

**Application of Pennsylvania-American Water Company for Acquisition of Assets of
The Municipal Authority of the City of McKeesport
66 Pa. C.S. §1329
Application Filing Checklist – Water/Wastewater
Docket No. A-2017-_____**

24. Asset Purchase Agreement (APA).
- f. APA contains a copy of all agreements to be assumed by the buyer as part of the acquisition.

RESPONSE:

- f. Yes. See enclosed copy of APA Schedule 4.15. Copies of agreements to be assumed by Pennsylvania-American Water Company as part of the acquisition that are not subject to 66 Pa. C.S. § 507 are enclosed here. Appendix B-1 through Appendix B-18 submitted with the Application contains all municipal agreements subject to 66 Pa. C.S. § 507 that Pennsylvania-American Water Company will assume upon approval of the acquisition by the Commission.

Schedule 4.15

Assigned Contracts

Municipal Service Agreements		
Name of Contract	Parties to Contract	Date of Contract
Service Agreement	Lincoln Borough and Municipal Authority of the City of McKeesport ("MACM")	9/15/2009
Corrective Action Agreement	Lincoln Borough and MACM	9/15/2009
Service Agreement	Elizabeth Township Sanitary Authority and MACM	10/14/2008
Corrective Action Agreement	Elizabeth Township Sanitary Authority and MACM	10/14/2008
Service Agreement	Liberty Borough and MACM	7/28/2010
Corrective Action Agreement	Liberty Borough and MACM	7/28/2010
Service Agreement	Municipal Authority of Westmoreland County for the Borough of White Oak and MACM	08/2009
Corrective Action Agreement	Municipal Authority of Westmoreland County for the Borough of White Oak and MACM	08/2009
Service Agreement	North Versailles Township, North Versailles Township Sanitary Authority and MACM	10/01/2008
Corrective Action Agreement	North Versailles Township, North Versailles Township Sanitary Authority and MACM	08/21/2008
Service Agreement	East McKeesport Borough and MACM	09/11/2008
Corrective Action Agreement	East McKeesport Borough and MACM	2008
Service Agreement	Borough of Versailles and MACM	10/22/2008
Corrective Action Agreement	Borough of Versailles and MACM	10/22/2008
Service Agreement	Borough of Glassport and MACM	8/19/2008
Corrective Action Agreement	Borough of Glassport and MACM	8/19/2008
[Service Agreement	Port Vue Borough and MACM	12/2008]
[Corrective Action Agreement	Port Vue Borough and MACM	2008]

Notes to Municipal Service Agreements ("MSAs") and Municipal Corrective Action Agreements ("MCAAs"): All MSAs terminate at the later of the termination of the Authority or one year after the defeasance of the Authority's outstanding debt obligations. All MCAAs expire on December 31, 2017 or on completion of the required Sewer Maintenance Work.

Other Agreements		
Name of Contract	Parties to Contract	Date of Contract
Agreement	Pennsylvania American Water Company and the Municipal Authority of the City of McKeesport	01/26/2011
Customer Usage Information Authorization	Duquesne Light Company; EnerNOC, Inc. (Authority is only signatory to the authorization)	05/10/2014
[Sale and Purchase Agreement for the Port Vue Borough Sanitary System	Port Vue Borough	04/29/2016]

Uniform Bids	UniFirst Corporation	11/15/2013*
Contract No. 2010-15, Youghiogheny River Force Main Crossing	[]	*
Contract No. 2010-14, East Shore Sanitary Sewer Construction	[]	*
Contract No. 2010-13, West Shore Sanitary Sewer Construction	[Independence Excavating]	*
Agreement - Contract No. 2010-12, Electrical Construction, Cliff Street Pump Station Improvements (and associated bonds)	Lanco Electric	07/20/2011*
Agreement - Contract No. 2010-11, General/Mechanical Construction, Cliff Street Pump Station Improvements (and associated bonds)	Galway Bay Corporation	06/28/2011*
Agreement - Contract No. 2010-10, Electrical Construction, Twenty Eighth Avenue Pump Station Improvements (and associated bonds)	Lanco Electric	07/20/2011*
Agreement - Contract No. 2010-09, Electrical Construction, Twenty Eighth Avenue Pump	Galway Bay Corporation	06/28/2011*

* Certain obligations under this contract may still exist at Closing.

Station Improvements (and associated bonds)		
Agreement - Contract No. 2010-08, Electrical Construction, Ripple Road Pump Station Construction (and associated bonds)	Lanco Electric	07/20/2011*
Agreement - Contract No. 2010-07, General/Mechanical Construction, Ripple Road Pump Station Construction (and associated bonds)	Galway Bay Corporation	06/28/2011*
Agreement - Contract No. 2010-06, Electrical Construction, Long Run Pump Station Expansion (and associated bonds)	Merit Electrical Group, Inc.	07/20/2011*
Agreement - Contract No. 2010-05, General/Mechanical Construction, Long Run Pump Station Expansion (and associated bonds)	Galway Bay Corporation	06/28/2011*
Agreement - Contract No. 2010-04, Electrical Construction, West Shore Pump Station Construction (and associated bonds)	Lanco Electric	07/20/2011*
Agreement - Contract No. 2010-03, General/Mechanical Construction, West Shore Pump Station Construction (and associated bonds) (and associated bonds)	Galway Bay Corporation	06/28/2011*
Agreement - Contract No. 2010-02, Electrical Construction, Wastewater Treatment Plan Expansion Construction (and associated bonds)	Bronder Technical Services	07/20/2011*
Agreement - Contract No. 2010-01, General/Mechanical Construction, Wastewater Treatment Plan Expansion Construction (and associated bonds)	Galway Bay Corporation	06/28/2011*
Sludge Hauling Bid for Weekly Sludge Hauling	Tervita, LLC	11/6/2013*
Bid for Furnishing Cationic Polymers	Neo Solutions, Inc.	11/14/2013*
Bid for furnishing Chlorine Cylinders	Univar USA Inc.	11/21/2013*

AGREEMENT

THIS AGREEMENT, made and entered into this 26th day of January, 2011, by and between the Municipal Authority of the City of McKeesport, a municipal authority organized and existing under the laws of the Commonwealth of Pennsylvania with its principal place of business at 100 Atlantic Ave., McKeesport, PA 15132 (hereinafter referred to as the "Authority"), and PENNSYLVANIA-AMERICAN WATER COMPANY, a public utility corporation, duly organized and existing under the laws of the Commonwealth of Pennsylvania, with its principal place of business at 800 West Hersheypark Drive, Hershey, Pennsylvania 17033, (hereinafter called the "Water Company");

WITNESSETH

WHEREAS, the Authority is the owner of a sanitary sewer system serving the territory generally comprising the City of McKeesport Authority, Allegheny County, Pennsylvania, and charges for sanitary sewer service rendered to its customers based upon water consumption of those customers; and

WHEREAS, the Water Company is engaged in the business of providing water service to the general public in the same area, and has available to it the records necessary to compute the water consumption by the customers of the Authority who are also customers of the Water Company; and

WHEREAS, the Authority has requested the Water Company to furnish to the Authority certain information which will permit the Authority to compute and bill to its customers the charges for sanitary sewer service that have been established by the Authority; and

WHEREAS, the Water Company is willing to furnish the requested information to the Authority under and subject to the terms and conditions hereinafter set forth:

NOW, THEREFORE, for and in consideration of the sum of One Dollar (\$1.00) paid by each party hereto to the other party, the receipt whereof is hereby acknowledged, and of the mutual covenants and agreements hereinafter set forth, the parties hereto, each intending to be legally bound by the terms hereof, do covenant and agree as follows:

1. The Water Company hereby agrees to furnish to the Authority the name, mailing address, service address, route number and account number of every Water Company customer located in the township who is also a sewer customer of the Authority. Such information shall be furnished to the Authority promptly after such sewer customers are designated by the Authority.
2. The Water Company further agrees to furnish to the Authority by the fifteenth (15th) of the month following the month in which the Water Company mails out its bills

for each water service billing period, the following information with respect to each of the designated customers:

- (a) Route and Account Number
- (b) Date of current meter readings
- (c) Water usage for the billing period (stated in gallons)

3. The Water Company further agrees to furnish to the Authority (a) the information listed in Section 2 above, for all interim period bills such as final bills and (b) information with respect to all adjustments which the Water Company may make in its bills after it has furnished the information listed in Section 2 above, to the Authority.

4. For any month in which the Authority obtains water consumption data from the Water Company, the Authority agrees to pay the Water Company for water consumption data at the rate of five cents (\$0.05) per unit; provided, however, that the minimum bill for any month shall be Fifteen (\$15.00) Dollars. It is understood and agreed by the parties hereto that the word "unit" as used herein shall mean the specific current meter readings for each water customer. It is further understood and agreed that the Authority shall pay only once for the initial information listed in Section 1 above, but that the charges for the information listed in Section 2 and Section 3 above, shall be payable for each billing period.

5. It is understood and agreed by the parties hereto that the per unit rate of five cents (\$0.05) shall remain in effect through December 31, 2011. Thereafter, this rate shall be subject to adjustment for each succeeding calendar year, beginning January 1, 2012, based on charges in the All Cities Consumer Price Index for All Urban Consumers published by the Bureau of Labor Statistics of the United States Department of Labor (BLI) using the month of December, 2011, as the base. The applicable rate for each year, beginning January 1, 2012, shall be computed by multiplying \$0.05 per item by a fraction, the numerator of which will be the difference in said index for December of the calendar year preceding that calendar year, and the same index for December, 2011, and the denominator of which will be the same index for December, 2010; provided, however, that the annual change in the rate shall never exceed \$0.02 in any one calendar year. In computing the applicable rate for each year, fractions shall be rounded to the nearest one-half cent. In the event that said index is discontinued at any time during the term hereof, the parties shall use the BLI index which replaces it, or another index mutually agreed upon by the parties.

6. The Water Company shall bill the Authority promptly for the information furnished and the Authority agrees to pay for such information within thirty (30) days after receipt of Water Company's invoice thereof.

7. In computing and furnishing the information requested by the Authority, the Water Company agrees to observe the same diligence, policy and procedure as is used by it

in computing its water service accounts, but the Water Company assumes no liability for errors in the computation or furnishing of the requested information.

8. This Agreement shall continue in full force and effect for a term of one (1) year from the date entered into and from year to year thereafter, subject to cancellation by either party hereto by the giving of ninety (90) days' written notice to the other party.

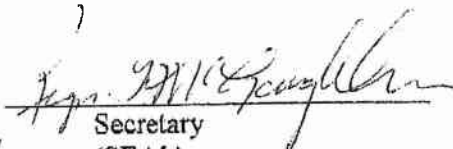
9. This Agreement merges all previous negotiations between the parties hereto with respect to the subject matter covered hereby and supersedes any prior understandings or written or oral agreements between the parties. This Agreement shall be binding upon and inure to the benefit of the successors and assigns of the parties hereto.

10. This Agreement shall become effective thirty (30) days after a copy hereof is filed with the Pennsylvania Public Utility Commission ("PUC"), provided that if the PUC institutes proceedings pursuant to Section 507 of the Public Utility Code (66 Pa. C.S.A. §507) this Agreement shall become effective on the day the PUC grants its approval.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be duly executed by their appropriate officers.

This agreement is executed on the 26th day of January, 2011.

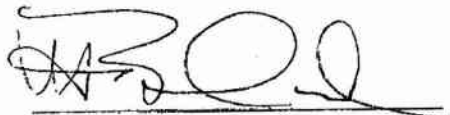
ATTEST:


Secretary
(SEAL)

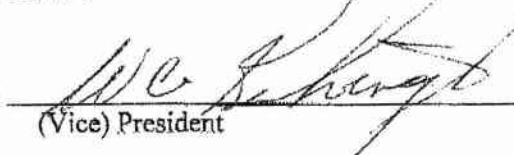
MUNICIPAL AUTHORITY OF THE CITY OF
MCKEESPORT

BY: 
Chairman

ATTEST:


Secretary
(SEAL)

PENNSYLVANIA-AMERICAN WATER
COMPANY

BY: 
(Vice) President

Internal Use Account No.

TO: SANITATION _____ NAME
REMIT
ADD 1
ADD2
CITY STATE ZIP

_____ CONTACT NAME:
_____ CONTACT TELEPHONE NUMBER:

FILE LAYOUTS REQUIRED

- 1) Usage Transactions ()
- 2) Usage Transaction Periods ()
- 3) Readings ()
- 4) Account Changes (X) Automatic
- 5) Premise Changes (X) Automatic
- 6) Transmission Summary (X) Automatic.

GENERAL USAGE DATA INFORMATION

- 1) Daily ()
- 2) Weekly ()
- 3) Monthly ()
- 4) Quarterly ()

Please indicate location to forward Usage Data Information to:

Forward to: Name
Address 1
Address 2
City State Zip Code

Information System Contact
Name _____
Telephone Number _____
E-Mail Address _____

Customer Usage Information Authorization for PJM Load Response Programs ("Authorization")

Municipal Authority of the City of Mckeesport, the end-use customer, ("Customer") hereby authorizes Duquesne Light Company, its electric distribution company(ies) ("EDCs"), to release its electric usage information, including hourly or sub-hourly usage history (kwh/kw), EDC loss factor, and peak load contribution assignments for the current delivery year and the upcoming delivery year, if known, to EnerNOC, Inc., the curtail service provider ("CSP"), which has been or may be retained by the Customer to act on its behalf in the PJM Load Response Programs. Customer's EDCs and end-use sites are identified on Attachment A-1 and A-2 hereto, which are incorporated herein by reference.

1. Customer's contact information for purpose of its participation in the PJM Load Response Programs is as follows:

Customer Name: Municipal Authority of the City of Mckeesport

DBA Name: _____

Customer's name as it appears on the Duquesne Light Invoice

Contact Person: Timothy Solarczyk

Mailing Address: 2800 Walnut St., McKeesport PA 15132

Telephone Number: (412) 664-7051

Fax Number: 412-672-5428

Contact Person's email address: TSOLARCZYK@MCK-MACM.ORG

2. Customer hereby advises CSP that it deems the information obtained pursuant to this authorization to be confidential and therefore requests that such information not be divulged to any third party, except as required to participate in the PJM Load Response Programs.

3. This authorization shall terminate as follows (mark **ONE** of the options below):

This authorization shall automatically terminate on 5/31/2019
with no further notice to CSP being required.

4. I understand that termination of this authorization will not affect any action that CSP took in reliance on this authorization before it automatically terminate or before CSP received customer's written notice of termination.

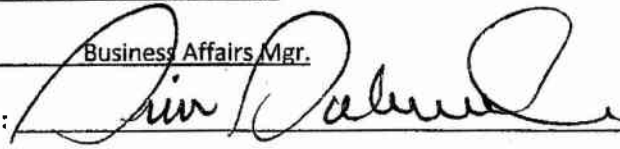
5. The undersigned affirms that he/she has authority to execute this authorization on behalf of the customer.

IN WITNESS WHEREOF, customer executes this authorization to be effective as of the date below.

Customer: Municipal Authority of the City of Mckeesport

By: Timothy Solarczyk

Title: Business Affairs Mgr.

Signature:  _____

Date: 5-1-14.

ATTACHMENT A-1

LIST OF SITES FOR WHICH EDC, Duquesne Light Company, HAS AUTHORIZATION TO PROVIDE ELECTRIC USAGE INFORMATION TO CSP.

Account Number(s):	<u>2000001973005</u>
Account Name (DBA):	<u>MCKEESPORT MUNI AUTH</u>
Site Address:	<u>100 Atlantic Ave, McKeesport PA 15132</u>
Account Number(s):	<u>2001594461002</u>
Account Name (DBA):	<u>MCKEESPORT MUNI AUTH</u>
Site Address:	<u>N. Duquesne Avenue, Duquesne, PA 15110</u>
Account Number(s):	<u>2000001973002</u>
Account Name (DBA):	<u>MCKEESPORT MUNI AUTH</u>
Site Address:	<u>Washington Avenue, Dravosburg, PA 15034</u>
Account Number(s):	<u>7000437376001</u>
Account Name (DBA):	<u>MCKEESPORT MUNI AUTH</u>
Site Address:	<u>2800 Walnut St., McKeesport, PA 15132</u>
Account Number(s):	<u>4000443147001</u>
Account Name (DBA):	<u>MCKEESPORT MUNI AUTH</u>
Site Address:	<u>1915 Cliff St., McKeesport, PA 15132</u>
Account Number(s):	<u>2000437375001</u>
Account Name (DBA):	<u>MCKEESPORT MUNI AUTH</u>
Site Address:	<u>3725 Walnut St., McKeesport, PA 15132</u>
Account Number(s):	<u>2001594461001</u>
Account Name (DBA):	<u>MCKEESPORT MUNI AUTH</u>
Site Address:	<u>2800 Walnut St., McKeesport, PA 15132</u>

Account Number(s):	<u>7000432237001</u>
Account Name (DBA):	<u>MCKEESPORT MUNI AUTH</u>
Site Address:	<u>Perry St. Pine AY, McKeesport, PA 15132</u>
Account Number(s):	<u>2000001973003</u>
Account Name (DBA):	<u>MCKEESPORT MUNI AUTH</u>
Site Address:	<u>Bettis Road, Dravosburg, PA 15034</u>
Account Number(s):	<u>0001782632001</u>
Account Name (DBA):	<u>MCKEESPORT MUNI AUTH</u>
Site Address:	<u>3729 Walnut St., McKeesport, PA 15132</u>
Account Number(s):	<u>1001541899001</u>
Account Name (DBA):	<u>MCKEESPORT MUNI AUTH</u>
Site Address:	<u>369 River Rd., McKeesport, PA 15132</u>
Account Number(s):	<u>2000001973004</u>
Account Name (DBA):	<u>MCKEESPORT MUNI AUTH</u>
Site Address:	<u>100 Atlantic Ave., McKeesport, PA 15132</u>
Account Number(s):	<u>2001731023001</u>
Account Name (DBA):	<u>MCKEESPORT MUNI AUTH</u>
Site Address:	<u>2800 Walnut St., McKeesport, PA 15132</u>

ISSUED TO:

**MUNICIPAL AUTHORITY
OF THE CITY OF MCKEESPOT
ALLEGHENY COUNTY, PENNSYLVANIA**

**BIDDING DOCUMENTS FOR
CONTRACT NO. 2010-15**

**YOUGHIOGHENY RIVER FORCEMAIN
CROSSING**

JANUARY 2011 RELEASE FOR BID

**JULY 31, 2009
DEP SUBMITTAL**

KLH 
ENGINEERS, INC.
5173 Campbells Run Road
Pittsburgh, PA 15205
Telephone: (412) 494-0510
Fax: (412) 494-0426
E-mail: info@klhengineers.com
Ref. No. 220-35

ISSUED TO:

**MUNICIPAL AUTHORITY
OF THE CITY OF MCKEEPSORT
ALLEGHENY COUNTY, PENNSYLVANIA**

**BIDDING DOCUMENTS FOR
CONTRACT NO. 2010-15**

**YOUGHIOGHENY RIVER FORCEMAIN
CROSSING**

JANUARY 2011 RELEASE FOR BID

**JULY 31, 2009
DEP SUBMITTAL**

**KLH
ENGINEERS, INC.**
5173 Campbells Run Road
Pittsburgh, PA 15205
Telephone: (412) 494-0510
Fax: (412) 494-0426
E-mail: info@klhengineers.com
Ref. No. 220-35

Municipal Authority of the City of McKeesport

Youghiogheny River Forcemain Crossing

Contract No. 2010-15

TABLE OF CONTENTS

Section	Page
Advertisement	A-1
Instruction to Bidders	B-1
Bid Form	C-1
Bid Bond	D-1
General Conditions	E-1
Supplemental General Conditions	F-1
Technical Specifications	
<u>Division 1 - General Requirements</u>	
Section 01000 - Scope	01000-1
Section 01010 - Drawings Index	01010-1
Section 01021 - Summary of Utility Work	01021-1
Section 01040 - Coordination	01040-1
Section 01042 - Supplemental Construction Conditions	01042-1
Section 01090 - References	01090-1
Section 01170 - Surveys	01170-1
Section 01200 - Project Meetings	01200-1
Section 01301 - Submittals	01301-1
Section 01500 - Temporary Facilities and Controls	01500-1
Section 01501 - Construction Facilities	01501-1
Section 01550 - Traffic Control	01550-1
Section 01551 - Barriers and Enclosures	01551-1
Section 01570 - Temporary Erosion and Sediment Control	01570-1
Section 01651 - Pipe Line/Commissioning	01651-1
Section 01700 - Rights of Way	01700-1
Section 01740 - Clean Up of Work Site	01740-1
Section 01741 - Dust and Mud Control	01741-1
Section 01800 - Substantial Completion	01800-1

Division 2 - Site Work

Section 02000 - Site Work.....	02000-1
Section 02040 - Site Preparation.....	02040-1
Section 02140 - Dewatering.....	02140-1
Section 02150 - Shoring.....	02150-1
Section 02151 - Anchoring and Blocking.....	02151-1
Section 02210 - Subsurface Exploration.....	02210-1
Section 02220 - Excavating, Backfilling, and Compacting	02220-1
Section 02230 - Rip Rap.....	02230-1
Section 02246 - Horizontal Directional Drilling.....	02246-1
Section 02298 - Boring.....	02298-1
Section 02500 - Paving and Surfacing.....	02500-1
Section 02609 - Detectable Marking Tape.....	02609-1
Section 02620 - HDPE Pipe for Sanitary Sewer Force Mains.	02620-1
Section 02640 - Valves.....	02640-1
Section 02730 - Piped Wastewater Sewer.....	02730-1
Section 02731 - Manholes.....	02731-1
Section 02732 - Manhole Vaults.....	02732-1
Section 02910 - Soil Treatment.....	02910-1

Division 3 - Concrete

Section 03300 - Cast-in-Place Concrete.....	03300-1
Section 03600 - Grout.....	03600-1

Division 9 - Finishes

Section 09954 - Polyethylene Encasement.....	09954-1
Measurement and Payment.....	H-1
Standard Details.....	I-1 - I-23
Agreement - Contract No. 2010-15.....	J-1
Payment Bond.....	K-1
Performance and Maintenance Bond.....	K-5
Certificate of Insurance.....	K-9
Exhibit A - Soils Report	

ADVERTISEMENT

Contract No. 2010-15

Youghiogheny River Force Main Crossing

Sealed bids for CONTRACT NO. 2010-15 Youghiogheny River Force Main Crossing project will be received by the Municipal Authority of the City of McKeesport, Allegheny County, Pennsylvania, at 100 Atlantic Avenue, McKeesport, PA 15132 until 11:00 A.M. prevailing time, February 24, 2011. Bids will be opened and read aloud at 1:00 P.M. at the McKeesport Palisades, 501 Water Street McKeesport, PA 15132.

A non mandatory Pre-bid meeting will be held on February 8, 2011 @ 10:00 A.M. at the McKeesport Palisades, 501 Water Street McKeesport, PA 15132.

Copies of the plans and specifications are on file for review at all Accu-Copy Reprographics locations.

Pittsburgh - North
108 Marshall Drive
Warrendale, PA 15086
Phone: 724-935-7055
Fax: 724-935-0250

Pittsburgh - Downtown
401 Wood St., Suite 202
Pittsburgh, PA 15222
Phone: 412-281-0799
Fax: 412-281-4463

Pittsburgh - East
616 - J Beatty Road
Monroeville, PA 15146
Phone: 412-457-0717
Fax: 412-457-0718

Copies of the bidding documents may be purchased at these locations or online www.accu-copy.com at a non-refundable cost of \$100.00 per set.

A certified check, bank draft, or a Bid Bond executed on the prescribed form by the Bidder and a Surety Company, in the amount equal to ten percent (10%) of the Bid, shall be submitted with each Bid to guarantee the Bidder's entrance into this Contract if given the award. No Bid Bond shall be waived or returned because the Bidder failed to or cannot comply with any requirements set forth in the Bidding Documents or any applicable statutes of the United States, the Commonwealth of Pennsylvania and/or all local ordinances.

No Bid may be withdrawn for a period of ninety (90) days after the time of the opening of the bids.

The Contractor must insure that employees and applicants for employment are not discriminated against because of their race, creed, color or national origin.

Contractor must comply with the Prevailing Wage Rate set forth by the Pennsylvania Department of Labor and Industry. Materials utilized must comply with the Steel Products Procurement Act.

The Municipal Authority reserves the right to reject any or all Bids and to waive any informality therein.

Joseph Rost
Executive Director

Section B

INSTRUCTIONS TO BIDDERS

B1 Designation of Work

The work included under this contract covers the furnishing of all labor, materials, tools and equipment required to complete the work as described herein, shown on the Contract Drawings and necessary for complete operating facilities.

The work under Contract No. 2010-15 covers the furnishing of all labor, material, plant, utilities required for the construction of sanitary sewage pressure sewers (forcemains) and appurtenances. The project is located along the east and west shores and under the Youghiogheny River and extends through the City of McKeesport and Port Vue Borough all within Allegheny County. Included in this work is construction of a portion the 20 inch diameter Long Run Pump Station pressure sewer located on the east side of the Youghiogheny River and between the west shoreline of the Youghiogheny River and River Road in Liberty Borough at a termination point that will connect to a ductile iron pipe approximately 16 l.f. from the proposed vault constructed under Contract 2010-14 where the 20" pressure sewer will ultimately be connected to a pressure sewer constructed by others for Elizabeth Borough.

B2 Location of Construction Work

All construction work is proposed to be performed in Liberty Borough, Port Vue Borough and the City of McKeesport.

B3 Copies of Bidding Documents

Copies of the Bidding Documents for the described work may be obtained from Accu-Copy Reprographics at the address shown on the Advertisement. The non-refundable price for same is also stated in the Advertisement.

Complete sets of Bidding Documents shall be used in preparing Bids; neither OWNER nor ENGINEER assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

OWNER and ENGINEER in making copies of Bidding Documents available on the above terms do so only for the purpose of obtaining Bids on the Work and do not confer a license or grant for any other use.

B4 Qualifications of Bidders

To demonstrate qualifications to perform the Work, each Bidder must be prepared to submit, within five days of OWNER's request, written information such as financial data, previous experience and evidence of authority to conduct business in the jurisdiction where the Project is located.

B5 Examination of Contract Documents and Site

Before submitting a Bid, each Bidder shall: (a) examine the Bidding/Contract Documents thoroughly, (b) visit the site to familiarize himself with local conditions that may in any manner affect access, cost, progress or performance of the work, (c) familiarize himself with federal, state and local laws, ordinances, rules and regulations that may in any manner affect access, cost, progress or performance of the Work; and (d) study and carefully correlate Bidder's observations with the Contract Documents.

Before submitting his Bid, each Bidder shall, at his own expense, make such investigations and tests as the Bidder may deem necessary to determine his Bid for performance of the Work in accordance with the time, price and other terms and conditions of the Contract Documents.

On request, OWNER may assist each Bidder who desires access to the site to conduct such investigations and tests as each Bidder deems necessary for submission of his Bid.

B6 Interpretations, Clarifications and Requests for Information

All questions, clarifications and/or Requests for Information about the meaning or intent of the Contract Documents shall be submitted to ENGINEER in writing via letter, fax, or e-mail at macmproject@klhengineers.com. Replies will be issued by Addenda mailed or delivered to all parties recorded as having received the Bidding Documents. Only interpretations written by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

B7 Bid Security

Bid Security shall be made payable to OWNER, in an amount of not less than ten percent (10%) of the Bidder's maximum Bid price in the form of either a certified bank check or a Bid Bond on the form attached in Section D, issued by a Surety meeting the requirements set forth at the bottom thereof.

The Bid Security of the Successful Bidder will be retained until such Bidder has executed the Agreement and furnished the Required Contract Security, whereupon it will be returned; if the successful Bidder fails to execute and deliver the Agreement and furnish the required Contract Security within 15 days of Notice of Award, OWNER may annul said Notice and the Bid Security of that Bidder will be forfeited. The Bid Security of any Bidder whom OWNER believes to have a reasonable consideration for receiving the award may be retained by OWNER until after the effective date of the Agreement.

B8 Contract Time

The number of calendar days within which, or the date by which, the Work is to be completed (the Contract Time) is set forth in the Bid Form and will be included in the Agreement.

Work under this contract is concurrent with and adjacent to other contract work. On this basis, substantial completion of work under this contract may be impacted by the progress of work under concurrent and/or adjacent contracts.

The BIDDER is hereby notified that delay claims will not be entertained based on the inability to achieve substantial completion due to the progress of the concurrent and/or adjacent contracts. Furthermore, the CONTRACTOR shall be responsible for the maintenance of dormant equipment until substantial completion is achieved for the contracted work specified herein.

B9 Liquidated Damages

Provisions for liquidated damages are set forth in the Agreement.

B10 Bid Forms

The Bid Forms are attached hereto; additional copies may be obtained from ENGINEER.

Bid Forms must be completed in ink or by typewriter. The total Bid price on the form must be stated in words and numerals; in case of a conflict, words will take precedence.

Bids by Corporations must be executed in the corporate name by the president or a vice-president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or an assis-

tant secretary. The corporate address shall be shown below the signature.

Bids by Partnerships must be executed in the partnership name and signed by a partner, whose title must appear under the signature and the official address of the partnership must be shown below the signature.

All names must be typed or printed below the signature.

The Bids shall contain an acknowledgment of receipt of all Addenda (the numbers of which shall be filled in on the Bid Form by the Bidder).

The address to which communications regarding the Bid are to be directed must be shown.

B11 Submission of Bids

Bids shall be submitted at the time and place indicated in the Advertisement and in a sealed envelope, marked with the Project contract and title, the name and address of the Bidder and accompanied by the Bid Security and other required documents. If the Bid is sent by U. S. Mail or other delivery system, the sealed envelope shall be enclosed in a separate envelope with the notation "BID ENCLOSED" on the face thereof. All bids must be received by the OWNER at or prior to the time indicated in the Advertisement.

Bids received prior to the advertised hour of opening will be securely kept sealed. The officer whose duty it is to open them will decide when the specified time has arrived, and no Bid received thereafter will be considered; except that when a Bid arrives by mail after the time fixed for opening, but before the reading of all other bids is completed, and it is shown to the satisfaction of the OWNER that the non-arrival on time was due solely to delay in the U.S. mail or other delivery system utilized for which the Bidder was not responsible, such Bid will be received and considered. Unless specifically authorized, facsimile transmissions or telegraphic bids will not be considered.

B12 Modification and Withdrawal of Bids

Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to the opening of Bids.

B13 Award of Contract

OWNER reserves the right to reject any and all Bids for whatsoever cause and to waive any and all informalities in the Bid. Discrepancies between words and figures will be resolved in favor of words. Discrepancies between the indicated sum and/or the products shown as a result of extending unit prices and the correct sum and/or products thereof will be resolved in favor of the correct sum and/or products.

In evaluating Bids, OWNER shall consider the qualifications of the Bidders, whether or not the Bids comply with the prescribed requirements and alternates and unit prices (if requested) in the Bid forms.

OWNER may conduct such investigations as he deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications and financial ability of any or all Bidders.

If the contract is to be awarded, it will be awarded on the Base Bid or Alternate Bid Items selected by the OWNER which are those of the lowest responsive and responsible Bidder whose evaluation by OWNER indicates to OWNER that the award will be in the best interests of the Project.

B14 Performance and Other Bonds

The General Conditions and/or the Supplemental General Conditions set forth OWNER's requirements as to Performance and other Bonds. When the Successful Bidder delivers the executed Agreement to OWNER it shall be accompanied by the required Contract Security.

B15 Signing of Agreement

When OWNER advises of a Contract Award to the Successful Bidder, it will be accompanied by at least five unsigned counterparts of the Agreement and all other Contract Documents. Within fifteen (15) days thereafter, CONTRACTOR shall sign and deliver all counterparts of the Agreement to OWNER with all other Contract Documents attached. Within ten (10) days thereafter OWNER will deliver two fully signed counterparts to CONTRACTOR -- one each intended for the CONTRACTOR and the CONTRACTOR's Surety Company. The times set forth herein are of the essence and Bidder's failure to comply herewith may, at the discretion of the OWNER, result in forfeiture of the Bid Security.

B16 Existing Utilities, Structures, Materials and Subsurface Conditions

CONTRACTOR is directed to the provisions of the Underground Utility Line Protection Law Act 287 (1974), as amended by Act 181 December 2006, and full compliance therewith is required of the CONTRACTOR.

Certain information regarding the reputed presence, size, character and location of existing underground structures and public utilities such as pipes, drains, sewers, electrical lines, telephone lines, cable TV lines, gas lines, water lines, materials and/or subsurface conditions, has been shown on the Contract Drawings.

Neither the OWNER nor the ENGINEER makes any warranty or representation that the information obtained through the Pennsylvania One-Call system is accurate and the CONTRACTOR assumes all risks that the underground structures, utilities, materials and/or subsurface conditions, as shown, may be encountered. To this end the CONTRACTOR shall perform due diligence in determining the actual location of the reputed facilities as required by Act 287 as amended.

The CONTRACTOR hereby distinctly agrees that neither the OWNER nor the ENGINEER is responsible for the correctness or sufficiency of any such information given, that this information is not to be considered a part of the Contract, that the CONTRACTOR shall make no claim for delay or extra compensation or damage against the OWNER or the ENGINEER on account of incorrectness of information given, or on account of the insufficiency or absence of information regarding structures, private utilities to and from occupied structures including but not limited to: water, sanitary sewer, gas, electric, telephone, cable, service laterals; roof and/or foundation drains; and materials and/or subsurface condition 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 structure, private utilities to and from occupied structures including but not limited to: water, sanitary sewer, gas, electric, telephone, cable, service laterals; roof and/or foundation drains; and , materials and/or subsurface conditions, is not as indicated on the Drawings, or in case any structure, private utilities to and from occupied structures including but not limited to: water, sanitary sewer, gas, electric, telephone, cable, service laterals; roof and/or foundation drains; and materials and/or subsurface conditions, not shown on the Drawings is encountered.

The CONTRACTOR shall be responsible for and bear all costs of protecting all structures and utilities, both above the ground and below the ground, within and outside the right-of-way, and all costs of any required relocation of any structures or utilities and shall repair any damage to any structure or utility to the satisfaction of the owner thereof at no additional expense to the OWNER.

The CONTRACTOR shall have the responsibility to determine the location of all structures and utilities, above and below the surface of the ground, the character of the subsurface material and the conditions to be encountered overhead, on the surface, and underground, before submitting his bid.

The CONTRACTOR shall have the responsibility of providing special means to brace and hold the utility lines, the telephone poles and the electrical power poles in place during the construction, and to reinforce and protect same from future displacement, disturbance or damage attributable to settlement of backfill or surface water erosion of restored areas.

B17 Buy American

In accordance with federal regulations and guidelines the CONTRACTOR agrees that preference will be given to domestic construction materials by the CONTRACTOR, subcontractors, materials and suppliers in the performance of this contract. The requirements of the "Steel Products Procurement Act" shall supersede the "Buy American" requirements.

B18 Pennsylvania Sales and Use Tax

Materials and equipment utilized under the contract may or may not be exempt from Pennsylvania sales tax. The CONTRACTOR shall make their own determination as to which, if any, of the materials and equipment utilized under the contract are exempt from sales tax. Beyond issuing a blanket sales tax exemption form, the OWNER and/or ENGINEER will provide no further assistance in this determination. Failure of the CONTRACTOR to make this determination will not be grounds for additional compensation under the contract.

B19 Steel Products

Each CONTRACTOR, equipment and material supplier on these contracts is notified that materials utilized under these

contracts must comply with the provisions of the Act of March 3, 1978 (P.L.G. No. 3) Known as the "Steel Products Procurement Act". The CONTRACTOR is required to submit Form SP (provided as the last page of Section B) with each initial shop drawing submittal as applicable.

- i. The application of this section would be inconsistent with the public interest;
- ii. Iron, steel and the relevant manufactured goods are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality; or
- iii. The inclusion of iron, steel or manufactured goods produced in the United States will increase the overall value of the project by more than twenty-five percent (25%).

B20 Construction Combination Bids

It is recognized that the OWNER may realize some savings in the total cost of construction by awarding multiple construction contracts to the same Bidder. In view of that prospect, a Combination Bid will be acceptable providing it is submitted on the proper Combination Bid Form included in Section C of the Contract Document identified herein below.

Bidders desiring to submit a Combination Bid and holding plans for Contract documents identified in the combinations offered are hereby invited to submit a combination bid and thereby offer the OWNER a corresponding reduction in the total cost of construction, will be required to submit a bid for each Contract within the combination, independently, on the respective Contract Bid Forms provided in Section C of the respective contract specifications identified below. The contract price percentage reduction in the amount bid and the reduction monetary value for the work under each contract, if awarded the Combination, shall then be inserted in the spaces provided in the Combination Bid Form in this document.

CONTRACTOR's bidding combination work of multiple Contracts shall provide a Bid Bond that identifies all Contracts being bid inclusive of all Contracts within the combination.

The combination contract price percentage reduction shall be applied to the respective contract bid items unit price to

determine the combination bid items unit prices for award of combination contracts.

The Bid Form found in Section C of Contract 2010-01/02 Wastewater Treatment Plant Expansion (WWTP) contains the following bid combinations.

WWTP Combination No. 1

- Contract 2010-01 Wastewater Treatment Plant Expansion General Mechanical Construction.
- Contract 2010-02 Wastewater Treatment Plant Expansion Electrical Construction.

WWTP Combination No. 2

- Contract 2010-01 Wastewater Treatment Plant Expansion General Mechanical Construction.
- Contract 2010-03 West Shore Pump Station General Mechanical Construction.
- Contract 2010-05 Long Run Pump Station Improvements General Mechanical Construction.
- Contract 2010-07 Ripple Road Pump Station General Mechanical Construction.
- Contract 2010-09 28th Avenue Pump Station Improvements General Mechanical Construction.
- Contract 2010-11 Cliff Street Pump Station Improvements General Mechanical Construction.

WWTP Combination No. 3

- Contract 2010-02 Wastewater Treatment Plant Expansion Electrical Construction.
- Contract 2010-04 West Shore Pump Station Electrical Construction.
- Contract 2010-06 Long Run Pump Station Improvements Electrical Construction.
- Contract 2010-08 Ripple Road Pump Station Electrical Construction.
- Contract 2010-10 28th Avenue Pump Station Improvements Electrical Construction.
- Contract 2010-12 Cliff Street Pump Station Improvements Electrical Construction.

WWTP Combination No. 4

- Contract 2010-01 Wastewater Treatment Plant Expansion General Mechanical Construction.

- Contract 2010-02 Wastewater Treatment Plant Expansion Electrical Construction.
- Contract 2010-03 West Shore Pump Station General Mechanical Construction.
- Contract 2010-04 West Shore Pump Station Electrical Construction.
- Contract 2010-05 Long Run Pump Station Improvements General Mechanical Construction.
- Contract 2010-06 Long Run Pump Station Improvements Electrical Construction.
- Contract 2010-07 Ripple Road Pump Station General Mechanical Construction.
- Contract 2010-08 Ripple Road Pump Station Electrical Construction.
- Contract 2010-09 28th Avenue Pump Station Improvements General Mechanical Construction.
- Contract 2010-10 28th Avenue Pump Station Improvements Electrical Construction.
- Contract 2010-11 Cliff Street Pump Station Improvements General Mechanical Construction.
- Contract 2010-12 Cliff Street Pump Station Improvements Electrical Construction.
- Contract 2010-13 West Shore Sanitary Sewer Construction.
- Contract 2010-14 East Shore Sanitary Sewer Construction.
- Contract 2010-15 Youghiogheny River Forcemain Crossing

The Bid Form found in Section C of Contract 2010-03/04 West Shore Pump Station Construction contains the following bid combinations.

Pump Station Combination No. 1

- Contract 2010-03 West Shore Pump Station General Mechanical Construction.
- Contract 2010-05 Long Run Pump Station Improvements General Mechanical Construction.
- Contract 2010-07 Ripple Road Pump Station General Mechanical Construction.
- Contract 2010-09 28th Avenue Pump Station Improvements General Mechanical Construction.
- Contract 2010-11 Cliff Street Pump Station Improvements General Mechanical Construction.

Pump Station Combination No. 2

- Contract 2010-04 West Shore Pump Station Electrical Construction.
- Contract 2010-06 Long Run Pump Station Improvements Electrical Construction.
- Contract 2010-08 Ripple Road Pump Station Electrical Construction.
- Contract 2010-10 28th Avenue Pump Station Improvements Electrical Construction.
- Contract 2010-12 Cliff Street Pump Station Improvements Electrical Construction.

Pump Station Combination No. 3

- Contract 2010-03 West Shore Pump Station General Mechanical Construction.
- Contract 2010-04 West Shore Pump Station Electrical Construction.
- Contract 2010-05 Long Run Pump Station Improvements General Mechanical Construction.
- Contract 2010-06 Long Run Pump Station Improvements Electrical Construction.
- Contract 2010-07 Ripple Road Pump Station General Mechanical Construction.
- Contract 2010-08 Ripple Road Pump Station Electrical Construction.
- Contract 2010-09 28th Avenue Pump Station Improvements General Mechanical Construction.
- Contract 2010-10 28th Avenue Pump Station Improvements Electrical Construction.
- Contract 2010-11 Cliff Street Pump Station Improvements General Mechanical Construction.
- Contract 2010-12 Cliff Street Pump Station Improvements Electrical Construction.

The Bid Form found in Section C of Contract 2010-13 West Shore Sanitary Sewer Construction contains the following bid combination.

Sewer Combination

- Contract 2010-13 West Shore Sanitary Sewer Construction.
- Contract 2010-14 East Shore Sanitary Sewer Construction.
- Contract 2010-15 Youghiogheny River Forcemain Crossing

B21 Limited Bonding

Prospective Bidders interested in bidding all of that work but desire to limit the dollar-amount of the contracts which would actually be awarded to their respective companies shall proceed as follows:

- a. Submit as security with your bids, a single Bid Bond (or Certified bank check) on which it clearly indicates the Contracts, by number, which you are interested in constructing and which are covered by the said surety.
- b. Indicate, on the face of the Bid Bond, an actual dollar amount of bid security - which amount will be construed to represent 10% of the maximum value of the work which you are willing and/or capable of performing. (In other words, if the bidder wishes to maximize his opportunity to be competitive but is limited to performance of, say \$10,000,000 total value of construction work, he may bid each of Contract 2010-13 West Shore Sanitary Sewer Construction, Contract 2010-14 East Shore Sanitary Sewer Construction and Contract 2010-15 Youghiogheny River Forcemain Crossing, and simply indicate that the amount of bid security is \$1,000,000). It shall be understood that the OWNER reserves the right to select which of the contracts will be awarded to those who avail themselves of this opportunity; and, that the amount of the bid security may not be increased or decreased after bids have been officially received, opened, and read aloud. It is also understood that if the Principal (contractor) and Surety fail to perform all of the conditions of the Bond that the net sum to be paid as liquidated damages, shall be in the amount of only 10% of the amount bid for construction of the work which the OWNER desires to award the Bidder. The OWNER will evaluate all of the Bids and will, at the apparent least cost of construction, award the work to those responsive and responsible bidders from whom the amounts bid aggregate said least cost.

B22 Soils Report

The OWNER has had a geotechnical engineering investigation performed for the proposed facilities. A copy of this report, Exhibit A is appended to the end of these specifications. The report contains specific recommendations as to foundation requirements for the various structures to be constructed. The report and the recommendations shall be considered a part of the Contract Documents.

End of Section B

Instructions to Bidders

THIS PAGE LEFT INTENTIONALLY BLANK

FORM SP

This form must be executed by a Fabricator of any item containing BOTH FOREIGN AND U.S. MANUFACTURED STEEL. The Steel Products Procurement Act (73 P.S. S1991 et seq.) allows the use of steel products with both types of steel if seventy-five (75%) percent of the cost of the materials (including steel, rubber, wood, plastic, etc.) in the product are manufactured or produced, as the case may be, in the United States.

The Fabricator shall be herein defined as the firm that assembles the component parts of the item(s) to be purchased. The OWNER will accept the certification of firms that are earlier in the chain of purchase (i.e. manufacturers of components, steel, suppliers) in lieu of the Fabricator. This form must be submitted to the ENGINEER with the initial shop drawing submission and before the product may be incorporated as provided above.

TO BE COMPLETED BY THE FABRICATOR:

1. Contract No. _____ Contract Title: _____
2. Specification Paragraph No. _____ Specification Page: _____
3. Product: _____
4. Name of Supplier: _____
5. Address of Supplier: _____
6. Federal Employer I.D. No.: _____ Phone No. : () _____
7. Total cost of materials in the item listed in Item 3 that were manufactured/produced in the United States is greater than 75% of total cost of all materials.

_____ YES

_____ NO

CERTIFICATION: I, the undersigned Officer of the above named firm, do certify that our firm assembled/manufactured the components to the steel products listed in Item 3, that the steel in said product is both foreign and domestically manufactured and that all the facts contained in this document are true. I further understand that this document is subject to the provisions of the Unsworn Falsification to Authorities Act (18 P.S. S4904) which provide penalties including, but not limited to, debarment from supplying and products for Commonwealth of Pennsylvania public works projects for a period of five (5) years for violations therein.

WITNESS:

Secretary or Treasure
(Corporate Seal)

_____ (SEAL)
President or Vice President
(Fabricator's Company)

Date: _____

THIS PAGE LEFT INTENTIONALLY BLANK

Section D

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we _____

as Principal and _____
of _____, State of _____,
a corporation existing under the laws and the State of _____,
_____, and authorized to transact business in
_____, as Surety, are held and firmly bound unto

(OWNER)

(Address)

hereinafter called the Obligee, in the sum of _____
_____ Dollars (\$ _____).
lawful money of the United States of America, for payment of which
sum well and truly to be made, we bind ourselves, our heirs,
executors, administrators and successors, jointly and severally,
firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Prin-
cipal has submitted the accompanying Proposal or Bid dated
_____, 20___, for the _____.

NOW THEREFORE, the condition of this Bond shall be such that if the
Principal, upon due acceptance of said Proposal and award of the
Contract to him by the Obligee, bonds with good and sufficient
surety as may be required by the Contract Documents, and furnishes
the Obligee proper evidence of effectiveness of insurance coverage,
respectively, within the time, in the forms and in the amounts as
appropriate, required by the Contract Documents, and enters into a
Contract with the Obligee in accordance with the Contract
Documents, then this Bond shall be void; otherwise, the Bond shall
be and shall remain in full force and effect.

The Principal and Surety hereby stipulate and agree that if the
Principal fails to perform all conditions of this Bond, they will pay
the sum of the Bond to the Obligee as fixed, liquidated damages.

The Surety, for value received, hereby stipulates and agrees that
the obligations of said Surety and its Bond shall be in no way
impaired or affected by any extension of time within which the
OWNER may accept such bid; and said Surety does hereby waive notice
of any extension.

It is the intention of the parties to be legally bound by this
instrument.

IN WITNESS WHEREOF, the above bounded parties have executed this instrument under their several seals this ____ day of _____, 20__, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned and representative, pursuant to authority of its governing body.

ATTEST: DATE _____, 20__

WITNESS: _____
Name of Bidder, Corporation, Firm or Individual

_____ By _____

(Title)

Business Address of Bidder

ATTEST: _____

Surety

Attorney-in-Fact

IMPORTANT - Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

Section E

GENERAL CONDITIONS

E1 Definitions

Wherever used in these General Conditions or in the other Contract Documents, the following terms have the meanings indicated which are applicable to both the singular and plural thereof:

Addenda

Written or graphic instruments issued prior to the opening of bids which clarify, correct or change the bidding documents or the Contract Documents and which will be included as Section L of the Contract Documents for award and construction.

Advertisement

The legally published and/or distributed notification to prospective Bidders and others of the Project and the OWNER's intent to receive bids on same. The Advertisement is included as Section A of these documents.

Agreement

The written agreement between OWNER and CONTRACTOR covering the Work to be performed; other Contract Documents are attached to the Agreement and made a part thereof as provided therein. The Agreement is included as Section J of the Bidding/Contract Documents.

Application for Payment

The form accepted by ENGINEER which is to be used by CONTRACTOR in requesting progress or final payments and which is to include such supporting documentation as is required by the Contract Documents, Section H.

Bid

The offer or proposal of the bidder submitted on the prescribed Bid Form setting forth the prices for the Work to be performed. Bid Forms are Section C of these documents.

Bonds

Bid, performance, payment, labor and materialsmen, maintenance and special bonds and other instruments of security. The Bid Bond form is Section D; other Surety Bond forms are Section K of these documents.

Change Order

A document signed by CONTRACTOR and OWNER which authorizes an addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Time, issued on or after the Effective Date of the Agreement.

Contract Documents

The Advertisement, Instructions to Bidders, Bid Form, Bid Bond, General Conditions, Supplemental General Conditions, Technical Specifications, Measurement and Payment, Agreement, Bonds, Addenda and Drawings together with all modifications and supplements issued as Change Orders on or after the Effective Date of the Agreement.

Contract Price

The moneys payable by OWNER to CONTRACTOR under the Contract Documents as stated in the Agreement.

Contract Time

The number of calendar days stated in the Bid Form and in the Agreement for the completion of the Work.

CONTRACTOR

The person(s), firm(s) or corporation(s) with whom OWNER has entered into the Agreement.

Drawings

The drawings, plans, details, supplemental details, graphics, diagrams, photo reproductions and other representations which show the character and scope of the Work to be performed and which have been prepared or approved by ENGINEER and/or the OWNER.

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 parties to sign and deliver.

ENGINEER

KLH Engineers, Inc.

General Conditions

Terms pertaining to the Contract and the performance of the Work thereunder that are of frequent and continuing applicability. The General Conditions are included as Section E of these documents.

Laws and Regulations

Laws, rules, regulations, ordinances, codes appertaining to the conduct of and/or location of the work.

Insurance

Protection provided to the parties to the Contract as required by the General Conditions and the Supplemental General Conditions and evidenced by either insurance policies or certificates of insurance coverages. Form of certificate and coverages is included under Section K.

Measurement and Payment

The conditions under which payments are to be determined and made to the CONTRACTOR for Work performed under the Contract or as an addition to or deduction from the Contract. The Measurement and Payment provisions are included as Section H.

Notice of Award

The written notice by the OWNER or ENGINEER to the apparent Successful Bidder stating that the Contract has been awarded to it.

Notice to Proceed

A written notice given by the OWNER or ENGINEER to CONTRACTOR fixing the date on which the Contract Time will commence. When such Notice to Proceed is not issued, the Contract Time will commence on the date appearing in the Agreement (Section J).

OWNER

The private or public agency with whom CONTRACTOR has entered into the Agreement and for whom the Work is to be provided.

Partial Utilization

Placing a portion of the Work in service for the purpose for which it is intended (or a related purpose) before reaching Substantial Completion for all the Work.

Project

The total construction of which the Work to be provided under the Contract Documents may be the whole, or a part as indicated elsewhere in the Contract Documents.

Resident Project Representative

The authorized representative of the ENGINEER or the OWNER who is assigned to the site or any part thereof, for the purpose of monitoring the construction of the work under this contract.

Shop Drawings

All drawings, diagrams, illustrations, schedules, catalog information and other data which are specifically prepared by or for CONTRACTOR to illustrate some portion of the Work and which are submitted by CONTRACTOR for review and/or approval for incorporation in the Work.

Technical Specifications

Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative details applicable thereto. They are Section G of these documents.

Subcontractor

An individual, firm or corporation having a direct contract with CONTRACTOR or with any other Subcontractor for the performance of a part of the Work at the site.

Substantial Completion

The Work (or a specified part thereof) which has progressed to the point where, in the opinion of the OWNER and/or ENGINEER, it is sufficiently complete, in accordance with the Contract Documents, so that the WORK (or specified part) can be utilized for the purposes for which it is intended.

Supplemental Details

Certain drawings, plans, details, characteristic curves, graphics, diagrams, photo reproductions, tabular data or other representation respective to the Work and which are bound in the rear of the Bidding/Contract Documents Book as Section I.

Supplemental General Conditions

The part of the Contract Documents which amends or supplements these General Conditions (if any). They are Section F of these documents.

Supplier

A manufacturer, fabricator, supplier, distributor, materialman or vendor.

Unit Price Work

Work to be paid for on the basis of unit prices.

Work

The entire construction or the various separately identifiable parts thereof required to be furnished under the Contract

Documents. Work is the result of performing services, furnishing labor and furnishing and incorporating materials and equipment into the construction, all as required by the Contract Documents.

E2 Preliminary Matters

E2.1 Delivery of Bonds

When CONTRACTOR delivers the executed Agreements to OWNER, CONTRACTOR shall also deliver to OWNER such Bonds as CONTRACTOR may be required to furnish in accordance with the Contract Documents. The Surety Bond forms are attached as Section K of these documents.

E2.2 Copies of Documents

OWNER shall furnish to CONTRACTOR two copies of the Contract Documents for the execution of the Work. Additional copies will be furnished, upon request, at the cost of reproduction.

E2.3 Commencement of Contract Time; Notice to Proceed

The Contract Time will commence on the effective date of the Agreement or, if a Notice to Proceed is given, on the date indicated in the Notice to Proceed. A Notice to Proceed may follow contract award by OWNER by no more than 45 days, unless otherwise specifically noted within Section B, Instructions to Bidders.

E2.4 Starting the Project

CONTRACTOR may start to perform the Work on the date when the Contract Time commences, but no Work shall be done at the site prior to the date on which the Contract Time commences. If scheduled by the Engineer, the CONTRACTOR will be required to attend a pre-construction meeting.

Within ten days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), CONTRACTOR shall submit to OWNER or his designee, for review:

- a proposed progress schedule indicating the starting and completion dates of the various stages of the work;
- a schedule of values for all of the Work. This will include quantities and prices of items aggregating the Contract Price and will subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction.

Before any Work at the site is started, CONTRACTOR shall deliver to OWNER, with a copy to ENGINEER, certificates, and other evidence of insurance requested by OWNER which CONTRACTOR is required to purchase and maintain in accordance with the Contract Documents.

E3 Intent of the Contract Documents

E3.1 The Contract Documents comprise the entire agreement between OWNER and CONTRACTOR concerning the Work. The Contract Documents are complementary; what is called for by one is as binding as if called for by all. The Contract Documents will be construed in accordance with the law of the place of the Project.

If, during the performance of the Work, CONTRACTOR finds a conflict, error or discrepancy in the Contract Documents, CONTRACTOR shall so report to ENGINEER in writing at once, and before proceeding with the Work affected thereby shall obtain a written interpretation or clarification from ENGINEER; any work performed by CONTRACTOR without reporting such conflicts, errors, or discrepancies, in writing, to the ENGINEER will be at the CONTRACTOR's risk.

In addition, the requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, in one or more of the following ways:

- ENGINEER'S approval of Shop Drawing(s) or sample(s)
- ENGINEER's written interpretation or clarification

E4 Availability of Lands; Report of Differing Conditions; Underground Facilities; Reference Points

E4.1 Availability of Lands

OWNER shall furnish the lands upon which the Work is to be performed and rights-of-way and easements which, in the opinion of the ENGINEER, are required for construction. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by OWNER, unless otherwise provided in the Contract Documents. CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities, specific access routes to the site of the work, or storage of materials and equipment.

E4.2 Report of Differing Conditions

If CONTRACTOR believes that any physical condition uncovered or revealed at the site differs materially from that indicated, reflected or referred to in the Contract Documents, he shall promptly, after becoming aware thereof and before performing any Work in connection therewith (except in an emergency), notify OWNER and ENGINEER in writing about the difference.

E4.3 Underground Facilities

The information and data shown or indicated in the Contract Documents with respect to existing underground utilities, structures and/or other 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 or by others. CONTRACTOR shall have full responsibility for: reviewing and checking all such information and data; for locating all underground facilities; and for coordination of the Work with the owners of such underground facilities during construction and repairing any damage thereto resulting from the Work, the cost of all of which will be considered as having been included in the Contract Price.

E4.4 Definition of "Underground Facilities"

For the purposes of this paragraph, the term "underground facilities" includes without limitation: pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials: electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, sewage and drainage removal, traffic or other control systems, water, wastewater or stormwater.

E4.5 Reference Points

OWNER will provide certain reference points for construction which in ENGINEER's judgment are adequate to enable CONTRACTOR to proceed with the Work. CONTRACTOR shall be responsible for surveying and laying out the Work, shall protect and preserve the established reference points and shall make no changes or relocations without the prior written approval of OWNER. CONTRACTOR shall report to ENGINEER whenever any reference point is lost or destroyed or required relocation because of necessary changes in grades or locations and shall be responsible for the accurate replacement or relocation of such reference points by professionally qualified personnel.

E5 Bonds and Insurance

E5.1 Performance and Other Bonds

CONTRACTOR shall furnish Bonds, each in an amount equal to the Contract Price as security for the faithful performance and payment of all CONTRACTOR's obligations under the Contract Documents; CONTRACTOR shall also furnish such other Bonds as are required by the Contract Documents. All Bonds shall be in the forms prescribed by the bidding documents or Supplemental General Conditions and 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 Audit Staff Bureau of Accounts, U. S. Treasury Department. All Bonds signed by an agent must be accompanied by a certified copy of the authority to act.

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 the above paragraph, CONTRACTOR shall within five days thereafter, substitute another Bond and Surety, meeting the OWNER's approval.

E5.2 Contractor's Liability Insurance

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

The insurance required shall include the specific coverages and be written for not less than the limits of liability and coverages provided in the Supplemental General Conditions. The Certificate of Insurance included in Section K of these documents shall be required to be completed prior to the commencement of any construction work. All of the policies of insurance required to be purchased and maintained shall contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused, until at least ten days' prior written notice has been given to OWNER and ENGINEER. All such insurance shall remain in effect until final payment and at all times thereafter when CONTRACTOR may be

correcting, removing, maintaining, repairing or replacing defective Work.

E6 Certain Responsibilities of the CONTRACTOR

E6.1 Supervision and Superintendence CONTRACTOR shall supervise 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 be responsible to see that the finished Work complies with the requirements of the Contract Documents.

CONTRACTOR shall keep on the Work at all times during its progress 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 during construction and before issuance of the Final Payment, given to the superintendent, shall be as binding as if given to CONTRACTOR.

E6.2 Labor, Materials and Equipment

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. Except in connection with the safety or protection of persons or the Work or property at the site or adjacent thereto, and except as otherwise indicated in the Contract Documents, all Work at the site shall be performed during regular working hours, and CONTRACTOR will not permit overtime work or the performance of Work on Sunday or any legal holiday without OWNER's written consent.

CONTRACTOR shall furnish all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water and sanitary facilities and all other facilities and incidentals necessary for the execution, testing, start-up and completion of the Work.

All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. If

required, CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment.

All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instructions of the applicable Supplier except as otherwise provided in the Contract Documents; but no provision of any such instructions will be effective to impose on ENGINEER responsibility for the means, methods, techniques, sequences or procedures of construction or for safety precautions or programs incident thereto.

E6.3 Adjusting Progress Schedule

CONTRACTOR shall submit to ENGINEER adjustments in the progress schedule to reflect the impact thereon of new developments; these will conform generally to the progress schedule then in effect and additionally will comply with any provisions of the Contract Documents applicable thereto. Progress schedules shall be updated on a monthly basis and be submitted for review and discussion at the regularly scheduled progress meetings.

E6.4 Substitutions

Whenever materials or equipment are specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier the naming of the item is intended to establish the type, function and quality required. Unless the name is followed by words indicating that no substitution is permitted, materials or equipment of other Suppliers may be approved if sufficient information is submitted by CONTRACTOR to allow ENGINEER to determine that the material or equipment proposed is equivalent to that named. The OWNER's decision to accept or not accept substitutions (either conditionally or otherwise) will be final.

E6.5 Concerning Subcontractors, Suppliers and Others

CONTRACTOR shall not employ any Subcontractor, Supplier (including those who are to furnish the principal items of materials or equipment) or other person or organization to perform or furnish any of the Work whether initially or as a substitute, without the prior written approval of the OWNER. Acceptance of any such Subcontractor, Supplier or other person or organization by OWNER or ENGINEER shall not constitute a waiver of any right of OWNER or ENGINEER to reject defective Work or any Work which may otherwise not be in conformance with the Contract Documents.

CONTRACTOR shall be fully responsible to OWNER and ENGINEER for all acts and omissions of the Subcontractors, Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR just as CONTRACTOR is responsible for CONTRACTOR's own acts and omissions. Nothing in the Contract Documents shall create any contractual relationship between OWNER or ENGINEER and any such Subcontractor, Supplier or other person or organization, nor shall it create any obligation on the part of OWNER or ENGINEER to pay or to see to the payment of any moneys due any Subcontractor, Supplier or other person or organization.

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

All Work performed for CONTRACTOR by a Subcontractor will be pursuant to an appropriate agreement between CONTRACTOR and the Subcontractor which specifically binds the Subcontractor to all terms and conditions of the Contract Documents.

E6.6 Indemnity

CONTRACTOR agrees to protect, defend, indemnify, exonerate and hold OWNER and ENGINEER harmless from and against any and all suits, claims, liability, losses, liens and demands, fines, costs, criminal and civil penalties, cause of action or any other obligations arising out of or in any manner connected with incidents involved in bodily injury, death, property damage or any violation or alleged violation of any federal, state, provincial or local law or regulation, except as solely caused by the OWNER and/or ENGINEER.

E6.7 Permits

Unless otherwise provided in the Supplemental 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.

E6.8 Laws and Regulations

CONTRACTOR shall give all notices and comply with all Laws and Regulations applicable to 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.

If CONTRACTOR observes that the Specifications or Drawings are at variance with any Laws or Regulations, CONTRACTOR shall give ENGINEER prompt written notice thereof, and any necessary changes will be authorized. If CONTRACTOR performs any Work knowing or having reason to know that it is contrary to such Laws or Regulations, and without such notice to ENGINEER, CONTRACTOR shall bear all costs arising therefrom.

E6.9 Taxes

CONTRACTOR shall pay all sales, consumer, use, business and occupation 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.

E6.10 Use of Premises

CONTRACTOR shall confine its work on the Project site and land and areas to which the OWNER holds title, rights-of-way, permits, or easements. Contractor shall not unreasonably encumber the premises 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 land or areas contiguous thereto, resulting from the performance of the Work. Should any claim be made against OWNER or ENGINEER or resulting from the acts and/or deeds of the CONTRACTOR, its agent and/or employees, or invitees, CONTRACTOR shall promptly attempt to settle with such other party by agreement or otherwise resolve the claim by arbitration or at law. CONTRACTOR shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold OWNER and ENGINEER harmless from and against all claims, damages, losses and expenses (including, but not limited to, fees of engineers, architects, attorneys and other professionals and court and arbitration costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any such other party against OWNER or ENGINEER arising in whole, or in part, out of CONTRACTOR's performance of the Work.

During the progress of the Work, CONTRACTOR shall keep the premises free from accumulations of waste materials, rubbish and other debris resulting from the Work. At the completion of the Work CONTRACTOR shall remove all waste materials, rubbish and debris from and about the premises as well as all tools, appliances, construction equipment and machinery and surplus materials, and shall leave the site clean and ready for occupancy by OWNER. CONTRACTOR shall restore the original condition all property not designated for alteration by the Contract Documents.

CONTRACTOR shall not impose any load nor permit any part of any structure or pipeline to be loaded in any manner that will endanger said structures or pipelines, nor shall CONTRACTOR subject any part of the work or adjacent property to stresses or pressures that will endanger it.

E6.11 Record Documents

In addition to any requirements imposed by law or regulations, CONTRACTOR shall maintain at the site one record copy of all Drawings, Specifications, Addenda, Change Orders, and written interpretations and clarifications in good order and annotated to show all changes made during construction. Said documents together with all approved Shop Drawings will be available to OWNER for reference. Upon completion of the Work, the documents, samples and Shop Drawings will be delivered to the OWNER.

E6.12 Safety and Protection

CONTRACTOR shall be 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:

- all employees on the Work and other persons who may be affected thereby.
- all the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, and
- other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

CONTRACTOR shall comply with all applicable Laws and Regulations of any public body having jurisdiction for the safety of persons or property or to protect them 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 utility owners when prosecution of the Work may affect them, and shall cooperate with utility owners in the protection, removal, relocation and replacement of their property. All damage, injury or loss to any property caused,

directly or indirectly, in whole or in part, by CONTRACTOR, any Subcontractor, Supplier or person directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, shall be remedied by CONTRACTOR at CONTRACTOR's sole cost (except damage or loss caused solely by the negligent acts or omissions of OWNER or ENGINEER). Nothing herein shall be construed to impose any obligation upon the OWNER or ENGINEER to supervise, inspect or otherwise police the CONTRACTOR's observance of these or any other safety standards or render either of them liable to third parties for any failure of the CONTRACTOR in observance of the requirements of this paragraph.

E6.13 Emergencies

In emergencies affecting the safety or protection of persons or the Work or property at the site or adjacent thereto, CONTRACTOR, without special instruction or authorization from ENGINEER or OWNER, is obligated to act to prevent threatened damage, injury or loss. CONTRACTOR shall give ENGINEER prompt written notice if he believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby. If OWNER determines that a change in time or contract sum is required because of the action taken in response to an emergency, a Change Order will be issued to document the consequences of the changes.

E6.14 Shop Drawings and Samples

After checking and verifying all field measurements and compliance with applicable procedures specified in the Contract documents CONTRACTOR shall submit to ENGINEER for review and approval a minimum of six copies of all Shop Drawings. The data shown on the Shop Drawings shall be complete with respect to quantities, dimensions, specified performance criteria, materials and similar data, as well as specification exceptions and deviations to enable ENGINEER to review the information with respect to requirements of the Contract Documents.

CONTRACTOR shall also submit to ENGINEER for review and approval with such promptness as to cause no delay in Work, all samples required by the Contract Documents. All samples shall be identified clearly as to material, Supplier, pertinent data such as catalog numbers and the use for which intended.

Before submission of each Shop Drawing or sample, CONTRACTOR shall have determined and verified all quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers and similar data with respect thereto and reviewed or coordinated each Shop Drawing or sample with other Shop Drawings and samples and with the requirements of the Work and the Contract Documents.

ENGINEER will review and return within twenty-one calendar days of the receipt thereof all Shop Drawings and samples, but ENGINEER's review and approval will be only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents and shall not extend to means, methods, techniques, sequences or procedures of construction (except where a specific means, method, technique, sequence, or procedure of construction is indicated in or required 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. CONTRACTOR shall make corrections required by ENGINEER and shall return the required number of corrected copies of Shop Drawings and submit new samples as required for review and approval. CONTRACTOR shall direct specific attention in writing to revisions other than the corrections called for by ENGINEER on previous submittals.

ENGINEER's review and approval of Shop Drawings or samples shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called ENGINEER's attention to each such variation at the time of submission. Any approval by ENGINEER shall not relieve CONTRACTOR from responsibility for errors or omissions in the Shop Drawings or coordination with the detailed plans and/or other Shop Drawings.

No work associated with information provided with the shop drawings shall be permitted until the same information is returned approved by the ENGINEER. Any work performed without shop drawing approval shall be performed at the CONTRACTOR's risk and responsibility.

E6.15 Continuing the Work

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.

E7 Other Work

E7.1 Related Work at Site

OWNER may perform other work related to the Project at the site by OWNER's own forces, have other work performed by utility owners or let other direct contracts therefore which shall contain General Conditions similar to these. If the fact that such other work is to be performed was not noted in the Contract Documents, notice thereof will be given to CONTRACTOR by the OWNER or his representative prior to starting any such other work; and, if CONTRACTOR believes that such performance will involve additional expense to CONTRACTOR or required additional time and the parties are unable to agree as to the extent thereof, CONTRACTOR may make a claim therefore.

CONTRACTOR shall afford each utility owner and other contractor who is a party to such a direct contract (or OWNER, if OWNER is performing the additional work with OWNER's employees), proper and safe access to the site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such work, and shall properly connect and coordinate the Work with theirs. CONTRACTOR shall do all cutting, fitting and patching of the Work that may be required to make its several parts come together properly and 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.

If any part of CONTRACTOR's Work depends upon proper execution or results on the work of any other contractor or utility owner, CONTRACTOR shall inspect and promptly report to ENGINEER in writing any delays, defects or deficiencies in such work that render it unavailable or unsuitable for proper execution and results. CONTRACTOR's failure to report will constitute an acceptance of the other work as fit and proper for integration with CONTRACTOR's Work except for latent or non apparent defects and deficiencies in the other work.

E7.2 Coordination

If OWNER contracts with others for the performance of other work on the Project at the site, the person or organization who will have authority and responsibility for coordination of the activities among the various prime contractors (the "Coordinating Contractor") may be identified in the Supplemental General Conditions, and the specific matters to be covered by such authority and responsibility will be itemized and the

extent of such authority and responsibilities will be provided in the Supplemental General Conditions. Notwithstanding any of the above, neither the OWNER nor the ENGINEER assumes any responsibility for the coordination of the activities or the work among the various prime contractors. In the event that any contractor is delayed by the coordinating contractor or any other contractor, it shall have no claim or cause of action against the OWNER or ENGINEER and its exclusive remedy for such delay shall be against the CONTRACTOR or coordinating contractor responsible for the delay. The ENGINEER's interpretation shall be final and binding upon all interested parties.

E7.3 Clarifications and Interpretations

ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents (in the form of Drawings or otherwise) as ENGINEER may determine necessary, which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents.

E8 Changes in the Work

E8.1 Without invalidating the Agreement and without notice to any surety, OWNER may, at any time order additions, deletions or revisions in the Work; these will be authorized by a Change Order. Upon receipt of any such document, CONTRACTOR shall promptly proceed with the changes in the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

E8.2 OWNER and CONTRACTOR shall execute appropriate Change Orders covering:

- changes in the Work which are ordered by OWNER pursuant to the foregoing paragraph; are required because of acceptance of defective Work at the Owner's option; or are agreed to by the parties;
- changes in the Contract Price or Contract Time which are agreed to by the parties; and
- changes in the Contract Price or Contract Time which embody the substance of any written decision rendered by ENGINEER; 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 law, but during any

such appeal, CONTRACTOR shall carry on the Work and adhere to the progress schedule.

E9 Change of Contract Price

E9.1 The Contract Price constitutes the total compensation (subject to authorized adjustments) payable to CONTRACTOR for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by CONTRACTOR shall be at his expense without change in the Contract Price.

E9.2 The Contract Price may only be changed by a Change Order. Any claim for an increase or decrease in the Contract Price shall be based on written notice outlining the bases for the claim and be delivered by the party making the claim to the other party promptly (but in no event later than thirty days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the amount of the claim with supporting data shall be delivered within sixty days after such occurrence and shall be accompanied by claimant's written statement that the amount claimed covers all known amounts (direct, indirect and consequential) to which the claimant is entitled as a result of the occurrence of said event.

E9.3 The value of any Work covered by a Change Order or of any claim for an increase or decrease in the Contract Price shall be determined in one of the following ways:

- Where the Work is covered by unit prices contained in the Contract Documents, value shall be determined by application of unit prices to the quantities of the items involved.
- By mutual acceptance of an agreed price, if work is not covered by unit prices.
- If the Work is not covered by unit prices and the parties are unable to agree upon a price, the value shall be determined on the basis of the Cost of the Work, plus a Contractor's Fee for overhead and profit, the total amount of which shall be determined on the basis of the sum of the following items (1) through (6):
 - (1) The actual cost to the CONTRACTOR or subcontractor, if employed by the CONTRACTOR, of

labor, including foremen (but not including superintendence), said cost to include Base Wages, Social Security (FICA) payments, Federal and State Unemployment Compensation payments and Workmen's Compensation payments;

- (2) The actual cost to the CONTRACTOR or subcontractor of materials and equipment utilized or being installed permanently into the work; and, expendable materials necessary for the conduct and performance of the work (as approved prior to performance of the work) -- the cost of all such approved permanent and expendable materials to be reconciled from suppliers' invoices;
- (3) The rental cost of construction machinery and equipment during the time of use on the extra work, said rental rates to be 75% of those published in daily, weekly and/or monthly rate schedules of a recognized Contractors' association;
- (4) The actual cost of power and any other necessary utility services;
- (5) Business and occupation, sales and/or other applicable taxes;
- (6) An allowance for Profit and Overhead -- to be determined by calculating the sum of the following:
 - (a) The resultant obtained by multiplying the Base Wages referred to in paragraph (1) above times a factor of 0.15;
 - (b) The resultant obtained by multiplying the actual cost of materials and equipment referred to in paragraph (2) above times a factor of 0.05;
 - (c) The resultant obtained by multiplying the cost of extra work if performed by subcontractor times a factor of 0.02.

E10 Change of Contract Time

E10.1 The Contract Time may only be changed by a Change Order. Any claim for an extension or shortening of the Contract Time shall be based on written notice outlining the basis for the claim and be delivered by the party making the claim to the other party and to ENGINEER promptly (but in no event later than thirty days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the extent of the claim with supporting data shall be delivered within sixty days after such occurrence and shall be accompanied by the claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant has reason to believe it is entitled as a result of the occurrence of said event. Any failure to comply with the time limit set forth herein shall constitute a waiver of the CONTRACTOR's right to claim.

E11 Warranty and Guarantee; Access to Work; Tests and Inspections; Owner May Stop Work; Correction, Removal or Acceptance of Defective Work

E11.1 Warranty and Guarantee

CONTRACTOR warrants and guarantees to OWNER that all Work will be in accordance with the Contract Documents and is not defective. Notice of all defects shall be given to CONTRACTOR after the same are detected. All defective Work, whether or not in place, shall be rejected and promptly corrected in accordance with paragraph E11.5.

E11.2 Access to Work

ENGINEER and ENGINEER's representatives, other representatives of OWNER, testing agencies and governmental agencies with jurisdictional interests will have access to the Work at reasonable times for their observation, inspection and testing. CONTRACTOR shall provide proper and safe conditions for such access.

E11.3 Tests and Inspections

CONTRACTOR shall give ENGINEER timely notice of readiness of the Work for all required inspections, tests or approvals.

If Laws and Regulations of any public body having jurisdiction require any Work (or part thereof) to specifically be inspected, tested or approved, CONTRACTOR shall assume full responsibility therefore, pay all costs in connection therewith and furnish OWNER the required certificates of inspection, testing or

approval. CONTRACTOR shall also be responsible for and shall pay all costs in connection with any inspection or testing required in connection with OWNER's or ENGINEER's acceptance of a Supplier of materials or equipment proposed to be incorporated in the Work, or of materials or equipment submitted for approval prior to CONTRACTOR's purchase thereof for incorporation in the Work.

E11.4 Owner May Stop the Work

If the Work is defective or CONTRACTOR fails to supply sufficient skilled workmen or suitable materials or equipment, or fails to perform the Work in accordance with the Contract Documents, the OWNER acting through an authorized representative, 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 or any other party.

E11.5 Correction or Removal of Defective Work

If required by ENGINEER, CONTRACTOR shall, as directed, either correct all defective Work, or work that does not comply with the Contract Documents, or remove it from the site and replace it with non defective Work or Work that does comply with the Contract Documents. CONTRACTOR shall bear all direct, indirect and consequential costs of such correction or removal (including but not limited to fees and charges of engineers, architects, attorneys and other professionals) made necessary thereby.

E11.6 Eighteen Month Correction Period

If within 18 months after the date of Substantial Completion, any Work is found to be defective, or not in compliance with the Contract Documents, CONTRACTOR shall promptly, without cost to OWNER and in accordance with OWNER's written instructions, either correct such defective Work or work that does not comply with the contract documents or remove it from the site and replace it with non defective Work or work that does comply with the Contract Documents. If CONTRACTOR does not comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, OWNER may have the defective Work corrected or the rejected Work removed and replaced, and all direct, indirect and consequential costs of such removal and replacement (including but not limited to fees and charges of engineers, architects, attorneys and other professionals) will be paid by CONTRACTOR. 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 begin from an earlier date if so provided in the Technical Specifications. The rights and remedies of the OWNER hereunder are in addition to and not in limitation of all other rights and remedies of the OWNER for any breach by the CONTRACTOR of any provision of the Contract Documents regardless of when detected.

E11.7 OWNER May Correct Defective Work

If CONTRACTOR fails, within the specified time given in written notice by OWNER, to proceed to correct defective Work or to remove and replace rejected Work, 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 and remedy any such deficiency. To the extent necessary to complete corrective and 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 such access to the site as may be necessary to enable OWNER to exercise the rights and remedies under this paragraph. All direct, indirect and consequential costs of OWNER in exercising such rights and remedies will be charged against CONTRACTOR, and OWNER shall be entitled to an appropriate decrease in the Contract Price. Such direct, indirect and consequential costs will include but not be limited to fees and charges of engineers, architects, attorneys and other professionals required and all costs of repair and replacement of work of others destroyed or damaged by correction, removal or replacement of CONTRACTOR's defective Work. CONTRACTOR shall not be allowed an extension of the Contract Time because of any delay in performance of the Work attributable to the exercise by OWNER of OWNER's rights and remedies hereunder.

E12 Termination

E12.1 Owner May Terminate the Work

Upon the occurrence of any one or more of the following events the OWNER may terminate the work:

- (a) if CONTRACTOR commences a voluntary case under any chapter of the Bankruptcy Code (Title 11, United

States Code), as now or hereafter in effect, or if CONTRACTOR takes any equivalent or similar action by filing a petition or otherwise under any other federal or state law in effect at such time relating to the bankruptcy or insolvency and the OWNER does not receive adequate assurances from the CONTRACTOR, and Trustee in Bankruptcy, and the CONTRACTOR's surety that the CONTRACTOR will complete the Contract in accordance with the terms thereof and at the time specified therein within 20 days of the filing of such petition;

- (b) if a petition is filed against CONTRACTOR under any chapter of The Bankruptcy Code as now or hereafter in effect at the time of filing, or if a petition is filed seeking any such equivalent or similar relief against CONTRACTOR under any other federal or state law in effect at the time relating to bankruptcy or insolvency and the OWNER does not receive adequate assurances from the CONTRACTOR, any Trustee in Bankruptcy and the CONTRACTOR's Surety that the CONTRACTOR will complete the Contract in accordance with the terms thereof and at the time specified therein within 20 days of the filing of such petition;
- (c) if CONTRACTOR makes a general assignment for the benefit of creditors;
- (d) if a trustee, receiver, custodian or agent of CONTRACTOR is appointed under applicable law, or under contract, whose appointment or authority to take charge or property of CONTRACTOR is for the purpose of enforcing a lien against such property for the general administration of such property for the benefit of CONTRACTOR's creditors;
- (e) if CONTRACTOR admits in writing an inability to pay its debts generally as they become due;
- (f) if CONTRACTOR, in the opinion of the ENGINEER, persistently fails to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workmen or suitable materials or equipment or failure to adhere to the progress schedule as revised from time to time);

(g) if CONTRACTOR disregards Laws or Regulations of any public body having jurisdiction.

OWNER may, after giving CONTRACTOR and Surety seven days' written notice and to the extent permitted by law, terminate the services of CONTRACTOR, 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), 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 finish the Work as OWNER may deem expedient. In such case CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price (less any liquidated damages which may be imposed because of the CONTRACTOR'S failure to complete the Contract within the time period set forth in the Contract Documents) exceeds the direct, indirect and consequential costs of completing the Work such excess will be paid to CONTRACTOR. If such costs exceed such unpaid balance, CONTRACTOR shall pay the difference to OWNER, plus any liquidated damages. Such costs incurred by OWNER will be reviewed as to reasonableness by ENGINEER, but when exercising any rights or remedies under this paragraph OWNER shall not be required to obtain the lowest price for the Work performed.

Where CONTRACTOR'S services have been so terminated by OWNER, the termination will not affect any rights or remedies of OWNER against CONTRACTOR or Surety Company then existing or which may thereafter accrue, including their liability to OWNER of liquidated damages because of CONTRACTOR'S failure to complete the work within the contract time. Any retention or payment of moneys due CONTRACTOR by OWNER will not release CONTRACTOR or Surety Company from liability.

Upon seven days' written notice to CONTRACTOR, OWNER may, without cause and without prejudice to any other right or remedy, elect to abandon the Work and terminate the Agreement. In such case, CONTRACTOR shall be paid for all Work executed and expenses sustained plus reasonable termination expenses.

No payment will be paid to CONTRACTOR for profits applicable to the uncompleted work or for damages of any kind regardless of whether the termination is a termination for convenience or a termination for fault. If the OWNER terminates the CONTRACTOR for fault and a court, arbitrator, or other body having

jurisdiction over this Contract determines that such termination was wrongful, the termination will be deemed a termination for convenience and the rights and remedies of the CONTRACTOR will be limited to such rights and remedies he would have had if the Contract had been terminated for the OWNER's convenience pursuant to Section E12.2 hereof.

E12.2 Owner May Terminate for Convenience

The OWNER reserves the right to terminate this Contract for its convenience, without any fault upon the part of the CONTRACTOR, at any time in its sole discretion. If termination for convenience occurs prior to commencement of work by the CONTRACTOR, the OWNER will pay the CONTRACTOR reasonable mobilization costs the CONTRACTOR incurred prior to notice of termination, but no payment will be made for the CONTRACTOR's costs in bidding and entering into the Contract, loss of profits, or damages of any kind. If the OWNER terminates the contract for its convenience after the CONTRACTOR has commenced work, the OWNER will pay the CONTRACTOR any retentions due on previously approved estimates, the value of the work installed by the CONTRACTOR since the last approved estimate, and reasonable demobilization expenses. No payment will be made for any loss of profit on the omitted work or damages of any kind.

E12.3 Contractor May Stop Work or Terminate

If, through no act or fault of CONTRACTOR, the Work is suspended by OWNER or under an order of court or other public authority, or ENGINEER fails to act on any Application for Payment within forty-five days after it is submitted, or OWNER fails for thirty days to pay CONTRACTOR any sum finally determined to be due, then CONTRACTOR may, upon seven days' written notice to OWNER terminate the Agreement and recover from OWNER payment for all Work executed and any expense sustained plus reasonable termination expenses, unless the OWNER cures the default within seven days of receipt of the written notice from the CONTRACTOR. In addition and in lieu of terminating the Agreement, if ENGINEER has failed to act on an Application for Payment or OWNER has failed to make any payment as aforesaid, CONTRACTOR may upon seven days' written notice to OWNER stop the Work until payment of all amounts then due. The provisions of this paragraph shall not relieve CONTRACTOR of his obligations to carry on the Work in accordance with the progress schedule and without delay during disputes and disagreements with OWNER.

E13 Miscellaneous

E13.1 Giving Notice

Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if 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 if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

E13.2 Acceptance of Final Payment Constitutes Release

The acceptance by the CONTRACTOR of final payment shall be and shall operate as a release to the OWNER of all claims and all liability to the Contractor for all things done or furnished in connection with this work and for every act and neglect of the OWNER and the ENGINEER and others relating to or arising out of this work. No payment, however final or otherwise, shall operate to release the CONTRACTOR or his Sureties from any obligations under this Contract, under the Performance Bond, or Payment Bond.

E13.3 Payments by Contractor

The CONTRACTOR shall pay: (a) for all transportation and utility services not later than the 15th day of the calendar month following that in which services are rendered; (b) for all materials, tools, and equipment not later than the 28th day of the calendar month following that in which such materials, tools and equipment are delivered at the site of the project and the balance of the cost thereof, not later than the 30th day following the completion of installation, and testing where applicable, of that part of the work in or on which such materials, tools and equipment are incorporated or used, and; (c) to each of his Subcontractors, not later than the 14th day following each progress, periodic, or final payment to the CONTRACTOR, the respective amounts allowed the CONTRACTOR on account of the work performed by his Subcontractors to the extent of each Subcontractor's interest therein.

E13.4 Assignments

The CONTRACTOR shall not assign the whole or any part of this Contract or moneys due to become due hereunder without written consent of the OWNER. In case the CONTRACTOR assigns all or any part of the moneys due or to become due under this Contract, the instrument of assignment shall contain a clause substantially to the effect that it is agreed that the right of the assignee in and to any moneys due or to become due to the CONTRACTOR shall

be subject to prior claims of all persons, firms and corporations for services rendered or materials supplied for the performance of the work called for in this Contract.

E13.5 Engineer's Decisions

While the ENGINEER will endeavor to interpret the Contract and render his decisions in a fair and unbiased manner, his exercise of such interpretation shall not give rise to any duty or responsibility to the CONTRACTOR or to any Subcontractor and he shall not be liable to the CONTRACTOR or any Subcontractor for any interpretation, decision or measurement made pursuant to Paragraph E3.1, E6.4 or any other provision of the Contract Documents.

E13.6 Work Hours/Schedule

The CONTRACTOR must provide the OWNER/ENGINEER with a written schedule of proposed activities prior to commencement of any work on the project. The written schedule shall include adequate detail to allow determination of work to be completed within any given week. The schedule shall be updated on a monthly basis throughout the length of the contract if work is not progressing as outlined in the original schedule. The schedule shall include the number of days per week and hours per day the CONTRACTOR proposes to work. The OWNER/ENGINEER shall be given a one week notice of any work schedule changes.

E13.7 Night and Weekend Work

The CONTRACTOR shall confine his work schedule to a Monday through Friday, dawn to dusk schedule. Any work the CONTRACTOR proposes to perform at night or on weekends must receive prior (3 days notice) written approval of the OWNER.

End of Section E

General Conditions

THIS PAGE LEFT INTENTIONALLY BLANK

Section F

SUPPLEMENTAL GENERAL CONDITIONS

F1 Required Contractors Insurance Coverages

Under Section E5 of the General Conditions certain stipulations are set forth regarding Contractor's Liability Insurance, Property Insurance, Receipt and Application of Proceeds and Partial Utilization -- Property Insurance. All policies of insurance shall name the CONTRACTOR as the insured party. The CONTRACTOR and his insurance agent shall be required to complete the Certificate of Insurance appended in Section K of the Contract Documents prior to, or at the time that the Agreement is executed and the surety bonds are posted by the CONTRACTOR. OWNER and KLH Engineers, Inc. shall be an additional insured with respect to liability arising out of and from the work performed by CONTRACTOR for OWNER. Insurer waives all right of subrogation against OWNER, its clients, or its employees. The insurance coverage under the insurance contract is primary to any comparable liability insurance carried by the OWNER or its agent. The specific coverages required to be provided prior to commencement of construction by the CONTRACTOR and any and all subcontractors on this project shall be as follows:

F. INSURANCE

CONTRACTOR shall obtain insurance of the types and in the amounts described below. The insurance shall be written by insurance companies with an A. M. Best rating of A- or better and on forms acceptable by OWNER.

F.1 COMMERCIAL GENERAL AND UMBRELLA LIABILITY INSURANCE

CONTRACTOR shall maintain commercial general liability (CGL) and, if necessary, commercial umbrella insurance with a limit of not less than \$2,000,000 each occurrence. If such CGL insurance contains a general aggregate limit, it shall apply separately to the Project.

F.1.1 CGL insurance shall be written on ISO occurrence form CG 00 01 (or a substitute form providing equivalent coverage) and shall cover liability arising from premises, operations, independent contractors, products-completed operations, and personal injury and advertising injury.

F.1.2 OWNER and KLH Engineers, Inc. shall be added by endorsement as named additional insureds under the CGL and under the commercial umbrella, if any. This insurance, including insurance provided under the commercial umbrella, if any, shall apply as primary insurance with respect to

any other insurance or self-insurance programs providing coverage to Owner and/or KLH Engineers, Inc. and shall at a minimum provide to Owner and KLH Engineers, Inc. the same coverage, as that provided to Contractor, including completed operations coverage and shall provide coverage to Owner and KLH Engineers, Inc. for any liability arising from or in any way related to Contractor's work, regardless of any alleged or actual apportionment of negligence or liability.

F.1.3 There shall be no endorsement or modification of the CGL limiting the scope of coverage for liability arising from pollution, explosion, collapse, or underground property damage.

F.1.4 Waiver of Subrogation. Contractor waives all rights against Owner and/or KLH Engineers, Inc. and their agents, officers, directors and employees for recovery of damages to the extent these damages are covered by the commercial general liability or commercial umbrella liability insurance maintained pursuant to paragraph F.1 of this Agreement.

F.1.5 Continuing CGL Coverage. Contractor shall maintain commercial general liability (CGL) and, if necessary, commercial umbrella liability insurance, with a limit of not less than \$2,000,000 each occurrence for at least 3 years following substantial completion of the Work.

F.1.5.1 Continuing CGL insurance shall be written on ISO occurrence form CG 00 01 (or substitute form providing equivalent coverage) and shall, at minimum, cover liability arising from products-completed operations and liability assumed under an insured contract.

F.1.5.2 Continuing CGL insurance shall have a products-completed operations aggregate of at least two times its each occurrence limit or provide aggregate limits per location/project.

F.1.5.3 Continuing commercial umbrella coverage, if any, shall include liability coverage for damage to the insured's completed Work equivalent to that provided under ISO form CG 00 01.

F.2 OWNERS AND CONTRACTORS PROTECTIVE LIABILITY INSURANCE

At the Owners request, the Contractor shall maintain Owners and Contractors Protective Liability (OCP) insurance on behalf of Owner, as named insured, with a limit of \$2,000,000.

F.3 SPECIAL RAILROAD INSURANCE, CSX TRANSPORTATION

F.9.1 In addition to those insurances described above, all Contractors and subcontractors involved on work on Railroad property shall provide special Railroad Protective Liability Insurance for the CSX Transportation.

F.9.2 Any agency, contractor or outside party performing work on or about CSXT's property shall procure and maintain appropriate insurance policies to protect CSXT against the exposure to liability.

- A. Commercial General Liability coverage at their sole cost and expense with limits of not less than \$5,000,000 in combined single limits for bodily injury and/or property damage per occurrence, and such policies shall name CSXT as an additional named insured.
- B. Statutory Worker's Compensation and Employers Liability Insurance with limits of not less than \$1,000,000. The insurance must contain a waiver of subrogation against CSXT and its affiliates.
- C. Commercial automobile liability insurance with limits on not less than \$500,000 combined single limit for bodily injury and/or property damage per occurrence. Such policies shall designate CSXT as an additional named insured.
- D. Railroad protective liability insurance with limits of not less than \$5,000,000 combined single limit for bodily injury and/or property damage per occurrence and an aggregate annual limit of \$10,000,000. The insurance shall satisfy the following additional requirements:
 - 1. The insurer must be financially stable and rated B+ or better in Best's Insurance Reports.
 - 2. The Railroad Protective Insurance Policy must be on the ISO/RIMA Form of Railroad

Protective Insurance-Insurance Services
Office (ISO) Form CG 00 35.

3. CSX Transportation must be the named insured on the Railroad Protective Insurance Policy.
CSX Transportation
500 Water Street, C907
Jacksonville, FL 32202
 4. Name and address of contractor and agency must be shown on the Declarations page.
 5. Description of operations and location of work to be performed must appear on the Declarations page and must match the project description, including project or contract identifications numbers.
 6. Authorized endorsements must include the Pollution Exclusion Amendment CG 28 31- unless using form CG 00 35 version 96 and later.
 7. Authorized endorsements may include:
 - a. Broad Form Nuclear Exclusion-IL 00 21
 - b. 30-day Advance Notice of non-renewal or cancellation
 - c. Required State Cancellation Endorsement
 - d. Quick Reference or Index - CL/IL 240
 8. Authorized endorsements may not include:
 - a. A Pollution Exclusion Endorsement except CG 28 31
 - b. A Punitive or Exemplary Damages Exclusion
 - c. A "Common Policy Conditions" Endorsement
 - d. Any endorsement that is not named in Section D, 6 or 7 above
 - e. Policies that contain any type of deductible
- E. Any such additional or different insurance as CSXT may require.

F.4 BUSINESS AUTO AND UMBRELLA LIABILITY

Contractor shall maintain business auto liability and, if necessary, commercial umbrella liability insurance with a limit of not less than \$2,000,000 each accident.

F.4.1. Such insurance shall cover liability arising out of any auto (including owned, hired and non-owned autos).

F.4.2 Business auto coverage shall be written on ISO form CA 00 01, CA 00 05, CA 00 12, CA 00 20, or a substitute form providing equivalent liability coverage. If necessary, the policy shall be endorsed to provide contractual liability coverage equivalent to that provided in the 1990 and later editions of CA 00 01.

F.4.3 If the Contract Documents require Contractor to remove and haul hazardous waste from the Project site, or if the Project involves such similar environmental exposure, pollution liability coverage equivalent to that provided under the ISO Pollution Liability-Broadened Coverage for Covered Autos Endorsement (CA 99 48) shall be provided, and the Motor Carrier Act Endorsement (MCS 90) shall be attached.

F.4.4 Waiver of Subrogation. Contractor waives all rights against Owner and its agents, officers, directors and employees for recovery of damages to the extent these damages are covered by the business auto liability or commercial umbrella liability insurance obtained by Contractor pursuant to Paragraph F.4 of this Agreement or under any applicable auto physical damage coverage.

F.5 WORKERS COMPENSATION INSURANCE

Contractor shall maintain workers compensation and employers liability insurance.

F.5.1 The employers liability, and if necessary commercial umbrella, limits shall not be less than \$2,000,000 each accident for bodily injury by accident or \$2,000,000 each employee for bodily injury by disease.

F.5.2 Where applicable, U.S. Longshore and Harborworkers compensation Act Endorsement shall be attached to the policy.

F.5.3 Where applicable, Outer Continental Shelf Lands Act Endorsement shall be attached to the policy.

F.5.4 Where applicable, Maritime Coverage Endorsement shall be attached to the policy.

F.6 PROPERTY INSURANCE

F.6.1 Contractor shall purchase and maintain in force property insurance for the entire Work. Such insurance shall be written in an amount at least equal to the initial contract sum as well as subsequent modifications of that sum. The insurance shall apply on a replacement cost basis. If the insurance obtained in compliance with this Paragraph F.6 is builders risk insurance, coverage shall be written on a completed value form.

F.6.2 The insurance as required in Subparagraph F.6.1 shall include the interests of the Owner, Contractor, and all subcontractors and sub-subcontractors on the Project. The insurance policy shall contain a provision that the insurance will not be canceled or allowed to expire until at least 30 days prior written notice has been given to Owner.

F.6.3 The insurance as required in Subparagraph F.6.1 shall cover the entire Work at the site identified in this Agreement, and shall also cover portions of the Work located away from the site but intended for use at the site, and shall also cover portions of the Work in transit. The policy shall include as insured property scaffolding, false work, and temporary buildings located at the site. The policy shall cover the cost of removing debris, including demolition as may be made legally necessary by the operation of any law, ordinance, or regulation.

F.6.4 Contractor shall purchase and maintain boiler and machinery insurance if such equipment is part of the Work identified in this Agreement required by the contract documents or by law, covering insured objects during installation and until final acceptance by Owner. This insurance shall include the interests of the Owner. Contractor and all subcontractors and sub-subcontractors in the Work.

F.6.5 The insurance as required by paragraph F.6 shall be written to cover all risks of physical loss except those specifically excluded in the policy, and shall inure at least against the perils of fire, lightning, explosion, windstorm or hail, smoke, aircraft or vehicles, riot or

civil commotion, theft, vandalism, malicious mischief, and collapse.

F.6.6 Any deductible applicable to the insurance purchased in compliance with this Paragraph 6.6 shall be paid by Contractor.

F.6.7 The insurance as required by this Paragraph F.6 shall be maintained in effect, unless otherwise provided for in the contract documents, until the earliest of the following dates:

(a) the date on which all persons or organizations who are insureds under the policy agree that it shall be terminated;

(b) the date on which final payment, as provided for in this Agreement, has been made;

(c) The date on which the insurable interests in the property of all insureds other than Contractor have ceased.

F.6.8 Before the commencement of Work, Contractor shall provide to Owner a copy of the insurance policy obtained in compliance with this Paragraph F.6.

F.6.9 Before the commencement of Work, Owner may declare to Contractor any decision on its part that the Owner will obtain any or all of the insurance coverage as required in this Paragraph F.6. Upon such declaration, Owner shall then have the right to obtain insurance equivalent in coverage to that required in this Paragraph F.6 and by appropriate change order, charge the cost of such insurance to Contractor.

F.6.10 Waiver of Subrogation. Owner and Contractor waive all rights against each other and each of their subcontractors, sub-subcontractors, officers, directors, agents, and employees for recovery for damages caused by fire and other perils to the extent covered by builders risk or property insurance applicable to the Work.

F.6.11 Partial occupancy or use of the Work shall not commence until the insurance company or companies providing insurance as required in this Paragraph F.6 have consented to such partial occupancy or use. Owner and Contractor shall take reasonable steps to obtain consent of the insurance company or companies, and agree to take no action, other than upon mutual written consent, with respect to occupancy or use of the Work that could lead to cancellation, lapse, or reduction of insurance.

F.7 EVIDENCE OF INSURANCE

Prior to commencing the Work, Contractor shall furnish Owner with a certificate(s) of insurance, executed by a duly authorized representative of each insurer, setting out compliance with the insurance requirements set forth above.

F.7.1 All certificates shall evidence the addition by endorsement of Owner and KLH Engineers, Inc. as "Additional Insured with respect to any claims and/or liability arising from, or in any way related to, the work performed by the insured, regardless of any alleged or actual apportionment of negligence or liability."

F.7.2 All certificates shall provide for 30 days written notice to Owner prior to the cancellation or material change of any insurance referred to therein.

F.7.3 The words "endeavor to" and "but failure to mail such notice shall impose no obligation or liability of any kind upon the company, its agents or representatives" shall be deleted from the cancellation provision of all certificates provided by Contractor.

F.7.4 Failure of Owner to demand such certificate or other evidence of full compliance with these insurance requirements or failure of Owner to identify a deficiency from evidence that is provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.

F.7.5 Owner shall have the right, but not the obligation, to prohibit Contractor or any subcontractor from entering the Project site until such certificates or other evidence that insurance has been placed in complete compliance with these requirements is received and approved by Owner.

F.7.6 Failure to maintain the insurance as specified shall constitute an event of default pursuant to the terms of this Agreement and shall allow Owner to terminate this Agreement at Owner's option. If Contractor fails to maintain the insurance as set forth herein, Owner shall have the right, but not the obligation, to purchase said insurance at Contractor's expense.

F.7.7 With respect to insurance maintained after final payment in compliance with a requirement above, an additional certificate(s) evidencing such coverage shall be promptly provided to Owner when requested.

F.7.8 Contractor shall provide certified copies of all insurance policies required above with 10 days of Owner's written request for said copies.

F.8 GENERAL INSURANCE PROVISIONS

F.8.1 No Representation of Coverage Adequacy. By requiring the insurance as set out in F. Insurance, Owner does not represent that coverage and limits will necessarily be adequate to protect Contractor, and such coverage and limits shall not be deemed a limitation on Contractor's liability under the indemnities provided to Owner in this Agreement, or any other provision of the Contract Documents.

F8.2 Cross-Liability Coverage. If Contractor's liability policies do not contain the standard ISO separation of insureds provision, or a substantially similar clause, they shall be endorsed to provide cross-liability coverage.

F8.3 The insurance requirements set out in this specification are independent from all other obligations of Contractor under this Agreement and apply whether or not required by any other provision of this Agreement.

F8.4 Subcontractor's Insurance. Contractor shall cause each subcontractor employed by Contractor to purchase and maintain insurance of the type specified. When requested by Owner, Contractor shall furnish to Owner copies of certificates of insurance evidencing coverage for each subcontractor.

F.9 REGIONAL TRAIL CORPORATION INSURANCE REQUIREMENTS

A. Before commencing work, CONTRACTOR shall provide and maintain the following insurance, in form and amount and with the companies satisfactory to, and as approved by, Regional Trail Corporation, P.O. Box 95, West Newton, PA 15089.

1. Statutory Workers' Compensation and Employer's Liability insurance.
2. Automobile Liability in an amount not less than One Million (\$1,000,000) Dollars combined single limit.

All insurance provided must be primary and shall not be reduced or limited by any insurance procured by Licensor.

F2 Photographs

Pre-construction and post construction video (DVD) records are required and are essential to completion of this project. Pre-construction 35 mm photographs (Bound in book format with accompanying CD) and video (DVD) shall be submitted with the shop drawing submittals. No payment shall be made until all preconstruction photographs and video(DVD) are provided to the OWNER. All photographs shall be submitted bound in DVD and/or CD format.

CONTRACTOR shall take all still photographs of areas prior to, during, and at completion of project. Photographs are to be, identified and cataloged with a site plan indicating where the photograph was taken and which direction it was shot with a date and time stamp. Any notes the CONTRACTOR deems necessary should also be included on the photograph or on the photograph log.

CONTRACTOR shall video work area prior to, and at completion of the project. Videotapes shall be color DVD format. Videotapes shall be submitted labeled (typewritten) as to their location, date and time of information filmed. All DVD's shall be numbered referenced to contract drawings identifying location and contract drawing number and shall include close inspection of all equipment, structures and improved areas to be disturbed by construction activities, especially streets, roads, lanes, driveways, bridges, streams, improved scrubbed/planting bed, and lawns. Improved lawns are areas regularly maintained by a property owner regardless of the number of trees. Pre-construction video tapes of all construction through unimproved areas are required and shall be submitted prior to work commencing through those areas, and shall include video along the alignment of the construction stake out and identify topographic features/wooded areas to be disturbed.

All videos and photographs taken during or post construction shall be submitted at the conclusion of the project to the OWNER and will become the property of the OWNER.

F3 Construction Inspection

The day-to-day inspection work on this project will be performed by a Project Representative directly employed by the OWNER and/or the ENGINEER. Each contractor's superintendent shall coordinate all construction activities with that individual who shall refer such matters as he deems necessary to the OWNER and the ENGINEER, or others, as circumstances may be required.

F4 Progress Meetings on the Job Site

Periodic job progress meetings will be scheduled on at least a monthly basis for the purpose of coordinating the work of all contractors, reconciling construction problems and/or discussing any other project related matters. The ENGINEER will call those meetings with advance notification of several days. CONTRACTOR's superintendents and/or other authorized administrative personnel will be expected to be present.

F5 Prevailing Minimum Wage Predetermination

The Pennsylvania State Department of Labor and Industry has made a minimum wage determination applicable to all construction work performed under this project. The "Decision of the Secretary"; the Contractor's or Subcontractor's Weekly Payroll Certification for Public Works Projects" form (which will be required to be properly sworn and submitted weekly to the OWNER during the Progress of the work); and the "Prevailing Minimum Wage Predetermination" dated December 15, 2010 follows on Pages F-22 thru F-28.

F6 Pennsylvania Department of Transportation Highway Occupancy

Permits will be obtained by the CONTRACTOR. The CONTRACTOR shall conduct all work in accordance with the Rules and Regulations of the Pennsylvania Department of Transportation and in accordance with the laws, rules and/or regulations of all other authorities having jurisdiction over the required construction work. Permit costs incurred on the project which are required by the regulatory agencies and all other costs for and in connecting with the work shall be paid by the CONTRACTOR.

F7 Requirements of Liberty Borough

The CONTRACTOR shall obtain a permit for work in Borough Roads. The work shall be in accordance with the requirements of the Liberty Borough. CONTRACTOR shall be responsible for permit fees required. The CONTRACTOR shall provide Liberty Borough with a maintenance bond having a two year term. Value of the maintenance bond shall be determined by Liberty Borough.

F8 Requirements of City of McKeesport

The CONTRACTOR shall obtain and be responsible for all permit fees for work in City streets and roads. The work shall be in accordance with the requirements of the City of McKeesport. The CONTRACTOR shall provide City of McKeesport with a maintenance bond having a two year term. Value of the maintenance bond shall be determined by City of McKeesport.

F9 Local Taxes and Permits

The Contract Documents require the successful CONTRACTORS to comply with all federal, state, and local laws, ordinances, rules and regulations; obtain and pay for any and all construction permits and licenses; and pay all taxes. This will include, but shall not be limited to, the City of McKeesport's:

- Business Privilege Tax (0.008 of Gross Contract Amount)
- Business Privilege Registration (\$10.00)
- Business License Fee Tax (\$100.00)

All City of McKeesport taxes and permit fees shall be satisfied prior to construction commencing.

F10 NPDES Permit for Discharge of Stormwater from Construction Activities

The CONTRACTOR shall be required to sign the NPDES Permit for Discharge of Stormwater from Construction Activities as Transferee with the OWNER. Complete implementation of the Erosion and Sediment Pollution Control Plan by the CONTRACTOR will satisfy the terms of the noted NPDES Permit Application. The transferee application and instructions follow on Page F-19 through F-21.

F11 Contract Close-out Documents

Upon completion of the contract, the CONTRACTOR and/or Contractor's surety shall be required to complete the following documents appended on Pages F-14 thru F-18:

- Affidavit of Payment and Release of Liens
- Acceptance of Final Payment and General Release
- Consent of Surety Company to Final Payment

F12 Claims for Damages

Under this Contract, the CONTRACTOR shall not be entitled to seek additional compensation for delays, loss of anticipatory profits, or consequential damages.

F13 OWNER's Right of Audit

If a claim arises by the CONTRACTOR against the OWNER, the OWNER shall have access to all of the CONTRACTOR's books and records for auditing. The CONTRACTOR shall be required to maintain accurate books and records regardless of whether any claims arise.

F14 Substantial Completion

The CONTRACTOR is hereby notified and alerted the Contract Technical Specifications are specific to construction of the work specified herein and to that end, the interpretation for Substantial Completion for this Contract is specified in Section 01800.

F15 Notice-to-Proceed

Due to the funding package being utilized to finance this project, the OWNER reserves the right to hold the notice-to-proceed on the construction for a period of up to ninety (90) days from date of execution of the Agreement.

F16 Coordination and Interfaces

The individual Contractors shall not unload or store material where it will interfere with the progress of the Project to cause delays or to prevent other Contractors from proceeding with their work.

Work Interferences: Each CONTRACTOR shall construct its Systems, and install the specified products of its Contract in a manner not to delay or interfere with other operations of work of other Contracts in the Project.

1. Prior to making Product installations, coordinate such locations with other operations of work, especially in congested areas.
2. In the event that interferences develop, the ENGINEER's decision will be final and no additional compensation will be allowed for relocation of the affected CONTRACTOR's Products.

Contract Interface:

1. Work Interfacing With Other Contracts: Each CONTRACTOR is responsible for performing the interface Work of its Contract in cooperation with Work of other Contracts.

End of Section F

Supplemental General Conditions

AFFIDAVIT OF PAYMENT

AND

RELEASE OF LIENS

TO:

I hereby certify that, to the best of my knowledge, all outstanding claims and indebtedness of any nature resulting from the performance of my contract have been fully paid, except for the following:

I hereby deliver to the OWNER, a complete release of all liens arising out of this Contract for unpaid material and labor, or other costs.

ATTEST:

CONTRACTOR:

By _____

Title _____

Commonwealth of Pennsylvania)

) SS:

County of _____)

Before me a Notary Public in and for said County and Commonwealth, personally agreed _____ who, being duly sworn according to law, deposes and says that the facts set forth in the foregoing Affidavit and Release are true and correct to the best of his/her knowledge, information and belief.

Sworn to and subscribed before me this _____ day and _____, 20____.

Notary Public

My Commission Expires:

Commonwealth of Pennsylvania)

) SS:

County of _____)

_____, being duly sworn according to law, deposes and says that he/she is the _____ of

_____, a Pennsylvania Corporation, and that he/she makes this Affidavit on its behalf, being authorized to do so; and that the facts set forth in the foregoing Affidavit and Release are true and correct to the best of his/her information, knowledge and belief.

Sworn to and subscribed before me this _____ day of _____, 20____.

Notary Public

My Commission Expires:

ACCEPTANCE OF FINAL PAYMENT

AND

GENERAL RELEASE

KNOW ALL MEN BY THESE PRESENTS, THAT _____
Contractor, of _____ Pennsylvania,
by its acceptance of Final Payment of _____ Dollars
(\$ _____), to it in hand paid by _____
the receipt of which is hereby acknowledged, has remised,
released, quit-claimed, and forever discharged, and by these
presents for it, its successors and assigns, does remise,
release, quit-claim and forever discharge, the said
_____ its successors and assigns, from all
action and all manner of action, cause and causes of action,
suits, debts, duties, sum or sums of money, variances, damages,
claims and demands whatsoever, in law or equity or otherwise,
which against _____ it ever had, now
has, or which it, its successors or assigns, hereafter can,
shall, or may have, for or by reason of a certain contract
between _____ and _____
_____ dated _____,
designated as Contract _____,

No payment, however, final or otherwise shall operate to release
_____, or its sureties from
any obligation under said contract or under the Performance,
Payment, and Maintenance Bonds furnished to the OWNER by it,
under said contract.

ATTEST:

(SEAL)

CONTRACTOR:

By _____

Title

Commonwealth of Pennsylvania)

) SS:

County of)

Before me a Notary Public in and for said County and Commonwealth, personally agreed _____ who, being duly sworn according to law, deposes and says that the facts set forth in the foregoing Affidavit and Release are true and correct to the best of his/her knowledge, information and belief.

Sworn to and subscribed before me this _____ day and _____, 20__.

Notary Public

My Commission Expires:

Commonwealth of Pennsylvania)

) SS:

County of)

_____, being duly sworn according to law, deposes and says that he/she is the _____ of _____, a Pennsylvania Corporation, and that he/she makes this Affidavit on its behalf, being authorized to do so; and that the facts set forth in the foregoing Affidavit and Release are true and correct to the best of his/her information, knowledge and belief.

Sworn to and subscribed before me this _____ day of _____, 20__.

Notary Public

My Commission Expires:

CONSENT OF SURETY COMPANY TO FINAL PAYMENT

Bond No. _____

Project _____

OWNER: _____

CONTRACTOR: _____

In accordance with the provisions of the Contract between the OWNER and CONTRACTOR as indicated above, the

(insert name and address of Surety Company)

_____, Surety Company, on bond of

(insert name and address of Contractor)

_____, CONTRACTOR, hereby approves of the final payment to the CONTRACTOR, and agrees that final payment to the CONTRACTOR shall not relieve the Surety Company of any of its obligations to:

(insert name and address of OWNER)

_____, OWNER, as set forth in the said Surety Company's Bond.

IN WITNESS WHEREOF,
the Surety Company has hereunto set its hand this ____ day of ____ 20 ____.

Surety Company

Signature of Authorized Representative

ATTEST:

(SEAL) _____ Title



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATERSHED MANAGEMENT

OFFICIAL USE ONLY
PA _____

**TRANSFEEE/CO-PERMITTEE APPLICATION FOR A GENERAL OR
INDIVIDUAL NPDES PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH
CONSTRUCTION ACTIVITIES**

TYPE OR PRINT IN BLOCK LETTERS

A. PERMIT INFORMATION					
<input type="checkbox"/> Check here if applying for permit transfer.			<input type="checkbox"/> Check here if applying to be added as a co-permittee.		
GENERAL OR INDIVIDUAL NPDES PERMIT FOR DISCHARGES OF STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES FOR WHICH APPLYING AS TRANSFEEE/CO-PERMITTEE.					
PERMIT NO.:		DATE ISSUED:			
B. CURRENT PERMITTEE INFORMATION					
DEP Client ID# (if known)			Applicant Type / Code (if known)		
Organization Name or Registered Fictitious Name			Employer ID# (EIN)	Contact Person	
Individual Last Name	First Name	MI	Suffix	SSN	
Additional Individual Last Name	First Name	MI	Suffix	SSN	
Mailing Address Street					
City	State	ZIP+4	County	Phone	
C. SITE INFORMATION					
DEP Site ID# (if known)		Site Name			
DEVELOPMENT NAME (IF APPLICABLE):					
SITE ADDRESS/LOCATION:					
COUNTY:			MUNICIPALITY:		
DATE OF TRANSFER OF PERMIT RESPONSIBILITY, COVERAGE AND LIABILITY: _____, 20____					
<p>CO-PERMITTEE/TRANSFEEE AGREEMENT: Attach a written agreement signed by all parties involved with the change of operational control. The letter should provide a specific date (not less than 30 days after the date this application is submitted) for the transfer or sharing of permit responsibility, coverage, and liability between the current and new permittee/co-permittee. A SAMPLE Co-Permittee Agreement letter and a SAMPLE Transferee Agreement letter are attached for reference.</p>					

D. TRANSFEREE/CO-PERMITTEE INFORMATION					
DEP Client ID# (if known)			Applicant Type / Code (if known)		
Organization Name or Registered Fictitious Name		Employer ID# (EIN)	Contact Person		
Individual Last Name	First Name	MI	Suffix	SSN	
Additional Individual Last Name	First Name	MI	Suffix	SSN	
Mailing Address Street					
City	State	ZIP+4	County	Phone	
E. COMPLIANCE REVIEW					
Yes <input type="checkbox"/>	No <input type="checkbox"/>	Does the applicant (owner and/or operator) have or require other environmental permits issued by the Department for this project? If yes, list each permit and the compliance history of the permitted facility or operation.			
		Permit Program: _____			
		Permit Number: _____			
		Brief Description: _____			
		Compliance History: _____			
If the applicant is not in compliance with any environmental law or regulation, or Department permit, order or schedule of compliance, or has failed and continues to fail to comply, or has shown a lack of ability or intent to comply with environmental laws or regulations or any Department permit, order, or schedule of compliance, as indicated by past or continuing violations, provide a narrative description of how the applicant will achieve compliance including the appropriate milestones.					
F. CERTIFICATION AND SIGNATURE OF APPLICANT					
Applicant Certification I certify under penalty of law that this application and all related attachments were prepared by me or under my direction or supervision by qualified personnel to properly gather and evaluate the information submitted. Based on my own knowledge and on inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. The responsible official's signature also verifies that the activity is eligible to participate in the General or Individual NPDES Permit, and BMP's and other controls are or will be implemented to ensure that water quality standards and effluent limits are attained. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment or both for knowing violations.					
_____ Print Name and Title of Person Signing					
() _____ Telephone Number of Person Signing					
_____ Signature of Applicant					
_____ Date of Application Signed					
Notarization: Sworn to and Subscribed to Before Me This			Commonwealth of Pennsylvania County of _____		
_____ Day of _____, 20____					
_____ My Commission Expires: _____					
_____ Notary Public					

INSTRUCTIONS FOR THE TRANSFeree / CO-PERMITTEE APPLICATION FORM FOR A GENERAL OR INDIVIDUAL NPDES PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES

Who may file the Transferee/Co-Permittee Application Form: This form may be used by an applicant seeking to apply for either complete or partial operational control of earth disturbance activities at a site which are already authorized by either an Individual or General NPDES Permit. Federal NPDES Regulations at 40 C.F.R. §122.21(b) require that Operator(s) must become a permittee. An operator is a person who meets either of the following criteria: 1.) You have operational control of construction project plans and specifications, including the ability to make modifications to those plans and specifications; **OR** 2.) You have day-to-day operational control (supervision) of those activities at the project that are necessary to ensure compliance with the Erosion and Sediment Control Plan for the site or ensure compliance with other permit conditions, i.e., General Contractors. Subcontractors generally do not have supervisory control over earth disturbance activities and therefore usually **should not** become a permittee or co-permittee. If prior to construction activities, there is no operator, the owner must apply for the permit. Once the operator has been selected, the operator must use this application either to be made a co-permittee or to have the permit transferred to the contractor. **Failure of the operator to be added to the permit is a violation of federal and state law and regulation.**

Where to file the Transferee/Co-Permittee Application Form: Send this form to the reviewing entity, either to the local county conservation district that is participating as the reviewing entity or, if the Department is the reviewing entity, to the appropriate DEP Regional Office, Permitting and Technical Services Section.

When to file the Application: This application must be filed at least 30 days prior to the proposed change of ownership and/or operational control which will result in the transfer of permit responsibility, coverage and liability.

Completing the Application: TYPE OR PRINT IN BLOCK LETTERS IN THE APPROPRIATE SPACES

- Section A. Permit Information** - Check the appropriate box and enter the Permit Number and date of issuance of the existing Individual or General NPDES Permit assigned to the construction activity at the site identified in Section C below.
- Section B. Current Permittee Information** - Enter the full name, address and telephone number of the individual or organization and contact person that is the current permittee. The Regional Office can supply the Client ID # and Applicant Code, if known.
- Section C. Site Information** - Enter the DEP Site ID#, site name, site address/location, county and municipality of the site where the construction activity authorized by the NPDES Permit is located. Include the date on which the transfer of Permit responsibility, coverage and liability will occur. The Regional Office can supply the Site ID #.
- Section D. Transferee/Co-Permittee Information** - Enter the full name, address and telephone number of the individual or organization and contact person that is applying to assume operational control of construction activities at the site. The Regional Office can supply the Client ID # and Applicant Code, if known.
- Section E. Compliance Review** - The individual or organization referenced in Section D must indicate if any other environmental permits have been received or are pending from DEP as well as their past compliance history and if they are currently in compliance with environmental laws, rules and regulations, permits, orders and schedules of compliance.
- Section F. Certification and Signature of Applicant** - The new Transferee/Co-Permittee Applicant (named in Section D) must complete the required certification that the information contained in this application is true, accurate, and complete; the BMPs are or will be designed and fully implemented in accordance with the NPDES Permit requirements and will meet the applicable standards and limitations of the permit; and further that the applicant has read, understands and agrees to abide by the terms and conditions of the permit. The application shall be signed as follows:
- a. **For a corporation** -- By a responsible corporate officer, which means: (1) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or (2) The manager of one or more manufacturing, production or operating facilities if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;
 - b. **For a partnership or sole proprietorship** -- By a general partner or the proprietor, respectively; or
 - c. **For a municipality, State, Federal or other public agency** -- by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes: (1) the chief executive officer of the agency, or (2) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

The application shall be notarized in the space provided.



PREVAILING WAGES PROJECT RATES

Project Name: Contract 2010-15: Youghiogheny River Force Main Crossing

Awarding Agency: The Municipal Authority of the City of McKeesport

Contract Award Date: 4/1/2011

Serial Number: 10-07682

Project Classification: Heavy/Highway

Determination Date: 12/15/2010

Assigned Field Office: Pittsburgh

Field Office Phone Number: 412-565-5300

Toll Free Phone Number: 877-504-8354

Allegheny County

Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Asbestos & Insulation Workers	8/1/2010		\$31.87	\$20.04	\$51.91
Asbestos & Insulation Workers	8/1/2011		\$33.27	\$20.04	\$53.31
Asbestos & Insulation Workers	8/1/2012		\$34.67	\$20.04	\$54.71
Boilermakers	6/1/2008		\$33.90	\$20.06	\$53.96
Boilermakers	8/1/2010		\$37.52	\$22.49	\$60.01
Bricklayer	6/1/2010		\$28.65	\$16.13	\$44.78
Bricklayer	12/1/2010		\$28.87	\$16.71	\$45.58
Carpenters, Drywall Hangers, Framers, Instrument Men, Lathers, Soft Floor Layers	6/1/2010		\$28.11	\$11.91	\$40.02
Carpenters, Drywall Hangers, Framers, Instrument Men, Lathers, Soft Floor Layers	1/1/2011		\$28.39	\$12.02	\$40.41
Carpenters, Drywall Hangers, Framers, Instrument Men, Lathers, Soft Floor Layers	6/1/2011		\$28.77	\$13.05	\$41.82
Carpenters, Drywall Hangers, Framers, Instrument Men, Lathers, Soft Floor Layers	6/1/2012		\$29.53	\$13.68	\$43.21
Carpenters, Drywall Hangers, Framers, Instrument Men, Lathers, Soft Floor Layers	6/1/2013		\$30.28	\$14.33	\$44.61
Cement Finishers	6/1/2010		\$26.79	\$12.27	\$39.06
Cement Finishers	12/1/2010		\$26.79	\$12.77	\$39.56

PREVAILING WAGES PROJECT RATES

Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Dockbuilder/Pile Driver Divers	1/1/2010		\$29.95	\$12.25	\$42.20
Drywall Finisher	6/1/2010		\$24.55	\$14.49	\$39.04
Drywall Finisher	6/1/2011		\$25.30	\$14.74	\$40.04
Drywall Finisher	6/1/2012		\$26.05	\$14.99	\$41.04
Electric Lineman	5/31/2010		\$38.00	\$17.73	\$55.73
Electric Lineman	5/30/2011		\$38.88	\$17.96	\$56.84
Electric Lineman	11/28/2011		\$39.78	\$18.20	\$57.98
Electric Lineman	5/28/2012		\$40.70	\$18.45	\$59.15
Electric Lineman	11/26/2012		\$41.63	\$18.70	\$60.33
Electricians & Telecommunications Installation Technician	12/25/2009		\$35.61	\$17.13	\$52.74
Electricians & Telecommunications Installation Technician	12/24/2010		\$38.01	\$17.13	\$55.14
Elevator Constructor	1/1/2011		\$41.13	\$21.99	\$63.12
Glazier	9/1/2010		\$27.54	\$18.31	\$45.85
Glazier	9/1/2011		\$28.04	\$19.06	\$47.10
Glazier	9/1/2012		\$28.54	\$19.81	\$48.35
Glazier	9/1/2013		\$29.04	\$20.31	\$49.35
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing) Laborers (Class 01 - See notes)	6/1/2010		\$30.03	\$22.71	\$52.74
Laborers (Class 01 - See notes)	12/1/2009		\$20.92	\$9.72	\$30.64
Laborers (Class 01 - See notes)	6/1/2010		\$20.92	\$9.72	\$30.64
Laborers (Class 01 - See notes)	1/1/2011		\$21.17	\$10.52	\$31.69
Laborers (Class 01 - See notes)	1/1/2012		\$21.42	\$11.32	\$32.74
Laborers (Class 01 - See notes)	1/1/2013		\$21.67	\$12.12	\$33.79
Laborers (Class 01 - See notes)	1/1/2014		\$21.92	\$12.92	\$34.84
Laborers (Class 01 - See notes)	1/1/2015		\$22.17	\$13.72	\$35.89
Laborers (Class 02 - See notes)	12/1/2009		\$21.07	\$9.72	\$30.79
Laborers (Class 02 - See notes)	6/1/2010		\$21.07	\$9.72	\$30.79
Laborers (Class 02 - See notes)	1/1/2011		\$21.32	\$10.52	\$31.84
Laborers (Class 02 - See notes)	1/1/2012		\$21.57	\$11.32	\$32.89
Laborers (Class 02 - See notes)	1/1/2013		\$21.82	\$12.12	\$33.94
Laborers (Class 02 - See notes)	1/1/2014		\$22.07	\$12.92	\$34.99

PREVAILING WAGES PROJECT RATES

Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Laborers (Class 02 - See notes)	1/1/2015		\$22.32	\$13.72	\$36.04
Laborers (Class 03 - See notes)	12/1/2009		\$21.20	\$9.72	\$30.92
Laborers (Class 03 - See notes)	6/1/2010		\$21.20	\$9.72	\$30.92
Laborers (Class 03 - See notes)	1/1/2011		\$21.45	\$10.52	\$31.97
Laborers (Class 03 - See notes)	1/1/2012		\$21.70	\$11.32	\$33.02
Laborers (Class 03 - See notes)	1/1/2013		\$21.95	\$12.12	\$34.07
Laborers (Class 03 - See notes)	1/1/2014		\$22.20	\$12.92	\$35.12
Laborers (Class 03 - See notes)	1/1/2015		\$22.45	\$13.72	\$36.17
Laborers (Class 04 - See notes)	12/1/2009		\$21.67	\$9.72	\$31.39
Laborers (Class 04 - See notes)	6/1/2010		\$21.67	\$9.72	\$31.39
Laborers (Class 04 - See notes)	1/1/2011		\$21.92	\$10.52	\$32.44
Laborers (Class 04 - See notes)	1/1/2012		\$22.17	\$11.32	\$33.49
Laborers (Class 04 - See notes)	1/1/2013		\$22.42	\$12.12	\$34.54
Laborers (Class 04 - See notes)	1/1/2014		\$22.67	\$12.92	\$35.59
Laborers (Class 04 - See notes)	1/1/2015		\$22.92	\$13.72	\$36.64
Landscape Laborer	7/1/2010		\$18.25	\$9.90	\$28.15
Landscape Laborer (Skilled)	7/1/2010		\$18.67	\$9.90	\$28.57
Landscape Laborer (Tractor Operator)	7/1/2010		\$18.97	\$9.90	\$28.87
Marble Finisher	6/1/2010		\$19.52	\$11.70	\$31.22
Marble Mason	6/1/2010		\$19.42	\$9.41	\$28.83
Millwright	6/1/2008		\$32.71	\$14.29	\$47.00
Millwright	6/1/2011		\$34.42	\$15.08	\$49.50
Operators (Class 01 - see notes)	6/1/2010		\$30.22	\$15.32	\$45.54
Operators (Class 01 - see notes)	6/1/2011		\$31.45	\$15.40	\$46.85
Operators (Class 02 -see notes)	6/1/2010		\$26.78	\$15.32	\$42.10
Operators (Class 02 -see notes)	6/1/2011		\$27.76	\$15.40	\$43.16
Operators (Class 03 - see notes)	6/1/2010		\$25.06	\$15.32	\$40.38
Operators (Class 03 - see notes)	6/1/2011		\$26.04	\$15.40	\$41.44
Painters Class 6 (see notes)	6/1/2010		\$25.28	\$13.53	\$38.81
Painters Class 6 (see notes)	6/1/2010		\$25.28	\$14.78	\$40.06

PREVAILING WAGES PROJECT RATES

Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Pile Driver Diver Tender (Building, Heavy, Highway)	1/1/2010		\$29.95	\$12.25	\$42.20
Pile Driver Divers (Building, Heavy, Highway)	1/1/2010		\$44.39	\$12.25	\$56.64
Pile Driver Divers (Building, Heavy, Highway)	1/1/2010		\$44.39	\$12.25	\$56.64
Plasterers	6/1/2010		\$26.13	\$12.15	\$38.28
Plasterers	6/1/2011		\$26.58	\$12.15	\$38.73
Plasterers	6/1/2012		\$27.03	\$12.15	\$39.18
Plumbers	6/1/2010		\$34.75	\$17.92	\$52.67
Pointers, Caulkers, Cleaners	6/1/2010		\$25.98	\$14.33	\$40.31
Pointers, Caulkers, Cleaners	12/1/2010		\$26.36	\$14.53	\$40.89
Roofers	6/1/2009		\$26.00	\$11.69	\$37.69
Roofers	6/1/2010		\$27.50	\$11.69	\$39.19
Roofers	12/1/2010		\$26.87	\$12.32	\$39.19
Sheet Metal Workers	7/1/2010		\$31.46	\$20.81	\$52.27
Sprinklerfitters	7/1/2010		\$30.99	\$17.45	\$48.44
Sprinklerfitters	1/1/2011		\$31.04	\$17.95	\$48.99
Steamfitters (Building, Heavy, Highway)	6/1/2009		\$33.43	\$17.19	\$50.62
Steamfitters (Building, Heavy, Highway)	6/1/2010		\$34.93	\$17.99	\$52.92
Stone Masons	6/1/2009		\$28.50	\$14.62	\$43.12
Stone Masons	12/1/2009		\$28.92	\$15.20	\$44.12
Stone Masons	6/1/2010		\$29.32	\$15.85	\$45.17
Stone Masons	12/1/2010		\$29.75	\$16.22	\$45.97
Terrazzo Finisher	12/1/2009		\$25.76	\$12.54	\$38.30
Terrazzo Finisher	12/1/2010		\$26.36	\$13.19	\$39.55
Terrazzo Setter	6/1/2009		\$26.15	\$13.05	\$39.20
Terrazzo Setter	12/1/2009		\$26.30	\$13.55	\$39.85
Terrazzo Setter	6/1/2010		\$26.90	\$14.20	\$41.10
Terrazzo Setter	12/1/2010		\$26.90	\$14.20	\$41.10
Tile Finisher	6/1/2009		\$20.77	\$10.55	\$31.32
Tile Finisher	12/1/2009		\$20.92	\$11.05	\$31.97
Tile Finisher	6/1/2010		\$21.12	\$11.70	\$32.82

PREVAILING WAGES PROJECT RATES

Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Tile Setter	6/1/2009		\$26.85	\$13.45	\$40.30
Tile Setter	12/1/2009		\$27.10	\$13.95	\$41.05
Tile Setter	6/1/2010		\$27.40	\$14.60	\$42.00
Truckdriver class 1(see notes)	1/1/2009		\$24.23	\$11.44	\$35.67
Truckdriver class 1(see notes)	1/1/2010		\$24.98	\$12.04	\$37.02
Truckdriver class 2 (see notes)	1/1/2009		\$24.38	\$11.51	\$35.89
Truckdriver class 2 (see notes)	1/1/2010		\$25.13	\$12.11	\$37.24
Truckdriver class 3 (see notes)	1/1/2009		\$24.91	\$11.75	\$36.66
Truckdriver class 3 (see notes)	1/1/2010		\$25.64	\$12.37	\$38.01

PREVAILING WAGES PROJECT RATES

Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Carpenter Welder	1/1/2009		\$28.23	\$12.16	\$40.39
Carpenter Welder	1/1/2010		\$29.18	\$12.56	\$41.74
Carpenters	1/1/2009		\$27.53	\$12.16	\$39.69
Carpenters	1/1/2010		\$28.48	\$12.56	\$41.04
Cement Finishers	1/1/2009		\$26.72	\$12.97	\$39.69
Cement Finishers	1/1/2010		\$27.62	\$13.42	\$41.04
Iron Workers	6/1/2009		\$29.43	\$21.41	\$50.84
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	6/1/2010		\$30.03	\$22.71	\$52.74
Laborers (Class 01 - See notes)	1/1/2009		\$23.30	\$12.65	\$35.95
Laborers (Class 01 - See notes)	1/1/2010		\$23.75	\$13.55	\$37.30
Laborers (Class 02 - See notes)	1/1/2009		\$23.46	\$12.65	\$36.11
Laborers (Class 02 - See notes)	1/1/2010		\$23.91	\$13.55	\$37.46
Laborers (Class 03 - See notes)	1/1/2009		\$23.85	\$12.65	\$36.50
Laborers (Class 03 - See notes)	1/1/2010		\$24.30	\$13.55	\$37.85
Laborers (Class 04 - See notes)	1/1/2009		\$24.30	\$12.65	\$36.95
Laborers (Class 04 - See notes)	1/1/2010		\$24.75	\$13.55	\$38.30
Laborers (Class 05 - See notes)	1/1/2009		\$24.71	\$12.65	\$37.36
Laborers (Class 05 - See notes)	1/1/2010		\$25.16	\$13.55	\$38.71
Laborers (Class 06 - See notes)	1/1/2009		\$21.55	\$12.65	\$34.20
Laborers (Class 06 - See notes)	1/1/2010		\$22.00	\$13.55	\$35.55
Laborers (Class 07 - See notes)	1/1/2009		\$24.20	\$12.65	\$36.85
Laborers (Class 07 - See notes)	1/1/2010		\$24.65	\$13.55	\$38.20
Laborers (Class 08 - See notes)	1/1/2009		\$25.70	\$12.65	\$38.35
Laborers (Class 08 - See notes)	1/1/2010		\$26.15	\$13.55	\$39.70
Operators (Class 01 - see notes)	1/1/2009		\$26.38	\$14.44	\$40.82
Operators (Class 01 - see notes)	1/1/2010		\$27.18	\$14.99	\$42.17
Operators (Class 02 -see notes)	1/1/2009		\$26.12	\$14.44	\$40.56
Operators (Class 02 -see notes)	1/1/2010		\$26.92	\$14.99	\$41.91
Operators (Class 03 - See notes)	1/1/2009		\$22.47	\$14.44	\$36.91
Operators (Class 03 - See notes)	1/1/2010		\$23.27	\$14.99	\$38.26

PREVAILING WAGES PROJECT RATES

Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Operators (Class 04 - See notes)	1/1/2009		\$22.01	\$14.44	\$36.45
Operators (Class 04 - See notes)	1/1/2010		\$22.81	\$14.99	\$37.80
Operators (Class 05 - See notes)	1/1/2009		\$21.76	\$14.44	\$36.20
Operators (Class 05 - See notes)	1/1/2010		\$22.56	\$14.99	\$37.55
Painters Class 1 (see notes)	6/1/2009		\$27.24	\$12.81	\$40.05
Painters Class 1 (see notes)	6/1/2010		\$27.84	\$13.53	\$41.37
Painters Class 1 (see notes)	6/1/2010		\$27.84	\$15.03	\$42.87
Painters Class 2 (see notes)	6/1/2009		\$27.77	\$12.81	\$40.58
Painters Class 2 (see notes)	6/1/2010		\$28.38	\$13.53	\$41.91
Painters Class 2 (see notes)	6/1/2010		\$28.38	\$15.03	\$43.41
Painters Class 3 (see notes)	6/1/2009		\$29.81	\$12.81	\$42.62
Painters Class 3 (see notes)	6/1/2010		\$30.48	\$13.53	\$44.01
Painters Class 3 (see notes)	6/1/2010		\$30.48	\$15.28	\$45.76
Painters Class 4 (see notes)	6/1/2009		\$23.79	\$12.81	\$36.60
Painters Class 4 (see notes)	6/1/2010		\$24.38	\$13.53	\$37.91
Painters Class 4 (see notes)	6/1/2010		\$24.38	\$14.93	\$39.31
Painters Class 5 (see notes)	6/1/2009		\$19.28	\$12.81	\$32.09
Painters Class 5 (see notes)	6/1/2010		\$19.81	\$13.53	\$33.34
Painters Class 5 (see notes)	6/1/2010		\$19.81	\$14.67	\$34.48
Piledrivers	1/1/2009		\$28.85	\$12.00	\$40.85
Piledrivers	1/1/2010		\$29.95	\$12.25	\$42.20
Steamfitters (Heavy and Highway - Gas Distribution)	5/1/2010		\$30.27	\$26.09	\$56.36

Section H

**Contract No. 2010-15
Youghiogheny River Force Main Crossing
Measurement and Payment**

H1 General

Payment for all completed work performed under these contracts shall be made in the respective unit prices and lump sum amounts appearing on the Bid Forms, as may be amended in accordance with the General Conditions. The cost of performing all work shown on the drawings and/or described in the specifications shall be included within the amounts bid. All applications for payment shall include an updated construction schedule.

H2 Applications for Payment

Applications for Payment during construction progress shall be jointly developed each month by authorized representatives of the CONTRACTOR, OWNER and ENGINEER.

Progress payments shall be developed by use of the respective unit prices, lump sums and total prices submitted on the Bid Form indicating accepted construction quantities and respective unit prices aggregating the total.

The CONTRACTOR shall then have the Application for Payment form typed, reproduced in the number of copies directed by the ENGINEER and filed with the ENGINEER on or before the first day of the month. All applications for payment shall include an updated construction schedule. Said Application shall also be accompanied by all documentation as may be reasonably required, such as copies of invoices of materials properly stored on the site, but not incorporated in the work. Materials stored on the site will not be paid for without evidence of the actual purchase price and will not be eligible for payment unless it is properly stored on the site of the Work, or at some other location and under such conditions as the OWNER may require.

The amount of the progress payment shall be 90% of the value of the completed construction work.

The sum or sums withheld by the OWNER from the CONTRACTOR after the contract is 50% completed shall not exceed 5% of the value of completed work based on monthly progress payment request:

provided, however, that in the event a dispute arises between the OWNER and any CONTRACTOR which dispute is based upon increased costs claimed by one CONTRACTOR, additional retainage in the sum of one and one-half times the amount of any possible liability may be withheld until such time as a final resolution is agreed to by all parties directly or indirectly involved, unless the CONTRACTOR causing the additional claim furnishes a bond satisfactory to the OWNER to indemnify OWNER against the claim. However, all such moneys retained by the OWNER may be withheld from the CONTRACTOR until substantial completion of the contract.

The Applications for Payment shall be required to include such evidence of payment to suppliers and subcontractors by the CONTRACTOR, as the OWNER may require, and shall also be accompanied by such lien or other releases as requested by the OWNER.

Progress payments based upon information developed on the Applications for Payment and supporting documentation, if approved by the ENGINEER, shall be made within 45 days following proper submission of the necessary papers to the ENGINEER. Any payments which are not made by the OWNER on that schedule will bear interest computed at the rate determined by the Secretary of Revenue for interest payments on overdue taxes or the refund of taxes as provided in sections 806, 806.1 of the act of April 9, 1929 (P.L. 343, No. 176) known as "The Fiscal Code" and any subsequent amendments to those sections.

H3 Final Payment

The making and acceptance of final payment shall constitute:

- A waiver of all claims by OWNER against CONTRACTOR, except those claims arising from unsettled liens, from defective work appearing after final inspection, or from failure to comply with terms of the contract documents; and
- A waiver of all claims by CONTRACTOR against OWNER other than those previously submitted in writing and still unsettled.

H4 Description of Work to be Included in the Unit Prices, Lump Sums and Total Prices Submitted on the Bid Forms

The lump sum unit price provided for the Bid Item with the Suffix "A" shall include all work not included in other unit prices items within this contract and shall specifically include the successful installation and testing of the HDPE pipeline including all incidental labor, materials, plant, equipment and service required to successfully execute and fully complete the crossing for the intended function via horizontal directional drilling methods. The lump sum shall include all site work, Erosion and Sediment and Pollution controls and final restorative grading required in the work specified in the Technical Specifications.

Application for the Bid Item with the Suffix "A" shall be a single, lump sum payment shall be made following the successful completion as described in the Technical Specifications. No partial payments for this item will be made. No payment will be made for the failure of the CONTRACTOR to successfully install the pipeline. In the event of failure to install the directionally-drilled pipeline as described under this item, the CONTRACTOR shall retain possession of any CONTRACTOR supplied HDPE pipe, remove it from the site and the bore holes completely filled with grout or acceptable flowable fill to prevent future problems at no additional cost. If the pipe cannot be removed from the bore hole, it shall be cut off 5 feet below ground and the pipe and annular bore space shall be grouted at no additional cost.

The cost of performing the pre-construction and post construction video taping of the project area shall be included in the unit price for work designated with the Suffix "A". In addition, those prices bid for items with the suffix "A" designation shall include all costs of all labor, materials, plant, equipment and service required for the complete construction of the respective Contracts (as specified and/or required by the bidding documents), which costs are not included in the prices bid for all other Bid Items with the "B" thru "ZZ" suffix.

The Prices bid for those Items listed on the Bid Form which have the item designation with the Suffix "E", shall include all work required for construction of all 20" diameter PVC pressure sewer (force main). Lengths of sewers, and the payments therefore, will be based upon horizontal measurements of the constructed sewer, including fittings. Where 20" diameter ductile iron pipe

is specified in the Contract Drawings for sewer construction there shall be no substitutions. The CONTRACTOR is alerted to balance his price. Said prices shall include the cost for surface restoration work not identified as a payment item herein. In addition to the retainage described in Section H2 an amount equivalent to 10% of the installed sewer pipe price shall be withheld until all surface restoration included in this unit price item is completed. When the surface restoration is complete and accepted this 10% of the unit price for sewer installation will be released. This money is held for restoration work not completed and not identified as a payment item and is unrelated to retainage withheld from the CONTRACTOR during the progress of the work described in Paragraph H2. Payment for Item "E" shall be 50% applied for after installation of the force main pipe and 50% applied for upon successful test of the force main sewer.

The steel casing pipe borings, Bid Item with the Suffix "B", shall include all costs of installation of the respective steel casing pipe diameters, casing pipe spacers, the ductile iron carrier pipes installed within the casings, the portals, and the required restoration work. Payment shall be made on the basis of the horizontal measurement of the in-place steel casing pipes.

The price for Item "F" shall include all plant, labor and material for the air release valve and manhole vault as specified and shown in the Standard Detail Drawings SD-2-040 and SD-2-041.

Payment for bid Item with the Suffix "M" shall include all plant, labor and materials for straw bale barrier/filter fabric fence erosion protection as identified in the contract documents. Unit price shall include cost for complete installation and removal from the site to the contractors dump site per lineal feet of straw bale barrier/filter fabric fence. Payment for all plant, labor and material for installation will be fifty percent (50%) of the unit price bid. Payment for all plant, labor, and material required for removal and disposal of straw bale barrier/filter fabric fence shall be fifty (50) percent of the unit price bid. Payment for installation and removal of straw bale barrier/filter fabric fence utilized solely for dewatering purposes is not included in this payment item and is included in payment with pipe installation under Suffix "E".

The Bid Item "U" - Stone Driveway Restoration covers the replacement of stone/slag driveways, which are damaged and/or destroyed as a result of construction activities. Said restoration shall be as outlined in the Technical Specifications and on the contract drawings.

Payment for Bid Item "AA" Force Main Testing shall include all plant, labor, materials, and utilities, for the successful testing of force mains sewers constructed via open cut construction methods in accordance with the specified requirements described in item titled Testing of Force Mains. Measurement and Payment for testing shall be based upon the horizontal measured length of force main pipe tested.

The price bid for Item "RR", ductile iron M.J. pipe fittings, shall include all bends, and fittings, required for the construction of the buried pressure sewer. The work under this item shall include furnishing and installing all ductile fittings necessary to complete the work and shall include all mechanical joint material, stainless steel bolts, stainless steel nuts, follower ring and rubber gasket furnished with the fitting. The price for this item shall also include polyethylene encasement and concrete thrust blocking and concrete anchors as shown on Standard Detail SD-2-045 and SD-2-046. Restraining harness where called for on the Contract Drawings and required to complete the work shall be included under this item. Excavation is included as a part of the pipe item. Payment shall be per ductile iron fitting installed.

The unit price for Item "XX" Mis-Marked or Unmarked Utility Resolution shall include all labor, material, and equipment required to repair and resolve mis-marked and/or unmarked utility disputes including exploratory excavation, delays in construction and repair costs for the utility types and sizes identified or encountered during construction. Work under this item also includes backfill and restoration not identified for payment under a separate unit price. As a part of this pay item the CONTRACTOR shall be responsible for providing temporary service and reinstating permanent service which may have been interrupted during construction. This item shall apply to all unmarked facilities and marked facilities beyond the tolerance zone as defined by the Pennsylvania One Call Act. Duct banks and clusters of similar facilities shall be considered one payment unit. This item shall be in lieu of the force amount payment provisions specified in the Pennsylvania One Call Act, Section 5, Item 14, and shall be considered as payment in full for this item.

Mobilization/Demobilization, Bid Items with the suffix "ZZ", may be any lump sum amount up to a maximum of 3% of the Total Price Bid for the respective contracts. One half of the amount so bid for those items, however, shall be withheld (in addition to the stipulated retainage) until the issuance of the final Payment to the CONTRACTOR.

Payment for Item "E", covering construction of the pressure sewers (force main sewers) shall be adjusted for work performed, to reflect a ten (10) percent withholding until restoration of lawns, and other areas not identified as a payment item are completed. Such withheld amount shall be in addition to the retainage described in the Paragraph H2 and J4 of the Contract Document specifications.

In accordance with the requirements of the respective Paragraphs in Section 02220 for bedding material, PVC and Ductile Iron force mains are to be bedded and PVC force mains encapsulated on special stone backfill material. The cost of obtaining and placing that material in the trench, below a horizontal plane located twelve-inches above the tops of the respective PVC pipes shall be included in the Bid Items for construction of the respective pipe lines (Item "E",). In addition all ductile iron sewer pipe shall be bedded in special stone backfill material below a horizontal plane located at the spring line (centerline) of the pipe. The cost of obtaining and placing that material shall be included in the bid item for the respective pipe line (Item "E"). Regardless of the actual configuration of the excavated trenches, or the diameter of the pipes, the quantities of Special Backfill for which payments will be made shall be based upon maximum of four feet trench width.

**End of Measurement and Payment
Youghiogheny River Force Main Crossing**

Section J

AGREEMENT - CONTRACT NO. 2010-15

THIS AGREEMENT is dated as of the _____ day of _____
in the year of 20____ by _____ and _____ between
_____ hereinafter
called OWNER and _____ hereinafter called CONTRACTOR.

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

J1 WORK

J1.1 CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

J2 CONTRACT TIME

J2.1 The Work will be completed within five Hundred forty (540) calendar days after the date when the Contract Time commences as provided in the General Conditions.

J2.2 Liquidated Damages OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not complete within the time specified in paragraph J2.1 above, plus any extensions thereof allowed in accordance with the General Conditions. They also recognize the delays, expense and difficulties involved in proving in a legal proceeding the actual loss suffered by OWNER if the Work is not complete 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 Six Hundred Fifty Dollars (\$650.00) for each day that expires after the time specified in paragraph J2.1 for completion until the Work is substantially complete.

J3 CONTRACT PRICE

J3.1 OWNER shall pay CONTRACTOR for performance of the Work in accordance with the Contract Documents in the following lump sum amount:

J4 PAYMENT PROCEDURES

J4.1 CONTRACTOR shall submit Applications for Payment in accordance with Section H of the Contract Documents.

J4.2 Progress Payments. OWNER shall make progress payments on the Contract Price on the basis of CONTRACTOR's Application for Payment. All payments will be on the basis of the progress of the Work measured by the schedule of values provided for in the Contract Documents.

J4.3 Prior to 50% completion of the Work, progress payments will be in an amount equal to:

- 90% of the Work completed, and
- 100% of materials and equipment not incorporated in the Work but delivered and suitably stored, less in each case, the aggregate of payments previously made.

J4.4 After the work is at least 50% complete, and subject to satisfactory progress and compliance with the provisions of the Contract Documents, the OWNER may, at its discretion, elect to reduce the retainage to an amount equal to 5% of the completed work value.

J4.5 Final Payment. Upon final completion and acceptance of the Work, OWNER shall pay the remainder of the Contract Price not previously paid.

J5 INTEREST

J5.1 All moneys not paid when due hereunder shall bear interest at the rate defined in Paragraph H2.

J6 CONTRACTOR'S REPRESENTATIONS

J6.1 CONTRACTOR represents that he has familiarized himself with the nature and extent of the Contract Documents, Work, locale and with all local conditions; federal, state and other laws, ordinances, rules and regulations that in any manner may affect cost, progress or performance of the Work; and, has made or caused to be made such examinations, investigations (including subsurface explorations) and tests and studies of such reports and related data as he deems necessary for the performance of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents; and no additional examinations, investigations, tests, reports or similar data are or will be required by CONTRACTOR for such purposes, and that he shall be responsible

to fully perform all work within the contract time and for the contract price(s) stated herein, regardless of the conditions actually encountered. All risks assumed hereunder have been included in the contract price.

J6.2 CONTRACTOR has correlated the results of all such observations, examinations, investigations, tests, reports and data with the terms and conditions of the Contract Documents.

J7 CONTRACT DOCUMENTS

The Contract Documents which comprise the entire agreement between OWNER and CONTRACTOR are attached to this Agreement, made a part hereof and consists of the following:

Section	Identification	Page No.
J	Agreement	J-1 to J-4
	Exhibits attached to this agreement	_____ (if any)
K	Surety Bonds/Insurance Certificates	K-1 to K-7
E	General Conditions	E-1 to E-27
F	Supplemental General Conditions	F-1 to F-28
G	Technical Specifications	01000-1 to 09954
H	Measurement and Payment	H-1 to H-6
I	Standard Detail Drawings	I-1 to I-23
	Drawings 24" x 36" - Bound Separately from this Book (Are identified in Section 01010)	
L	Addenda	L-1 to L-____ (if any)
C	Contractor's Bid	C-1 to C-4
	Change Orders duly issued with or after the effective date of this Agreement	_____ (if any)

There are no Contract Documents other than those listed above in this Agreement, Section J. The Contract Documents may only be altered, modified, amended or repealed by appropriate execution of a Change Order.

J8 MISCELLANEOUS

J8.1 Terms used in this Agreement are defined in the General Conditions and shall have the meanings indicated in the General Conditions.

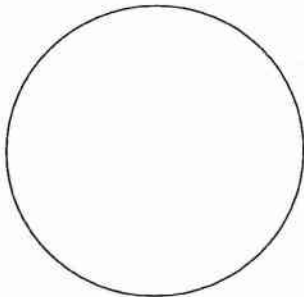
J8.2 No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party to be bound; and specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law) and unless specifically stated to the contrary in any written consent to an assignment

no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

J8.3 OWNER and CONTRACTOR each binds himself, his partners, successors, assigns and legal representatives in respect to all covenants, agreements and obligations contained in the Contract Documents.

IN WITNESS WHEREOF, the parties hereto have signed this Agreement in _____ (__) copies. One counterpart each has been delivered to OWNER and the CONTRACTOR. All portions of the contract Documents have been signed or identified by OWNER and CONTRACTOR.

This Agreement will be effective on _____
20____.



(CORPORATE SEAL)

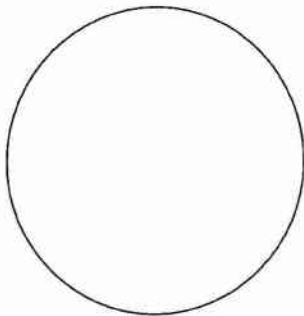
OWNER

by _____

ATTEST _____

Title _____

Address for Giving Notice



(CORPORATE SEAL)

CONTRACTOR

by _____

ATTEST _____

Title _____

Address for Giving Notice

Section K

PAYMENT BOND

CONTRACT NO. 2010-15

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a _____, hereinafter called Principal,
(Corporation, Partnership, Individual)

and _____

(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto _____

(Name of Owner)

(Address of Owner)

hereinafter called Owner, in the penal sum of _____
_____ Dollars (\$ _____)
in lawful money of the United States, for the payment of which sum
well and truly to be made, we bind ourselves, our heirs, executors,
administrators and successors, jointly and severally, firmly by
these presents.

THE CONDITION OF THIS OBLIGATION is such that Whereas, the Prin-
cipal entered into a certain contract with the Owner, dated the
_____ day of _____, 20____, a copy of which is hereto
attached and made a part hereof for the construction of:

NOW, THEREFORE, if the Principal shall promptly make payment to all
persons, firms, subcontractors and corporations furnishing materials
for or performing labor in the prosecution of the work provided for
in such contract, and any authorized extension or modification
thereof, including all amounts due for materials, lubricants, oil,
fuel, repairs on machinery, equipment and tools, consumed or used in
connection with the construction of such work, and all insurance
premiums on said work and for all labor, performed in such work
whether by subcontractor or otherwise, then this obligation shall be
void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to work to be performed thereunder or the specifications accompanying the same shall in any wise affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work or to the specifications.

PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each one of which shall be deemed an original, this the _____ day of _____, 20____.

(Address) _____

(Principal) _____
by _____

(Witness to Principal) _____

(Address) _____

(Principal) **(Secretary)**

(Witness to Principal) _____

(Address) _____

(SEAL)

(Address) _____

(Address) _____

(Surety) _____
(ATTEST)

(Surety) **(Secretary)**

(Witness to Surety) _____

(SEAL)

by: _____
(Attorney in Fact)

(Address) _____

NOTE: Date of Bond must be the same as the date of Agreement. If Contractor is Partnership, all partners should execute bond.

IMPORTANT: Surety companies executing bonds must appear on the U. S. Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

THIS PAGE LEFT INTENTIONALLY BLANK

Section K

PERFORMANCE AND MAINTENANCE BOND

CONTRACT NO. 2010-15

KNOW ALL MEN BY THESE PRESENTS: that

_____ **(Name of Contractor)**

_____ **(Address of Contractor)**

a _____, hereinafter called Principal,
(Corporation, Partnership, Individual)

and _____

_____ **(Name of Surety)**

_____ **(Address of Surety)**

hereinafter called Surety, are held and firmly bound unto _____

_____ **(Name of Owner)**

_____ **(Address of Owner)**

hereinafter called Owner, in the penal sum of _____ Dollars (\$ _____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that Whereas, the Principal entered into a certain contract with the Owner, dated the _____ day of _____, 20____, a copy of which is hereto attached and made a part hereof for the construction of:

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the OWNER, with or without notice to the Surety, and if he shall satisfy all claims and demands incurred under such contract, and shall remedy in accordance with the terms of the Contract any defects which may develop during a period of eighteen (18) months from the date of completion of the work performed under said

contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect. Whenever CONTRACTOR shall be declared by OWNER to be in default under the Contract, the Surety shall promptly remedy the default. If the OWNER terminates the Contract for such default, the following shall govern the liability of the CONTRACTOR and the Surety hereunder. In the event of such termination, the CONTRACTOR and Surety shall remain fully liable to the OWNER for the CONTRACTOR's failure to timely complete the Contract, any additional costs incurred by the OWNER in completing the Contract, and liquidated damages from the required completion date to the date of the actual completion of the work by the OWNER. In the event of such termination, the Surety may elect to take over and complete performance of the Contract by giving written notice to the OWNER of such election within seven (7) days of the OWNER's mailing of notice of termination to the Surety and actually commencing completion within fourteen (14) days of the OWNER's notice to the Surety, time being of the essence. The Surety shall fully complete the work by the originally scheduled date of completion and the CONTRACTOR and the Surety shall remain liable to the OWNER for all damages.

PROVIDED, FURTHER, that the said surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to work to be performed thereunder or the specifications accompanying the same shall in any wise affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work or to the specifications.

PROVIDED, FURTHER, any suit under this bond may be instituted until the expiration of two years from the date on which final payment under the Contract falls due or before the expiration of one year from the end of the maintenance and guarantee obligation under the Contract, which ever is later, notwithstanding any statute of limitations setting forth a shorter limitation period.

IN WITNESS WHEREOF, this instrument is executed in _____
counterparts, each one of which shall be deemed an original, this
the _____ day of _____, 20____.

Principal
by _____

Address

ATTEST

Principal (**Secretary**)

(Witness to Principal)

(SEAL)

(Address)

Surety

Address

ATTEST

Surety (**Secretary**)

(SEAL)

(Witness to Surety)

by: _____
(Attorney in Fact)

(Address)

NOTE: Date of Bond must be the same as the date of Agreement. If Contractor is Partnership, all partners should execute bond.

IMPORTANT: Surety companies executing bonds must appear on the U. S. Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

THIS PAGE LEFT INTENTIONALLY BLANK

CERTIFICATE OF INSURANCE

This Certificate shall be required to be properly completed by the Contractor and his Insurance Agent at the time that the construction contract is executed. It is informational and does not amend, extend or alter the coverage afforded by the policies listed below.

Name and Address of Insurance Agency	COMPANIES AFFORDING COVERAGES	
	Company Letter	A
Name and Address of Insured Contractor	Company Letter	B
	Company Letter	C
Name(s) of Additionally Insured Party KLH Engineers, Inc Municipal Authority of the City of McKeesport	Company Letter	D

This is to certify that policies of insurance listed below have been issued to the insured named above and are in force at this time and that the insurance afforded by the policies is subject to all the terms, exclusions and conditions of such policies.

Company Letter	Type of Insurance	Policy Number	Policy Expiration Date	Limits of Liability in Thousands (000)		
					Each Coverage	Aggregate
	General Liability <input type="checkbox"/> Comprehensive Form <input type="checkbox"/> Premise-Operations <input type="checkbox"/> Explosion and Collapse Hazard <input type="checkbox"/> Underground Hazard <input type="checkbox"/> Products/Completed Operation Hazard <input type="checkbox"/> Contractual Insurance <input type="checkbox"/> Broad Form Property Damage <input type="checkbox"/> Independent Contractors <input type="checkbox"/> Personal Injury			Bodily Injury	\$	\$
				Property Damage	\$	\$
				Bodily Injury and Property Damage Combined	\$	
				Personal Injury		\$
	Automotive Liability <input type="checkbox"/> Comprehensive Form <input type="checkbox"/> Owned <input type="checkbox"/> Hired <input type="checkbox"/> Non-Owned			Bodily Injury (Each Person)	\$	
				Bodily Injury (Each Person)	\$	
				Property Damage	\$	
				Bodily Injury and Property Damage Combined	\$	
	Excess Liability <input type="checkbox"/> Umbrella Form <input type="checkbox"/> Other than Umbrella Form			Statutory		
	<input type="checkbox"/> Builder's Risk					
	<input type="checkbox"/> Other					

The coverage issued in the above listed policies will not be cancelled, materially changed, or renewal refused until at least ten (10) days prior written notice has been given to the named owner and certificate holder at the address listed below.

Construction Contract Identification Contract No. 2010-15 Youghiogheny River Forcemain Crossing	Name and Address of Owner and Certificate Holder Municipal Authority of the City of McKeesport 100 Atlantic Avenue McKeesport, PA 15132	Date this certificate issued: _____ Issuing Agency: _____ _____ (Signature of Authorized Representative)
--	---	---

THIS FORM CANNOT BE SUBSTITUTED.

Section C

BID FORM - CONTRACT NO. 2010-15

Project Identification: Youghiogheny River Force Main Crossing

Contract Identification and Number: Sanitary Sewer Construction
Contract No. 2010-15

This Bid is Submitted to: Municipal Authority of the City of McKeesport
100 Atlantic Avenue
McKeesport, PA 15132

C1 The undersigned BIDDER proposes and agrees, if this Bid is accepted, to enter into an Agreement with OWNER in the form included in Section J of the Contract Documents and, to complete all Work as Specified and within the Contract Time indicated in this Bid, in accordance with the Contract Documents.

C2 BIDDER accepts all of the terms and conditions of the Instructions to Bidders and other components of the Contract Documents. This Bid may not be withdrawn for ninety (90) days after the day of Bid opening. BIDDER will sign the Agreement and submit the Contract Security and other documents required by the Contract Documents within fifteen days after the date of OWNER's Notice of Award.

C3 In submitting this Bid, BIDDER represents, as more fully set forth in the Agreement, that:

C3.1 Bidder has examined copies of all Contract Documents including Sections A through K and all Drawings, and the following Addenda designated as Section L (if any):

Date of Issuance

Addenda Number

receipt of all which is hereby acknowledged.

C3.2 BIDDER has examined the site and locality where the Work is to be performed, the legal requirements (federal, state and local laws, ordinances, rules and regulations) and the conditions affecting cost, progress or performance of the

work and has made such independent investigations as BIDDER deems necessary. BIDDER has satisfied itself as to the conditions to be encountered both overhead and on the surface of the ground and/or within existing structures and of the character, quality and quantities of work to be done, materials to be furnished, services required and all other terms of the Technical Specifications and other Contract Documents. BIDDER assumes all risks inherent in performing the work and arising from any deficiencies in the Drawings or Specifications or other Contract Documents and will make no claim against the OWNER or the ENGINEER because of any such alleged deficiency.

C3.3 This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation, BIDDER has not directly or indirectly induced any person, firm or a corporation to refrain from bidding; and BIDDER has not sought by collusion to obtain for himself any advantage over any other Bidder or over OWNER.

C4 BIDDER will complete the Work under Contract No. 2010-15, in accordance with the terms and conditions of the bidding and contract documents, for the following unit and lump sum Prices:

Contract No. 2010-15

	BID ITEM	QUANTITY/ UNIT	UNIT PRICE	TOTAL PRICE
A.	Horizontal Directional Drill HDPE Pipe Installation	Lump Sum	Lump Sum	
B.	Steel Casing Pipe			
	36" Diameter	107 LF	/LF	
E.	Pressure Sewer (Force Main)			
	20" PVC Pipe	1,070 LF	/LF	
F.	Air & Vacuum Valve with Vault	1 EA	/EA	
M.	Straw Bale Barrier. Filter Fence	2,300 LF	/LF	
U.	Stone Driveway	4,400 SY	/SY	
AA.	Force Main Testing	1,472 LF	/LF	
RR	Pressure Sewer Ductile Iron Fittings			
	20" 11 1/4° Bend	2 EA	/EA	
	20" 45° Bend	2 EA	/EA	
	20" 90° Bend	6 EA	/EA	
XX	Mismarked or Unmarked Utility Resolution			
	Natural Gas - ½" - 8"	1 EA	/EA	
	Electric - Any Size or Voltage	1 EA	/EA	
	Telephone - Any Size	1 EA	/EA	
	Waterline - Any Size	1 EA	/EA	
ZZ.	Mobilization/Demobilization	Lump Sum	Lump Sum	

C5 BIDDER agrees that the Work will be completed within five Hundred forty (540) Calendar days after the date when the Contract Time commences.

C6 BIDDER understands and agrees to coordinate his construction activities with those of the OWNER, the ENGINEER and the other CONTRACTORS.

C7 BIDDER accepts the provisions set forth in the Agreement in Section J of the Contract Documents as to liquidated damages in the event of failure to complete the Work on time.

C8 BIDDER recognizes the problem in identifying exact locations of reputed underground utility pipe lines, structures, and/or appurtenances and in classifying, during the bidding period, the subsurface conditions which will be encountered during construction and, in submitting this bid, has included any and all costs in connection therewith and shall not seek any extra compensation for performing the work because of those actual prevailing conditions.

C9 The required Bid Security set forth in Paragraphs B7 of the Instructions to Bidders in the form of a certified bank check, or a Bid Bond, the form for which is included as Section D of the Contract Documents, is in the amount of 10% of the Amount of the Bid.

C10 Communications concerning this Bid shall be addressed to the BIDDER at the address stated on the following page.

C11 The terms used in this Bid which are defined in the General Conditions of the Construction Contract included as part of the Contract Documents have the meanings assigned to them in the General Conditions.

Submitted on _____ 20__.

(Execute the Bid Form on the following page)

CONTRACT 2010-15 SECTION I - STANDARD DETAILS

SD-2-001 TRENCH PIPE ZONE DETAIL.

SD-2-002 TRENCH DETAILS.

SD-2-003 DESIRED DISTANCES BETWEEN WATER AND SEWER PIPES.

SD-2-004 GRAVITY SEWER AND FORCE MAIN CONSTRUCTED PARALLEL IN COMMON TRENCH

SD-2-005 STEEL CASING AND D.I. OR PVC CARRIER PIPES INSTALLED BY BORING.

SD-2-005a GROUTING VOID SPACE OUTSIDE OF BORED STEEL CASING PIPES 30" OR GREATER.

SD-2-011 PRECAST CONCRETE MANHOLE (60" DIAMETER) (PIPE DIAMETER 21" TO 30").

SD-2-019 STANDARD CAST IRON MANHOLE FRAME AND COVER.

SD-2-020 WATERTIGHT MANHOLE (WT) FRAME AND COVER.

SD-2-021 MANHOLE INFLOW PROTECTOR.

SD-2-022 POLYPROPYLENE PLASTIC MANHOLE STEP.

SD-2-023 PRECAST MANHOLE BASE DETAIL.

SD-2-040 SEWAGE AIR AND VACUUM RELEASE VALVE AND MANHOLE.

SD-2-041 PRECAST CONCRETE MANHOLE VAULT.

SD-2-045 CONCRETE THRUST BLOCKING.

SD-2-046 CONCRETE ANCHORS AND METHODS OF LAYING MAINS UNDER OBSTRUCTIONS.

SD-2-069 TRENCH BACKFILL WITHIN ROADWAY OR STREET BERMS.

SD 2-070 TYPICAL TRENCH DETAIL WITHIN 3 FEET OF SHOULDER AREA WITHIN RIGHT-OF-WAY

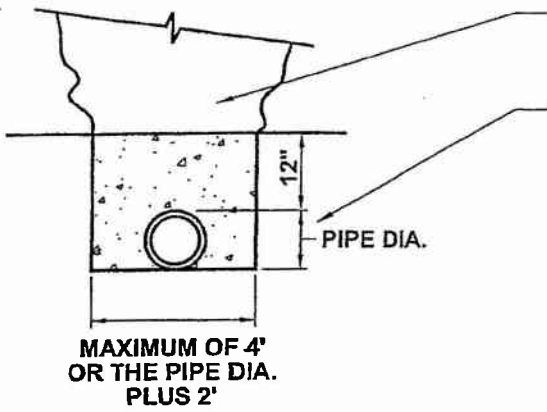
SD 2-071 TYPICAL TRENCH DETAIL MINIMUM 3 FEET OUT OF SHOULDER AREA WITHIN RIGHT-OF-WAY.

SD-2-092 CONCRETE ANCHORS FOR PIPELINES.

**SD-2-104 TRENCH BACKFILL AND PAVEMENT REPLACEMENT
REQUIREMENTS.**

SD-2-105 REQUIRED SURFACE RESTORATION IN UNPAVED LOCATIONS

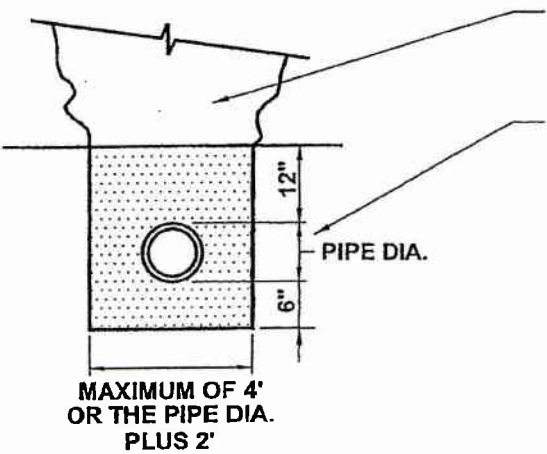
SD-3-001 CONCRETE AND REINFORCING STEEL NOTES.



MECHANICALLY COMPACTED BACKFILL MATERIAL IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS

DUCTILE IRON AND REINFORCED CONCRETE CULVERT PIPE ON NON-ROCK TRENCH BOTTOMS BELL HOLES SHALL BE EXCAVATED TO ASSURE CONTINUOUS PIPE BARREL SUPPORT FOR FULL LENGTH OF PIPE SECTIONS. UNLESS DIRECTED OTHERWISE BY THE CONTRACT SPECIFICATIONS. TRENCH SIDEWALLS SHALL BE PLUMB WITHIN PIPE ZONE.

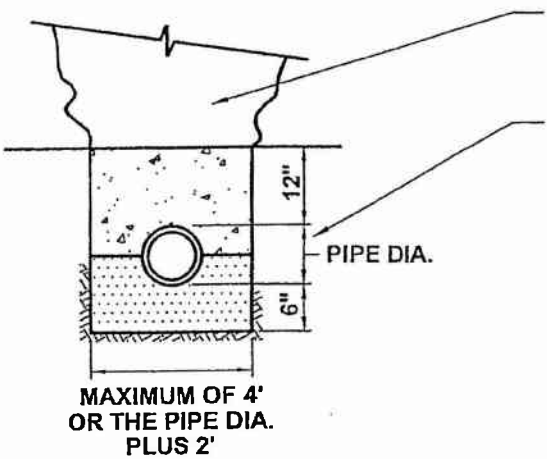
DETAIL 2-001A



MECHANICALLY COMPACTED BACKFILL MATERIAL IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS

PVC PIPE AT ALL LOCATIONS. TRENCH SIDEWALLS SHALL BE PLUMB WITHIN PIPE ZONE

DETAIL 2-001 B



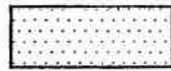
MECHANICALLY COMPACTED BACKFILL MATERIAL IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS

DUCTILE IRON PIPE AND REINFORCED CONCRETE CULVERT PIPE ON ROCK TRENCH BOTTOM AND DUCTILE IRON PIPE WITH RESTRAINED JOINTS. TRENCH SIDEWALLS SHALL BE PLUMB WITHIN PIPE ZONE.

DETAIL 2-001 C



SELECTED EXCAVATED MATERIAL MECHANICALLY COMPACTED MAXIMUM SIZE ROCKS-3"



2B CRUSHED STONE OR CRUSHED GRAVEL.
1B CRUSHED STONE OR CRUSHED GRAVEL WITH APPROVAL BY THE OWNERS REPRESENTATIVE.

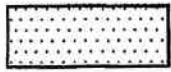
KLH ENGINEERS, INC. 5173 Campbells Run Road Pittsburgh, PA 15205		TRENCH PIPE ZONE DETAIL	
Not to scale	January 2006	I-1	Standard Detail SD-2-001

NOTE:

WHERE SPECIAL SELECT BACKFILL IS REQUIRED BETWEEN THE PIPE ZONE AND THE SURFACE MATERIAL, THE PIPE ZONE SHALL EXTEND 12" ABOVE THE PIPE REGARDLESS OF PIPE MATERIAL



SELECTED EXCAVATED MATERIAL
MECHANICALLY COMPACTED
MAXIMUM SIZE ROCKS- 3"

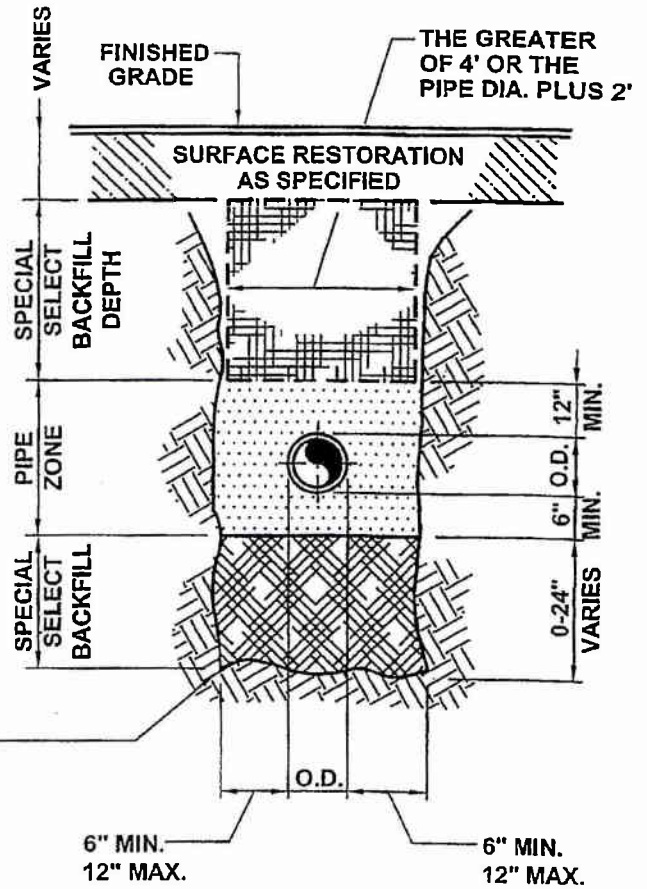


2B CRUSHED STONE OR
CRUSHED GRAVEL.
1B CRUSHED STONE OR
CRUSHED GRAVEL WITH
APPROVAL BY THE OWNERS
REPRESENTATIVE.

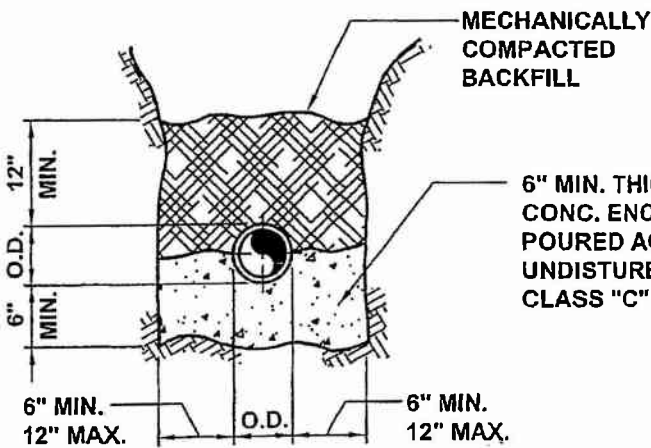


CLASS "C" CONCRETE

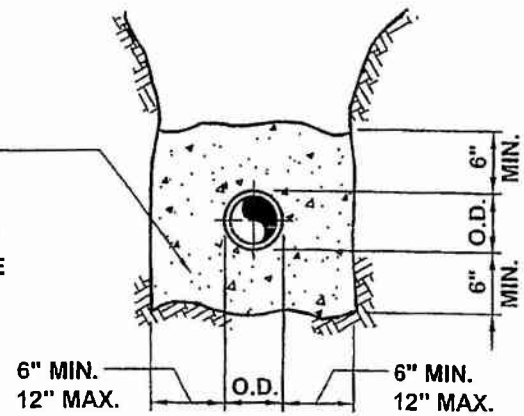
WHERE EXCAVATION EXPOSES THE BOTTOM OF PROPOSED TRENCHES WHERE VERY SOFT OR OTHER UNSTABLE PIPE FOUNDATION MATERIALS EXIST, THE CONTRACTOR WILL BE DIRECTED TO OVERCUT OR STABILIZE / OVERCUT AND THE CONTRACTOR SHALL BE COMPENSATED FOR THE ADDITIONAL EXCAVATION IN ACCORDANCE WITH THE PROVISIONS SPECIFIED IN THE GENERAL CONDITIONS.



**SPECIAL BACKFILL
DETAIL 2-002 A**

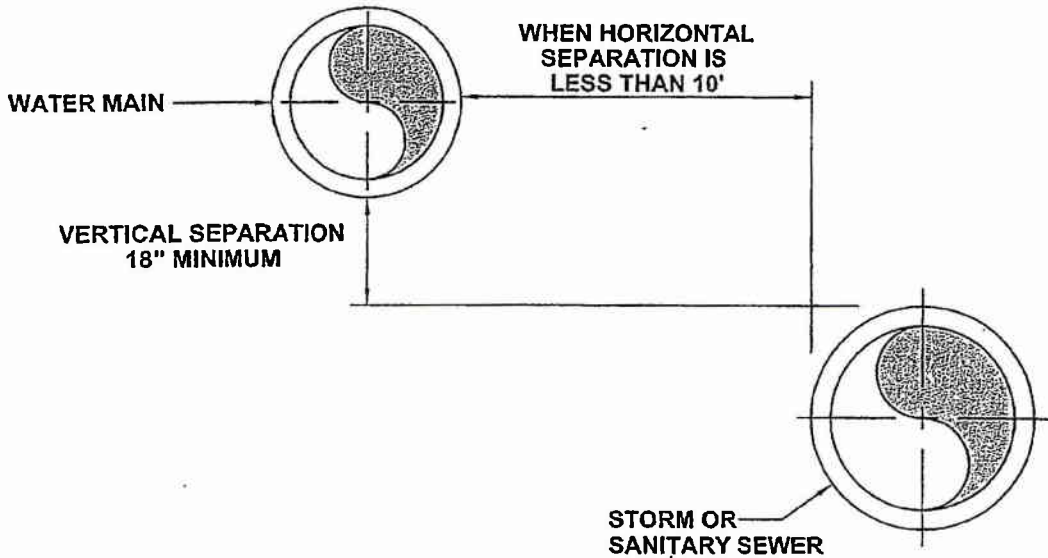


**TYPICAL CONCRETE CRADLE
DETAIL 2-002 B**



**TYPICAL CONCRETE ENCASEMENT
DETAIL 2-002 C**

<p>KLH ENGINEERS, INC. 5173 Campbells Run Road Pittsburgh, PA 15205</p>		<p>TRENCH DETAILS</p>	
<p>Not to scale</p>	<p>April 2010</p>	<p>I-2</p>	<p>Standard Detail SD-2-002</p>



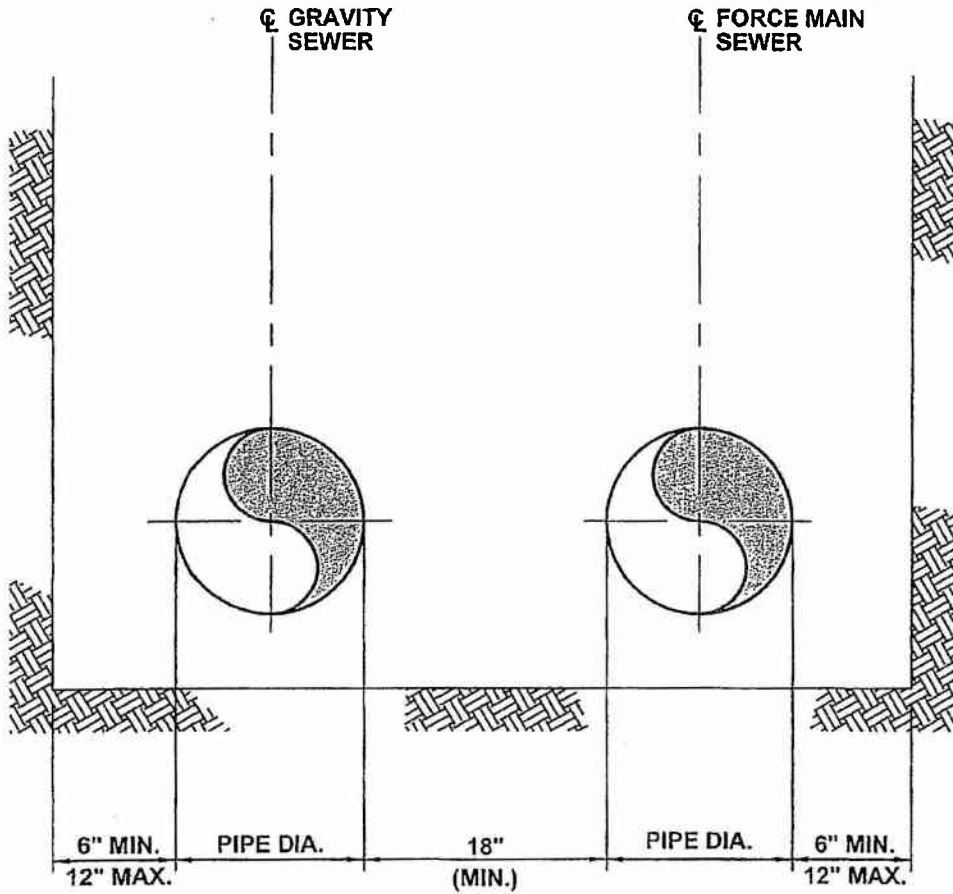
NOTES:

1. WHEN THE HORIZONTAL SEPARATION OF THE WATER MAIN AND SEWER LINE IS LESS THAN 10', THE VERTICAL SEPARATION BETWEEN THE TOP (CROWN) OF THE SEWER LINE AND THE BOTTOM (INVERT) OF THE WATER MAIN SHALL BE AT LEAST 18". SEWER LINE SHALL BE ENCASED IN CONCRETE FOR 10' ON EITHER SIDE OF THE WATER MAIN WHERE SEWER / WATER LINE CROSSINGS OCCUR AND WHERE CONDITIONS PREVENT AN 18" VERTICAL SEPARATION.

2. THERE SHALL BE AT LEAST A 10' HORIZONTAL SEPARATION BETWEEN WATER MAINS AND SANITARY SEWER FORCE MAINS. FORCE MAINS CROSSING WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18" BETWEEN THE OUTSIDE OF THE FORCE MAIN AND THE OUTSIDE OF THE WATER MAIN.

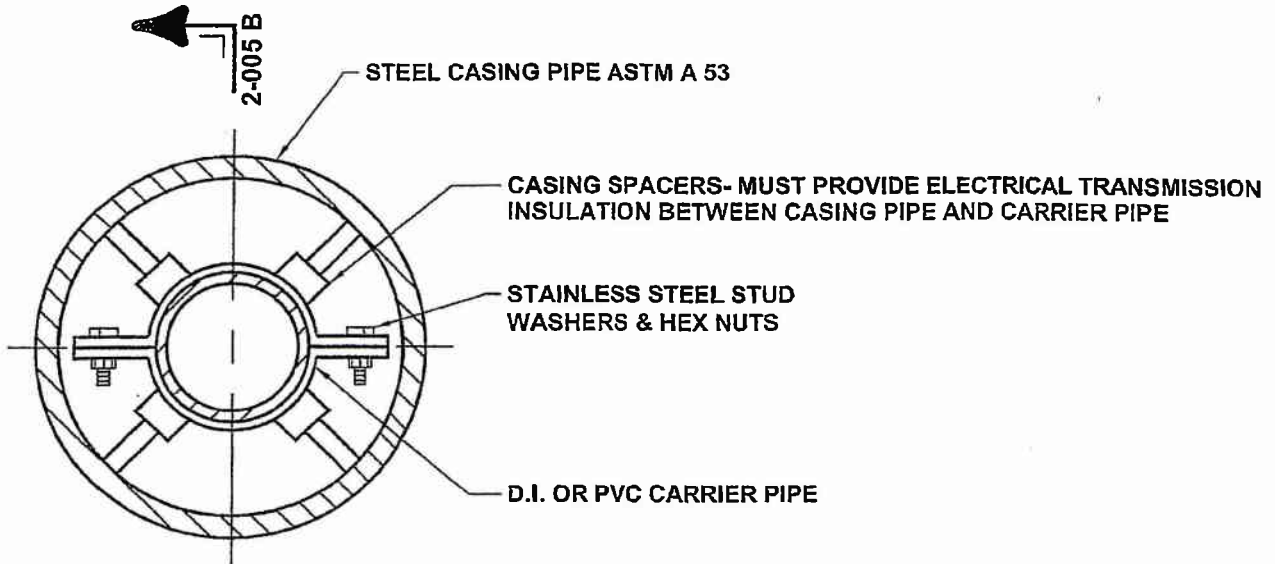
KLH ENGINEERS, INC. 5173 Campbells Run Road Pittsburgh, PA 15205		DESIRED DISTANCES BETWEEN WATER AND SEWER PIPES
Not to scale	April 2010	Standard Detail SD-2-003

REFERENCE TRENCH ZONE DETAILS SD-2-001 AND PIPE BEDDING SD-2-002



NOTE:
FORCE MAIN TO BE INSTALLED
ON RISING GRADIENT

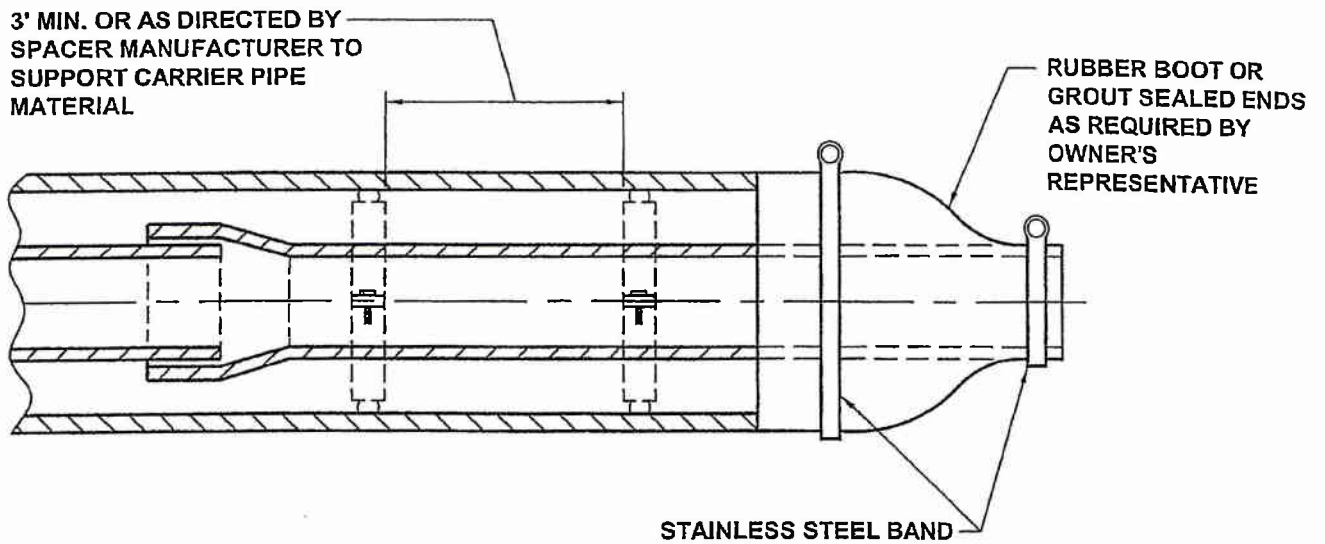
KLH ENGINEERS, INC. 5173 Campbells Run Road Pittsburgh, PA 15205		GRAVITY SEWER AND FORCE MAIN CONSTRUCTED PARALLEL IN COMMON TRENCH
Not to scale	April 2010	Standard Detail SD-2-004



SECTIONAL PLAN 2-005 A

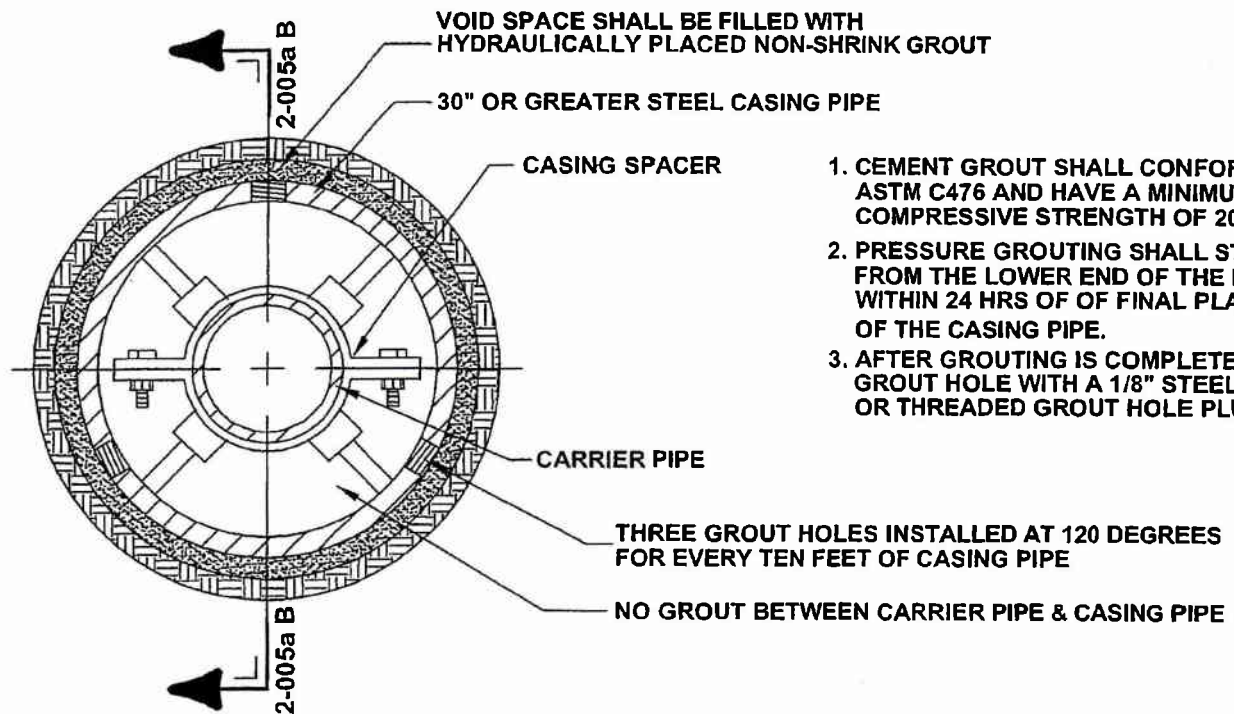
WALL THICKNESS OF CASING PIPE

<u>DIAMETER (IN.)</u>	<u>THICKNESS (IN.)</u>
24" OR LESS	1/4"
28" AND 32"	3/8"
42" AND LARGER	1/2"



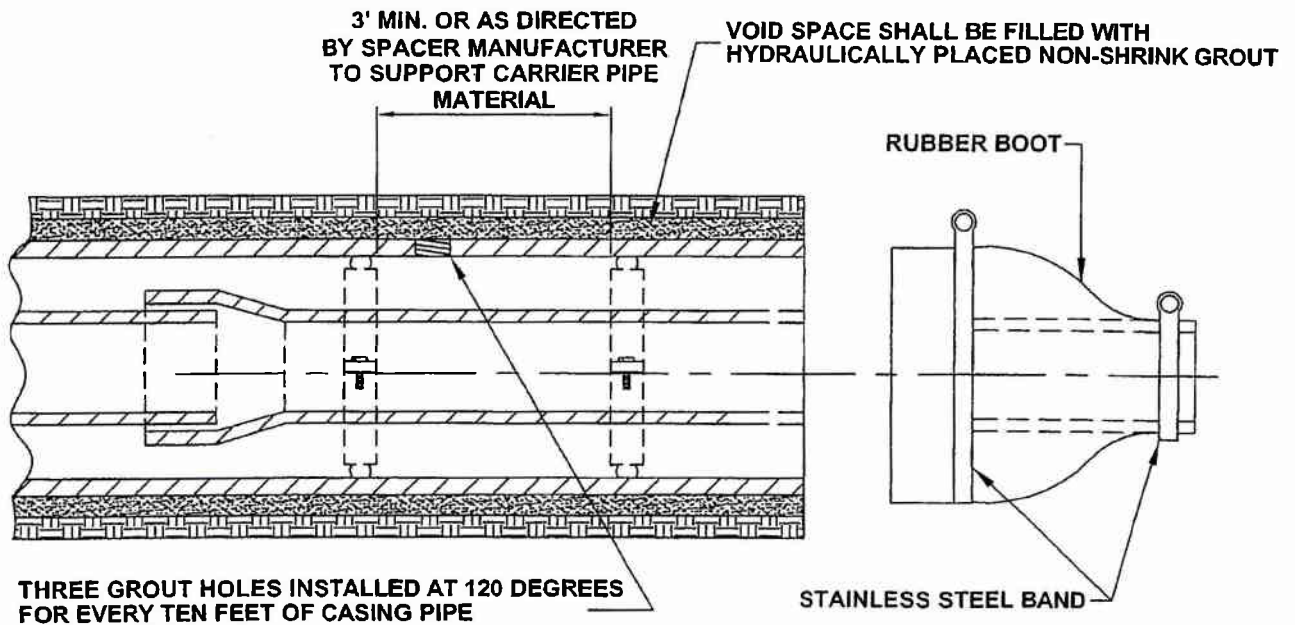
SECTION 2-005 B

KLH ENGINEERS, INC. 5173 Campbells Run Road Pittsburgh, PA 15205		STEEL CASING AND D.I. OR PVC CARRIER PIPES INSTALLED BY BORING
Not to scale	April 2010	Standard Detail SD-2-005



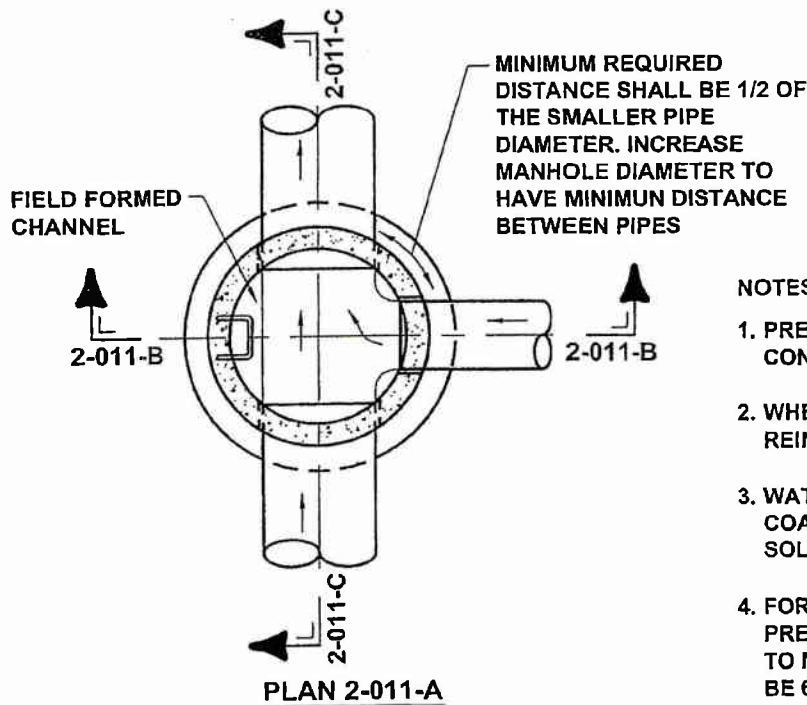
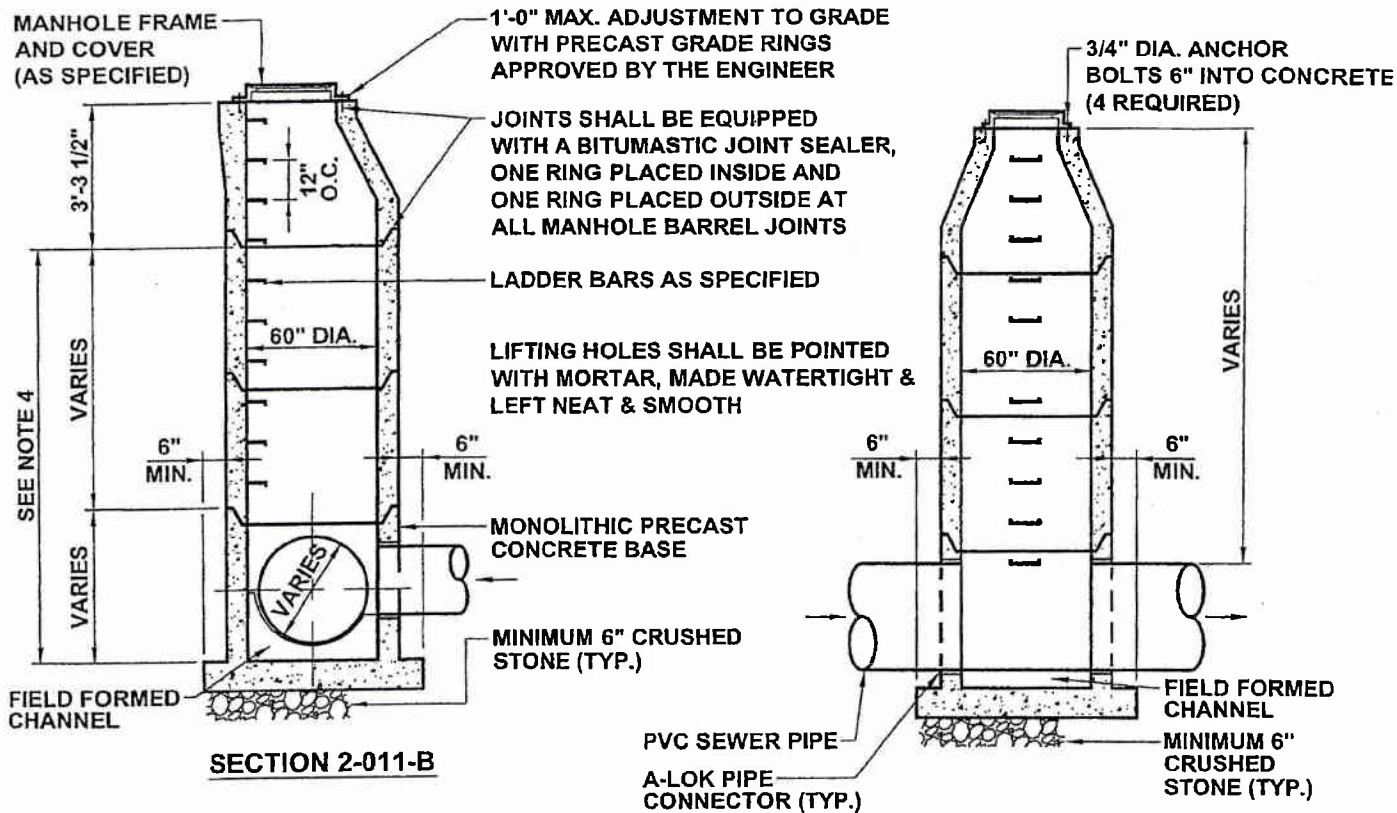
1. CEMENT GROUT SHALL CONFORM TO ASTM C476 AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 200 PSI.
2. PRESSURE GROUTING SHALL START FROM THE LOWER END OF THE BORE WITHIN 24 HRS OF OF FINAL PLACEMENT OF THE CASING PIPE.
3. AFTER GROUTING IS COMPLETED SEAL GROUT HOLE WITH A 1/8" STEEL PLATE OR THREADED GROUT HOLE PLUG

SECTIONAL PLAN 2-005a A



SECTION 2-005a B

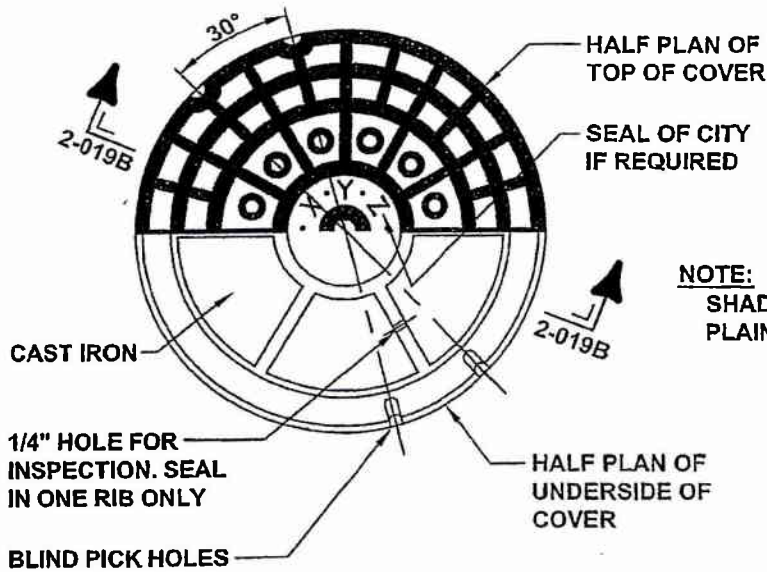
KLH ENGINEERS, INC. 5173 Campbells Run Road Pittsburgh, PA 15205		GROUTING VOID SPACE OUTSIDE OF BORED STEEL CASING PIPES 30" or GREATER
Not to scale	December 2009	Standard Detail SD-2-005a



NOTES:

1. PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO ASTM C-478, LATEST REVISION,
2. WHERE MANHOLE FOUNDATION IS IN ROCK, REINFORCEMENT WILL NOT BE REQUIRED.
3. WATERPROOF EXTERIOR SURFACE WITH TWO COATS BITUMASTIC MATERIAL OR COAL TAR SOLUTION. 8 MILS PER COAT.
4. FOR DEPTHS LESS THAN 5'-0", INSTALL PRECAST CONCRETE SLAB TOP DESIGNED TO MEET LOAD CONDITIONS. MANHOLE TO BE 60" DIA. FULL DEPTH.

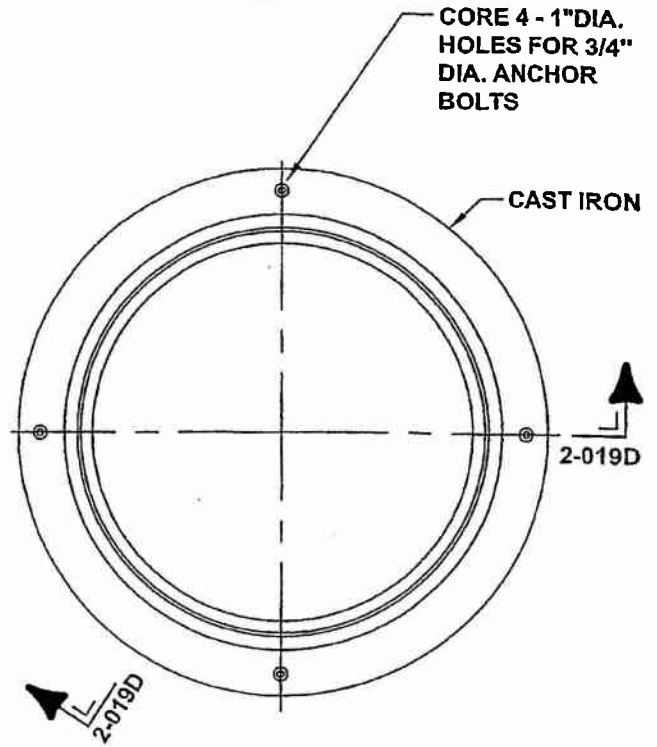
<p>KLH ENGINEERS, INC. 5173 Campbells Run Road Pittsburgh, PA 15205</p>		<p>PRECAST CONCRETE MANHOLE (60 INCH DIAMETER) (PIPE DIAMETER- 21" TO 30")</p>
<p>Not to scale</p>	<p>January 2006</p>	<p>Standard Detail SD-2-011</p>



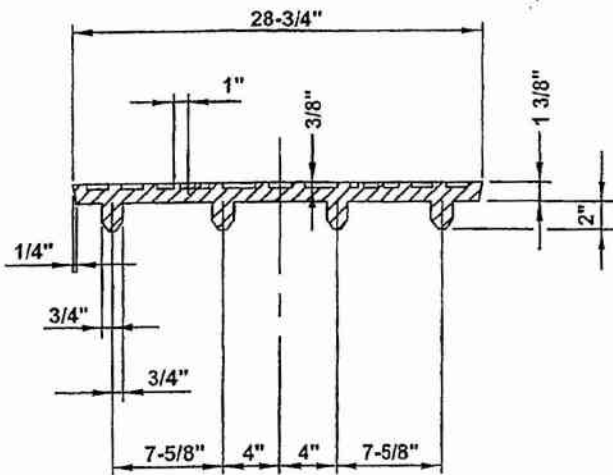
COVER PLAN 2-019A

NOTE:
 NAMES, LETTERS OR IDENTIFICATION MARK OF USER TO BE CAST IN CIRCLE IN CENTER OF COVER AS ORDERED. LETTERS X, Y, AND Z USED AS ILLUSTRATION ONLY.

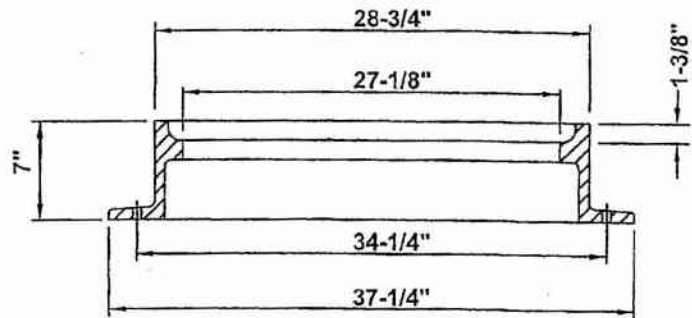
NOTE:
 SHADED PORTION - HIGH
 PLAIN PORTION - LOW



FRAME PLAN 2-019C

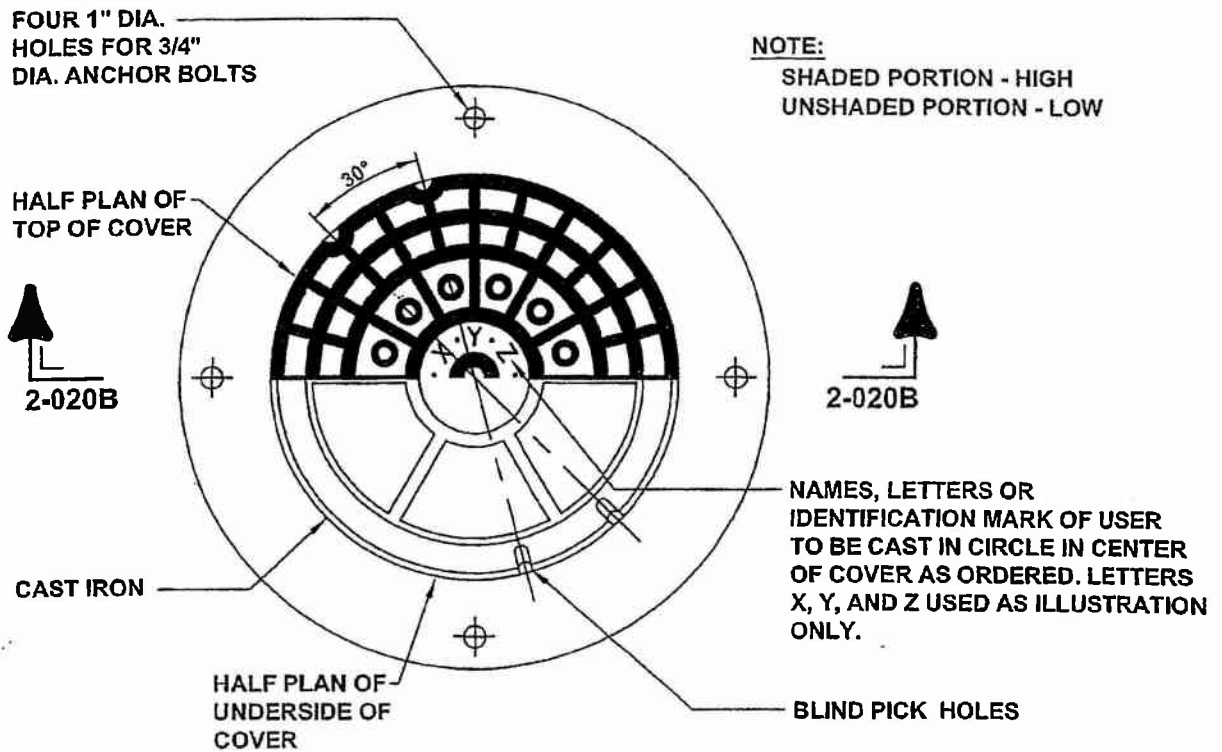


SECTION 2-019B

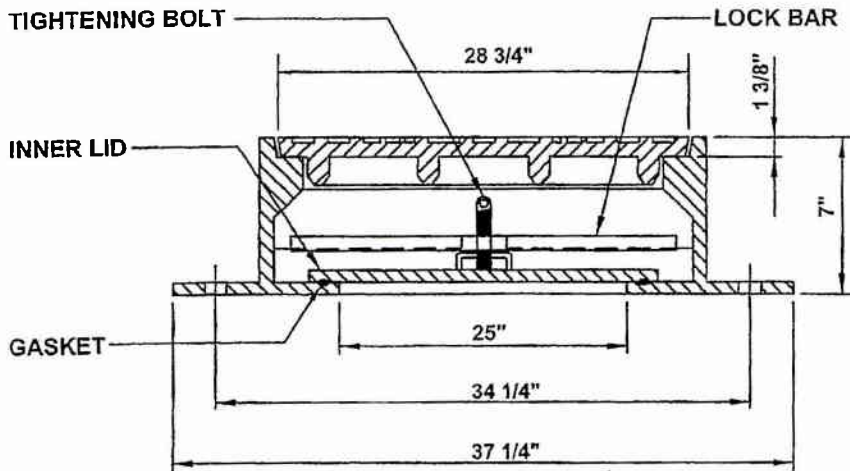


BOTTOM FLANGE - SECTION 2-019D

KLH ENGINEERS, INC. 5173 Campbells Run Road Pittsburgh, PA 15205		STANDARD CAST IRON MANHOLE FRAME AND COVER
Not to scale	April 2010	Standard Detail SD-2-019

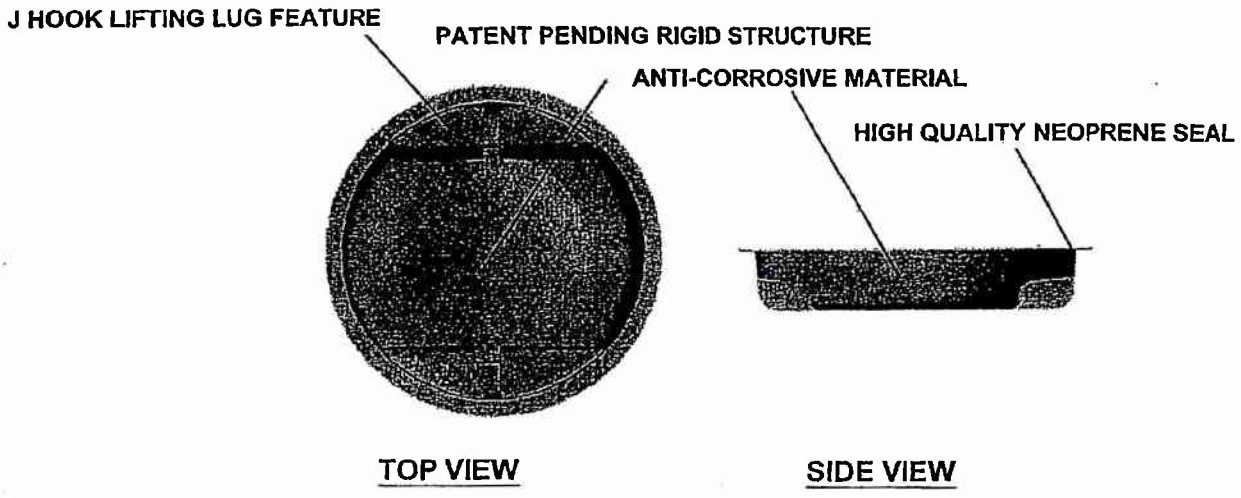


PLAN 2-020A



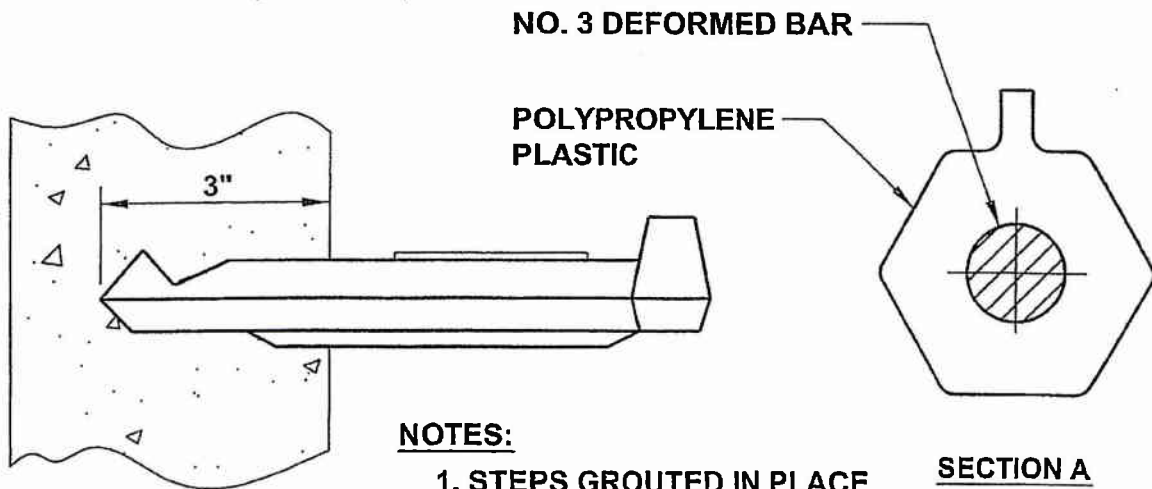
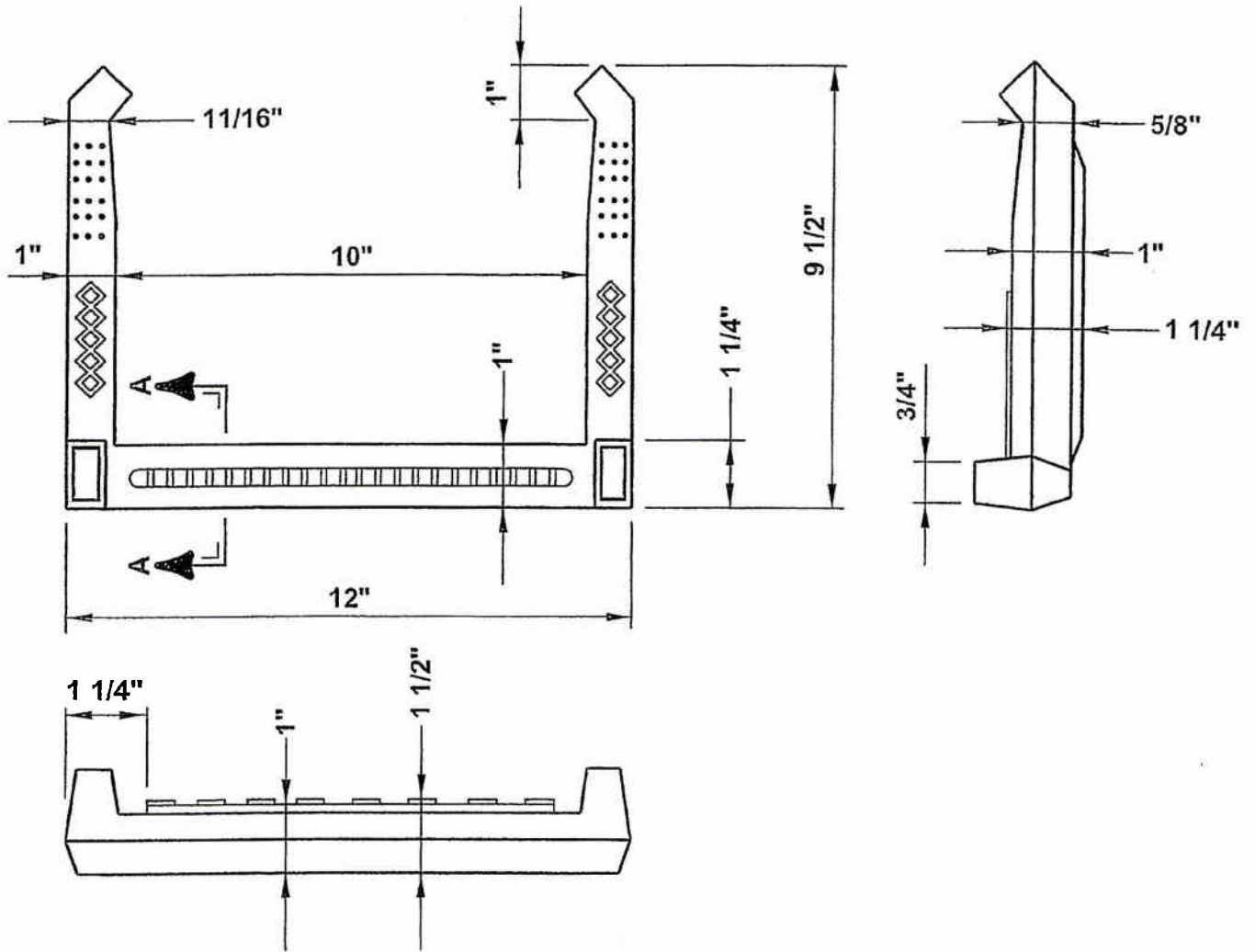
SECTION 2-020B

KLH ENGINEERS, INC. 5173 Campbells Run Road Pittsburgh, PA 15205		WATERTIGHT MANHOLE (WT) FRAME AND COVER
Not to scale	April 2010	Standard Detail SD-2-020



- NOTES:**
1. ABS INFLOW PROTECTOR SHALL BE MAN-PAN OR APPROVED EQUAL AND SHALL BE INSTALLED WITH ALL NON-WATER TIGHT MANHOLE COVERS.
 2. ALL INFLOW PROTECTORS SHALL BE INSTALLED WITH VENTS AND SHALL HAVE A GAS RELIEF VALVE

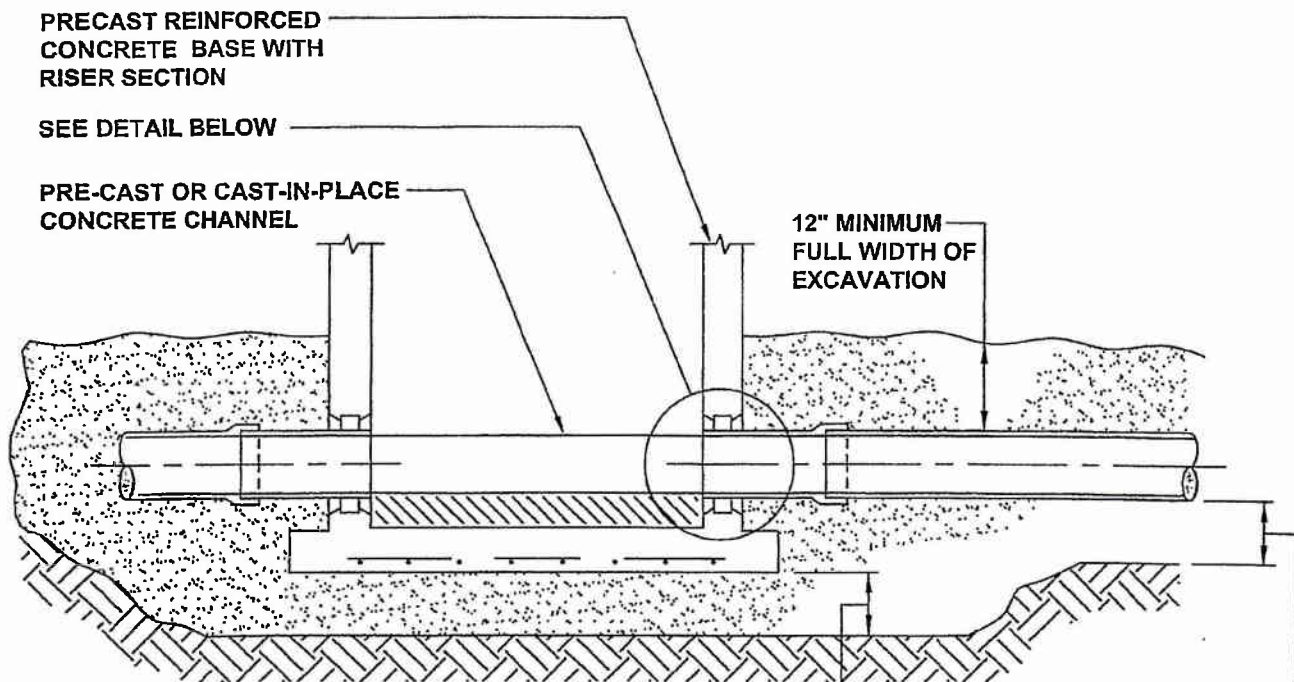
KLH ENGINEERS, INC. 5173 Campbells Run Road Pittsburgh, PA 15205		MANHOLE INFLOW PROTECTOR	
Not to scale	January 2006	-10	Standard Detail SD-2-021



NOTES:

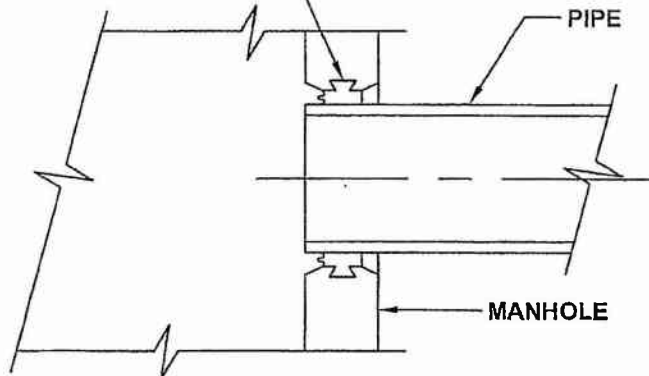
1. STEPS GROUTED IN PLACE
2. INSTALL STEPS ON 12" C:C

<p>KLH ENGINEERS, INC. 5173 Campbells Run Road Pittsburgh, PA 15205</p>		<p>POLYPROPYLENE PLASTIC MANHOLE STEP</p>
<p>Not to scale</p>	<p>April 2010</p>	<p>Standard Detail SD-2-022</p>

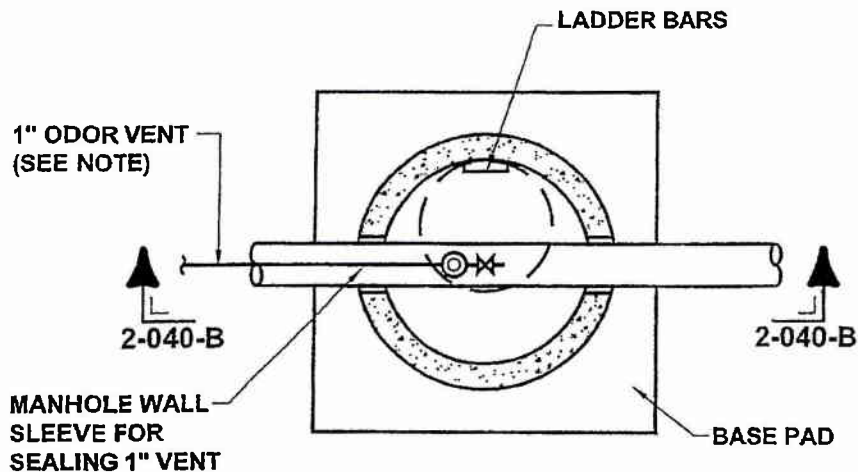


6" MIN. 1B CRUSHED STONE BEDDING FOR MANHOLE AND PVC PIPE. PLACE SAME MATERIAL IN MANHOLE EXCAVATION FROM BOTTOM OF EXCAVATION TO 12" ABOVE TOPS OF CONNECTING PIPES.

RESILIENT AND/OR FLEXIBLE SLEEVE (WITH ADJUSTABLE STAINLESS STEEL STRAPS) MANHOLE TO PIPE CONNECTOR



<p>KLH ENGINEERS, INC. 5173 Campbells Run Road Pittsburgh, PA 15205</p>		<p>PRECAST MANHOLE BASE DETAIL</p>
<p>Not to scale</p>	<p>April 2010</p>	<p>Standard Detail SD-2-023</p>

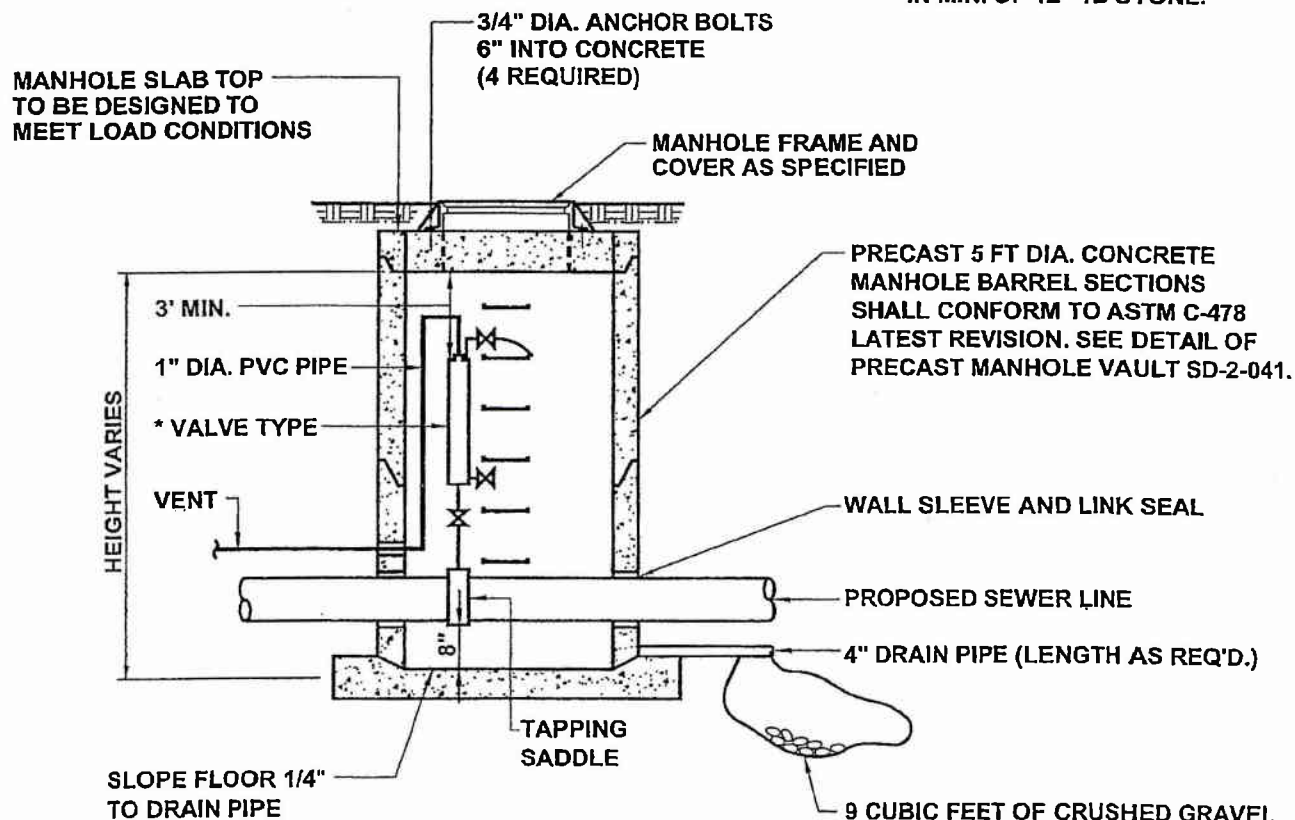


PLAN 2-040-A

* TYPE OF VALVE INSTALLED IN THE MANHOLE AS REQUIRED BY THE ENGINEER

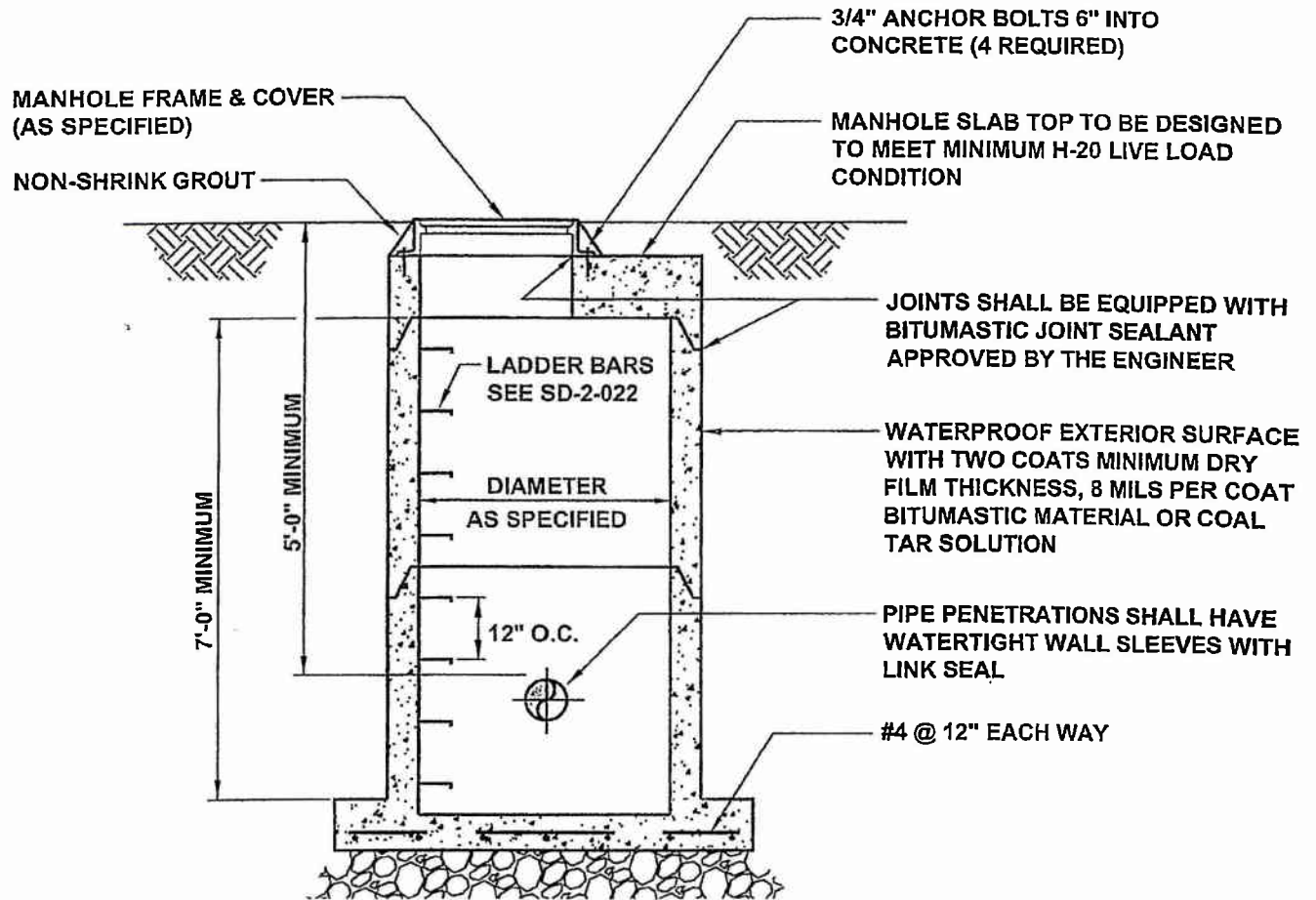
- 1) AIR RELEASE VALVE
- 2) AIR VACUUM VALVE
- 3) COMBINATION AIR VALVE AS SPECIFIED

NOTE:
ODOR VENT FROM AIR VALVE TO BE RUN INTO TRENCH WITH 20' PERFORATED PIPE ENCASED IN MIN. OF 12" 1B STONE.



SECTION 2-040-B

<p>KLH ENGINEERS, INC. 5173 Campbells Run Road Pittsburgh, PA 15205</p>		<p>SEWAGE AIR AND VACUUM RELEASE VALVE AND MANHOLE</p>	
<p>Not to scale</p>	<p>January 2006</p>	<p>-13</p>	<p>Standard Detail SD-2-040</p>

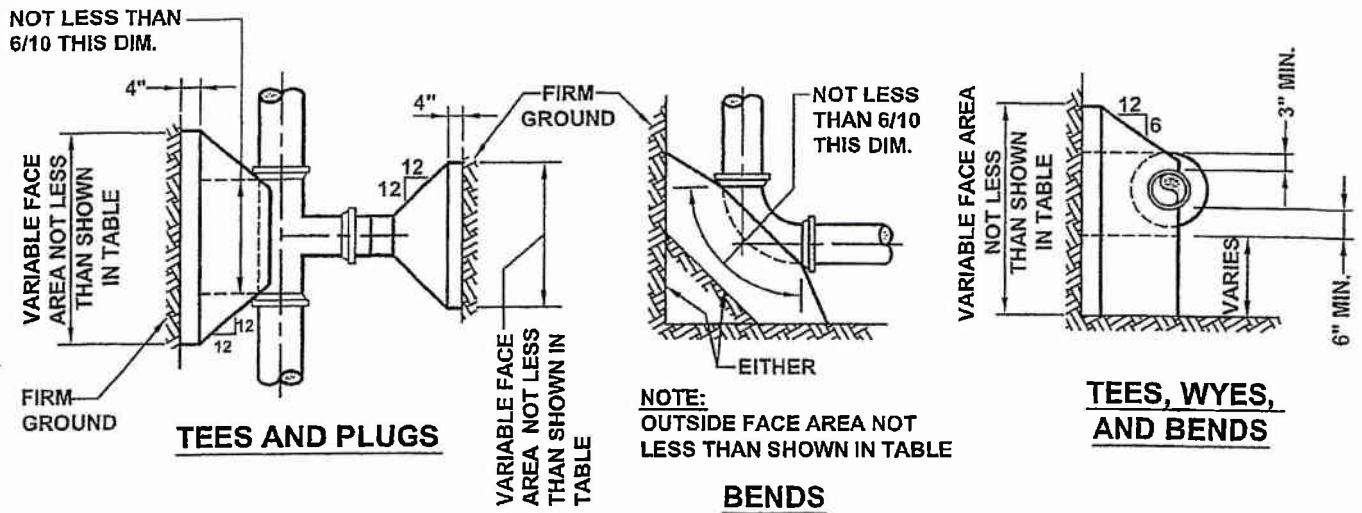


SECTION A-A

NOTES:

1. PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO ASTM-C478, LATEST REVISION.
2. WHERE MANHOLE FOUNDATION IS IN ROCK, REINFORCEMENT WILL NOT BE REQUIRED.
3. LIFTING HOLES SHALL BE PAINTED WITH MORTAR, MADE WATERTIGHT AND LEFT NEAT & SMOOTH.
4. SUPPORT MANHOLE STRUCTURE AND ALL PIPING CONNECTIONS ON A MINIMUM OF 6" THICKNESS 1B BEDDING MATERIAL. ENCAPSILATE ALL PIPES WITHIN MANHOLE EXCAVATION IN THE SAME MATERIAL TO AN ELEVATION OF 12" ABOVE THE TOPS OF PIPES.

KLH ENGINEERS, INC. 5173 Campbells Run Road Pittsburgh, PA 15205		PRECAST CONCRETE MANHOLE VAULT
Not to scale	April 2010	Standard Detail SD-2-041



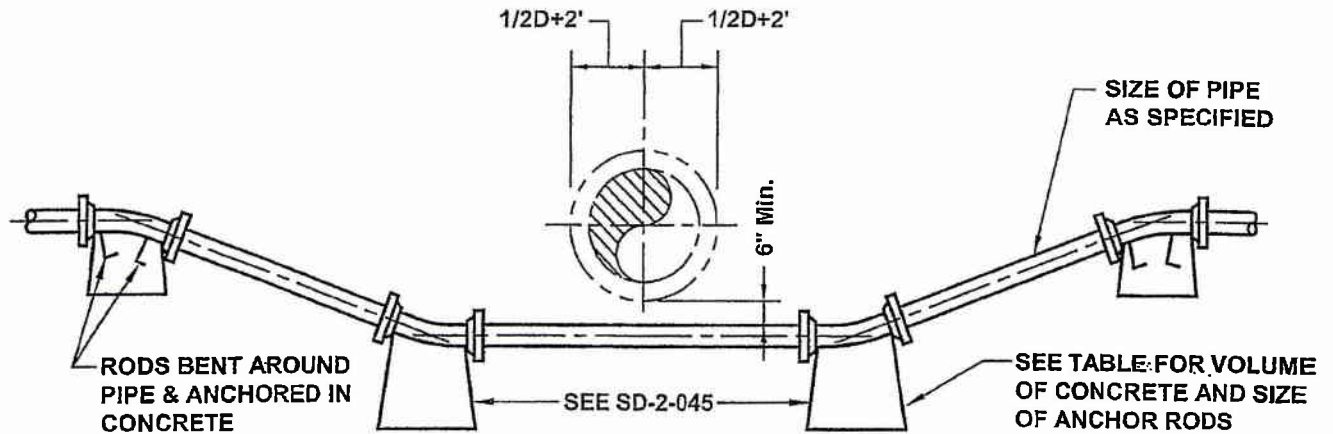
NOTES:

1. ALL TEES, WYES, CROSSES, PLUGS AND BENDS OF 10° OR MORE SHALL BE BLOCKED AGAINST FIRM EARTH WITH CONCRETE.
2. EARTH PRESSURE FIGURED AT 4000 PSF. IF EARTH ENCOUNTERED WILL NOT WITHSTAND THIS PRESSURE, THE AREA OF THE BLOCK MUST BE INCREASED PROPORTIONATELY.
3. ALL FITTINGS SHALL BE WRAPPED IN PLASTIC PRIOR TO POURING CONCRETE BLOCKING.

PIPE SIZE (in)	AREA* (sq in)	TOTAL FORCE (lbs)	AREA OF BLOCK IN SQUARE FEET				
			TEES & PLUGS	90 DEGREE BENDS	45 DEGREE BENDS	22 1/2 DEGREE BENDS	11 1/4 DEGREE BENDS
4	19	4,275	1.1	1.5	1.0	1.0	1.0
6	38	8,550	2.2	3.0	1.6	1.0	1.0
8	65	14,625	3.7	5.2	2.8	1.4	1.0
10	97	21,825	5.5	7.7	4.2	2.1	1.1
12	137	30,825	7.7	10.9	5.9	3.0	1.5
14	184	41,400	10.4	14.6	7.9	4.0	2.1
16	238	53,550	13.4	18.9	10.3	5.2	2.7
18	299	67,275	16.8	23.8	12.9	6.6	3.4
20	367	82,575	20.7	29.2	15.8	8.1	4.1
24	523	117,675	29.4	41.6	22.5	11.5	5.9
30	805	96,600	24.2	34.2	18.5	9.4	4.8
36	1152	138,240	34.6	48.9	26.5	13.5	6.9

CALCULATIONS ARE BASED ON 225 PSI PRESSURE OR 150 PSI WORKING PRESSURE PLUS 50% INCREASE FOR WATER HAMMER FOR SIZES 4" TO 24" INCLUSIVE. FOR SIZES 30" & 36" THE TABLE IS BASED ON 120 PSI PRESSURE OR 75 PSI WORKING PRESSURE PLUS 50% WATER HAMMER.

KLH ENGINEERS, INC. 5173 Campbells Run Road Pittsburgh, PA 15205		CONCRETE THRUST BLOCKING
Not to scale	April 2010	Standard Detail SD-2-045

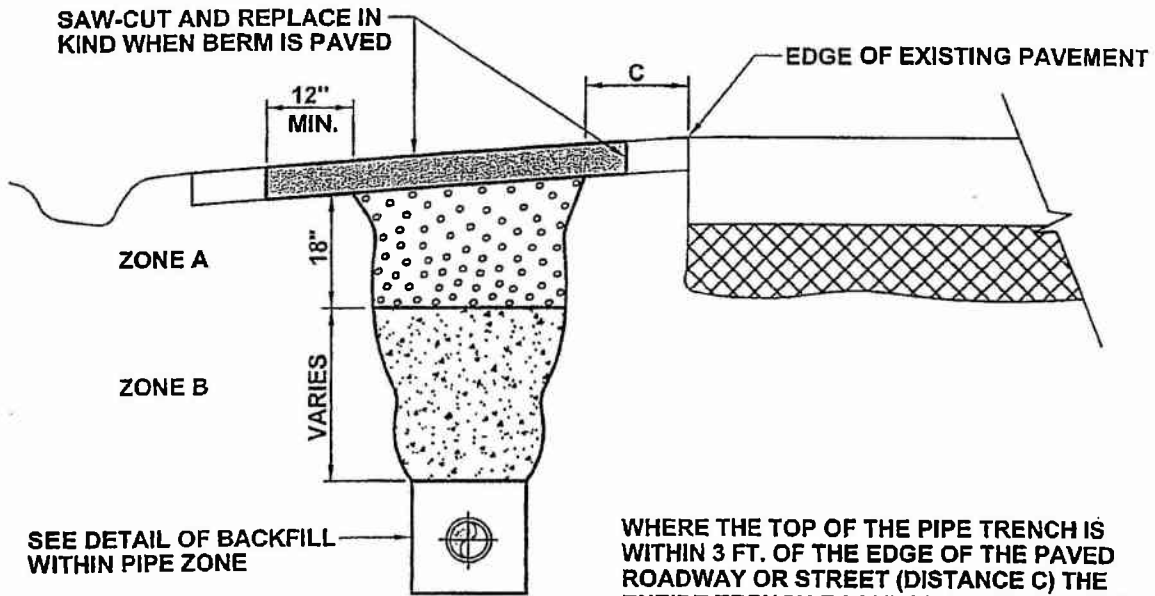


NOTE:
 THE TABLE IS BASED ON 225 PSI TEST PRESSURE. ALL BLOCKS HAVING LENGTH OF 3'-0" OR MORE TO BE REINFORCED WITH #4 @ 6" PLACED 3" FROM TOP OF BLOCK.

NOTE:
 ALL FITTINGS SHALL BE WRAPPED IN PLASTIC PRIOR TO POURING CONCRETE ANCHORS.

PIPE SIZE	TOTAL FORCE (lbs)	VOLUME IN CUBIC FEET			SIZE AND NO. OF ANCHOR RODS		
		45 DEGREE BENDS	22 1/2 DEGREE BENDS	11 1/4 DEGREE BENDS	45 DEGREE BENDS	22 1/2 DEGREE BENDS	11 1/4 DEGREE BENDS
4	4275	22.7	11.6	5.9	1-#4	1-#4	1-#4
6	8550	45.5	23.3	11.9	2-#4	1-#4	1-#4
8	14625	77.8	39.6	20.3	2-#4	2-#4	1-#4
10	21825	116.1	59.1	30.3	2-#4	2-#4	2-#4
12	30825	164.0	83.5	42.8	2-#5	2-#4	2-#4
14	41400	220.2	112.1	57.5	2-#6	2-#4	2-#4
16	53550	284.9	145.0	73.4	2-#7	2-#5	2-#4
18	67275	357.9	182.2	93.4	2-#7	2-#5	2-#4
20	82575	439.2	223.6	114.7	2-#8	2-#6	2-#4
24	117675	626.0	318.7	183.4	2-#9	2-#7	2-#5

KLH ENGINEERS, INC. 5173 Campbells Run Road Pittsburgh, PA 15205		CONCRETE ANCHORS AND METHOD OF LAYING MAINS UNDER OBSTRUCTIONS
Not to scale	April 2010	Standard Detail SD-2-046

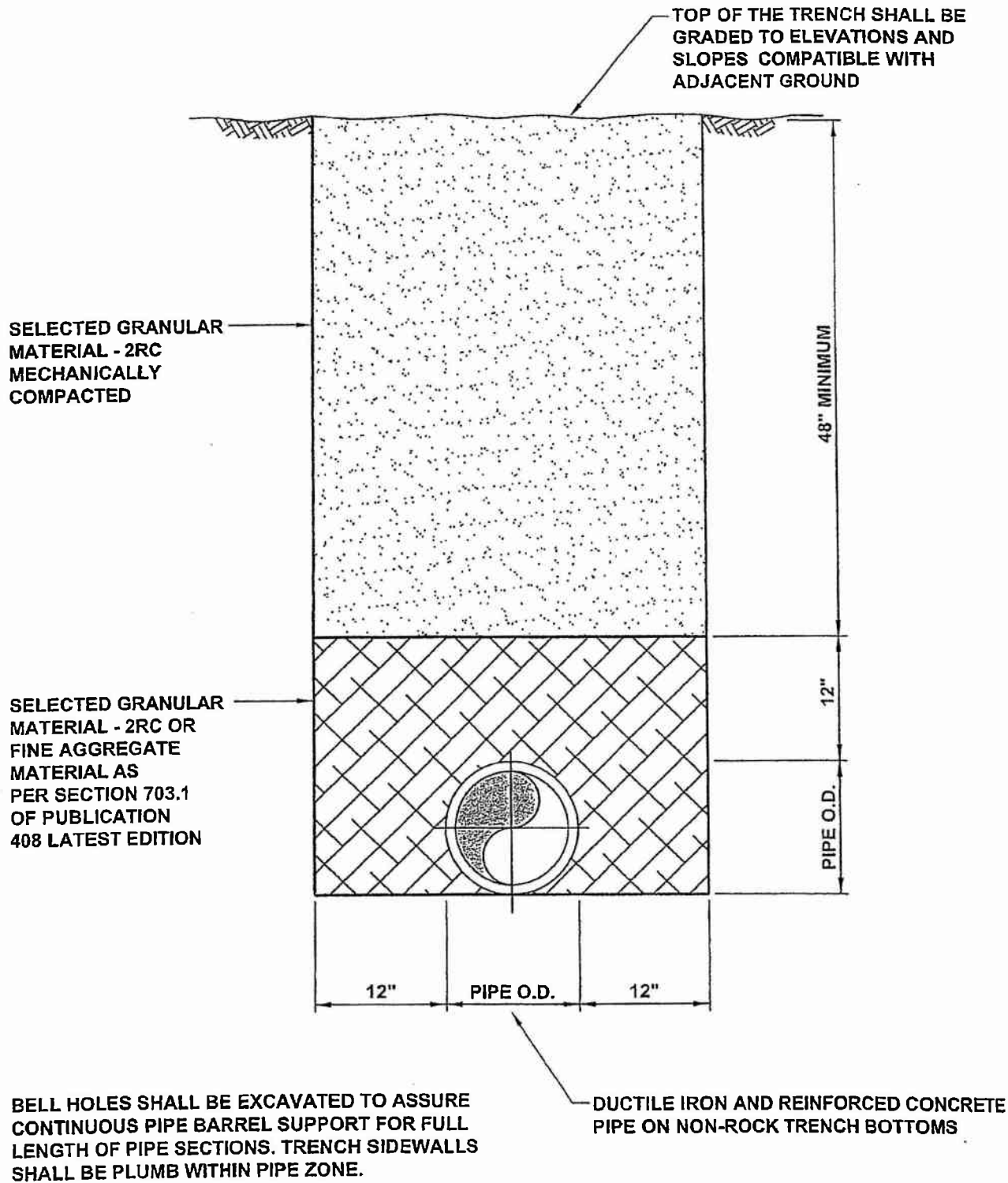


WHERE THE TOP OF THE PIPE TRENCH IS WITHIN 3 FT. OF THE EDGE OF THE PAVED ROADWAY OR STREET (DISTANCE C) THE ENTIRE TRENCH BACKFILL ABOVE THE PIPE ZONE, THAT IS THE BACKFILL PLACED IN ZONES A AND B SHALL CONSIST OF 2-A LIMESTONE MATERIAL MECHANICALLY COMPACTED IN 6" LAYERS.

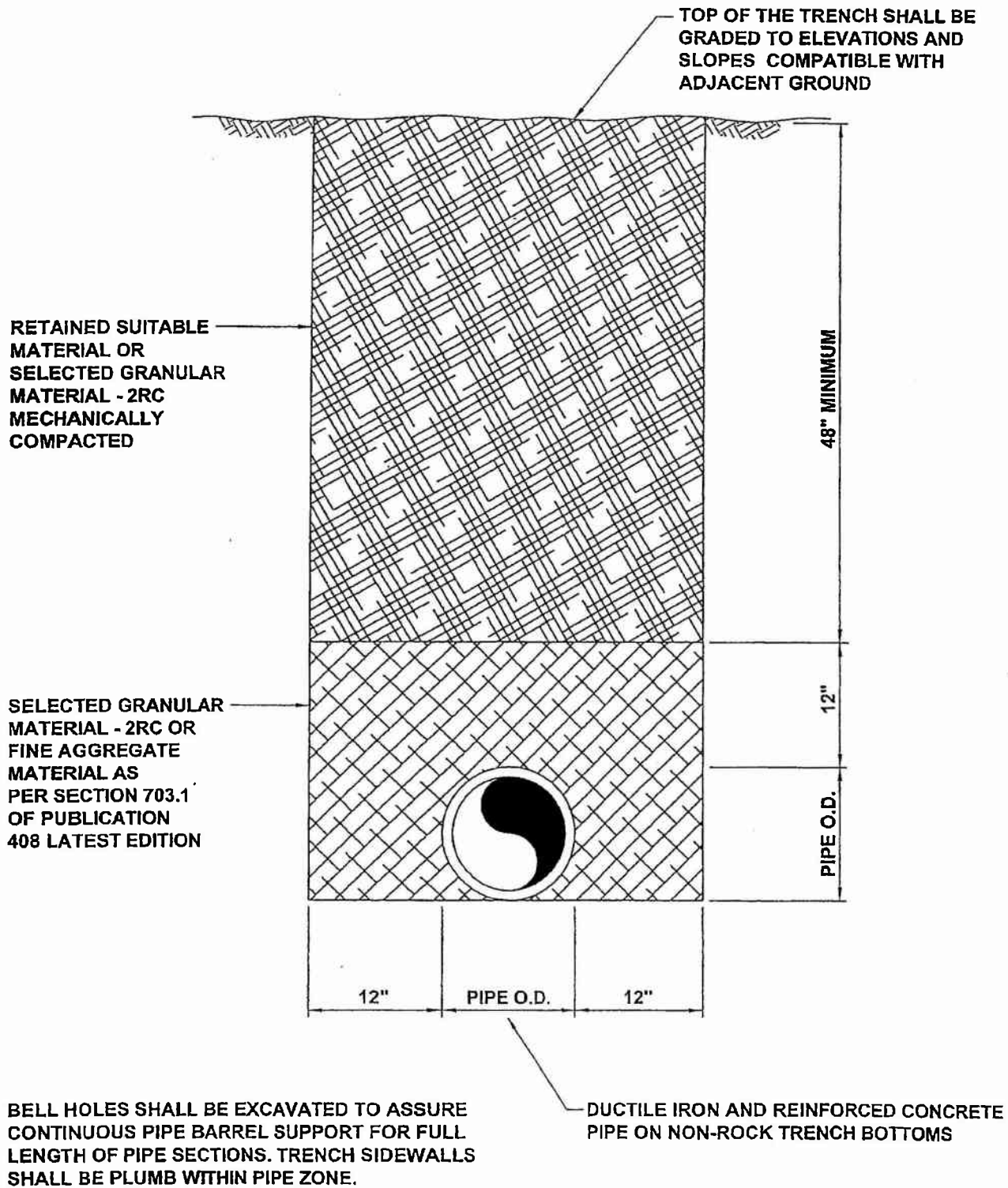
WHERE THE TOP OF THE PIPE TRENCH IS GREATER THAN 3 FT. FROM THE EDGE OF THE PAVED ROADWAY (DISTANCE C) BACKFILL PLACED IN ZONE B SHALL BE EXCAVATED MATERIAL FROM THE TRENCH, FREE OF ROCKS LARGER THAN 3" AND MECHANICALLY COMPACTED IN 6" LAYERS. BACKFILL MATERIAL PLACED IN ZONE A (THE TOP 18" OF THE TRENCH) SHALL BE 2-A LIMESTONE MATERIAL MECHANICALLY COMPACTED IN 6" LAYERS.

WHERE THE BERM IS NOT PLANTED OR PAVED IT SHALL BE RESTORED FOR ITS ENTIRE WIDTH BY APPLICATION OF RT-2W BITUMINOUS MATERIAL AT A RATE OF 0.2 TO 0.5 GALLONS PER SQUARE YARD DEPENDING UPON LOCATION AND PREVAILING TEMPERATURES AT TIME OF APPLICATION.

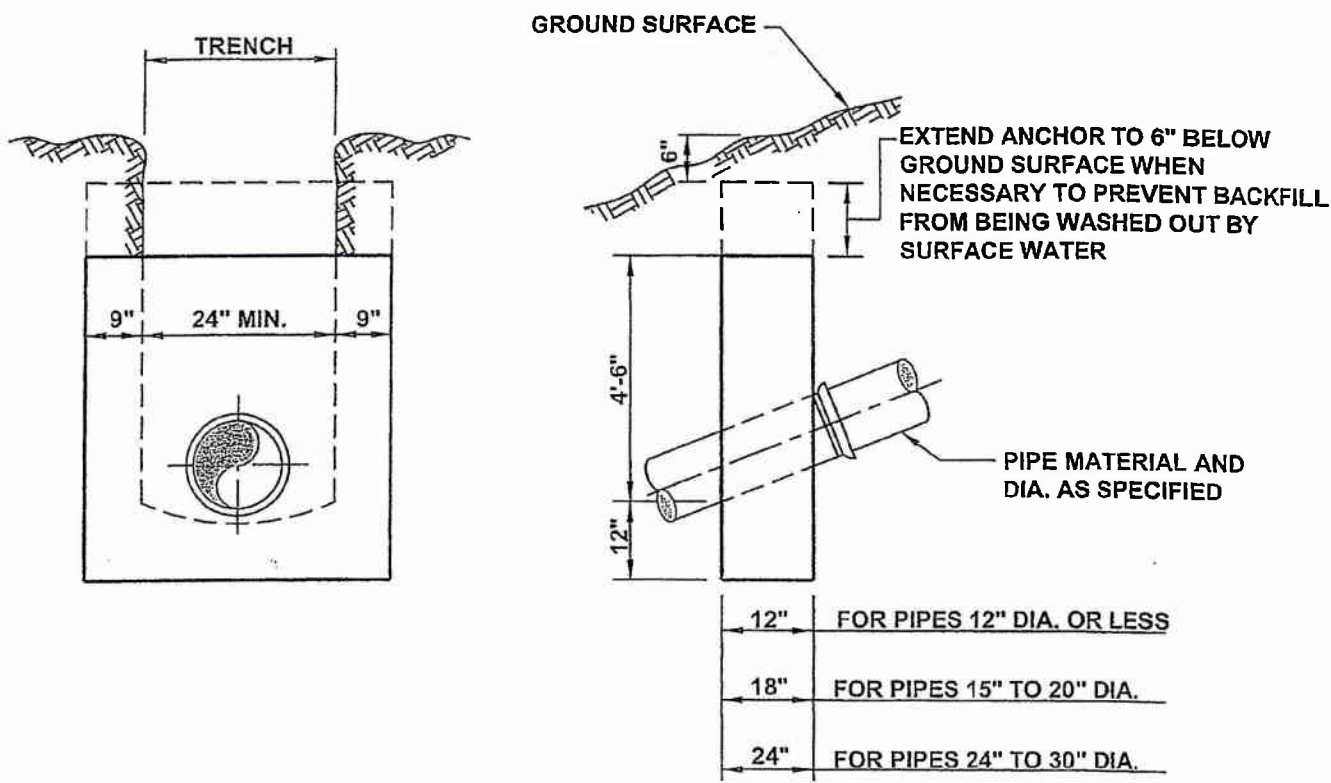
KLH ENGINEERS, INC. 5173 Campbells Run Road Pittsburgh, PA 15205		TRENCH BACKFILL WITHIN ROADWAY OR STREET BERMS	
Not to scale	April 2010	-17	Standard Detail SD-2-069



KLH ENGINEERS, INC. 5173 Campbells Run Road Pittsburgh, PA 15205		TYPICAL TRENCH DETAIL WITHIN 3 FEET OF SHOULDER AREA WITHIN RIGHT-OF-WAY
Not to scale	April 2010	Standard Detail SD-2-070



KLH ENGINEERS, INC. 5173 Campbells Run Road Pittsburgh, PA 15205		TYPICAL TRENCH DETAIL MINIMUM 3 FEET OUT OF SHOULDER AREA WITHIN STATE RIGHT-OF-WAY	
Not to scale	January 2006	-19	Standard Detail SD-2-071



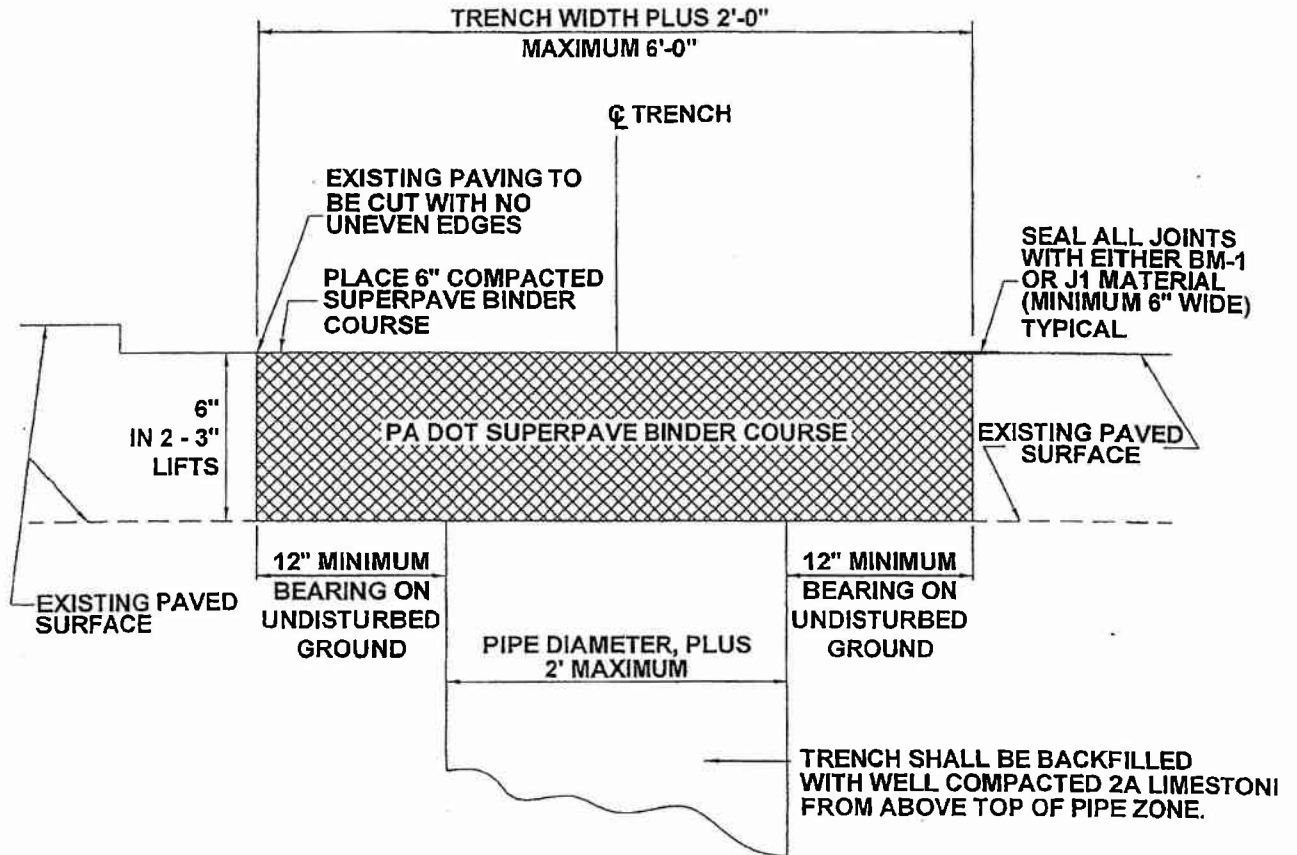
CONCRETE ANCHORS FOR PIPES ON STEEP GRADES

PROVIDE NO ANCHORS ON GRADES LESS THAN 20% UNLESS NOTED
 PROVIDE ANCHORS 36' C-C ON GRADES BETWEEN 20% AND 34%
 PROVIDE ANCHORS 24' C-C ON GRADES BETWEEN 34% AND 50%
 PROVIDE ANCHORS 16' C-C ON GRADES BETWEEN 50% AND 70%

NOTE:

FOR CONDITIONS OTHER THAN SHOWN HEREON ANCHORS SHALL BE PROVIDED AS REQUIRED BY THE CONTRACT PLANS OR ORDERED IN THE FIELD BY THE OWNER'S REPRESENTATIVE.

KLH ENGINEERS, INC. 5173 Campbells Run Road Pittsburgh, PA 15205		CONCRETE ANCHORS FOR PIPELINES
Not to scale	April 2010	Standard Detail SD-2-092



NOTE: TEMPORARY TRENCH RESTORATION, THAT TIME PERIOD FROM BACKFILLING OF TRENCH UNTIL PERMANENT TRENCH RESTORATION, THE TRENCH SHALL BE BACKFILLED WITH SELECT MATERIAL TO AN ELEVATION WITHIN 3" OF THE ROAD SURFACE. THE TRENCH SHALL THEN BE SURFACED WITH A TEMPORARY PATCH OF COLD PATCH MATERIAL. FOR PERMANENT RESTORATION, THE CONTRACTOR SHALL REMOVE THE COLD PATCH MATERIAL AND SAW-CUT THE REQUIRED BENCHES, EXCAVATE TO PROVIDE PROPER DEPTH OF ASPHALT AND THE SUPERPAVE MATERIAL SHALL THEN BE PLACED AND SEALED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE ON THE TEMPORARY PATCH AND SHALL KEEP A SMOOTH RIDING SURFACE ON THE STREET.

* FOR CONCRETE SURFACED ROADWAYS, THE REQUIREMENTS OF PADOT PUBLICATION 408 ARE REQUIRED.

KLH ENGINEERS, INC. 5173 Campbells Run Road Pittsburgh, PA 15205		TRENCH BACKFILL AND PAVEMENT REPLACEMENT REQUIREMENTS	
Not to scale	February 2008	I-21	Standard Detail SD-2-104

RESTORATION CONDITION

SEED MIX & SOWING RATE
(% BY WEIGHT)

ROADSIDE; NON-MOWED

80% KENTUCKY 31, FESCUE
20% PENNLAWN RED FESCUE
SOW 21 lbs. per 1000 sq. yds.
MAR. thru MAY / AUG. thru SEPT.

ROADSIDE; MOWED

50% KENTUCKY BLUEGRASS
30% PENNLAWN RED FESCUE
20% PERENNIAL RYEGRASS
SOW 21 lbs. per 1000 sq. yds.
MAR. thru MAY / AUG. thru SEPT.

BANK AREAS

45% CROWN VETCH
55% ANNUAL RYEGRASS
SOW 9 lbs. per 1000 sq. yds.
ANYTIME EXCEPT SEPT. OR OCT.

LAWNS

50% KENTUCKY BLUEGRASS
30% PENNLAWN RED FESCUE
20% PERENNIAL RYEGRASS
SOW 21 lbs. per 1000 sq. yds.
MAR. thru MAY / AUG. thru SEPT.

OPEN FIELDS; NON-CULTIVATED PASTURE

100% TIMOTHY
SOW 9 lbs. per 1000 sq. yds.
MAR. thru MAY / AUG. thru SEPT.

OPEN FIELDS; CULTIVATED

100% ANNUAL RYEGRASS
SOW 9 lbs. per 1000 sq. yds.
MAR. thru MAY / AUG. thru SEPT.

WOODS; SPARSE

100% RED FESCUE
SOW 36 lbs. per 1000 sq. yds.
MAR. thru MAY / AUG. thru SEPT.

SOIL CONDITIONERS REQUIRED FOR RESTORATION:

RAW FINELY GROUND LIMESTONE @ 100 lbs. per 1000 sq. ft. APPLIED ONE WEEK BEFORE SEEDING

FERTILIZER- COMPLETE COMMERCIAL FERTILIZER WITH 5-10-5 ANALYSIS @ 50 lbs. per 1000 sq. ft.

OWNER IS RESPONSIBLE FOR WATERING.

KLH ENGINEERS, INC. 5173 Campbells Run Road Pittsburgh, PA 15205		REQUIRED SURFACE RESTORATION IN UNPAVED LOCATIONS
Not to scale	April 2010	Standard Detail SD-2-105

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE BUILDING CODE, ACI 318 (LATEST REVISION) EXCEPT AS OTHERWISE NOTED ON THE DRAWINGS OR SPECIFICATIONS HEREAFTER.

2. SIZE AND SPACING OF REINFORCING IS NOTED AS FOLLOWS:

#4 @ 6"
(BAR SIZE) (SPACING)

3. KEYWAYS SHALL BE PROVIDED AT ALL CONSTRUCTION JOINTS IN ACCORDANCE WITH SD-3-003, UNLESS OTHERWISE NOTED. ALL KEYWAYS SHALL BE TYPE A. MINIMUM 1/8" x 6" STEEL OR PVC WATER STOPS SHALL BE PROVIDED IN ANY CONSTRUCTION JOINT BELOW THE LIQUID LEVEL FOR LIQUID CONTAINING OR LIQUID CONVEYING STRUCTURES AND BELOW GROUND WATER OR FLOOD LEVEL FOR ALL EXTERIOR BASEMENT AND TUNNEL WALLS. BUTTING OR LAPPING JOINTS OF PLATES SHALL BE CONTINUOUSLY WELDED AT POINT OF JOINTURE TO PROVIDE A CONTINUOUS WATER STOP FOR ITS ENTIRE LENGTH.

4. STRESS STEEL IS ALWAYS SHOWN NEXT TO THE SURFACE AND SHOULD BE PLACED WITH THE MINIMUM CONCRETE COVER IN ACCORDANCE WITH ACI 318 (LATEST REVISION) OR AS FOLLOWS:

(A) CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH ___ 3" MINIMUM COVER

(B) FORMED CONCRETE EXPOSED TO EARTH, WATER OR WEATHER:

ALL BARS _____ 2" MINIMUM COVER

(C) CONCRETE NOT EXPOSED TO WEATHER NOR IN CONTACT WITH WATER OR EARTH:

SLABS AND WALLS _____ 3/4" MINIMUM COVER

BEAMS, GIRDERS, COLUMNS _____ 1 1/2" MINIMUM COVER

5. ALL SPLICES IN REINFORCING SHALL CONFORM TO THE REQUIREMENTS OF ACI 318 (LATEST REVISION).

BAR SIZE	MINIMUM SPLICE LENGTH	
	BEAM, SLABS, AND WALLS *	COLUMNS
#4	25"	15"
#5	31"	19"
#6	38"	23"
#7	54"	27"
#8	62"	36"
#9	75"	44"
#10	95"	56"
#11	117"	69"

* (A) TOP BAR SPLICE LENGTH TO BE 1.4 TIMES THOSE GIVEN.

(B) IF SPLICES OCCUR AT THE POINT OF MAXIMUM STRESS THEY MUST BE STAGGERED.

6. ALL HOOKS AND BENDS SHALL CONFORM TO ACI CODE 318 (LATEST REVISION) AS SHOWN IN ITS "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" (LATEST REVISION).

7. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, THE CORNERS OF ALL OPENINGS IN CONCRETE WALLS OR SLABS SHALL BE REINFORCED WITH #6 x 5'-0" LONG BARS PLACED DIAGONALLY TO EACH CORNER OF THE OPENING. ROUND OPENINGS SHALL BE REINFORCED WITH #6 BARS BENT TO CONFORM TO THE SHAPE OF THE OPENING. FOR SLABS OR WALLS LESS THAN 8" THICK, SUCH REINFORCING SHALL CONSIST OF ONE BAR AND FOR SLABS OR WALLS 8" OR GREATER IN THICKNESS, REINFORCING SHALL CONSIST OF BARS ON EACH FACE.

8. UNLESS OTHERWISE DETAILED, SLABS ON GRADE SHALL BE REINFORCED WITH 6" x 6" - W2.9 x W2.9, WELDED WIRE FABRIC AND #4 x 3'-0" AT 12". PERIMETER BARS SHALL BE INSTALLED IN THE SLAB PERPENDICULAR TO ALL DISCONTINUOUS EDGES.

9. ALL EXPOSED EDGES OF CONCRETE WALLS SHALL BE BEVELED 3/4" UNLESS OTHERWISE NOTED.

10. CONSTRUCTION JOINTS SHALL BE LOCATED AS SHOWN ON THE DRAWINGS. ADDITIONAL JOINTS SHALL BE INSTALLED, HOWEVER, AS NECESSARY TO MEET THE FOLLOWING REQUIREMENTS:

	MAXIMUM DIMENSION OF POUR
(A) WALL WITH STRAIGHT RUNS GREATER THAN 20'-0"	30'-0"
(B) SLABS ON GRADE (12" OR GREATER)	50'-0"
(C) SLABS ON GRADE LESS THAN 12"	20'-0"
(D) SLABS SUPPORTED ON BEAMS OR WALLS	20'-0"

11. EQUIPMENT PADS SHALL BE DOWELED INTO CONCRETE FLOOR SLABS WITH ONE #6 DOWEL FOR EVERY SQUARE FOOT OF PAD SURFACE. MINIMUM HORIZONTAL PAD REINFORCING SHALL BE #4 @ 12", TOP, EACH WAY.

KLH ENGINEERS, INC. 5173 Campbells Run Road Pittsburgh, PA 15205		CONCRETE AND REINFORCING STEEL NOTES
Not to scale	April 2010	Standard Detail SD-3-001

EXHIBIT A
SOILS REPORT



ECS MID-ATLANTIC, LLC

"Setting the Standard for Service"

Geotechnical • Construction Materials • Environmental • Facilities

September 18, 2008
Amended April 20, 2009

Mr. Matthew J. Elyes
KLH Engineers
5173 Campbells Run Road
Pittsburgh, Pennsylvania 15205

ECS Job No.: 13-3364

Reference: Revised Report of Subsurface Exploration and Geotechnical Engineering Analysis, McKeesport Wastewater Treatment Plant Expansion, Atlantic Avenue, McKeesport, Allegheny County, Pennsylvania

Dear Mr. Elyes:

As authorized by acceptance of our proposal dated December 3, 2008, ECS Mid-Atlantic, LLC (ECS) has completed additional subsurface exploration and geotechnical engineering analysis for the wastewater treatment plant expansion. Our report, including the results of our subsurface exploration program, laboratory analysis, and geotechnical engineering analysis is enclosed with this letter, along with a Site Location Diagram and a Boring Location Diagram. Revisions have been made to our original report based on new boring information and on our discussions with your office.

We understand that the project will consist of several new structures at the existing facility, an addition at the Long Run Pump Station located 3 miles south of the plant, and a force main crossing under the Youghiogheny River.

The enclosed report provides comments on soil bearing pressures, pile capacities, foundation settlement estimates, placement and compaction of new fills, drainage, construction, and other factors which may influence construction at the site.

We appreciate this opportunity to be of service to KLH Engineers on this project. If you have any questions regarding the information and recommendations contained in the accompanying report, or if we may be of further assistance to you in any way during planning or construction of this project, please do not hesitate to contact us.

Respectfully,
ECS MID-ATLANTIC, LLC

Jeffrey A. McGregor, P.E.
Geotechnical Manager

Salvatore V. Fiorentino, P.E.
Principal Engineer

Enclosures: (1) Report

I:\Department 3 Geotechnical\GEOTECHNICAL\PROJECTS\3300's\3364\13-3364 Amended 04-13-09 McKeesport WWTP Expansion.doc

**REVISED REPORT OF SUBSURFACE EXPLORATION AND
GEOTECHNICAL ENGINEERING ANALYSIS**

PROJECT

McKeesport WWTP Expansion
Atlantic Avenue
McKeesport, Pennsylvania

CLIENT

Mr. Matthew J. Elyes
KLH Engineers
5173 Campbells Run Road
Pittsburgh, Pennsylvania 15205

Submitted by
ECS Mid-Atlantic, LLC
5112 Pegasus Court
Suite S
Frederick, Maryland 21704

PROJECT 13-3364

DATE September 18, 2008
 Amended April 20, 2009

MCKEESPORT WWTP EXPANSION

TABLE OF CONTENTS

	<u>PAGE</u>
PROJECT OVERVIEW	1
Project Location and Proposed Construction	1
UV Disinfection and Outfall Flume Structure	1
Equipment, Electrical Gear, and Chemical Storage Buildings	1
Headworks Building	1
SBR (Sequencing Batch Reactor) Basins	1
Scope of Work	2
Purposes of Exploration	2
EXPLORATION PROCEDURES	2
EXPLORATION RESULTS	3
Current Site Conditions	3
Regional Geology	3
Soil Conditions	4
Groundwater Observations	5
ANALYSIS AND ENGINEERING RECOMMENDATIONS	6
Foundation Recommendations	6
Proposed UV Disinfection and Outfall Flume Structure	6
Auger Cast Piles	6
Driven Steel H-Piles	7
Proposed SBR Basins	7
Equipment, Electrical Gear, and Chemical Storage Building	8
Proposed Headworks Building	9
Pump Stations-West Shore	9
Pump Station-Ripple Road	9
General	10
Floor Slab Design	10
Below Grade Walls	11
Retaining Walls	12
Earthwork Operations	12
Fill and Foundation Subgrades	12
Fill Placement	13
Construction Considerations	13
Auger Cast Pile Foundations	14
Steel H-Piles	15
Closing	16
APPENDIX	17

PROJECT OVERVIEW

Project Location and Proposed Construction

The project site is located on the existing McKeesport Wastewater Treatment Plant property. The plant is located on Atlantic Avenue, near the intersection at Rebecca Street in McKeesport, Pennsylvania. A Site Location Diagram, included in the Appendix of this report, shows the approximate location of this project.

We understand that the project will consist of several new structures as well as an addition at the Long Run Pump Station located 3 miles south of the plant. A force main crossing under the Youghiogheny River will be constructed using horizontal directional drilling. The additions will include a proposed UV disinfection and outfall flume structure, equipment, electrical gear, chemical storage buildings, a headworks building with splitter box, Sequencing Batch Reactor, and SBR basins. The area of the plant where the expansion will occur is relatively flat and open with some area covered with brush and trees. The following building and structure details were provided to us by Mr. Kevin Hoffman of your office:

UV Disinfection and Outfall Flume Structure

This structure will consist of 3 concrete channels into which the wastewater from the SBR flows through a bank of UV light bulbs, which kill any remaining bacteria in the treated water before it is discharged into the river. The channel structures are intended to be cast-in-place mat foundations with walls ranging in height from approximately 7 feet to nearly 20 feet near the river. Settlement control is extremely important to ensure proper operation of this structure.

Equipment, Electrical Gear, and Chemical Storage Buildings

These buildings will share a two-ton monorail beam crane spanning approximately 24 feet between them. The masonry buildings will be founded on spread footing foundations. Settlement control is also of great concern as the two buildings are tied together.

Headworks Building

This building will house hydraulically sensitive weirs and basins that will convey water flow to the SBR splitter box. Detailed design drawings and structural loading of this building are not available at this time, however, it is expected that a combination of spread footings for exterior walls and mat foundations for interior basins will be utilized for foundation support. Structural fill on the order of 13 to 18 feet is expected to be necessary to reach the floor levels of this building. Structural loads for this building are expected to be relatively high, as compared to the previously described buildings and structures.

SBR (Sequencing Batch Reactor) Basins

An SBR basin structure with an attached flow-splitting structure is proposed. SBR basins are processing tanks for the treatment of wastewater. The installation will consist of four (4) basins

consisting of a mat foundation and concrete walls, both external and internal to the structure. The present design consists of a 2'-6" thick mat with 1'-7" wide walls that are about 18 feet high. The overall slab area is proposed at 170 feet by 330 feet.

Scope of Work

The conclusions and recommendations contained in this report are based on our field subsurface explorations, laboratory testing, and review of available geologic and/or geotechnical data. The original subsurface exploration program included a total of 14 soil borings (TB-1 to TB-13 and TBLR-1), extended to a maximum depth of 60 feet below the existing ground surface. We recently re-drilled borings TB-1, TB-4, TB-8, and TB-11 to refusal. These borings are denoted as "A" series borings i.e. TB-1-A. We also drilled 10 new borings (TB-15 to TB-24). The new borings were drilled to depths between 20 and 117 feet below existing grades. Visual classifications and laboratory testing were then performed on soil samples to classify the soils and to assist in determination of the properties of the on-site soils. We also visited the site to conduct a site reconnaissance of current conditions. We are currently conducting grain-size analyses on the soil samples from the river crossing borings. These results will be submitted once the tests are complete.

The boring locations were selected and located by KLH Engineers. The Boring Location Diagrams in the Appendix indicates the approximate physical location of the borings performed at the site. The ground surface elevations for borings TB-1 to TB-14 were provided to us by your surveyor. The ground surface elevations for TB-15 to TB-24 were obtained from survey information provided on sheets TBSH2 to TBSH5, as provided to us.

Purposes of Exploration

The purpose of our subsurface exploration was to explore current soil and groundwater conditions at the site and to develop engineering recommendations to guide in the design and construction of the proposed project. We accomplished these purposes by:

1. drilling borings to explore the subsurface soil and groundwater conditions,
2. performing visual classification on the soil samples from the borings to evaluate pertinent engineering properties, and
3. analyzing the field and classification test results to develop appropriate engineering recommendations.

EXPLORATION PROCEDURES

The soil borings were performed using a truck mounted auger drilling rig, (CME 45), a track-mounted rig (CME75), and an ATV-mounted rig (CME 55) which utilized continuous flight, hollow stem augers to advance the boreholes. The river borings (TB-17 to TB-19) were drilled with a track-mounted CME 850 rig on a barge. Drilling fluid was not used in the borings, except for TB-1-A from 60 to 78.5 feet. Mud-rotary drilling was used in TB-1-A due to the pressure of caving sands.

Representative soil samples were obtained by means of the split-spoon sampling procedure in accordance with ASTM Specification D-1586. In this procedure, a 2-inch O.D., split-spoon sampler is driven into the soil a distance of 18 inches by a 140-pound hammer falling 30 inches. The number of blows required to drive the sampler through the last 12-inch interval is termed the Standard Penetration Test (SPT) value, or N value, and is indicated for each sample on the boring logs. This value can be used as a qualitative indication of the in-place relative density of noncohesive soils. In a less reliable way, it also indicates the consistency of cohesive soils. This indication is qualitative, since many factors can significantly affect the standard penetration resistance value and prevent a direct correlation between drill crews, drill rigs, drilling procedures, and hammer-rod-sampler assemblies.

After auger refusal was encountered, bedrock was cored in borings TB-8-A, TB-15, and TB-22 using a wire line NQ-size core barrel. The abbreviations REC and RQD after the description of rock stratum stand for Rock Core Recovery and Rock Quality Designation, respectively. The core recovery is the total length of rock core recovered from a particular run expressed in percentage. RQD represents the sum of the cores recovered having 4 inches in length or longer and expressed as a percent of the total run length.

A field log of the soils encountered in the borings was maintained by the drill crew. After recovery, each sample was removed from the sampler and visually classified. Representative portions of each sample were then sealed and brought to our laboratory for further visual examination.

Each soil sample was classified on the basis of texture and plasticity in accordance with the Unified Soil Classification System. The group symbols for each soil type are indicated in parentheses following the soil descriptions on the boring logs. A brief explanation of the Unified System is included with this report. The various soil types were grouped into the major zones noted on the boring logs. The stratification lines designating the interfaces between earth materials on the boring logs and profiles are approximate; in situ the transitions may be gradual.

EXPLORATION RESULTS

Current Site Conditions

The proposed individual structure sites are relatively flat and open with some area covered with brush and trees. Partial topographic information was available, and elevations at the boring locations ranged from approximately EL 726 at the Youghiogheny River, up to about EL 790 near boring TB-20. Access to the treatment plant site was obtained off of Atlantic Avenue.

Regional Geology

According to the Geologic Map of Pennsylvania (1980), the project site appears to be underlain by the Casselman Formation. The Casselman Formation is characterized as cyclic sequences of shale, siltstone, sandstone, red beds, thin, impure limestone, and thin, nonpersistent coal. The red beds are associated with landslides. The base is at the top of the Ames limestone.

Man-placed fill soils also exist to significant depths below surface grades in portions of the proposed building and river crossing areas.

The natural soils at the project site are assumed to be Quaternary Alluvium deposits. These deposits consist of sand, gravel, and clay.

Soil Conditions

Subsurface conditions within the project site were evaluated with 24 soil test borings (TB-1 to TB-13, TBLR-1, and TB-15 to TB-24) drilled to maximum depth of 117.0 feet below the existing ground surface. The approximate boring locations are presented on the enclosed Boring Location Diagrams.

Approximately 2 to 5 inches of topsoil was encountered at the boring locations except for borings TB-2, TB-6, TB-13, and TB-17 to TB-19. Approximately 2 inches of asphalt underlain by 6 inches of crushed stone base was encountered at the ground surface at TB-13. Approximately 12 inches of concrete was encountered at the ground surface at TB-20.

Existing fill soils were encountered beneath the surface cover or at the ground surface at the boring locations. The existing fill material consisted primarily of Sandy SILT (ML-FILL) and Sandy CLAY (CL-FILL) with varying amounts of gravel, rock fragments, and asphalt and brick debris. Fill soils were encountered to depths ranging from 5.0 feet up to 28.5 feet below the ground surface in the borings. A majority of the borings encountered fill to depths ranging from 8.5 to 13.5 feet below the existing ground surface. Standard Penetration Tests (SPT) performed in the fill soils indicates that the fill soils are generally firm to medium dense. However, significant portions of the fill are loose or soft.

Natural soils were encountered below the fill layer, and consist primarily of Clayey SAND (SC) and Sandy CLAY (CL) with varying amounts of rock fragments. SPT results indicate that the density of the natural cohesionless soil was generally very loose to medium dense, and the consistency of the natural cohesive soil was generally very soft to medium stiff. Generally, soils in the upper 45 feet at the boring locations were observed to be soft or loose. The color of the natural soils was generally grayish-brown to brown and brownish gray and the moisture contents of these materials were generally characterized as moist.

Below the natural soils in borings TBLR-1, TB-4-A, TB-6-A, TB-8-A, TB-11-A, TB-15, TB-16, and TB-20 to TB-23 very dense material with a blow count greater than 60 has been noted on the boring log as decomposed rock. Decomposed rock materials were encountered at depths of about 8.5 to 73.5 feet below existing grades. These materials exhibit rock like qualities and depending on various parameters may be extremely difficult to excavate, and may require rock excavation methods for removal.

Bedrock was encountered at depths of 22 to 102 feet below grade in 11 borings which extended deep enough to encounter bedrock. In order to evaluate bedrock conditions at the site, rock coring was performed at three boring locations (TB-8A, TB-15, and TB-22). At refusal levels, 15 feet of rock was cored from each location. The rock encountered consisted of gray to bluish-gray, moderately hard to hard, fresh to severely weathered, slightly to moderately

fractured, steeply dipping, SHALE. Recovery (REC) was 100% in the rock core runs. Recovery is determined by the summed length of rock recovered in each run divided by the total length of the core run. Rock quality designation (RQD) ranged from 30% to 97%, indicating fair to very good rock quality. RQD refers to the summed lengths of rock core with core lengths of 4 inches or greater divided by the entire length of the core run. More detailed descriptions of the soils and rock encountered are presented on the Boring Logs.

Groundwater Observations

In auger drilling operations, water is not introduced into the boreholes, and the groundwater position can often be determined by observing water flowing into or out of the boreholes. Furthermore, visual observation of the soil samples retrieved during the auger drilling exploration can often be used in evaluating the groundwater conditions. Observations for groundwater were made during sampling and upon completion of the drilling operations at each boring location. The following table details the depth and elevation of water levels after twenty-four hours.

Twenty-Four Hour Water Level Readings

Boring	Depth (ft.)	Elevation (ft.)
TB-1	18.0	730.5
TB-2	Water used to core boulder	
TB-3	31.0	718.6
TB-4	15.0	732.7
TB-5	16.5	728.9
TB-6	15.0	733.7
TB-7	37.0	710.5
TB-8	14.0	733.7
TB-9	21.0	729.9
TB-10	23.0	722.8
TB-11	18.0	733.2
TB-12	15.2	737.0
TB-13	11.0	739.7
TB-20	3.0	787.0
TB-21	5.0	784.0
TBLR-1	12.0	N/A
TB-23	35.0	718.0
TB-24	Dry	-

*Cave in depths ranged from 5.5 feet to 43.0 feet in the borings.

The highest groundwater observations are normally encountered in winter and early spring. Variations in the location of the long-term water table may occur as a result of changes in precipitation, evaporation, surface water runoff, and other factors not immediately apparent at the time of exploration. Free water may also be encountered at the interface of fill soils and natural soils, or at the interface of natural soils and bedrock.

ANALYSIS AND ENGINEERING RECOMMENDATIONS

The recommendations presented in this report are based on the limited project information provided to us, the results of the soil test borings, and our engineering analysis. Our understanding of the proposed structures is based on a letter from you dated August 7, 2008, and our follow-up discussions with you after receipt of the letter. Considering the results of our field exploration, the deep fill and soft soils, and based on our experience with similar projects, we believe that the proposed structures will require deep foundations such as auger cast piles, driven H-piles, or mat foundations supported on Geopiers or stone columns. We understand that the heavier existing structures are supported on 14-inch diameter auger cast piles extending to EL 680, or about 60 feet in length. The smaller and lighter proposed support buildings may be supported on shallow foundation systems consisting of spread footings or mat foundations. The shallow foundations and mats should be founded on the loose to firm natural cohesionless soils, soft to medium stiff natural cohesive soils, or on new compacted structural fill. The deep foundations should be founded in the medium dense to dense natural cohesionless soils, very stiff natural cohesive soils, or bedrock.

The existing natural soils and existing fill soils are considered suitable for the support of slabs on grade, provided that the subgrade soils have been properly prepared, as described in this report, and approved by the Geotechnical Engineer or their authorized representative. Some undercutting and replacement should be expected in areas where excessively loose or soft soils are encountered, or where existing fill is present.

Foundation Recommendations

Proposed UV Disinfection and Outfall Flume Structure

This facility is expected to have lowest levels at EL 727.00 at the river and stepping up to EL 740.42 at the opposite end.

Based on test boring TB-1 for the UV Siemens building, the soils anticipated at foundation subgrade levels are expected to consist of deep existing fill material. These fill soils are undocumented and soft, therefore foundations should not be designed to bear on existing fill material. The fills in these areas extend to about 30 feet below the existing ground surface. Due to the deep fills in these areas, a deep foundation system consisting of auger cast or driven H-piles is expected to be necessary.

Auger Cast Piles

Auger cast pile foundations using 16-inch diameter piles, designed for a 60 to 100-ton capacity, may be considered for support of the proposed structures.

Auger cast piling is installed by drilling a hollow stem auger with a plug on the end. After the bearing level is reached, the plug is removed and a sand and cement grout is placed under pressure through the hollow stem as the augers are withdrawn. The upper portion of the pile is cut off about six inches above the bottom of the pile cap.

We estimate that 16-inch diameter auger cast piles would need to extend about 65 feet long for an allowable capacity of 60 tons, or to refusal depths for an allowable capacity of 100-tons. No reduction in capacity due to group action is necessary. Settlement of individual piles is estimated to be less than about ½ inch.

The installation of auger cast piles for this project should be restricted to contractors with demonstrated ability and experience. We recommend that only contractors with at least five years of experience in the installation of auger cast piles be considered to install these piles. Auger refusal can be defined as an auger penetration of less than 1 inch in 5 minutes using a cutter head equipped with rock teeth and a torque of at least 33,900 N-m (25,000 lb-ft).

Variable soil conditions are expected at the site. Extra augering may be required to advance the piles to the proper bearing elevations in some areas. The pile contractor should be made aware of the subsurface conditions at the site and be prepared to deal with them accordingly, especially groundwater conditions. Groundwater was encountered at elevations well above anticipated pile tip elevations.

Grout pressures and quantities of grout should be monitored and controlled while the piles are being cast. At least five control piles should be installed prior to construction of production piles. We also recommend at least one load test be performed on a control pile.

Driven Steel H-Piles

Fourteen (14) to sixteen (16) inch driven steel H-Piles designed for a capacity of 60 to 80 tons are considered feasible for support of the outfall flume structure when driven at least 60 feet below the lowest levels. Piles driven to refusal on the underlying shale may be designed for a 100 to 120 ton capacity. Actual tip elevations will need to be determined during construction and should be based on driving criteria as established during driving of control piles. Settlement of individual piles is estimated to be less than about ½ inch.

Also, obstructions may be encountered within the existing fill. Pile tip protection should be included on the ends of the piles to reduce pile damage during driving.

Pile driving will cause noise and vibrations. We recommend that the selected foundation system be evaluated for acceptable levels of noise and vibration during construction.

Proposed SBR Basins

Based on test borings TB-3 through TB-8, and an anticipated basin bottom at EL 741, which is about 10 feet below grade, the soils anticipated at foundation subgrade levels are expected to consist of soft Sandy CLAY (CL), firm Clayey SAND (SC), and existing fill material. Since settlement of these structures must be limited to no more than ½ inch, pile foundations, or mat foundations over piles, Geopiers or stone columns, are expected to be necessary.

Based on the information provided to us and the loose and soft soils, mat foundations with supplemental support may be the most feasible and economical foundation type for the proposed SBR basins.

Considering the soft and loose fill soils expected at subgrade levels, the mat settlement without supplemental support is estimated not to exceed about 1.5 inches. If total settlements must be limited to ½ inch, the use of auger cast piles, driven piles, Geopiers or stone columns supporting the mat will be necessary.

Sixteen (16) inch diameter auger cast piles or driven 16 inch driven steel piles designed for a 60 to 120-ton capacity are expected to be feasible. Piles extended to a minimum depth of 60 feet may be designed for an allowable capacity of 60 to 80 tons. Piles extending to refusal depths, may be designed for an allowable capacity of 100 to 120 tons.

In areas where natural soils will be within about 15 feet below proposed structure bottoms, it may be feasible to install mat foundations over Geopiers or stone columns.

Geopier foundations or stone columns may be considered to reinforce the subsoils in areas which will require new fill, or with looser existing soils. They may also be considered to support shallow mat foundations.

The Geopier foundation systems, or stone columns, are practical refinements to the traditional over-excavation and replacement method of strengthening subsoils for settlement control and bearing capacity improvement. Geopier support elements or stone columns are constructed by drilling a hole to create a cavity, removing a volume of compressible or unsuitable subsoil materials, then building a bottom bulb of clean, open graded stone while vertically prestressing and prestraining subsoils underlying the bottom bulb.

We recommend that you contact the appropriate Geopier or stone column designer in your area to review and analyze the subsurface data contained in this report using available structural load and design information. After designing the support system, they will provide a full-scale Modulus Load Test on site to verify design assumptions. The test provides a conservative measure of the stiffness of the Geopier or stone column element and will help establish installation procedures for the project. ECS can coordinate with the Geopier or stone column installer to locate the load test in the weakest site area and provide full-time Quality Assurance monitoring services during the load test operations.

The soils at the subgrade are expected to be sensitive to moisture and disturbance. Therefore, we recommend installing a 3-inch thick concrete work mat to protect the subgrade and to allow for installation of reinforcing steel prior to the final mat pour. Details for subgrade preparation can be found in the "Earthwork Operations" section of this report.

We do not believe that waterproofing will be necessary for the mat foundations. However, if waterproofing is desired, additional details can be provided upon request.

Equipment, Electrical Gear, and Chemical Storage Building

Based on soil boring TB-2, soils at the proposed lowest slab elevation of this building (EL 747) are expected to consist of sandy silt fill soils or natural clayey sand soils. Spread footings founded on the natural soils are expected to be feasible for foundation support. A soil bearing pressure of 2,000 psf can be used for foundation design. Some undercutting of soft or loose

materials may be necessary. Undercuts should extend to suitable natural soils. The undercuts can be replaced with compacted structural fill or crushed stone. The compacted fill should be placed as recommended in Earthwork Recommendation section below. If it is more economical, the use of Geopiers or stone columns can be considered rather than the undercut and replacement option.

Proposed Headworks Building

The proposed building is expected to require 13 to 18 feet of new fill to reach proposed floor grades. The structure is expected to be heavily loaded, however, final building grades and loading are not yet available. Based on test borings TB-11 to TB-13, the soils anticipated at fill subgrade levels are expected to consist of existing fill material. These fill soils are undocumented, therefore, it is expected that consolidation of the existing fill will occur when the new fill is placed.

Considering the structure information and subsurface conditions in the area, we expect that auger cast piles or driven steel H-piles, as discussed previously in this report, will be necessary for foundation support of the headworks building. The pile sizes and capacities noted above may also be considered for this structure.

Pump Stations-West Shore

The proposed west shore pump station will be constructed in the area of borings TB-15 and TB-16. We understand the structure will have a subsurface concrete mat with concrete walls up to the ground surface and a block building above grade. The lowest mat elevation will be at about EL720, or approximately 30 feet below existing grade. Based on the borings drilled in this area, soils at this elevation are expected to consist of soft clays and medium dense to dense sands. We recommend that mat contact pressures not exceed 2,500 psf on these soils. The mat elevation is at or below the groundwater elevation, therefore, mats must either be drained using a subdrainage system or they can be waterproofed and designed for hydrostatic pressures.

Pump Station-Ripple Road

The proposed Ripple Road pump station will be constructed in the areas of borings TB-20 through TB-22. The structures proposed at TB-20 and TB-22 will be subsurface concrete vaults constructed of a concrete mat with concrete walls up to the ground surface. The lowest mat elevation is proposed at about EL770. Bearing materials at this elevation are expected to consist of decomposed rock or bedrock. These materials are capable of supporting the 2,500 psf maximum mat contact pressure. The mat elevation is approximately 10 to 15 feet below the water levels encountered in the borings, therefore subdrainage systems or waterproofing will be necessary.

A block building with a floor at EL792 is proposed near the area of boring TB-21. Fills on the order of a few feet will be necessary to reach the proposed building elevation. Based on boring TB-21, existing fill soils were encountered to about EL784 in the boring. These soils should be undercut and replaced with new compacted structural fill as detailed in the "Fill Placement"

section of this report. Once site grades are filled to proposed grades, spread footing foundations can be constructed on the new fills. Spread footerings can be designed for an allowable bearing pressure of 2,500 psf on new compacted fill soils. Total settlements on the order of about 1 inch are expected, with differential settlements expected to be about half of the total settlement.

General

Foundation options and capacities should be evaluated once final site plans, loading, and structure elevations are made available. The net allowable soil bearing pressure refers to that pressure which may be transmitted to the foundation bearing soils in excess of the final minimum surrounding overburden pressure.

Settlement of individual spread footings designed in accordance with the recommendations outlined above, is expected to be within tolerable limits for the proposed structures. Within the proposed construction, total settlements on the order of one inch are anticipated, with differential settlement on the order of about half the total settlement. Please note that these settlements apply only to spread footings and do not apply to the mat foundations. Total settlements of mats supported over Geopiers, stone columns, or piles are expected to be less than about ½ inch.

In order to prevent disproportionately small footing sizes and to prevent shear failures, we recommend that continuous footings have a minimum width of 1.5 feet and that isolated column footings have a minimum lateral dimension of 2.5 feet. The minimum dimensions recommended above help reduce the possibility of foundation bearing failure and excessive settlement due to local shear or "punching" action. In addition, footings should be placed at a depth to provide adequate frost cover protection. Therefore, perimeter footings subject to freezing should be placed at a minimum depth of 2.5 feet below finished grade.

Floor Slab Design

According to the test borings and based on existing grades, the soils anticipated below the floor slabs should consist of existing fill material. New compacted engineered fill is also anticipated in some areas. The existing fill soils are expected to require undercutting of 12 to 24 inches. The undercuts can then be replaced with suitable compacted structural fill. The floor slab subgrade should be prepared in accordance with our recommendations outlined in the section entitled "**Earthwork Operations**", which includes stripping and fill placement.

We recommend that floor slabs be isolated from the foundation footings so that differential settlement of the structures will not induce stresses on the floor slab. Also, in order to minimize the crack width of any shrinkage cracks that may develop near the surface of the slab, we recommend mesh reinforcement be included in the design of the floor slab. The mesh should be in the top half of the slab to be effective.

We recommend that a capillary cutoff layer be provided under the floor slab to prevent the rise of moisture through the floor slab. The capillary layer should consist of a minimum of 4 inches of clean crushed stone or washed gravel, with a maximum 2% fines passing the No. 200 sieve.

AASHTO No. 57 stone should be suitable for this purpose. A vapor barrier should be placed on top of the stone to provide additional moisture protection. Placement of this vapor barrier should occur immediately before the placement of floor slab concrete in order to minimize damage to the layer. However, special attention should be given to the surface curing of the slab in order to minimize uneven drying of the slab and associated cracking.

Below Grade Walls

Below grade walls should be designed to withstand lateral earth pressures at at-rest conditions and any surcharge loads within a 45 degree slope from the base of the wall. We recommend that the below grade walls be designed for a linearly increasing lateral earth pressure of 60 psf per vertical foot of wall. This lateral earth pressure assumes that the on-site silty or sandy soils, or crushed stone is used for wall backfill, and that the backfill is flat. Surcharge loading within a 45 degree slope from the bottom of the wall should be applied with a combined active and at rest pressure coefficient of 0.42. In order to maintain a 60 psf lateral earth pressure, drainage of the backfill of the proposed building must be provided. If drainage is not provided, the walls must be designed for hydrostatic pressures as well. We expect that the SBR basin will not be drained, therefore, hydrostatic pressures must be included in the wall design, as well as uplift pressures on the mat slab.

A lateral passive earth pressure of 350 psf per foot of soil may be used for design. The passive resistance should be neglected to a depth of 2.5 feet in areas exposed to freezing conditions and in areas where there is a possibility that the soil in front of the wall will become disturbed or be excavated at any time in the future. Considering the relatively fine-grained soils, which may constitute the wall foundation bearing subgrade, a friction factor of 0.40 is recommended for sliding resistance analysis.

To achieve a desirable balance between minimizing excessive pressures against the below grade walls and reducing the settlement of the wall backfill, we recommend that the wall granular backfill be compacted to 95% of the maximum dry density obtained in accordance with ASTM Specification D-698, Standard Proctor Method.

Backfill materials should consist of inorganic materials classified SM, SC or more granular per ASTM D-2487 that are free of debris. The fill placed adjacent to the below grade walls should not be over compacted. Heavy earthwork equipment should maintain a minimum horizontal distance away from the below grade walls of 1 foot per foot of vertical wall height. Lighter compaction equipment should be used close to the below grade walls.

If suitable backfill soils are not available then man-made drainage materials may be used adjacent to the below grade walls. Examples of suitable materials include Enka Mat, Mira Drain, or Geotec Drains. These materials should be covered with a filter fabric having an apparent opening size (AOS) consistent with the size of the soil to be retained. The material should be placed in accordance with the manufacturer's recommendations and connected to either the perimeter drainage system or the underslab granular mat, which in turn should be properly drained.

Retaining Walls

Retaining walls may be required to achieve planned site grades. All retaining walls that are free to rotate at the top must be designed to resist active lateral earth pressures. Retaining walls may be designed for an active lateral pressure of 40 psf per foot of wall height. This value assumes level backfill behind the walls and does not include the influence of any surcharge loads. Any surcharge loads imposed within a 45 degree slope of the base of the walls should be considered in the below grade wall design. Additionally, a lateral passive earth pressure of 350 psf per vertical foot of soil may be used in the design. The passive resistance on the walls should be neglected if there is a possibility that the soil in front of the wall will be excavated at any time in the future. Considering the relatively fine-grained soils anticipated at the wall foundation bearing level, a friction factor of 0.40 is recommended for sliding resistance analysis.

The parameters recommended above also assume that freely draining materials are used to backfill the walls and that adequate drainage will be provided at the base of the walls. Drainage of retaining walls may be accomplished through the use of 3-inch diameter weep holes spaced about 8 to 10 feet, penetrating the wall, immediately above the proposed grade in front of the wall. Alternatively, a longitudinal drain line may be placed behind the retaining wall, sloped to discharge by gravity to daylight or to a storm sewer.

Earthwork Operations

Proper monitoring of newly placed fill with respect to lift thickness and compaction of each lift is expected to be necessary at this site. The following paragraphs detail our recommendations regarding earthwork operations.

Fill and Foundation Subgrades

The existing ground surface in the proposed structural areas should be stripped of all vegetation, rootmat, topsoil, and any soft or unsuitable material. The stripping within the proposed structural areas should be extended to at least 10 feet, where possible, beyond the planned limits.

After stripping to the desired grade, performing all necessary excavation, and prior to fill and/or stone base placement, the exposed soils should be carefully examined to identify any localized loose, yielding, or otherwise unsuitable materials by an experienced Geotechnical Engineer or their authorized representative. After examining the exposed soils, loose and yielding areas should be identified by proofrolling with an approved piece of equipment, such as a loaded dump truck, having an axle weight of at least 10 tons. Any soft or unsuitable materials encountered during this proofrolling should be removed and replaced with an approved engineered fill compacted to the criteria given below.

The preparation of fill subgrades, as well as proposed structure subgrades, should be observed by an experienced geotechnical engineer, or their representative, to verify that all unsuitable materials have been removed, and that the subgrade is suitable for support of the proposed construction and/or fills. In some areas, excessively soft and/or wet soils may be encountered for fill subgrades, especially in the winter or early spring months. Soft, yielding areas shall be

over-excavated and replaced.

Fill Placement

Compacted engineered fill and backfill for utilities or undercuts should consist of soils classified as CL, ML, SM, SC or more granular per ASTM D-2487 and have a liquid limit less than 45 and plasticity index less than 20. Unacceptable backfill materials include topsoil, organic materials (OH, OL) and high plasticity silts and clays (MH, CH). All such materials removed during grading operations should be either stockpiled for later use in landscape fills, or placed in approved disposal areas either on site or off site.

An examination of the soils recovered during our current exploration indicate that a majority of the on-site Clayey SAND (SC) and Sandy CLAY (CL) soils should generally be suitable for reuse as controlled, compacted fill, with moisture adjustment during placement. The existing fill soils should be suitable for reuse as long as they are free of all deleterious material and meet the specifications indicated above.

All fill should be placed in loose lifts, not exceeding 8 inches in thickness, and should be compacted to at least 95 percent of the maximum dry density, as determined by the Modified Proctor Compaction Test (ASTM D-1557). Generally, the moisture content of the fill materials should be maintained within 2 percent of the optimum moisture content for the fill material, as determined by ASTM D-698.

In addition, settlement plates should also be placed in fills over 10 feet in height, and settlements should be monitored prior to the placement of foundations.

Fill placed in non-structural areas (e.g. grassed areas) should be compacted to at least 90 percent of the maximum dry density according to ASTM D-698, in order to avoid significant subsidence. The upper 12 inches of soil supporting slabs-on-grade and pavements should be compacted to a minimum of 100% of the maximum dry density obtained in accordance with ASTM D-1557 Modified Proctor Method discussed above.

Construction Considerations

Precautionary measures should be taken to ensure that preparation of the subgrade and foundation bearing surfaces are accomplished by the recommended procedures. These precautions are necessary, as the materials observed in the borings will become weakened if exposed to water. Therefore, we recommend that all excavations be properly dewatered, if necessary, using conventional sump pit and pumping operations. The site should be graded such that surface water runoff is directed away from the excavations.

Exposure to the environment may weaken the soils at the footing bearing level if foundation excavations remain open for extended periods of time. Therefore, foundation concrete should be placed the same day that footings are excavated. If the bearing soils are softened by surface water intrusion or exposure, the softened soils must be removed from the foundation excavation bottom immediately prior to placement of concrete. If the excavation must remain open overnight, or if rainfall becomes imminent while the bearing soils are exposed, we

recommend that a 1-to 3-inch thick "mud-mat" of "lean" concrete be placed on the bearing soils before the placement of reinforcing steel.

The on-site soils contain fines which are considered moderately to highly erodible. The Contractor should provide and maintain good site drainage during earthwork operations to help maintain the integrity of the surface soils. The surface of the site should be kept properly graded in order to enhance drainage of the surface water away from the proposed construction areas during the earthwork phase. Other practices would involve sealing the exposed soils daily with a smooth drum roller to reduce the potential for infiltration of surface water in the exposed soils. All erosion and sedimentation shall be controlled in accordance with sound engineering practice and current County requirements.

In their undisturbed state, the upper soils at the site will generally provide poor to fair subgrade support for fill placement and construction operations. However, when disturbed or wet, these soils will degrade quickly with disturbance from contractor operations. Therefore, good site drainage should be maintained during earthwork operations, which will help maintain the integrity of the soil.

Auger Cast Pile Foundations

The field control for piling should consist of at least five control piles drilled near the locations of the borings, and one static pile load test to confirm the design capacity and installation requirements. The control piles should be drilled to the estimated tip elevations based on the boring information. The control piles may be installed at production pile locations.

The pile used for the static load test should be selected by the geotechnical engineer based on the installation records of the control piles. Some revisions to the pile lengths and/or capacities may be necessary based on the static load testing. Static pile load testing should be conducted according to ASTM D-1143 (Quick Method). However, we recommend that the test pile be loaded to 250 percent of the design load or to pile failure. This should provide for some reserve pile capacity which will reduce the need for installation of additional piles if pile plumbness or pile eccentricities develop.

The static load test should be conducted at least seven days after pile installation to allow grout to reach adequate strength. Reaction piles should be placed at least eight feet from the test pile. Additional tests and control piles may be required depending upon the results of the initial load testing program and control pile installations. Full-time monitoring under the supervision of the geotechnical engineering consultant should be provided during installation of the control piles, load tests, and production piles.

Records should be maintained of the grout pumped into the pile at five foot intervals. Should the grout take be less than 115 percent of the theoretical volume, the pile should be redrilled and regrouted prior to grout set-up.

Data to be provided by the installation of the control piles and the load test will be important additional information which can be used to make adjustments to the estimated pile tip elevations or recommendations given herein. The geotechnical engineer should examine this

data prior to installation of production piles to determine any changes that may be necessary or desirable.

Some obstructions may be encountered above required pile tip elevations due to quartz or gravel layers in the natural soils, and it may be necessary to relocate piles or provide alternate piles.

Piles within four diameters of each other should not be installed within 12 hours to allow the initial set of the grout to take place.

The minimum auger center shaft size should be 3-1/4 inches to limit head loss of grout. In addition, the grout should have fluidizer to inhibit early set up, decrease bleeding, eliminate shrinkage, and increase fluidity. The grout pump should be a calibrated high pressure positive displacement pump equipped with a stroke counter to allow measurements of grout volume per pile. The contractor should establish an accurate method of determining the auger depth at all times, and pressure gages to allow determination of grout pressure. This auger should have a bottom discharge bit with a discharge opening below the cutter blades. The grout used should have a minimum strength of 4,000 psi when tested in accordance with ASTM D-109. Quality control testing of grout should be performed daily to verify grout strength. The auger withdrawal should be a smooth operation with the withdrawal rate slower than the rate of grout pumping so that the mortar will flow in a relatively uniform shaft to the surface to maintain a minimum 10 foot head of grout.

Steel H-Piles

We recommend that at least six control piles be driven prior to driving the production piles. The geotechnical engineer should designate one control pile for static load testing performed in accordance with ASTM D-1143-81. During the static load test, the designated pile should be loaded to a capacity of 250 percent of the design load. Reaction piles should be installed at least 7 feet from the test pile. Additional tests may be required depending upon the results of the initial load test. Installation of production piles should not begin until the data from the load tests and the logs from the control piles have been evaluated by the geotechnical engineer. Control piles can be installed at production pile locations.

The recommended allowable loading given herein is based on our experience, including load test data from similar installations and the subsurface data obtained for this project. Based on the results of the load testing program, the geotechnical engineer will prepare driving criteria to be followed by the pile driving contractor. The actual tip elevations of the piles should be determined in the field based on the driving criteria on our observations during installation. Piles should not be ordered until after the load test is completed since adjustments to pile lengths may be necessary.

Piles should be designed to withstand handling stresses, and driving stresses as developed during installation. Appropriate cushion materials should be used to avoid damage to piles. Piles should be driven with a hammer with a rated energy sufficient to install the pile type selected.

Closing

This report has been prepared to aid in the evaluation of this site and to assist the design team with the design of the proposed wastewater treatment plant improvements. The report scope is limited to this specific project and the location described. The project description represents our current understanding of the significant aspects of the proposed improvements relevant to the geotechnical considerations.

We have appreciated the opportunity to be of service to KLH Engineers, Inc. and hope to continue our involvement on the project during the final design and construction phases. ECS is capable of providing all construction materials testing services for the project, and we would appreciate the opportunity to offer our services.

APPENDIX

Site Location Diagram

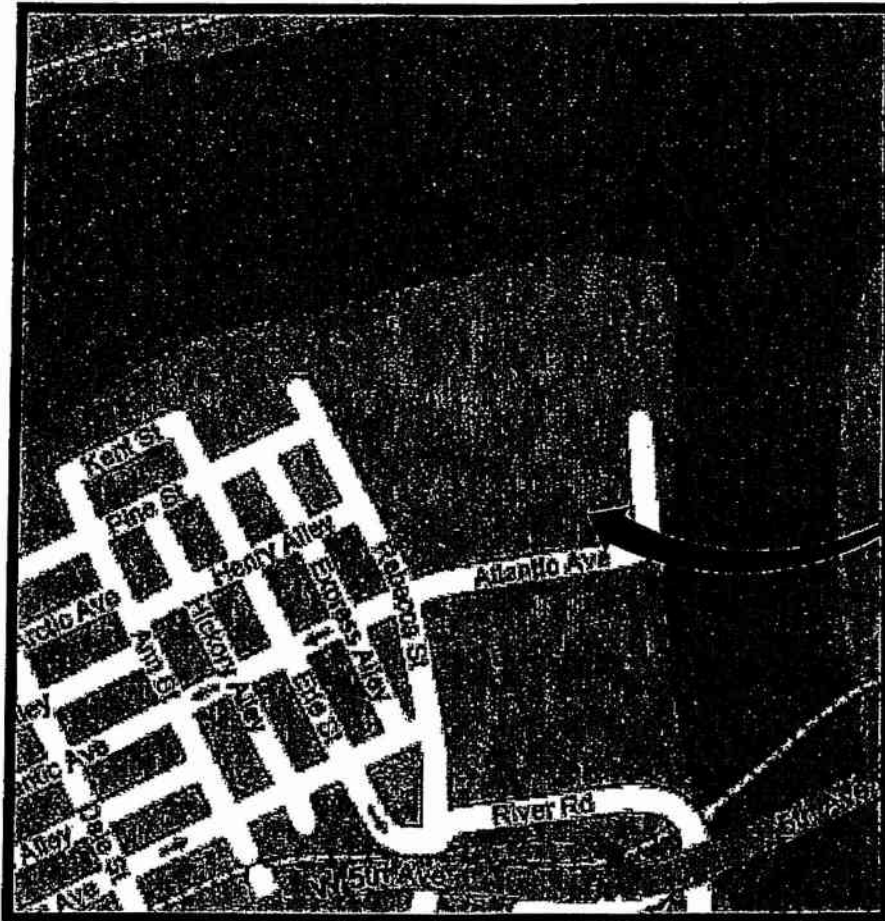
Unified Soil Classification System

Laboratory Test Results


Reference Notes for Boring Logs

Boring Logs (TB-1 through TB-24, and TBLR-1)

Boring Location Diagrams



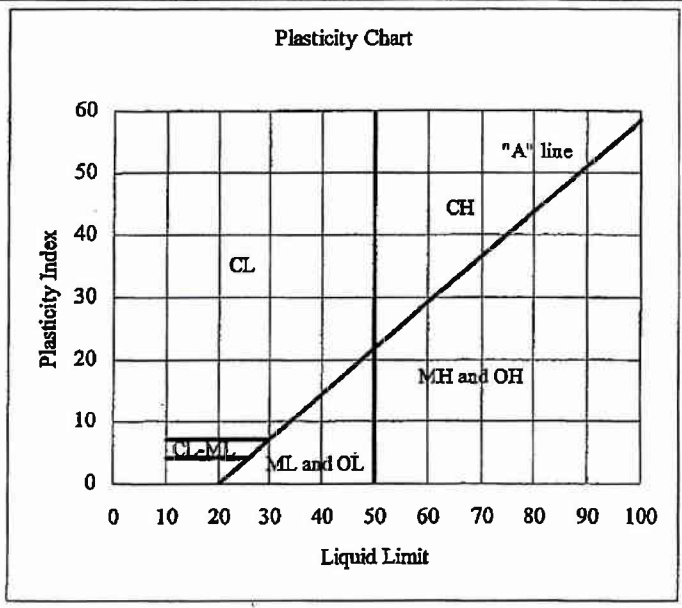
SITE

	SITE LOCATION DIAGRAM McKEESPORT WWTP EXPANSION					
	KLH ENGINEERS					
	AMH	GAR	07-03-08	NTS	13-3364	1 OF 1

Unified Soil Classification System (ASTM D-2487)

Major Divisions		Group Symbols	Typical Names	Laboratory Classification Criteria		
Coarse-grained soils (More than half of material is larger than No. 200 Sieve size)	Gravels (More than half of coarse fraction is larger than No. 4 sieve size)	Clean gravels (Little or no fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines	$C_u = D_{60}/D_{10}$ greater than 4 $C_c = (D_{30})^2 / (D_{10} \times D_{60})$ between 1 and 3	
		Gravels with fines (Appreciable amount of fines)	GM ^a	d		Silty gravels, gravel-sand mixtures
		Gravels with fines (Appreciable amount of fines)	GC	u	Clayey gravels, gravel-sand-clay mixtures	Not meeting all gradation requirements for GW
		Clean sands (Little or no fines)	SW		Well-graded sands, gravelly sands, little or no fines	Atterberg limits below "A" line or P.I. less than 4
	Sands with fines (Appreciable amount of fines)	SP	u	Poorly graded sands, gravelly sands, little or no fines	Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols	
	Sands (More than half of coarse fraction is smaller than No. 4 sieve size)	Sands with fines (Appreciable amount of fines)	SM ^a	d	Silty sands, sand-silt mixtures	Atterberg limits below "A" line or P.I. less than 7
		Sands with fines (Appreciable amount of fines)	SC	u	Clayey sands, sand-clay mixtures	
		Clean sands (Little or no fines)	SW		Well-graded sands, gravelly sands, little or no fines	$C_u = D_{60}/D_{10}$ greater than 6 $C_c = (D_{30})^2 / (D_{10} \times D_{60})$ between 1 and 3
		Sands with fines (Appreciable amount of fines)	SP	u	Poorly graded sands, gravelly sands, little or no fines	
		Sands with fines (Appreciable amount of fines)	SM ^a	d	Silty sands, sand-silt mixtures	Atterberg limits above "A" line or P.I. less than 4
Sands with fines (Appreciable amount of fines)		SC	u	Clayey sands, sand-clay mixtures	Limits plotting in CL-ML zone with P.I. between 4 and 7 are borderline cases requiring use of dual symbols	
Sands with fines (Appreciable amount of fines)	SC		Clayey sands, sand-clay mixtures	Atterberg limits above "A" line with P.I. greater than 7		

Determine percentage of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows:
 Less than 5 percent GW, GP, SW, SP
 More than 12 percent GM, GC, SM, SC
 5 to 12 percent Border 4 line cases requiring dual symbols^a



^a Division of GM and SM groups into subdivisions of d and u are for roads and airfields only. Subdivision is based on Atterberg limits; suffix d used when L.L. is 28 or less and the P.I. is 6 or less; the suffix u used when L.L. is greater than 28.
^b Borderline classifications, used for soils possessing characteristics of two groups, are designated by combinations of group symbols. For example: GW-GC, well-graded gravel-sand mixture with clay binder.
 From Winterkorn and Fang, 1975.