated waste water discharged to surface waters?** (DEP Use/4x62)	☐	Yes	☐	No
2.5	**Will this non-coal (industrial minerals) mining project involve the construction of a permanent impoundment meeting one or more of the following criteria: (1) a contributory drainage area exceeding 100 acres; (2) a depth of water measured by the upstream toe of the dam at maximum storage elevation exceeding 15 feet; (3) an impounding capacity at maximum storage elevation exceeding 50 acre-feet?** (DEP Use/3140)	☐	Yes	☐	No
3.0	**Will your project, activity, or authorization have anything to do with a well related to oil or gas production, site development for such activity, or the waste from such a well?** If "Yes", respond to 3.1-3.3. If "No", skip to Question 4.0. (DEP Use/4z41)	☐	Yes	☒	No
3.1	**Does the oil- or gas-related project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a watercourse, floodway or body of water (including wetlands)?** (DEP Use/4z41)	☐	Yes	☐	No
3.2	**Will the oil- or gas-related project involve discharge of industrial wastewater or stormwater to a dry swale, surface water, ground water or an existing sanitary sewer system or storm water system?** If "Yes", discuss in *Project Description*. (DEP Use/4z41)	☐	Yes	☐	No
3.3	**Will the oil- or gas-related project involve the construction and operation of industrial waste treatment facilities?** (DEP Use/4z41)	☐	Yes	☐	No
4.0	**Will the project involve a construction activity that results in earth disturbance?** If "Yes", specify the total disturbed acreage. (DEP Use/4x66) **4.0.1 Total Disturbed Acreage** 4.00 acres	☒	Yes	☐	No
5.0	**Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a watercourse, floodway or body of water (including wetlands)?** (DEP Use/4x66)	☒	Yes	☐	No
6.0	**Will the project involve discharge of industrial wastewater or stormwater to a dry swale, surface water, ground water or an existing sanitary sewer system or separate storm water system?** If "Yes", discuss in *Project Description*. (DEP Use/4x62)	☒	Yes	☐	No
7.0	**Will the project involve the construction and operation of industrial waste treatment facilities?** (DEP Use/4x62)	☐	Yes	☒	No
8.0	**Will the project involve construction of sewage treatment facilities, sanitary sewers, or sewage pumping stations?** If "Yes", indicate estimated proposed flow (gal/day). Also, discuss the sanitary sewer pipe sizes and the number of pumping stations/treatment facilities/name of downstream sewage facilities in the *Project Description*, where applicable. (DEP Use/4x62) **8.0.1 Estimated Proposed Flow (gal/day)** 509,850	☒	Yes	☐	No
9.0	**Was sewage planning submitted and approved?** If "Yes", attach the Act 537 approval letter unless the submitted application is actually requesting Act 537 approval (Approval required prior to 105/NPDES approval). (DEP Use/4x61) **9.0.1 Is Act 537 Approval Letter attached?**	☐	Yes	☒	No
10.0	**Is this project for the beneficial use of biosolids for land application within Pennsylvania?** If "Yes" indicate how much (i.e. gallons or dry tons per year). (DEP Use/4X62) **10.0.1 Gallons Per Year (residential septage)** _____ **10.0.2 Dry Tons Per Year (biosolids)**	☐	Yes	☒	No
11.0	**Does the project involve construction, modification or removal of a dam?** If "Yes", identify the dam. (DEP Use/3140) **11.0.1 Dam Name**	☐	Yes	☒	No

12.0	**Will the project interfere with the flow from, or otherwise impact, a dam?** If "Yes", identify the dam. (DEP Use/3140)	☐	Yes	☒	No
	12.0.1 Dam Name				
13.0	**Will the project involve operations (excluding during the construction period) that produce air emissions (i.e., NOX, VOC, etc.)?** If "Yes", identify each type of emission followed by the amount of that emission. (DEP Use/4x70)	☐	Yes	☒	No
	13.0.1 Enter all types & amounts of emissions; separate each set with semicolons.				
14.0	**Is an on-site drinking water supply (well), other than individual house wells, proposed for your project?** If "Yes", indicate total number of people served and/or the total number of connections served, if applicable. Also, check all proposed sub-facilities. (DEP Use/4x81)	☐	Yes	☒	No
	14.0.1 Number of Persons Served				
	14.0.2 Number of Employee/Guests				
	14.0.3 Number of Connections				
	14.0.4 Sub-Fac: Distribution System	☐	Yes	☐	No
	14.0.5 Sub-Fac: Water Treatment Plant	☐	Yes	☐	No
	14.0.6 Sub-Fac: Source	☐	Yes	☐	No
	14.0.7 Sub-Fac: Pump Station	☐	Yes	☐	No
	14.0.8 Sub-Fac: Entry Point	☐	Yes	☐	No
	14.0.9 Sub-Fac: Transmission Main	☐	Yes	☐	No
	14.0.10 Sub-Fac: Storage Facility	☐	Yes	☐	No
15.0	**Will your project involve purchasing water in bulk, excluding during the construction period?** If "Yes, name the provider. Also, indicate the daily number of employees or guests served. (DEP Use/4x81)	☐	Yes	☒	No
	15.0.1 Provider's Name				
	15.0.2 Number of Employees/Guests				
16.0	**Is your project to be served by public water supply?** If "Yes", indicate name of supplier and attach letter from supplier stating that it will serve the project. (DEP Use/4x81)	☐	Yes	☒	No
	16.0.1 Supplier's Name				
	16.0.2 Letter of Approval from Supplier is Attached	☐	Yes	☒	No
17.0	**Will this project involve a new or increased drinking water withdrawal from a stream or other water body?** If "Yes", provide name of stream. (DEP Use/4x81)	☐	Yes	☒	No
	17.0.1 Stream Name				
18.0	**Will the construction or operation of this project involve treatment, storage, reuse, or disposal of waste?** If "Yes", indicate what type (i.e., hazardous, municipal (including infectious & chemotherapeutic), residual) and the amount to be treated, stored, re-used or disposed. (DEP/Use4x32)	☐	Yes	☒	No
	18.0.1 Type & Amount				
19.0	**Will your project involve the removal of coal, minerals, etc. as part of any earth disturbance activities?** (DEP Use/48y1)	☐	Yes	☒	No
20.0	**Does your project involve installation of a field constructed underground storage tank?** If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. (DEP Use/2570)	☐	Yes	☒	No
	20.0.1 Enter all substances & capacity of each; separate each set with semicolons.				
21.0	**Does your project involve installation of an aboveground storage tank greater than 21,000 gallons capacity at an existing facility?** If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. (DEP Use/2570)	☐	Yes	☒	No
	21.0.1 Enter all substances & capacity of each; separate each set with semicolons.				

22.0	**Does your project involve installation of a tank greater than 1,100 gallons which will contain a highly hazardous substance as defined in DEP's Regulated Substances List, 2570-BK-DEP2724?** If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. (DEP Use/2570) **22.0.1 Enter all substances & capacity of each; separate each set with semicolons.**	☐	Yes	☒	No
23.0	**Does your project involve installation of a storage tank at a new facility with a total AST capacity greater than 21,000 gallons?** If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. (DEP Use/2570) **23.0.1 Enter all substances & capacity of each; separate each set with semicolons.**	☐	Yes	☒	No

CERTIFICATION

I certify that I have the authority to submit this application on behalf of the applicant named herein and that the information provided in this application is true and correct to the best of my knowledge and information.

Type or Print Name Joseph S. Durkin

Signature	**Title** Vice President	**Date** 02-16-09

General Information Form – Attachment

Applicant: City of Pittston
Project: City of Pittston Sewer System Improvements Project

Permit Requested: **Part II Water Quality Management Permit**

Project Description

The City of Pittston has proposed to separate portions of its combined sewer system and replace it with new or rehabilitated storm water and sanitary sewer collection systems throughout the City. The pipes under construction are undersized and in need of replacement due to age. The city will replace and extend the new FEMA culvert with a 72 inch diameter RCCP approximately 2,200 feet to convey storm water to the Susquehanna River. The other portions of its combined sewer system will be separated into a new storm sewer system and a new sanitary sewer system. The storm sewer system will be comprised of approximately 10,000 feet of 18 inch to 48 inch diameter storm lines and 120 inlets. The sanitary sewer system will entail approximately 11,500 lineal feet of 8 inch through 15 inch diameter of new sanitary mains and 54 manholes. All work will be conducted within existing roads or City Right-of-Ways or easements. A project location map is included with the General Information Form.

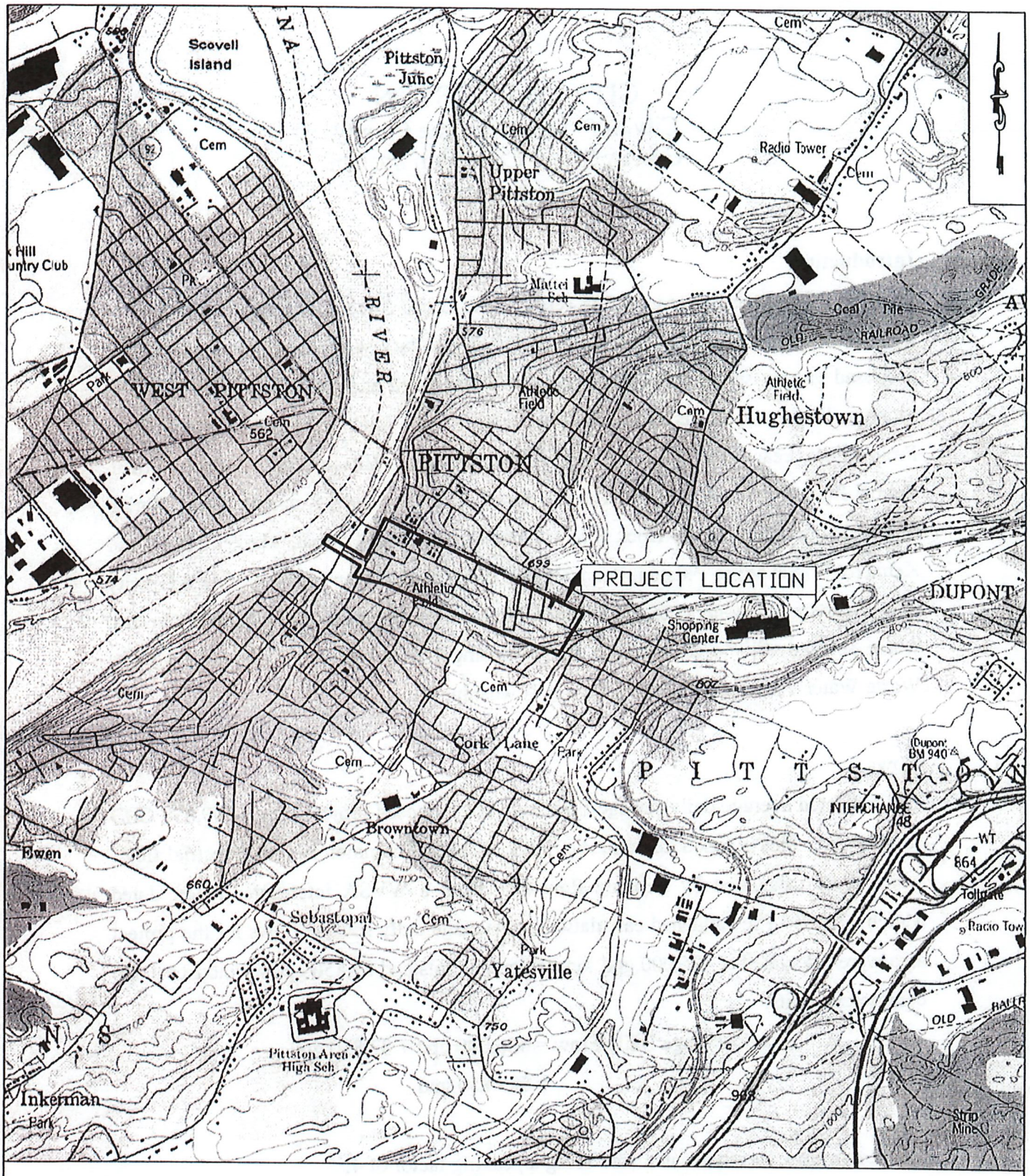
The project area consists of urban development, mostly disturbed areas with residential homes and commercial structures with paved roadways. The project will alleviate extensive regular flooding in the City. The project will also have a major environmental benefit. It will remove approximately one-quarter of a billion gallons of sewage polluted storm water from flowing into the Susquehanna River and the Chesapeake Bay each year. In addition, inlets will be configured with a sump to catch grit and dirt from being washed into the waterways. The estimated total disturbed area is approximately 4.0 acres. Construction is scheduled to begin in July of 2009 and with completion in July 2010.

The project has no new land development as it is the repair, removal, or replacement of an existing system.

These proposed utility systems are located in around Broad Street, Front Street, Fear Street, Fulton Street, Anderson Street, Wilson Street, Foundry Street, Tunnel Street, O'Connell Street, Gazette Street, Charles Street, Kennedy Street, Spring Street, South Main Street, Dock Street, Cron Street, Wharf Street, Market Street, Unnamed Alleys and Kennedy Boulevard.

The receiving waterway is the main branch of the Susquehanna that has a classification of ~~Cold~~ Warm Water Fishes (~~CWF~~) WWF

Directions To Site
I-81 North to US-315
Right onto S.R. 2019 Oak Street
Right onto North Township Boulevard (Pittston Bypass)
Left on Williams Street into City of Pittston



CITY OF PITTSTON, LUZERNE COUNTY, PA

SEWER SYSTEM IMPROVEMENTS PROJECT
PROJECT LOCATION MAP

SCALE: 1" = 2000'

PORTION OF PITTSTON, PA USGS QUADRANGLE

...\Land Projects 2006\09005\dwg\GIF Location Map.dwg, Layout1, 2/12/2009 6:02:26 PM, 1:1

CITY OF PITTSTON
City of Pittston, Luzerne County
Gravity Sewer Collection System
Design Report

Introduction

The City of Pittston has proposed to separate the Broad Street Combined Sewer System into a storm water collection system and a gravity sanitary sewer collection system. The proposed gravity sewer collection system will be owned and maintained by the city of Pittston. The gravity sewer system will be located on the following streets: Broad Street, Front Street, Fear Street, Fulton Street, Anderson Street, Wilson Street, Foundry Street, Tunnel Street, O'Connell Street, Gazette Street, Charles Street, Kennedy Street, Spring Street, South Main Street, Dock Street, Cron Street, Wharf Street, Market Street, and Kennedy Boulevard in Pittston, Pennsylvania (See General Plan). The proposed Gravity Sewer System will connect to an existing sanitary sewer line near on Kennedy Boulevard, where sewage will be conveyed to the Wyoming Valley Sanitary Authority (WVSA) Waste Water Treatment Plant in Hanover Township, PA.

Flows

The projected average daily sewage flow from the proposed project area is 509,850 GPD at build-out. This is based on domestic flows, as well as commercial and industrial flows which were calculated by utilizing flow data from a WVSA interceptor report dated March 12, 1997 (See attached calculations). Average daily sewage flows for the project area were calculated at 426,000 gpd for residential units and 83,850 gpd for industrial and commercial units.

Total Average Daily Flow = 426,000 gpd + 83,850 gpd
= 509,850 gpd

The design flow was then calculated using a peaking factor of 4:

Design Flow = 509,850 gpd x 4.0 (p.f.) = 2.039 MGD

Design

System Layout

The proposed Sanitary Sewer System was laid out by following the existing combined sewer system layout. Since the proposed Sanitary Sewer System will be located very close to the existing system, there will be minimal potential conflicts with other existing utilities.

Pipe Design

Pipes were designed utilizing minimum design slopes corresponding to their respective pipe diameters per DEP Domestic Wastewater Facilities Manual (See attached). Manning's Formula was used to calculate the maximum flow capacity by inputting the pipe diameters and corresponding minimum slopes. The proposed gravity Sanitary Sewer System was divided into four (4) subsections for design purposes based on projected flows. The system was designed starting at the sewer system connection point at the existing sanitary line near the Susquehanna River and working backwards through the proposed system. Using the described design method above, the minimum pipe sizes and slopes are summarized as follows:

From Connection Point to Main Street	15" pipe at 0.50% slope
From Main St. to Market Street	15" pipe at 0.16% slope
From Wharf St. to Broad Street System	10" pipe at 0.28% slope
Broad Street System	8" pipe at 0.40% slope

(See attached calculations)

Overall Pipe System Design and Construction

The gravity sewer collection system shall consist of a sewer main with laterals connecting each residential and commercial building to the main. Each lateral pipe shall replace an already existing lateral pipe. They will extend 3 feet past the curb and match the existing pipe size, which ranges from 4 inch to 6 inch diameter. The gravity sewer main shall consist of PVC SDR-35 pipe in sizes from 8 inch to 15 inch diameter. The pipes shall be installed as shown on the plan and within the road right of way with a minimum cover of 4.5 feet over the top of the pipe to prevent freezing in the main. The gravity sewer main shall be provided with manholes spaced in a manner not to exceed 400 feet between each. In 2005, WVSA smoke tested the existing system. The result of this was that all roof leaders into the system were disconnected. This same approach will be implemented again where storm water drains (i.e. roof leaders, yard drains and/or sump pumps) will be removed from the sanitary sewer at each residence. Zoning officers will also conduct house inspections in order to check for these type of connections.

Construction Materials

All Polyvinyl Chloride (PVC) pipes, fittings and joints associated with the proposed sanitary sewer system shall be elastomeric gasket joints providing a watertight seal. All PVC pipe will be laid true to the lines and grades that are shown. PennDOT AASHTO No. 57 Coarse Aggregate bedding will be placed in the trench for its full width to uniformly support the pipe at the required line and grade. All PVC pipe will be tested with low pressure air and also mandrel tested for proper alignment. The joints between the reinforced concrete manhole sections and at the pipe connections shall be sealed with rubber gaskets to ensure water tightness of the joints. Manhole frame and covers shall be traffic rated. Manhole steps will be cast into the walls of risers and conical top sections, and aligned vertically. In the precast manhole base, a flow channel will be carefully formed of concrete. Manhole bases will be uniformly supported by six (6) inches of AASHTO No. 57 Coarse Aggregate placed over a base of level, undisturbed earth.

REILLY ASSOCIATES
Consulting Engineers
49 S. Main St. Suite 200
PITTSTON, PA 18640
(570) 654-2473
FAX (570) 654-6880

JOB 09005 - PITTSTON SANITARY SEWER
SHEET NO. 1 OF 3
CALCULATED BY JSD DATE 2/16/09
CHECKED BY _____ DATE _____
SCALE _____

EXISTING SANITARY FLOW to Node DC37 (Discharge Chamber, i.e. CSO)
as per WVSA interceptor report 03/12/97:

population = 7706 x 100 gpcd = 770,600 gpd residential
151,678 gpd com/ind
922,278 gdp

BUT subtract out Pittston Twp. sanitary line which is connected directly to PS No. 2

Population serviced: Pittston Twp = 2,500
Yatesville = 646
Laflin/Jenkins = 300
3,446

Use ratio for estimating com/ind:

$\frac{(7706 - 3446)}{7706} \times 151,678 =$ 83,850 gpd com/ind

(7706-3446) x 100 gpd = + 426,000 gpd residential

509,850 gpd avg. daily

future: no projected growth, may route William St. flow directly to PS No. 2.

Use of existing avg. daily flow is too low, use peak factor:

509,850 gpd x 4.0 = 2.039 MGD design flow
from Main St. to outflow

15" pipe @ min. slope of .50% => 2.95 MGD > 2.039 MGD ✓

USE 15" pipe @ .50% CONNECTING MAIN ST. TO OUTFLOW at SUSQUEHANNA RIVER

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FAX (570) 654-6880

JOB 09005 - PITTSTON SANITARY SEWER
SHEET NO. 2 OF 3
CALCULATED BY JSD DATE 2/16/09
CHECKED BY DATE
SCALE

FROM MAIN ST. SOUTH TO MARKET ST

Pipe must take entire flow of Market St. : S. Pittston.

Broad St. System + William / Butler St. System + Market / S. Pittston

⇓

509,850 gpd avg.

Broad St. + William / Butler => 365 houses × 2.3 people/house = 840 people

840 people × 100 gpcd =

84,000	gpd	residential
16,548	gpd	commercial/industrial
100,548	gpd	avg.

Market / S. Pittston => 509,850 − 100,548 =

409,302	gpd	avg
× 4.0		peak factor
1,637,208	gpd	design

15" pipe @ .16% min. slope => 1.668 mgd > 1.637 mgd ✓

USE 15" PIPE @ .16% CONNECTING MAIN ST TO MARKET ST.

FROM WHARF ST. TO BROAD ST. SYSTEM

Pipe will carry Broad St System + William / Butler St. System

⇒

100,548	gpd	avg
× 4.0		peak factor
402,192	gpd	design

10" @ .28% min slope => .750 mgd > .402 mgd ✓

USE 10" PIPE @ .28% FROM WHARF ST. TO BROAD ST. SYSTEM

PRODUCT 204-1 (Single Sheets) 205-1 (Padded)

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49 S. Main St. Suite 200
PITTSTON, PA 18640
(570) 654-2473
FAX (570) 654-6880

JOB 09005 - PITTSTON SANITARY SEWER
SHEET NO. 3 OF 3
CALCULATED BY JSD DATE 2/16/09
CHECKED BY _____ DATE _____
SCALE _____

BROAD ST. SYSTEM

186 houses x 2.3 people/house = 428 people

428 people x 100 gpcd = 42,800 gpd residential
+ 14,342 gpd commercial/industrial
57,142 gpd avg.
x 4.0 peak factor
228,568 gpd peak

8" pipe @ .40% min slope => .497 mgd > .229 mgd ✓

USE 8" pipe @ .40% ON BROAD ST. SYSTEM

REILLY ASSOCIATES
Consulting Engineers
49 S. Main St. Suite 200
PITTSTON, PA 18640
(570) 654-2473
FAX (570) 654-6880

JOB Sanitary Pipe Max Capacity

SHEET NO. _____ OF _____

CALCULATED BY _____ DATE _____

CHECKED BY _____ DATE _____

SCALE _____

SEWER SIZE	SLOPE	CFS	MGD
8"	.40 %	0.72	0.497
10"	.28 %	1.16	0.750
12"	.22 %	1.67	1.079
15"	.16 %	2.58	1.668
	.50 %	4.57	2.950
24"	.08 %	6.40	4.136

CALCULATED USING RATIONAL METHOD WITH n = .013
full capacity

24.2 Alternate Method - When deviations from foregoing per capita rates are proposed, a brief description of the procedure used for sewer design shall be included.

25. Details of Design and Construction

25.1 Minimum Size - Generally, no public sewer carrying untreated wastewater should be less than eight inches in diameter. Refer to Section 29 for the proposals involving use of smaller diameter alternative sewers.

The use of six-inch diameter sewers may be permitted when the following conditions are met:

a. Topographical, geographical and/or practical conditions indicate that the sewer will not be extended and that the flow to the proposed sewers generated within the natural tributary drainage area will not be augmented by flow generated outside of that area.

b. The sewers have hydraulic capacity to convey the projected future flows, and the agency responsible for maintaining the sewers must have equipment or be able to obtain immediate services to adequately clean and maintain the sewers.

25.2 Depth - Sewers shall be designed deep enough to prevent freezing. Insulation shall be provided for sewers that cannot be placed at a depth sufficient to prevent freezing. In general, sewers should be designed to allow for basement service of existing houses. As an alternative, an evaluation of existing houses may be performed to determine the most cost-effective solution for providing basement service.

25.3 Slope - Sewers shall be laid with uniform slope between manholes. All sewers shall be so designed and constructed to give mean velocities, when flowing full, of not less than two feet per second, based on Manning's formula using an "n" value of 0.013. Use of other practical "n" values may be permitted by the Department if deemed justifiable on the basis of research or field data presented. The following are the minimum slopes which should be provided; however, slopes greater than these are desirable.

Sewer Size	Minimum Slope in Feet Per 100 Feet
6"	0.60
8"	0.40
10"	0.28
12"	0.22
14"	0.17
15"	0.15
16"	0.14
18"	0.12
21"	0.10
24"	0.08
27"	0.067
30"	0.058
36"	0.046

Under special conditions, if full and justifiable reasons are given, slopes slightly less than those required for the two feet per second velocity when flowing full may be permitted. Such decreased slopes will only be considered where the depth of flow will be 0.3 of the diameter or

Reilly ASSOCIATES SINCE 1930

ENGINEERING / ENVIRONMENTAL / SURVEYING

February 17, 2009

Pennsylvania Department of Environmental Protection
Water Management Program
2 Public Square
Wilkes-Barre, PA 18711

WATER QUALITY
COUNTY: _____

FEB 17 2009

MUNIC: _____
FACILITY: _____
FILE CODE: _____

Attn: Ms. Kate Crowley
Water Management Program Manager

RE: Pittston City
Sanitary Sewer System Improvement
WQM Part II Permit Application

Dear Ms. Crowley:

Enclosed is the Water Quality Management Part II Permit Application for the Pittston City Sanitary Sewer System Improvement Project in, Luzerne County, PA. Enclosed please find:

1. Part II Permit Application including application forms, design modules, design calculations, design report, General Information Form and Attachment and Act 14 notification
2. Construction Drawings
3. Technical Specifications (included in Permit package)
4. Check for Application Fee in the amount of $100.00

We have included two (2) copies of the above items.

If you need any additional information or have any questions, please feel free to contact us.

Very truly yours,
REILLY ASSOCIATES

Jeremy A. Nelson

Enclosures

z:\09005\part ii permit\dep transmittal ltr 2-17-09.doc

49 South Main Street, Pittston, PA 18640 570 654 2473 FAX 570 654 6880

Reilly ASSOCIATES SINCE 1930

ENGINEERING / ENVIRONMENTAL / SURVEYING

February 18, 2009

Pennsylvania Department of
Environmental Protection
Water Quality
2 Public Square
Wilkes-Barre, PA 18711

WATER QUALITY
COUNTY:
FEB 19 2009
MUNIC:
FACILITY:
FILE CODE:

Attn: Ms. Jean Demko

RE: City of Pittston
Sanitary Sewer System Improvement
WQM Part II Permit Application

Dear Ms. Demko:

Per our telephone conversation of February 18, please find enclosed the Original Water Quality Management Part II Permit Application for the City of Pittston Sanitary Sewer System Improvement Project in, Luzerne County, PA.

If you need any additional information or have any questions, please feel free to contact us.

Sincerely,

REILLY ASSOCIATES

Casey Cawley

Enclosures

Cc: File (w/ encl)

z:\09005\part ii permit\ltr dep part ii orig 2-18-09.doc

49 South Main Street, Pittston, PA 18640 570 654 2473 FAX 570 654 6880

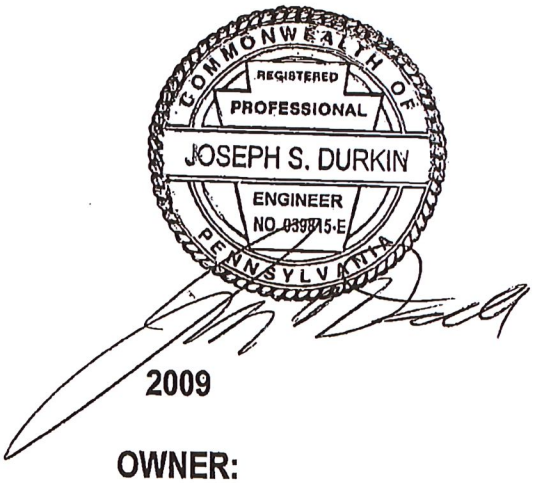
TECHNICAL SPECIFICATIONS

Sewer Infrastructure Construction

FOR

The Pittston City Sewer System Improvements Project

PITTSTON CITY, LUZERNE COUNTY, PENNSYLVANIA



2009

OWNER:
PITTSTON CITY
35 Broad Street
Pittston, PA 18640
(570) 654-0513

ENGINEER:
REILLY ASSOCIATES
CONSULTING ENGINEERS
49 South Main St., Suite 200
Pittston, PA. 18640
(570) 654-2473

Job Number: 09005

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This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the Controlling Law.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By

ACEC
American Council of Engineering Companies

National Society of Professional Engineers
Professional Engineers in Private Practice

ASCE American Society of Civil Engineers

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1420 King Street, Alexandria, VA 22314

American Council of Engineering Companies
1015 15th Street, N.W., Washington, DC 20005

American Society of Civil Engineers
1801 Alexander Bell Drive, Reston, VA 20191-4400

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor Nos. C-520 or C-525 (2002 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the EJCDC Construction Documents, General and Instructions (No. C-001) (2002 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (No. C-800) (2002 Edition).

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GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*--Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*--The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.

3. *Application for Payment*--The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*--Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*--The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidder*--The individual or entity who submits a Bid directly to Owner.

7. *Bidding Documents*--The Bidding Requirements and the proposed Contract Documents (including all Addenda).

8. *Bidding Requirements*--The Advertisement or Invitation to Bid, Instructions to Bidders, bid security of acceptable form, if any, and the Bid Form with any supplements.

9. *Change Order*--A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

10. *Claim*--A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*--The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*-- Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor's submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

13. *Contract Price*--The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*--The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any, (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.

15. *Contractor*--The individual or entity with whom Owner has entered into the Agreement.

16. *Cost of the Work*--See Paragraph 11.01.A for definition.

17. *Drawings*--That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*--The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. *Engineer*--The individual or entity named as such in the Agreement.

20. *Field Order*--A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

21. *General Requirements*--Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

22. *Hazardous Environmental Condition*--The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

23. *Hazardous Waste*--The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

24. *Laws and Regulations; Laws or Regulations*--Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

25. *Liens*--Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

26. *Milestone*--A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*--The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.

28. *Notice to Proceed*--A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.

29. *Owner*--The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.

30. *PCBs*--Polychlorinated biphenyls.

31. *Petroleum*--Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

32. *Progress Schedule*--A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

33. *Project*--The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

34. *Project Manual*--The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

35. *Radioactive Material*--Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

36. *Related Entity* -- An officer, director, partner, employee, agent, consultant, or subcontractor.

37. *Resident Project Representative*--The authorized representative of Engineer who may be assigned to the Site or any part thereof.

38. *Samples*--Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

39. *Schedule of Submittals*--A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.

40. *Schedule of Values*--A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

41. *Shop Drawings*--All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

42. *Site*--Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.

43. *Specifications*--That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain

administrative requirements and procedural matters applicable thereto.

44. *Subcontractor*--An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.

45. *Substantial Completion*--The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

46. *Successful Bidder*--The Bidder submitting a responsive Bid to whom Owner makes an award.

47. *Supplementary Conditions*--That part of the Contract Documents which amends or supplements these General Conditions.

48. *Supplier*--A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or any Subcontractor.

49. *Underground Facilities*--All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

50. *Unit Price Work*--Work to be paid for on the basis of unit prices.

51. *Work*--The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

52. *Work Change Directive*--A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 *Terminology*

A. The following words or terms are not defined but, when used in the Bidding Requirements or Contract Documents, have the following meaning.

B. *Intent of Certain Terms or Adjectives*

1. The Contract Documents include the terms "as allowed," "as approved," "as ordered", "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action or determination will be solely to evaluate, in general, the Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. *Day*

1. The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective*

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

a. does not conform to the Contract Documents, or

b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents, or

c. has been damaged prior to Engineer's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

E. *Furnish, Install, Perform, Provide*

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, "provide" is implied.

F. Unless stated otherwise in the Contract Documents, words or phrases which have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 - PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 *Starting the Work*

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 *Before Starting Construction*

A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule; indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.06 *Preconstruction Conference*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

2.07 *Initial Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether or not specifically called for at no additional cost to Owner.

C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

A. Standards, Specifications, Codes, Laws, and Regulations

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual or code, or any instruction of a Supplier shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, or Engineer, or any of, their Related Entities, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. Reporting Discrepancies

1. *Contractor's Review of Contract Documents Before Starting Work*: Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor may discover and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.

2. *Contractor's Review of Contract Documents During Performance of Work*: If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor knew or reasonably should have known thereof.

B. Resolving Discrepancies

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

a. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

b. the provisions of any Laws or Regulations applicable to the performance of the Work

(unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:

1. A Field Order;

2. Engineer's approval of a Shop Drawing or Sample; (Subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

A. Contractor and any Subcontractor or Supplier or other individual or entity performing or furnishing all of the Work under a direct or indirect contract with Contractor, shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or Engineer's consultants, including electronic media editions; or

2. reuse any of such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaption by Engineer.

B. The prohibition of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

A. Copies of data furnished by Owner or Engineer to Contractor or Contractor to Owner or Engineer that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party..

C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

4.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* The Supplementary Conditions identify:

1. those reports of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Contract Documents; and

2. those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that Engineer has used in preparing the Contract Documents.

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their Related Entities with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:

1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *Engineer's Review*: After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

C. Possible Price and Times Adjustments

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and

b. with respect to Work that is paid for on a Unit Price Basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:

a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

c. Contractor failed to give the written notice as required by Paragraph 4.03.A.

3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, Owner and Engineer, and any of their Related Entities shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data; and

2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:

a. reviewing and checking all such information and data,

b. locating all Underground Facilities shown or indicated in the Contract Documents,

c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction, and

d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *Reference Points*

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 *Hazardous Environmental Condition at Site*

A. *Reports and Drawings:* Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the Engineer in the preparation of the Contract Documents.

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their Related Entities with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.

D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any.

E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered to Contractor written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.

F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06. G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 - BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified

in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.

B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent must be accompanied by a certified copy of the agent's authority to act.

C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

A. Contractor shall deliver to Owner, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.

B. Owner shall deliver to Contractor, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.

5.04 *Contractor's Liability Insurance*

A. Contractor shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;

2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;

3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;

4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:

a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or

b. by any other person for any other reason;

5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and

6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insured (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;

3. include completed operations insurance;

4. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;

5. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);

6. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and

7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment.

a. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance*

A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;

2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, (other than caused by flood) and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;

5. allow for partial utilization of the Work by Owner;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.

B. Owner shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.

D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any

deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insured or additional insured (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.

B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.

C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order .

B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract

Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances. The superintendent will be Contractor's representative at the Site and shall have authority to act on behalf of Contractor. All communications given to or received from the superintendent shall be binding on Contractor.

6.02 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.

1. *"Or-Equal" Items:* If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that:

1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole,

3) it has a proven record of performance and availability of responsive service; and

b. Contractor certifies that, if approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times, and

2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. Substitute Items

a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.

b. Contractor shall submit sufficient information as provided below to allow Engineer to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.

c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented in the General Requirements and as Engineer may decide is appropriate under the circumstances.

d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

1) shall certify that the proposed substitute item will:

a) perform adequately the functions and achieve the results called for by the general design,

b) be similar in substance to that specified, and

c) be suited to the same use as that specified;

2) will state:

a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time;

b) whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and

c) whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;

3) will identify:

a) all variations of the proposed substitute item from that specified , and

b) available engineering, sales, maintenance, repair, and replacement services;

4) and shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change,

B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.

C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by either a Change Order for a substitute or an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

E. *Engineer's Cost Reimbursement*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B Whether or not Engineer approves a substitute item so proposed or submitted by Contractor, Contractor shall reimburse Owner for the charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

F. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued . No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity, nor

2. shall anything in the Contract Documents create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual

or entity except as may otherwise be required by Laws and Regulations.

D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.

E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, and Engineer,, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of Owner or Engineer its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 *Permits*

A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *Taxes*

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

6.11 *Use of Site and Other Areas*

A. Limitation on Use of Site and Other Areas

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents*

A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

6.13 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

C. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Draw-

ings or Specifications or to the acts or omissions of Owner or Engineer or , or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

D. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the acceptable Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. Shop Drawings

a. Submit number of copies specified in the General Requirements.

b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. *Samples:* Contractor shall also submit Samples to Engineer for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals.

a. Submit number of Samples specified in the Specifications.

b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.

B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals , any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. Submittal Procedures

1. Before submitting each Shop Drawing or Sample, Contractor shall have determined and verified:

a. all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

b. the suitability of all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;

c. all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto; and

d. shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents

with respect to Contractor's review and approval of that submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations, that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawing's or Sample Submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *Resubmittal Procedures*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *Contractor's General Warranty and Guarantee*

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its Related Entities shall be entitled to rely on representation of Contractor's warranty and guarantee.

B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;

2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. use or occupancy of the Work or any part thereof by Owner;

5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;

6. any inspection, test, or approval by others; or

7. any correction of defective Work by Owner.

6.20 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or

arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .

B. In any and all claims against Owner or Engineer or any of their respective consultants, agents, officers, directors, partners, or employees by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, partners, employees, agents, consultants and subcontractors arising out of:

1. the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.

B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 - OTHER WORK AT THE SITE

7.01 *Related Work at Site*

A. Owner may perform other work related to the Project at the Site with Owner's employees, or via other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to Contractor prior to starting any such other work; and

2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.

B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and shall properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and

properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;

2. the specific matters to be covered by such authority and responsibility will be itemized; and

3. the extent of such authority and responsibilities will be provided.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 *Legal Relationships*

A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.

B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's actions or inactions.

C. Contractor shall be liable to Owner and any other contractor for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's action or inactions.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

8.02 *Replacement of Engineer*

A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

8.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

A. Owner's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by Engineer in preparing the Contract Documents.

8.06 *Insurance*

A. Owner's responsibilities, if any, in respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility in respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *Limitations on Owner's Responsibilities*

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

A. If and to the extent Owner has agreed to furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents, Owner's responsibility in respect thereof will be as set forth in the Supplementary Conditions.

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents and will not be changed without written consent of Owner and Engineer.

9.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Authorized Variations in Work*

A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment , a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.

B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.

C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.

D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question

B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believe that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.

C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.

D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to, the Resident Project Representative, if any, and assistants, if any.

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall

promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

A.Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.B.

10.03 *Execution of Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:

1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *Notification to Surety*

A. If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times) is required by the provisions of any bond to be given to a surety, the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

10.05 *Claims*

A. *Engineer's Decision Required*: All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.

B. *Notice:* Written notice stating the general nature of each Claim, shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

C. *Engineer's Action*: Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:

1. deny the Claim in whole or in part,

2. approve the Claim, or

3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.

D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.

F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 - COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items, and shall not include any of the costs itemized in Paragraph 11.01.B.

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time at the Site. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.

4. Costs of special consultants (including but not limited to Engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have

resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, expresses, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A and 11.01.B.

C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 *Allowances*

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. *Cash Allowances*

1. Contractor agrees that:

a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

b. Contractor's costs for unloading and handling on the Site, labor, installation , overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. Contingency Allowance

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

2. there is no corresponding adjustment with respect any other item of Work; and

3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 - CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

C. *Contractor's Fee:* The Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;

b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;

c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraph 12.01.C.2.a is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted

by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times , or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

C If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

D. Owner, Engineer and the Related Entities of each of them shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of Engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 *Notice of Defects*

A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. All defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspecting, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's Site safety procedures and programs so that they may comply therewith as applicable.

13.03 *Tests and Inspections*

A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;

2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in said Paragraph 13.04.C; and

3. as otherwise specifically provided in the Contract Documents.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to

be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, it must, if requested by Engineer, be uncovered for observation.

F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.

B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.

D. If, the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work*

A. Promptly after receipt of notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. repair such defective land or areas; or

2. correct such defective Work; or

3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and

4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.

B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications .

D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.

C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress

payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 *Progress Payments*

A. Applications for Payments

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. *Review of Applications*

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations on the Site of the executed Work as an experienced and qualified design professional and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

a. the Work has progressed to the point indicated;

b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and to any other qualifications stated in the recommendation); and

c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or

b. that there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

a. to supervise, direct, or control the Work, or

b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or

e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent

inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;

b. the Contract Price has been reduced by Change Orders;

c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or

d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. *Payment Becomes Due*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. *Reduction in Payment*

1. Owner may refuse to make payment of the full amount recommended by Engineer because:

a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;

b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;

c. there are other items entitling Owner to a set-off against the amount recommended; or

d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.

2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor corrects to Owner's satisfaction the reasons for such action.

3. If it is subsequently determined that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1.

14.03 *Contractor's Warranty of Title*

A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 *Substantial Completion*

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.

B. Promptly after Contractor's notification, , Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will within 14 days after submission of the tentative certificate to Owner notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will within said 14 days execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial

Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to complete or correct items on the tentative list.

14.05 *Partial Utilization*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions.

1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor will certify to Owner and Engineer that such part of the Work is substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 *Final Payment*

A. Application for Payment

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.7;

b. consent of the surety, if any, to final payment;

c. a list of all Claims against Owner that Contractor believes are unsettled; and

d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner or Owner's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. *Engineer's Review of Application and Acceptance*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations

under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. Payment Becomes Due

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and , will be paid by Owner to Contractor.

14.08 *Final Completion Delayed*

A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);

2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;

3. Contractor's disregard of the authority of Engineer; or

4. Contractor's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:

1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion),

2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and

3. complete the Work as Owner may deem expedient.

C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph Owner shall not be required to obtain the lowest price for the Work performed.

D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.

E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B, and 15.02.C.

15.03 *Owner May Terminate For Convenience*

A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 - DISPUTE RESOLUTION

16.01 *Methods and Procedures*

A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be

governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions, or

2. agrees with the other party to submit the Claim to another dispute resolution process, or

3. gives written notice to the other party of their intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 - MISCELLANEOUS

17.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

17.05 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

17.06 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

SUPPLEMENTARY GENERAL CONDITIONS

PART 1

SGC-1. GENERAL

These Supplementary General Conditions of the Contract shall be used in conjunction with the General Conditions as part of the Contract Documents, and shall take precedence over and modify any related pages or statements to the General Conditions. The General Conditions and Supplementary General Conditions shall define the relation of the Engineer, the Contractor, various sub-contractors, and the Owner, each to the other and lay down certain rules and procedures in an expeditious, orderly and workmanlike manner.

The General Conditions, Supplementary General Conditions, Parts I and II and all Divisions and Sections of the Specification shall establish the required standards of material and workmanship, so that the construction work as a whole shall be a complete and finished piece of work, with all portions executed in an approved manner by each representative trade. The contractor is bound by all provisions herein relating to sub-contractors and vice versa.

SGC-2. DEFINITIONS

Whenever used in the Contract Documents the following meanings shall be given to the terms herein defined.

a. The term "Contract" means the Contract executed by the Local Public Agency and the Contractor, of which the documents herein before referenced from a part.

b. The term "Owner" means Pittston City, or any of the Owner's authorized representatives, which is authorized to undertake this contract.

c. The term "Local Public Agency" means Pittston City, or any of the City's authorized representatives, which is authorized to act on the behalf of the Township.

d. The term "Property Owner" means residential property owners from Pittston City or any of the property owner's authorized representatives or subsidiaries, which is authorized to act on the behalf of the property owner.

e. The term "Contractor" means the person, firm, or corporation entering into the Contract with the Owner to perform the improvements embraced in this Project.

f. The term "Project Area" means the area of work included under this Pittston City Sewer Improvements Projected located in Pittston City, Luzerne County, Pennsylvania.

g. The term "Engineer" shall be more specific in that the functions and duties of the Engineer will be performed by and under the direction and supervision of one or more of the registered Engineers or Surveyors of Reilly Associates. The term "Engineer" as used in these

specifications and other contract documents shall mean any of the staff of Reilly Associates who may be designated to perform, or direct and supervise the performance of such functions and duties. Written notices and communications to the Engineer should be addressed to Reilly Associates, Consulting Engineers, 49 South Main Street, Suite 200, PA 18640.

h. The term "Local Government" means Pittston City and/or Luzerne County, Pennsylvania, within which the Project Area is situated.

i. The term "Contract Documents" means and shall include the following: Executed Agreement, Addenda (if issued), Advertisement for Bids, Instructions to Bidders, Signed copy of Bid, General Conditions, Supplementary General Conditions, Technical Specifications, and Drawings as listed in the List of Project Drawings, Executed Change Orders, Permit Conditions.

j. The term "Drawings" means the drawings listed in the List of Project Drawings.

k. The term "Technical Specifications" means that part of the Contract Documents which described outlines and stipulates: The quality of the materials to be furnished; the quality of the workmanship required; and the methods to be used in carrying out the construction work to be performed under this Contract.

l. The term "Addendum" or "Addenda" means any changes, revisions, or clarifications of the Contract Documents which have been duly issued by the Engineer for the Local Public Agency to prospective Bidders prior to the time of receiving Bids.

SGC-3. COORDINATION OF DOCUMENTS

The intent of the Plans and Specification is that the CONTRACTOR shall furnish all labor, materials, equipment and transportation necessary for the proper execution of the work. The CONTRACTOR shall do all the work outlined in the Contract Documents and all incidental work (shown or inferred) necessary to complete the project in a substantial and acceptable manner and fully complete the work or improvement, ready for use, occupancy and operation by the OWNER.

Each requirement appearing in any one of the Contract Documents is as binding as though it were repeated or shown in every one of the Documents. In this Contract, all of the Contract Documents shall, to the greatest extent possible, be interpreted together in a manner such that the documents are consistent with each other and taken together express the intended construction result. To achieve this result, incidental work may be inferred from the bid documents as required and included in the contract bid items.

In case of any apparent discrepancy or conflict between or among two or more said documents, except as otherwise ruled by the OWNER, figured dimensions shall control scaled dimensions, larger scale superseding smaller scale, plans shall control specifications, and, in general, a special or detail specification shall control a general or standard specification or plan relative to the same subject.

In any and all cases of apparent discrepancy in figures, Drawings, or specifications, the matter shall be submitted immediately by the CONTRACTOR to the ENGINEER for his decision. Any work done by the CONTRACTOR after his discovery of such apparent discrepancies, inconsistencies or ambiguities shall be done at the CONTRACTOR'S risk.

SGC-4. EQUIPMENT RATES

Where required under the General Conditions, equipment cost rates shall be calculated as follows:

Equipment rates shall not exceed these generally prevailing in the locality during the Project.

No cost in any form shall be allowed for equipment "down time", transportation or when equipment is not in running order or not in use.

No cost for foreman's vehicle or tools will be allowed.

For equipment, either rented or owned, including pumps and compressors, the hourly rental rate shall not exceed that rate determined using the monthly rental rates taken from the current edition of the Rental Rate Blue Book for Construction Equipment and dividing by 176. An allowance will be made for operating costs for every hour the machinery or equipment is operating, in accordance with rates listed in the rental book. To the above rates, add the predominant area adjustment percentage for the State as shown on the area adjustment map in the Rental Rate Blue Book for Construction Equipment.

There will be no allowed cost for equipment used for maintenance and protection of traffic (signs, flashers, barricades, drums, etc.).

SGC-5. SEPARATE CONTRACTS

The Owner, property owner, adjacent land owners and others may award or may have awarded other Contracts for additional work, and the Contractor shall cooperate fully with such other Contracts, by scheduling his own work with that to be performed under other Contracts as may be directed by the Owner. The Contractor shall be responsible to coordinate, stage and schedule his work in conjunction with the other contracts in order to meet the require completion time frames for all work at no additional cost to the owner. The Contractor shall not commit or permit any act, which will interfere with the performance of work by any other Contractor as scheduled.

Separate contracts which are expected to be awarded for work in the same area for work at the same time as this contract include but are not limited to:

Roadway Infrastructure Construction
Topsoil, Seeding and Landscape Construction

Drilling and Blasting for Roadway grading and utilities
Traffic Signals and controls
Pavement Markings and Signing
Pad Grading Construction
Site grading, drainage, utilities and building construction on adjacent lands.

The Contractor shall hold harmless the Owner, Reilly Associates, the property owner, the Owner of any other Contract(s) for which work is conducted in the project area, and other contractors for any damages resulting from the delay of work caused by the contractor of any other contract awarded by the Owner, the property owner or the Owner of any other Contract for which work is conducted in the project area.

SGC-6. FITTING AND COORDINATION OF THE WORK

The Contractor shall be responsible for the proper fitting of all work and for the coordination of operations of all trades, sub-contractors, or material and men engaged upon this contract. He shall be prepared to guarantee to each of his sub-contractors the locations and measurements which they may require for the fitting of their work to all surrounding work.

SGC-7. MUTUAL RESPONSIBILITY OF CONTRACTORS

If, through acts of neglect on the part of the Contractor, any other Contractor or any sub-contractor shall suffer loss or damage on the work, the Contractor shall settle with such other Contractor or sub-contractor by agreement, arbitration, mediation or mediated agreement if such other Contractor or sub-contractor will so settle. If such other Contractor or sub-contractor shall assert any claim against the Owner or property owner on account of any damage alleged to have been sustained, the Owner or property owner will notify this Contractor, who shall defend at his own expense any suit based upon such claim, and, if any judgment or claims against the Owner or property owner shall be allowed, the Contractor shall pay or satisfy such judgment or claim and pay all costs and expenses in connection therewith.

SGC-8. CONSTRUCTION SCHEDULE

The Contractor shall submit to the Owner for approval within 5 days of notice of award of contract, four copies of a carefully prepared Progress Schedule, showing the proposed dates of starting and completing each of the various sections of the work, and anticipated monthly payments to become due the Contractor, and the accumulated percent of progress each month. Schedule shall be updated and resubmitted on a bi-weekly basis.

SGC-9. PAYMENTS TO CONTRACTORS

a. Partial Payments

1. The Contractor shall prepare his requisition for partial payment as of the last Saturday of the month and submit it, with the required number of copies, to the Engineer for his approval. The amount of the payment due the Contractor shall be determined by adding to

the total value of work completed to date, the value of materials properly stored on the site and deducting (1) ten percent (10%) of the total amount, to be retained until final payment, and (2) the amount of all previous payments. Amount of retainage may be reduced to 5% upon 50% completion of the project at the Engineer's discretion. The value of materials properly stored on the site shall be based upon the estimated quantities of such materials and the invoice prices. Copies of all invoices shall be available for inspection of the Engineer upon request.

2. Monthly or partial payments made by the Owner to the Contractor are monies advanced for the purpose of assisting the Contractor to expedite the work of construction. The Contractor shall be responsible for the care and protection of all materials and work upon which payments have been made until final acceptance of such work and materials by the Owner. Such payments shall not constitute a waiver of the right of the Owner to require the fulfillment of all terms on the Contract and the delivery of all improvements embraced in this Contract complete and satisfactory to the Owner in all details.

The following procedures are to followed for Payment Applications:

1. The estimate for partial payment shall be up to and including the last Saturday of the month. Two (2) pencil copies of the invoices must be provided to the Engineer by the 5th of each month. See the Period Estimate for Partial Payment Form, Section 0041. Include two (2) copies of certified payrolls for the application period.
2. Reviewed pencil copies of invoices with comments will be returned to the Contractor within ten days of receipt.
3. Three (3) Final Copies of the invoices, with original signatures, are due within 5 days of approval of pencil copy.
4. Upon receipt of all required documents payment will be made in accordance with paragraph e, below.
5. In accordance with General Conditions, Section 0050, Paragraph 14.02.A.2 Progress Payments – Applications for Payment, "Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment." Applications for payment will not be approved/processed prior to submittal of this affidavit.
6. With the Application for Payment the Contractor must provide for the previous month, a complete Form STD-28 Monthly Contract Compliance Report For Construction Contractors.

b. Final Payment

1. After final inspection and acceptance by the Owner of all work under the Contract, the Contractor shall prepare his requisition for final payment which shall be based upon the carefully measured or computed quantity of each item of work at the applicable unit prices stipulated in the agreement as verified by the Engineer. The total amount of the final payment due the Contractor shall be made subject to his furnishing the Owner upon their request with a release in satisfactory form of all claims against the Owner arising under and by virtue of his

Contract, other than such claims, if any, as may be specifically excepted by the Contractor from the operation of the release as provided under paragraph "Disputes" hereof.

2. The Owner, before paying the final estimate, may require the Contractor to furnish releases or receipts from all sub-contractors having performed any work and all persons having supplied materials, equipment, (installed on the Project) and services to the Contractor, if the Owner deems the same necessary in order to protect its interest. The Owner, however, may if it deems such action advisable, make payment in part or in full to the contractor without requiring the furnishing of such releases or receipts and any payments so made shall in no way impair the obligations of any surety or sureties furnished under this Contract.

3. Withholding of any amount due the Owner under the section entitled "Liquidated Damages" shall be deducted from the final payment due the Contractor.

c. Withholding Payments

The Owner may withhold from any payment otherwise due the Contractor so much as may be necessary to protect the Owner and if it so elects may also withhold any amounts due from the Contractor to any sub-contractors or material dealers, for work performed or material furnished by them. The foregoing provisions shall be construed solely for the benefit of the Owner and will not require the Owner to determine or adjust any claims or disputes between the Contractor and his sub-contractors or material dealers, or to withhold any moneys for their protection unless the Owner elects to do so. The failure or refusal of the Owner to withhold any monies from the Contractor shall in no way impair the obligations of any surety or sureties under any bond or bonds furnished under this Contract.

d. Payments Subject to Submission of Certificates

Each payment to the Contractor by the Owner shall be made subject to submission by the Contractor of all written certifications required of him and his sub-contractors.

e. Receipt of Payment

Contractor's invoice is due and payable within sixty (60) days of approval by the Engineer and Owner. Invoices/Applications for Partial Payment shall not be approved until all documents required with the application are submitted.

SGC-10. CHANGES IN THE WORK

a. The Owner may make changes in the scope of the work required to be performed by the Contractor under the Contract or making additions thereto, or by omitting work therefrom, without invalidating the Contract, and without relieving or releasing the Contractor from any of his obligations under the Contract or any guarantee given him pursuant to the Contract provisions, and without affecting the validity of the guaranty bonds, and without relieving or releasing the surety or sureties of said bonds. All such work shall be executed under the terms of the original Contract unless it is expressly provided otherwise.

b. Except for the purpose of affording protection against any emergency endangering health, life, limb, or property, the Contractor shall make no change in the materials used or in the specified manner of constructing or installing the improvements or supply additional labor, services, or materials beyond that actually required for the execution of the Contract unless in pursuance of a written order from the Owner authorizing the Contractor to proceed with the change. No claim for an adjustment of the Contract Price, will be valid unless so ordered.

c. If applicable unit prices are contained in the Agreement (established as a result of either a unit price bid or a Supplemental Schedule of Unit Prices), the Owner may order the Contractor to proceed with desired changes in the work, the value of such changes to be determined by the measured quantities involved and the applicable unit prices specified in the Contract; provided that in case of a unit price contract the net value of all changes does not increase or decrease the original total amount shown in the Agreement by more than twenty-five percent (25%) in accordance with the section entitled "Unit Prices and Quantities of Work" under "Instructions to Bidders".

d. If applicable unit prices are not contained in the Agreement, or if the total net change increases or decreases the total Contract Price more than twenty-five percent (25%) the Owner shall, before ordering the Contractor to proceed with desired changes, request an itemized proposal from him covering the work involved in the change after which the procedure shall be as follows:

1. If the Proposal is acceptable, the Owner will prepare the change order in accordance therewith for acceptance by the Contractor and;

2. If the proposal is not acceptable, proceed as per GC Article 10 and as per SGC-11.

SGC-11. CLAIMS FOR EXTRA COST

a. If the Contractor claims that any instructions by Drawings or otherwise, involve extra cost or extension of time, he shall, within thirty (30) days after the receipt of such instructions, and in any event before proceeding to execute the work, submit his protest thereto in writing to the Owner, stating clearly and in detail the basis of his objections. No such claim will be considered unless so made.

b. Claims for additional compensation for extra work, due to alleged errors in ground elevations, contour lines, or bench marks, will not be recognized unless accompanied by certified survey results clearly showing that errors exist which resulted, or would result, in handling more material, or performing more work, than would be reasonably estimated from the Drawings and maps issued.

c. Any discrepancies which may be discovered between actual conditions and those represented by the Drawings and maps shall at once be reported to the Owner and the Engineer and work shall not proceed except at the Contractor's risk, until written instructions have been received by him from the Owner.

d. If, on the basis of the available evidence, the Owner determines that an adjustment of the Contract Price and/or time is justifiable, the procedure shall be as provided in paragraph "Changes in The Work" hereof.

SGC-12. TERMINATION, DELAYS, AND LIQUIDATED DAMAGES

a. Termination of Contract

If the Contractor refuses or fails to prosecute the work with such diligence as will insure its completion within time specified in these Contract Documents, or as modified as provided in these Contract Documents, the Owner, by the written notice to the Contractor, may terminate the Contractor's right to proceed with the work. Upon such termination the Owner may take over the work and prosecute the same to completion, by contract or otherwise, and the Contractor and his sureties shall be liable to the Owner for any additional cost incurred by the Owner in its completion of the work and they shall also be liable to the Owner for any liquidated damages for any delay in the completion of the work as provided below. If the Contractor's right to proceed is so terminated, the Owner and/or its designated representative may take possession of and utilize in completing the work such materials, tools, equipment, and plant as may be on the site of the work and necessary therefore.

b. Liquidated Damages for Delays

If the work be not substantially completed within the time stipulated, including any extensions of time for excusable delays as herein provided, the Contractor shall pay to the Owner as fixed, agreed, and liquidated damages (it being impossible to determine the actual damages occasioned by the delay) for each calendar day of delay, until the work is completed, the amount set forth in Paragraph SGC-36 of this section and his sureties shall be liable to the Owner for the amount thereof.

c. Excusable Delays

The right of the Contractor to proceed shall not be terminated nor shall the Contractor be charged with liquidated damages for any delays in the completion of the work due:

1. To any acts of the Government by reason of war, national defense, or any other national emergency which results in controls or restrictions upon or requisitioning of materials, tools, or labor.

2. To any acts of the Owner.

3. To causes not reasonably foreseeable by the parties to this Contract at the time of the execution of the Contract which are beyond the control and not within the fault or negligence of the Contractor similar but not restricted to, acts of God or of the public enemy, acts of another Contractor in the performance of some other Contract with the Owner or Property Owner, fires, floods, epidemics, quarantine, restrictions, strikes,

freight embargoes, and weather of unusual severity such as hurricanes, tornadoes, cyclones, and other extreme weather conditions; and

4. To any delay of any sub-contractor occasioned by any of the causes specified in sub-paragraphs 1, 2, and 3 of this paragraph "C".

Provided, however, that the Contractor promptly notify the Owner within ten (10) days in writing of the cause of delay. Upon receipt of such notification, the Owner shall ascertain the facts and the cause and extent of delay. If, upon the basis of the facts and terms of this Contract, the delay is properly excusable, the Owner shall extend the time for completing the work for a period of time commensurate with the period of excusable delay.

SGC-13. ASSIGNMENT OR NOVATION

The Contractor shall not assign or transfer, whether by an assignment or novation, any of its rights, duties, benefits, obligations, liabilities, or responsibilities under this contract without written consent of the Owner; provided, however, that assignments to banks, trust companies, or other financial institutions may be made without the consent of the Owner. No assignment or novation of this Contract shall be valid unless the assignment or novation expressly provides that the assignment of any of the Contractor's rights or benefits under the Contract is subject to a prior lien for labor performed, services rendered, and materials, tools, and equipment supplied for the performance of the work under this Contract in favor of all persons, firms, or corporations rendering such labor or services or supplying such materials, tools, or equipment.

SGC-14. DISPUTES

a. All disputes under the Contract or its interpretation except those disputes covered by FEDERAL LABOR STANDARDS PROVISIONS, whether involving law or fact or both, or extra work, and all claims for alleged breach of contract shall within ten (10) days of commencement of the dispute be presented by the Contractor to the Owner for decision. All papers pertaining to the claims shall be filed in quadruplicate. Such notice need not detail the amount of the claim but shall state the facts surrounding the claim in sufficient detail to identify the claim, together with its character and scope. In the meantime the Contractor shall proceed with the work as directed. Any claim not presented within the time limit specified in this paragraph shall be deemed to have been waived, except that if the claim is of continuing character and notice of the claim will be considered only for a period commencing ten (10) days prior to the receipt by the Owner of notice thereof.

b. The Contractor shall submit in detail his claim and his proof thereof. Each decision by the governing body of the Owner will be in writing and will be mailed to the Contractor by registered or certified mail, return receipt requested, directed to his last known address.

c. If the Contractor does not agree with any decision of the Owner, he shall in no case allow the dispute to delay the work but shall notify the Owner promptly that he is proceeding with the work under protest and he may then accept the matter in question from the final release.

d. Article 16 of the General Conditions shall be superseded by the following: Any and all disputes or claims between the Owner and/or Property Owner and the Contractor arising out of this Contract shall be adjudicated in the Court of Common Pleas of Luzerne County, Pennsylvania and the Contractor shall agree to submit to the jurisdiction thereof.

SGC-15. REQUESTS FOR SUPPLEMENTARY INFORMATION

It shall be the responsibility of the Contractor to make timely requests of the Owner for any additional information not already in his possession which should be furnished by the Owner under the terms of this Contract, and which he will require in the planning and execution of the work. Such requests may be submitted from time to time as the need is approached, but each shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay. Each request shall be in writing and list the various items and the latest date by which each will be required by the Contractor. The first list shall be submitted within two weeks after contract award and shall be as complete as possible at that time. The Contractor shall, if requested, furnish promptly any assistance and information the Engineer may require in responding to these requests of the Contractor. The Contractor shall be fully responsible for any delay in his work or to others arising from his failure to comply fully with the provisions of this section.

SGC-16. SANITARY FACILITIES

The Contractor shall furnish, install, and maintain ample sanitary facilities for the workmen. As the needs arise, a sufficient number of enclosed temporary toilets shall be conveniently placed as required by the sanitary codes of the State and Local Governments. Drinking water shall be provided from an approved source, so piped or transported as to keep it safe and fresh and served from single service containers or satisfactory type of sanitary drinking stands or fountains. All such facilities and services shall be furnished by the Contractor in strict accordance with existing and governing health regulations.

SGC-17. INSPECTION

a. All materials and workmanship shall be subject to inspection, examination, or test by the Owner and the Engineer at any and all times during manufacture or construction and at any and all places where such manufacture or construction is carried on. The Owner shall have the right to reject defective material and workmanship or require its correction. Unacceptable workmanship shall be satisfactorily corrected. Rejected material shall be promptly segregated and removed from the Project Area and replaced with material of specified quality without charge therefore. If the contractor fails to proceed at once with the correction of rejected workmanship or defective material, the Owner may contract or otherwise have the defects remedied or rejected materials removed from the Project Area and charge the cost of the same against any moneys which may be due the Contractor, without prejudice to any other rights or remedies of the Owner.

b. The Contractor shall furnish promptly all materials reasonably necessary for any test

which may be required. All tests by the Owner will be performed in such a manner as not to delay the work unnecessarily and shall be made in accordance with the Technical Specifications. Contractor shall cooperate with any testing by Owner and shall provide men and equipment to aid testing if required.

c. The Contractor shall notify the Owner, Local Public Agency and Property Owner sufficiently in advance of backfilling or concealing any facilities to permit proper inspection. If any facilities are concealed without approval or consent of the Owner, Local Public Agency, and Property Owner, the Contractor shall uncover for inspection and recover such facilities all at his own expense, when so requested by the Owner, Local Public Agency and Property Owner. Should it be considered necessary or advisable by the Owner, Local Public Agency and Property Owner at any time before final acceptance of the entire work to make an examination of work already completed, by uncovering the same. The Contractor shall on request promptly furnish all necessary facilities, labor, and material. If such work or any work is found to be defective in any important or essential respect, due to fault of the Contractor or his sub-contractor, the Contractor shall defray all the expenses of such examination testing program and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the actual cost of labor and material necessarily involved in the examination and replacement, plus fifteen percent (15%) of such costs to cover superintendence, general expenses, and profit, shall be allowed the Contractor and he shall, in addition to completion of the work of the entire Contract has been delayed thereby, be granted a suitable extension of time on account of the additional work involved.

d. Inspection of materials and appurtenances to be incorporated in the improvements embraced in this Contract may be made at the place of production manufacturer or shipment, whenever the quantity justifies it and such inspection and acceptance, unless otherwise stated in the Technical Specifications, shall be final, except as regards (1) latent defects, (2) departures from specific requirements of the Contract, (3) damage or loss in transit, or (4) fraud or such gross mistakes as amount to fraud. Subject to the requirements contained in the preceding sentence, the inspection of materials as a whole or in part will be made at the Project Site.

e. Neither inspection, testing, approval, nor acceptance of the work in whole or in part, by the Owner, Local Public Agency, Property Owner or its agents shall relieve the Contractor or his sureties of full responsibility for materials furnished or work performed not in strict accordance with the Contract.

SGC-18. REVIEW BY LOCAL PUBLIC AGENCY

The Local Public Agency, its authorized representatives and agents shall, at all times have access to and be permitted to observe and review all work, materials, equipment, payrolls, personnel records, employment conditions, material invoices, and other relevant data and records pertaining to this Contract, provided, however, that all instructions and approval with respect to the work will be given to the Contractor only by the Owner through its authorized representative or agents.

SGC-19. FINAL INSPECTION

a. When the Improvements embraced in this Contract are substantially completed, the Contractor shall notify the Owner in writing that the work will be ready for final inspection on a definite date which shall be stated in the notice. The notice will be given at least ten (10) days prior to the date stated for final inspection, and bear the signed concurrence of the representative of the Owner having charge of inspection. If the Owner determines that the status of improvements is as represented, it will make the arrangements necessary to have final inspection commenced on the date stated in the notice, or as soon thereafter as is practicable. The inspection party will include the Owner, Property Owner, Local Public Agency, Contractor, Engineer, and representatives of the Local Government having charge over improvements of like character when such improvements are later to be accepted by the Local Government, Local Public Agency or other public or private utility company providing similar service in the area. Within a reasonable time from the date of final inspection, the Engineer is to prepare a list of items found not to be in accordance with the Contract Documents and a time frame for completion of these items.

SGC-20. DEDUCTION FOR UNCORRECTED WORK

If the Owner deems it not expedient to require the Contractor to correct work not done in accordance with the Contract documents, an equitable deduction from the Contract Price will be made by agreement between the Contractor and the Owner and subject to settlement, in case of dispute, as herein provided.

SGC-21. INDEMNITY AND INSURANCE

Before commencing work, the Contractor shall submit evidence of the coverage required above to the Owner for review and approval. The policies shall be scheduled on approved form to be supplied by the Owner. The Owner will, in writing, identify the policies and indicate its approval or disapproval. New policies from other companies shall be provided in place of those disapproved. Such insurance shall be carried with financially responsible insurance companies, licensed in the State and approved by the Owner. Contracts of Insurance (covering all operations under this Contract) which expire before the Contractor's work is accepted by the Owner shall be renewed and evidence submitted to the Owner for its approval.

All insurance certificates must list Pittston City, Commonwealth Financing Authority, Reilly Associates, and their representatives as additional insureds.

Pittston City and Commonwealth Financing Authority should be listed as Certificate Holder.

a. Compensation Insurance: The Contractor shall take out and maintain during the life of this Contract, in amounts required by law, Workmen's Compensation Insurance for all of his employees employed at the Site of the Project, and in case any work is sublet, the Contractor shall require the Subcontractor similarly to provide Workmen's Compensation Insurance for all the latter's employees unless such employees are covered by the protection afforded by the Contractor, in accordance with State or Territorial Workmen's Compensation Laws. The Contractor shall, at all times, indemnify and save harmless the Owner and the Engineer, of and from all claims for Workmen's Compensation which may be made by any of the employees of the Contractor or by any of the employees of any Subcontractor to whom the Contractor may have let the performance of any part of the work embraced by this Contract and the Contractor will appear for and defend the Owner and the Engineer against any and all such claims.

b. Public Liability and Property Damage Insurance: The Contractor shall carry or require that there be carried Manufacturer's and Contractor's Public Liability Insurance with limits for Bodily Injury Liability $2,000,000/2,000,000 to protect the Contractor and his Sub-contractors against claims for injury to or death of one, or more than one person, because of accidents which may occur or result from operations under the Contract; such insurance shall cover the use of all equipment, including but not limited to excavating machinery, trenching machines, cranes, hoists, rollers, concrete mixers, and motor vehicles, in the construction of the improvements embraced in this Contract. The Contractor shall carry automobile liability insurance with a minimum coverage of $2,000,000.

The Contractor shall carry, during the life of the Contract, Property Damage Insurance in an amount of not less than $2,000,000/2,000,000 to protect him and his sub-contractors from claims for property damage which might arise from operations under the Contract.

Said insurance shall also cover the Indemnity Liability to Owner and Engineer under the Contract between Owner and Contractor. All policies protecting the Engineer and Owner shall be forwarded to the Owner for inspection and approval and shall be written with an insurance company suitable to the Owner. The Engineer, Owner and others as specified herein shall be named an additional insured on the policies. The PA Liability Property Damage Insurance Policy shall contain a Contractual Liability clause covering the liability assumed by the Contractor under the last paragraph of this Paragraph.

The Contractor shall either (1) require each of his Subcontractors to procure and to maintain during the life of the Subcontractor, Subcontractor's Public Liability and Property Damage of the type and in the same amount as specified in the preceding paragraphs, or (2) insure the activities of his Subcontractors in his own policy.

c. Builder's Risk Insurance: The Contractor during the progress of the work and until completion of the entire Contract and notification thereof to the Contractor by the Owner shall maintain insurance on all work included in the Contract against loss or damage by fire, lightning, wind, explosion, and those perils covered by extended coverage endorsement and vandalism and malicious mischief endorsement on the completed value form, in the names of the Owner, the Contractor, and the Trustee, if any, of the bond issue of the Owner as their

respective interests may appear in an amount equal to one hundred (100) percent of the insurable value of each building or structure and materials and equipment as determined by the Engineer included in this Contract as shall fully protect the interests of the Owner and the Contractor, the risk of damage to the construction work due to the perils covered by said insurance, as well as any other hazards which might result in damage to the construction work, is that of the Contractor and Surety, and no claims for such loss or damage shall be recognized by the Owner, nor will such loss or damage excuse the complete and satisfactory performance of the Contract by the Contractor.

d. Owner's and Engineer's Liability Insurance: The Contractor shall carry owner's Protective Liability Insurance with the Owner (Pittston City), Engineer (Reilly Associates), and Commonwealth Financing Authority as the named insured with limits of $2,000,000 for each occurrence for property damage, liability insurance with the limits of $2,000,000 per occurrence for personal liability insurance covering operations of the Contractor and Sub-contractor.

Certificates: The Contractor shall submit to the Engineer for approval by the Owner, executed certificates and copies of the insurance policies covering all insurance required by the Contract Documents, and shall submit to the Engineer the Owner's and Engineer's Liability Insurance Policy and Contractual endorsement attached to the appropriate certificates, and shall not be permitted to commence work until he has done so, nor until such insurance has been approved by Owner as to companies, amount, coverage and form.

Each certificate and insurance policy shall contain therein or have contained in a rider attached thereto and made a part thereof, a clause to the effect that the insurer will notify the insured and the Owner and Engineer in writing thirty (30) days prior to cancellation of the policy. The certificate for each policy shall be executed in five (5) copies.

It shall be the responsibility of the Owner to determine that all of the aforementioned insurance policies and certificates of insurance meet the requirements of the Specifications and Contract Documents.

Accidents and Claims: The Contractor shall be responsible for all accidents as described in the Agreement, and shall provide all of the indemnification as stated in said Agreement.

Mutual Responsibility of Contractors: Should a Contractor in the performance of his Contract cause damage to any person, any property, or work of another Contractor working on this Project, he shall, upon due notice to do so from the Owner or other party to the damage, arrange for an amicable settlement thereon. It is agreed by all parties herein that such disputes shall not delay completion of the work, nor be cause for claims against the Owner. Work shall be continued by the party claiming damages at his expense, subject to such damages as may be obtained by due course of law.

Contractor's Liability: The status of the Contractor in the work to be performed by him under this Contract is that of an independent Contractor and as such he shall properly safeguard against any and all injury or damage to the public, to public and private property, materials

and things. The Contractor, for itself, its successors and assigns, hereby agrees to indemnify, defend and hold harmless the Owner, Engineer, and their respective officers, members, employees, agents, successors and assigns, from and against all losses, liabilities, claims, demands, causes of action, damages, costs, including reasonable attorneys fees, and expenses of every kind and nature, whether or not covered by insurance, arising out of, resulting from or caused by, in whole or in part, any act, omission, negligence or fault of Contractor, its agents or employees, in connection with this Agreement, including but not limited to, those in connection with loss of life, bodily injury, personal injury, damage to property, contamination or adverse effects on the environment, any liability for fines, fees or penalties for violations of any statutes, ordinances, codes, rules, regulations or standards applicable to the services performed by Contractor, its agents and employees. This obligation to indemnify, defend and hold harmless, the above referred to entities shall survive termination of this Agreement.

e. Insurance Submission to Owner: The Contractor shall submit to Owner a Certificate of Insurance thirty (30) days prior to start of work and shall not start work prior to submittal of said item.

SGC-22. CONTRACTOR RESPONSIBLE UNTIL WORK COMPLETED

The Contractor shall have charge of and be responsible for the entire work until completed and accepted by the Owner. He shall make no assignment of this Contract without the written consent of the Owner. He shall give his personal supervision to the faithful prosecution of the work; he shall keep it under his own control; and he shall have a competent representative or foreman on the work who shall have full authority to bring about the orderly and efficient prosecution of the same in accordance with the Contract Agreement and to supply materials, tools, equipment and labor without delay. However, the Owner, and/or Property Owner upon written notice will be permitted to use and/or operate all or a portion of the project before final acceptance of same.

Neither the final certificate of payment nor any provision in the Contract Documents, nor partial or entire occupancy of the premises by the Owner, shall constitute an acceptance of work not done in accordance with the Contract Documents or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall remedy any defects in the work and pay for any damage to other work resulting there from, which shall appear within a period of eighteen (18) months from the date of final acceptance of work. The Owner will give notice of observed defects within reasonable promptness.

All loss or damage arising out of the nature of the work, or any damage to the work itself to be done under this Contract or from any unforeseen obstructions or difficulties which may be encountered in the prosecution of the same, or from the action of the elements, or from any cause or causes whatsoever, until the same shall have been finally accepted, shall be sustained and paid for by the Contractor.

SGC-23. GENERAL GUARANTY

Neither the final certificate of payment nor any provision in the Contract nor partial or entire use of the improvements embraced in this contract by the Owner shall constitute an acceptance of work not done in accordance with the Contract or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and pay for any damage to other work resulting there from which shall appear within a period of eighteen (18) months from the date of final acceptance of the work. The Owner will give notice of defective materials and work with reasonable promptness.

SGC-24. PROPERTY DAMAGE DURING CONSTRUCTION

Any construction related damage, occurring within the Contractor's Project Area during construction, will be assumed to be the Contractor's responsibility unless the Contractor can prove, to the Owner's satisfaction, otherwise.

SGC-25 NPDES

There is a NPDES Permit for Stormwater Discharges Associated with Construction for the project site. The Contractor shall adhere to the requirements of the permit and shall execute the co-permittee form if requested.

SGC-26. PERMITS AND CODES

a. The Contractor shall give all notices required by and comply with all applicable laws, ordinances, and codes of the Local Government. All construction work and/or utility installations shall comply with all applicable ordinances, and codes including all written waivers. Before installing any work, the Contractor shall examine the Drawings and Technical Specifications for compliance with applicable ordinances and codes and shall immediately report any discrepancy to the Owner. Should the Contractor fail to observe the foregoing provision and proceed with the construction and/or install any utility at variance with any applicable ordinance or code, including any written waivers (notwithstanding the fact that the installation is in compliance with the Drawings and Technical Specifications), the Contractor shall remove such work without cost to the Owner.

b. The Contractor shall at his own expense, secure and pay to the appropriate department of the Local Government the fees or charges for all permits for street opening, building permits, street pavement, sidewalks, sheds, removal of abandoned water taps, sealing of house connection drains, pavement cuts, buildings, electrical, plumbing, water, gas, and sewer permits required by the local regulatory body or any of its agencies.

c. The Contractor shall comply with applicable local laws and ordinances governing disposal of excess excavation, materials, debris, and rubbish on or off the Project Area and commit no trespass on any public or private property in any operation due to or connected with the Improvements embraced in the Contract.

SGC-27. EXISTING UNDERGROUND UTILITIES OR OBSTRUCTIONS

a. Certain information regarding the reputed presence, size, character, and location of existing underground structures, pipes, and conduits, has been shown on the Drawings. The accuracy of this information is not guaranteed and the location of the underground utilities or obstructions shown may be inaccurate and utilities other than those shown may be encountered. The Contractor hereby distinctly agrees that the Owner, Engineer or Property Owner is not responsible for the correctness or sufficiency of the information given; that in no event is this information to be considered as a part of the Contract; that he shall have no claim for delay or extra compensation on account of incorrectness of information given, or on account of the insufficiency or absence of information regarding obstructions either revealed or not revealed by the Drawings; and that he shall have no claim for relief from any obligation or responsibility under the Contract, in case the location, size, or character of any pipe or other underground structure is encountered that is not shown on the Drawings.

b. The Contractor shall be responsible for all damage to existing underground utilities occasioned by his operations. He shall satisfy himself as to their correct location and shall be responsible for all utilities or other obstruction whether or not they are shown on the Drawings or are shown incorrectly. Any damage to such utilities shall be repaired at the Contractor's expense and under the direction of the owner of the utility.

c. The Contractor is directed to notify the appropriate sanitary, gas, water, electric, and telephone utility companies at least one week in advance of the start of any excavation or grading operations so that the utility company can provide such assistance as may be possible for the location, protection, and repair of its lines.

d. Prior to the start of construction on each street, the Contractor shall request the utility companies to mark the actual location of each utility in the field if possible, and he shall dig test holes at his own cost to verify the location of proposed utility lines where necessary to clear existing utilities after consultation with the Engineer. Changes in location of proposed utility lines as necessary shall be anticipated and included in the unit prices bid.

e. All utility services shall be supported by suitable means so that the services shall not fail when tamping and settling occurs.

SGC-28. PRECONSTRUCTION CONFERENCE

A preconstruction conference may or may not be held by the Owner.

SGC-29. INTEREST OF MEMBERS OF THE COMMONWEALTH AND OTHERS

No officer, member, or employee of the Commonwealth and no member of its governing body who exercises any functions or responsibilities in the review or approval of services being performed under this Contract shall participate in any decision relating to this Contract, which affects his personal interest or the interest of any corporation, partnership, or

association in which he is directly or indirectly interested; nor shall any such officer, member, or employee of the Commonwealth and no member of its governing body have any interest, direct or indirect, in this Contract or the proceeds thereof.

No member of the governing body of the Owner who exercises any functions or responsibilities in connection with the carrying out of the Project to which this Contract pertains, and no other officer or employee of the Owner who exercises any such functions or responsibilities, shall have any private interest, direct or indirect, in this Contract which is incompatible or in conflict with the discharge of fulfillment of his functions and responsibilities in connection with the carrying out of the Project to which this Contract pertains.

SGC-30. CERTIFICATE OF ELIGIBILITY

By entering into this Contract, the Contractor certifies that neither it (nor he or she) nor any person or the firm who has an interest in the Contractor's firm is a person of the firm ineligible to be awarded Government Contracts.

a. This ineligibility includes suspension or debarment by the Commonwealth, any other State or Federal government. By entering into this Contract, the Contractor certifies that neither it (nor he or she), nor any subcontractors on the Project, nor any firm who has an interest in the Contractor's firm is debarred by the Secretary of Labor and Industry pursuant to Section 11 (e) of the Pennsylvania Prevailing Wage Act of 1961 as amended 43 P.S. 165-11(e).

b. If during the construction period it is determined that any contractor or subcontractor has been suspended or debarred by the Commonwealth or the Federal Government, the Owner reserves the right to terminate the Contract and/or the Contractor to dismiss any subcontractor, so suspended or debarred. Upon such termination, the Owner may take over the work and prosecute the same to completion, by contract or otherwise, and the Contractor and his sureties shall be liable to the Owner for any additional cost incurred by the Owner in its completion of the work, and they shall also be liable to the Owner for liquidated damages for any delay in the completion of the work as provided below. If the Contractor's right to proceed is so terminated, the Owner may take possession of and utilize in completing the work such materials, as maybe on the site of the work and necessary thereof.

SGC-31. CONSTRUCTION SEQUENCE

a. The Construction Sequence for E&S Control related to the construction shall be strictly adhered to (if applicable).

b. If work on any stage of the construction sequence is delayed due to unforeseen circumstances, the Contractor shall be responsible for notifying the owner immediately and, upon approval by the Owner, for mobilizing and starting work on another stage such that the project does not extend beyond the allotted time for completion.

SGC-32. WARRANTY OF TITLE

The Contractor shall warrant good title all material, supplies, and equipment installed or incorporated in the work, and upon completion of the work, shall deliver the same together with all improvements and appurtenances constructed or placed hereon by him to the Owner free of any claims, liens, or charges. Nothing contained in this paragraph, however, shall defeat or impair the right of persons furnishing materials or labor to recover under any bond given by the Contractor for their protection or any right under law, permitting such persons to work to funds due to the Contractor in the hands of the Owner.

SGC-33. TIME FOR COMPLETION

Time is of the essence in this Contract. Work shall be started within ten (10) days after the issuance of a "Notice to Proceed" by the Owner and all work including punch lists, restoration and final acceptance shall be completed within 75 consecutive calendar days thereafter.

SGC-34. ISSUING DRAWINGS & SPECIFICATIONS FOR CONSTRUCTION

The Owner will furnish the Contractor without charge three (3) copies of Drawings and Specifications at the time of award of the construction contract. Additional documents may be obtained from the Engineer at the following costs:

Complete Contract Plans and Documents: $75.00 per Set

SGC-35. PARTIAL USE OF THE WORK

The Owner, at its election, may give notice to the Contractor and place in use those portions of the work which have been completed, inspected, and can be accepted as complying with the Technical Specifications and if in its opinion, each such portion is reasonably safe for and convenient for the use and accommodation for which it was intended, provided;

a. The use of such portions of the work shall in no way impede the completion of the remainder of the work by the Contractor.

b. The Contractor shall not be responsible for any damages or maintenance costs due directly to the use of such sections, except that the Contractor shall maintain all temporary paving in good repair until he provides the permanent paving of the repaired area. The Contractor, however, will be required to repair or replace any section of road constructed and/or repaired under the work of this Contract that becomes depressed during the period of guarantee.

c. The use of such sections shall in no way relieve the Contractor of his liability due to having used defective materials or due to poor workmanship.

d. The period of guarantee stipulated in the General Conditions shall not begin to run until the date of final acceptance of all work which the Contractor is required to construct under this

Contract.

SGC-36. LIQUIDATED DAMAGES

The Contractor and his Sureties will be liable for and shall pay to the Owner as fixed, agreed, and liquidated damages the amount of:

A. Contractor and Owner recognize that time is of the essence of this Agreement and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 4.02 of Section 0031, Form of Agreement, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay Owner $1,500.00 for each day that expires after the time specified in Paragraph 4.02 A of the Form of Agreement for Final Completion until the Work is completed and ready for final payment.

SGC-37. SUBSURFACE CONDITIONS

If unsuitable subsurface materials are encountered during excavation and additional backfill material is needed, material shall be supplied and installed (including compaction) by the Contractor.

All common fill as specified on the plans and in the specifications is to be provided at the Contractor's expense. If suitable fill meeting the requirements of the technical specifications and/or drawings is not obtained from the excavations, the Contractor may screen or crush excavated materials to the specific size requirements or the Contractor may import suitable materials from an outside source. In either case, Contractor shall provide approved materials at no additional cost to the Owner. All material must be approved by the Engineer and/or the Owners representative prior to placement.

SGC-38. SALES TAX EXEMPTION

Certain materials purchased and furnished by the Contractor under the terms of this Contract may be exempt from applicable state sales tax. If the Owner is a qualifying public entity, the Contractor shall provide a written request to the Owner for information as necessary to complete sale tax exemption documents for tax exempt purchases. The Owner shall provide information as necessary to the Contractor as is required to document sales tax exempt purchases.

SUPPLEMENTARY
GENERAL CONDITIONS
PART II

STATE REQUIREMENTS

All Bidders must comply with the following State requirements:

1. Pennsylvania Steel Products Procurement Act (No. 178-3).

Pursuant to the Steel Products Procurement Act of March 3, 1978, P.L. 6, as amended by Act 144 of July 9, 1984 (73 P.S. Section 1881 et seq.), only steel products as defined in the Act shall be used or supplied in the performance of the contract or any subcontracts thereunder.

The Owner shall not provide for, or make any payments to, any person who has not complied with the Act. Any such payment made to any person by the Owner which should not have been made as a result of the Act, shall be recoverable directly from the Contractor, subcontractor, manufacturer or supplier who did not comply with the Act.

In addition to the withholding of payments, any person who willfully violates any of the provisions of the Act shall be prohibited from submitting any bids to the Owner for a period of five (5) years from the date of the determination that a violation has occurred. In the event the person who violates the provisions of the Act is a subcontractor, manufacturer or supplier, such person shall be prohibited from performing any work or supplying any materials to the Owner for a period of five (5) years from the date of the determination that a violation has occurred.

The Contractor shall include the provisions of the Steel Products Procurement Act in every subcontract and supply contract, so that the provisions of the Act shall be binding upon each subcontractor and supplier.

Where Trade Names, Catalog Number and Manufacturers of Material or Equipment are specified, they are mentioned therein for the purpose of establishing a standard of quality, performance and appearance, and for establishing a standard of competitive bidding.

The use of these descriptive names, numbers, etc. will not relieve the Contractor with compliance with all aspects of the above Act.

2. Pennsylvania Human Relations Act (P.L. 744 No. 222), as amended.

During the term of this contract, the Contractor shall comply with the following nondiscrimination clause and all provisions of the Pennsylvania Human Relations Act:

A. CONTRACTOR shall not discriminate against any employee, applicant for employment, independent contractor or any other person because of race, color, religious creed, ancestry, national origin, age or sex.

CONTRACTOR shall take affirmative action to ensure that applicants are employed, and that employees or agents are treated during employment, without regard to their race, color, religious creed, ancestry, national origin, age or sex. Such affirmative action shall include but is not limited to the following: Employment, upgrading, demotion, or transfer; recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training.

CONTRACTOR shall post in conspicuous places, available to employees, agents, applicants for employment, and other persons a notice to be provided by the contracting agency setting forth the provisions of this nondiscrimination clause.

B. CONTRACTOR shall in advertisements or requests for employment placed by it or on its behalf state all qualified applicants will receive consideration for employment without regard to race, color, religious creed, ancestry, national origin, age or sex.

C. CONTRACTOR shall send each labor union or workers' representative with which it has a collective bargaining agreement or other contract or understanding, a notice advising said labor union or workers' representative of its commitment to this non-discrimination clause. Similar notice shall be sent to every other source of recruitment regularly utilized by CONTRACTOR.

D. It shall be no defense to a finding of non-compliance with the Contract Compliance Regulations issued by the Pennsylvania Human Relations Commission of this non-discrimination clause that CONTRACTOR had delegated some of its employment practices to any union, training program or other source of recruitment which prevents it from meeting its obligations. However, if the evidence indicates that the CONTRACTOR was not on notice of the third-party discrimination or made a good faith effort to correct it, such factor shall be considered in mitigation in determining appropriate sanctions.

E. Where the practices of a union or of any training program or other source of recruitment will result in the exclusion of minority group persons, so the CONTRACTOR will be unable to meet its obligations under the Contract Compliance Regulations issued by the Pennsylvania Human Relations Commission, or this nondiscrimination clause, CONTRACTOR shall then employ and fill vacancies through other nondiscriminatory employment procedures.

F. CONTRACTOR shall comply with the Contract Compliance Regulations of the Pennsylvania Human Relations Commission, 16 PA Code Chapter 49 and with all laws prohibiting discrimination in hiring or employment opportunities. In the event of CONTRACTOR's noncompliance with the nondiscrimination clause of this CONTRACT or with any such laws, this CONTRACT may, after hearing and adjudication, be terminated or suspended, in whole or in part, and CONTRACTOR may be declared temporarily ineligible for further

COMMONWEALTH contracts, and such other sanctions may be imposed and remedies invoked as provided by the Contract Compliance Regulations.

G. CONTRACTOR shall furnish all necessary employment documents and records to, and permit access to its books, records and accounts by, the contracting agency and the Human Relations Commission, for purposes of investigation to ascertain compliance with the provisions of the Contract Compliance Regulations, pursuant to Section 49.35 of these Regulations. If CONTRACTOR does not possess documents or records reflecting the necessary information requested, it shall furnish such information on reporting forms supplied by the contracting agency or the Commission.

H. CONTRACTOR shall actively recruit minority subcontractors or subcontractors with substantial minority representation among their employees.

I. CONTRACTOR shall include the provisions of this nondiscrimination clause in every subcontract, so that provisions will be binding upon each subcontractor.

J. The terms used in this nondiscrimination clause shall have the same meaning as in the Contract Compliance Regulations issued by the Pennsylvania Human Relations Commission, 16 PA Code Ch. 49.

K. CONTRACTOR's obligations under this clause are limited to the CONTRACTOR's facilities within Pennsylvania, or where the contract is for purchase of goods manufactured outside of Pennsylvania, the facilities at which such goods are actually produced.

3. Pennsylvania Prevailing Wage Act

The Contractor shall pay no less than the wage rates as listed in the Department of Labor and Industry Determination for this project, Section 0053-1 to 0053-4. The Contractor shall comply with the conditions of the Pennsylvania Prevailing Wage Act approved August 15, 1961 (Act No. 442), as amended August 9, 1963 (Act No. 342), and the regulations issued pursuant thereto, to assure the full and proper payment of said rates.

The Contractor shall file a completed form of "Contractors Certification Concerning Prevailing Wage Requirements" with the Pennsylvania Department of Labor and Industry, within ten (10) calendar days of the execution of the contract. A copy of this certification shall be provided to the Owner.

The Contractor shall submit a completed "Weekly Payroll Certification for Public Works Projects" form to the Owner each week during the time frame of the project and a final statement at the completion of the project.

4. Compliance With The Americans With Disabilities Act

Pursuant to federal regulations promulgated under the authority of The Americans With Disabilities Act, 28 C.F.R. §35.101 et seq., the Contractor understands and agrees that no individual with a disability shall, on the basis of the disability, be excluded from participation

in this Contract or from activities provided for under this Contract. As a condition of accepting and executing this Contract, the Contractor agrees to comply with the "General Prohibitions Against Discrimination," 28 C.F.R. §35.130, and all other regulations promulgated under Title II of The Americans With Disabilities Act which are applicable to the benefits, services, programs and activities provided by the Commonwealth through contracts with outside contractors.

The Contractor shall be responsible for and agrees to indemnify and hold harmless the Commonwealth from all losses, damages, expenses, claims, demands, suits and actions brought by any party against the Commonwealth as a result of the Contractor's failure to comply with the provisions of the above paragraph.

5. Reimbursement For Travel And Per Diem

Reimbursement to the Contractor for any travel, lodging or meals under this Contract shall be at or below state rates, unless the Contractor has higher rates which have been approved by its officers/officials, and published prior to entering into contract negotiations with the Commonwealth. Documentation in support of travel and per diem will be the same as required of state employees. Higher rates must be supported by a copy of the minutes or other official documents, and submitted to the Department.

6. Compliance With Anti-Pollution Regulations

The Contractor and its subcontractors agree that in the performance of their obligations under this Contract they shall minimize pollution and shall strictly comply with all applicable environmental laws and regulations.

7. Compliance with Prohibition of Illegal Alien Labor on Assisted Projects Act and Other Similar Acts

Pursuant to the Act of May 11, 2006 (P.L. 173, No. 43), known as the Prohibition of Illegal Alien Labor on Assisted Projects Act, the Contractor shall not knowingly employ or knowingly permit any of its subcontractors to knowingly employ, the labor services of an illegal alien on activities funded in whole or in part by a grant or loan issued by an executive agency of the Commonwealth of Pennsylvania.

Contractor also agrees to comply with the provisions of all immigration laws, statutes, rules, codes and regulations, including, without limitation, the Immigration Reform and Control Act of 1986, as amended, and the Illegal Immigration Reform and Responsibility Act of 1996, as amended, and any successor statutes thereto.

As evidence of compliance with the above, the Contractor shall execute the Employment Eligibility Verification Compliance Form attached hereto as Attachment "C".

ATTACHMENT B

NONDISCRIMINATION/SEXUAL HARASSMENT CLAUSE

During the term of the Contract, Contractor agrees as follows:

a. In the hiring of any employee for the manufacture of supplies, performance of work, or any other activity required under the Contract or any subcontract, the Contractor, subcontractor, or any person acting on the behalf of the Contractor or subcontractor shall not by reason of gender, race, creed, or color discriminate against any citizen of this Commonwealth who is also qualified and available to perform the work to which the employment relates.

b. Neither the Contractor nor any subcontractor nor any person on their behalf shall in any manner discriminate against or intimidate any employee involved in the manufacture of supplies, the performance of work or any other activity required under the Contract on account of gender, race, creed or color.

c. The Contractor and any subcontractors shall establish and maintain a written sexual harassment policy and shall inform their employees of the policy. The policy must contain a notice that sexual harassment will not be tolerated and employees who practice it will be disciplined.

d. The Contractor shall not discriminate by reason of gender, race, creed, or color against any subcontractor or supplier who is qualified to perform the work to which the Contract relates.

e. The Contractor and each subcontractor shall furnish all necessary employment documents and records to and permit access to its books, records, and accounts by the contracting agency, Bureau of Contract Administration and Business Development for the purposes of investigation to ascertain compliance with the provisions of this Nondiscrimination/Sexual Harassment Clause. If the Contractor or any subcontractor does not possess documents or records reflecting the necessary information requested, the contractor or subcontractor shall furnish such information on reporting forms supplied by the contracting agency or the Bureau of Contract Administration and Business Development.

f. The Contractor shall include the provisions of this Nondiscrimination/Sexual Harassment Clause in every subcontract so that the provisions will be binding upon each subcontractor.

g. The Commonwealth Financing Authority may cancel or terminate the Contract, and all money due or to become due under the Contract may be forfeited for a violation of the terms and conditions of this Nondiscrimination/Sexual Harassment Clause. In addition, the Commonwealth Financing Agency may proceed with debarment or suspension and may place the Contractor in the Contractor Responsibility File.

ATTACHMENT "C"

Employment Eligibility Verification Compliance Form

Contractor:

_____
_____
_____
_____

Project:

THE PITTSTON CITY SEWER SYSTEM IMPROVEMENTS PROJECT

Contractor complies with all of the laws relating to employing legally eligible workers, including citizens, nationals, and aliens authorized to work in the United States. Specifically, Contractor complies with the Pennsylvania Prohibition of Illegal Alien Labor on Assisted Projects Act, the Immigration Reform and Control Act of 1986, as amended, and the Illegal Immigration Reform and Immigrant Responsibility Act of 1996, as amended, and requires all directors, officers, managers, agents and employees to properly complete the Employment Eligibility Verification Form (I-9). We do not knowingly employ anyone who is not authorized to work in the United States.

To the best of our knowledge, all of our directors, officers, managers, agents and employees assigned to our projects are authorized to work in the United States and we agree to provide, upon request, completed and up to date I-9 forms for each.

Contractor agrees to defend, indemnify and hold harmless City of Pittston, Reilly Associates, PENNVEST, Commonwealth Financing Authority, and all of their respective directors, officers, employees and agents for any liability associated with our use or employment of individuals who are not authorized to work in the United States, and/or failure to comply with the Pennsylvania Prohibition of Illegal Alien Labor on Assisted Projects Act, the Immigration Reform and Control Act of 1986, as amended, and the Illegal Immigration Reform and Immigrant Responsibility Act of 1996, as amended. Agreement confirmed as so signified by signatures below.

_____
Corporate Officer Print Name

_____
Corporate Officer Signature

Date: _____, 2009

DIVISION 1 – GENERAL REQUIREMENTS
SECTION 1000 – SUMMARY OF WORK

PART 1: GENERAL

1.01 WORK UNDER THIS CONTRACT

CONTRACTOR shall furnish all labor, materials, equipment and means to construct the pipeline(s) and other Work as described in the Contract Documents and shown on the Drawings. The Work includes, but is not limited to, the following:

A. Pavement removal, including saw cutting, as required.

B. Providing maintenance and protection of traffic as required.

C. Sheeting, bracing, and support of adjoining ground where necessary.

D. Installing sanitary sewer mains, manholes and laterals, and stormwater pipe, manholes, and inlets.

E. Handling drainage and groundwater removal.

F. Guarding the site.

G. Unloading, loading, hauling, distributing, laying, and testing the pipe and appurtenances.

H. Excavation and backfilling of trenches and pits.

I. Restoration of paved surfaces and shoulders, if any.

J. Removal of surplus excavated material.

J. Performance of pressure and mandrel tests of pipeline and vacuum testing of manholes.

M. Clear and grub site.

N. Submit schedules, shop drawings, and as-built records.

The above general outline of principal features does not in any way limit the responsibility of the CONTRACTOR to perform all Work and furnish the required materials, equipment, labor and means as shown or required by the Contract Documents.

Contract Documents, shall be provided as if called for in detail without additional cost to the OWNER.

1.02 WORK BY OWNER

Owner to grade locations of proposed sewer lines and manholes to proposed subgrade level prior to sewer line construction. Owner to drill and blast sewer line trenches lateral trenches, manholes, conduits and all other areas required for work in this project prior to sewer line construction.

If Contractor encounters unblasted rock in the work area he shall immediately notify Owner and Engineer. Contractor will either be authorized to remove rock at the unit bid prices by mechanical means or blasting as directed by the Owner or the Owner will remove rock. The Contractor will receive no extra payment for delay, mobilization, down-time, inefficiencies, extended overhead or any other cost due to rock in the work area. The Contractor will be allowed an extension of contract time as his sole remedy for the delay.

1.03 MATERIALS FURNISHED BY OWNER

None

1.04 LOCATIONS

Work is to be performed on OWNER'S property or right-of-way and easements obtained by the OWNER or within public right-of-way and easements. Work shall be performed by the CONTRACTOR within these limits.

It is the obligation and responsibility of the CONTRACTOR to determine the exact limitations of the right-of-way and/or easements and any conditions limiting or affecting the use thereof by the OWNER and/or the CONTRACTOR. All agreements respecting the right-of-way and the easements are available for the CONTRACTOR'S inspection at the OWNER'S office. The CONTRACTOR agrees to indemnify and hold harmless the OWNER against any claims made by any property owner, including, without limiting the generality hereof, any claim that the CONTRACTOR has failed to keep his work, equipment, materials, or workmen within the limits authorized by the right-of-way and/or easement or any claim that the CONTRACTOR has failed to comply with any condition or requirement, or agreement respecting the right-of-way and/or easement.

Some of the locations shown or described in the Contract Documents, such as tie-ins, are approximate and the CONTRACTOR shall be responsible for locating the exact locations.

PART 2: PRODUCTS

2.01 GENERAL

Specifications for the materials and equipment to be provided by the CONTRACTOR are detailed in the respective Specification Sections.

PART 3: EXECUTION

3.01 FIELD SURVEY WORK

ENGINEER will provide reference points and CONTRACTOR will be responsible for the laying out of the Work.

3.02 COORDINATION

CONTRACTOR will be required to coordinate his work, to phase the construction operations, and provide, install and maintain any temporary connections necessary to prevent interference to operation of OWNER'S facilities. Any construction work requiring the shutdown of facilities must be scheduled and performed only at such times as shall be authorized by the OWNER. Such Work must be completed during the specific periods authorized by the OWNER. It may be necessary that Work will be performed during several shutdown periods and/or during periods of premium time payment to accomplish the desired construction. All costs to perform the CONTRACTOR'S Work, including premium time payments, shall be borne by the CONTRACTOR and are included in the Contract Price.

3.3 REGULATORY REQUIREMENTS

When the Work is to be done in a public right-of-way and a state, county or municipal inspector is assigned to the Project during the construction of the Work, the CONTRACTOR will arrange for an inspector with the CONTRACTOR paying all costs in connection with the inspector.

END OF SECTION

DIVISION 1 – GENERAL REQUIREMENTS
SECTION 1075 – BASIS OF PAYMENT

PART 1: GENERAL

1.01 SCOPE

Work to be performed under this Contract shall be paid for in accordance with the "Schedule of Prices" of the bid. The cost of labor, equipment, materials or work called for in the Specification, shown on the Drawings, or necessary for a complete and satisfactory installation, but which are not specifically mentioned in this Section shall be included in the appropriate pay item by the CONTRACTOR at no additional expense to the OWNER.

1.02 PAYMENT ITEMS

The prices shown in the "Schedule of Prices" of the Bid include all costs to construct the pipeline(s) under this Contract. All work described in the contract documents or necessary for the full operation of the system shall be included in the prices bid. If an item of work is not specifically listed in the schedule of bid items, its full cost shall be included in the listed bid items and the work shall be incidental to the items bid.

End of Section

DIVISION 1 – GENERAL REQUIREMENTS
SECTION 1300 – SUBMITTALS

PART 1: GENERAL

1.01 BEFORE STARTING WORK

A. Preliminary Progress Schedule

In accordance with Section 2.05 of the General Conditions, the CONTRACTOR shall prepare and submit to the ENGINEER for approval, a preliminary construction progress schedule. This submittal is to be made within five (5) days from the effective date of Notice of Award. The method of schedule preparation required is generally referred to as the Critical Path Method (CPM).

The workday to calendar date correlation of the construction schedule shall be based on the completion of the work contemplated including specific milestones and the Contractor's anticipated production rate with adequate allowance for holidays, adverse weather and all other special requirements of the work.

The schedule shall include, as a minimum, the following separate activities:

1. Physical construction (includes mobilization, demobilization, setup time, lags, etc.).
2. Issuance by CONTRACTOR of purchase orders for material and equipment and submittal of shop drawings and samples to the ENGINEER.
3. Review by ENGINEER for each submittal of samples and shop drawings. Unless otherwise approved by the ENGINEER, allow a minimum of ten (10) working days for ENGINEER to review each submittal.
4. Fabrication time for materials and equipment.
5. Delivery of materials and equipment.
6. Installation of materials and equipment.
7. Testing, start-up and training for individual pieces of equipment or entire systems as appropriate.
8. Winter affected activities.

9. Outages or interruptions of utility provider's facilities required to perform work.

10. Demolition or removal work under this Contract.

Activity durations shall represent the best estimate of elapsed time considering the scope of the Work involved in the activity and the resources planned for accomplishing the activity expressed in working days.

Activity descriptions shall clearly define the scope of work associated with each activity. If activity descriptions contained in the schedule are not sufficient to describe the work, a supplemental narrative description is to be provided.

The construction work shall be detailed to an extent that progress can be readily monitored on a daily basis. In general, the construction work shall be detailed such that no construction activity shall have a duration greater than fifteen (15) working days.

Each activity shall be coded by the CONTRACTOR as necessary for proper and efficient utilization of the schedule. As s minimum, each activity shall be coded by:

1. Activity type (i.e., submittal, ENGINEER's review, delivery, construction, etc.).

2. Responsibility (i.e., CONTRACTOR, subcontractor A, subcontractor B, OWNER, ENGINEER, etc.).

3. Area (i.e., Building A, Building B, site work, etc.).

4. Work order (i.e., OWNER assigned number required for monthly invoicing requirements).

The above schedule development requirements are a minimum and the CONTRACTOR shall develop the schedule as necessary to properly control and manage the project.

The preliminary progress schedule shall be submitted in a network analysis format and shall include, as a minimum, a graphic representation of all significant activities and events involved in the construction of the project, and a written statement explanatory thereof for a complete understanding of the diagram.

The network graphic representation and statement must clearly depict and describe the sequence of activities planned by the CONTRACTOR, their interdependence and the times estimated to perform each activity. The network shall be submitted on sheets 24" x 36" or larger and may be divided

into as many separate sheets as required.

B. Shop Drawings and Samples Submittal Schedule

The preliminary progress schedule shall contain activities in the network representing submittal and review of shop drawings and material samples. The shop drawing and sample submittal schedule required per Paragraph 2.6 of the General Conditions shall be developed by sorting these activities from the progress schedule. The schedule shall be presented in a report format containing the following information:

1. activity number
2. activity description (including reference to the appropriate specification section)
3. activity original duration
4. early and late start dates
5. early and late finish dates
6. total and free float
7. predecessor and successor activities

C. Schedule of Values

In accordance with Section 2.05 of the General Conditions the CONTRACTOR shall submit to the ENGINEER a schedule of values representing a detailed subdivision of the lump sum Contract amount. This subdivision, when approved by the ENGINEER, will become the basis for computing the contractor's monthly progress payments, as applicable If practical, the schedule of values shall be developed by assigning a cost value to the appropriate activities contained in the preliminary progress schedule. If activities, or other line items, in the schedule of values contain costs associated with material, labor or subcontracts these costs are to be identified separately by listing the activity multiple times and identifying material, labor and subcontract with a suffix M, L and S respectively. Cost values for activities representing materials/equipment only shall be assigned to the activity representing delivery of such material/equipment to the job site.

In addition to the cost of material, labor and subcontractors, the following costs are to be identified separately in the schedule of values accompanied by such supporting documentation as required by the ENGINEER to substantiate the amounts listed.

1. Mobilization – To include CONTRACTOR's actual cost to set up

temporary facilities at the job site.

2. Bonds, Insurance – To reflect premiums paid, or to be paid, for Bonds and insurance required to be provided per the Contract Documents. Additional insurance coverage or bonds purchased by the CONTRACTOR at his option shall be considered general overhead and apportioned to construction activity costs.

3. Job Site Overhead – To reflect the cost of maintaining the temporary facilities at the job site including the cost of direct field supervision. This value, when approved, will be paid to the CONTRACTOR in equal monthly increments based on the number of months between mobilization and final completion.

4. Demobilization – To reflect the cost of removing the temporary facilities and final site cleanup.

5. Permits – To include fees required for any permits which CONTRACTOR is required to obtain including inspection fees associated with such permits.

The cost of home office overhead, profit, financing, contingencies, etc. are to be apportioned to the construction activities in the schedule of values based on the percentage that each construction activity cost represents when compared to the subtotal of all construction activity costs. This subtotal is excluding mobilization, demobilization, job site overhead, permits, home office overhead, profit, financing, contingencies, etc. The total of all items in the schedule of values shall equal the Contract Price.

D. Cash Flow Schedule

Accompanying the CPM Schedule required above, the CONTRACTOR shall also submit to the ENGINEER, for approval, a Cash Flow Schedule. The Cash Flow Schedule shall show the amounts of money by months which will be required to reimburse the CONTRACTOR for Work performed during each month of the Contract Times. The sum of all the monthly cash requirements shall equal the Contract Price. The monthly cash requirements shall be proportioned based on the CPM Schedule. The initial cash flow schedule shall depict monthly cash requirements based on the early start dates of the CPM Schedule as well as the monthly cash requirements based on late start dates of the CPM Schedule. The approved cash flow schedule will be developed by the ENGINEER and will reflect the CONTRACTOR's schedule performance as of the date of approval. This process of approving cash flow schedules will occur with each required schedule update.

The approved Cash flow Schedule will be used by the OWNER to program funds for progress payments to the CONTRACTOR. Monthly payments will be made

to the CONTRACTOR in accordance with the Contract Agreement, but at no time will the aggregate amount of payments exceed the accumulated amount of payments for the same period of the approved Cash Flow Schedule.

E. Pre-construction Video Taping (not required)

Prior to mobilization at the site, the CONTRACTOR shall furnish to the ENGINEER a videocassette recording of all planned construction areas, material storage areas, areas adjacent to these areas, including but not limited to, streets, driveways, sidewalks, curbs, ditches, fencing, railing, visible utilities, retaining structures and adjacent building structures. The purpose of the video taping is to document existing conditions and to provide a fair measure of required restoration. Care should be taken to record all existing conditions which exhibit deterioration, imperfections, structural failures or situations that would be considered substandard.

The tapes shall be high quality, color and in the VHS format. Temporary lighting shall be provided as necessary to properly tape areas where natural lighting is insufficient (indoors, shadows, etc.). The tapes shall include an audio soundtrack to provide the following information:

- detailed description of location being viewed referenced to Contract Drawings (i.e., station no., building designation, pipeline route, etc.)
- direction (N, S, E, W, looking up, looking down, etc.) of camera view
- date, time, temperature, environmental conditions at time of taping

Any areas not readily visible by taping methods shall be described in detail. Unless otherwise approved by ENGINEER, taping shall not be performed during inclement weather or when the ground is covered partially or totally with snow, ice, leaves, etc.

As many tapes as are necessary to satisfy the requirements of this section shall be prepared. The original tapes shall be submitted to the ENGINEER accompanied by a detailed log of the contents of each tape. The log should include location descriptions with corresponding tape counter numbers to facilitate the quick location of information contained on the tapes. The tapes will be maintained by the ENGINEER during construction and may be viewed at any time by CONTRACTOR upon request. Upon final acceptance, the tapes will become the permanent property of the OWNER.

1.02 FINALIZING SCHEDULES

The CONTRACTOR shall be prepared to present and discuss at the pre-construction meeting, the schedules submitted in accordance with this specification. Unless additional information is required to be submitted by the CONTRACTOR, the ENGINEER will, within 5 working days of the pre-construction conference, provide comments to the

CONTRACTOR. The CONRACTOR shall then resubmit the affected schedules addressing the ENGINEER's comments.

Approval of the final schedules by the ENGINEER is advisory only and shall not relieve the CONTRACTOR of responsibility for accomplishing the work within the Contract Times. Omissions and errors in the approved CPM schedule shall not excuse performance less than that required by the Contract. Approval by the ENGINEER in no way makes the ENGINEER an insurer of the success of those schedules or liable for time or cost overruns flowing from shortcomings in such schedules.

1.03 REQUIREMENTS FOR CONFORMING WITH SCHEDULE

If, in the opinion of the ENGINEER, the CONTRACTOR falls behind the progress schedule, the CONTRACTOR shall take such steps as will be necessary to improve his progress, and ENGINEER may require CONTRACTOR to increase the number of shifts and/or overtime operations, days of work, and/or the amount of construction planned, and to submit for approval such supplementary schedule or schedules as may be deemed necessary to demonstrate the manner in which the agreed rate of progress will be regained, all without additional cost to the OWNER. An updated cash flow schedule will be required in this occurrence and will be provided with the supplementary schedules referenced above.

1.04 UPDATING SCHEDULES

The CONTRACTOR shall submit to the ENGINEER quarterly updates of the schedules required per this specification section.

Progress and shop drawing schedule updates shall reflect the progress to date by providing actual start dates for activities started, actual finish dates for completed activities, and identifying out of sequence work, schedule logic changes and any circumstances or events impacting the current schedule. The updates shall also contain the CONTRACTOR's best estimate of the remaining duration for activities not complete as of the date of the update. All graphic presentations, reports and computer discs required per the initial submittal of these schedules shall be provided with each update.

The schedule of values and cash flow schedules shall be updated to reflect any changes.

1.05 ADJUSTMENT OF PROGRESS SCHEDULE AND CONTRACT TIMES

A. If the CONTRACTOR desires to make changes in his method of operating which affect the approved progress schedule, he shall notify the ENGINEER in writing stating what changes are proposed and the reason for the change. If the ENGINEER approves these changes; the CONTRACTOR shall revise and submit for approval, without additional cost to the OWNER, all of the affected portions of the schedule.

B. Shop drawings and samples which are not approved on the first submittal or

within the schedule time shall be immediately rescheduled, as well as any work which fails to pass specified tests or has been rejected.

C. The Contract Times will be adjusted only for causes specified in the General Conditions. In the event the CONTRACTOR requests an adjustment of the Contract times, he shall furnish such justification and supporting evidence as the ENGINEER may deem necessary for a determination as to whether the CONTRACTOR is entitled to an adjustment of Contract Times under the provisions of the General Conditions. The ENGINEER will, after receipt of such justification and supporting evidence, make findings of fact and will advise the CONTRACTOR in writing thereof. If the ENGINEER finds that the CONTRACTOR is entitled to any adjustment of the Contract Times, the ENGINEER's determination as to the total number of day's adjustment shall be based upon the currently appoved progress schedule and on all data relevant to the adjustment. The CONTRACTOR acknowledges and agrees that actual delays in activities which, according to the progress schedule, do not affect the Contract completion date shown by the critical path in the network will not be the basis for an adjustment of Contract Times.

D. From time to time it may be necessary for the progress schedule and/or Contract Times to be adjusted by the OWNER to reflect the effects of job conditions, weather, technical difficulties, strikes, unavoidable delays on the part of the OWNER, and other unforeseeable conditions which may indicate schedule and/or Contract Times adjustments. Under such conditions, the ENGINEER shall direct the CONTRACTOR to reschedule the work and/or Contract Time to reflect the changed conditions, and the CONTRACTOR shall revise his schedule accordingly. No additional compensation shall be made to the CONTRACTOR for such changes except as provided in the General Conditions. Unless otherwise directed, the CONTRACTOR shall take all possible actions to minimize any extension to the Contract Times and any additional cost to the OWNER.

1.06 SHOP DRAWINGS

The CONTRACTOR shall promptly supply to the ENGINEER for approval, shop drawings with details and schedules for all items to be furnished and/or installed in accordance with these Contract Documents.

A sufficient number of copies to allow the OWNER to retain five (5) reviewed copies of all drawings; schedules and brochures shall be submitted for approval. Black line prints, blue line prints or reproducible transparencies are required. Blue prints (white lines on a blue background) are not acceptable. Each submittal shall have the job name on it and the appropriate specification section or contract drawing reference.

Each copy of the submittals made to ENGINEER for approval shall be prepared by the CONTRACTOR and shall have an identifying title stamp:

As required by the General Conditions, each copy of the submittals shall also be stamped with the CONTRACTOR's approval indicating that the shop drawing has been reviewed for conformance to the Contract Documents and has been coordinated with all other work and/or trades. The CONTRACTOR shall identify and bring to the attention of the ENGINEER any deviations to the Contract Documents contained in the submittal. For shop drawings being resubmitted, the CONTRACTOR shall identify and bring to the attention of the ENGINEER any revisions other than those originally requested by the ENGINEER.

Submittals smaller than 8-1/2 x 11 inches shall be secured to paper 8-1/2 x 11 inches.

Submittals will be returned, stamped with the following classifications:

A. **"Approved"** – There are no notations or comments on the submittal and, in our opinion, the submittal meets the requirements of the Contract Documents and the CONTRACTOR may release the equipment for production.

B. **"Approved as Noted"** – Notations have been made on the submittals to insure conformance with the Contract Documents. The CONTRACTOR may release the equipment for production in accordance with the notations.

C. **"Not Approved"** – The submittal does not meet the requirements of the Contract Documents. The CONTRACTOR must submit the specified product.

D. **"Revise and Resubmit"** – When the material submitted in incorrect or insufficient to review properly and it is necessary to see the complete package again.

E. **"Resubmit Record Copy"** – Used with the review action "Approved As Noted". The resubmittal shall incorporate notations.

Where a submittal indicates a departure from the contract which the ENGINEER deems to be a minor adjustment in the interest of the OWNER not involving a change in Contract Price or extension of Contract Times, the ENGINEER may approve the submittal but the approval will be subject to the following clause:

"The modification indicated on the attached submittal is approved in the interest of the OWNER to effect an improvement for the Project and is accepted with the understanding that it does not involve any change in the Contract Price or Times; that it is subject generally to all Contract stipulations and covenants and that it is without prejudice to any and all rights of the OWNER under the Contract Bonds".

It is emphasized that the ENGINEER's approval of CONTRACTOR's submitted data is for general conformance to the Contract Drawings and Specifications, but subject to the detailed requirements of Drawings and Specifications. Although the ENGINEER may check submitted data in more or less detail, such checking is an effort to discover errors

and omissions in CONTRACTOR's drawings and to assist the CONTRACTOR in coordinating and expediting his work, and shall in no way relieve the CONTRACTOR of his responsibility to engineer the details of the Work in such manner that the purpose and intent of the Contract will be achieved, nor shall such detail check by the ENGINEER be construed as placing on the ENGINEER, any responsibility for the accuracy, and for proper fit, functioning and performance of any phase of the Work included under this Contract.

1.07. SAMPLES

When required by the ENGINEER or where noted in other Sections of these Specifications, samples or materials shall be submitted for approval.

Submit samples to illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

Submit samples of finishes from the full range of manufacturer's standard colors, textures, and patterns for ENGINEER's selection.

Include identification on each sample, with full project information.

Submit the number or samples specified in individual specification sections, one of which will be retained by ENGINEER.

Reviewed samples which may be used in the Work are indicated in individual specification sections.

1.08 PROGRESS PAYMENTS

The detailed arrangement for submittal of progress payments shall be discussed at the pre-construction meeting. In general, progress payments shall be submitted monthly in a format acceptable to the ENGINEER. The progress payment request shall be based on the approved schedule of values and should provide the percentage of completion, total dollar value completed, dollar value completed prior to the current payment, and the amount requested for this progress payment for each line item contained in the schedule of values. Progress payment requests for material and/or equipment suitably stored but not yet incorporated into the work shall be accompanied by a copy of the appropriate manufacturers invoice, shipping order, bill of lading, etc. and the progress payment amount shall be the direct cost to the CONTRACTOR, or subcontractor, for such material and/or equipment. Payment will not be made to the CONTRACTOR if, upon inspection by the ENGINEER, it is determined that the material and/or equipment does not conform to the requirements of the Contract Documents including proper storage, receipt of approved shop drawings, receipt of any special guarantees, Bonds, insurance coverage, any evidence of damage or imperfections, etc.

1.09 CONTRACTOR'S DAILY REPORTS

If requested by the ENGINEER or the Resident Project Representative, the CONTRACTOR shall prepare and submit daily reports containing the following information:

- the number of craftsmen and hours worked of each subcontractor,
- the number of hours worked by each trade,
- the number of hours worked of each type of equipment,
- a description of work activities performed,
- a description of any material or equipment deliveries,
- description of obstructions encountered,
- temperature and weather conditions.

The daily reports shall be submitted on a daily basis, by the end of the next business day.

Information provided on the daily report shall not constitute notice of delay or any other notice required by the Contract Documents. Notice shall be as required therein.

1.10 OPERATING AND MAINTENANCE INSTRUCTION MANUALS

The CONTRACTOR shall prepare complete written Operation and Maintenance Instruction Manuals covering each item of equipment furnished or modified under this Contract. The CONTRACTOR shall submit in duplicate, at least **two (2)** weeks prior to initial start-up, a draft form of the manual for review by the ENGINEER. After the manual has been approved, four (4) copies of the Operations and Maintenance Manuals shall be furnished to the ENGINEER. The final copies shall be received by the ENGINEER prior to start-up operations.

The Operation and Maintenance Manual shall include, but not be limited to, the following information: detailed description of the process and operating procedures as applicable; instruction for all components of the equipment whether manufactured by the supplier or not, including valves, controllers and other miscellaneous components; recommended lubrication and maintenance procedures and schedules including a detailed schedule of the manufacturer's preventative maintenance requirements; appropriate parts lists; exploded and/or sectional views; internal and external wiring and piping diagrams numbered to correspond to the installation; and all other pertinent information of value to obtain peak performance.

Equipment manufacturer's Operation and Maintenance Manuals which Contractor shall procure from the manufacturer shall include the following:

1. Operating Instructions.

2. Maintenance and Lubrication Schedules and Lubricant. Recommendations including recommended preventive maintenance schedules listed as daily, weekly, monthly, quarterly, semi-annually

and annually.

3. Recommended Spare Parts List.

4. Troubleshooting guides with solutions recommended.

5. Start-up Procedures.

6. Shut-down Procedure including extended shut-down recommendations.

7. Emergency Operations.

8. Overhaul Procedures.

9. Selected drawings and exploded views.

10. Internal wiring and piping diagrams.

11. Complete catalog of parts used in final assembly of equipment.

12. Service Centers List.

13. Manufacturer's name, contract number, model number and serial number of the equipment on the cover of each manufacturer's manual.

14. Other pertinent information of value to obtain peak performance.

Equipment manufacturer's manuals shall be written for average journeymen mechanics without prior knowledge of the specific equipment.

The Manuals shall be assembled in two (2) sets and bound in 3 or 4 inch post type, first quality, hard cover, heavy duty three post binders. One or more numbered volumes shall be provided as required. Each item of equipment shall be placed in a logical sequential order, as listed or ordered in the Contract Documents.

Provide a table of contents at the front of each volume showing the equipment items in the order in which they appear in the volume. Each equipment item shall include the functional name, applicable specification section(s) and the sheet listing, if any.

The preventive maintenance schedule shall be bound in the front of each section immediately following the index tab sheet. The schedule shall be identified with respect to the piece of equipment it is referring to.

Sheet size shall be 8-1/2 x 11-inches.
Drawings may be on 11 x 17 inch sheets folded to 8-1/2 x 11-inches.

Prior to release of Final Payments, revise and resubmit copies of the instructions to accord with any changes in procedures or equipment made during start-up or initial operation. Re-submittals are also required for changes made during the guarantee period.

1.11 AS-BUILT DRAWINGS

The CONTRACTOR shall maintain one record set of Contract Documents at the site in good order for the purpose of recording changes and as-installed conditions of the work. The CONTRACTOR shall, concurrent with the progress of the work, have the as-built information neatly recorded on the record set. This set shall be maintained on site for the sole purpose of recording as-built information, shall be kept current with the work in progress, and shall be available to the OWNER and ENGINEER at all times during the life of the project.

Where other sections of this specification specifically address as-built drawings and information to be maintained. The extent and detail shall be as specified in the applicable section.

As a minimum, record drawings shall include changes made to locations of buried and exposed piping, equipment changes, substitutions and all variations from the Contract Documents. Buried piping, fittings, ducts, equipment and structures shall have elevations recorded and shall be dimensionally located relative to permanent exposed structures or survey lines. Any existing piping, fittings, ducts, equipment or structures encountered which differ or are not shown on the Contract Documents shall be similarly located and recorded.

As a pre-requisite to the final Application for Payment, the record information shall be neatly transferred onto the set of reproducible Contract Drawings given to the CONTRACTOR at the start of the project. Two copies of the as-built sets shall be provided by the CONTRACTOR. One set shall be retained by the OWNER and the other set shall be returned to the ENGINEER. The information recorded shall be in a manner acceptable to the ENGINEER.

PART 2: PRODUCTS

Not Used.

PART 3: EXECUTION

Not Used.

End of Section

DIVISION 1 – GENERAL REQUIREMENTS
SECTION 1500 – TEMPORARY FACILITIES

PART 1: GENERAL

1.01 WATER SUPPLY

The CONTRACTOR shall furnish all required water and install all necessary meters, temporary piping and valves in connection with such water supply at his own cost.

1.02 TEMPORARY HEAT

The CONTRACTOR shall provide approved type heating apparatus with the necessary fuel in order to protect and/or dry out the work. The stored materials and finished work shall be protected at all times from damage by the weather elements.

1.03 ELECTRICAL SUPPLY

The CONTRACTOR shall pay all fees, obtain necessary permits and have meter installed for power and light as may be required for the prosecution of his work. Energy charges shall be paid for by the CONTRACTOR.

1.04 BARRIERS

Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations and demolition. Provide barricades as required by governing authorities for protection and safety of the general public.

1.05 PARKING

Arrange for temporary **gravel** parking areas to accommodate construction personnel. When site space is not adequate, provide additional off-site parking.

1.06 PROGRESS CLEANING

Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition. Remove debris and rubbish from pipes and drainage systems. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust and foreign materials. Remove waste materials, debris, and rubbish from site weekly and dispose off-site.

1.07 SANITARY FACILITIES

The CONTRACTOR shall provide suitable temporary facilities and enclosures for the use of workmen and shall maintain same in a sanitary condition.

The CONTRACTOR is advised that the OWNER is in the business of providing potable water and the CONTRACTOR's sanitary arrangements shall not endanger the OWNER's facilities.

PART 2: PRODUCTS

Not used.

PART 3: EXECUTION

Not used.

End of Section

DIVISION 1 – GENERAL REQUIREMENTS
SECTION 1570 – TRAFFIC REGULATION

PART 1: GENERAL

1.01 SCOPE OF WORK

CONTRACTOR shall furnish and install all traffic barricades, markers, signs, controls and provide flag men, traffic police and other facilities required by the Federal, State and local government authorities and the ENGINEER to protect general public and maintain the existing roads, streets and highways.

Competent uniformed traffic directors shall be employed at every location where the CONTRACTOR's equipment is working immediately adjacent to, or is entering, leaving or crossing, active traffic lanes. The traffic directors shall be employed continuously for the full time such conditions exist.

Special attention shall be given for the protection of pedestrians and, in particular, children going to and coming from school. Ingress and egress shall be maintained for all properties abutting the contractors' work.

The CONTRACTOR shall notify the State and local police, ambulance services and fire departments of daily traffic diversions.

The OWNER or ENGINEER make no warranty or representation that the CONTRACTOR will be permitted to divert or barricade traffic and the CONTRACTOR shall be fully responsible to complete all obligations of the Contract regardless of any restrictions which may be imposed by Federal, State or local authorities.

1.02 MAINTAINING TRAFFIC

A. Traffic Diversion

Whenever it is necessary to divert traffic from its normal channel into another channel, such diversion shall be clearly marked by cones, drums, barricades or temporary guardrail. If the markers are left in place at night, suitable lights shall be provided and maintained.

B. One-Way Traffic

Whenever one-way traffic is established, at least two (2) flagmen shall be provided.

C. Street Closing

When permitted by Federal, State or local authorities having jurisdiction, the CONTRACTOR may close streets to through traffic for minimum periods of time. CONTRACTOR must notify and secure the permission of the local police and fire departments and such other public authorities and, if required by any law, ordinance or regulation, the occupants of all premises bordering the streets. CONTRACTOR must give all occupants reasonable notice with respect to the closing of any street, in whole or in part, even when not required by any law, ordinance, or regulation. CONTRACTOR shall so schedule his work that the time the street is closed is kept to a minimum and shall, whenever possible, make suitable preparations for access by local residents, school buses, and mail delivery vehicles. CONTRACTOR shall provide access for police, fire, ambulance and emergency vehicles at all times. Fire hydrants and other public utility valves shall be kept accessible at all times by the CONTRACTOR.

1.03 TRAFFIC SIGNALS AND CONTROLS

The installation and operation of all traffic signals and traffic control devices shall conform to the requirements of Federal, State and local government highway departments.

To protect persons from injury and to avoid property damage, adequate barricades including flasher and reflectorized construction signs and guards as required shall be placed and maintained during the progress of the construction work and until it is safe for traffic and pedestrians to use the trenched area.

When the CONTRACTOR is permitted to close a street or road to traffic, the CONTRACTOR shall furnish, erect, maintain and remove barricades, suitable and sufficient red lights, and other lights or reflecting material at the limits of the project, where side streets intersect, and at other points of public access to the project. The CONTRACTOR shall furnish, erect and maintain advance warning signs and barricades on side streets at the first street intersection beyond the one closed by construction indicating "Street Closed, One Block Ahead". The CONTRACTOR shall furnish, erect, maintain and remove detour-marking signs on temporary routes.

1.04 TRENCH AND STORED MATERIAL MARKINGS

Before completion of each day's work, in traveled areas, the pipe trench shall be completely backfilled and tamped, and the necessary temporary paving installed. ¾-inch stone will be used in sidewalk and walkway areas and blacktop in driveways. These areas are not to be left open, impassable or unsafe through the night. In the event that the pipe trench cannot be completely backfilled and tamped, temporary bridges (street plates) and crossings shall be used to accommodate through traffic and the general public only after the approval from the state, county, and/or municipality. The job site will be left in

a neat and satisfactory condition at the end of each day. The requirements of this Section are in addition to any requirements of Federal, State or local laws, rules, regulations or ordinances or any requirements found elsewhere in the Contract Documents.

Equipment and material stored on the street shall be marked at all times. At night any such material or equipment stored between the side ditches, or between lines 5 feet behind any raised curbs, shall be clearly outlined with light or other dependable warning devices that are approved by the ENGINEER. In addition, the CONTRACTOR shall provide any other lights, barricades, etc., that may be needed for the protection of pedestrian traffic.

1.05 OTHER REQUIREMENTS

If the regulation of traffic and controls are not being provided in accordance with this Section 1570, and the public is inconvenienced or its safety is being endangered, in the judgment of the ENGINEER, the OWNER may take such steps as it deems advisable to provide such services and all costs in providing such services will be deducted from nay payment which may be due or may thereafter become due the CONTRACTOR.

End of Section

DIVISION 1 – GENERAL REQUIREMENTS
SECTION 1600 – PRODUCTS

PART 1: GENERAL

1.01 PROTECTION OF MATERIAL AND EQUIPMENT

The CONTRACTOR shall be responsible for the safe storage of all material furnished to or by him until it has been incorporated into the complete project and accepted by the ENGINEER. The CONTRACTOR shall bear the risk of loss/damage to the materials and Work until the Work is finally accepted by the ENGINEER.

All electrical and mechanical equipment shall be stored in a warm, dry shelter with proper ventilation. Under no circumstances shall motors, electrical control equipment or any other electrical or mechanical equipment be stored under polyethylene plastic covers or tarpaulins. When space is available inside existing structures, and the OWNER approves, the CONTRACTOR will be allowed to store equipment inside them. Should such space not be available, the CONTRACTOR shall construct a shelter with a source of heat and proper ventilation as approved by the ENGINEER for the storage of equipment.

The interior of all pipe and accessories shall be kept free from dirt and foreign matter at all times.

After valves and flow meters have been inspected, the CONTRACTOR shall properly store them prior to use. In order to prevent entry of foreign material that could cause damage to the seating surfaces, the valves and hydrants shall be stored in a fully closed position unless recommended otherwise by the manufacturer. Resilient seated valves shall be stored in accordance with the manufacturer's recommendations. This may include storage with protective covers for rubber seats and in marginally open condition. Valves and flow meters should be stored indoors.

If valves must be stored outdoors, the CONTRACTOR shall protect the operating mechanism, such as gears, motor, actuators and cylinders, from weather elements. Valve ports and flanges must be protected from the weather and foreign materials. If valves are subject to freezing temperatures, all water must be removed from the valve interior and the valve closed tightly before storage, unless specifically recommended otherwise by the manufacturer. Valves shall be stored on pallets with the discs in a vertical position to prevent rainwater from accumulating on top of the disc, seeping into the valve body cavity and freezing and cracking the casting.

1.02 SERVICING EQUIPMENT

The CONTRACTOR shall check all equipment upon acceptance to determine if oil reservoirs are full and areas to be greased are properly packed with grease. The

CONTRACTOR will provide the proper grease or oil for use in lubricating the required areas in the equipment. Any service to equipment while in storage, or installed pending acceptance, is the responsibility of the CONTRACTOR and shall be performed per manufacturer's requirements, industry standards or as stated specifically in the technical specifications.

PART 2: PRODUCTS

2.01 GENERAL

Unless otherwise specifically provided for in these Specifications, all equipment, materials and articles incorporated in the work shall be new, in current production and the best grade obtainable consistent with general construction usage.

2.02 COORDINATION OF DIMENSIONS

The CONTRACTOR shall verify and make necessary corrections to construction dimensions so that all specified and/or alternative equipment, which is approved by the ENGINEER, can be installed and will function within the intent of the Contract Drawings and Specifications. The CONTRACTOR will promptly notify the ENGINEER of all necessary corrections required. Work shall be at not cost to the Owner.

2.03 SAFETY AND HEALTH REQUIREMENTS

All materials, equipment, fixtures and devices furnished shall comply with applicable Laws and Regulations.

All equipment furnished and installed under this Contract shall be equipped with suitable and approved safety guards and devices required for the safety of the public and operating personnel. Such guards and safety devices shall be in accord with the latest requirements of safety codes approved by the American National Standards Institute as well as the safety requirements of applicable Laws and Regulations. Where said safety codes of the ANSI are incompatible with applicable Laws and Regulations, said Laws and Regulations shall prevail.

PART 3: EXECUTION

3.01 INSTALLATION

Material and equipment shall be installed in accordance with the appropriate Sections of these Specifications.

3.02 SERVICES OF MANUFACTURER'S REPRESENTATIVE

The CONTRACTOR shall arrange for a qualified service representative from each company, manufacturing or supplying certain equipment as required by the individual Specification Sections to perform the duties herein described.

After installation of the applicable equipment has been completed and the equipment is presumably ready for operation, but before it is operated by others, the representative shall inspect, operate, test and adjust the equipment. The inspection shall include, but shall not be limited to, the following points as applicable:

A. soundness (without cracked or otherwise damaged parts)
B. completeness in all details, as specified
C. correctness of setting, alignment, and relative arrangement of various parts
D. adequacy and correctness of packing, sealing and lubricants

The operation, testing, and adjustment shall be as required to prove that the equipment is left in proper condition for satisfactory operation under the conditions specified.

On completion of his Work, the manufacturer's or supplier's representative shall submit to the ENGINEER a complete signed report of the result of his inspection, operation, adjustments, and tests. The report shall include detailed descriptions of the parts inspected, tests and adjustments made, quantitative results obtained if such are specified, and suggestions for precautions to be taken to ensure proper maintenance. The report also shall include a certificate that the equipment conforms to the requirements of the Contract Documents and is ready for permanent operation and that nothing in the installation will render the manufacturer's warranty null and void.

After the ENGINEER has reviewed the reports from the manufacturers' representatives, the CONTRACTOR shall make arrangements to have the manufacturers' representatives present when the mechanical performance tests are made.

End of Section

DIVISON 1 – GENERAL REQUIREMENTS
SECTION 1650 – TESTING

PART 1: GENERAL

1.01 DESCRIPTION

This Section covers testing in accordance with the Specifications, as shown on the Drawings, and as necessary for a complete and satisfactory installation.

1.02 PIPELINES

All pipelines, valves, appurtenances, etc. installed per these Contract Documents shall be tested in the manner described by the technical specifications. Unless otherwise stated, all water pipelines shall be hydrostatically tested, with no leakage, at a pressure at least equal to the maximum operating pressure of the pipeline. Unless otherwise stated, all PVC sanitary sewer pipelines shall be air tested using low pressure air.

1.03 WATER CONTAINING VESSELS

Prior to backfilling around water containing vessels, the CONTRACTOR shall fill said vessels with water for a period of at least 7 days in order to insure vessels are watertight. If any vessel leaks, it shall be repaired to the satisfaction of the ENGINEER and retested until no leakage occurs.

1.04 DAMPPROOFING AND PAINTING

During the application of damp proofing and painting, the CONTRACTOR shall have the manufacturer's representative check the dry mil thickness of each coating and certify to the ENGINEER in writing that the thickness is in compliance with the Specifications. If deficiencies in the dry mil thickness of any coat are found, they shall be corrected by the application of an additional coat(s) to the said deficient area. The certificate shall also state that all surfaces were properly cleaned prior to the application of damp proofing and paint, specified meetings and inspections were made, the quantity of damp proofing and paint were applied in accordance with their recommendations, and all other requirements stated in the Specifications have been satisfactorily completed.

1.05 PERFORMANCE TESTS

A. General

1. As a prerequisite to the ENGINEER's issuance of the Certificate of Substantial Completion, the CONTRACTOR shall conduct initial and final performance tests as described hereafter. The CONTRACTOR shall perform all tests with his own forces and such equipment

representatives and other experts (hereinafter collectively referred to as "CONTRACTOR's personnel") as may be required by the Specifications or necessary for a successful test. All operations and coordination of the tests from their beginning to their satisfactory completion as determined by the OWNER and ENGINEER shall be the complete responsibility of the CONTRACTOR.

2. The general sequencing of the testing shall be developed by the CONTRACTOR. In general the sequence should focus on the testing of individual pieces of equipment prior to testing entire systems including automatic control systems.

3. At least 14 days prior to the proposed testing, the CONTRACTOR shall submit in writing to the ENGINEER a complete outline of his proposed procedure for testing. No testing shall begin until approval is given. Such approval shall be for the general schedules of testing and in no way relieves the CONTRACTOR of his responsibility for conducting the test expeditiously and with an adequate number of personnel to handle all emergencies.

4. All operating costs, until satisfactory completion of the mechanical performance tests, or until the facility is put into operation by the OWNER, whichever comes first, shall be paid for by the CONTRACTOR and shall be included as a part of the lump sum price bid for the Project. Operating costs shall be understood to include, but not be limited to, the costs of: **electrical power, fuel, heating, lubricants, and labor.** The CONTRACTOR shall also be responsible for maintenance during the testing period and for repair of any damage resulting from the testing procedure. If the CONTRACTOR does not have sufficient personnel to handle an emergency and the OWNER must make repairs of damage, caused by the CONTRACTOR's actions, with his own forces, the CONTRACTOR shall reimburse the OWNER for his work.

5. Wages and salaries of CONTRACTOR's personnel as may be required by any and all tests specified herein shall be paid for by the CONTRACTOR and included in the lump sum price bid.

6. The CONTRACTOR shall dispose of all water used during the tests, in addition to wastes resulting from the tests. The method of disposing the water and wastes shall be in accordance with all applicable Laws and Regulations and shall be subject to approval by the ENGINEER. The CONTRACTOR will not be allowed to pump water for testing into the distribution system until its quality meets requirements for public water supplies. Costs for the disposal of water and wastes shall be included in the lump sum price bid.

PART 2: PRODUCTS

Not applicable to this section.

PART 3: EXECUTION

Not applicable to this section

End of Section

DIVISION 1 – GENERAL REQUIREMENTS
SECTION 1700 – PROJECT CLOSEOUT

PART 1: GENERAL

1.01 TESTING OF FACILITIES

The CONTRACTOR shall produce a first class job and all Work shall be tested under operating conditions and pressures and any leaks or malfunctions shall be repaired to the satisfaction of the ENGINEER at no additional expense to the OWNER. This provision with reference to leakage shall also apply to water tightness of manholes.

1.02 CLOSEOUT PROCEDURES

Submit written certification that Contract documents have been reviewed, Work has been inspected, and that work is complete in accordance with Contract Documents and ready for ENGINEER's inspection. Provide submittals to ENGINEER that are required by governing or other authorities. Submit application for final payment identifying total adjusted Contract sum, previous payments, and sum remaining due.

1.03 FINAL CLEANING

The CONTRACTOR shall periodically, or as directed during the progress of the Work, remove and properly dispose of the resultant dirt and debris and keep the premises reasonably clear. Upon completion of the Work, the CONTRACTOR shall execute a final cleaning prior to final inspection. CONTRACTOR shall clean interior and exterior tank surfaces, remove stains and foreign substances, clean debris from drainage systems, rake clean seeded surfaces, remove waste and surplus materials, rubbish, and construction facilities from the site. Trash and combustible materials shall not be allowed to accumulate in construction locations.

1.04 PROJECT RECORD DOCUMENTS

Maintain on site, one set of the following record documents; record actual revisions to the Work.

A. Contract Drawings
B. Specifications
C. Addenda
D. Change orders and other modifications to the Contract
E. Reviewed shop drawings, product data, and samples

Store record documents separate from documents used for construction. Record information concurrent with construction progress.

Specifications: Legibly mark and record at each product section description of actual products installed, including the following:

A. Manufacturer's name and product model and number
B. Product substitutions or alternatives utilized.
C. Changes made by addenda and modifications.

Record Documents and Shop Drawings: Legibly mark each item to record actual construction including:

A. Measured depths of foundations, manholes, pipes, etc., in relation to established elevation datum.
B. Measured horizontal and vertical locations of underground utilities and appurtenances, references to permanent surface improvements.
C. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
D. Field changes of dimensions and detail.
E. Details not on the original Contract Drawings.

Submit two (2) sets of documents to ENGINEER with final Application for Payment.

1.05 GUARANTEES AND WARRANTIES

The CONTRACTOR expressly warrants that all workmanship and materials performed or furnished under this Contract will conform to the Specifications, Drawings, samples and other applicable descriptions furnished or adopted by the CONTRACTOR and with all applicable laws, provisions and requirements of the Contract Documents. The CONTRACTOR shall remedy any defects due to faulty materials or workmanship, which shall appear within a period of one year from the date of acceptance of the Work hereunder and pay for any damage to other Work resulting there from. Contractor shall pay for all labor, equipment, parts or other material to fully complete the repairs. The OWNER shall give notice of observed defects with reasonable promptness. The CONTRACTOR's warranty hereunder is in addition to, and not in limitation of, any obligations found elsewhere in the Contract Documents, any special guarantees provided by the CONTRACTOR, and any obligations imposed by law.

In addition to the above requirements, the CONTRACTOR shall assign material and equipment guarantees and warranties from all manufacturers and suppliers to the OWNER and deliver copies of such guarantees and warranties and the assignments thereof to the OWNER in order to assure the OWNER of the full benefit of such guarantees and warranties.

1.06 RESTORATION

The CONTRACTOR shall restore and/or replace paving, curbing, sidewalks, gutters, shrubbery, fences, sod or other disturbed surfaces and structures to a condition equal to

that before the Work began and to the satisfaction of the ENGINEER and shall furnish all labor and materials incidental thereto. In restoring improved surfaces, new pavement is required. Temporary paving will be installed prior to the placement of permanent surfaces when required by the ENGINEER or by any federal, state or local governing body having jurisdiction over the site where the work is being performed. Final pavement shall not be placed within 90 days after the back filling has been complete, unless otherwise authorized by the ENINGEER, or local authorized governing bodies.

PART 2: PRODUCTS

Not Used

PART 3: EXECUTION

Not Used

End of Section

DIVISION 2 - SITE WORK
SECTION 2010 - SUBSURFACE CONDITIONS

PART 1: GENERAL

1.01 DESCRIPTION

A. The Contractor should visit the site and acquaint himself with all existing conditions. Prior to bidding, bidders may satisfy themselves as to site and subsurface conditions.

B. If unsuitable subsurface materials are encountered during excavation and additional backfill material is needed, material shall be supplied and installed (including compaction) by the Contractor at no cost to the Owner.

C. Limitations of Subsurface Information Indicated on Drawings:

1. The ENGINEER has shown to the best of their knowledge, certain information regarding the reputed presence, size, character and location of existing underground structures, pipes and conduits on the drawings. There is no certainty of the accuracy of this information and the location of the underground structures indicated may be inaccurate, and other obstructions other than those indicated may be encountered.

PART 2: PRODUCTS

NOT APPLICABLE TO THIS SECTION

PART 3: EXECUTION

NOT APPLICABLE TO THIS SECTION

END OF SECTION

DIVISION 2 – SITE WORK
SECTION 2025 – EXISTING UTILITIES AND STRUCTURES

PART 1: GENERAL

1.01 DESCRIPTION

Certain information regarding the reputed presence, size, character, and location of existing Underground Facilities such as pipes, drains, sewers, electrical lines, telephone lines, cable TV lines, gas lines, and water lines has been shown on the Contract Drawings and/or provided herein. This information with respect to Underground Facilities is provided by the OWNER in accordance with conditions described in paragraph 4.04 of the General Conditions.

1.02 NOTIFICATION OF UTILITIES

CONTRACTOR shall notify all utility companies that construction of the work under this Contract will pass through the areas where their services exist. Notification to the utilities must be made in a sufficient amount of time in advance (min. 72 hours) prior to start of any construction work in the affected areas.

PART 2: PRODUCTS

2.01 MATERIALS

Materials for temporary support, adequate protection, and maintenance for all underground and surface utility structures, drains, sewers and other obstructions encountered in the progress of the work shall be furnished by the CONTRACTOR at his own expense.

PART 3: EXECUTION

3.01 OBSTRUCTIONS BY OTHER UTILITY STRUCTURES

Where the grade or alignment of the pipe is obstructed by existing utility structures such as conduits, ducts, pipes, branch connections to main sewers, or drains, the obstruction shall be permanently supported, relocated, removed or reconstructed by the CONTRACTOR in cooperation with the owners of such utility structures. Before proceeding the CONTRACTOR must reach an agreement with the ENGINEER on method to avoid obstruction.

No deviation shall be made from the required line or depth except with the consent of the ENGINEER.

3.02 REPAIRS

Existing pipes or conduits crossing the trench, or otherwise exposed, shall be adequately braced and supported to prevent trench settlement from disrupting the line or grade of the pipe or conduit, all in accordance with the directions of the ENGINEER. Utility services broken or damaged shall be repaired at once to avoid inconvenience to customers. Storm sewers shall not be interrupted overnight. Temporary arrangements, as approved by the ENGINEER, may be used until any damaged items can be permanently repaired. All items damaged or destroyed by construction and subsequently repaired must be properly maintained by the CONTRACTOR.

3.03 RELOCATION

Where it is necessary to relocate an existing utility or structure, the work shall be done in such a manner to restore it to a condition equal to that of the original facility. No such relocation shall be done until approval is received from the OWNER of the utility or structure being changed.

3.04 SEPARATION OF WATER MAINS, SANITARY SEWER AND STORM SEWERS.

A. General

The following factors should be considered in providing adequate separation:

1. Materials and type of joints for water and sewer pipes;
2. Soil conditions;
3. Service and branch connections into the water main and sewer line;
4. Compensating variations in horizontal and vertical separations;
5. Space for repair and alterations of water and sewer pipes;
6. Off-setting of pipes around manholes.

B. Parallel Installation

Water mains shall be laid at least 10 feet horizontally from any existing or proposed sewer. The distance shall be measured edge to edge. In cases where it is not practical to maintain a 10 foot separation, the Pennsylvania Department of Environmental Protection may allow deviation on a case-by-case basis, if supported by data from the ENGINEER. Such deviation may allow installation of the water main closer to a sewer, provided that the water main is laid in a separate trench or on an undisturbed earth shelf located on one side of the sewer at such an

elevation that the bottom of the water main is at least 18 inches above the top of the sewer.

C. Crossings

Whenever water mains must cross building drains, storm drains, or sanitary sewers, the water main shall be laid at such an elevation that the bottom of the water main is 18 inches above the top of the drain or sewer. This vertical separation shall be maintained for the portion of the water main located within 10 feet horizontally of any sewer or drain it crosses. The 10 feet is to be measured as a perpendicular distance from the drain or sewer line to the water line.

D. Exception

When it is impossible to obtain the proper horizontal and vertical separation as stipulated above the ENGINEER is to be notified. If directed by the ENGINEER both the water main and sewer line shall be constructed of cast iron, ductile iron, galvanized steel or protected steel pipe having mechanical joints. Other types of joints of equal or greater integrity may be used at the discretion of the ENGINEER after consultation with the Pennsylvania Department of Environmental Protection. Thermoplastic pipe may be used provided mechanical or solvent weld pipe joints are used. These shall be pressure-tested to assure water tightness before backfilling. Where water mains must cross under a sewer, additional protection shall be provided by:

1. A vertical separation of at least 18 inches between the bottom of the sewer and the top of the water line.

2. Adequate structural support for the sewers to prevent excessive deflection of the joints and the settling on and breaking of the water line.

3. That the length of the water line be centered at the point of the crossing so that the joints shall be equidistant and as far as possible from the sewer.

Through the ENGINEER the Pennsylvania Department of Environmental Protection shall be consulted when any of the above conditions cannot be met to discuss the use of double casing or concrete encasement of sewer and/or water lines as possible alternatives.

END OF SECTION

DIVISION 2 – SITE WORK
SECTION 2110 – SITE CLEARING

PART 1: GENERAL

1.01 SECTION INCLUDES

A. Clear site of plant life and grass.

B. Remove trees and shrubs.

C. Topsoil excavation.

1.02 REGULATORY REQUIREMENTS

A. Conform to applicable code for disposal of debris.

B. Coordinate clearing Work with utility companies.

PART 2: PRODUCTS

2.01 MATERIALS

A. Herbicide: As approved by the Engineer.

PART 3: EXECUTION

3.01 PROTECTION

A. Locate, identify, and protect utilities that remain.

B. Protect trees, plant growth, and features designated to remain, as final landscaping.

C. Protect bench marks and existing structures from damage or displacement.

3.02 CLEARING

A. Clear areas required for access to site and execution of Work.

B. Remove trees and shrubs as necessary to perform work.

C. Clear undergrowth and deadwood, without disturbing subsoil.

3.03 REMOVAL

A. Remove debris, rock, and extracted plant life from site.

END OF SECTION

DIVISION 2 – SITE WORK
SECTION 2120 – EROSION AND SEDIMENTATION CONTROL

PART 1: GENERAL

1.01 SCOPE OF WORK

A. Work to be performed under this Section refers to temporary and permanent vegetation covers, mulching and baling at the construction site and all areas disturbed during construction, including borrow areas. In addition the requirements of these Specifications, the CONTRACTOR will comply with all local Conservation District laws, rules and regulations and all other federal, state and local requirements for erosion and sedimentation control.

1.02 GENERAL

A. The CONTRACTOR shall comply with the Erosion and Sedimentation Control Plan as shown and described on the Contract Drawings.

1.03 RELATED WORK SPECIFIED ELSEWHERE

Section 2270 – Erosion Control
Section 2485 – Seeding

PART 2: PRODUCTS

2.01 MATERIALS – GENERAL

A. All materials such as seeds, mulch and bales shall conform to the Specifications of the Conservation District and all other applicable federal, state and local requirements.

PART 3: EXECUTION

3.01 GENERAL

A. The complete Erosion and Sedimentation Control Plan is shown and described on the Contract Plan as shown and described on the Contract Drawings. Any deviation from this plan must be approved by Luzerne Conservation District.

END OF SECTION

DIVISION 2 – SITE WORK
SECTION 2140 – DEWATERING

PART 1: GENERAL

1.01 SUMMARY

A. Comply with Division 1 - General Requirements

B. Section includes:

1. Control of groundwater and surface run-off for construction period.
2. Installation and monitoring of groundwater observation wells.
3. Discharge of drainage water from construction site.
4. Coordinating dewatering work with requirements of other trades and units of work affected by dewatering operations.

C. Payment

1. No additional payment for dewatering will be allowed regardless of conditions encountered.

1.02 DEFINITIONS

A. Subgrade: Surface to which excavations are necessarily made for the purpose of construction of the Work in accordance with the Contract Documents. Subgrade as defined does not include additional depths of excavation that maybe required or ordered to obtain desired foundation conditions.

1.03 SYSTEM DESCRIPTION

A. Design and Performance Requirements

1. Design, construct, and maintain a dewatering system.
2. Install and operate dewatering systems, in coordination with the design and construction of excavation shoring systems, excavation and backfilling operations, to meet performance requirements.
3. Prevent surface run-off from entering excavations. Construct ditches, berms, and similar items as required to lead water away from excavation.

Do not allow silt laden run-off water to enter water courses. Direct run-off flows to siltation ponds or catchment areas.

4. Dewater and keep excavations free of water to permit placing geotextiles granular filter blankets, underdrains, granular construction working surface, concrete, and similar items, on firm dry subgrade.

5. Maintain groundwater level a minimum of 12 inches below the subgrade or lower as may be required to fulfill the requirements of the specifications.

6. Prevent destabilization, heaving and shear failure of the bottom of excavation by depressurizing and dewatering groundwater.

7. Prevent damage to or displacement of structures from groundwater pressures.

8. Maintain groundwater a minimum of 12 inches below the subgrade until backfilling to final grade has been completed and underdrains and other permanent devices which protect the structures against buoyancy are operational. Where designed self weight of structure resists the buoyancy forces, make sure that the structure is completely built before allowing groundwater level to rise.

9. Obtain the ENGINEER'S written consent prior to allowing a rise in groundwater level or prior to shutting down the dewatering operation.

10. Repair or replace any structure or Work damaged due to dewatering at no expense to the Owner.

B. Dewatering Discharge Requirements

1. Provide appropriate filter screens so that no soil or foundation material is removed.

2. Provide a discharge siltation pond of required size to allow sufficient detention time so that the decanted water will meet state regulations. Discharge water from run-off collection and dewatering operations to a siltation pond located on site as directed by the ENGINEER.

3. Maintain siltation pond, if necessary, during construction period by removing silt build-up from time to time to keep siltation pond functional.

4. The Owner will carry out chemical analysis of drainage water to establish conformance with state regulations. If required, treat the drainage water to meet the state regulation before discharging into a watercourse.

5. Discharge drainage water to existing water courses or storm drainage system. If discharging to water course, prevent erosion of existing banks.

1.04 SUBMITTALS

A. Shop Drawings

1. Submit a general plan of dewatering scheme which includes:

a. Location of generators and other noise producing equipment and anticipated decibel levels.

b. Relationship between dewatering equipment, new structures, and the excavation plan.

c. Location of dewatering discharge points.

d. Location and dimensions of siltation pond.

e. Details of screens and filter media.

f. Location of groundwater observation wells.

B. Dewatering Equipment Approval

1. Apply and obtain dewatering equipment approval from local conservation district if required.

C. Dewatering Discharge Approval

1. Apply and obtain dewatering discharge approval from local conservation district if required.

1.05 QUALITY ASSURANCE

A. Qualifications

1. Specialist dewatering contractor who has a minimum of 8 years experience in the design and construction of dewatering systems for projects of similar size and complexity.

1.06 SITE CONDITIONS

A. Soils Report

1. Not Applicable.

PART 2: PRODUCTS

2.01 EQUIPMENT

A. Dewatering Equipment

1. Pipes, wells, deep wells, well-points, electrical generators, and other equipment.

2. Standby pumps and a generator with effective muffling devices to keep noise levels to a minimum.

PART 3: EXECUTION

3.01 INSTALLATION

A. Dewatering Equipment

1. Install dewatering equipment and dewater to required level before proceeding to excavate below groundwater level.

2. Take corrective measures to maintain groundwater level at a sufficiently low level to meet performance requirements.

B. Subexcavation

1. When directed by the ENGINEER to subexcavate because of unsuitable subgrade condition, dewater and monitor effectiveness of dewatering before proceeding to excavate.

C. Flotation of Structures

1. Maintain groundwater at a sufficiently low level to prevent damage or displacement of structures by groundwater pressures.

2. Protect completed structures or part of completed structures which would suffer displacement or other damage as a result of dewatering equipment failure by providing:

a. Standby dewatering equipment, connected directly to electrical generators, engaging automatically in case of power failure.

b. A positive means by which the structures may be flooded with water to neutralize exterior hydraulic pressures.

c. A combination of the two alternatives above.

D. Groundwater Observation Wells

Install observation wells as necessary, and at locations determined by Engineer to monitor the effectiveness of dewatering.

3.02 FIELD QUALITY CONTROL

A. Monitoring Groundwater Level

1. Take readings of groundwater level two times a day for the duration of the dewatering period. Keep a written record of groundwater levels.

END OF SECTION

DIVISION 2 – SITE WORK
SECTION 2151 – SHORING

PART 1: GENERAL

1.01 RELATED WORK

A. Trenching, Backfill and Compacting: Section 02210.

1.02 QUALITY ASSURANCE

A. Requirements of Regulatory Agencies:

1. Shoring materials and installation work shall conform to Federal, State and local laws, rules, regulations, requirements, precautions, orders and decrees.

2. Provide material for sheet piling, sheeting, bracing and shoring and drive or set in place in accordance with Federal, State and local laws for excavations and construction; and as required to protect the workers and the public, or to maintain the trench widths specified in Section 02210 regardless of whether the same is or is not considered necessary by the Contractor.

1.03 SITE CONDITIONS

A. Responsibility of Condition of Excavation:

1. The failure or refusal of the ENGINEER or OWNER to suggest the use of bracing or sheeting, or a better quality, grade, or section, or larger sizes of steel or timber, or to suggest sheeting, bracing, struts, or shoring to be left in place; shall in no way or extent relieve the Contractor of his responsibility concerning the condition of excavation or of his obligations under the Contract, or by an act of the OWNER, or their agents, or employees, resulting in the keeping of an excavation open longer than would otherwise have been necessary, relieve the Contractor from the necessity of properly and adequately protecting the excavation from caving or slipping, nor from his obligations under the Contract relating to injury to persons or property, nor entitle him to claims for extra compensation.

1.04 REFERENCES

A. OSHA excavation standards shall apply to this contract. The Occupational Safety and Health Administration (OSHA) has amended its Construction Standards for Excavation, 29 CFR, Part 1926, Subpart P.

The existing standards regulate the use of support systems, sloping and trenching systems and other systems of protection against excavation cave-ins. In addition, the standards regulate the means of access to and aggress from excavations, and employee exposure to Vehicular traffic, falling loads, hazardous atmosphere, water accumulation and unstable structures in and adjacent to excavations.

Reference to Registered Professional Engineer in OSHA specifications shall mean an Engineer employed or retained by the Contractor and does not apply to the Owner or Reilly Associates.

PART 2 – PRODUCTS

2.01. MATERIALS

A. Wood Materials: Use wood sheeting, sheet piling, bracing and shoring which is in good serviceable condition and timbers of sound condition, free from large or loose knots and of proper dimensions.

B. Steel Materials: Steel sheet piling and bracing of equal strength may be substituted for wood.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Using skilled labor, drive or set sheeting, sheet piling, braces or shores in place and arrange such that they maybe withdrawn as the excavations are backfilled, without injury to piping and structures, and without injury to or settlement of adjacent structures and pavements.

B. When tight plank or steel sheeting is required, drive such sheeting in advance of the excavation. Make joints of tongue and groove or interlocking type and as watertight as possible.

C. Where the maximum width of trench may be exceeded under these Specifications and where permitted by Federal and State regulations, the sides of the trench may be sloped in lieu of providing sheeting and bracing. If the sloping of trench banks is permitted, the slope shall begin at a point of 12 inches above the top of the pipe. Install sheeting to support the vertical part of the excavation as required by Federal and State regulations.

D. Remove sheeting, bracing and shores as trenches and other excavations are being backfilled, except where and to such an extent as the ENGINEER shall require, in writing, that same be left in place or where he shall permit the Contractor to leave same in place at the Contractor's own request and cost.

E.

1. In withdrawing sheeting and sheet piling, exercise are to ensure that all voids or holes left by planks as they are withdrawn are backfilled and thoroughly rammed with thin rammers provided especially for that purpose.

2. Exercise care to carry backfill up evenly on all sides of items installed in excavations.

F. Cut off sheeting or sheet piling left in place whenever and at such points as the ENGINEER shall require and remove from the work the portion cut off. No additional compensation will be allowed for such cutting and removal.

END OF SECTION

DIVISION 2 - SITE WORK
SECTION 2210 – TRENCHING, BACKFILLING AND COMPACTING

PART 1: GENERAL

1.01 SUBMITALS

All aggregate backfill materials shall be from a PennDOT approved source as listed in PennDOT Bulletin No. 15. The use of expansive steel slag shall not be permitted.

CONTRACTOR shall submit a letter naming the source of supply and that the supply is approved on PennDOT Bulletin No. 15.

1.02 PROFILES AND TOPOGRAPHY

Contours, topography and profiles of the ground shown on the Drawings are believed to be reasonably correct, but are not guaranteed to be absolutely so and are presented only as an approximation.

The CONTRACTOR shall accept the construction site with conditions the same as existed at the time of bidding.

PART 2: PRODUCTS

2.01 GENERAL

See Contract Drawings for the locations of trench backfill and bedding materials.

2.02 BACKFILL MATERIAL

Material for backfilling shall be earth materials entirely free from vegetation, trash, lumber, frozen, soft or organic materials. No stones or rock larger than the sizes listed below will be permitted in the backfill:

Common Fill-Type A: No stones or rocks larger than 1-inch.
Common Fill-Type B: No stones or rocks larger than 4-inches.

Common fill material may be obtained from the trench excavation provided it has been approve by the ENGINEER. If approved material obtained from the trench excavation is insufficient to complete the backfill, the CONTRACTOR shall obtain the necessary approved common fill materials from an off-site source at no cost to the Owner.

2.03 BACKFILL MATERIAL – STATE HIGHWAY

Backfill material for trenches shall be common fill Type B suitable material from the trench excavation as approved by the Engineer.

2.04 BEDDING MATERIAL

Materials used for bedding and the haunch around the pipe and to 1 ft. above the pipe shall be PennDOT course aggregate No. 57 stone.

2.05 FILTER FABRIC

Filter fabric shall be non-woven, synthetic fiber material with sieve design to not permit the select material in the pipe bedding and haunching to migrate into the surrounding soils. The material shall have a minimum thickness of 15 mils, tensile strength of 130 lbs., elongation at break of 62% and trapezoidal tear strength of 70 lbs. Fabric shall be installed as instructed by the ENGINEER.

PART 3: EXECUTION

3.01 CONSTRUCTION EQUIPMENT

Where mains are located in or adjacent to pavements, all backfilling and materials handling equipment shall have rubber ties. Crawler equipment shall be permitted when all required forms are obtained. It is the CONTRACTOR'S responsibility to repair, at his expense, any damages due to the use of any equipment to complete the work.

3.02 NOISE, DUST AND ODOR CONTROL

The CONTRACTOR'S construction activities shall be conducted so as to eliminate all unnecessary noise, dust and odors.

3.03 PROTECTION OF TREES

Special care shall be taken to avoid damage to trees and their root system. Machine excavation shall not be used when, in the opinion of the ENGINEER, it would endanger the tree or when prohibited by local ordinances. In general, where the line of trench falls within the limits of the limb spread, headers, pruning by professionals or typing back the limbs are required to protect the tree. The operation of all equipment, particularly when employing booms, the storage of materials, and the disposition of excavation shall be conducted in a manner which will not injure trees, trunks, branches or their roots unless such trees are designated for removal.

3.04 TRENCH SUPPORT

Unsupported open cut excavation for mains will not be permitted where trenching may cause danger to life, unnecessary damage to street pavement, trees, structures, poles, utilities, or other private or public property. During the progress of the work, whenever and wherever it is necessary, the CONTRACTOR shall, at his expense, support the sides of the excavation by adequate and suitable sheeting, shoring, bracing or other approved means. Such trench support materials and equipment shall be maintained and remain in place until backfilling operations have progressed to the point where the supports may be withdrawn without endangering property.

3.05 TRENCH EXCAVATION AND BOTTOM PREPARATION

A. General Excavation

General excavation shall consist of the satisfactory removal and disposal of all materials taken from within the limits of the Work contracted, meaning the material lying between the original ground line and the finished ground line as shown on the Drawings regardless of whether the original ground line is exposed to air or is covered by water. Excavation below existing ground line to enable any required construction or removals is included. It is distinctly understood that any reference to earth, rock, silt, debris or other materials on the Drawings or in the Specifications is solely for the OWNER's information and shall not be taken as an indication of classified excavation or the quantity of earth, rock, silt, debris or other material encountered. All excavation shall be made to the lines and grades indicated on the Drawings or established in the field by the ENGINEER.

Excess excavated materials and excavated materials unsuitable for backfilling shall be properly disposed of by the CONTRACTOR clear of the site. The CONTRACTOR shall furnish to ENGINEER satisfactory evidence than an appropriate disposal site will be used.

B. Rock Excavation

The Contract includes a unit price for rock excavation, the excavation shall include the removal, hauling, stockpiling and/or proper disposal of all material required to be excavated which requires systematic blasting, barring and wedging for removal, boulders or loose rock of one cubic yard or more in volume, and material which cannot be loosened or broken down by ripping in a single pass with a hydraulic ripper or other devices and equipment designed to remove rock. No payment will be made for rock removal unless the CONTRACTOR gives prompt notice to the ENGINEER upon encountering such material and prior to its removal. The ENGINEER's determination as to whether the material meets the definition of rock and ENGINEER's measurement of the volume of rock removal for which the CONTRACTOR is entitled to payment will be final and conclusive.

C. Blasting Rock

The CONTRACTOR must notify ENGINEER, in advance, of his intention to use blasting. The ENGINEER will require evidence that the proposed blasting will comply fully with Laws or Regulations.

No blasting of rock shall be done where limited or prohibited by any Federal, State or local laws or regulations or in violation of any limitation or restriction contained in any right-of-way or wherever specifically prohibited in any Drawing or other Contract Document; nor will any such blasting be done within forty (40) feet of any pipe or structure without specific permission from the ENGINEER. Blasts shall be properly covered and the pipe or structure properly protected. Warning shall be given to all persons in the vicinity. Blasting shall be at the risk of the CONTRACTOR who shall be liable for all damages to persons or property. Necessary permits shall be secured and paid for by the CONTRACTOR. It is the CONTRACTOR's responsibility to perform whatever pre-blast surveys and investigations may be required by the circumstances and/or by Federal, State or local laws.

D. Trench Width

Widths of trenches shall be held to a minimum to accommodate the pipe and appurtenances. The trench width shall be measured at the top of the pipe barrel and shall conform to the following limits:

Earth

Minimum: Outside diameter of the pipe barrel plus 8 inches, i.e., 4 inches each side.

Maximum: Nominal pipe diameter plus 24 inches.

Rock

Nominal Pipe Diameter

	12 inches or less	16 inches or larger
Minimum:	Outside diameter of the pipe barrel plus 16 inches, i.e., 8 inches each side.	Outside diameter of the pipe barrel plus 24 inches, i.e., 12 Inches each side.
Maximum:	Nominal pipe diameter plus 24 inches.	

For manholes, maximum excavation width shall be manhole outside diameter plus two (2) feet. These trench widths shall be used as rock excavation pay limits when Contractor is authorized to excavate rock.

E. Excessive Trench Width

If for any reason the trench width exceeds the maximum trench width defined in Paragraph D, "Trench Width", the CONTRACTOR shall provide additional bedding and backfill material as specified in Sections 2210.2.02 and 2210.2.03 to fill the additional width of trench, at no cost to the OWNER.

F. Trench Depth

(1) General. All trenches shall provide for a minimum of 48 inches of cover over the top of the pipe barrel to the top of the finished grade of the roadway unless otherwise authorized by the ENGINEER.

(2) Earth. The trench shall be excavated to the depth required, so as to provide a uniform and continuous bearing and support for the pipe bedding stone on solid and undisturbed ground at every point between the joints.

(3) Rock. Where excavation is made in rock or boulders, the trench shall be excavated 8 inches below the pipe barrel for pipe 12 inches in diameter or less, and 12 inches below the pipe barrel for 16 inch diameter pipe and larger. All loose material shall be removed from the trench bottom. After preparation of the trench bottom, a pipe bed shall be prepared using bedding material as specified in Section 2210.2.04.

(4) Unsuitable Bottom. When unsuitable material is found below subgrade, as determined by the ENGINEER, CONTRACTOR shall remove the material to a depth determined by the ENGINEER, and provide compacted bedding material as specified in Section 2210.2.03 to backfill the trench in the area where unsuitable material has been excavated.

3.06 TRENCH BACKFILLING

A. Backfill to Centerline of Pipe Barrel

All trench excavation shall be backfilled immediately after pipe is laid. Compacted bedding material as described in Section 2210.2.04 shall be used to backfill the trench from the bottom of the trench to the centerline of the pipe barrel. The material shall be placed in uniform 4 inch loose layers and each layer compacted so as to eliminate the possibility of settlement, pipe misalignment or damage of joints.

B. Backfill to 12 inches over Pipe Barrel

From the centerline of the pipe barrel to an elevation of 12 inches over the top of the pipe barrel, bedding material, as described in Section 2210.2.04, AASHTO #57 stone shall be used as backfill material. Material shall be placed as not to disturb the pipe.

C. Remaining Trench Backfill

From 12 inches above the pipe barrel to the surface, Common Fill-Type B, as described in Section 2210.2.02, shall be used as backfill material. No material shall be used for backfilling that contains frozen earth, rock, large stones, boulders, or other unsuitable material. The CONTRACTOR may use mechanical equipment to place the backfill. This shall be done in such a manner that the material does not free fall, but shall be so placed that it will flow onto the previously placed material. The CONTRACTOR shall consolidate the backfill in such a manner as will insure the minimum possible settlement and the least interference with traffic. Compacting of the backfill with mechanical equipment will be required and shall be performed with sufficient cover over the pipe to prevent damage to the pipe.

D. Trench Backing filling in State Highways

(1) State Highways

On State Highways all trenches shall be backfilled in accordance with the Pennsylvania Department of Transportation, Pennsylvania Code, Chapter 459. Compacting of backfill by puddling or jetting will not be permitted. All trench excavations and backfill on State Highways will be subject to inspection by representative of the Pennsylvania Department of Transportation, and the work must be performed in accordance with the requirements of that Department, without additional payment even though such requirements may entail more labor or services than the methods herein described.

(2) Compaction Methods

The trench shall be backfilled and thoroughly compacted with a maximum of 12 inch lifts with approved compaction equipment, such as hand operated vibratory rollers, jumping jacks, self propelled vibratory rollers, or machine mounted plate tampers. Compaction shall produce a density of backfill at the bottom of each layer of not less than 95% of maximum density obtained at optimum moisture content as per ASTM D-1557 "Moisture-Density Relations to Soils Using a 10 Pound Rammer and 18

Inch Drop." Compaction methods other than listed above will be considered for easement areas, upon review and approval by the Engineer.

(3) Density Tests

Field determination of density shall be performed in accordance with ASTM D 1556 (density of soils in place by the sand cone method) or ASSTM D 2167 (density of soil in place by the rubber balloon method), or ASTM D 2922 (density of soil and soil aggregate in place by nuclear method [shallow depth]). The Contractor shall provide services of an independent testing laboratory, acceptable to the Engineer, who shall perform all testing and submit copies of all test results directly to the Engineer. The Engineer in conjunction with PennDOT requirements, reserves the right to require density testing anytime, at any location and at any trench lift depth. The Engineer may require density tests, averaging up to six (6) tests for every 1,000 linear feet of trench, to insure proper compaction and construction methods. The cost of all density testing shall be the sole responsibility of the Contractor.

E. Surface Conditions

The trench surface shall be regularly attended to during the course of the Contract. The CONTRACTOR shall take prompt corrective measures to correct any settlement or wash-out. The trench shall be maintained in a safe condition and shall not interfere with natural drainage.

F. Deficiency of Backfill

Any material required for backfilling the trenches or for filling depressions caused by settlement or wash-out shall be supplied and placed by the CONTRACTOR at his expense.

3.07 TRENCH MAINTENANCE

The CONTRACTOR shall be responsible for the condition of the trenches for a period of two (2) years from the date of the final acceptance of the CONTRACTOR's work, or longer if required by state, county or local authorities, and any materials required for filling depressions caused by settlement or washout or excavation, recommendation and restoration shall be supplied and placed by the CONTRACTOR at his expense.

END OF SECTION

DIVISION 2 – SITE WORK
SECTION 2222 – STRUCTURAL/SITE EXCAVATING, BACKFILLING AND COMPACTING

PART 1: GENERAL

1.01 DESCRIPTION

A. The work under this Section describes excavation and backfill for all structures including storage tank/tank foundation walls, precast concrete manholes, vaults and related items as shown on the Contract Drawings

B. Related Work Specified Elsewhere:

1.	Erosion Control	Section 02270
2.	Trenching, Backfill and Compaction	Section 02210

C. Definitions:

1. Common Excavation: Materials, of whatsoever nature, excavated to complete works including, but not necessarily limited to earth, trees, tree stumps, deadheads, pipes, tanks, masonry, asphalt pavement, concrete sidewalks, concrete pavements, concrete curbs and gutters, timber, hard pan, shale, fractured shale, logs, quicksand, fill, cinders, snow, ice, frost, any combination of these with normal or abnormal earth conditions, or any other obstacles encountered in the excavation.

2. Selected Excavated Material: Excavated material that is free from cinders, ashes, refuse, vegetation or organic matter, boulders, rocks, or stones with nominal dimensions greater than four (4) inches, paving material, timbers, unbroken or frozen masses of earth, any other material which in the opinion of the ENGINEER is unsuitable. Excavated material that is compatible as specified.

3. Subgrade: Surface to which excavations are necessarily made for the purpose of construction of the Work in accordance with the Contract Documents. Subgrade as defined does not include additional depths of excavation that may be required or ordered to obtain desired foundation conditions.

1.02 QUALITY ASSURANCE

A. Reference Standards:

1. American Society for Testing and Materials:

   a. ASTM D 698, Moisture-Density Relations of Soils Using 5.5 lb. (2.5 kg) Rammer and 12-in (304.8-mm) Drop.

   b. ASTM D H 1140, Amount of Material in Soils Finer than the No 200 sieve.

   c. ASTM D 1556, Test Method for Density of Soil In Place by the Sand Cone Method.

   d. ASTM D 1557, Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft.-lbf/ft^3 (2,700 kN-m/m^3).

   e. ASTM D 2167, Test Method for Density and Weight of Soil in Place by the Rubber Balloon Method.

   f. ASTM D 2922, Test Method for Density of Soil and Soil Aggregate In Place by Nuclear Methods (Shallow Depth).

   g. ASTM D 3017, Test Method for Moisture Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

   h. ASTM D 4318, Test Method for Liquid Limit, Plastic Limit and Plasticity Index of Soils.

2. Commonwealth of Pennsylvania Department of Transportation (PDT) Public 408 Specifications:

   a. PDT Publication 408, Section 703.3, Select Granular Material

   b. PDT Publication 408, Section 03.2, Coarse Aggregate

   c. PDT Publication 408, Section 735, Geotextiles

   d. PDT Publication, Section 703.1, Fine Aggregate

1.03 SUBMITTALS

A. Samples: Submit samples of materials being used for backfill, when requested by the OWNER.

B. Test Reports: Submit two (2) copies of test results for backfill material, compaction, density, moisture, etc. when requested by the ENGINEER. All tests shall be conducted by a qualified, independent Soils Testing Laboratory approved

by the OWNER. The cost of all testing shall be the responsibility of the Contractor, and shall be performed at no additional cost to the OWNER regardless of the number of tests performed.

C. Shop Drawings:

1. When requested by the ENGINEER, submit: for record purposes, shop drawings detailing side slopes for excavation walls in open cut. Show details of transitions between open cut and excavation shoring systems.

D. As Constructed Drawings:

1. Record locations and elevations of new utilities installed and existing utilities encountered.

JOB CONDITIONS

A. Unclassified Excavation: No consideration will be given to the nature of materials encountered in structural excavating operations. Therefore, as unclassified excavation, no additional payment will be made for difficulties occurring in excavating and handling of materials.

B. Environmental Requirements:

1. Do not perform excavating, backfilling, or compacting when weather conditions or the condition of materials are such, in the opinion of the ENGINEER, that work cannot be performed satisfactorily.

2. Do not use frozen materials as backfill, nor wet materials containing moisture in excess of the amount necessary for satisfactory compaction.

3. Prior to use, moisten dry backfill material not having sufficient moisture to obtain satisfactory placement or compaction.

4. Accommodation of Drainage: Keep open sewers, drains, and ditches for surface drainage. No damming or ponding of water in gutters or other waterways will be permitted. Do not direct flow of water across or over pavements except through approved pipes or properly constructed troughs. Provide pipes or troughs of such sizes and lengths as may be required. Control grading in the vicinity of excavations so the good surface is properly pitched to prevent water running into excavated areas.

5. Pumping: Keep excavations free from water. Build dams and other devices necessary for this purpose, including lowering the water table below excavation bottom by deep wells, well points, and pumping. Provide and operate pumps of sufficient capacity for dewatering the

excavations. Dispose of water removed from excavations in a manner that will not cause injury to the public health, to public or private property, to the work of other Trades or Contractors, to any portion of the work completed or in progress or produce impediment to the use of highways, roads, lanes and streets by the public. No additional payment will be made for pumping or other difficulties encountered due to water. All water control shall be performed in accordance with the attached erosion and sedimentation control plan.

C. Explosives and Blasting: See Section 02210.

D. Responsibility for Condition of Excavation: The Contractor shall solely be responsible for the condition and results of excavations made by him.

E. Protection

1. The Contractor shall, at his own expense, sustain in their places, and protect from direct or indirect injury, all survey markers, pipes, walls, buildings, and other structures or property in the vicinity of his work, whether above or below ground, or that may appear in the excavation. He shall at all times have a sufficient quantity of timber and plank, chain, ropes, and other material and equipment, on the ground and shall use them as necessary for sustaining or supporting any structures that are uncovered, undermined, endangered, threatened, or weakened.

2. The Contractor shall take all risks attending the presence or proximity of pipes, poles, power lines or wires, tracks, walls, building, and his excavation, or in the vicinity of his work, whether above or below the surface of the ground; and he alone shall be responsible for all damages and assume all expense for direct or indirect injury, caused by his work, to any of them, or to any person or property by reason of them or by reason of injury to them, whether such structures are or are not indicated on the Drawings.

3. In the event of encountering quicksand, subsurface streams or similar dangerous contingencies, or where passing especially heavy building or any structures which, by their construction or position, might bring great pressure upon the excavations, such buildings or structures shall be underpinned, or supported and protected, or that special sheeting shall be driven in such a manner and to such depth, as may be approved, or that only a short length of excavation shall be opened at one time; and furthermore, if necessary, that the excavation shell be securely sheeted and braced on all sides; after the manner of a shaft, and that the permanent work shall be constructed in the same way and the shaft backfilled before another opening is made. Any work done as above required shall be at the cost, expense and sole liability of the Contractor.

F. Removal of Obstructions:

1. Should the position of any pipe, conduit, pole, or other structures, above or below the ground be such as, in the opinion of the OWNER, to require its removal, realignment, or change due to work to be done under the Contract, the work of removal, realignment, or change will be done at no expense to the OWNER. The Contractor shall not be entitled to any claim for damage or extra compensation on any account of the presence of said structure, or on account of any delay in the removal or rearrangement of same.

2. The Contractor shall, without extra compensation, break through and reconstruct, if necessary, the invert or arch of any sewer, culvert, or conduit that may be encountered, if the said structure is in such a position, in the judgment of the ENGINEER as not to require its removal, realignment, or complete reconstruction.

3. The Contractor shall not interfere with any person, firms or corporations or with the OWNER, in protecting, removing, changing, or replacing their pipes, conduits, poles, or other structures; but he shall suffer said persons, firms, or corporations, or the OWNER, to take all such measures as they may deem necessary or advisable for the purpose aforesaid, and the Contractor shall thereby be in no way relieved of any of his responsibilities under the Contract.

4. The Contractor shall have no claim for extra compensation owing to the fact that he may be required to excavate by hand, or tunnel, in the vicinity of trees that may be requested to be left standing. Shrubbery which would interfere with the construction shall be carefully removed, protected and replanted or replaced without additional cost to the OWNER.

G. Change of Excavation Location:

1. If a change of excavation location is authorized by the OWNER upon the Contractor's request, the Contractor shall not be entitled to extra compensation, and if such change of excavation location involves the abandonment of excavation already made, the abandoned excavation and refill shall be at the Contractor's expense.

H. General: No right of property in materials is granted the Contractor of excavated materials prior to backfilling. This provision does not relieve the Contractor of his responsibility to remove and dispose of surplus excavated material.

I. Groundwater

1. Drainage/detwatering is the responsibility of the Contractor.

J. Existing Grades

1. Contours and spot elevations indicated on the Drawings give approximate grades at time of tendering.

2. Actual grades may vary slightly.

3. Notify the ENGINEER of any significant discrepancy in the existing grades before disturbing the site conditions.

K. Existing Utilities and Services

1. Known underground services and utilities are indicated on Drawings. No guarantee is given of completeness or accuracy. Contractor to test pit and locate all utilities and other underground features prior to work in an area.

2. Maintain existing utilities that must remain in service in the area of the excavation.

3. Record locations of underground utilities encountered.

4. Repair damage to existing services and utilities resulting from work under this Section at no cost to the OWNER.

L. Cold Weather Requirement

1. Obtain written permission from ENGINEER before starting excavation in frozen ground.

2. Do not let subgrade level freeze. Provide insulated blankets, heated enclosures or similar means to suit conditions encountered.

1.04 SEQUENCING AND SCHEDULING

A. Commence excavation only after dewatering has been in operation and groundwater level is lowered to required elevation.

PART 2: PRODUCTS

2.01 MATERIAL

A. Backfill: On-site excavated soil or soil-rock mixed material free of ice, snow, top-soil, plant life, lumber, metal, refuse, rock or similar hard objects larger than four (4) inches, or 2/3 of loose lift thickness, whichever is less, in any direction, and any hazardous substance defined by EPA or other regulatory agency. Adjust moisture content during backfilling to obtain adequate compaction.

B. Structural Foundation Backfill: PDT No. 2A Coarse Aggregate conforming to Section 703.2 of PDT Publication 408.

C. Sand: Natural or manufactured sand conforming to Section 703.1 of PDT Publication 408.

D. Non-Woven Geotextile

1. OPSS 1860; needle punches polypropylene geotextile.

a. Equivalent opening size of 6 mils maximum: Polyfelt TS800 supplied by Terrafix Geosynhetics Inc. or Mirafi 160N supplied by Blair Supply Company Limited.

E. Woven geotextiles: OPSS 1860; Mullen burst strength of 365 psi minimum ad equivalent opening size of 500 microns maximum; Terratrack 200W by Terrafix Geosynthetics Inc. or Mirafi 600X supplied by Blair Supply Company Limited.

F. Mudmat: Type B concrete with 28-day compressive strength of 2500 psi a specified in Section 03300 - Cast-In-Place Concrete. This shall be utilized when proper compaction cannot be achieved.

G. Granular Backfill: Same as backfill, but with no more than 35% passing No. 200 sieve.

H. Granular Filter Blanket: Type I (AASHTO No. 57) coarse aggregate.

PART 3: EXEUTION

3.01 PERFORMANCE

A. Excavation

1. General

a. Perform excavation using machinery, except that hand excavation may be required where necessary to protect existing structures, buried utilities o private or public properties. No additional

compensation will be paid for hand excavation instead of machine excavation as may be necessary from any cause whatever.

b. Perform excavation of every description and of whatever substances encountered to the lines and grades or depths indicated by the Drawings and as specified herein.

c. Where work space is limited, remove excavated material from the limited area and replace the material after the structure has been installed. No additional compensation will be made for such removal and replacement.

d. After reaching subgrade level, allow soil to rest to permit pore water pressure to dissipate and stabilize.

e. Compaction of Subgrade: If directed by the ENGINEER, compact soil subgrade to 98 percent of ASTM D 698 maximum density. Perform sufficient in place density tests on the subgrade to show that the material is of uniform density. No additional compensation will be paid where such compaction is required.

f. Locate existing buried services and utilities.

g. Excavate to provide adequate space for structures and connections to structures, for formwork, braces and supports, and for dewatering.

h. Do not destabilize subgrade.

i. Make excavation in the dry. Provide firm subgrade.

j. Side slopes of excavation in open cuts to suit the conditions encountered and in accordance with requirements of Occupational Safety and Health Administration (OSHA) Standards and Regulations. Remove slides and cave-ins, without extra compensation, at whatever time and circumstances they may occur.

B. Excavation Below Subgrade:

1. Do not excavate beyond limits or below depths indicated on the Drawings or as required by the OWNER except as noted in Section 02221.

2. Excavation for any structure beyond limits or below depths indicated on the Drawings or as required by the OWNER, through the fault of the Contractor, shall be restored, with approved material, to the indicated or

required depths with Structural Foundation Backfill at the expense of the Contractor.

3. Excavation for any structure beyond limits or below depths indicated required by the ENGINEER to be carried out shall be backfilled up to plan sub-grade elevation with Structural Foundation Backfill.

C. Protection

1. Protect excavation side slopes by tarps or other suitable means.

2. Protect bench marks, layout markers, survey markers, and geodetic monuments.

3. Do not damage existing facilities and equipment situated on site.

4. Protect roots of trees that are to remain.

D. Stockpiling and Haulage

1. Stockpile excavated material in a manner or location that will not interfere with site operation of drainage.

2. Haul off site and dispose of at an approved site surplus excavated material not required or suitable for backfill.

3. Haul surplus excavated material from site in tight bodied trucks. Prevent hauled material from spilling on roads. Promptly clean up if such spill occurs.

E. Disposal Sites

1. Make arrangements for disposal of excavated material off the site.

2. Obtain from property owner of disposal site a written agreement setting out terms, conditions, and ultimate responsibility for materials as placed.

3. On completion of the Works, submit to OWNER a release from the owner of disposal site.

F. Backfilling

1. General:

a. Perform backfilling using machinery, except that hand backfilling may be required where necessary to prevent displacing walls,

foundations or buried utilities or damage to such. No additional compensation will be paid where backfilling by hand is required.

b. After completion of footings and walls and the removal of forms and prior to backfilling, clean excavation free of trash and debris.

c. Do Not Backfill walls before top slabs are poured and cured unless approved by Engineer.

2. Backfill: Place "Backfill" in horizontal layers not exceeding six inches in depth at a moisture content within 2 percent of optimum. Compact to a density of not less than 95 percent of the maximum dry weight density as determined by not less than three moisture density tests in accordance with ASTM D 698. Make a minimum of two field moisture density determinations per lift in accordance with any of the following test procedures: ASTM D 1556 (sand cone method), ASTM D 2167 (rubber balloon method), or ASTM D 2922 (nuclear methods).

3. Structural Foundation Backfill: Place "Structural Foundation Backfill" in horizontal layers not exceeding eight inches in loose depth at a moisture content within 2 percent of optimum. Compact to a density not less than 100 percent of the maximum dry density as determined in accordance with ASTM D 698. Make a minimum of six field moisture-density determinations per lift in accordance with any of the following test procedures: ASTM D 1556 (sand cone method), ASTM D 2167 (rubber balloon method) or ASTM D 2922 (nuclear methods).

4. The use of puddling or jetting for compacting backfill is prohibited.

5. Before backfilling against concrete walls, verify that the wall concrete has reached its specified 28-day compressive strength. Also verify that slabs, struts, cross walls, and similar items which frame into the wall, and which provide the lateral stability are in place and have reached their specified compressive strength.

6. Do not backfill to elevation higher than the finish grades.

7. Fill in low spots after settlement and regrade as necessary until settlement ceases.

G. Dust Control

1. Throughout construction period, provide adequate dust control on the site by watering or use of other accepted dust control materials.

2. Provide continuous control of dust from drifting or blowing.

3. Eliminate dust and dirt in areas where electrical equipment, metering instruments and similar equipment requiring interior cleanliness are being installed or assembled by providing temporary enclosures, covers for openings, or other means of protection.

H. Cleanup: Excess excavated material that cannot be used at the project site shall be removed and disposed of off the site in a legal manner at no additional expense to the OWNER.

FIELD QUALITY CONTROL

A. Inspection

1. The OWNER may retain an independent Geotechnical Consultant to inspect foundations for its suitability prior to placement of concrete or other materials.

2. Notify the ENGINEER sufficiently in advance of operations, to provide field inspection.

3. On reaching specified excavation level, request an inspection of subgrade by the Geotechnical Consultant.

4. Provide facilities to enable proper inspection.

5. Do not excavate below the subgrade until the inspection has been undertaken and permission granted to proceed in writing by the OWNER.

6. Notify the ENGINEER if subgrade appears to be unsuitable for foundation. Excavate unsuitable material and backfill as directed by the ENGINEER.

END OF SECTION

DIVISION 2 – SITE WORK
SECTION 2270 – EROSION CONTROL

PART 1: GENERAL

1.01 DESCRIPTION

A. The work of this Section includes, but is not limited to:

1. Installation and maintenance of erosion and sedimentation control items.

2. The "Products" listed may not be explicitly called out on the Drawings: however, they may be required as either temporary or permanent facilities for the purpose of Erosion Control.

B. Related work specified elsewhere:

Structural/Site Excavating, Backfilling & Compacting:	Section 02222
Clearing and Grubbing:	Section 02100
Trenching, Backfilling and Compaction:	Section 02210

1.02 QUALITY ASSURANCE

A. Reference Standards

1. Commonwealth of Pennsylvania Department of Transportation Publication 408 Specifications.

a. Pub. 408, Section 735, Geotextiles
b. Pub. 408, Section 865, Silt Barrier Fence

1.03 REQUIREMENTS OF REGULATORY AGENCIES

A. Details of the sedimentation erosion control facilities indicated on the Drawing(s), all of the rules, regulations and requirements of the Pennsylvania Department of Environmental Resources and particularly with the following conditions, regulations and restrictions. Any fines and associated costs resulting from the Contractor's failure to provide adequate protection against soil erosion and sedimentation shall be borne by the Contractor.

1. Comply with all applicable Agencies regulations governing the control of erosion and water pollution.

a. Reduce by the greatest extent practicable the area and duration of exposure of readily erodible soils.

b. Protect the soils by use of temporary vegetation, or seeding and mulch, or by accelerating the establishment of permanent vegetation. Complete and protect segments of work as rapidly as is consistent with construction schedules.

c. Retard the rate of runoff from the construction site and control disposal of runoff.

d. Trap sediment resulting from construction in the temporary sedimentation basin. This includes pump discharges resulting from dewatering operations.

e. Sprinkle or apply dust suppressors, or otherwise keep dust within tolerable limits on haul roads and at the site.

f. Should construction operations be suspended for any appreciable length of time, temporary measures for the control of erosion must be utilized.

g. Make provisions for protection against discharge of pollutants such as chemicals, fuel, lubricants, sewage, etc., onto the site.

h. The location of sanitary facilities over or adjacent to streams, wells, or springs is prohibited.

i. All operations shall be conducted in such a manner to minimize turbidity in any stream at and below the site of the structure. Contractor shall meet the requirements on turbidity as established by the Bureau of Water Quality Management of the Department of Environmental Resources.

PART 2: PRODUCTS

2.01 SILT BARRIER FENCE

A. Preassembled fence meeting with requirements of PDT Pub. 408, Section 865. Geotextile fabric shall meet requirements of PDT Pub. 408, Section 735, for Class 3 material for sedimentation control.

2.02 ROCK DAM

A. AASHTO Number 67 and R-4 rock as specified in Section 703.2 and 850.2 of PDT Pub. 408.

2.03 ROCKLINED SWALES

A. Materials to conform to PDT Pub. 408, Section 850.

PART 3: EXECUTION

3.01 SILT BARRIER FENCE

A. Fence shall be constructed at the locations and in accordance with the details shown. Any perimeter silt barrier fence shall be installed prior to substantial earthwork taking place.

B. The temporary sediment barrier shall consist of filter fabrics stretched across and attached to supporting stakes with fabric edged and trenched.

C. The purpose of the sediment barrier is to intercept and contain small amounts of sediment from disturbed areas during construction operations, in order to prevent sediment from leaving the site.

D. Silt barrier fence shall be constructed of material as specified under Products. It shall have a height of 18 inches. Stakes shall be spaced a maximum of eight (8) feet apart along the barrier and driven into the ground a minimum of 12 inches. The filter fabric shall be stapled to wooden stakes and extended six (6) inches into a 2 inch x 6 inch trench with backfill. Filter fabric may not be stapled to live trees. The filter barrier is to be constructed along the site as shown on the plans to provide a barrier of sufficient length to eliminate endflow and ends are to be oriented upslope.

E. Clean the fence fabric periodically by tapping when it is dry. Should the fabric cease to function due to clogging, damage or deterioration, replace with new fabric, as directed by the Engineer.

3.02 STABILIZED CONSTRUCTION ENTRANCES

A. Construction locations and in accordance with details shown on the plans, or as required by the ENGINEER.

B. The stone size shall be Type C Coarse Aggregate AASHTO Number (1) One as specified in PennDOT Section 408.

C. The length of the construction entrance shall be as required but not less than 50 feet

D. The thickness of the construction entrance shall not be less than eight (8) inches.

E. The width of the construction entrance shall not be less than the full width required for ingress and egress or a minimum of 25 feet.

F. Clean vehicle whets to remove sediment prior to entrance on to public right-of-way. If washing with water is practiced, discharge wash water to approved sediment basin. Prevent sediment from entering storm drains, ditches, etc.

G. Install geotextile filter blanket in accordance with the requirements of PennDOT Section 212.

H. Maintain the construction entrance in a condition that will prevent tracking or flowing of sediment onto public right-of-way. Additional dressing of stone periodically may be required. Sediment which is carried on to public rights-of-way shall be removed immediately and disposed of properly.

3.03 ROCK DAM

A. Temporary and permanent ditches/swales shall be constructed at the locations and dimensions shown on the plans. Any specified bed and side slope stabilization shall be obtained before the channels will be permitted to receive and/or convey flows.

3.04 TEMPORARY SEDIMENTATION BASIN

A. The temporary sedimentation basin shall be construction as necessary or at the location and to the grades shown on the plans.

B. Only suitable material is to be used to construct the basin embankments.

3.05 ROCK LINES SWALES

A. Construction to be as per PennDOT Pub. 408, Section 850.

3.06 MAINTENANCE

A. In general, check all erosion and sediment control measures weekly and/or after each significant rainfall.

B. Excavate, spread and dry sediment for use in on-site grading.

C. Remove unsuitable material from the site for proper disposal.

D. Check seeded areas regularly to see that good vegetation stand is maintained. Fertilize and reseed areas as needed.

E. Frequently check and closely monitor mulched areas with respect to their effectiveness in controlling erosive storm run-off velocities and sediment transport. Re-mulch areas as necessary until adequate ground cover is established.

F. Temporary sediment barrier shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. Required repairs shall be made immediately. If the fabric should decompose or become ineffective during its required life, the barriers shall be replaced as promptly as possible. Sediment deposits shall be removed from temporary sediment barriers after each storm event. Sediment deposits removed shall be graded to conform with the existing grade and prepared and seeded in accordance with the requirements of the project manual.

G. Temporary diversion ditches and permanent swales shall be maintained to ensure that the specified dimensions and stabilization are available and functioning or on times.

H. Also maintain as per attained erosion and sedimentation control narrative report.

3.07 CLEANUP

A. Remove sediment deposits daily from private and municipal roadways.

B. Upon the completion of construction, regrade the site of work to its final contours.

C. Perform all final seeding and mulching.

D. Remove all temporary erosion and sedimentation control measures.

E. Remove or pave over the stabilized construction entrance.

END OF SECTION

DIVISION 2 – SITE WORK
SECTION 2485 – RESTORATION AND SEEDING

PART 1: GENERAL

1.01 SUMMARY

A. Section Includes: Seeding and restoration of work site(s).

B. Related Sections:

1. Soil Erosion and Sedimentation Control: Section 02270.

1.02 REFERENCES

A. American Association of State Highways and Transportation Officials, AASHTO Emulsified Asphalt.

B. Erosion and Sedimentation Control Plan approved by the Luzerne County Conservation District.

1.03 SUBMITTALS

A. Seed Certification: Submit certificates or certifying tags indicating lawn seed mixture, seed purity percentage, seed germination percentage, and weed seed content percentage to certify conformity with Specifications.

1.04 QUALITY ASSURANCE

A. Quality Control:

1. Packaged products to indicate manufacturer's guaranteed analysis on each package and arrive on site as originally packaged and unopened.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver packaged products to site in unopened containers with labels intact and legible.

B. Store packaged products in a manner to prevent moisture damage and other forms of contamination.

1.06 PROJECTIONS

A. Environmental Requirements: Do not perform work on this Section when soil or weather conditions are unsuitable. Unsuitable conditions include moisture saturated or frozen in place soil and precipitation present or occurring during work.

B. Seeding Dates: Following dates govern except when environmental conditions warrant, OWNER may extend seeding dates. Spread seeds where indicated on the Plans and at the rates specified in Table A on the Plans, or as otherwise indicated.

1. Formula D
   Spring: March 1 to June 1
   Fall: August 1 to October 15

2. Formula C
   Ryegrass portion:
   Spring: March 1 to June 1
   Fall: August 1 to October 15
   Crownvetch portion:
   November 1 to October 1

3. Formula E
   Spring: March 15 to October 15

C. Protection

1. Protect seeded areas from washouts by methods specified in this Section. Reseed washouts and bare spots that develop from inadequate protection or otherwise until a healthy, complete coverage stand of grass is obtained.

PART 2: PRODUCTS

2.10 SEED, MULCH, FERTILIZER

A. Grass Seed: Seed mix shall be used as indicated on the Plans. New crop seed, finished in sealed package with proof of correct mixture evidenced, age indicated, and compliance with applicable state regulations evidenced if required. Seed, mixture and application rates are as follows:

1. Formula D
   - Tall Fescue (Festuca arundinacea var. Kentucky 31) – 15.0 lbs. per 1000 SY
   - Creeping Red Fescue or Chewings Fescue – 6.0 lbs. per 1000 SY

2. Formula C
   - Crownvetch (Coronilla varia) – 4.0 lbs. per 1000 SY
   - Annual Ryegrass (Lollum Multiflorum) – 5.0 lbs. per 1000 SY
   -

3. Formula E
   - Annual Ryegrass (Lollum Multiflorum) – 10.0 lbs. per 1000 SY

4. Temporary Fertilization/Mulch
   - Fertilizer (n/p/k) --- 50/50/50 lbs. per acre
   - Lime --- 1 ton per acre
   - Mulch (straw) --- 3 tons per acre

5. Permanent Fertilization/Mulch
   - Fertilizer (n/p/k) --- 100/200/200 lbs. per acre
   - Lime --- 6 tons per acre
   - Mulch (straw) --- 3 tons per acre

6. On slopes greater than 3:1, erosion control matting shall be installed in conjunction with the permanent seeding.

2.11 SEEDING AND SOIL SUPPLEMENTS

A. Grassed areas shall receive seeding and soil supplements in accordance with the with the following stipulations:

(1) Seed mix shall be used as indicated on the Plans.

(2) Before application of soil supplements, the Contractor may at his expense, submit topsoil samples to the Pennsylvania State University Agricultural Extension for testing and recommendations regarding soil supplements.

(3) Soil supplements shall be applied in accordance with the plans or as per results of testing in item (b) above, after the approval of the Engineer.

(4) Hydraulic seeding methods shall be allowed for seeding grassed areas.

2.12 MULCHING

A. Upon completion of seeding operations all new grassed areas shall be mulched in accordance with the Plans.

PART 3: EXECTUTION

3.01 SCOPE

A. From areas within which excavations are to be made, loam and topsoil shall be carefully removed and separately stored to be used again as directed; or, if the Contractor prefers not to separate surface materials, he shall furnish as directed and without additional compensation, clean backfill and loam and topsoil at least equal in quantity and quality to that excavated. When excavations are to be made in paved surfaces, the pavement shall be removed so as to provide a clean uniform edge with a minimum disturbance of remaining pavement.

3.02 EARTHWORK

A. All areas that has been disturbed as a result of this contract and that was originally covered with grass or some form of vegetation and all proposed lawn or other maintained grass areas shall be excavated and/or filled to establish a rough grade elevation six (6) inches below finish grade. Subgrade material shall be compacted and tamped thoroughly before placing topsoil.

3.03 TOPSOIL

A. All lawn or other maintained grass areas shall receive four (4) inches of topsoil in accordance with the requirements of Section 802. Where insufficient native soil is available in non-lawn areas, the Contractor may be directed to apply topsoil or import other suitable material prior to seeding.

3.04 PREPARATION

A. Tillage: Perform tillage of finish graded soil over areas indicated for lawn regardless of lawn work type performed. Use equipment and methods common to lawn work and till soil to a two (2) inch depth minimum.

3.05 ESTABLISHMENT

A. Responsibility shall be assumed by the Contractor for proper care of seeded areas while grass is becoming established for two months after completion of treatment on the entire project, unless desired cover is established in a shorter period of time and the Engineer shortens the responsibility periods. Seeded areas shall be mowed with approved mowing equipment to a height of two inches when average height of grass becomes three inches. When amount of cut grass is heavy, grass shall be removed to prevent destruction of underlying turf. If weeds or other undesirable vegetation threatens to smother planted species, such vegetation shall be removed.

B. When any portion of the surface becomes gullied or otherwise damaged or treatment is destroyed because of weather conditions or because of faulty operations, or negligence on the part of the contractor, the affected portion shall be repaired to establish condition and grade of soil and treatment prior to injury without additional costs.

3.06 PERFORMANCE

A. Seeding: Sow seed mixtures when air current is low and not more than five (5) days after soil supplements have been applied. Sow seeds in two (2) application using power seeders or mechanical seeders. Sow one-half of seed mixture in one (1) direction over designated areas and remainder at right angles to first sowing.

B. Contractor Option: Seeding and soil supplement application may be performed by the hydroseeding method. However, rates of application, methods, and equipment require OWNER's prior approval.

3.07 MAINTENANCE

A. Begin maintenance operations immediately after seeding and planting is performed and continue throughout construction time and guarantee period. In general, maintenance includes weeding, applying mulch as needed, controlling insects and diseases, and performing other particular operations as follows:

1. Seeded Areas: Keep seed moist continually for proper germination and maintain watering to prevent drying out or burning. Reseed areas not showing a prompt catch of grass. Correct depressions and irregularities and reseed. Repeat until a complete coverage is obtained.

B. All grassed areas shall be protected against traffic or other use by erection barricades immediately after planting. When weather conditions warrant, grassed areas shall be watered as required to insure proper growth.

C. At conclusion of maintenance periods, OWNER will inspect seeding work to determine condition of acceptance. Make additional repairs and replacements as required by OWNER at no additional expense.

END OF SECTION

DIVISION 3 – CONCRETE
SECTION 3300 – CAST-IN-PLACE CONCRETE

PART 1: GENERAL

1.01 SCOPE OF WORK

Concrete for thrust blocking, manhole bases, pipe encasement, curbs, sidewalks and pavement shall be provided in accordance with this Section.

PART 2: PRODUCTS

2.01 MATERIALS

A. Portland Cement shall be Type I or Type III and conform to "Specification for Portland Cement" ASTM C-150.

B. Air-Entraining Agent for approved manufacture shall be added in accordance with manufacturer's directions to the normal Portland cement to entrain 4 ½ percent air ± 1 percent with all other ingredients and strength as specified. Air-entraining admixtures shall conform to "Specifications for Air-Entraining Admixtures for Concrete" ASTM C-260.

C. Concrete Aggregates shall conform to "Specifications for Concrete Aggregates" ASTM C-33. Coarse aggregates shall be maximum of 1-½ inches in size in footings and plain concrete. Pea gravel shall be used for sections 3 inches or less in thickness.

D. Water used in mixing concrete shall be clean and free from injurious amounts of oils, acids, alkalis, organic materials or other deleterious substances. In effect, the water used shall be potable water.

E. Reinforcing Bars shall be billet steel grade (60,000 psi minimum yield) and conforming to the requirements of ASTM A-615, Grade 60. Reinforcing bars shall be new stock, free from rust, scale or other coating tending to destroy or reduce bond.

F. Welded Wire Mesh shall conform to "Specifications for Welded Steel Wire Fabric for Concrete Reinforcements" ASTM A-185.

G. Pre-molded Expansion Joint Material shall be provided where shown on the Drawings or directed by the WATER COMPANY. This non-extruding compressible joint material shall conform with the requirements of "Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction", ASTM D-1751.

2.02 CONCRETE MIXES

Ready-mixed concrete shall conform to "Specifications for Ready-Mixed Concrete". ASTM C-94.

All concrete mixes shall be capable of producing a dense durable concrete. The compressive strength of the concrete shall be able to attain the following minimum strengths within 28 days.

2,500 psi – sidewalks, curbs and pipe encasement

3,000 psi – thrust blocking, manhole bases and road pavement

Water/cement ratio for the concrete shall not exceed a maximum as shown in Table 4.4 of the ACI Standard 318 latest edition, Building code Requirements For Reinforced Concrete, when strength data from field experience or trial mixtures are not available. A workable concrete with minimum slump of 3 inches and a maximum slump of 5 inches shall be produced not exceeding the water/cement ratio.

PART 3: EXECUTION

3.01 FORM WORK

All forms shall be built mortar tight and of sufficient rigidity to prevent distortion due to the pressure of the concrete and other loads incident to the construction operations. Forms shall be constructed and maintained so as to prevent warping and the opening of joints.

The forms shall be substantial and unyielding and shall be so designed that the finished concrete will conform to the proper dimensions and contours. The design of the forms shall take into account the effect of vibration of concrete as it is placed.

3.02 PLACING REINFORCING STEEL

All steel reinforcement shall be accurately placed in the positions shown on the plans and firmly held during the placing and setting of concrete. When placed in the work, it shall be free from dirt, detrimental rust, loose scale, paint, oil or other foreign material. Bars shall be tied at all intersections except where spacing is less than one foot in each direction when alternate intersections shall be tied.

Distances from the forms shall be maintained by means of stays, block, ties, hangers or other approved supports. Continuous high chairs will not be permitted.

All reinforcement shall be furnished in full lengths indicated on the plans. Splicing of bars, except where shown on the plans, will not be permitted without the approval of the

ENGINEER. Splices shall be staggered as far as possible. Unless otherwise shown on the plans, bars shall be lapped 36 diameters to make the splice.

Welded wire mesh shall be lapped at least 1 ½ meshes plus end extension of wires but not less than twelve (12) inches in structural slabs. Welded wire mesh shall be lapped at least ½ mesh plus end extension of wires but not less than six (6) inches in slabs on the ground.

3.03 CONVEYING AND PLACING CONCRETE

Concrete shall be conveyed from mixer to the forms as rapidly as practical by approved methods which will prevent segregation and loss of ingredients.

All concrete shall be placed in the dry. Formwork shall be cleaned of dirt and construction debris, water drained and snow and ice removed. After the forms have been inspected, the concrete shall be deposited in approximately horizontal layers to avoid flowing along the forms. All concrete shall be deposited continuously or in layers of a thickness such that no concrete will be deposited on concrete which has hardened sufficiently to cause the formation of seams and planes of weakness within the sections: a monolithic structure, the component parts of which are securely bonded together, shall be produced. During placing, the concrete shall be compacted by suitable means and shall be worked around the reinforcement and embedded fixtures and into corners and angles of forms care being taken to avoid overworking, which may result in segregation.

Concrete shall not be dropped into forms from a height greater than 5 feet. In depositing from a greater height, a spout shall be used, or the forms shall be provided with openings to limit the height of drop. When special methods of placing are used, the approval of the ENGINEER shall be obtained.

Concrete shall be directed through chutes to prevent it from striking reinforcement or sides of the form above the level of placement. Avoid segregation and coating of the surfaces with paste, which may dry before concrete reaches its level.

If pumping of concrete is chosen by the CONTRACTOR as a method of placing concrete, the CONTRACTOR shall submit a concrete mix design to the ENGINEER for approval prior to placing any concrete by pumping.

3.04 THRUST BLOCKING

See the Contract Drawings for the number and sizes of thrust blocking.

Blocking shall be constructed back against the vertical face of undisturbed earth or sheeting left in place. The concrete shall be prevented from enclosing more than half the circumference of the pipe and shall be kept away from joints or bolts in the piping.

Thrust blocking for hydrants shall be placed to allow the hydrant to drain.

3.05 PLACING CONCRETE IN COLD WEATHER

No concrete shall be placed when the atmosphere temperature is below 35° F. without written consent of the ENGINEER. When directed by the ENINGEER, the CONRACTOR shall enclose the structure in such a way that the concrete and air within the enclosure can be kept above 60° F. for a period of seven (7) days after placing the concrete.

If high early strength cement is used, these periods may be reduced, as directed by the ENINGEER.

The CONTRACTOR shall supply such heating apparatus as stoves, salamanders or steam equipment and the necessary fuel. When dry heat is used, means of maintaining atmospheric moisture shall be provided. All aggregates and mixing water shall be heated to a temperature of at least 70° but not more than 60° at the time of placing in the forms. In case of extremely low temperatures, the ENGINEER may, at their discretion, raise the minimum limiting temperatures for water, aggregates and mixed concrete.

End of Section

DIVISION 33 –SITE UTILITIES
SECTION 33000 – SANITARY SEWER CONSTRUCTION

SANITARY SEWER CONSTRUCTION

1.1 SCOPE

The Contractor shall lay all pipe and construct all standard manholes and appurtenances as specified herein. This section includes the basis of payment for sanitary sewer construction, standard manholes and appurtenances. This section also includes specifications for final inspection and testing of the sanitary sewers. All gravity sewer pipes shall be constructed of Polyvinyl Chloride (PVC) or Ductile Iron Pipe (D.I.P.) as noted on the plans.

1.2 LINES AND GRADES

1.2.1 Pipes shall be laid true to the lines and grades shown on the drawings or as directed by the Owner. The grade shown on the profile is the invert, to which the work must conform. A variation of one-eighth inch or more from the true invert grade on sewers laid on a one percent or less grade and a variation one fourth inch or more on sewers laid on grades above one percent will be deemed sufficient reason to cause t he work to be rejected. Work so rejected shall be corrected by the Contractor at his own expense in a manner acceptable to the Owner.

1.2.2 The grade and alignment of the pipe shall be maintained by the use of string line parallel with the grade line and vertically above the centerline of the sewer. This line shall be established on level batter boards at intervals of not more than 40 feet. Batter boards shall snap the trench and be rigidly anchored to substantial posts driven into the ground on each side of the trench. Three adjacent batter boards must be set before laying pipe to provide a check on the grades and line. Elevation and position of the string line shall be determined from the elevation and position of offset points or stakes located along the sewer route. Pipe shall not be laid using side lines for line and grade. Lasers may be used for grade and alignment.

1.3 PIPE FOUNDATIONS

All pipes to be laid in open trench excavations shall be bedded in and uniformly supported over their full length and foundations of the types specified herein and shown on the drawings. Flat-bottomed trenches shall be excavated and dewatered, prior to preparing the special foundation. All work shall be performed in a dry trench.

1.4 CRUSHED STONE BEDDING AND HAUNCHING

All pipe shall be supported on a crushed stone bedding, except as otherwise stated on the drawings, or ordered by the Owner. The trench shall be excavated to a depth of one quarter the outside diameter of the pipe, but not less than six (6) inches below the bottom of the pipe, PennDOT AASHTO No. 57 Coarse Aggregate bedding shall be furnished and placed in the trench for its full width to uniformly support the pipe at the required line and grade. Suitable recesses shall be provided for similar projections. The bedding shall extend upward around the pipe barrel to the spring line of the pipe (i.e. one half the pipe o.d.) providing uniform support along the length of the pipe section at the required line and grade. Bedding material shall be spread in four inch layers, and each layer shall be compacted with twenty pound hand tampers or pneumatic tampers until the required total depth or bedding has been built up. Where a suitable supporting soil or rock stratum occurs at a depth greater than six inches but less than two feet below the pipe and where ordered by the Owner; this foundation shall be modified as follows: The trench shall be excavated to the depth necessary to reach the suitable supporting stratum. Crushed stone bedding shall then be spread in four inch layers, and each layer shall be compacted with twenty-pound hand or pneumatic tampers. The bedding shall carry vertically from the supporting stratum up to an elevation one half of the pipes' outside diameter but not less than six inches below the bottom of the pipe.

Provide haunching stone from bedding to 12" above top of pipe and compact similar to bedding.

The bedding and haunching material shall meet the requirements of Form 408, Section 703.2 for AASHTO No. 57 Coarse Aggregate.

1.5 INSPECTION OF PIPE BEFORE INSTALLATION

All pipe and fittings shall be carefully inspected in the field before lowering into the trench. Cracked, broken, warped, out-of-round, or otherwise defective pipe, fittings, or specials, as determined by the Contractor or the Owner, shall be pulled and not installed. Such rejected pipe shall be clearly tagged in such a manner as not to deface or damage it, and the pipe shall then be removed from the job site by the Contractor.

1.6 INSTALLATION OF PIPE AND FITTINGS

a. After the trench has been brought to the proper grade, as hereinbefore specified, the pipe shall be laid. Unless otherwise approved by the Owner in writing, pipe laying shall only be done in the presence of the Owner and the Contractor shall give ample notice of scheduled pipe laying operations by the Owner.

b. All pipe fittings shall be carefully lowered into the trench with ropes, slings, and proper equipment. Pipe becoming cracked or otherwise damaged during or following installation shall be marked by the Contractor or Owner and removed

from the site as required in the preceding clause.

c. Pipes shall be laid true to the grade shown on the drawings or as directed by the Engineer. Each section of pipe shall rest upon the pipe bed for the full length of its barrel, with recesses excavated to accommodate bells and joints. Blockings will not be permitted except where the pipe is to be encased in concrete. Any pipe that has its grade or pipe disturbed after laying shall be taken up and relaid. The interior and ends of all pipe shall be thoroughly cleaned of all foreign matter before being lowered into the trench and shall be kept clean during laying operations by means of plugs or other approved methods. Under no circumstances shall pipe be laid in water and no pipe shall be laid when trench conditions or the weather is unsuitable for such work except by permission of the Owner. In all cases water shall be kept out of the trench until the concrete encasement or cradle, where used, has hardened or until the pipe sidefills have been placed. Every precaution shall be taken which in the opinion of the Owner is necessary to obtain watertight construction for all joints and all joints with no manholes or existing facilities. The Contractor shall also take any and all other measures to keep the sewer clean and free from deposits, and protect same from injury until final inspection and acceptance by the Owner. If deemed necessary, sewer lines will be tested for leakage between manholes as the work progresses by infiltration test or exfiltration tests defined under the Final Testing section of this Specification.

d. If the sewer is damaged from any cause, or becomes either partly or completely filled with dirt, stones, sand, or other debris, the Contractor shall make all necessary repairs, and remove all such materials to the satisfaction of the Owner.

e. Before machine backfilling shall be done, the Owner shall make tests as may be required, in order to ascertain if the sewer is true to line and grade. In case the test shows poor alignment of the main, misplaced pipe or other defects, such defects shall be remedied by the Contractor, to the satisfaction of the Owner, before the work of backfilling proceeds.

f. Recommendations of the manufacturer must be followed in laying pipe with special joints as specified.

1.7 SANITARY SERVICE CONNECTIONS

a. Sanitary sewer service connections will be constructed of eight (8) inch PVC pipe conforming to the requirements of these specifications for sanitary sewer construction. All sanitary service connections shall terminate at the right-of-way line in the direction of the property it will service as shown on the plans. Service connections shall be made at the sanitary sewer main by appropriate sized, gasketed, PVC wye fittings. Saddle or cut pipe connections are prohibited. The contractor shall tightly cap the ends of all constructed laterals in such a manner to exclude entry of foreign objects or dirt from the pipe and to permit air testing of the

sewer main. Utility identification markers shall be placed at all capped ends. Utility identification markers shall be Carsonite CIB-380 or approved equivalent, green in color, approximately 66" length, 18" anchor depth

1.8 MANHOLE MATERIALS

1.8.1 PRECAST MANHOLE SECTIONS

The manholes shall be constructed of precast reinforced concrete manhole sections. The sections shall be a minimum of four feet in diameter for pipe sizes up to but not including 36 inches internal diameter. The Sections shall conform to the requirements of "Specifications for Precast Reinforced Concrete Manhole Sections", (ASTM C478). The joints between the reinforced concrete manhole sections shall be sealed with rubber gaskets to ensure water tightness of the joints. The type of sealant and joint sealing procedure shall be approved by the Owner.

The design and reinforcement of all precast concrete manhole sections, risers, cones, and flat slab tops shall be in accordance with ASTM C-478 latest edition and all PennDOT Specifications and Standard Designs. The Owner shall approve all reinforcement design and can request modifications in the reinforcement.

PVC Pipe Manhole Adaptors - Connections of all PVC pipe to manholes shall be made using a flexible manhole sleeve or rubber/elastometric compression gasket cast into the wall.

Sleeves and gaskets shall be included in the contract unit price for manholes.

1.8.2 MANHOLE BASES

The manhole bases shall be constructed of precast reinforced concrete sections.
a. PRECAST BASES The bases shall be integrally cast and shall consist of a manhole bottom and a wall which shall extend a minimum of six inches above the top of the highest inflowing sewer. The top of the base section shall be carefully formed to receive the tongue of the barrel section. There shall be a minimum distance of four inches between the invert of the lowest outflowing sewer and floor of the precast base to provide for the construction of a formed invert and bench wall within the manhole. No more than two lift holes shall be cast in the bases.

Manholes four feet in diameter shall have a bottom at least six inches thick and a wall at least five inches thick.

1.8.3 RISERS AND TOP SECTIONS

a. The top of base walls, the ends of reinforced concrete risers, and the bottom ends of precast tops shall be so formed that when risers and tops are assembled with the base, they will make a continuous manhole. Joints shall be of such design as will permit effective joining and placement without irregularities in the interior wall surface of the manhole.

b. Manhole barrels shall consist of risers and top sections with a minimum wall thickness of five (5) inches. The top section shall be an eccentric conical section with thickened upper walls with the smallest inside diameter equal to 30 inches. To receive the manhole frame and cover, no more than two lift holes shall be cast in each barrel or top section.

c. Manhole riser and top sections shall be designed, manufacturer-tested, finished, and marked in accordance with this specification and "Specifications for Precast Reinforced Concrete Manhole Sections", (ASTM C478).

1.8.4 MANHOLE STEPS

a. Manhole steps shall be in accordance with PaDOT Form 408, Section 605.2(c).

b. Manhole steps shall be cast into the walls of risers and conical top sections, and shall be aligned vertically and spaced so as to be on equal centers in the assembled manhole at a maximum distance apart of twelve inches. Steps shall be located a minimum of six inches from the ends of the riser and top sections, and shall be securely embedded in manhole risers and cones.

c. If approved by the Owner, manhole steps may be grouted into the precast manhole sections with a high strength non-shrink epoxy resin grout. The epoxy resin grout shall be subject to the approval of the Owner.

1.9 RESET EXISTING MANHOLE FRAME AND COVER

1.9.1 REQUIREMENT

The Contractor shall reset existing manhole frames and covers that are disturbed during the Contractor's work around an existing manhole so as to return them to existing grade and prevent infiltration around the frame and cover. Manhole frame shall be raised using precast concrete spacer rings where required. All work shall be laid plumb, straight, level, square and true. All joints shall be full and not more than one half (½) inch in thickness. The masonry work shall be parged on the inside and the outside with one half (½) inch coat of Portland Cement Mortar.

Mortar to be used in masonry work, setting manhole frames, and parging shall be

prepared in accordance with ASTM C210-73 Type M. Mixing mortar on the ground or any paved surface shall not be permitted. Sand to be used in making mortar shall be clean, well graded, and shall pass a standard No. 4 sieve.

1.10 DROP MANHOLES

a. In all junction manholes where the grade line of one sewer is more than two (2) feet higher than that of the other, the connection shall be made by means of an outside "Drop Connection".

b. The materials and installation methods used for the construction of Drop Manholes shall conform to the requirements of the "Installation of Standard Manholes" section of this Specification.

1.11. INSTALLATION OF STANDARD MANHOLES

1.11.1 HANDLING

a. All precast manhole components shall be lifted and moved by use of suitable lifting slings and plugs that will not damage the precast manhole lip.

b. All damage to precast manhole sections shall be repaired. Repair and patching of minor breaks shall be done by chipping and scarifying the defective area before application of grout. Sufficient time shall be allowed for curing before the precast sections are put together.

1.11.2 PLACEMENT

a. Installation of Manholes: Manhole bases shall rest upon and be uniformly supported by a six (6) inch mat of AASHTO No. 57 Coarse Aggregate placed over a base of sound, level, undisturbed earth. The 6" of AASHTO No. 57 Coarse Aggregate shall not be paid separately but shall be included in the unit bid price for manholes, complete in place.

b. Pipes entering precast sections of manholes shall be set securely in the precast opening and gasket at the correct line and grade. There shall be at least a one half inch clearance between the outside of the pipe and the manhole opening. Connections of all PVC pipe to manholes shall be made using flexible rubber/elastomeric compression gasket cast into the wall.

c. Manhole sections shall not be set by wedging or placing shims to secure proper level.

d. In constructing "Drop Manholes", the riser and incoming pipe shall be encased and supported with concrete down to undisturbed earth as shown on the detail

drawings. Encasing the riser with brick will not be acceptable. Care shall be taken to have all pipes laid to correct lines and grades before concreting is undertaken.

e. The Drop Connection shall be constructed of either P.V.C, or ductile iron as shown on the drawings. The "Drop Connection" shall be constructed and encased as shown on the detail drawings.

f. In constructing manholes, all ground water shall be kept away from newly grouted pipe and rings until a watertight job is obtained. Manholes that admit ground water after completion shall be repaired.

1.11.3 FLOW CHANNELS AND BENCH WALLS

a. In precast bases, the flow channels and bench walls in each manhole shall be carefully formed of mortar and brick, or concrete, to the dimensions indicated on the drawings.

b. The minimum depth of flow channel shall be equal to 8/10 diameter of the pipe to which it connects. The channel shall be graded to give a smooth uninterrupted flow through the manhole. The contractor shall ensure that grouting of the flow channel in the field does not interfere with the flow of water or prohibit the proper sealing of the manhole during testing procedures.

c. Bench walls shall be pitched a minimum of one inch per half foot from the inside periphery of the manhole to the edge of the flow channel.

1.11.4 MASONRY WORK

a. The top of all precast manholes may be brought to proper grade for receiving manhole frames by using not more than 6 inches of precast concrete rings. Masonry construction shall be performed by experienced and qualified workmen only. All work shall be laid plumb, straight, level, square, and true. All joints shall be full and not more than one half inch in thickness. All steps and miscellaneous items specified elsewhere shall be placed and bonded in the masonry. The masonry walls shall be parged on the inside and the outside with one half inch coat of Portland Cement Mortar.

b. "Deleted"

c. Mortar to be used in setting manhole frames, and parging, shall be prepared in accordance with ASTM C210-73 Type M. Mixing mortar on the ground or any paved surface shall not be permitted. Sand to be used in making mortar shall be clean, well graded, and shall pass a standard No. 4 sieve.

d. All mortar to be used in joining manhole sections, filling lift holes in risers,

and in sealing pipe joints of manholes shall be an approved mixture of sand, cement, and Embeco aggregate.

e. Masonry shall not be constructed during cold weather (air temperature below 40 degrees F) unless precautions are observed.

1.12. REPLACEMENT OF SEWER PIPE CONNECTION TO EXISTING MANHOLE

1.12.1 REQUIREMENT

The Contractor shall disconnect the existing sewer pipe from the existing manhole and reconnect the new sewer pipe where shown on the Plans and as directed by the Owner. New pipe connections shall be made using a rubber concrete manhole adapter as manufactured by Fernco, or approved equal. The pipe and adapter shall be secured in place and the annular space repaired using a non-shrink grout such as Thorite, Blendcrete, or approved equal. Grout mixture shall be prepared and cured as per manufacturer's recommendations. All finished grout and repair work shall be neat with a smooth surface.

Where an existing PVC pipe stub is available at the existing manhole and is in acceptable condition as determined by the Owner, the new sewer pipe may be connected to the existing stub using a watertight rubber coupling with stainless steel compression straps as manufactured by Fernco, or approved equal.

Also included is the removal of existing sewer pipe sections connected to the manhole and the plugging of existing sewer pipes to be abandoned as directed by the Owner and indicated on the plans.

The existing manhole bench and flow channel shall be modified and/or repaired as required to accept the new pipe. The existing manhole shall in no other way be damaged, disturbed, or shifted on its base. Any manhole disturbed by the Contractor so as to result in shifting or offset of manhole joints which jeopardizes the structural integrity of the manhole, or results in the creation of infiltration into the manhole, shall be repaired or replaced by the Contractor, as determined by the Owner, at no additional cost to the Owner. All materials and sewer pipe installation shall be in accordance with these Specifications.

1.13. STORM PIPES AND CULVERT CROSSINGS

1.13.1 REQUIREMENTS

Storm pipes and culverts damaged during construction of the sanitary sewers shall be repaired and/or replaced to the satisfaction of the Owner. Replacement pipes shall be equal in size and type of existing pipes.

1.13.2 BASIS OF PAYMENT

The cost of the work in this Article shall not be paid for as a separate item but shall be included in the unit prices bid for the construction of sanitary sewers.

1.14 DEMOLITION

1.14.1 GENERAL

Demolition shall mean the removal of all piping, manholes and waste materials as indicated on the Plan and as directed by the Owner.

1.14.2 REMOVED MATERIALS

The Contractor shall not have any right or property in any materials or equipment taken from any excavation or demolition and he shall not remove any such materials from the site of work without the approval of the Owner unless specifically indicated otherwise in these Contract Documents. This provision shall in no way relieve the Contractor of his obligation to remove and dispose of any and all materials determined by the Owner to be in excess or unsuitable for backfilling use. Costs for disposal of materials shall be the responsibility of the Contractor. All materials shall be disposed of in accordance with the applicable Federal, State, and Local laws and regulations.

1.15 DEMOLITION OF EXISTING MANHOLE

1.15.1 GENERAL

Demolish and/or replace existing manholes as shown on the contract drawings. Entire manhole should be completely removed, including the manhole base. Also included is the removal of existing sewer pipe sections connected to the manhole and the plugging of existing sewer pipes to be abandoned as directed by the Owner and indicated on the Plans.

1.16 OVEREXCAVATION DUE TO UNSUITABLE MATERIAL-SEWER PIPE AND MANHOLE INSTALLATION

1.16.1 REQUIREMENTS

If unsuitable materials are encountered during sewer pipe or manhole installation (e.g., quicksand, silts, etc.) such that standard specified pipe installation methods will not result in a stable bedding for the sewer pipe, the Contractor may be

directed by the Owner to overexcavate to an acceptable depth and place additional stone bedding with or without geotextile material. Type of stone bedding will be determined by the Owner based on the specific field conditions encountered. Additional stone bedding shall be placed and compacted in accordance with the requirements of this Section.

1.16.2 BASIS OF PAYMENT

In the event overexcavation and placement of additional stone bedding is required for installation of sewer pipe, the Contractor shall be paid at the Bid Unit Price for sewer pipe installation at a depth equivalent to the depth of overexcavation. In the event overexcavation and placement of additional stone bedding is required for installation of a manhole, the Contractor shall be paid at the Bid Unit Price per vertical foot of manhole at a depth equivalent to the depth of overexcavation. No additional compensation shall be paid for extra stone bedding, geotextile material or associated labor costs.

1.17 MANHOLE FRAMES AND COVERS

1.17.1 GENERAL

a. All castings for manhole covers and frames and other purposes shall be close grained, tough gray iron free from cracks, holes, swells, and cold shuts. The quality shall be such that a blow from a hammer will produce an indentation on a rectangular edge of the casting without flaking the metal. All manhole castings shall be made accurately to the pattern and to the dimensions specified with carefully machined bearing surfaces.

b. Allowances shall be made in the patterns so that specified thickness shall not be reduced. All lids which "rock" and do not lie solid after construction is finished will be rejected and shall be replaced by adequate lids. No plugging, burning in, or filling will be allowed. Covers shall fit the frames in any position. All castings shall be carefully coated, both inside and out, with coated tarpitch varnish. The varnish shall be made of a good quality of coal tar, with sufficient oil added to make a smooth coating, tough and tenacious when cold, and not brittle nor with any tendency to scale off. Varnish shall not be required for manufacturer's who routinely recommend the use of iron-oxide silicate scale instead of varnish for corrosion protection.

c. Each manhole frame and cover shall be approximately of the dimensions shown on the drawings and shall be acceptable to PADOT and/or the OWNER.

d. Weight and dimensional tolerances shall not exceed those permitted by ASTM Standards.

e. The word "Sanitary" or where noted on the Drawings "STORM" at least two (2) inches high shall be cast into each cover. The lettering shall have a depth of one half inch. The letters shall be raised above the base metal and shall be level with the nubs.

1.17.2 FRAME AND COVER

The standard frame and cover shall be cast to the dimensions and cover pattern as shown on drawings.

1.18 SANITARY SEWER CONSTRUCTION

1.18.1 MATERIALS

This Section of the Specifications lists and describes all piping acceptable for sewers and all materials not specified by other Sections of the Specifications. All material shall be new, of first quality, and of an approved manufacturer in accordance with these Specifications. All fittings including wye branches, elbows, sweeps and tees shall be of the same material as the pipe unless otherwise specified.

1.18.2 PVC (POLYVINYL CHLORIDE) PIPE

a. General

PVC pipe shall conform to ASTM D-3034 with SDR 35 minimum wall thickness or ASTM F-789.

b. Fittings

All PVC pipe fittings shall be premolded and shall conform to ASTM D-3034 or ASTM F-789. Saddle type fittings shall not be used, unless specified in writing and approved by the Owner.

c. Joints

All PVC pipes, fittings, and joints shall be elastomeric gasket joints providing a watertight seal. The pipe shall be joined with an integral bell, bell and spigot type rubber gasketed joint. Each integral bell joint shall consist of a formed bell complete with single rubber gasket. Gaskets shall conform to ASTM F-477.

d. Risers

Riser pipe fittings on PVC pipe shall be constructed of PVC pipe and fittings conforming to all the requirements for PVC pipe and fittings.

1.18.3 DUCTILE IRON PIPE

a. Bell and Spigot push-on joint type ductile iron pipe shall be used. Each length of pipe shall be cast as a unit, either in metal or sandlined molds. The pipe shall be thickness Class 52 with standard coal tar epoxy asphaltic coating and shall conform to the following standard specifications:

(a) Ductile Iron Pipe Centrifugally Cast in Metal or Sandlined Molds: ANSI Specification A21.51 - 1976 (AWWA C151-76).

(b) Exterior Coatings for ductile iron pipe and fittings to be coal tar epoxy asphaltic coating.

c) Flanged Pipe: Flanged pipe shall conform to A.S.A. Specification A21.15 and shall have flat face A.S.A. 125# flanges. Gaskets shall conform to ANSI/AWWA C111/A21.11.

All ductile iron pipe and fittings shall be produced by a recognized foundry which is a member of the "Ductile Iron Pipe Research Association" and shall be marked with the Underwriters Laboratories, Inc., inspection label.

b. Cast Iron and Ductile Iron Pipe Fittings. All iron pipe fittings shall be pit cast as units in sandmolds. Fittings shall be lined in accordance with Section d below. Fittings shall be thicknes Class 52 and shall conform to ANSI Specifications A21.10. All fittings shall have mechanically restrained joints.

c. Rubber Gasket Joint For Cast Iron and Ductile Iron Pressure Pipe and Fittings. Rubber gasket joints shall conform to the requirements of ANSI Specification A21.11-1972 (AWWA C111-72).

d. Ductile Iron Pipe and Fittings Interior Lining

1. Extent of Lining
   a. Interior surfaces of pipe and fittings shall be lined with one of the following systems.

      i. A double cement-lining, conforming to ANSI A21.4. followed by a coal-tar epoxy lining. The coal tar epoxy shall be Kop-Coat 300-M as produced by Carboline Company, 78HB as produced by Ameron Company or equal. Apply the coal tar epoxy to pipe interior at a per coat rate recommended by Paint Manufacturer to provide a final dry film thickness of 20 mils. Each coat shall differ enough in color that application of subsequent coats may be easily followed. This lining system only to be used on and near-cuts made in the pipe.

      ii. A lining consisting of a minimum of 40 mils nominal thickness

of an amine cured novalac epoxy containing at least 20% ceramic quartz pigment such as Protecto 401 Ceramic Epoxy Lining as available with U.S. Pipe or Atlantic State Pipe, or equal.

iii. A lining consisting of a minimum of 40 mils nominal thickness of a 2 component polyurethane system such a Polythane as available with U.S. Pipe, or equal.

iv. A lining consisting of a minimum of 40 mils nominal thickness of American Polybond Lining or Polybond PLUS plyethylene lining as available with American Pipe, or equal.

2. Surface Preparation

a. The pipe and fittings shall be lined at the pipe and fittings company's plant, except for field repairs or bituminous painting. The pipe shall be blown free of all dirt and debris and brushed clean before painting.

1.19 TEST PITS

1.19.1 GENERAL

Test pits may be required to locate or verify the depth of utilities or other underground structures. No payment will be made for test pits to locate utilities (including storm lines). Hand excavation may be required. The Contractor shall backfill and restore the surface of each test pit to its condition immediately prior to construction or better.

It is expected that one test pit shall be sufficient to locate each item. Test pits shall be dug at least 10 days prior to the start of sewer construction.

1.19.2 BASIS OF PAYMENT

No payment shall be made for test pits to locate utilities including storm lines.

1.20 FINAL INSPECTION

a. Each section of installed sewer will be visually inspected by the Owner prior to final testing. The pipe shall be true to both line and grade, shall contain no broken pipe, shall show no leaks, shall show neither obstructions nor the projection of connection pipes into the main pipe, and shall contain no debris or other deposits which will in any way reduce the full cross-section area of the pipe.

b. Any section of sewer pipe which does not comply with the inspection criteria,

as determined by the Owner, shall be promptly corrected, replaced, or repaired by the Contractor at his own expense. Such methods as are employed for the correction shall be approved by the Owner.

1.21 FINAL TESTING

a. When directed by the Owner, the Contractor shall remove all debris from manholes and shall thoroughly flush sewers preparatory to testing for watertightness. All sewers, including manholes, service connections, and sewer laterals, shall be tested under this Section and shall satisfactorily meet the test requirements prior to final acceptance of the work. "Manhole Section" shall mean all sewers, service connections and sewer laterals between manholes. The Contractor shall furnish all labor, testing, materials, and equipment (including plugs and standpipes), etc., and shall perform the tests to the satisfaction of the Contract Owner and Sanitary Authority. The Contract Owner and/or Sanitary Authority shall be present during testing. The Contractor is to provide 48 hour notice to the Contract Owner and Authority Representative prior to testing.

b. The pipe, when laid and completed from manhole to manhole, will not be accepted unless daylight or the light of a lamp is visible through the pipe, looking from one manhole to the next. A standard "go – no go" mandrel shall pass through the pipeline easily. The Engineer may order this test as a condition for acceptance of the pipe.

c. All manholes shall be vacuum tested at 10" of mercury for 60 seconds. Vacuum drop below 9" of mercury during the 60 second test shall constitute a failed test. Leaks must be located, repaired and the manhole retested. Testing prior to backfilling is recommended. This testing shall be incidental to manhole installation and be done at no additional cost.

d. PVC pipe shall be tested with low pressure air. The procedure for the testing shall be in strict conformance with the UNI-Bell Plastic Pipe Association Recommended Practice for Low Pressure Air testing of Installed Sewer Pipe. This testing shall be incidental to the pipe installation and be done at no additional cost.

e. Upon completion of installation of all sewer lines and prior to the connection of homes or lots to the sewer system, manholes at all sewer junction points shall be visually observed for the presence of infiltration. Where flow is detected, it shall be measured using a portable V-notch measuring weir. Individual manhole runs upstream of this point shall be plugged and checked individually to locate the source of infiltration. Infiltration may not exceed 100 GPD/in. dia/mile of sewer pipe. Infiltration found in excess of this limit will require the Contractor to locate and eliminate the source of infiltration prior to final acceptance by the Owner.

1.22 SANITARY SEWERS IN RELATION TO WATER MAINS

1.22.1 HORIZONTAL SEPARATION

a) Whenever possible, sewers shall be laid at lest 10 feet, horizontally, from any existing water main.

b) Should local conditions prevent a lateral separation of 10 feet a sewer may be laid closer than 10 feet to a water main if:

1. It is laid in a separate trench, or if

2. It is laid on the same trench with the water main located at one side on a bed of undisturbed earth, and if

3. In either case, the elevation of the top (crown) of the sewer is at least 18 inches below the bottom (invert) of the water main.

1.22.2 VERTICAL SEPARATION

a) Whenever sewers must cross under water mains, the sewer shall be laid at such an elevation that the top of the sewer is at least 18 inches below the bottom of the water main. When the elevation of the sewer cannot be varied to meet the above requirements, the water main shall be relocated to provide the separation, with mechanical joint pipe for a distance of 10 feet extending on each side of the sewer. One full length of water main should be centered over the sewer so that both joints will be as far from the sewer as possible.

b) When it is impossible to obtain proper horizontal and vertical separation as stipulated above, both the water main and the sewer main should be constructed of mechanical joint cast iron pipe and should be pressure tested to assure water tightness.

1.23 MEASUREMENT AND PAYMENT

a) All items of work not listed in the "Schedule of Prices" will be paid for inclusive in this bid item, including but not limited to, maintenance/protection of traffic, erosion and sedimentation control, and all other inspection fees, where required.

(b) Installation of Standard Manholes - Vertical Foot

The depth of a manhole is measured from the top of the frame to the invert of the manhole.

All work performed for the construction of standard manholes (sections, bases, risers, tops, steps, channels and benches) including excavation, excavation of blasted rock, form work, concrete, reinforcing, form removal, backfill to new subgrade, and all related and incidental items and work shall be paid for at the contract unit price per vertical foot bid for "Installation of Standard Manhole".

(c) Drop Connection - Vertical Foot

"Drop Connections" shall be paid for at the contract unit price per vertical foot which shall include all excavation, labor, pipe (P.V.C.or ductile iron), concrete, form work, materials, form removal, equipment, and pumping.

(d) Frame and Cover - Each

The frame and covers shall be paid for at the unit price per frame and cover bid for "Standard Frame and Cover", complete in place. The unit shall include all excavation, rock excavation, labor, mortar, bolts, drilling, equipment, materials, and all incidental and related work to install frames and covers to the satisfaction of the Owner.

(e) Installation of Sanitary Piping - Linear Foot

Sanitary piping shall be measured by the linear foot along the centerline of the pipe, measured from center to center of new manholes. Depth of pipe in bid forms items refers to vertical distance from actual surface during construction to pipe invert.

Sanitary piping as indicated on the Plans shall be paid for at the contract unit price per linear foot for new sewer pipe at the indicated depths, complete in place which price shall include all necessary trench excavation, excavation of blasted rock, coarse aggregate bedding and haunching and coarse aggregate twelve (12) inches over the pipe, sheeting, bracing, pumping, furnishing and installing of sewer piping, the joint material and all other accessories, backfilling of the trench, maintenance of the backfill, together with all material, labor, tools, equipment, and incidentals necessary to complete the work. Surface restoration will be paid for separately with the appropriate items as shown on the Drawings. The Contractor is advised that by-pass pumping or similar means of isolating sections

of sewer pipe where required for sewer line replacement shall be performed consistent with applicable regulations. Such performance shall be considered incidental to sewer replacement work and no additional compensation shall be paid.

(f) Installation of Sanitary Lateral Piping - Linear Foot

Sanitary lateral piping shall be measured by the linear foot along the centerline of the pipe, measured from the center of the sewer main to the end of the lateral regardless of depth of pipe.

Sanitary lateral piping as indicated on the Plans shall be paid for at the contract unit price per linear foot for new sewer pipe at the indicated depths, complete in place which price shall include all necessary trench excavation, excavation of blasted rock, excavation of old sewers, coarse aggregate bedding and haunching and coarse aggregate twelve (12) inches over the pipe, sheeting, bracing, pumping, furnishing and installing of sewer piping, the joint material and all other accessories, backfilling of the trench, utility identification markers, maintenance of the backfill, together with all material, labor, tools, equipment, and incidentals necessary to complete the work.

Surface restoration will be paid for separately with the appropriate items as shown on the Drawings. No payment will be made for restoration needed outside the maximum normal trench width as described in the Drawings. If for any reason the trench width exceeds the maximum trench width defined in the Contract Drawings, the CONTRACTOR shall provide and install the required additional surface restoration at no additional cost to the Owner. This includes the removal, hauling and proper disposal of all excavated material.

END OF SECTION

DIVISION 33 –SITE UTILITIES
SECTION 33010 – CONDUITS

SANITARY SEWER CONSTRUCTION

1.1 SCOPE

The Contractor shall lay all pipe and construct all appurtenances as specified herein. This section includes the basis of payment for conduit construction and appurtenances. All conduits shall be constructed of Polyvinyl Chloride (PVC) or HPDE smooth lined corrugated plastic pipe SLCPP as noted on the plans.

1.2 LINES AND GRADES

1.2.1 Pipes shall be laid true to the lines and grades shown on the drawings or as directed by the Owner. The grade shown on the profile is the invert, to which the work must conform. A variation of one-eighth inch or more from the true invert grade on sewers laid on a one percent or less grade and a variation one fourth inch or more on sewers laid on grades above one percent will be deemed sufficient reason to cause t he work to be rejected. Work so rejected shall be corrected by the Contractor at his own expense in a manner acceptable to the Owner.

1.2.2 The grade and alignment of the pipe shall be maintained by the use of string line parallel with the grade line and vertically above the centerline of the sewer. This line shall be established on level batter boards at intervals of not more than 40 feet. Batter boards shall snap the trench and be rigidly anchored to substantial posts driven into the ground on each side of the trench. Three adjacent batter boards must be set before laying pipe to provide a check on the grades and line. Elevation and position of the string line shall be determined from the elevation and position of offset points or stakes located along the sewer route. Pipe shall not be laid using side lines for line and grade. Lasers may be used for grade and alignment.

1.3 PIPE FOUNDATIONS

All pipes to be laid in open trench excavations shall be bedded in and uniformly supported over their full length and foundations of the types specified herein and shown on the drawings. Flat-bottomed trenches shall be excavated and dewatered, prior to preparing the special foundation. All work shall be performed in a dry trench.

1.4 CRUSHED STONE BEDDING AND HAUNCHING

All pipe shall be supported on a crushed stone bedding, except as otherwise stated on the drawings, or ordered by the Owner. The trench shall be excavated to a depth of one quarter the outside diameter of the pipe, but not less than six (6) inches below the bottom of the pipe, PennDOT AASHTO No. 57 Coarse Aggregate bedding shall be furnished and placed in the trench for its full width to uniformly support the pipe at the required line and grade. Suitable recesses shall be provided for similar projections. The bedding shall extend upward around the pipe barrel to the spring line of the pipe (i.e. one half the pipe o.d.) providing uniform support along the length of the pipe section at the required line and grade. Bedding material shall be spread in four inch layers, and each layer shall be compacted with twenty pound hand tampers or pneumatic tampers until the required total depth or bedding has been built up. Where a suitable supporting soil or rock stratum occurs at a depth greater than six inches but less than two feet below the pipe and where ordered by the Owner; this foundation shall be modified as follows: The trench shall be excavated to the depth necessary to reach the suitable supporting stratum. Crushed stone bedding shall then be spread in four inch layers, and each layer shall be compacted with twenty-pound hand or pneumatic tampers. The bedding shall carry vertically from the supporting stratum up to an elevation one quarter of the pipes' outside diameter but not less than six inches below the bottom of the pipe.

Provide haunching stone from the bedding to 12 inches over the top of the pipe and compact similar to bedding. The bedding and haunching material shall meet the requirements of Form 408, Section 703.2 for AASHTO No. 57 Coarse Aggregate.

1.5 INSPECTION OF PIPE BEFORE INSTALLATION

All pipe and fittings shall be carefully inspected in the field before lowering into the trench. Cracked, broken, warped, out-of-round, or otherwise defective pipe, fittings, or specials, as determined by the Contractor or the Owner, shall be pulled and not installed. Such rejected pipe shall be clearly tagged in such a manner as not to deface or damage it, and the pipe shall then be removed from the job site by the Contractor.

1.6 INSTALLATION OF PIPE AND FITTINGS

a. After the trench has been brought to the proper grade, as hereinbefore specified, the pipe shall be laid. Unless otherwise approved by the Owner in writing, pipe laying shall only be done in the presence of the Owner and the Contractor shall give ample notice of scheduled pipe laying operations by the Owner.

b. All pipe fittings shall be carefully lowered into the trench with ropes, slings, and proper equipment. Pipe becoming cracked or otherwise damaged during or following installation shall be marked by the Contractor or Owner and removed from the site as required in the preceding clause.

c. Pipes shall be laid true to the grade shown on the drawings or as directed by the

Engineer. Each section of pipe shall rest upon the pipe bed for the full length of its barrel, with recesses excavated to accommodate bells and joints. Blockings will not be permitted except where the pipe is to be encased in concrete. Any pipe that has its grade or pipe disturbed after laying shall be taken up and relaid. The interior and ends of all pipe shall be thoroughly cleaned of all foreign matter before being lowered into the trench and shall be kept clean during laying operations by means of plugs or other approved methods. Under no circumstances shall pipe be laid in water and no pipe shall be laid when trench conditions or the weather is unsuitable for such work except by permission of the Owner. In all cases water shall be kept out of the trench until the concrete encasement or cradle, where used, has hardened or until the pipe sidefills have been placed. Every precaution shall be taken which in the opinion of the Owner is necessary to obtain soil tight or watertight construction as specified for the pipe for all joints and all joints with no manholes or existing facilities. The Contractor shall also take any and all other measures to keep the pipe clean and free from deposits, and protect same from injury until final inspection and acceptance by the Owner.

d. If the pipe is damaged from any cause, or becomes either partly or completely filled with dirt, stones, sand, or other debris, the Contractor shall make all necessary repairs, and remove all such materials to the satisfaction of the Owner.

e. Before machine backfilling shall be done, the Owner shall make tests as may be required, in order to ascertain if the sewer is true to line and grade. In case the test shows poor alignment of the main, misplaced pipe or other defects, such defects shall be remedied by the Contractor, to the satisfaction of the Owner, before the work of backfilling proceeds.

f. Recommendations of the manufacturer must be followed in laying pipe with special joints as specified.

1.7 END CAPS AND MARKERS

a. All conduits shall terminate at the right-of-way as shown on the plans. The contractor shall tightly cap both ends of all constructed conduits in such a manner to exclude entry of foreign objects or dirt from the pipe. Utility identification markers shall be placed at all capped ends. Utility identification markers shall be Carsonite CIB-380 or approved equivalent, color chosen by Owner, approximately 66" length, 18" anchor depth.

1.8 REMOVED MATERIALS

The Contractor shall not have any right or property in any materials or equipment taken from any excavation or demolition and he shall not remove any such materials from the site of work without the approval of the Owner unless specifically indicated otherwise in these Contract Documents. This provision shall

in no way relieve the Contractor of his obligation to remove and dispose of any and all materials determined by the Owner to be in excess or unsuitable for backfilling use. Costs for disposal of materials shall be the responsibility of the Contractor. All materials shall be disposed of in accordance with the applicable Federal, State, and Local laws and regulations.

1.9 OVER-EXCAVATION DUE TO UNSUITABLE MATERIAL

1.9.1 REQUIREMENTS

If unsuitable materials are encountered during pipe (e.g., quicksand, silts, etc.) such that standard specified pipe installation methods will not result in a stable bedding for the sewer pipe, the Contractor may be directed by the Owner to over-excavate to an acceptable depth and place additional stone bedding with or without geotextile material. Type of stone bedding will be determined by the Owner based on the specific field conditions encountered. Additional stone bedding shall be placed and compacted in accordance with the requirements of this Section.

1.9.2 BASIS OF PAYMENT

In the event over-excavation and placement of additional stone bedding is required for installation of sewer pipe, the Contractor shall be paid at the Bid Unit Price for conduit installation at a depth equivalent to the depth of over-excavation. No additional compensation shall be paid for extra stone bedding, geotextile material or associated labor costs.

1.10 SANITARY SEWER CONSTRUCTION

1.10.1 MATERIALS

This Section of the Specifications lists and describes all piping acceptable for conduits not specified by other Sections of the Specifications. All material shall be new, of first quality, and of an approved manufacturer in accordance with these Specifications. All fittings including wye branches, elbows, sweeps and tees shall be of the same material as the pipe unless otherwise specified.

1.10.2 PVC (POLYVINYL CHLORIDE) PIPE

a. General

PVC pipe shall be rigid schedule 40 electrical conduit rated for 90 degree Celsius wiring. Pipe shall have integral bell section for solvent welding. All pipe and installation shall conform with NEMA TC-2 and UL-651 and be

listed by Underwriters Laboratories, Inc. and shall conform to use as conduit as per the National Electrical Code, (NEC).

b. Fittings

All PVC pipe fittings shall conform to the requirements of the main conduits,

c. Joints

All PVC pipes, fittings, and joints shall be solvent welded providing a watertight seal.

1.10.3 Smooth-lined Corrugated Plastic Pipe (SLCPP)

a. Bell and Spigot push-on joint type Smooth-lined Corrugated Plastic Pipe (SLCPP) pipe (mannings n value nominal 0.012) shall be used. Each length of pipe shall be manufactured by the same manufacturer and shall conform to the following standard specifications:

(a) AASHTO M294, type S or ASTM F2306.

(b) Joints for pipe shall be bell and spigot meeting AASHTO M294 or ASTM F2306. The joint shall be soil tight and gaskets when applicable shall meet ASTM F477.

(c) Fittings for pipe shall conform to AASHTO M294 or ASTM F2306 utilizing spun on or welded spigot.

1.11 TEST PITS

1.11.1 GENERAL

Test pits may be required to locate or verify the depth of utilities or other underground structures. No payment will be made for test pits to locate utilities (including storm lines). Hand excavation may be required. The Contractor shall backfill and restore the surface of each test pit to its condition immediately prior to construction or better. Test pits shall be dug prior to the start of conduit construction.

1.11.2 BASIS OF PAYMENT

No payment shall be made for test pits to locate utilities including storm lines.

1.11.3 FINAL INSPECTION

a. Each section of installed conduit will be visually inspected by the Owner prior

to final testing. The pipe shall be true to both line and grade, shall contain no broken pipe, shall show no leaks, shall show neither obstructions nor the projection of connection pipes into the main pipe, and shall contain no debris or other deposits which will in any way reduce the full cross-section area of the pipe.

b. Any section of conduit pipe which does not comply with the inspection criteria, as determined by the Owner, shall be promptly corrected, replaced, or repaired by the Contractor at his own expense. Such methods as are employed for the correction shall be approved by the Owner.

1.12 MEASUREMENT AND PAYMENT CONDUITS

All items of work not listed in the "Schedule of Prices" will be paid for inclusive in this bid item, including but not limited to, excavation, backfill, bedding, dewatering, maintenance/protection of traffic, and all other inspection fees, where required.

(a) Installation of Conduit - Linear Foot

Conduit shall be measured by the linear foot along the centerline of the pipe, measured from end to end. Depth of pipe in bid forms items refers to vertical distance from actual surface excavated to pipe invert.

Conduit as indicated on the Plans shall be paid for at the contract unit price per linear foot for new conduit pipe at the indicated depths, complete in place which price shall include all necessary trench excavation, excavation of blasted rock, excavation of old piping, coarse aggregate bedding and haunching and coarse aggregate twelve (12) inches over the pipe, sheeting, bracing, pumping, furnishing and installing of conduit piping, the joint material and all other accessories, backfilling of the trench, maintenance of the backfill, together with all material, labor, tools, equipment, and incidentals necessary to complete the work. Surface restoration will be paid for separately with the appropriate items as shown on the Drawings.

- END OF SECTION -

SECTION A - GENERAL PIPING SYSTEM AND INLET CONSTRUCTION

1. GENERAL

The Contractor shall lay all pipe and construct all standard inlets and appurtenances as specified herein. This section also includes the basis of payment for standard inlets and appurtenances. Unless otherwise noted, all pipes shall conform to the size and type as specified on the plans.

2. CHANGE OF LOCATION

2.1 In case the Engineer shall direct that the location of an excavation be changed to a reasonable extent from that indicated on the drawings on account of the presence of an obstruction, or from other cause, or if a change location shall be authorized upon the Contractor's request, the Contractor shall not be entitled to extra compensation or to a claim for damages; provided that the change is made before the excavation is begun. If, however, such change made at the direction of the Engineer, involves the abandonment of excavation already made such abandoned excavation, together with the necessary backfill will be paid for at a rate of 50% of the unit bid price for the depth of trench excavated times the length excavated; no compensation will be paid for rock excavation.

2.2 In the event that the excavation is abandoned on favor of a new location, at the Contractor's request, the abandoned excavation and backfill shall be at the contractor's expense.

2.3 If an obstruction is found within an excavation to be such that the excavation has to be widened, or in order that a structure or pipe be placed in the excavation may be properly built, such extra width of excavation shall be paid for as Class I excavation except that no compensation will be paid for rock excavation. However, if the excavation is widened for the purpose of utilizing a trench box or avoiding the necessity of placing sheeting or bracing, either in the presence of or absence of obstructions, such excavation will not be considered as additional excavation and resultant excavation, backfill and surface restoration shall be at the Contractor's expense.

3. LINES AND GRADES

3.1 Pipes shall be laid true to the lines and grades shown on the drawings or as directed by the Engineer. The grade shown on the profile is the invert, to which the work must conform. A variation of one-eighth inch or more from the true invert grade on sewers laid on a one percent or less grade and a variation one fourth inch or more on sewers laid on grades above one percent will be deemed sufficient reason to cause the work to be rejected. Work so rejected shall be corrected by the Contractor at his own expense in a manner acceptable to the Engineer.

3.2 The grade and alignment of the pipe shall be maintained by the use of string line parallel with the grade line and vertically above the centerline of the sewer. This line shall be established on level batter boards at intervals of not more than 40 feet. Batter boards shall snap the trench and be rigidly anchored to substantial posts driven into the ground on each side of the trench. Three adjacent batter boards must be set before laying pipe to provide a check on the grades and line. Elevation and position of the string line shall be determined from the elevation and position of offset points or stakes located along the sewer route. Pipe shall not be laid using sidelines for line and grade. Lasers may be used for grade and alignment.

4. PIPE FOUNDATIONS

All pipes and specials to be laid in open trench excavations shall be bedded in and uniformly supported over their full length and foundations of the types specified herein and shown on the drawings. Flat-bottomed trenches shall be excavated and dewatered, prior to preparing the special foundation. All work shall be performed in a dry trench.

5. CRUSHED STONE BEDDING

All pipe shall be supported on a crushed stone bedding, except as otherwise stated on the drawings, or ordered by the Engineer. The trench shall be excavated to a depth of one quarter the outside diameter of the pipe, but not less than six (6) inches below the bottom of the pipe, PennDOT No. 57, 67, 7 or 8 course aggregate bedding shall be furnished and placed in the trench for its full width to uniformly support the pipe at the required line and grade. Suitable recesses shall be provided or similar projections. The bedding shall extend upward around the pipe barrel to the spring line of the pipe (i.e. one half the pipe o.d.) providing uniform support along the length of the pipe section at the required line and grade. Bedding material shall be spread in four inch layers, and each layer shall be compacted with twenty pound hand tampers or pneumatic tampers until the required total depth or bedding has been built up. Where a suitable supporting soil or rock stratum occurs at a depth greater than six inches but less than two feet below the pipe and where ordered by the Engineer; this foundation shall be modified as follows: The trench shall be excavated to the depth necessary to reach the suitable supporting stratum. Crushed stone bedding shall then be spread in four inch layers, and each layer shall be compacted with twenty-pound hand or pneumatic tampers. The bedding shall carry vertically from the supporting stratum up to an elevation one quarter of the pipes' outside diameter but not less than six inches below the bottom of the pipe. The bedding material shall meet the requirements of Form 408, Section 703.2 for No. 57, 67, 7 or 8 course aggregate.

6. CONCRETE ENCASEMENT

Where required, the pipe shall be supported by concrete encasement. Concrete encasement shall be installed at creek crossings and where shown on plans. The trench shall be excavated to a minimum depth of twelve inches below the bottom of the pipe. The excavated space shall then be completely filled with, and the entire pipe encased in concrete such that the minimum concrete encasement at any point around the outside barrel of the pipe measures 12 inches

thick. The total minimum width of the concrete encasement shall equal the width of trench excavation. Unless otherwise shown on the drawings or specified herein, concrete shall be Class A Concrete mix, form work, curling, etc., shall be in accordance with the requirements of Form 408. Freshly poured concrete shall be maintained free from ground water for at least the first four (4) hours. No backfilling of the trench shall begin until a minimum time period of 24 hours has elapsed after the encasement has been poured. Steel reinforcing, if required, shall be shown on the drawings.

7. INSPECTION OF PIPE BEFORE INSTALLATION

All pipe, fittings, and specials, shall be carefully inspected in the field before lowering into the trench. Cracked, broken, warped, out-of-round, or otherwise defective pipe, fittings, or specials, as determined by the Contractor or the Engineer, shall be pulled and not installed. Such rejected pipe shall be clearly tagged in such a manner as not to deface or damage it, and the pipe shall then be removed from the job site by the Contractor.

8. INSTALLATION OF PIPE AND FITTINGS

a. After the trench has been brought to the proper grade, as hereinbefore specified, the pipe and specials shall be laid. Unless otherwise approved by the Engineer in writing, pipe laying shall only be done in the presence of the Engineer and the Contractor shall give ample notice of scheduled pipe laying operations by the Engineer.

b. All pipe fittings and specials shall be carefully lowered into the trench with ropes, slings, and proper equipment. Pipe becoming cracked or otherwise damaged during or following installation shall be marked by the Contractor or Engineer and removed from the site as required in the preceding clause.

c. Pipes shall be laid true to the grade shown on the drawings or as directed by the Engineer. Each section of pipe shall rest upon the pipe bed for the full length of its barrel, with recesses excavated to accommodate bells and joints. Blockings will not be permitted except where the pipe is to be encased in concrete. Any pipe that has its grade or pipe disturbed after laying shall be taken up and relaid. The interior and ends of all pipe shall be thoroughly cleaned of all foreign matter before being lowered into the trench and shall be kept clean during laying operations by means of plugs or other approved methods. Under no circumstances shall pipe be laid in water and no pipe shall be laid when trench conditions or the weather is unsuitable for such work except by permission of the Engineer. In all cases water shall be kept out of the trench until the concrete encasement or cradle, where used, has hardened or until the pipe sidefills have been placed. Every precaution shall be taken which in the opinion of the Engineer is necessary to obtain watertight construction for all joints and all joints with no manholes or existing facilities. The Contractor shall also take any and all other measures to keep the sewer clean and free from deposits, and protect same from injury until final inspection and acceptance by the Engineer.

d. If the sewer is damaged from any cause, or becomes either partly or completely filled with

dirt, stones, sand, or other debris, the Contractor shall make all necessary repairs, and remove all such materials to the satisfaction of the Engineer.

e. Before machine backfilling shall be done, the Contractor shall make tests as may be required, in order to ascertain if the sewer is true to line and grade. Contractor shall halt work when directed to allow Engineer to make tests. In case the test shows poor alignment of the main, misplaced pipe or other defects, such defects shall be remedied by the Contractor, to the satisfaction of the Engineer, before the work of backfilling proceeds.

f. The contractor shall make all necessary connections of new pipe to existing structures as shown on the plans. No additional compensation shall be made for these connections and shall be paid for in the unit bid price for storm pipe.

g. Recommendations of the manufacturer must be followed in laying pipe with special joints as specified.

12. EXISTING STORM PIPES AND CULVERT CROSSINGS

12.1 REQUIREMENTS

Existing storm pipes and culverts damaged during construction of the sanitary sewers shall be repaired and/or replaced in accordance with Sections A, B, and C and to the satisfaction of the Engineer. Replacement pipes shall be equal in size and type of existing pipes.

12.2 BASIS OF PAYMENT

The cost of the work in this Article shall not be paid for as a separate item but shall be included in the unit prices bid for the construction of storm sewers.

14. OVEREXCAVATION DUE TO UNSUITABLE MATERIAL-SEWER PIPE AND MANHOLES

INSTALLATION

14.1 REQUIREMENTS

If unsuitable materials are encountered during storm sewer pipe or inlet installation (e.g., quicksand, silts, etc.) such that standard specified installation methods will not result in a stable bedding for the sewer pipe or manhole, the Contractor may be directed by the Engineer to overexcavate to an acceptable depth and place additional stone bedding (up to R-4 size) with or without geotextile material. Type of stone bedding will be determined by the Engineer based on the specific field conditions encountered. Additional stone bedding shall be placed and compacted in accordance with the requirements of this Section.

14.2 BASIS OF PAYMENT

In the event overexcavation and placement of additional stone bedding is required for installation of storm sewer pipe, the Contractor shall be paid at the Bid Unit Price for select backfill regardless of the depth of overexcavation. In the event overexcavation and placement of additional stone bedding is required for installation of an inlet, the Contractor shall be paid at the Bid Unit Price per ton of select backfill regardless of the depth of overexcavation. Stone bedding, regardless of size, shall be paid for as 2A course aggregate. No additional compensation shall be paid for geotextile material, associated labor costs or for delays, mobilization/demobilization, loss of production or other costs while the need to overexcavate is being evaluated by the Engineer.

SECTION B - STREET IMPROVEMENTS AND RESTORATION

1. GENERAL

1.1 SCOPE OF WORK

Work under this section shall include the removal of existing paving, curbs, sidewalks, traffic control signs and street signs, the reconstruction of streets, reconstruction of curbs, sidewalks, driveway aprons, traffic control signs, street signs, and survey monuments, all as shown on the drawings and required to restore areas disturbed by the storm sewer line construction.

Work shall include all necessary excavation and grading. The Contractor shall supply all materials, equipment, labor, and services, and perform all operations required to complete the work.

1.2 CONFORMANCE TO PENNSYLVANIA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS

The company performing the pavement restoration on the project, whether it is the prime Contractor or one of the Sub-contractors, must be pre-qualified by PADOT for paving at the time the project paving is performed.

All work and material under this Division shall be in accordance with the Pennsylvania Department of Transportation Specifications, Form 408, latest edition (hereinafter referred to as Form 408), and the Contract Documents. In case of conflict, the Engineer shall determine which specifications shall govern, except for work in State Highway Right-of-Ways where Chapter 459 and Form 408 will govern. All section references are those contained in the Form 408. Paragraphs contained within Form 408 with respect to "Method of Measurement" and "Basis of Payment" shall not be applicable. Measurement and payment for work shall be as defined in this Division.

1.3 REMOVAL AND STORAGE OF MATERIALS

The Contractor shall remove material at the locations noted on the plans. He shall store, guard, and preserve all material suitable for re-use as may be required for backfilling, street reconstruction, curb construction, or other purposes. Materials shall be stored according to the direction of the Engineer. The Contractor shall be responsible for any loss of or damage to curb, flagstone, backfill, or other material through their careless removal or neglected storage. Any material suitable for re-use, which may be in excess of that required for the project shall be removed by the Contractor to a storage site designated by the Engineer. All material declared by the Engineer to be unsuitable, shall be removed from the site and safely disposed of off the site by the Contractor.

Contractor shall transport, store and return to the job site and install or backfill all

re-usable materials at no additional cost. Backfill uses may include backfilling of trenches, filling ditches, general grading and backfill around structures.

1.4 PROTECTION OF TREES AND VEGETATION

All exiting trees and vegetation, except as designated on the plans to be removed, are to remain. Special care shall be given to the protection of existing trees and vegetation by use of suitable guards. Where necessary, excavation shall be done by hand in the vicinity of trees and shrubs. The Contractor shall be responsible for repair of any damage to trees caused by the work, such repairs to be carried out in accordance with Form 408, Section 810.3 (c).

1.5 EXISTING UNDERGROUND UTILITIES OR OBSTRUCTIONS

Certain information regarding the reputed presence, size, character, and location of existing underground structures, pipes, and conduits, has been shown on the drawings. The accuracy of this information is not guaranteed and the location of the underground utilities or obstructions shown may be inaccurate, and utilities other than those shown may be encountered. The Contractor hereby distinctly agrees that the Owner is not responsible for the correctness or sufficiency of the information given; that in no event is this information to be considered as part of the Contract; that he shall have no claim for delay or extra compensation on account of incorrectness of information given, or on account of the insufficiency or absence of information regarding obstructions either revealed or not revealed by the Drawings; and that he shall have no claim for relief from any obligation or responsibility under the contract, in case the location, size, or character or any pipe or any other underground structure is encountered that is now shown on the Drawings.

The Contractor shall be responsible for all damage to existing underground utilities occasioned by his operations. He shall satisfy himself as to their correct location and shall be responsible for all utilities or other obstructions whether or not they are shown on the Drawings or are shown incorrectly. Any damage to such utilities shall be repaired at the Contractors expense and under the direction of the Owner of the Utility.

The Contractor is directed to notify the appropriate gas, water, electric, and telephone utility companies at least two weeks in advance to the start of any excavation or grading operations so that the utility company can provide such assistance as may be possible for the location, protection, and repair of its lines.

Prior to the start of construction of each street, the Contractor shall request the utility companies to mark the actual location of each utility in the field if possible, and he shall dig test holes at his own expense to verify the location of any utilities in question. The Contractor shall change the location of proposed sewers where necessary to clear existing utilities after consultation with and approval of the Engineer. Changes in location of proposed sewers as necessary shall be anticipated and included in the unit

prices bid.

1.6 REMOVAL OF OBSTRUCTIONS

Should the position of any pole, pipe, conduit, fire hydrant, or other structure be such as, in the opinion of the Engineer, to require its removal, realignment, or change due to work to be done under this Contract, the Contractor shall arrange for the work of realignment, removal, or change to be done by the owner of the obstruction without cost to the Contractor. The Contractor shall uncover and support the structures in the limits of his work at his own expense, before such removal, and before and after such realignment or change, as constituting part of the initial Contract. The Contractor shall not be entitled to any claim for damage or extra compensation on account of the presence of said structure or on account of any delay in the removal of or rearrangement of the same.

The Contractor shall not interfere with any persons, firms, or corporations in protecting, removing, changing, or replacing their pipes, conduits, poles, fire hydrants, or other structures, but he shall allow said persons, firms, or corporations to take all such measures as they may deem necessary or advisable for the purpose aforesaid, and the Contractor shall thereby be in no way relieved of any of his responsibilities under the Contract.

2. ROCK EXCAVATION

2.1 DEFINITION

Rock is herewith defined to be that material which in order to be excavated, in the opinion of the Engineer, requires the use of a compressor and drilling or air hammering. Soft or disintegrated formations such as loose shale which can be removed by barring, picking, backhoe teeth, or D-9 type bulldozer with ripper will not be allowed as an additional pay item. Excavation of concrete resulting from previous construction work and/or road repairs found beneath the existing roadway bases shall not be paid for separately.

2.2 REQUIREMENTS

When rock excavation is authorized by the Engineer, the Contractor shall furnish such men and equipment as necessary to perform the required excavation and satisfactory disposal of rock materials. Rock excavation shall extend a minimum of twelve (12) inches below the subgrade.

2.3 PRECAUTIONS

(a) In rock excavation it is especially required that the work shall be conducted with all possible care, so as to avoid injury to persons and property; that care shall be taken to avoid injury to water, gas, and other pipes, sewers, drains, or other structures.

(b) The Contractor shall, in addition to observing all State Ordinances relating to storage and handling of explosives, also conform to any further regulations which local municipality may deem necessary in this respect.

2.4 BASIS OF PAYMENT

Any and all rock excavation for all work under this contract including construction of sewer mains, appurtenances, and house laterals will be considered unclassified and no additional compensation will be paid.

3. PAVEMENTS

3.1 REQUIREMENTS

(a) Work shall include the furnishing of all labor, equipment, tools, and materials required for the preparation of sub-grade construction of bituminous concrete base and wearing courses as required, all conforming to lines, grades, width, and depth, indicated on the contract drawings and in accordance with Form 408.

(b) The Contractor shall perform all incidental work which may be necessary to complete the entire work, remove all the surplus or waste material, and have work cleaned and finished in full accordance with the plans, specifications, and instructions of the Engineer.

(c) Where new surfacing meets existing bituminous surface, the existing bituminous surface course shall be carefully removed and the edge of the existing surface saw cut in straight lines to form a vertical joint between existing and new surfaces.

(d) Joints where new pavement meets old pavement and around manhole frames shall be sealed with hot asphalt upon completion of new paving.

(e) If standard ID-2 bituminous material is generally unavailable due to a transition of the paving industry to the new PADOT SUPERPAVE material mix, the Contractor shall substitute the corresponding SUPERPAVE mix at no additional cost to the Owner.

3.2 SUB-GRADE

The sub-grade shall be shaped and prepared to receive the pavement structure in accordance with the grades and Cross Sections shown on the plans and the methods of Section 210. Subgrade shall be compacted to a dry density at least equal to 95% of the maximum dry density obtained in the Modified Proctor Test ASTM D-1557, Method C or Method D except in State Highway Right-of-Ways where 100% compaction is required for subgrade as per Form 408 Section 210.3(b).

3.3 SUBBASE

The work shall consist of construction of a stone subbase course in accordance with Section 350, and to the thickness indicated on the drawings, including preparation of sub-grade in accordance with Paragraph 3.2, above.

3.4 PLAIN CEMENT CONCRETE BASE COURSE

The work shall consist of construction of a plain cement concrete base course in accordance with Section 301, and to the thickness indicated on the drawings, including preparation of sub-grade in accordance with Paragraph 5.2, above. Design mix for the cement concrete shall be submitted to the Engineer for approval at least 30 calendar days prior to its earliest proposed use. No concrete shall be installed after October 15 or before April 1, unless approved by the Engineer.

3.5 BITUMINOUS CONCRETE BASE COURSE

The work shall consist of construction of a bituminous concrete base course in accordance with Section 305, and to the thickness indicated in the drawings, including preparation of sub-grade in accordance with Paragraph 5.2, above. Design mix for the bituminous base course materials shall be submitted to the Engineer for approval prior to its earliest proposed use.

3.6 BITUMINOUS WEARING COURSE

The work shall consist of a wearing course of I.D.-2 bituminous concrete to the thickness as shown on the drawings. All materials and construction requirements shall be in accordance with Section 420. Design mix for the wearing course material shall be submitted to the Engineer for approval prior to its earliest proposed use.

Where full width resurfacing is required and the shoulder is unpaved select granular material shall be blended into the existing unpaved shoulder. No consideration will be given for this work. It shall be incidental to construction of the full width overlay.

Where full width resurfacing is required and the shoulder is paved (bituminous or concrete) the wearing course shall cover existing paved shoulders at the depth specified for the overlay. This work shall be paid for at the Contract Unit Price for ID-2 overlay including placement of acceptable retained material or select granular material adjacent to the outside edge of the new overlay and seeding.

3.7 DIRT ROAD AND ALLEY RESTORATION

The work shall consist of construction of a wearing course of crushed stone aggregate type 2A at least 6" deep including preparation of subgrade in accordance with paragraph 5.2 above. The construction shall meet the requirements of section 350.

3.8 METHOD OF MEASUREMENT

The number of square yards of subbase, base course, wearing course, and bituminous surfacing to be paid for shall be measured as the actual amount placed within the limits shown on the plans or as ordered by the Engineer using the two dimension method.

3.9 BASIS OF PAYMENT

Pavements shall be paid for at the contract unit price per square yard for bituminous concrete base course and bituminous wearing course, for the respective thicknesses indicated on the bid form. Payment for preparation of the sub-grade shall not be made separately but shall be included in the price of the base course. Rock excavation shall be unclassified and no additional payment will be made for rock excavation. Work includes all sawcutting.

4. RESET CASTINGS

4.1 REQUIREMENTS

(a) The work shall consist of the furnishing of labor, equipment, tools, and necessary materials required to reset existing manhole and storm inlet castings.

(b) The Contractor shall arrange for and perform resetting of manhole, inlet, utility and miscellaneous castings at no cost to the Owner.

4.2 METHOD OF MEASUREMENT

Resetting castings shall be measured by the unit regardless of vertical adjustment.

4.3 BASIS OF PAYMENT

No payment shall be made for utility castings reset.

5. PLAIN CEMENT CONCRETE CURBS

5.1 REQUIREMENTS

(a) Work shall consist of constructing plain cement concrete curb in accordance with the lines, grades, and dimensions shown on the contract plans and specifications and Section 630 and PADOT Standard Roadway Detail Drawing RC-64. The Contractor shall perform all excavation, demolition of existing curbing, and preparation of foundation, and shall furnish and install forms, concrete, joint material, bar dowels, reinforcing bards, rain water conductor sleeves, and other miscellaneous materials and equipment required to finish the

work. Provide anti-spalling treatment on all exposed surfaces as specified hereinafter.

(b) No concrete curb shall be installed after October 15 and before April 1, unless approved by the Engineer.

5.2 MATERIALS

(a) Cement concrete shall develop a minimum strength of 3,300 psi at 28 days as determined by a standard cylinder compression test. Attainment of a compressive strength of 2,750 psi at 7 days shall be considered as compliance with the 3,300 psi requirement. Air content at time of placement shall be 5.5% plus or minus 1.5% and slump shall range from two (2) inches to four (4) inches. Design mix for the concrete shall be submitted to the Engineer for approval.

(b) Paper for construction joints shall be one-ply bituminous impregnated.

(c) Expansion joint material shall be ¼ inch thick premolded cork or approved equal.

(d) Joint sealer between paving and concrete curb shall be hot asphalt.

(e) Anti-spalling compound for concrete surfaces shall be similar to SK Anti-spalling Compound as manufactured by Spencer Kellogg Division of Textron, Inc., Buffalo, New York, or equal.

(f) Dowell bars shall be ASTM-A615-40 non-deformed bars.

(g) Reinforcing bars shall be ASTM A-305 deformed bars rolled from intermediate steel grade ASTM A-615-40.

5.3 EXCAVATION

Excavation and fills shall be made to the required depth, and the material upon which the curb is to be constructed shall be compacted to a firm even surface. Tree roots shall be cut and trimmed as required to accommodate the curb construction.

5.4 FORMS

Forms for the curb shall be of metal, except on curves and short tangent sections where wood may be used when approved by the Engineer. All forms shall be thoroughly cleaned of all foreign material and must be coated with an approved material before concrete is placed against them. Material which will adhere to or discolor the concrete will not be used. Broken or warped forms shall not be used. Wooden back forms cut to slope shall be used at tree locations to minimize amount

of trimming required, and in proximity to poles and structures which cannot be relocated.

5.5 JOINTS

A construction joint shall be formed at intervals no greater than 20'-0" or as directed by the Engineer. This joint shall be made with two (2) thicknesses of one-ply bituminous paper, cut nearly to the cross section of the curb, one paper placed on each side of the template. Expansion joints shall be spaced at intervals not more than 93 feet, shall be free of excess mortar and foreign matter, and shall be made ¼ inch wide and filled with approved premolded material. When curved curb joins with tangent curb, dowels shall be inserted as detailed on the contract drawings. Upon completion of paving and curbing, joint sealer shall be poured between the bituminous paving and concrete curb.

5.6 FINISH

The top of concrete curbs shall receive a steel trowel finish as directed by the Engineer, and edged on all sides.

5.7 CURING

The curbing shall be covered and protected as specified in Section 1001.3 (p), except membrane curing will not be permitted after September 1. Curing compound shall conform to the requirements of Section 711.2 (a) or (b).

5.8 REMOVAL OF FORMS

The forms shall not be removed until 12 hours after concrete has been placed. Any irregular surface shall be corrected by rubbing a carborundum stone only after the full curing period has elapsed. All joints in curb shall be opened from top to bottom immediately after the forms are removed.

5.9 ANTI-SPALLING COMPOUND

All new finished concrete on exposed horizontal and vertical surfaces shall receive two (2) coats of anti-spalling compound. Surface preparation, precautions, and application procedures shall be in strict compliance with manufacturer's detailed instruction. The compound shall not be applied to concrete surfaces where the curing compound is still present.

5.10 BACKFILLING

Approved backfill shall be placed in four (4) inch layers concurrently along front and back of curb and thoroughly compacted with a mechanical tamper to meet the required elevation and cross section. Contractor shall provide necessary borrower

to replace unsuitable material at no additional cost.

5.11 CURB DEPRESSIONS

Curb depressions will be placed as indicated on the plan or as located in the field by the Engineer. Reinforcing steel shall be placed in the curb depressions to the sizes and locations shown on the plan.

5.12 METHOD OF MEASUREMENT

Work shall be measured by the linear foot along the face of the curb including curb depressions.

5.13 BASIS OF PAYMENT

Plain cement concrete curb will be paid for at the contract unit price per linear foot, complete in place, including required dowel and reinforcing bars, excavation, filling, backfilling, tree root trimming, borrow as required, openings, anti-spalling compound and the satisfactory disposal of all unsuitable and surplus material for each type curb included in the Bid Form respectively. Curb depressions will be paid for as curb.

6. CONCRETE SIDEWALKS AND DRIVEWAY APRONS

6.1 REQUIREMENTS

(a) Work shall consist of constructing reinforced cement concrete sidewalk in accordance with the lines, grades, and dimensions as shown on the plans or as directed by the Engineer and Section 676. The Contractor shall perform all excavation, filling, demolition of existing concrete, asphalt, brick, flagstone, or other sidewalks and preparation of sub-grade and shall furnish and install forms, concrete, reinforcing, base, borrow as required, and other miscellaneous material and equipment required to finish the work. Provide anti-spalling treatment on all exposed surfaces as specified hereinafter.

(b) No concrete sidewalks and driveway aprons shall be installed after October 15 and before April 1, unless approved by the Engineer.

6.2 MATERIALS

(a) Aggregate for sidewalk base shall be AASHTO No. 57 crushed stone conforming to Section 703.

(b) Reinforcement for concrete sidewalks and driveway aprons shall be 6" x 6" – 8/8 welded wire mesh conforming to the requirements of Section 709.

(c) Concrete shall be 3,500 psi at 28 days, as specified for concrete curb. Air content at time of placement shall be 5.5% plus or minus 1.5% and slump shall range from one (1) inches to three (3) inches.

(d) Expansion joint filler material shall be ¼ inch premolded cork.

(e) Expansion joint sealing material shall conform to ASTM Designation D1190.

6.3 GRADE LINES

Sidewalks and driveway aprons shall be constructed in strict accordance with the cross sections and details indicated on the contract drawings or established by the Engineer. The Contractor is cautioned that grades have been designed to accommodate existing right-of-way elevations and conditions. Should construction operations indicate the apparent need or desirability of making field adjustments or departing from the design, these conditions shall be reported to the Engineer for prompt evaluation. No modification to the design shall be made without approval of the Engineer.

6.4 EXCAVATION

The Contractor shall perform such excavation, demolition, including removal of existing sidewalk, and filling, including necessary borrow to replace unsuitable material, as required to establish the sub-grade elevation. Tree roots shall be cut and trimmed as required to accommodate the sidewalk construction.

6.5 SUB-GRADE

The sub-grade for the sidewalk shall be formed and compacted to a firm even surface at depths below the finished grade of the sidewalk as shown on the drawings.

6.6 BASE

The crushed aggregate base shall be spread on the prepared sub-grade to form a compacted bed four (4) inches in depth. Outlets for bed drainage under concrete sidewalks shall be as detailed on the drawings or directed by the Engineer.

6.7 FORMS

Forms shall be of wood or metal, free from warp and of sufficient strength when staked to resist springing out of shape. Wood forms shall be minimum two (2) inch (nominal) planks. Wooden forms cut to shape shall be used at three locations to minimize amount of trimming required, and in proximity to poles and structures which cannot be relocated.

6.8 REINFORCMENT

All sidewalk and apron slabs shall be reinforced with a single layer of 6' x 6" – 8/8 welded wire mesh at mid-depth of slab. Mesh shall be lapped 6" and tied.

6.9 CONCRETE

Concrete shall be mixed and placed according to Section 704.1 Thickness of concrete shall be four (4) inches throughout, excepting driveway aprons and walks crossing driveways at which locations a 6" thickness shall be used.

6.10 JOINTS

Sidewalks shall be constructed in separate slabs 30 feet in length except for closures. Provide "dummy" joints every five feet. These slabs shall be separated by an approved transverse premolded expansion joint filler material, ¼ inch in thickness, for the full depth of the concrete. Transverse structures where directed. The slabs between expansion joints shall be divided by joints or expansion joints at all dividing property lines. Where slabs are more than six (6) feet in width they shall be tooled and edged longitudinally in the center unless otherwise directed by the Engineer. Transverse and longitudinal division shall extend for a depth of at least ¼ the thickness of the concrete slab. Premolded expansion joint filler material, ¼ of an inch in thickness for the full depth of the concrete, shall be place longitudinally where the sidewalks slab is to be constructed in contact with curbs.

6.11 CONCRETE FINISH

Concrete sidewalks shall receive a wood float finish and be edged on all sides as directed by the Engineer.

6.12 CURING

The sidewalk shall be cured and protected as specified in Section 501.3 (n) except membrane curing shall not be permitted after September 1. The curing compound shall conform to the requirements of Section 711.2 (b).

6.13 SEALING

Expansion joints shall be sealed with approved joint sealing materials in accordance with Section 676.

6.14 ANTI-SPALLING

All new finished concrete on exposed horizontal surfaces shall receive two (2) coats of anti-spalling compound. Surface preparation precautions and application procedures shall be in strict compliance with the manufacturer's detailed instruction. The compound shall not be applied to concrete surfaces where the curing compound is still present.

6.15 METHOD OF MEASUREMENT

Concrete sidewalks and driveway aprons shall be measured by square yards placed within the limits shown on the plans or as directed by the Engineer.

6.16 BASIS OF PAYMENT

Concrete sidewalks will not be paid for separately and shall be included in the contract unit price bid for the sewer pipe.

7. BITUMINOUS CURB REPLACEMENT

7.1 GENERAL

Bituminous curb shall be replaced using hot mixed, hot laid, extruded bituminous concrete curb on a completed bituminous surface. The finished curb shall be seven (7) inches high and a minimum of eight (8) inches at the base. Prior to placing curb, clean the surface and apply a tack coat as specified in PDT Section 460.3.

All work shall comply with PDT Section 636 "Bituminous Concrete Curb".

7.2 METHOD OF MEASUREMENT

Bituminous curb replacement shall be measured by the linear foot.

7.3 BASIS OF PAYMENT

Bituminous curb replacement shall not be paid for separately and shall be included in the contract unit price bid for sewer pipes.

8. ID-2 WEARING COURSE

8.1 The contractor shall install an ID-2 wearing course a minimum of the specified depth for restoration, as shown on the drawings and where directed. Prior to placing wearing course, deteriorated pavement shall be replaced where directed. Contractor shall restore all line painting.

8.2 METHOD OF MEASUREMENT

ID-2 Wearing Course shall be measured by the two dimensional method to the limits shown on the drawings complete in place.

8.3 BASIS OF PAYMENT

ID-2 Wearing Course shall be paid for at the Contract Unit Price which price

shall include all labor, materials and equipment including preparatory work and tack coat and line painting.

9. ID-2 BINDER COURSE

9.1 The Contractor shall install ID-2 Binder Course a minimum of the specified depth for restoration as shown on the drawings as directed.

9.2 METHOD OF MEASUREMENT

ID-2 Binder Course shall be measured by the two dimensional method to the limits shown on the drawings complete in place.

9.3 BASIS OF PAYMENT

ID-2 Binder Course shall be paid for at the Contract Unit Price which price shall include all labor, materials and equipment including preparatory work and tack coat and subgrade preparation.

10. STONE BASE

10.1 GENERAL

Contractor shall construct a stone base using the materials shown on the contract drawings to the dimension shown on the contract drawings and in accordance with Form 408 Section 350. The work shall include preparation of the sub-grade as per Article 1E-5-2 "Sub-Grade".

10.2 METHOD OF MEASUREMENT

Stone Base shall be measured by the two dimensional method complete in place.

10.3 BASIS OF PAYMENT

Stone base shall not be paid for separately and shall be included in the Contract unit price bid for bituminous concrete base course.

11. ROLLED/FLARED CURB REPLACEMENT

11.1 GENERAL

For areas possessing existing rolled or flared curbs and undergoing full width paving or trench restoration, replacement of rolled/flared curbs 4" to 6" high shall be performed at no additional cost.

12. SAWCUTTING OF PAVEMENT

12.1 GENERAL

Edges of pavement along all trenches shall be sawcut prior to restoration. Sawcut between shoulder and cartway if entire shoulder is to be replaced. Trenches in state and local roads shall be sawcut in accordance with PADOT requirements and/or the Contact Drawings as applicable prior to replacement of pavement base course. Extent of sawcutting shall include all existing wearing and base courses either bituminous or concrete. Trimming of broken edges of pavement along trenches to straight lines prior to base replacement is required in local roads and state highways.

12.2 BASIS OF PAYMENT

Sawcutting of bituminous and concrete pavement any depth shall be considered incidental to excavation and/or pavement restoration and no additional compensation will be paid.

13. TEMPORARY PAVEMENT – ALTERNATE MATERIALS

13.1 GENERAL

The Contractor's attention is directed to Section 459.8, Item K "Temporary Pavement Restoration" of Pennsylvania Department of Transportation Title 67, Chapter 459: "Occupancy of Highway by Utilities." This section requires that temporary pavement in State Highway consist of hot bituminous material. Should the Contractor work when hot paving material is not available, he may use alternative temporary pavement (e.g. cold patch, etc.) with the approval of the Department of Transportation. It shall be the Contractor's responsibility to maintain (including replace) said alternate temporary pavement in good condition for the minimum period required by the Department of Transportation prior to removal and installation of permanent pavement restoration.

13.2 BASIS OF PAYMENT

Should the Department of Transportation determine that the alternate paving material has been maintained in adequate condition for the required period or is otherwise acceptable such that it may be removed and permanent pavement restoration installed, the Contractor shall be paid for the alternate temporary paving, any thickness, at the contract unit price per square yard for ID-2 Temporary Pavement.

Should the Department of Transportation determine that the alternate material does not meet the Department's standards for temporary pavement such that the Department of Transportation requires its removal and subsequent replacement with hot bituminous temporary paving material, the Contractor shall assume all costs for placement and removal of the deficient alternate temporary pavement and shall only be compensated for the hot bituminous pavement at the Contract unit price per square yard

for ID-2 temporary pavement.

14. PARAGRAPH DELETED

15. FINAL PAVEMENT RESTORATION – TEMPORARY PAVEMENT REMOVAL

15.1 GENERAL

Excavation of temporary pavement or compacted select backfill necessary for subgrade preparation prior to placement of final paving shall be incidental to pavement replacement and no additional compensation will be paid to the Contractor.

16. ADJUSTMENT OF STATE HIGHWAY BITUMINOUS CONCRETE BASE COURSE REPLACEMENT

The contract requires replacement of bituminous concrete base course in S.R. 2017 shoulder, 4" depth, or restore existing depth as a minimum if directed by PADOT. Replacement of bituminous concrete base course in S.R. 2017 cartway shall be 5" depth or restore existing depth as a minimum if directed by PADOT. If the Contractor is directed by PADOT to install a B.C.B.C. thickness greater than the contract depth, the contract pay quantity will be increased an amount proportionate to the increase in thickness. For example: existing depth = 6", increase pay quantity by 6/5 = 1.20 = 20% increase.

The requirement for increased thickness of B.C.B.C. must be verified by the Engineer prior to placement and done at the direction of PADOT or no additional compensation will be paid. This shall be the only additional compensation to Contractor for increasing B.C.B.C. restoration depths.

17. PAVED SHOULDER RESTORATION

17.1 GENERAL

Paved shoulder restoration shall be made as detailed on the contract drawings and according to PADOT Section 656 Paved Shoulder Type 6-I. Provide line painting.

Any base drain disturbed during construction shall be replaced in accordance with PADOT R.C. Standards, including base drains that extend outside of the shoulder area to a drain outlet.

Temporary restoration shall be required and paid for separately. All other requirements shall be the same as State Highways.

17.2 METHOD OF MEASUREMENT

Paved shoulder restoration shall be measured by the two dimensional method to the

limit shown on the Contract Drawings.

17.3 BASIS OF PAYMENT

Paved shoulder restoration shall be paid for at the contract unit price per square yard, complete in place, which shall include all excavation, sawcutting (any material, any depth), line painting, base drain replacement and extension of base drain to outside of shoulder restoration area to a drain outlet, construction of a drain outlet, base course, wearing course, milling, grading, and guide rail adjustments.

No additional payment shall be made for base drain work.

18 LANDSCAPE FEATURES

18.1 GENERAL

The Contractor shall protect all existing landscape features including but not limited to curbing, timbers, stone, shrubs, flowers, trees and ornaments and shall replace landscape features at no additional cost to the Owner if disturbed.

PADOT Officials may prohibit the replacement of existing private landscape features located within the State Highway right-of-way if this landscaping is disturbed by the Contractor.

Should the Contractor disturb and/or remove such landscaping features, he shall, at the property owners option, replace the landscaping on private property as directed by the property owner on the same lot or compensate the property owner.

18.2 METHOD OF MEASUREMENT

No measurement shall be made for protection, replacement or relocation of landscape features.

18.3 BASIS OF PAYMENT

The cost of protection, removal, replacement or relocation of landscape features shall be incidental to the other items of work. No additional payment shall be made.