ECMS Highway Construction

Contract: 64498

Allan A. Myers, LP XX-XXXXXXX

Worcester

610-584-6020 (phone)

610-584-8205 (fax)

murray.blaker@aamyers.com

Prime Business Partner

ChesterCounty

SR 0202, Section 330

US 202 Reconstruction/Widening: US 30 to PA 29 Design/Build limited to noise walls

Location

T062-158-L05E

T062-158-L23E

Federal Project

P-400202T7330-0620-373-1

P-400202T7330-0620-373-2

WBS Element

October 18, 2012

Bid Opening

TABLE OF CONTENTS

Contract

Addendum issued subsequent to the printed proposal have been incorporated into the text of this contract and the modified portions are annotated in the contract - e.g., A1, A2 etc.

Incorporated Addenda are As follows:

Addendum No. 1,	**A1,**	dated 09/19/2012
Addendum No. 2,	**A2,**	dated 10/03/2012
Addendum No. 3,	**A3,**	dated 10/12/2012
Addendum No. 4,	**A4,**	dated 10/15/2012

THIS AGREEMENT, Made this *21* day of *November* A.D. *2012*, between the Commonwealth of Pennsylvania by the Secretary of Transportation, hereinafter called the Commonwealth and *Allan A. Myers, LP* his, hers, its or their executors,administrators, successors, or assigns, hereinafter called the Contractor.

W I T N E S S E T H:

1. That the Contractor, for and in consideration of the payment or payments herein specified and agreed to by the Commonwealth, hereby covenants and agrees to furnish and deliver all the materials and to do and perform all the work and labor in the improvement of a certain section of highway at the unit prices bid by said Contractor for the respective estimated quantities aggregating approximately the sum of *$63,381,083.85* and such other items as are mentioned in the Contractor's original proposal, which proposal and prices named, together with Publication 408/2011-3 - Specifications (as specified in the proposal), are made a part of this contract and accepted as such, also the drawings of the project, prepared and/or approved by the Department of Transportation, which drawings are also agreed by each party as being a part hereof.

2. The location and description being situated as follows:
The description and location of the project is as follows: For the reconstruction and widening of the existing reinforced plain cement concrete pavement for approximately 2.61 miles of S.R. 0202 to add an additional inside lane and shoulder in each direction; reconstruction of Ramps M, N, O, and P in the S.R. 8035 Interchange; the reconstruction and widening of two (2) single-span bridges, (S-24678) a Dual Single Span Composite P/S Concrete Box Beam bridge over Planebrook Road and (S-26088) a Dual Single-Span Steel Plate Girder Bridge over SR 0401 (Conestoga Road); the removal and replacement of (S-7425), a dual 3 simple span P/S Spread Box Beam Bridge over the Chester Valley Trail with (S-24744) a 20 x 10 Precast Concrete Arch Culvert; the rehabilitation of two (2) Culverts, (S-27842) a Reinforced Concrete Box Culvert (C1) Rehabilitation over Valley Creek and (S-26620) a Reinforced Concrete Arch Culvert (C2) Rehabilitation over Valley Creek; the design and construction of twelve (12) Design-Build Sound Barrier Walls with highway side sound absorptive face treatment; the construction of four (4) sign structures, one (1) overhead and three (3) cantilever; the construction of a thirty-two (32) space park and ride lot at the intersection of SR 0322 and Lloyd Ave in Caln Township; the modification and/or installation of six (6) traffic signals and an Adaptive Traffic Signal System along SR 0401; the construction of six (6) stormwater management basins and seven (7) stormwater mitigation sites; drainage improvements; utility installation/relocation; concrete median barrier;

concrete glare screen; guiderail removal and installation; signing; pavement markings; landscape plantings; excavation and the installation of ITS network elements along S.R. 0202 all as indicated on the drawings approved for STATE ROUTE 0202, SECTION 330, in CHESTER COUNTY, EAST WHITELAND TOWNSHIP from approximately the SR 0202 Bridge over SR 0030 (Business) at segment 0250/0251 offset 0006/0001 to approximately 1,100 north of the Mill Lane Bridge over SR 0202 at segment 0300/0301offset 1025/0985.

3. The Contractor further covenants and agrees that all work shall be performed in the best and most workmanlike manner. He also agrees that all materials furnished and labor performed shall be in strict and complete conformity, in every respect, with all parts of this contract and shall be subject to the inspection and acceptance of authorized representatives of the Department of Transportation. In the event that any portion of work (including materials supplied pursuant thereto) performed by the Contractor is rejected by the Department's authorized representatives as defective, unsuitable, or unacceptable, the Contractor agrees to remove and replace all such rejected portions of work in conformance with this contract and to the satisfaction of and at no expense to the Department. The Contractor further covenants that prompt payment will be made in full for all labor and materials used in the performance of work on this project.

4. The Contractor covenants and agrees that all work (including, but not limited to, all labor performed and all materials supplied) on this project shall be performed and completed to the satisfaction of the Chief Highway Engineer of the Department of Transportation on or before the expiration date of *05/13/2017*. If, for any reason, except as provided in the contract, the Contractor fails to complete all work on this project to the satisfaction of the Chief Highway Engineer within the aforementioned time allowed, the Department shall deduct from any sums due or which may become due the Contractor the amount indicated in the Specifications for each calendar day used in excess of the aforementioned number of days allowed, or, in case a completion date is fixed, for each calendar day elapsing between that completion date and the actual date of completion. If no sums are due the Contractor, the Contractor agrees to remit to the Department the aforementioned sum for each day used in excess of the time allowed for completion of the contract. The amounts deducted or remitted under this paragraph are liquidated damages and not penalties.

5. The Contractor further covenants and warrants that the Contractor has had sufficient time to examine and has examined the site of the contract work to ascertain for itself those conditions such as may be determined by inspection, investigation, and inquiry, including the location, accessibility, and general character of the site.

6. The Contractor further covenants that he has not relied upon any information provided by the Department, including information contained in the Special Provisions, concerning the time within which publicly or privately- owned facilities below, at or above the ground are expected to be installed, removed, repaired, replaced, and/ or relocated; that he has not relied upon any information provided by the Department concerning the location or existence of all such facilities that might be below, at or above the ground; that he has contacted or will contact all owner of such facilities to verify the location and position of all such facilities and the time within which work on such facilities will be performed; and that he is aware delays might be incurred in the performance of work on this project as a result of work being performed or that will be performed on such facilities by their owners. It is understood further that, notwithstanding assistance of any kind and extent that might be provided by the Department, the Contractor, in every instance, bears the ultimate responsibility of resolving all disputes of every kind with the owners of such facilities. The Contractor agrees to save and hold the Department harmless from liability for all delays, interference and interruptions that might arise during the performance of work on this project as a result of work being or that will be performed on such publicly or privately-owned facilities.

7. The Contractor further covenants and warrants that he has read, is completely familiar with and understands thoroughly the General Conditions; the Specifications of the Commonwealth of Pennsylvania, Department of Transportation, currently in effect; the Supplements, Special Provisions and/or Conditions; and any other addenda or requirements, contained in the governing the performance of work under this contract, whether attached hereto and made a part hereof, or incorporated herein by reference.

8. It is distinctly understood and agreed that the Contractor shall not do any work (including, but not limited to, the supply of labor and/or materials) not covered by the specifications and the contract, unless such work has been authorized in writing as provided in the Specifications. In no event shall the Contractor incur any liability by reason of refusing to obey any verbal directions or instructions that he might be given to perform additional or extra work. Likewise, the Department will not be liable for any work performed as additional or extra work, unless such work is required of the Contractor in writing as provided in the Specifications. All such work which might have been performed by the Contractor without such written order first being given shall be at the Contractor's risk, cost, and expense, and the Contractor hereby covenants and agrees that, without such written order, he shall make no claim for compensation for such unauthorized work.

9. It is further distinctly agreed that the Contractor shall not assign this contract, nor any part thereof, nor any right to any sums to be paid him hereunder, nor shall any part of the work to be done or material furnished under this contract be sublet, without the consent in writing of the Secretary of Transportation.

10. It is also agreed and understood that the acceptance of the final payment by the Contractor shall be considered as a release in full of all claims against the Commonwealth of Pennsylvania arising out of, or by reason of, the work done and materials furnished under this contract.

11. The Contractor shall accept, insofar as the work covered by the contract is concerned, the provisions of the Workmens Compensation Act of 1915, and any supplements or amendments thereto, and shall insure his liability thereunder or file with the Department of Transportation a certificate of exemption from insurance from the Bureau of Workers' Compensation of the Department of Labor and Industry.

12. In order to secure proper and complete compliance with the terms and provisions of this contract, the Contractor shall provide a bond in a sum equal to one hundred percent (100%) of the total contract price of the work to be done. The Contractor shall also secure an additional bond in the same amount for the prompt payment in full for all labor and materials supplied in performing work on this project. Both bonds are attached to and made a part of this contract.

13. Conditioned upon compliance by the Contractor with all pertinent conditions and procedures contained in the contract, claims for damages or extra costs in excess of three hundred dollars ($300.00) arising out of disputes pertaining to this contract shall be referred to the Board of Claims pursuant to Section 1724(a) of the Commonwealth Procurement Code, 62 Pa. C.S. § 1724(a).

14. If for any reason the Commonwealth Procurement Code is inoperative or the Board of Claims cannot function, such claims shall be referred and decided by a panel consisting of the Secretary of Transportation and the General Counsel or their respective deputy or deputies.

15. The Contractor hereby further agrees to receive and the Commonwealth agrees to pay the prices set forth in the linked bid items as full compensation for furnishing all the materials and labor which may be required in the prosecution and completion of all work to be done under this contract, and in all respects to complete the contract to the satisfaction of the Secretary of Transportation.

16. The Contractor certified in his, her, its or their bid submission (covering federal aid projects only) to the disclosure of lobbying activities and, if applicable, completed the disclosure form and by said certification understands that Public Law 101-121, Section 319, prohibits federal funds from being expended by recipient or any lower tier sub-recipients of a federal contract, grant, loan or cooperative agreement to pay any person for influencing or attempting to influence a federal agency or Congress in connection with the awarding of any federal contract, the making of any federal grant or loan, or the entering into of any cooperative agreement.

17. If federal funds are involved, the Contractor shall not discriminate on the basis of race, color, national origin or sex in the performance of this contract. Contractor shall carry out applicable requirements of 49

C.F.R. Part 26 - DATED OCTOBER 16, 2001 in the award and administration of United States Department of Transportation assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the Pennsylvania Department of Transportation deems appropriate. Contractor must include this assurance in each subcontract that it signs with a subcontractor.

Fiscal Information:

Recorded Number:	64498
Certified Fund Available Under Activity Program:	373
Symbol:	010-008-10581-12/13/4/5/6-1
Amount:	$63,381,083.85

Contract Workflow Status

Status	Name	Disposition	Date/Time
Draft	Delores A Ritzman/PennDOT	Award	11/09/2012 02:13:38 PM
Contractor Review	Dale R Wilson/PennDOT BP-000913	Sign	11/14/2012 10:38:21 AM
BOD CMD Review	Roland L Rode/PennDOT	Accept	11/14/2012 11:09:51 AM
BOD Director Review	R. Wayne Willey/PennDOT	Sign	11/14/2012 07:37:05 PM
Chief Counsel Preliminary Review	Jody King/PennDOT	Accept	11/16/2012 11:27:22 AM
Chief Counsel Final Review	Michael H Kline/PennDOT	Accept	11/16/2012 04:06:01 PM
Comptroller Review	Matthew P Eng/PennDOT	Accept	11/21/2012 11:23:30 AM
CMD Execute	Becki G Mescher-Vuxta/ PennDOT	Submit	11/21/2012 03:59:44 PM

Addenda

Addendum: 1

Description:

The description and location of the project is as follows: For the reconstruction and widening of the existing reinforced plain cement concrete pavement for approximately 2.61 miles of S.R. 0202 to add an additional inside lane and shoulder in each direction; reconstruction of Ramps M, N, O, and P in the S.R. 8035 Interchange; the reconstruction and widening of two (2) single-span bridges, (S-24678) a Dual Single Span Composite P/S Concrete Box Beam bridge over Planebrook Road and (S-26088) a Dual Single-Span Steel Plate Girder Bridge over SR 0401 (Conestoga Road); the removal and replacement of (S-7425), a dual 3 simple span P/S Spread Box Beam Bridge over the Chester Valley Trail with (S-24744) a 20' x 10' Precast Concrete Arch Culvert; the rehabilitation of two (2) Culverts, (S-27842) a Reinforced Concrete Box Culvert (C1) Rehabilitation over Valley Creek and (S-26620) a Reinforced Concrete Arch Culvert (C2) Rehabilitation over Valley Creek; the design and construction of twelve (12) Design-Build Sound Barrier Walls with highway side sound absorptive face treatment; the construction of four (4) sign structures, one (1) overhead and three (3) cantilever; the construction of a thirty-two (32) space park and ride lot at the intersection of SR 0322 and Lloyd Ave in Caln Township; the modification and/or installation of six (6) traffic signals and an Adaptive Traffic Signal System along SR 0401; the construction of six (6) stormwater management basins and seven (7) stormwater mitigation sites; drainage improvements; utility installation/relocation; concrete median barrier; concrete glare screen; guiderail removal and installation; signing; pavement markings; landscape plantings; excavation and the installation of ITS network elements along S.R. 0202 all as indicated on the drawings approved for STATE ROUTE 0202, SECTION 330, in CHESTER COUNTY, EAST WHITELAND TOWNSHIP from approximately the SR 0202 Bridge over SR 0030 (Business) at segment 0250/0251 offset 0006/0001 to approximately 1,100' north of the Mill Lane Bridge over SR 0202 at segment 0300/0301offset 1025/0985.

Estimated Project:	$69,245,082.28
Federal Project Status:	Federal Oversight
DBE:	10.00%
Structure Work:	36.00%
Wage Rates:	Yes
Project Type:	Standard
State Type of Work:	WIDENING (ADDITIONAL LANES)
Prequalification Required:	Yes
Pre-Bid Meeting:	None
Scheduled Let:	10/18/2012 11:00:00 AM
New Let:	
Let Date Move:	
Anticipated NTP:	01/16/2013
Required Completion:	05/13/2017

Additional Information

This is an ECMS project. All Addenda will be electronically posted. Place for delivery of diskette bid before 11:00 a.m. prevailing local time on the scheduled let date: PENNDOT CONTRACT AWARDS ROOM, 7TH FLOOR; COMMONWEALTH KEYSTONE BUILDING; 400 NORTH STREET; HARRISBURG PA 17120

Item and Quantity

ADD THE FOLLOWING ITEM(S):
ITEM 9623-0054
ITEM 9624-0250

MODIFY THE FOLLOWING ITEM(S):
ITEM 0350-0108
ITEM 0350-0120
Either 0601-7073
Or 0601-9451
Or 0601-2901

ITEM 0624-0001
ITEM 0624-0300
ITEM 0624-0400
ITEM 0624-0725

REMOVE THE FOLLOWING ITEM(S):
ITEM 0624-0250
ITEM 0624-0304
ITEM 0624-0404
ITEM 0624-0777

Special Provision

ADD THE FOLLOWING SPECIAL PROVISION(S):
00 - ITEM 9624-0250 - TEMPORARY FENCE

MODIFY THE FOLLOWING SPECIAL PROVISION(S):
00 - ITEM 9623-0052 THRU 9623-0058 - SINGLE FACE CONCRETE BARRIER WITH MOMENT SLAB

Other

MODIFY THE FOLLOWING ATTACHMENT(S):
Federal Wage Rates
Pre-Bid Construction Schedule - Revised for Chester Valley Trail and Planebrook Road

REVISE PLAN SHEETS AS FOLLOWS:

On page 75 of 205 of the construction plans, revise quantity associated with 0350-0108, 0350-0120 & 0601-7073.
On page 76 of 205 of the construction plans, remove items 0624-0250, 0624-0304, 0624-0404 & 0624-0777.
On page 76 of 205 of the construction plans, revise quantity associated with item 0624-0001, 0624-0300, 0624-0400 & 0624-0725.
On page 80 of 205 of the construction plans, add item 9623-0054.
On pages 92 & 93 of 205 of the construction plans, revise quantity associated with item 9623-0054.
On pages 106 & 121 of 205 of the construction plans, revise quantity associated with item 0601-7073.
On page 162 of 205 of the construction plans, revised quantity associated with items 0624-0001, 0624-0300, 0624-0400 & 0624-0725
On sheet 167 of 205 of the construction plans, revise size label of P-069A to 36”.
On page 2 of 36 of the PCSM plans, change items 0624-0250, 0624-0304, 0624-0404 & 0624-0777 to items 0624-0001, 0624-0300, 0624-0400 & 0624-0725.
On page 7 of 137 of the MPT plans, change item number 0350-0108 to 0350-0120

REVISED SHEETS WILL BE ISSUED TO THE SUCCESSFUL BIDDER

Addendum: 2

Description:

The description and location of the project is as follows: For the reconstruction and widening of the existing reinforced plain cement concrete pavement for approximately 2.61 miles of S.R. 0202 to add an additional inside lane and shoulder in each direction; reconstruction of Ramps M, N, O, and P in the S.R. 8035 Interchange; the reconstruction and widening of two (2) single-span bridges, (S-24678) a Dual Single Span Composite P/S Concrete Box Beam bridge over Planebrook Road and (S-26088) a Dual Single-Span Steel Plate Girder Bridge over SR 0401 (Conestoga Road); the removal and replacement of (S-7425), a dual 3 simple span P/S Spread Box Beam Bridge over the Chester Valley Trail with (S-24744) a 20' x 10' Precast Concrete Arch Culvert; the rehabilitation of two (2) Culverts, (S-27842) a Reinforced Concrete Box Culvert (C1) Rehabilitation over Valley Creek and (S-26620) a Reinforced Concrete Arch Culvert (C2) Rehabilitation over Valley Creek; the design and construction of twelve (12) Design-Build Sound Barrier Walls with highway side sound absorptive face treatment; the construction of four (4) sign structures, one (1) overhead and three (3) cantilever; the construction of a thirty-two (32) space park and ride lot at the intersection of SR 0322 and Lloyd Ave in Caln Township; the modification and/or installation of six (6) traffic signals and an Adaptive Traffic Signal System along SR 0401; the construction of six (6) stormwater management basins and seven (7) stormwater mitigation sites; drainage improvements; utility installation/relocation; concrete median barrier; concrete glare screen; guiderail removal and installation; signing; pavement markings; landscape plantings; excavation and the installation of ITS network elements along S.R. 0202 all as indicated on the drawings approved for STATE ROUTE 0202, SECTION 330, in CHESTER COUNTY, EAST WHITELAND TOWNSHIP from approximately the SR 0202 Bridge over SR 0030 (Business) at segment 0250/0251 offset 0006/0001 to approximately 1,100' north of the Mill Lane Bridge over SR 0202 at segment 0300/0301offset 1025/0985.

Estimated Project:	$69,321,597.28
Federal Project Status:	Federal Oversight
DBE:	10.00%
Structure Work:	36.00%
Wage Rates:	Yes
Project Type:	Standard
State Type of Work:	WIDENING (ADDITIONAL LANES)
Prequalification Required:	Yes
Pre-Bid Meeting:	None
Scheduled Let:	10/18/2012 11:00:00 AM
New Let:	
Let Date Move:	
Anticipated NTP:	01/16/2013
Required Completion:	05/13/2017

Additional Information

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Item and Quantity

ADD THE FOLLOWING ITEM(S):

ITEM 0850-0035
ITEM 0850-0036
ITEM 0857-0001
ITEM 9601-5902

MODIFY THE FOLLOWING ITEM(S):

ITEM 0204-0101
ITEM 0204-0102

Special Provision

ADD THE FOLLOWING SPECIAL PROVISION(S):
N29890D - a29890 SPECIAL BIDDING – DESIGN-BUILD
ITEM 9601-5902 - CLEANING EXISTING BOX CULVERTS, S-27842
ITEM 0609-0009 – EQUIPMENT PACKAGE

MODIFY THE FOLLOWING SPECIAL PROVISION(S):

UTILITIES – THE REQUIREMENT TO LIST INFORMATION

REMOVE THE FOLLOWING SPECIAL PROVISION(S):

G7022A - a07022 CHANGES TO SPECIFICATION: SECTION 107
N29890C - a29890 SPECIAL BIDDING – DESIGN-BUILD

Other

MODIFY THE FOLLOWING ATTACHMENT(S):
FEDERAL WAGE RATES

REVISE PLAN SHEETS AS FOLLOWS:

Revise quantity for Item 0204-0101 on Structure Plan sheet 2 of 3 (S-27842) to 100 CY.
Revise quantity for Item 0204-0102 on Structure Plan sheet 3 of 10 (S-26620) as follows:
Wingwall A = 416 CY, Wingwall C = 206 CY, Total = 622 CY.
On pages 57 & 58 of the construction plans, identify the gore recovery areas
On page 75 of 205 of the construction plans, revise quantity associated with items 0204-0101 & 0204-0102
On page 77 of 205 of the construction plans, add items 0850-0035, 0850-0036, & 0857-0001
On pages 84, 87, & 90 of the construction plans, add item 0857-0001
On page 122 of 205 of the construction plans, revise total quantity associated with item 0604-(+) – PIPE DESIGN NO. 16
On page 123 of 205 of the construction plans, revise total quantity associated with item 0703-0025

REVISED SHEETS WILL BE ISSUED TO THE SUCCESSFUL BIDDER

Addendum: 3

Description:

The description and location of the project is as follows: For the reconstruction and widening of the existing reinforced plain cement concrete pavement for approximately 2.61 miles of S.R. 0202 to add an additional inside lane and shoulder in each direction; reconstruction of Ramps M, N, O, and P in the S.R. 8035 Interchange; the reconstruction and widening of two (2) single-span bridges, (S-24678) a Dual Single Span Composite P/S Concrete Box Beam bridge over Planebrook Road and (S-26088) a Dual Single-Span Steel Plate Girder Bridge over SR 0401 (Conestoga Road); the removal and replacement of (S-7425), a dual 3 simple span P/S Spread Box Beam Bridge over the Chester Valley Trail with (S-24744) a 20' x 10' Precast Concrete Arch Culvert; the rehabilitation of two (2) Culverts, (S-27842) a Reinforced Concrete Box Culvert (C1) Rehabilitation over Valley Creek and (S-26620) a Reinforced Concrete Arch Culvert (C2) Rehabilitation over Valley Creek; the design and construction of twelve (12) Design-Build Sound Barrier Walls with highway side sound absorptive face treatment; the construction of four (4) sign structures, one (1) overhead and three (3) cantilever; the construction of a thirty-two (32) space park and ride lot at the intersection of SR 0322 and Lloyd Ave in Caln Township; the modification and/or installation of six (6) traffic signals and an Adaptive Traffic Signal System along SR 0401; the construction of six (6) stormwater management basins and seven (7) stormwater mitigation sites; drainage improvements; utility installation/relocation; concrete median barrier; concrete glare screen; guiderail removal and installation; signing; pavement markings; landscape plantings; excavation and the installation of ITS network elements along S.R. 0202 all as indicated on the drawings approved for STATE ROUTE 0202, SECTION 330, in CHESTER COUNTY, EAST WHITELAND TOWNSHIP from approximately the SR 0202 Bridge over SR 0030 (Business) at segment 0250/0251 offset 0006/0001 to approximately 1,100' north of the Mill Lane Bridge over SR 0202 at segment 0300/0301offset 1025/0985.

Estimated Project:	$69,303,227.28
Federal Project Status:	Federal Oversight
DBE:	10.00%
Structure Work:	36.00%
Wage Rates:	Yes
Project Type:	Standard
State Type of Work:	WIDENING (ADDITIONAL LANES)
Prequalification Required:	Yes
Pre-Bid Meeting:	None
Scheduled Let:	10/18/2012 11:00:00 AM
New Let:	
Let Date Move:	
Anticipated NTP:	01/16/2013
Required Completion:	05/13/2017

Additional Information

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Item and Quantity

ADD THE FOLLOWING ITEM(S):

ITEM 0941-0001
ITEM 0516-2007
ITEM 0516-2008

MODIFY THE FOLLOWING ITEM(S):

ITEM 0309-0437
ITEM 0350-0106
ITEM 0350-0120
ITEM 9627-0001
ITEM 8100-0001 (added alternate ITEM 8000-0002)

REMOVE THE FOLLOWING ITEM(S):
ITEM 0944-0003

Special Provision

ADD THE FOLLOWING SPECIAL PROVISION(S):

G101C - a00101 GOVERNING SPECIFICATIONS AND APPLICABLE DESIGNATED SPECIAL PROVISIONS

MODIFY THE FOLLOWING SPECIAL PROVISION(S):

I30041D - ITEM 8000-0001 THRU 8100-0010 - ALTERNATE BRIDGE STRUCTURES
00 - ITEM 9006-0002 THRU 9006-0004 - VERIFICATION DRILLING
00 - ITEM 9000-0030 - VEGETATED ROCK FILL BERM
00 - ITEM 9000-0029 - VEGETATED ROCK FILL STORMWATER WEIR

REMOVE THE FOLLOWING SPECIAL PROVISION(S):

G101B - a00101 GOVERNING SPECIFICATIONS AND APPLICABLE DESIGNATED SPECIAL PROVISIONS
G7037D - a07037 CHANGES TO SPECIFICATIONS: SECTIONS 106, 108, 514, 515, 516, 676, AND 1107
N12301A - a12301 PERMANENT ANCHORED WALLS

Other

ATTACHMENTS:
ADD the existing structure plans for S-20157 & S-20158

REVISE PLAN SHEETS AS FOLLOWS:

On sheets 75, 86, and 89 of the construction plans, revise quantity associated with items 0350-0106 & 0350-0120.
On sheets 75, 78, and 80 of the construction plans, revise quantity associated with items 0309-0437, 0350-0120, 0941-0001, 0944-0003 & 9627-0001.
On sheets 75, 87, and 90 of the construction plans, add quantity associated with items 0516-2007 & 0516-2008.
On sheet 79 of the construction plans, add OR item 8000-0002, and AND items 5001-0020, 1002-0112, 1002-0113, 1002-0116, & 1002-0117.
On page 7 of 137 of the MPT plans, revise quantity associated with items 0309-0437, 0350-0120 & 9627-0001.
On page 5 of 137 of the MPT plans, revise location of 2333 CY of Class I Excavation.
On page 2 of 26 of the Signing plans, change item number 0944-0003 to 0941-0001.
Revise quantity for SPECIFIED BACKFILL on Structure Plan sheet 5 of 64 (S-24678) as follows:
Near Abut = 2582 CY, Far Abut = 2813 CY, Total = 5395 CY
Add ALTERNATE STRUCTURE ITEM 8000-0002 – PRESTRESSED CONCRETE BRIDGE STRUCTURE to sheet 6 of 89 (S-26088).

REVISED SHEETS WILL BE ISSUED TO THE SUCCESSFUL BIDDER

Addendum: 4

Description:

The description and location of the project is as follows: For the reconstruction and widening of the existing reinforced plain cement concrete pavement for approximately 2.61 miles of S.R. 0202 to add an additional inside lane and shoulder in each direction; reconstruction of Ramps M, N, O, and P in the S.R. 8035 Interchange; the reconstruction and widening of two (2) single-span bridges, (S-24678) a Dual Single Span Composite P/S Concrete Box Beam bridge over Planebrook Road and (S-26088) a Dual Single-Span Steel Plate Girder Bridge over SR 0401 (Conestoga Road); the removal and replacement of (S-7425), a dual 3 simple span P/S Spread Box Beam Bridge over the Chester Valley Trail with (S-24744) a 20' x 10' Precast Concrete Arch Culvert; the rehabilitation of two (2) Culverts, (S-27842) a Reinforced Concrete Box Culvert (C1) Rehabilitation over Valley Creek and (S-26620) a Reinforced Concrete Arch Culvert (C2) Rehabilitation over Valley Creek; the design and construction of twelve (12) Design-Build Sound Barrier Walls with highway side sound absorptive face treatment; the construction of four (4) sign structures, one (1) overhead and three (3) cantilever; the construction of a thirty-two (32) space park and ride lot at the intersection of SR 0322 and Lloyd Ave in Caln Township; the modification and/or installation of six (6) traffic signals and an Adaptive Traffic Signal System along SR 0401; the construction of six (6) stormwater management basins and seven (7) stormwater mitigation sites; drainage improvements; utility installation/relocation; concrete median barrier; concrete glare screen; guiderail removal and installation; signing; pavement markings; landscape plantings; excavation and the installation of ITS network elements along S.R. 0202 all as indicated on the drawings approved for STATE ROUTE 0202, SECTION 330, in CHESTER COUNTY, EAST WHITELAND TOWNSHIP from approximately the SR 0202 Bridge over SR 0030 (Business) at segment 0250/0251 offset 0006/0001 to approximately 1,100' north of the Mill Lane Bridge over SR 0202 at segment 0300/0301offset 1025/0985.

Estimated Project:	$69,308,727.28
Federal Project Status:	Federal Oversight
DBE:	10.00%
Structure Work:	36.00%
Wage Rates:	Yes
Project Type:	Standard
State Type of Work:	WIDENING (ADDITIONAL LANES)
Prequalification Required:	Yes
Pre-Bid Meeting:	None
Scheduled Let:	10/18/2012 11:00:00 AM
New Let:	
Let Date Move:	
Anticipated NTP:	01/16/2013
Required Completion:	05/13/2017

Additional Information

This is an ECMS project. All Addenda will be electronically posted. Place for delivery of diskette bid before 11:00 a.m. prevailing local time on the scheduled let date: PENNDOT CONTRACT AWARDS ROOM, 7TH FLOOR; COMMONWEALTH KEYSTONE BUILDING; 400 NORTH STREET; HARRISBURG PA 17120

Item and Quantity

ADD THE FOLLOWING ITEM(S):
9018-0001

MODIFY THE FOLLOWING ITEM(S):

ITEM 0605-2850
ITEM 0605-2854
ITEM 0605-2730
ITEM 8100-0001 (ADDED "AND" ITEM 5001-0930)
ITEM 8621-0001 (ADDED COMPONENT ITEM SCHEDULE)

REMOVE THE FOLLOWING ITEM(S):
ITEM 0505-0001

Special Provision

ADD THE FOLLOWING SPECIAL PROVISION(S):

9018-0001 REMOVAL OF PORTION OF EXISTING SIGN STRUCTURE

MODIFY THE FOLLOWING SPECIAL PROVISION(S):

00 - ITEM 5001-0020, 5001-0930 – CLASS C CEMENT CONCRETE, MODIFIED (ADDED ITEM 5001-0930 TO THIS SPECIAL PROVISION)

Other

PLANS:
Modify the Following:
Existing Structure Plans S-20158

REVISE PLAN SHEETS AS FOLLOWS:

On sheet 76 of the construction plans, revise quantity associated with items 0605-2850, 0605-2854 & 0605-2730.
On sheets 132 & 156 of the construction plans, add quantity associated with items 0605-2850, 0605-2854 & 0605-2730.
On sheet 82 of 205 of the construction plans, add item 9018-0001
On sheet 4 of 26 of the signing plan, add item 9018-0001
On sheet 75, 87 & 90of the construction plans, remove quantity associated with items 0505-0001.

REVISED SHEETS WILL BE ISSUED TO THE SUCCESSFUL BIDDER

Bid Items

Item	Description	Quantity	Unit Price	Item Total	Addendum
0201-0001	CLEARING AND GRUBBING	1.000	$975,000.00	$975,000.00	
4201-0001	CLEARING AND GRUBBING (MODIFIED)	1.000	$165,000.00	$165,000.00	
0203-0001	CLASS 1 EXCAVATION	218,410.000	$22.00	$4,805,020.00	
0203-0004	CLASS 1B EXCAVATION	439.000	$30.00	$13,170.00	
0204-0001	CLASS 2 EXCAVATION	1,432.000	$20.00	$28,640.00	
0204-0100	CLASS 3 EXCAVATION	1,838.000	$20.00	$36,760.00	
4204-0100	CLASS 3 EXCAVATION (MODIFIED)	1,324.000	$20.30	$26,877.20	
0204-0101	CLASS 3 EXCAVATION	100.000	$60.00	$6,000.00	2
0204-0102	CLASS 3 EXCAVATION	622.000	$30.00	$18,660.00	2
0204-0150	CLASS 4 EXCAVATION	14,129.000	$5.00	$70,645.00	
0205-0001	COMMON BORROW EXCAVATION	2,680.000	$5.00	$13,400.00	
0205-0100	FOREIGN BORROW EXCAVATION	3,819.000	$20.00	$76,380.00	
0212-0001	GEOTEXTILE, CLASS 1	34,485.000	$0.50	$17,242.50	
0212-0002	GEOTEXTILE, CLASS 2, TYPE A	1,833.000	$1.50	$2,749.50	
0212-0003	GEOTEXTILE, CLASS 2, TYPE B	3,168.000	$1.50	$4,752.00	
0212-0014	GEOTEXTILE, CLASS 4, TYPE A	242,234.000	$1.25	$302,792.50	
0212-0014	GEOTEXTILE, CLASS 4, TYPE A	2,696.000	$1.25	$3,370.00	
4220-0020	FLOWABLE BACKFILL, TYPE C (MODIFIED)	23.000	$250.00	$5,750.00	
0309-0322	SUPERPAVE ASPHALT MIXTURE DESIGN, HMA BASE COURSE, PG 64-22, < 0.3 MILLION ESALs, 25.0 MM MIX, 4" DEPTH	525.000	$35.00	$18,375.00	
0309-0437	SUPERPAVE ASPHALT MIXTURE DESIGN, HMA BASE COURSE, PG 64-22, 0.3 TO < 3 MILLION ESALs, 25.0 MM MIX	21,640.000	$80.00	$1,731,200.00	3
0309-0522	SUPERPAVE ASPHALT MIXTURE DESIGN, HMA BASE COURSE, PG 64-22, 3 TO < 10 MILLION ESALs, 25.0 MM MIX, 4" DEPTH	1,332.000	$18.70	$24,908.40	
0309-0524	SUPERPAVE ASPHALT MIXTURE DESIGN, HMA BASE COURSE, PG 64-22, 3 TO < 10 MILLION ESALs, 25.0 MM MIX, 5" DEPTH	2,536.000	$22.30	$56,552.80	
0309-0530	SUPERPAVE ASPHALT MIXTURE DESIGN, HMA BASE COURSE, PG 64-22, 3 TO < 10 MILLION ESALs, 25.0 MM MIX, 8" DEPTH	18,594.000	$29.70	$552,241.80	
0350-0106	SUBBASE 6" DEPTH (NO. 2A)	124,515.000	$7.50	$933,862.50	3
0350-0108	SUBBASE 8" DEPTH (NO. 2A)	19,119.000	$10.50	$200,749.50	1
0350-0120	SUBBASE (NO. 2A)	19,999.000	$38.00	$759,962.00	3
0350-0120	SUBBASE (NO. 2A)	274.000	$38.00	$10,412.00	
0350-0220	SUBBASE (NO. 0GS)	2,101.000	$39.20	$82,359.20	
0360-0001	ASPHALT TREATED PERMEABLE BASE COURSE, 4" DEPTH	134,592.000	$12.00	$1,615,104.00	
0409-0342	SUPERPAVE ASPHALT MIXTURE DESIGN, HMA WEARING COURSE, PG 64-22, < 0.3 MILLION ESALS, 12.5 MM MIX, 1 1/2" DEPTH, SRL-H	708.000	$9.00	$6,372.00	
0409-0582	SUPERPAVE ASPHALT MIXTURE DESIGN, HMA WEARING COURSE, PG 64-22, 3 TO < 10 MILLION ESALS, 9.5 MM MIX, 1 1/2" DEPTH, SRL-H	23,680.000	$6.50	$153,920.00	
0409-0592	SUPERPAVE ASPHALT MIXTURE DESIGN, HMA WEARING COURSE, PG 64-22, 3 TO < 10 MILLION ESALS, 9.5 MM MIX, SRL-H	4,474.000	$100.00	$447,400.00	
0409-6550	SUPERPAVE ASPHALT MIXTURE DESIGN, HMA BINDER COURSE, PG 64-22, 3 TO < 10 MILLION ESALS, 19.0 MM MIX, 2 1/2" DEPTH	21,130.000	$9.80	$207,074.00	
0460-0001	BITUMINOUS TACK COAT	21,813.000	$0.91	$19,849.83	
0491-0012	MILLING OF BITUMINOUS PAVEMENT SURFACE, 1 1/2" DEPTH, MILLED MATERIAL RETAINED BY CONTRACTOR	1,401.000	$8.10	$11,348.10	

0491-0019	MILLING OF BITUMINOUS PAVEMENT SURFACE, VARIABLE DEPTH, MILLED MATERIAL RETAINED BY CONTRACTOR	5,000.000	$4.14	$20,700.00	
0501-0032	PLAIN CEMENT CONCRETE PAVEMENT, 10" DEPTH	4,211.000	$64.00	$269,504.00	
0501-0036	PLAIN CEMENT CONCRETE PAVEMENT, 12" DEPTH	42,135.000	$57.00	$2,401,695.00	
0501-0812	CONCRETE PAVEMENT CORES, 10" DEPTH	4.000	$268.00	$1,072.00	
0501-0816	CONCRETE PAVEMENT CORES, 12" DEPTH	14.000	$268.00	$3,752.00	
0503-0001	PROTECTIVE COATING FOR CEMENT CONCRETE PAVEMENTS AND SHOULDERS	44,149.000	$1.80	$79,468.20	
0504-0001	PAVEMENT RELIEF JOINT	518.000	$144.00	$74,592.00	
0506-0032	PLAIN CEMENT CONCRETE PAVEMENT, RPS, 10" DEPTH	6,563.000	$68.00	$446,284.00	
0506-0036	PLAIN CEMENT CONCRETE PAVEMENT, RPS, 12" DEPTH	80,174.000	$53.00	$4,249,222.00	
0506-0308	CONCRETE PAVEMENT CORES, RPS, 10" DEPTH	4.000	$268.00	$1,072.00	
0506-0312	CONCRETE PAVEMENT CORES, RPS, 12" DEPTH	26.000	$268.00	$6,968.00	
0507-0013	CONCRETE PAVEMENT RIDE QUALITY INCENTIVE, TYPE 1	151,500.000	$1.00	$151,500.00	
0513-0001	JOINT REHABILITATION, TYPE 1	34.000	$51.00	$1,734.00	
0516-2007	PATCHING JOINT	280.000	$15.20	$4,256.00	3
0516-2008	NEW PAVEMENT JOINT	46.000	$12.20	$561.20	3
0516-3034	ACCELERATED CONCRETE PAVEMENT PATCHING, TYPE A, 10" DEPTH	72.000	$185.00	$13,320.00	
0516-3035	ACCELERATED CONCRETE PAVEMENT PATCHING, TYPE A, 11" DEPTH	69.000	$195.00	$13,455.00	
0601-0317	30" THERMOPLASTIC PIPE, GROUP I, 15'-1.5' FILL	540.000	$51.00	$27,540.00	
0601-2843	18" CORRUGATED ALUMINUM ALLOY PIPE, TYPE I, (2 2/3" X 1/2" CORRUGATIONS), 14 GAGE	154.000	$144.00	$22,176.00	
0601-2845	24" CORRUGATED ALUMINUM ALLOY PIPE, TYPE I, (2 2/3" X 1/2" CORRUGATIONS), 14 GAGE	15.000	$284.00	$4,260.00	
0601-4393	18" CORRUGATED ALUMINIZED STEEL PIPE, TYPE I, (2 2/3" X 1/2" CORRUGATIONS), 14 GAGE, SHORE/TRENCH BOX	1,256.000	$73.00	$91,688.00	
0601-4439	36" CORRUGATED ALUMINIZED STEEL PIPE, TYPE I, (2 2/3" X 1/2" CORRUGATIONS), 12 GAGE, SHORE/TRENCH BOX, 100 YEAR DESIGN LIFE	61.000	$183.00	$11,163.00	
0601-4440	42" CORRUGATED ALUMINIZED STEEL PIPE, TYPE I, (2 2/3" X 1/2" CORRUGATIONS), 12 GAGE, SHORE/TRENCH BOX, 100 YEAR DESIGN LIFE	238.000	$183.00	$43,554.00	
0601-4441	48" CORRUGATED ALUMINIZED STEEL PIPE, TYPE I, (2 2/3" X 1/2" CORRUGATIONS), 12 GAGE, SHORE/TRENCH BOX, 100 YEAR DESIGN LIFE	81.000	$271.00	$21,951.00	
0601-5901	CLEANING EXISTING PIPE CULVERTS, DIAMETERS UP TO AND INCLUDING 36"	1,286.000	$4.00	$5,144.00	
0601-7014	18" REINFORCED CONCRETE PIPE, TYPE A, 15' - 2' FILL, 100 YEAR DESIGN LIFE	129.000	$93.00	$11,997.00	
0601-7014	18" REINFORCED CONCRETE PIPE, TYPE A, 15' - 2' FILL, 100 YEAR DESIGN LIFE	404.000	$93.00	$37,572.00	
0601-7014	18" REINFORCED CONCRETE PIPE, TYPE A, 15' - 2' FILL, 100 YEAR DESIGN LIFE	765.000	$93.00	$71,145.00	
0601-7027	24" REINFORCED CONCRETE PIPE, TYPE A, 10' - 2' FILL, 100 YEAR DESIGN LIFE	115.000	$89.00	$10,235.00	
0601-7028	24" REINFORCED CONCRETE PIPE, TYPE A, 15' - 2' FILL, 100 YEAR DESIGN LIFE	68.000	$85.00	$5,780.00	
0601-7028	24" REINFORCED CONCRETE PIPE, TYPE A, 15' - 2' FILL, 100 YEAR DESIGN LIFE	435.000	$85.00	$36,975.00	
0601-7028	24" REINFORCED CONCRETE PIPE, TYPE A, 15' - 2' FILL, 100 YEAR DESIGN LIFE	71.000	$85.00	$6,035.00	
0601-7043	30" REINFORCED CONCRETE PIPE, TYPE A, 15' - 2' FILL, 100 YEAR DESIGN LIFE	322.000	$112.00	$36,064.00	

0601-7058	36" REINFORCED CONCRETE PIPE, TYPE A, 15' - 3' FILL, 100 YEAR DESIGN LIFE	15.000	$152.00	$2,280.00	
0601-7355	36" REINFORCED CONCRETE PIPE, TYPE B, 15' - 2' FILL	379.000	$105.00	$39,795.00	
0601-7511	18" REINFORCED CONCRETE PIPE, TYPE A, 15' - 3' FILL, SHORE/TRENCH BOX, 100 YEAR DESIGN LIFE	443.000	$84.00	$37,212.00	
0601-7518	24" REINFORCED CONCRETE PIPE, TYPE A, 10' - 7' FILL, SHORE/TRENCH BOX, 100 YEAR DESIGN LIFE	60.000	$100.00	$6,000.00	
0601-9451	48" CORRUGATED ALUMINIZED STEEL PIPE, TYPE I, (2 2/3" X 1/2" CORRUGATIONS), 12 GAGE, 100 YEAR DESIGN LIFE	76.000	$212.00	$16,112.00	1
0604-7014	18" REINFORCED CONCRETE PIPE, TYPE A, (OPEN JOINT), 15' - 2' FILL, 100 YEAR DESIGN LIFE	919.000	$56.00	$51,464.00	
0604-7014	18" REINFORCED CONCRETE PIPE, TYPE A, (OPEN JOINT), 15' - 2' FILL, 100 YEAR DESIGN LIFE	2,448.000	$56.00	$137,088.00	
0604-7027	24" REINFORCED CONCRETE PIPE, TYPE A, (OPEN JOINT), 10' - 2' FILL, 100 YEAR DESIGN LIFE	88.000	$63.00	$5,544.00	
0604-7027	24" REINFORCED CONCRETE PIPE, TYPE A, (OPEN JOINT), 10' - 2' FILL, 100 YEAR DESIGN LIFE	2,055.000	$63.00	$129,465.00	
0604-7042	30" REINFORCED CONCRETE PIPE, TYPE A, (OPEN JOINT), 10' - 3' FILL, 100 YEAR DESIGN LIFE	934.000	$89.00	$83,126.00	
0604-7065	42" REINFORCED CONCRETE PIPE, TYPE A, (OPEN JOINT), 10' - 3' FILL, 100 YEAR DESIGN LIFE	49.000	$155.00	$7,595.00	
0604-7072	48" REINFORCED CONCRETE PIPE, TYPE A, (OPEN JOINT), 10' - 2' FILL, 100 YEAR DESIGN LIFE	320.000	$165.00	$52,800.00	
0604-7510	18" REINFORCED CONCRETE PIPE, TYPE A, (OPEN JOINT), 10' - 7' FILL, SHORE/TRENCH BOX, 100 YEAR DESIGN LIFE	202.000	$74.00	$14,948.00	
0604-7518	24" REINFORCED CONCRETE PIPE, TYPE A, (OPEN JOINT), 10' - 7' FILL, SHORE/TRENCH BOX, 100 YEAR DESIGN LIFE	247.000	$86.00	$21,242.00	
0604-7527	30" REINFORCED CONCRETE PIPE, TYPE A, (OPEN JOINT), 10' - 7' FILL, SHORE/TRENCH BOX, 100 YEAR DESIGN LIFE	145.000	$100.00	$14,500.00	
0604-7537	36" REINFORCED CONCRETE PIPE, TYPE A, (OPEN JOINT), 10' - 7' FILL, SHORE/TRENCH BOX, 100 YEAR DESIGN LIFE	144.000	$114.00	$16,416.00	
0604-7541	42" REINFORCED CONCRETE PIPE, TYPE A, (OPEN JOINT), 10' - 3' FILL, SHORE/TRENCH BOX, 100 YEAR DESIGN LIFE	182.000	$160.00	$29,120.00	
0604-9439	36" PERFORATED CORRUGATED ALUMINIZED STEEL PIPE, TYPE I, (2 2/3" X 1/2" CORRUGATIONS), 12 GAGE, 100 YEAR DESIGN LIFE	545.000	$114.00	$62,130.00	
0605-1480	MANHOLE	4.000	$2,700.00	$10,800.00	
0605-1500	MODIFIED MANHOLE	1.000	$5,300.00	$5,300.00	
0605-2401	MANHOLE FRAME AND COVER	4.000	$870.00	$3,480.00	
0605-2600	TYPE D ENDWALL	1.000	$2,500.00	$2,500.00	
0605-2610	TYPE D-E ENDWALL	1.000	$2,500.00	$2,500.00	
0605-2620	TYPE D-W ENDWALL	5.000	$7,500.00	$37,500.00	
0605-2710	TYPE C CONCRETE TOP UNIT AND GRATE	1.000	$980.00	$980.00	
0605-2730	TYPE M CONCRETE TOP UNIT AND GRATE	166.000	$1,050.00	$174,300.00	4
0605-2750	TYPE D-H CONCRETE TOP UNIT AND GRATES	1.000	$1,670.00	$1,670.00	
0605-2850	STANDARD INLET BOX, HEIGHT < /= 10'	88.000	$1,900.00	$167,200.00	4
0605-2851	STANDARD INLET BOX, HEIGHT > 10' AND < /= 20'	1.000	$3,840.00	$3,840.00	
0605-2854	TYPE 4 INLET BOX, HEIGHT < /= 10'	48.000	$2,520.00	$120,960.00	4
0605-2855	TYPE 4 INLET BOX, HEIGHT > 10' AND < /= 20'	1.000	$4,090.00	$4,090.00	
0605-2858	TYPE 5 INLET BOX, HEIGHT < /= 10'	14.000	$4,860.00	$68,040.00	
0605-2859	TYPE 5 INLET BOX, HEIGHT > 10' AND < /= 20'	3.000	$6,600.00	$19,800.00	
0605-2866	TYPE 7 INLET BOX, HEIGHT < /= 10'	2.000	$5,400.00	$10,800.00	

0605-2870	TYPE 8 INLET BOX, HEIGHT < /= 10'	2.000	$6,800.00	$13,600.00	
0605-2874	TYPE 9 INLET BOX, HEIGHT < /= 10'	2.000	$7,900.00	$15,800.00	
0605-2882	TYPE D-H INLET BOX, HEIGHT < /= 10'	1.000	$4,880.00	$4,880.00	
0606-0050	GRADE ADJUSTMENT OF EXISTING INLETS	1.000	$239.00	$239.00	
0608-0001	MOBILIZATION	1.000	$3,500,000.00	$3,500,000.00	
0609-0002	INSPECTOR'S FIELD OFFICE AND INSPECTION FACILITIES, TYPE A	1.000	$125,000.00	$125,000.00	
0609-0006	INSPECTOR'S FIELD OFFICE AND INSPECTION FACILITIES, TYPE A	1.000	$125,000.00	$125,000.00	
0609-0009	EQUIPMENT PACKAGE	1.000	$75,000.00	$75,000.00	
0609-0011	FIELD LABORATORY	1.000	$75,000.00	$75,000.00	
0610-0002	6" PIPE UNDERDRAIN TYPE I BACKFILL	2,517.000	$13.60	$34,231.20	
0610-7002	6" PAVEMENT BASE DRAIN	25,480.000	$10.20	$259,896.00	
0610-7400	ADDITIONAL COARSE AGGREGATE FOR EXTRA DEPTH PAVEMENT BASE DRAIN	5.000	$65.00	$325.00	
0615-0022	6" SUBSURFACE DRAIN OUTLETS	819.000	$24.00	$19,656.00	
0615-0066	66" RED SUBSURFACE DRAIN OUTLET MARKER	21.000	$35.40	$743.40	
0616-1202	CONCRETE END SECTIONS FOR 18" PIPE	5.000	$1,070.00	$5,350.00	
0616-1202	CONCRETE END SECTIONS FOR 18" PIPE	10.000	$1,070.00	$10,700.00	
0616-1206	CONCRETE END SECTIONS FOR 30" PIPE	1.000	$1,880.00	$1,880.00	
0619-0051	ANCHORED BACKSLOPE TERMINAL, TYPE 1	1.000	$780.00	$780.00	
0619-0470	PERMANENT IMPACT ATTENUATING DEVICE, TYPE II, TEST LEVEL 3 (ENERGY ABSORBING TERMINALS, TANGENT)	3.000	$1,970.00	$5,910.00	
0619-0610	PERMANENT IMPACT ATTENUATING DEVICE, TYPE V (STANDARD), TEST LEVEL 3	2.000	$11,200.00	$22,400.00	
0620-0010	TYPICAL AND ALTERNATE CONCRETE BRIDGE BARRIER TRANSITION WITHOUT INLET PLACEMENT	14.000	$1,910.00	$26,740.00	
0620-0011	TYPICAL AND ALTERNATE CONCRETE BRIDGE BARRIER TRANSITION WITH INLET PLACEMENT	1.000	$1,770.00	$1,770.00	
0620-0402	TERMINAL SECTION, BRIDGE CONNECTION	36.000	$155.00	$5,580.00	
0620-0503	REMOVE EXISTING GUIDE RAIL (CONTRACTOR'S PROPERTY)	16,276.000	$1.42	$23,111.92	
0620-0862	TYPE 2-S POST ANCHORAGE	8.000	$570.00	$4,560.00	
0620-1075	TYPE 2-S GUIDE RAIL	14,999.000	$16.00	$239,984.00	
0620-1100	TYPE 2-SC GUIDE RAIL	188.000	$26.10	$4,906.80	
0622-0001	CONCRETE GLARE SCREEN	1,066.000	$63.00	$67,158.00	
0622-0006	TRANSITION, CONCRETE GLARE SCREEN, 50" HEIGHT, 24" TO 41 1/2" WIDTH	1.000	$2,460.00	$2,460.00	
0623-0052	SINGLE FACE CONCRETE BARRIER	2,018.000	$57.00	$115,026.00	
0623-0112	FLARED END TRANSITION	8.000	$1,280.00	$10,240.00	
0624-0001	RIGHT-OF-WAY FENCE, TYPE 1	5,474.000	$14.90	$81,562.60	1
0624-0300	END POSTS FOR TYPE 1 RIGHT-OF-WAY FENCE	24.000	$253.00	$6,072.00	1
0624-0400	CORNER POSTS FOR TYPE 1 RIGHT-OF-WAY FENCE	36.000	$329.00	$11,844.00	1
0624-0725	VEHICULAR GATE FOR TYPE 1 RIGHT-OF-WAY FENCE, 15-FOOT OPENING	2.000	$1,160.00	$2,320.00	1
0626-0010	GABIONS, TYPE B	39.000	$225.00	$8,775.00	
0627-0001	TEMPORARY CONCRETE BARRIER	21,665.000	$38.00	$823,270.00	
0627-0011	TEMPORARY END TRANSITION	4.000	$750.00	$3,000.00	
0628-0001	RESET TEMPORARY CONCRETE BARRIER	40,179.000	$3.70	$148,662.30	
0630-0001	PLAIN CEMENT CONCRETE CURB	956.000	$20.00	$19,120.00	
0643-0002	TEMPORARY CONCRETE MEDIAN BARRIER, STRUCTURE MOUNTED	920.000	$63.00	$57,960.00	
0660-0020	CONCRETE SHOULDER RUMBLE STRIPS	43,129.000	$1.10	$47,441.90	
0686-0030	CONSTRUCTION SURVEYING, TYPE B, MODIFIED	1.000	$400,000.00	$400,000.00	
0689-0003	CPM SCHEDULE	1.000	$250,000.00	$250,000.00	
0696-0639	TEMPORARY IMPACT ATTENUATING DEVICE, TYPE V (STANDARD) TEST LEVEL 3	17.000	$3,490.00	$59,330.00	
0697-0639	RESET TEMPORARY IMPACT ATTENUATING DEVICE, TYPE V (STANDARD) TEST LEVEL 3	17.000	$860.00	$14,620.00	

0703-0020	NO. 1 COARSE AGGREGATE	1,482.000	$60.00	$88,920.00
0703-0023	NO. 67 COARSE AGGREGATE	8.000	$100.00	$800.00
0703-0024	NO. 2A COARSE AGGREGATE	1,906.000	$45.00	$85,770.00
0703-0025	NO. 57 COARSE AGGREGATE	5,854.000	$50.00	$292,700.00
0802-0001	TOPSOIL FURNISHED AND PLACED	126.000	$50.00	$6,300.00
0803-0001	PLACING STOCKPILED TOPSOIL	10,553.000	$13.00	$137,189.00
0804-0011	SEEDING AND SOIL SUPPLEMENTS - FORMULA B	65.000	$40.00	$2,600.00
0804-0013	SEEDING AND SOIL SUPPLEMENTS - FORMULA D	602.000	$26.00	$15,652.00
0804-0014	SEEDING - FORMULA E	1,346.000	$9.00	$12,114.00
0804-0020	SEEDING AND SOIL SUPPLEMENTS - FORMULA L	914.000	$20.00	$18,280.00
0804-0021	SEEDING AND SOIL SUPPLEMENTS - FORMULA W	2.000	$500.00	$1,000.00
0804-0051	MOWING	50.000	$250.00	$12,500.00
0805-0015	MULCHING - SHREDDED BARK	4,345.000	$4.20	$18,249.00
0805-0022	MULCHING - STRAW	85.000	$450.00	$38,250.00
0805-0037	MULCHING - SHREDDED BARK WITH WEED BARRIER MAT	12,328.000	$5.30	$65,338.40
0805-0044	MULCHING - SPENT MUSHROOM SOIL COMPOST	16.000	$15.20	$243.20
0806-0050	EROSION CONTROL MAT	236.000	$4.00	$944.00
0806-0051	EROSION CONTROL MULCH BLANKET	76,303.000	$1.11	$84,696.33
0806-0052	HIGH VELOCITY EROSION CONTROL MULCH BLANKET	725.000	$2.18	$1,580.50
0806-0055	TURF REINFORCEMENT MAT	3,859.000	$5.00	$19,295.00
0808-0001	SHRUB BED PREPARATION	12,328.000	$4.81	$59,297.68
0808-3111	EUROPEAN WHITE BIRCH CLUMPS - (1 1/4" CAL. B&B)	4.000	$213.00	$852.00
0808-3136	HERITAGE RIVER BIRCH - (2' CAL. B&B)	29.000	$299.00	$8,671.00
0808-3253	TULIPTREE - (2 1/2" CAL. B&B)	11.000	$440.00	$4,840.00
0808-3403	GREENSPIRE LITTLELEAF LINDEN - (2 1/2" CAL. B&B)	4.000	$430.00	$1,720.00
0808-3464	AMERICAN REDBUD - (1 1/4" CAL. B&B - HEAVY)	5.000	$213.00	$1,065.00
0808-3470	YELLOWWOOD - (1 1/2" CAL. B&B)	8.000	$284.00	$2,272.00
0808-3477	UPRIGHT EUROPEAN HORNBEAM (2 1/2" CAL. B&B)	8.000	$440.00	$3,520.00
0808-3494	RED FLOWERING DOGWOOD - (1 1/2" CAL. B&B)	3.000	$203.00	$609.00
0808-3513	CORNELIAN CHERRY - (6' HT. B&B)	5.000	$228.00	$1,140.00
0808-3577	WINTER KING HAWTHORN - (2 1/2" CAL. B&B)	4.000	$324.00	$1,296.00
0808-3618	WHITE FRINGETREE - (6' HT. B&B)	26.000	$203.00	$5,278.00
0808-3652	ZUMI CRAB - (2" CAL. B&B)	11.000	$299.00	$3,289.00
0808-3657	PRAIRIFIRE CRAB - (2" CAL. B&B)	14.000	$299.00	$4,186.00
0808-3663	SUGAR TYME CRAB - (1 1/2" CAL. B&B)	28.000	$213.00	$5,964.00
0808-3845	WHITE PINE - (8' HT. B&B)	35.000	$309.00	$10,815.00
0808-3871	DOUGLAS FIR - (6' HT. B&B)	4.000	$203.00	$812.00
0808-3952	BLACK CHOKEBERRY - (30" HT. B&B)	581.000	$35.40	$20,567.40
0808-4041	WINTERGREEN BARBERRY - (18" HT. B&B OR CONTAINER)	75.000	$35.40	$2,655.00
0808-4061	FLOWERING QUINCE - (2' HT. B.R.)	10.000	$35.40	$354.00
0808-4102	RED OSIER DOGWOOD - (3' HT. B.R.)	32.000	$35.40	$1,132.80
0808-4112	YELLOWTWIG DOGWOOD - (3' HT. B.R.)	198.000	$42.50	$8,415.00
0808-4193	INKBERRY - (2' HT. B&B)	70.000	$47.60	$3,332.00
0808-4197	COMPACT INKBERRY - (36" HT. B&B or CONTAINER)	35.000	$83.00	$2,905.00
0808-4203	WINTERBERRY - (3' HT. B&B)	99.000	$47.60	$4,712.40
0808-4292	BAYBERRY - (3' HT. B&B)	550.000	$59.00	$32,450.00
0808-4312	COMMON NINEBARK - (3' HT. B.R.)	85.000	$35.40	$3,009.00
0808-4363	IVORY SILK JAPANESE LILAC TREE - (2 1/2" CAL. B&B)	6.000	$461.00	$2,766.00
0808-4487	HANCOCK CORALBERRY (24" HT. B.R.)	1,882.000	$47.60	$89,583.20
0808-4552	WAYFARING TREE - (4' HT. B&B)	26.000	$83.00	$2,158.00
0808-4563	DOUBLEFILE VIBURNUM - (5' HT. B&B - HEAVY)	121.000	$94.00	$11,374.00
0808-4572	LEATHERLEAF VIBURNUM - (4' HT. B&B)	132.000	$83.00	$10,956.00
0808-4702	SARGENT JUNIPER - (2' SPD. B&B)	173.000	$43.50	$7,525.50
0808-4722	ANDORRA JUNIPER - (2' SPD. B&B)	149.000	$43.50	$6,481.50

0808-4794	CAROLINA RHODODENDRON - (2 1/2' HT. B&B)	100.000	$95.00	$9,500.00	
0808-4843	ROSEBAY RHODODENDRON - (4' HT. B&B)	26.000	$190.00	$4,940.00	
0808-4980	BOSTON IVY - (3" POT - 2 YR.)	325.000	$5.10	$1,657.50	
0808-4990	VIRGINIA CREEPER - (3" POT - 2 YR.)	650.000	$5.10	$3,315.00	
0808-6000	WATERING	240.000	$228.00	$54,720.00	
0811-0003	TEMPORARY PROTECTIVE FENCE	14,049.000	$2.60	$36,527.40	
0845-0001	UNFORESEEN WATER POLLUTION CONTROL	50,000.000	$1.00	$50,000.00	
0850-0031	ROCK, CLASS R-3	1,936.000	$45.70	$88,475.20	
0850-0032	ROCK, CLASS R-4	2,198.000	$63.00	$138,474.00	
0850-0033	ROCK, CLASS R-5	94.000	$100.00	$9,400.00	
0850-0034	ROCK, CLASS R-6	341.000	$100.00	$34,100.00	
0850-0035	ROCK, CLASS R-7	39.000	$125.00	$4,875.00	2
0850-0036	ROCK, CLASS R-8	137.000	$125.00	$17,125.00	2
0855-0003	PUMPED WATER FILTER BAG	7.000	$500.00	$3,500.00	
0857-0001	CONCRETE BLOCK REVETMENT SYSTEMS	136.000	$216.00	$29,376.00	2
0860-0000	INLET FILTER BAG FOR TYPE M INLET	225.000	$104.00	$23,400.00	
0860-0020	PIPE/GRAVEL INLET PROTECTION FOR TYPE M INLET	58.000	$342.00	$19,836.00	
0861-0001	CLEANING SEDIMENTATION STRUCTURES	970.000	$12.90	$12,513.00	
0865-0001	SILT BARRIER FENCE, 18" HEIGHT	244.000	$7.00	$1,708.00	
0866-0005	HEAVY DUTY SILT BARRIER FENCE	765.000	$14.00	$10,710.00	
0867-0012	COMPOST FILTER SOCK, 12" DIAMETER	14,892.000	$4.00	$59,568.00	
0867-0022	COMPOST FILTER SOCK, 24" DIAMETER	5,953.000	$8.90	$52,981.70	
0870-0001	PLYWOOD EXTENSIONS	3.000	$299.00	$897.00	
0871-0001	CONCRETE ANTI-SEEP COLLAR	7.000	$1,620.00	$11,340.00	
0873-0001	TEMPORARY BAFFLE WALL	110.000	$55.00	$6,050.00	
0874-0001	TEMPORARY RISER PIPE ASSEMBLY	1.000	$2,780.00	$2,780.00	
0901-0001	MAINTENANCE AND PROTECTION OF TRAFFIC DURING CONSTRUCTION	1.000	$660,000.00	$660,000.00	
0901-0100	SHADOW VEHICLE	150.000	$163.00	$24,450.00	
0901-0120	SPEED DISPLAY SIGN	2.000	$10,000.00	$20,000.00	
0901-0203	ARROW PANEL	4.000	$10,000.00	$40,000.00	
0901-0231	ADDITIONAL WARNING LIGHTS, TYPE B	3,046.000	$2.00	$6,092.00	
0901-0232	ADDITIONAL WARNING LIGHTS, TYPE C	6,862.000	$2.00	$13,724.00	
0901-0240	ADDITIONAL TRAFFIC CONTROL SIGNS	667.000	$25.00	$16,675.00	
0901-0250	TEMPORARY HIGHWAY LIGHTING	1.000	$18,600.00	$18,600.00	
0901-0251	TEMPORARY HIGHWAY LIGHTING	1.000	$10,500.00	$10,500.00	
0901-0320	4" STANDARD PAVEMENT MARKINGS, PAINT & BEADS, YELLOW	31,616.000	$0.20	$6,323.20	
0901-0321	6" STANDARD PAVEMENT MARKINGS, PAINT & BEADS, YELLOW	88,205.000	$0.25	$22,051.25	
0901-0324	24" STANDARD PAVEMENT MARKINGS, PAINT & BEADS, YELLOW	778.000	$8.10	$6,301.80	
0901-0330	4" STANDARD PAVEMENT MARKINGS, PAINT & BEADS, WHITE	38,785.000	$0.20	$7,757.00	
0901-0331	6" STANDARD PAVEMENT MARKINGS, PAINT & BEADS, WHITE	55,857.000	$0.25	$13,964.25	
0901-0332	8" STANDARD PAVEMENT MARKINGS, PAINT & BEADS, WHITE	8,405.000	$0.35	$2,941.75	
0901-0334	24" STANDARD PAVEMENT MARKINGS, PAINT & BEADS, WHITE	396.000	$8.10	$3,207.60	
0901-0450	3-LINE CHANGEABLE MESSAGE SIGN WITH TELECOMMUNICATIONS	6.000	$11,800.00	$70,800.00	
0901-0701	TEMPORARY TRAFFIC SIGNALS (PERMANENT ONLY)	1.000	$5,200.00	$5,200.00	
0901-0725	TEMPORARY TRAFFIC SIGNALS (PERMANENT ONLY)	1.000	$5,200.00	$5,200.00	
0901-0726	TEMPORARY TRAFFIC SIGNALS (PERMANENT ONLY)	1.000	$5,200.00	$5,200.00	
4910-0001	JUNCTION BOXES J.B.-1 (MODIFIED)	2.000	$1,290.00	$2,580.00	
4910-0002	JUNCTION BOXES J.B.-2 (MODIFIED)	18.000	$1,560.00	$28,080.00	
0910-0002	JUNCTION BOXES J.B.-2	6.000	$1,700.00	$10,200.00	

4910-0004	JUNCTION BOXES J.B.-11 (MODIFIED)	4.000	$1,900.00	$7,600.00	
0910-0005	JUNCTION BOXES J.B.-12	1.000	$1,760.00	$1,760.00	
0910-2010	12-FOOT BRACKET ARM	6.000	$425.00	$2,550.00	
0910-2828	250-WATT HIGH PRESSURE SODIUM LUMINAIRE, ARM MOUNT	6.000	$314.00	$1,884.00	
4910-3073	150-WATT HIGH PRESSURE SODIUM LUMINAIRE, OVERHEAD MOUNT (MODIFIED)	20.000	$850.00	$17,000.00	
4910-4064	AWG 4 ABOVE GROUND CABLE, COPPER, 1 CONDUCTOR (MODIFIED)	1,230.000	$4.10	$5,043.00	
4910-4066	AWG 8 ABOVE GROUND CABLE, COPPER, 1 CONDUCTOR (MODIFIED)	1,197.000	$3.65	$4,369.05	
0910-4067	AWG 10 ABOVE GROUND CABLE, COPPER, 1 CONDUCTOR	1,870.000	$3.29	$6,152.30	
0910-4110	AWG 2/0 UNDERGROUND CABLE, COPPER, 1 CONDUCTOR	8,360.000	$4.00	$33,440.00	
0910-4116	AWG 8 UNDERGROUND CABLE, COPPER, 1 CONDUCTOR	958.000	$1.52	$1,456.16	
0910-5059	3" DIRECT BURIAL CONDUIT	2,000.000	$3.14	$6,280.00	
0910-5171	1" EXPOSED CONDUIT	255.000	$11.40	$2,907.00	
0910-5179	3" EXPOSED CONDUIT	10.000	$30.60	$306.00	
0910-6000	TRENCH	2,000.000	$6.10	$12,200.00	
4910-7020	COMPLETE POWER SUPPLY SYSTEM (MODIFIED)	1.000	$11,400.00	$11,400.00	
0910-7210	TESTING OF ENTIRE LIGHTING SYSTEM	1.000	$1,830.00	$1,830.00	
0920-0001	SIGN LIGHTING - ENTIRE PROJECT	1.000	$32,900.00	$32,900.00	
0931-0001	POST MOUNTED SIGNS, TYPE B	662.000	$20.40	$13,504.80	
0934-0002	POST MOUNTED SIGNS, TYPE E	454.000	$36.20	$16,434.80	
0935-0001	POST MOUNTED SIGNS, TYPE F	251.000	$14.00	$3,514.00	
0936-0001	STRUCTURE MOUNTED EXTRUDED ALUMINUM CHANNEL SIGNS	1,132.000	$15.00	$16,980.00	
0936-0200	STRUCTURE MOUNTED FLAT SHEET ALUMINUM SIGNS	168.000	$36.20	$6,081.60	
0936-0300	INTERNALLY ILLUMINATED SIGN	4.000	$3,160.00	$12,640.00	
0937-0112	GUIDE RAIL MOUNTED DELINEATOR TYPE D, (Y/B)	11.000	$2.53	$27.83	
0937-0113	GUIDE RAIL MOUNTED DELINEATOR TYPE D, (W/B)	176.000	$2.53	$445.28	
0937-0121	GUIDE RAIL MOUNTED DELINEATOR TYPE D, (Y/R)	22.000	$2.53	$55.66	
0937-0122	GUIDE RAIL MOUNTED DELINEATOR TYPE D, (W/R)	11.000	$2.53	$27.83	
0937-0202	BARRIER MOUNTED DELINEATOR, SIDE-MOUNT TYPE O, (Y/B)	324.000	$4.20	$1,360.80	
0937-0203	BARRIER MOUNTED DELINEATOR, SIDE-MOUNT TYPE O, (W/B)	134.000	$4.40	$589.60	
0937-0206	BARRIER MOUNTED DELINEATOR, TOP-MOUNT TYPE P, (Y/Y)	165.000	$5.40	$891.00	
0937-0330	FLEXIBLE DELINEATOR POST, GROUND-MOUNT TYPE GM-2, WHITE POST WITH WHITE/BLANK SHEETING	10.000	$28.90	$289.00	
0937-0331	FLEXIBLE DELINEATOR POST, GROUND-MOUNT TYPE GM-2, WHITE POST WITH WHITE/RED SHEETING	25.000	$30.40	$760.00	
0937-0335	FLEXIBLE DELINEATOR POST, GROUND-MOUNT TYPE GM-2, YELLOW POST WITH YELLOW/RED SHEETING	16.000	$30.40	$486.40	
4938-0001	DISTANCE MARKER UNITS (MODIFIED)	36.000	$87.00	$3,132.00	
0938-0001	DISTANCE MARKER UNITS	4.000	$90.00	$360.00	
0941-0001	RESET POST MOUNTED SIGNS, TYPE B	2.000	$116.00	$232.00	3
0948-0101	STEEL SIGN STRUCTURE - SPAN, WITH BOX SHAPED TRUSS	1.000	$178,000.00	$178,000.00	
0948-0300	STEEL SIGN STRUCTURE - CANTILEVER	1.000	$30,000.00	$30,000.00	
0948-0301	STEEL SIGN STRUCTURE - CANTILEVER	1.000	$25,000.00	$25,000.00	
0948-0302	STEEL SIGN STRUCTURE - CANTILEVER	1.000	$30,000.00	$30,000.00	
0951-0130	TRAFFIC SIGNAL SUPPORT, 30' MAST ARM	1.000	$11,800.00	$11,800.00	

0951-0140	TRAFFIC SIGNAL SUPPORT, 40' MAST ARM	3.000	$15,600.00	$46,800.00
4951-0140	TRAFFIC SIGNAL SUPPORT, 40' MAST ARM (MODIFIED)	1.000	$18,300.00	$18,300.00
0951-0145	TRAFFIC SIGNAL SUPPORT, 45' MAST ARM	1.000	$17,200.00	$17,200.00
0951-0150	TRAFFIC SIGNAL SUPPORT, 50' MAST ARM	2.000	$18,400.00	$36,800.00
0951-0155	TRAFFIC SIGNAL SUPPORT, 55' MAST ARM	1.000	$19,700.00	$19,700.00
0951-0160	TRAFFIC SIGNAL SUPPORT, 60' MAST ARM	1.000	$21,400.00	$21,400.00
0954-0011	1 INCH CONDUIT	29.000	$3.24	$93.96
0954-0012	2 INCH CONDUIT	1,880.000	$2.58	$4,850.40
4954-0012	2 INCH CONDUIT (MODIFIED)	1,225.000	$3.24	$3,969.00
0954-0013	3 INCH CONDUIT	1,453.000	$3.95	$5,739.35
4954-0151	TRENCH AND BACKFILL, TYPE I (MODIFIED)	5,416.000	$8.40	$45,494.40
0954-0151	TRENCH AND BACKFILL, TYPE I	872.000	$6.90	$6,016.80
0954-0152	TRENCH AND BACKFILL, TYPE II	1,241.000	$21.00	$26,061.00
0954-0153	TRENCH AND BACKFILL, TYPE III	671.000	$31.60	$21,203.60
0954-0201	SIGNAL CABLE, 14 AWG, 3 CONDUCTOR	1,131.000	$1.32	$1,492.92
0954-0202	SIGNAL CABLE, 14 AWG, 5 CONDUCTOR	3,523.000	$1.67	$5,883.41
0954-0203	SIGNAL CABLE, 14 AWG, 7 CONDUCTOR	1,120.000	$2.18	$2,441.60
0954-0301	JUNCTION BOX, JB-26	1.000	$208.00	$208.00
0954-0302	JUNCTION BOX, JB-27	12.000	$466.00	$5,592.00
4954-0403	ELECTRICAL SERVICE, TYPE C (MODIFIED)	3.000	$1,550.00	$4,650.00
0954-0600	UNINTERRUPTIBLE POWER SUPPLY (UPS)	3.000	$5,800.00	$17,400.00
0955-3208	VEHICULAR SIGNAL HEAD, THREE 12" SECTIONS	20.000	$610.00	$12,200.00
0955-3210	VEHICULAR SIGNAL HEAD, FIVE 12" SECTIONS	2.000	$1,110.00	$2,220.00
0955-3723	LED PEDESTRIAN SIGNAL HEAD, TYPE B	2.000	$425.00	$850.00
0956-0001	DETECTOR LEAD IN CABLE	1,336.000	$1.22	$1,629.92
0956-0101	LOOP SENSOR	60.000	$9.30	$558.00
0956-0131	LOOP AMPLIFIER, 2 CHANNEL RACK MOUNTED	2.000	$344.00	$688.00
0956-0500	PEDESTRIAN PUSH BUTTON	2.000	$152.00	$304.00
0960-0001	4" WHITE HOT THERMOPLASTIC PAVEMENT MARKINGS	960.000	$2.03	$1,948.80
0960-0002	4" YELLOW HOT THERMOPLASTIC PAVEMENT MARKINGS	310.000	$2.03	$629.30
0960-0021	24" WHITE HOT THERMOPLASTIC PAVEMENT MARKINGS	20.000	$20.30	$406.00
0960-0119	WHITE HOT THERMOPLASTIC LEGEND, "HANDICAP SYMBOL", 3' - 3" X 2-11"	2.000	$203.00	$406.00
0960-0220	WHITE HOT THERMOPLASTIC LEGEND, "STRAIGHT ARROW", 12' - 0" X 1' - 8"	4.000	$152.00	$608.00
0962-1025	WHITE WATERBORNE PAVEMENT LEGEND, "ONLY", 8'-0"	3.000	$203.00	$609.00
0962-1062	WHITE WATERBORNE PAVEMENT LEGEND, "LEFT ARROW", 12'-0" X 3'-0"	4.000	$152.00	$608.00
0963-0001	PAVEMENT MARKING REMOVAL	38,606.000	$1.97	$76,053.82
0963-0010	PAVEMENT MARKING REMOVAL (LEGENDS AND SYMBOLS)	2.000	$101.00	$202.00
0964-0001	4" WHITE EPOXY PAVEMENT MARKINGS	35,034.000	$0.71	$24,874.14
0964-0002	4" YELLOW EPOXY PAVEMENT MARKINGS	39,614.000	$0.71	$28,125.94
0964-0005	6" WHITE EPOXY PAVEMENT MARKINGS	17,327.000	$0.91	$15,767.57
0964-0007	6" BLACK EPOXY PAVEMENT MARKINGS	17,327.000	$0.91	$15,767.57
0964-0008	8" WHITE EPOXY PAVEMENT MARKINGS	10,139.000	$1.42	$14,397.38
0964-0021	24" WHITE EPOXY PAVEMENT MARKINGS	462.000	$10.10	$4,666.20
0964-0022	24" YELLOW EPOXY PAVEMENT MARKINGS	1,083.000	$10.10	$10,938.30
0964-0101	WHITE EPOXY LEGEND, "ONLY", 8' - 0"	15.000	$405.00	$6,075.00
0964-0220	WHITE EPOXY LEGEND, "STRAIGHT ARROW", 12' - 0" X 1' - 8"	1.000	$203.00	$203.00
0964-0222	WHITE EPOXY LEGEND, "RIGHT ARROW", 12' - 0" X 3' - 0"	5.000	$203.00	$1,015.00
0964-0224	WHITE EPOXY LEGEND, "LEFT ARROW", 12' - 0" X 3' - 0"	7.000	$203.00	$1,421.00
0964-0232	WHITE EPOXY LEGEND, "LANE REDUCTION TRANSITION ARROW - RIGHT LANE" , 18'-0" X 5'-6"	3.000	$405.00	$1,215.00

0966-0011	SNOWPLOWABLE RAISED PAVEMENT MARKER TWO WAY HOLDER WITH REFLECTOR (Y/Y)	53.000	$35.40	$1,876.20	
0966-0014	SNOWPLOWABLE RAISED PAVEMENT MARKER TWO WAY HOLDER WITH REFLECTOR (Y/R)	14.000	$35.40	$495.60	
0966-0015	SNOWPLOWABLE RAISED PAVEMENT MARKER TWO WAY HOLDER WITH REFLECTOR (W/R)	55.000	$35.40	$1,947.00	
0966-0017	SNOWPLOWABLE RAISED PAVEMENT MARKER TWO WAY HOLDER WITH REFLECTOR (Y/B)	91.000	$35.40	$3,221.40	
0966-0018	SNOWPLOWABLE RAISED PAVEMENT MARKER TWO WAY HOLDER WITH REFLECTOR (W/B)	831.000	$35.40	$29,417.40	
1001-0010	CLASS A CEMENT CONCRETE	223.000	$800.00	$178,400.00	
5001-0020	CLASS C CEMENT CONCRETE (MODIFIED)	362.000	$225.00	$81,450.00	
1001-0204	6 X 6 STEEL WIRE FABRIC W4 X W4	118.000	$74.00	$8,732.00	
5001-0930	CLASS C CEMENT CONCRETE (MODIFIED)	486.000	$154.00	$74,844.00	4
1002-0001	REINFORCEMENT BARS	22,800.000	$1.25	$28,500.00	
1002-0001	REINFORCEMENT BARS	25,316.000	$1.25	$31,645.00	
1002-0053	REINFORCEMENT BARS, EPOXY COATED	6,391.000	$1.50	$9,586.50	
1002-0053	REINFORCEMENT BARS, EPOXY COATED	25,900.000	$1.50	$38,850.00	
1002-0053	REINFORCEMENT BARS, EPOXY COATED	174,080.000	$1.50	$261,120.00	
1002-0112	MECHANICAL SPLICE SYSTEM FOR NO. 5 REINFORCEMENT BARS	26.000	$23.70	$616.20	4
1002-0113	MECHANICAL SPLICE SYSTEM FOR NO. 6 REINFORCEMENT BARS	26.000	$25.90	$673.40	4
1002-0116	MECHANICAL SPLICE SYSTEM FOR NO. 9 REINFORCEMENT BARS	26.000	$43.40	$1,128.40	4
1002-0117	MECHANICAL SPLICE SYSTEM FOR NO. 10 REINFORCEMENT BARS	18.000	$48.50	$873.00	4
1006-0406	30" DIAMETER SHELLS FOR DRILLED CAISSONS	1,130.000	$123.00	$138,990.00	
5018-0050	REMOVAL OF PORTION OF EXISTING BRIDGE (MODIFIED)	1.000	$283,500.00	$283,500.00	
5018-0051	REMOVAL OF PORTION OF EXISTING BRIDGE (MODIFIED)	1.000	$95,000.00	$95,000.00	
5018-0052	REMOVAL OF PORTION OF EXISTING BRIDGE (MODIFIED)	1.000	$1,150,000.00	$1,150,000.00	
5018-0070	REMOVAL OF PORTION OF EXISTING CULVERT (MODIFIED)	1.000	$20,000.00	$20,000.00	
1019-0040	PROTECTIVE COATING FOR REINFORCED CONCRETE SURFACES (PENETRATING SEALERS, REINFORCED CONCRETE SUBSTRUCTURE SURFACES)	96.000	$7.30	$700.80	
1086-0013	SOUND BARRIER WALL POST, STEEL H-BEAM	2.000	$8,200.00	$16,400.00	
1086-0022	SOUND BARRIER WALL POST, STEEL PIPE	2.000	$10,400.00	$20,800.00	
1086-0200	STRUCTURE MOUNTED SOUND BARRIER WALL POST, STEEL H-BEAM	25.000	$2,320.00	$58,000.00	
5086-0300	SOUND BARRIER WALL PANELS, PRECAST REINFORCED CONCRETE (MODIFIED)	411.000	$166.00	$68,226.00	
5086-0350	STRUCTURE MOUNTED SOUND BARRIER WALL PANELS, PRECAST REINFORCED CONCRETE (MODIFIED)	1,417.000	$24.80	$35,141.60	
1090-0091	REPAIR DETERIORATED CONCRETE	46.000	$203.00	$9,338.00	
5091-0331	EPOXY INJECTION CRACK SEAL (MODIFIED)	263.000	$75.00	$19,725.00	
1999-9999	TRAINEES	10,000.000	$1.00	$10,000.00	
8000-0002	PRESTRESSED CONCRETE BRIDGE STRUCTURE	1.000	$4,340,000.00	$4,340,000.00	4
8010-0001	BRIDGE STRUCTURE, AS DESIGNED, S-24678	1.000	$1,000,000.00	$1,000,000.00	
8215-0001	DESIGN OF NOISE BARRIER (AS-DESIGNED FOUNDATION PROVIDED), S-25698	1.000	$75,000.00	$75,000.00	
8215-0002	DESIGN OF NOISE BARRIER (AS-DESIGNED FOUNDATION PROVIDED), S-25699	1.000	$75,000.00	$75,000.00	
8215-0003	DESIGN OF NOISE BARRIER (AS-DESIGNED FOUNDATION PROVIDED), S-30979	1.000	$75,000.00	$75,000.00	
8215-0004	DESIGN OF NOISE BARRIER (AS-DESIGNED FOUNDATION PROVIDED), S-31942	1.000	$75,000.00	$75,000.00	

8215-0005	DESIGN OF NOISE BARRIER (AS-DESIGNED FOUNDATION PROVIDED), S-31036	1.000	$68,000.00	$68,000.00	
8215-0006	DESIGN OF NOISE BARRIER (AS-DESIGNED FOUNDATION PROVIDED), S-25922	1.000	$75,000.00	$75,000.00	
8215-0007	DESIGN OF NOISE BARRIER (AS-DESIGNED FOUNDATION PROVIDED), S-31039	1.000	$68,000.00	$68,000.00	
8215-0008	DESIGN OF NOISE BARRIER (AS-DESIGNED FOUNDATION PROVIDED), S-31601	1.000	$68,000.00	$68,000.00	
8215-0010	DESIGN OF NOISE BARRIER (AS-DESIGNED FOUNDATION PROVIDED), S-25738	1.000	$68,000.00	$68,000.00	
8215-0011	DESIGN OF NOISE BARRIER (AS-DESIGNED FOUNDATION PROVIDED), S-26764	1.000	$65,000.00	$65,000.00	
8215-0091	DESIGN OF NOISE BARRIER (AS-DESIGNED FOUNDATION PROVIDED), S-31040	1.000	$68,000.00	$68,000.00	
8215-0092	DESIGN OF NOISE BARRIER (AS-DESIGNED FOUNDATION PROVIDED), S-31037	1.000	$68,000.00	$68,000.00	
8259-0001	CONSTRUCTION OF NOISE BARRIER, S-25698	1.000	$700,000.00	$700,000.00	
8259-0002	CONSTRUCTION OF NOISE BARRIER, S-25699	1.000	$700,000.00	$700,000.00	
8259-0003	CONSTRUCTION OF NOISE BARRIER, S-30979	1.000	$175,000.00	$175,000.00	
8259-0004	CONSTRUCTION OF NOISE BARRIER, S-31942	1.000	$775,000.00	$775,000.00	
8259-0005	CONSTRUCTION OF NOISE BARRIER, S-31036	1.000	$175,000.00	$175,000.00	
8259-0006	CONSTRUCTION OF NOISE BARRIER, S-25922	1.000	$1,550,000.00	$1,550,000.00	
8259-0007	CONSTRUCTION OF NOISE BARRIER, S-31039	1.000	$175,000.00	$175,000.00	
8259-0008	CONSTRUCTION OF NOISE BARRIER, S-31601	1.000	$275,000.00	$275,000.00	
8259-0010	CONSTRUCTION OF NOISE BARRIER, S-25738	1.000	$225,000.00	$225,000.00	
8259-0011	CONSTRUCTION OF NOISE BARRIER, S-26764	1.000	$605,000.00	$605,000.00	
8259-0091	CONSTRUCTION OF NOISE BARRIER, S-31040	1.000	$175,000.00	$175,000.00	
8259-0092	CONSTRUCTION OF NOISE BARRIER, S-31037	1.000	$175,000.00	$175,000.00	
8510-0001	CULVERT SYSTEM, AS DESIGNED, S-24744	1.000	$2,000,000.00	$2,000,000.00	
8621-0001	MECHANICALLY STABILIZED ABUTMENTS AND WINGWALLS	1.000	$900,000.00	$900,000.00	4
9000-0001	FIBER OPTIC MODEM	6.000	$3,840.00	$23,040.00	
9000-0002	FIBER OPTIC PATCH PANEL	6.000	$233.00	$1,398.00	
9000-0003	JUNCTION BOX, 17" X 30"	3.000	$530.00	$1,590.00	
9000-0004	EMERGENCY PRE-EMPTION SYSTEM (S.R. 0401 & MOORES ROAD)	1.000	$12,000.00	$12,000.00	
9000-0005	EMERGENCY PRE-EMPTION SYSTEM (S.R. 0401 & RAMPS M & O)	1.000	$8,300.00	$8,300.00	
9000-0006	EMERGENCY PRE-EMPTION SYSTEM (S.R. 0401 & RAMPS N & P)	1.000	$8,300.00	$8,300.00	
9000-0008	CONTROLLER ASSEMBLY, TIMER UNIT ONLY	2.000	$3,790.00	$7,580.00	
9000-0009	INSTALLATION OF TRAFFIC ADAPTIVE SYSTEM, CONESTOGA ROAD AND PHOENIXVILLE PIKE	1.000	$7,600.00	$7,600.00	
9000-0010	UNDERPINNING OF EXISTING FOUNDATION	1.000	$7,300.00	$7,300.00	
9000-0011	INSTALLATION OF TRAFFIC ADAPTIVE SYSTEM, CONESTOGA ROAD AND MOORES ROAD	1.000	$5,800.00	$5,800.00	
9000-0012	INSTALLATION OF TRAFFIC ADAPTIVE SYSTEM, CONESTOGA ROAD AND S.R. 0202 SOUTHBOUND RAMPS M & O	1.000	$4,820.00	$4,820.00	
9000-0013	INSTALLATION OF TRAFFIC ADAPTIVE SYSTEM, CONESTOGA ROAD AND S.R. 0202 NORTHBOUND RAMPS N & P	1.000	$4,820.00	$4,820.00	
9000-0014	INSTALLATION OF TRAFFIC ADAPTIVE SYSTEM, CONESTOGA ROAD AND EAST WHITELAND TWP DRIVEWAY	1.000	$5,200.00	$5,200.00	
9000-0015	INSTALLATION OF TRAFFIC ADAPTIVE SYSTEM, CONESTOGA ROAD AND MILL LANE	1.000	$6,600.00	$6,600.00	
9000-0016	TRAFFIC ADAPTIVE SYSTEM	200,000.000	$1.00	$200,000.00	
9000-0023	GYPSUM SOIL AMENDMENT	4,330.000	$0.61	$2,641.30	
9000-0028	E&S AND PCSM SUPERVISOR(S)	3,500.000	$1.16	$4,060.00	
9000-0029	VEGETATED ROCK FILL STORMWATER WEIR	322.000	$155.00	$49,910.00	
9000-0030	VEGETATED ROCK FILL BERM	1,926.000	$49.40	$95,144.40	

9000-0101	HEAVE MONITORING, S-24678	16.000	$1,010.00	$16,160.00	
9000-0104	INSTALLING AND MONITORING VIBRATING WIRE PIEZOMETER, S-24744	3.000	$7,600.00	$22,800.00	
9000-0105	INSTALLING AND MONITORING VIBRATING WIRE PIEZOMETER, S-26088	3.000	$7,600.00	$22,800.00	
9000-0400	REMOVE AND RESET EXISTING SOUND BARRIER WALL	450.000	$195.00	$87,750.00	
9000-0901	LOCATE, SUPPORT AND PROTECTION OF PENNDOT ITS FIBER OPTIC LINE	1.000	$18,300.00	$18,300.00	
9000-0902	TEMPORARY RELOCATION, MAINTENANCE AND REINSTALLATION OF TRAFFIC SIGNAL PRE-EMPTION LINE	1.000	$2,550.00	$2,550.00	
9000-0950	STEEL DRY STANDPIPE	1.000	$16,500.00	$16,500.00	
9000-1000	CONCRETE FOR UTILITY CONSTRUCTION	1.000	$840.00	$840.00	
9000-1010	REINFORCED CONCRETE ENCASEMENT OF EXISTING VERIZON LINE	4,000.000	$1.00	$4,000.00	
9000-2020	PERMANENT RIGHT OF WAY MONUMENTS	9.000	$290.00	$2,610.00	
9005-0530	STEEL BEAM PILE, HP 12X84	2,384.000	$56.00	$133,504.00	
9006-0001	INJECTION HOLE DRILLING	16,431.000	$29.50	$484,714.50	
9006-0002	VERIFICATION DRILLING IN SOIL - UNSAMPLED	130.000	$66.00	$8,580.00	
9006-0003	VERIFICATION DRILLING IN SOIL - SAMPLED	1,018.000	$76.00	$77,368.00	
9006-0004	VERIFICATION DRILLING IN ROCK/GROUT - RECOVERABLE CORE	241.000	$76.00	$18,316.00	
9006-0206	30" DIAMETER DRILLED CAISSONS, SHAFT SECTION IN SOIL, MODIFIED	359.000	$102.00	$36,618.00	
9006-0234	66" DIAMETER DRILLED CAISSONS, SHAFT SECTION	15.000	$910.00	$13,650.00	
9006-0306	30" DIAMETER DRILLED CAISSONS, SHAFT SECTION IN ROCK, MODIFIED	771.000	$208.00	$160,368.00	
9006-0612	PROBE HOLES IN SOIL - UNSAMPLED	359.000	$51.00	$18,309.00	
9006-0632	PROBE HOLES IN ROCK/GROUT - RECOVERABLE CORE	1,329.000	$76.00	$101,004.00	
9006-0700	MOBILIZATION FOR GROUTING, S-24678	1.000	$35,000.00	$35,000.00	
9006-0701	MOBILIZATION FOR GROUTING, S-24744	1.000	$50,000.00	$50,000.00	
9006-0702	MOBILIZATION FOR GROUTING, S-26088	1.000	$45,000.00	$45,000.00	
9018-0001	REMOVAL OF PORTION OF EXISTING SIGN STRUCTURE	1.000	$10,100.00	$10,100.00	4
9086-0500	REMOVE AND RESET GROUND MOUNTED SOUND BARRIER WALL	72.000	$426.00	$30,672.00	
9086-0600	REMOVE AND RESET STRUCTURE MOUNTED SOUND BARRIER WALL	245.000	$256.00	$62,720.00	
9091-0335	EPOXY INJECTION CRACK SEAL, S-24678	2,500.000	$1.00	$2,500.00	
9091-0336	EPOXY INJECTION CRACK SEAL, S-26088	2,500.000	$1.00	$2,500.00	
9100-0001	TEMPORARY SHEETING/COFFERDAM (CULVERT C-2)	2.000	$7,500.00	$15,000.00	
9100-0002	TEMPORARY SANDBAG COFFERDAM	3.000	$3,500.00	$10,500.00	
9203-0101	TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM, S-31865	1.000	$58,000.00	$58,000.00	
9203-0102	TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM, S-24678	1.000	$400,000.00	$400,000.00	
9203-0103	TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM, S-26620	1.000	$100,000.00	$100,000.00	
9203-0104	TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM, S-24744	1.000	$1.00	$1.00	
9203-0105	TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM, S-26088	1.000	$945,000.00	$945,000.00	
9206-0000	CLAY CORE FOR DETENTION BASIN BERM	2,567.000	$13.20	$33,884.40	
9212-0001	BIAXIAL GEOGRID	821.000	$4.56	$3,743.76	
9220-0001	SOIL-CEMENT GROUT	3,460.000	$222.00	$768,120.00	
9309-0001	SAWCUT EXISTING PAVEMENT	15,301.000	$4.05	$61,969.05	
9601-5902	CLEANING EXISTING BOX CULVERT, S-27842	1.000	$11,200.00	$11,200.00	2

9601-7014	14" X 23" REINFORCED CONCRETE ELLIPTICAL PIPE, TYPE A	299.000	$97.00	$29,003.00	
9601-7027	19" X 30" REINFORCED CONCRETE ELLIPTICAL PIPE, TYPE A	10.000	$195.00	$1,950.00	
9601-7058	29" X 45" ELLIPTICAL REINFORCED CONCRETE PIPE, TYPE A	150.000	$182.00	$27,300.00	
9601-7511	14" X 23" REINFORCED CONCRETE ELLIPTICAL PIPE, TYPE A, SHORE/TRENCH BOX	119.000	$97.00	$11,543.00	
9604-7014	14" X 23" REINFORCED CONCRETE ELLIPTICAL PIPE, TYPE A, (OPEN JOINT)	411.000	$86.00	$35,346.00	
9604-7510	14" X 23" REINFORCED CONCRETE ELLIPTICAL PIPE, TYPE A, (OPEN JOINT), SHORE/TRENCH BOX	91.000	$93.00	$8,463.00	
9605-0010	REMOVAL OF EXISTING INLET OR MANHOLE	52.000	$580.00	$30,160.00	
9605-0011	REMOVAL OF EXISTING PIPE	7,412.000	$20.00	$148,240.00	
9605-2600	TYPE D-W HEADWALL OUTLET STRUCTURE	2.000	$4,680.00	$9,360.00	
9605-2620	TYPE D-W ENDWALL	1.000	$2,200.00	$2,200.00	
9605-2630	TYPE E-S ENDWALL	1.000	$2,950.00	$2,950.00	
9605-2850	SUMPED INLET, WATER QUALITY STANDARD BOX	8.000	$4,440.00	$35,520.00	
9605-2851	OUTLET CONTROL STRUCTURE, STANDARD BOX	2.000	$5,300.00	$10,600.00	
9605-2854	SUMPED INLET, WATER QUALITY TYPE 4 BOX	2.000	$5,500.00	$11,000.00	
9605-2858	OUTLET CONTROL STRUCTURE, TYPE 5 BOX	2.000	$6,900.00	$13,800.00	
9616-1202	CONCRETE END SECTIONS FOR 14" X 23" ELLIPTICAL PIPE	2.000	$1,890.00	$3,780.00	
9616-1203	CONCRETE END SECTIONS FOR 19" X 30" ELLIPTICAL PIPE	2.000	$2,170.00	$4,340.00	
9620-0502	REMOVE EXISTING CABLE MEDIAN GUIDE RAIL (DEPARTMENT PROPERTY)	8,000.000	$4.81	$38,480.00	
9622-0002	CONCRETE GLARE SCREEN, TYPE 2	5,641.000	$117.00	$659,997.00	
9622-0003	CONCRETE GLARE SCREEN, TYPE 3	4,957.000	$387.00	$1,918,359.00	
9622-0050	SINGLE FACE CONCRETE GLARE SCREEN	673.000	$116.00	$78,068.00	
9623-0001	CONCRETE MEDIAN BARRIER, TYPE 1	218.000	$69.00	$15,042.00	
9623-0004	REMOVAL OF CONCRETE MEDIAN BARRIER	2,692.000	$5.90	$15,882.80	
9623-0050	42" SINGLE FACE CONCRETE BARRIER, TYPE 1	5,997.000	$95.00	$569,715.00	
9623-0051	42" SINGLE FACE CONCRETE BARRIER, TYPE 2	1,285.000	$123.00	$158,055.00	
9623-0052	SINGLE FACE CONCRETE BARRIER, TYPE 1	156.000	$185.00	$28,860.00	
9623-0053	SINGLE FACE CONCRETE BARRIER, TYPE 2	463.000	$168.00	$77,784.00	
9623-0054	MOMENT SLAB	758.000	$151.00	$114,458.00	1
9623-0055	SINGLE FACE CONCRETE BARRIER, TYPE 3	165.000	$163.00	$26,895.00	
9623-0056	MOMENT SLAB, TYPE 3	183.000	$158.00	$28,914.00	
9623-0057	SINGLE FACE CONCRETE BARRIER, TYPE 4	57.000	$276.00	$15,732.00	
9623-0058	MOMENT SLAB, TYPE 4	64.000	$153.00	$9,792.00	
9623-0500	CONCRETE CAP	1,552.000	$43.20	$67,046.40	
9624-0250	TEMPORARY FENCE	1,200.000	$7.30	$8,760.00	1
9627-0001	TEMPORARY CONCRETE GLARE SCREEN MEDIAN BARRIER	22,618.000	$18.20	$411,647.60	3
9627-0002	TEMPORARY CONCRETE BARRIER, GUIDE RAIL STIFFENED	15,249.000	$24.20	$369,025.80	
9628-0002	RESET TEMPORARY CONCRETE BARRIER, GUIDE RAIL STIFFENED	12,473.000	$4.56	$56,876.88	
9696-0639	REPAIR TEMPORARY IMPACT ATTENUATING DEVICE TYPE V (STANDARD), TEST LEVEL 3	75,000.000	$1.00	$75,000.00	
9736-0001	60 MIL LLDPE GEOMEMBRANE LINER	25,757.000	$9.10	$234,388.70	
9802-0002	SAND TOPSOIL MIXTURE	14,035.000	$1.00	$14,035.00	
9804-0200	HERBICIDE APPLICATION, NON-SELECTIVE CONTROL	30.000	$51.00	$1,530.00	
9804-0201	HERBICIDE APPLICATION, SELECTIVE CONTROL, SEEDED AREA	30.000	$51.00	$1,530.00	
9808-0006	SHADBUSH (24" HT.)	432.000	$19.20	$8,294.40	
9808-0007	SMOOTH ALDER (12" HT.)	2,458.000	$12.20	$29,987.60	
9808-1000	AMERICAN HOLLY (FEMALE) - 6-7' B&B	25.000	$430.00	$10,750.00	
9808-1006	BLOODGOOD LONDON PLANETREE - 3" CAL. B&B	7.000	$550.00	$3,850.00	
9808-1007	BLACK GUM - 2 1/2" CAL. B&B	9.000	$456.00	$4,104.00	

9808-1012	FOTHERGILLA - 2' HT. CONTAINER	37.000	$43.50	$1,609.50
9808-1014	MISS KIM LILAC - 4' HT. B&B	39.000	$71.00	$2,769.00
9808-1016	OAKLEAF HYDRANGEA - 4' HT. B&B	11.000	$95.00	$1,045.00
9808-1018	SWEET BAY MAGNOLIA - 3" CAL. B&B	7.000	$451.00	$3,157.00
9808-1019	SARGENT CHERRY - 2" CAL. B&B	3.000	$334.00	$1,002.00
9808-1021	SERBIAN SPRUCE - 6' HT. B&B	30.000	$228.00	$6,840.00
9808-1026	VIRGINIA SWEETSPIRE - 3' HT. B&B	85.000	$60.00	$5,100.00
9808-1028	WHITE OAK - 3" CAL. B&B	9.000	$520.00	$4,680.00
9808-1066	ZAGREB COREOPSIS - #2 CONTAINER	1,350.000	$14.70	$19,845.00
9808-1234	YOSHINO CRYPTOMERIA - 6' HT. B&B	9.000	$228.00	$2,052.00
9808-1238	JAPANESE BLACK PINE - 6'-7' B&B	12.000	$228.00	$2,736.00
9808-2003	FRASIER FIR - 8' HT. B&B	24.000	$380.00	$9,120.00
9808-2005	FEATHER REED GRASS - #2 CONTAINER	550.000	$23.80	$13,090.00
9808-2007	HYBRID YELLOW FLOWERING DAYLILY - #2 CONTAINER	1,400.000	$14.70	$20,580.00
9808-2008	SHAMROCK INKBERRY - 24" HT. B&B OR CONTAINER	23.000	$47.60	$1,094.80
9808-2012	CATMINT - #2 CONTAINER	1,020.000	$14.70	$14,994.00
9808-2014	RUSSIAN SAGE - #2 CONTAINER	400.000	$14.70	$5,880.00
9808-2015	BONICA SHRUB ROSE - 24" HT. CONTAINER	30.000	$47.60	$1,428.00
9808-2016	RED MEIDILAND GROUNDCOVER ROSE - 18" SPD CONTAINER	48.000	$47.60	$2,284.80
9808-2017	PINK MEIDILAND GROUNDCOVER ROSE - 18" SPD CONTAINER	97.000	$47.60	$4,617.20
9808-2018	HYBRID BLACK-EYED SUSAN - #2 CONTAINER	1,210.000	$14.70	$17,787.00
9808-2020	SHOWY AUTUMN SEDUM - #2 CONTAINER	350.000	$14.70	$5,145.00
9808-2021	HYBRID EASTERN RED CEDAR - 6'-7' B&B	17.000	$213.00	$3,621.00
9808-3076	RED MAPLE (24" HT.)	73.000	$18.70	$1,365.10
9808-3137	SWEET BIRCH (24" HT.)	73.000	$18.70	$1,365.10
9808-3230	BLACK GUM (24" HT.)	432.000	$18.70	$8,078.40
9808-3254	TULIPTREE (24" HT.)	73.000	$18.70	$1,365.10
9808-3270	AMERICAN SYCAMORE (24" HT.)	432.000	$18.70	$8,078.40
9808-3304	HYBRID YARROW - QUART CONTAINER	550.000	$12.20	$6,710.00
9808-3314	SCARLET OAK (24" HT.)	73.000	$18.70	$1,365.10
9808-3330	PIN OAK (24" HT.)	432.000	$18.70	$8,078.40
9808-3465	AMERICAN REDBUD (12" HT.)	436.000	$12.20	$5,319.20
9808-3730	ARROWWOOD VIBURNUM (12" HT.)	2,894.000	$12.20	$35,306.80
9808-3744	BLACKHAW (12" HT.)	436.000	$12.20	$5,319.20
9808-3805	WHITE SPRUCE (24" HT.)	73.000	$47.60	$3,474.80
9808-3846	WHITE PINE (24" HT.)	73.000	$36.50	$2,664.50
9808-4093	SILKY DOGWOOD (12" HT.)	436.000	$12.20	$5,319.20
9808-4100	RED OSIER DOGWOOD (12" HT.)	3,189.000	$12.20	$38,905.80
9808-5000	PERIOD OF PLANT ESTABLISHMENT AND REPLACEMENT	1.000	$66,000.00	$66,000.00
9808-5011	MEMORIAL ROSE - 24" HT. CONTAINER	68.000	$59.00	$4,012.00
9808-7120	ELDERBERRY (12' HT.)	3,189.000	$12.20	$38,905.80
9810-0000	SELECT TREE REMOVAL AND TRIMMING	1.000	$1.00	$1.00
9860-0001	TEMPORARY STEEL PLATE INLET PROTECTION (IP-4)	182.000	$490.00	$89,180.00
9861-0001	SEDIMENT STORAGE DEWATERING FACILITY	4.000	$950.00	$3,800.00
9866-0005	HABITAT PROTECTION FENCE	974.000	$6.80	$6,623.20
9867-0022	COMPOST FILTER SOCK DIVERSION BERM	2,480.000	$15.10	$37,448.00
9868-0003	COMPOST SOCK SEDIMENT TRAP	430.000	$22.80	$9,804.00
9900-0108	FIBER OPTIC CABLE, 144 STRANDS	10,721.000	$2.73	$29,268.33
9900-0109	FIBER OPTIC CABLE, 48 STRANDS	2,660.000	$2.43	$6,463.80
9900-0110	FIBER OPTIC CABLE, 24 STRANDS	6,305.000	$1.97	$12,420.85
9900-0112	FIBER OPTIC CABLE, 12 STRANDS	1,556.000	$2.08	$3,236.48
9900-0113	FIBER OPTIC CABLE, 12 STRANDS ARMORED DIRECT BURIED	593.000	$11.10	$6,582.30
9900-0190	3/4" X 10' COPPER CLAD STEEL GROUND ROD	8.000	$203.00	$1,624.00
9900-0230	35' WOODEN UTILITY POLE	40.000	$930.00	$37,200.00
9900-0240	REMOVAL OF UTILITY POLES	3.000	$610.00	$1,830.00

9900-1000	DISCONNECT SWITCH	1.000	$1,390.00	$1,390.00
9900-1010	UTILITY PEDESTAL	1.000	$2,200.00	$2,200.00
9900-5070	12 STRAND FIBER OPTIC CABLE SPLICE ENCLOSURE	10.000	$1,840.00	$18,400.00
9900-5075	48 STRAND FIBER OPTIC CABLE SPLICE ENCLOSURE	8.000	$1,500.00	$12,000.00
9900-5080	144 STRAND FIBER OPTIC CABLE SPLICE ENCLOSURE	4.000	$3,730.00	$14,920.00
9900-5100	FIBER OPTIC DISTRIBUTION PANEL (FDP)	1.000	$11,700.00	$11,700.00
9900-5110	FIBER OPTIC TERMINATION PANEL (FTP)	6.000	$1,670.00	$10,020.00
9900-5200	FIBER OPTIC ST PATCH CABLES	12.000	$380.00	$4,560.00
9900-5300	FIBER OPTIC ETHERNET MEDIA CONVERTER	5.000	$2,050.00	$10,250.00
9900-5400	FIBER OPTIC VIDEO TRANCEIVER	6.000	$1,200.00	$7,200.00
9901-0100	OFF-DUTY UNIFORMED POLICE OFFICER	45,000.000	$1.00	$45,000.00
9901-0193	TEMPORARY TIMING REVISIONS	10.000	$304.00	$3,040.00
9901-0194	TEMPORARY TRAFFIC SIGNAL TIMING CHANGES	15.000	$304.00	$4,560.00
9901-2002	CLASS 1 TOW TRUCK	13,272.000	$61.00	$809,592.00
9901-2003	CLASS 2 TOW TRUCK	100.000	$76.00	$7,600.00
9901-2004	RAMP TRUCK	100.000	$45.60	$4,560.00
9910-0001	8" X 8" X 4" NEMA 4 JUNCTION BOX	10.000	$228.00	$2,280.00
9910-0004	FLUSH MOUNTED 30" X 30" X 12" JUNCTION BOX	1.000	$730.00	$730.00
9910-5063	4 INCH CONDUIT	6,728.000	$15.50	$104,284.00
9937-0082	FLEXIBLE DELINEATOR POST - RED	2.000	$31.40	$62.80
9937-0083	FLEXIBLE DELINEATOR POST - ORANGE	22.000	$33.40	$734.80
9937-0323	FLEXIBLE DELINEATOR POST CLEANOUT STAKE	23.000	$34.90	$802.70
9938-0001	DISTANCE MARKER UNITS DURING CONSTRUCTION	52.000	$86.00	$4,472.00
9952-2035	CONTROLLER ASSEMBLY, SOLID STATE, ACTUATED, WITH VOLUME DENSITY 2-8 PHASE, TYPE I MOUNTING	3.000	$25,200.00	$75,600.00
9954-0012	2 INCH CONDUIT (RMC)	75.000	$15.00	$1,125.00
9954-0014	UTILITY DUCT BANK	1,412.000	$200.00	$282,400.00
9954-0016	STRUCTURE MOUNTED CONDUIT	835.000	$32.70	$27,304.50
9954-0152	BORING	97.000	$31.20	$3,026.40
9999-0001	RETROFIT EXISTING ITS NODES	1.000	$23,700.00	$23,700.00
9999-0002	PECO ENERGY SERVICES	25,000.000	$1.00	$25,000.00
9999-0003	TEMPORARY FIBER OPTIC TRUNK	1.000	$225,000.00	$225,000.00
9999-0004	RELOCATION OF CM-217	1.000	$13,500.00	$13,500.00
9999-0005	RELOCATION AND EXPANSION OF TR 20206NS	1.000	$8,700.00	$8,700.00
9999-9950	0 TO 15 INCH DIAMETER UTILITY CASTING ADJUSTMENT FOR RESURFACING - TYPE A - CONCRETE BASE	3.000	$430.00	$1,290.00
9999-9951	0 TO 15 INCH DIAMETER UTILITY CASTING ADJUSTMENT FOR RESURFACING - TYPE A - FLEXIBLE BASE	3.000	$413.00	$1,239.00
9999-9952	16 TO 36 INCH DIAMETER UTILITY CASTING ADJUSTMENT FOR RESURFACING - TYPE A - CONCRETE BASE	3.000	$484.00	$1,452.00
9999-9953	16 TO 36 INCH DIAMETER UTILITY CASTING ADJUSTMENT FOR RESURFACING - TYPE A - FLEXIBLE BASE	3.000	$464.00	$1,392.00
9999-9954	37 TO 54 INCH DIAMETER UTILITY CASTING ADJUSTMENT FOR RESURFACING - TYPE A - CONCRETE BASE	3.000	$762.00	$2,286.00
9999-9955	37 TO 54 INCH DIAMETER UTILITY CASTING ADJUSTMENT FOR RESURFACING - TYPE A - FLEXIBLE BASE	3.000	$728.00	$2,184.00
9999-9956	0 TO 15 INCH DIAMETER UTILITY CASTING ADJUSTMENT FOR RESURFACING - TYPE B - CONCRETE BASE	3.000	$735.00	$2,205.00

9999-9957	0 TO 15 INCH DIAMETER UTILITY CASTING ADJUSTMENT FOR RESURFACING - TYPE B - FLEXIBLE BASE	3.000	$622.00	$1,866.00
9999-9958	16 TO 36 INCH DIAMETER UTILITY CASTING ADJUSTMENT FOR RESURFACING - TYPE B - CONCRETE BASE	3.000	$704.00	$2,112.00
9999-9959	16 TO 36 INCH DIAMETER UTILITY CASTING ADJUSTMENT FOR RESURFACING - TYPE B - FLEXIBLE BASE	3.000	$837.00	$2,511.00
9999-9960	37 TO 54 INCH DIAMETER UTILITY CASTING ADJUSTMENT FOR RESURFACING - TYPE B - CONCRETE BASE	3.000	$1,186.00	$3,558.00
9999-9961	37 TO 54 INCH DIAMETER UTILITY CASTING ADJUSTMENT FOR RESURFACING - TYPE B - FLEXIBLE BASE	3.000	$1,330.00	$3,990.00
9999-9962	UTILITY MANHOLE NECK REBUILDING	3.000	$379.00	$1,137.00
9999-9963	0 TO 15 INCH DIAMETER UTILITY CASTING RISER ADJUSTMENT FOR RESURFACING - TYPE C	10.000	$226.00	$2,260.00
9999-9964	16 TO 54 INCH DIAMETER UTILITY CASTING RISER ADJUSTMENT FOR RESURFACING - TYPE C	11.000	$404.00	$4,444.00
9999-9965	0 TO 15 INCH DIAMETER UTILITY CASTING RISER ADJUSTMENT FOR RESURFACING - TYPE D	3.000	$279.00	$837.00
9999-9966	16 TO 54 INCH DIAMETER UTILITY CASTING RISER ADJUSTMENT FOR RESURFACING - TYPE D	3.000	$465.00	$1,395.00
9999-9980	INCIDENT MANAGEMENT	50,000.000	$1.00	$50,000.00

Contract Total: $63,381,083.85

Bid Total: $63,381,083.85

Special Provisions

G2A - a00002 PUBLIC BID OPENING LOCATION

Addendum:

Associated Item(s):

Header:
PUBLIC BID OPENING LOCATION

Provision Body:

The location of the public bid opening is the Commonwealth Keystone Building, 7th Floor, Contract Awards Room, 400 North Street, Harrisburg. Allow sufficient time before the bid opening to obtain a visitor pass on the 5th Floor and to be escorted to the 7th Floor Contract Awards Room.

G101C - a00101 GOVERNING SPECIFICATIONS AND APPLICABLE DESIGNATED SPECIAL PROVISIONS

Addendum: 3

Associated Item(s):

Header:
GOVERNING SPECIFICATIONS AND APPLICABLE DESIGNATED SPECIAL PROVISIONS

Provision Body:

I. GOVERNING SPECIFICATIONS. This bid proposal is made under, subject to, and governed by:

Specifications 408/2011, ***Change No. 3, and effective date of October 5, 2012*** of the Pennsylvania Department of Transportation. Within these Specifications where dual measurement and tabular options are presented ***English*** standards apply.

II. APPLICABLE DESIGNATED SPECIAL PROVISIONS. The following Designated Special Provisions are found in Appendix C to the above Governing Specifications. Those that apply to this bid proposal are preceded with a check (i.e., "***X***"). Goals, minimum levels of participation, or other project specific requirements associated with these documents are also established where applicable:

(_X_) DSP1. Offset Provision for Commonwealth Contracts.

(_X_) DSP2. Contractor Responsibility Provisions.

(_X_) DSP3. Provisions for Commonwealth Contracts Concerning the Americans with Disabilities Act.

(__) DSP4. Minority Business and Women Business Enterprise Participation Requirements. This is used on 100% State projects requiring Prequalification. The minimum levels of participation for this project are:

MBE ; WBE

(***fill in***)% (***fill in***)%

(__) DSP5. Minority Business and Women Business Enterprise Program. This is used only on 100% State projects over $100,000 requiring Prequalification and where DSP4 does not apply.

(__) DSP6. Minority Business and Women Business Enterprise Utilization Requirements. This is used on State projects without Prequalification requirements. Minimum participation levels of 5% for MBE and 3% for WBE of the dollar amount of the bid have been established for this project.

(_X_) DSP7. Disadvantaged Business Enterprise Requirements. This is used on Federal - aid projects only. In conjunction with this contract a goal of (10) % of the original contract amount has been established.

(_X_) DSP8. F.A.R. - Required Contract Provisions Federal- Aid Construction Contracts Form FHWA-1273 (Rev 3-94). Also attached to the Proposal/Contract.

(_X_) DSP9. Special Supplement - Anti-Pollution Measures - August 26, 1999.

(_X_) DSP10. Nondiscrimination/Sexual Harassment Clause.

(_X_) DSP11. Contractor Integrity Provisions.

(_X_) DSP12. Executive Order 11246, with Appendix A and B.

G113B - a00113 CONTRACT PROVISIONS - RIGHT-TO-KNOW LAW

Addendum:

Associated Item(s):

Header:
CONTRACT PROVISIONS - RIGHT TO KNOW LAW

Provision Body:

I. Contract Provisions – Right to Know Law 8-K-1532

a. The Pennsylvania Right-to-Know Law (RTKL), 65 P.S. §§ 67.101-3104, applies to this Contract.

b. If the Department needs assistance in any matter arising out of the RTKL related to this Contract, the Department will notify the Contractor using the legal contact information provided in this Contract. The Contractor, at any time, may designate a different contact for such purpose upon reasonable prior written notice to the Department.

c. Upon written notification from the Department that it requires assistance in responding to a request under the RTKL for information related to this Contract that may be in the Contractor's possession, constituting, or alleged to constitute, a public record in accordance with the RTKL ("Requested Information"), the Contractor will:

1. Provide the Department, within 10 calendar days after receipt of written notification, access to, and copies of, any document or information in the Contractor's possession arising out of this Contract that the Department reasonably believes is Requested Information and may be a public record under the RTKL; and

2. Provide such other assistance as the Department may reasonably request, in order to comply with the RTKL with respect to this Contract.

d. If the Contractor considers the Requested Information to include a request for a Trade Secret or Confidential Proprietary Information, as those terms are defined by the RTKL, or other information that the Contractor considers exempt from production under the RTKL, notify the Department and provide, within 7 calendar days of receiving the written notification, a written statement signed by a representative of the Contractor explaining why the requested material is exempt from public disclosure under the RTKL.

e. The Department will rely upon the written statement from the Contractor in denying a RTKL request for the Requested Information unless the Department determines that the Requested Information is clearly not protected from disclosure under the RTKL. Should the Department determine that the Requested Information is clearly not exempt from disclosure, provide the Requested Information within 7 calendar days of receipt of written notification of the Department's determination.

f. Failing to provide the Requested Information within the time period required by these provisions, indemnify and hold the Department harmless for any damages, penalties, costs, detriment or harm that the Department may incur as a result of this failure, including any statutory damages assessed against the Department.

g. The Department will reimburse the Contractor for any costs associated with complying with these provisions only to the extent allowed under the fee schedule established by the Office of Open Records or as otherwise provided by the RTKL if the fee schedule is inapplicable.

h. The Contractor may file a legal challenge to any Department decision to release a record to the public with the Office of Open Records, or in the Pennsylvania Courts, however, indemnify the Department for any legal expenses incurred by the Department as a result of such a challenge and hold the Department harmless for any damages, penalties, costs, detriment or harm that the Department may incur as a result of the failure, including any statutory damages assessed against the Department, regardless of the outcome of such legal challenge. As between the parties, agree to waive all rights or remedies that may be available as a result of the Department's disclosure of Requested information pursuant to the RTKL.

i. The Contractor's duties relating to the RTKL are continuing duties that survive the expiration of this Contract and continue as long as the Requested Information remains in the Contractor's possession.

G401A - a00401 ADVANCE NOTICE OF TRAFFIC RESTRICTIONS

Addendum:

Associated Item(s):

Header:
ADVANCE NOTICE OF TRAFFIC RESTRICTIONS

Provision Body:

Notify the Engineer at least 4 calendar days in advance of the start of any operation which will affect the flow of traffic and provide the Engineer with details of the work to be done. After notification, the District Office will advise the public of these traffic restrictions and possible delays.

G501A - a00501 AIR POLLUTION CONTROL IN AIR BASINS

Addendum:

Associated Item(s):

Header:
AIR POLLUTION CONTROL IN AIR BASINS

Provision Body:

No burning will be permitted on this project except that the Department of Environmental Protection will permit the operation of an air curtain destructor, (open pit incinerator) as defined in Title 25, Section 129.14, of the Rules and Regulations of the Department of Environmental Protection, for the destruction of wood waste generated by clearing and grubbing operations, provided that the incinerators are properly designed, located, and operated. Permission may be granted for units both within and outside the air basin areas defined in Title 25, Section 121.1 of Chapter 121 of the Rules and Regulations of the Department of Environmental Protection, but each proposal is required to be reviewed on an individual basis by the appropriate Regional Air Pollution Control Engineer.

If an air pollution problem is subsequently created by the operation of such a unit the Department of Environmental Protection will notify the Contractor and will take appropriate enforcement action if necessary.

G901B - a00901 ALTERNATE EROSION AND SEDIMENT POLLUTION CONTROL PLAN

Addendum:

Associated Item(s):

Header:
ALTERNATE EROSION AND SEDIMENT POLLUTION CONTROL PLAN

Provision Body:

Comply with these requirements when submitting an alternate plan for accomplishing equal or better temporary and permanent erosion and sediment pollution control. Do not start work until the alternate erosion and sediment pollution control plan, schedules, and operation methods have been approved by the Department and the Department of Environmental Protection, or by the Department and the County Conservation District, as applicable.

Apply for any earth disturbance permits or permit amendments not included in the proposal documents that are required because of the nature of the contemplated construction procedures.

Prepare and furnish, with the applications, plans and documents that are required by the Department of Environmental Protection or the County Conservation District.

Provide simultaneously to the District Executive a copy of all plans and documents that affect the construction requirements.

Provide immediately to the District Executive any modifications that are made to the plans and documents that are required by the Department of Environmental Protection or the County Conservation District.

Obtain the approval of the Department and the permit from the Department of Environmental Protection prior to beginning any work when a permit is required, and the approval of the Department and the County Conservation District when a permit is not required.

Acquire areas outside of the right- of- way that are necessary for erosion and sediment pollution control. Proceed with the agreement procedure described in Section 105.14 (Borrow Areas and Waste Areas).

G1001B - a01001 CONSTRUCTION PROCEDURES - EROSION AND SEDIMENT POLLUTION CONTROL

Addendum:

Associated Item(s):

Header:
CONSTRUCTION PROCEDURES - EROSION AND SEDIMENT POLLUTION CONTROL

Provision Body:

I. Observe the following applicable procedures, as ordered during the contract life:

(a) Conduct operations as shown or specified in the approved Erosion and Sediment Pollution Control Plan. Do not discharge water containing sediments or pollutants into streams.

(b) Direct flowing water away from project construction areas.

(c) Do not enter streams, construct rock crossings, causeways or cofferdams unless authorized by provisions of the Department of Environmental Protection Water Obstruction and Encroachment Permit or by General Permit BDWM-GP-8.

(d) If authorized, limit movement of equipment through stream beds in accordance with the approved plan to prevent siltation or disturbance. Permit equipment to cross flowing channels only on rock roadways or bridges.

(e) Unless otherwise stipulated in the Permit, construct rock crossings, causeways or cofferdams with rock having a minimum size of 75 mm (3 inches) or larger. The surface may be choked with stone aggregate having a minimum size of 9.5 mm (3/8-inch). When constructing crossings, causeways or cofferdams, do not use earth or other materials that may cause sediment pollution, unless lined with geotextiles as indicated or specified.

(f) Seed or stabilize stream banks immediately upon completion of grading.

(g) Seed and mulch finished slopes in increments of approximately 4.5 m (15 feet). If permanent seeding is not placed where indicated within 20 days after completion of earthwork, place temporary seeding (Annual Ryegrass) and mulching on disturbed areas.

(h) Control grading areas by placing erosion and sediment pollution control devices in advance of performing earthwork activities. Place stabilization devices as earthwork activity progresses.

(i) If excavated material is stockpiled more than 20 days, take interim stabilization measures to minimize erosion of stockpile slopes.

(j) Clean sedimentation structures as specified in Section 861.

(k) Separate water originating outside of the project from that originating within.

(l) Be responsible for maintenance of erosion and sediment pollution control devices.

(m) Seed and mulch borrow and waste areas as specified in Section 105.14.

II. Stage, sequence and schedule earthmoving activities to meet the requirements found in the Project Specific Details.

G1601A - a01601 E.E.O. COVERED AREA

Addendum:

Associated Item(s):

Header:
E.E.O. COVERED AREA

Provision Body:

For the purpose set forth in the Executive Order 11246

the covered area for this contract is Chester County,

which is within the Economic Area of Philadelphia

as listed in Appendix B of Designated Special Provision 12 (DSP12) entitled “Executive Order 11246 (with Appendix A and B)” in Appendix C of Pub 408.

G4301D - a04301 UTILITIES--THE REQUIREMENT TO LIST INFORMATION

Addendum: 2

Associated Item(s):

Header:
UTILITIES--THE REQUIREMENT TO LIST INFORMATION

Provision Body:

I. Cooperate with the public utility companies and local authorities in the placement, replacement, relocation, adjustment, or reconstruction of their structures and facilities during construction. Contact all utility representatives at least 15 calendar days before starting operations.

PRIOR	Anticipated completion before the Notice to Proceed is issued. Use actual or anticipated completion date shown.
RESTRICTIVE	To be completed by the utility or string of utilities before operating without restriction. Number of calendar days will start from the actual notice to proceed that is issued to the contractor.
CONCURRENT	Simultaneous with, but not restricting, operations. Number of calendar days required.
COORDINATED	Phasing with specific construction operations. Number of calendar days required after completion of specific construction operations.
NOT AFFECTED	Identifies utility with facilities in the construction area not anticipated to be affected. Specific information may be provided by the utility.
INCORPORATED	Utility relocation work to be incorporated into the prime highway construction contract.
CONDITIONAL RESTRICTIONS AND TIME REQUIREMENTS	Identify conditions affecting the utility's ability to perform a certain type of utility relocation work, i. e., certain times of the day, week, or year that a facility cannot be shut down, acquisition of Right-of-Way by the state, or demolition of buildings.

PPL Interstate Energy Co.

CONTACT: Aaron Bass at 610-327-5326 prior to construction.

NOT AFFECTED: (underground) S.R. 202 from stations 247+00 RT/LT to 249+00 RT/LT

Note: Pipeline has adequate depth and cover. Roadway contractor must verify pipeline crossing drawing

previously sent to Jacobs Engineering Group on December 12, 2011.

Comcast Cable Communications

CONTACT: Paul Irrang at 610-466-1518 one week prior to construction.

RESTRICTIVE: (aerial) Planebrook Road under S.R. 202 from stations 79+34.00 RT/LT to 81+96.00 RT/LT- Comcast will relocate their existing fiber line from the east shoulder of Planebrook Road onto the northbound lane of Planebrook Road between the existing water line and electric line, from PECO poles #30115, 130' RT of S.R. 202 centerline to pole (no tag), 130' LT of S.R. 202 centerline north of underpass.

Seven (7) calendar days required.

Buckeye Partners, L.P.

CONTACT: Jason Hupp at 610-904-4956 prior to construction.

PRIOR: (underground) S.R. 0202 from stations 330+00 LT to 284+00.50 LT; and from stations 33+00 RT to 286+00.50 RT – Buckeye will be lowering their pipe through horizontal directional drilling.

Completion Date: October 18, 2012

Sunesys, LLC

CONTACT: Dave Hayward at 267-718-1964 prior to construction.

COORDINATED: (aerial) S.R. 401 (Conestoga Road) from stations 25+25 RT/LT to 37+25 RT/LT – Contractor will clear and grub all affected vegetation, and stakeout right-of-way line, center line, proposed bridge wingwalls and abutments, proposed drainage and inlets, proposed guide rail and edge of pavement. Sunesys will transfer their fiber optic cables to the new poles.

Three (3) calendar days required.

Aqua Pennsylvania Inc.

CONTACT: William Zahn at 610-645-4203 prior to construction.

COORDINATED: (underground) S.R. 401 (Conestoga Road) from stations 30+70 RT to 37+95 RT; and from stations 37+95 RT to 38+25 RT – Contractor will clear and grub all affected vegetation, and stakeout right-of-way line, center line, proposed bridge wingwalls and abutments, proposed drainage and inlets, proposed guide rail and edge of pavement. The utility will lower 8-inch main at proposed storm sewer.

Eight (8) calendar days required.

Note: Traffic will be controlled by PennDOT contractor. PennDOT contractor will provide station markings and water main installation depths required at storm sewer crossings to avoid conflicts.

COORDINATED: (underground) Ramp N from stations 25+95 RT to 28+05 RT – Contractor will clear and grub all affected vegetation, and stakeout right-of-way line, center line, proposed bridge wing walls and abutments, proposed drainage and inlets, proposed guide rail and edge of pavement. The utility will install

new 16-inch water main, tie-in at each end to existing 16-inch water main, and abandon segments in between, which are in conflict with southwest detention basin and 36-inch reinforced concrete pipe at station 27+70 RT.

Fourteen (14) calendar days required.

Note: Traffic will be controlled by PennDOT contractor. PennDOT contractor will provide station markings and water main installation depths required at storm sewer crossings to avoid conflicts.

AT&T Local Services

CONTACT: George Koch at 610-802-0889 prior to construction.

NOT AFFECTED: (aerial) S.R. 401 from stations 21+00 RT/LT to 39+82.08 RT/LT

Sunoco Pipeline LP

CONTACT: Daniel Kershner at 610-670-3295 prior to construction.

NOT AFFECTED: (underground) S.R. 202 from stations 287+00 RT /LT to 288+00 RT/LT

Notes: No conflict. The 0.83' of cover between the proposed 42" RCP and the Sunoco pipeline is approved. An equipment list is required for any equipment that is planned to cross the pipeline. Stress calculations may be required prior to crossing pipeline. Please provide list to dakershner@sunocoinc.com.

Sunoco Pipeline representative required on site during work in vicinity of pipeline. Call 215-365-6501 to coordinate coverage.

Verizon Pennsylvania Inc.

CONTACT: Dan Baumann at 610-793-6017 twelve (12) weeks prior to construction.

~~CONCURRENT: (underground/aerial) T-845 (Planebrook Road) station 79+34.00 RT/LT - Utility will relocate duct structure from shoulder area of Planebrook Road to the southbound lane of road. Utility will perform the relocation at the time of PennDOT road closure.~~

~~Ten (10) calendar days required~~.

RESTRICTIVE: (underground/aerial) T-845 (Planebrook Road) stations 79+34.00 LT to 81+90 LT - Utility will relocate duct structure from shoulder area of Plane brook Road to the southbound lane of road.

Ten (10) calendar days required.

COORDINATED: (aerial) T-845 (Planebrook Road) at station 79+30 RT - Clear and grub, and stakeout center line and right-of-way line. Verizon will remove the bottom down guy on PECO pole #30115 to allow for access into the construction easement. Verizon will then re-attach the guy wire after the construction is completed.

Two (2) calendar days required.

East Whiteland Township

CONTACT: William Steele at 610-648-0600, extension 211, prior to construction.

CONCURRENT: (underground) S.R. 202 at station 345+56 RT/LT – Utility will replace a 12-inch sanitary sewer that is located within a 36-inch reinforced concrete pipe.

Forty-five (45) calendar days required.

PECO Energy Co. – Gas

CONTACT: Michael Gabriel at 610-832-6534 twelve (12) weeks prior to construction.

NOT AFFECTED: (underground) S.R. 202 from stations 229+00.00 RT/LT to 367+00.00 RT/LT

Note: PennDOT contractor to place PA-One-Call before the start of this project.

PECO Energy Co. – Electric

CONTACT: Matt Allgaier at 610-725-1411 twelve (12) weeks prior to construction.

COORDINATED: (aerial/underground) S.R. 401 from stations 21+0 RT/LT to 32+0 RT/LT –

Contractor will clear and grub all affected vegetation, and stakeout right-of-way line, center line, proposed bridge wing walls and abutments, proposed drainage and inlets, proposed guide rail and edge of pavement.

Utility will perform the following work:

Stations Proposed Work

21+0 LT Remove or relocate pole #50105

22+0 LT Remove or relocate pole #50106

22+0 LT Re-route service to pole

24+0 LT Remove or relocate pole #50107

25+0 LT to 26+0 LT Remove or relocate pole #50108

28+0 LT to 29+0 LT Remove or relocate pole #50109

30+0 LT Remove or relocate pole #50110

32+0 LT Remove or relocate pole #50111

Sixteen (16) calendar days required.

COORDINATED: (aerial) T-845 (Planebrook Road) at station 79+30 RT - Clear and grub, and stakeout center line and right-of-way line. PECO will remove the middle guy wire on pole #30115 and reinstall once construction is complete.

Two (2) calendar days required.

Notes: Contractor will work with PECO Energy Co.'s New Business for traffic and street light service locations through PECO Energy Co.'s Service and Meter Application.

Contractor to follow all OSHA requirements necessary for working near electrical lines and to keep an equal or greater distance to existing poles.

PennDOT to provide access to PECO poles along Route 202 at station 10+33 RT. No pole relocation work required.

G4802A - a04802 INDEX PRICE FOR DIESEL FUEL

Addendum:

Associated Item(s):

Header:
Index Price for Diesel Fuel

Provision Body:

The index price for diesel fuel (FB), as determined by the Department, is $3.05/gal. Use this index price in accordance with Section 110.12 PRICE ADJUSTMENT FOR DIESEL FUEL COST FLUCTUATIONS.

G4901A - a04901 PRICE INDEX FOR ASPHALT CEMENT

Addendum:

Associated Item(s):

Header:
PRICE INDEX FOR ASPHALT CEMENT

Provision Body:

The price index for asphalt cement (PG 64-22), as determined by the Department is $594/ ton. Use this price index in accordance with Section 110.04 PRICE ADJUSTMENT OF BITUMINOUS MATERIALS.

G4902C - a04902 PRICE ADJUSTMENT FOR STEEL COST FLUCTUATIONS

Addendum:

Associated Item(s):

Header:
PRICE ADJUSTMENT FOR STEEL COST FLUCTUATIONS

Provision Body:

These requirements provide for a price adjustment, in the form of a payment to the Contractor or a rebate to the Department, for fluctuations in the cost of the steel used in the applicable materials placed as part of the construction work specified in Sections 620, 621, 948, 1002, 1005, 1050, 1056, 1080, and 1085.

(a) General. These price adjustment provisions apply to items in the contract Schedule of Prices, as specified above, including any modified standard or non-standard item where the work to be performed includes incorporation of one or more of the applicable steel materials specified in the above Sections and addressed herein. Additionally, items in the Component Item Schedule (CIS) for an "as-designed" or alternate design structure, as well as work performed under a design-build contract, will be included when applying the specified price adjustment requirements, provided the work to be performed includes incorporation of one or more of the applicable steel materials specified in the above Sections and addressed herein. Terminal sections, end treatments, transitions, and transition treatments associated with guide rail and metal median barrier work; as well as mechanical splice systems, pile tip reinforcement, high load multi-rotational bearings, shear connectors, and scuppers; will not be subject to the price adjustment criteria and conditions specified herein.

To elect to have these price adjustment provisions apply to one or more of the steel product categories identified herein, when planned for incorporation into a specific project, advance notification must be submitted to the Department. The apparent low bidder is required to submit the Steel Escalation Option form attached to the proposal, via fax, to (717) 705-1504, or email to steeloptions@pa.gov by 3:00 pm prevailing local time within 7 calendar days after the bid opening. When the seventh calendar day after the bid opening falls on a day PENNDOT offices are closed, submit the Steel Escalation Option form by 3:00 pm prevailing local time on the next business day. If a properly completed Steel Escalation Option form is not provided by the apparent low bidder within the time specified, the Department will consider the option to apply these price adjustment provisions to the project to be declined. Furthermore, if a Steel Escalation Option form, when provided within the specified time, has been completed such that the Department is unable to ascertain the bidder's intention with regard to the inclusion of any one of the applicable steel product categories, the Department will consider the option to apply these price adjustment provisions to that product category to be declined. No further opportunity to elect steel escalation for the project or an individual steel product category will be made available. In the event the apparent low bid is rejected, the next lowest bidder will be notified to submit the Steel Escalation Option form by 3:00 pm prevailing local time within 7 calendar days after notification.

The Department posts a monthly index price for steel ($ per ton) based on data obtained from the U.S. Department of Labor (USDOL), Bureau of Labor Statistics, which publishes monthly Producer Price Index (PPI) values for various commodities. The statewide index price for steel will be based on the PPI value posted by USDOL for "Semi-finished Steel Mill Products" (Series ID: WPU101702). The Department will post its monthly index price for steel after the USDOL lists the PPI value on which it is based as final.

The "base / benchmark" index price, SB, will be the steel index price posted by the Department, determined as specified above, for the month in which project letting occurred.

The "invoice" index price, SI, will be the steel index price posted by the Department, determined as specified above, for the month in which applicable steel material is invoiced.

Steel material will be considered invoiced as of the date when an invoice from the steel mill providing the necessary raw material is sent to the Contractor or to a subcontractor, fabricator, manufacturer, or supplier. The steel price adjustment provisions specified herein are not applicable to raw steel material having a mill invoice date that precedes the project letting date. On a quarterly basis, provide documentation of the invoice date for applicable steel material incorporated into the work during the prior 3-month period. Documentation is to be in the form of a tabulation that lists all material invoiced during the period, in chronological order by invoice date; the quantity invoiced; and the applicable contract item(s) and corresponding project location(s) where the invoiced quantity or portion thereof was incorporated, along with copies of supporting invoices. Have a representative of the Contractor, authorized to make such statements, certify that the information provided in the tabulation is complete and accurate and may be relied upon by the Department.

Failure to provide the required tabulation within 10 calendar days of the end of each, applicable 3-month period will result in the Department computing a price adjustment (rebate or increase) using a value for SI that results in the greatest possible price rebate or least possible price increase based on the monthly index prices posted by the Department, to date, since work on the project began.

(b) Price Adjustment Criteria and Conditions. The following criteria and conditions will be considered in determining a price adjustment for steel cost fluctuations.

1. No Price Adjustment. When the ratio SI/ SB falls within the range of 0.95 to 1.05, no price adjustment will be made for applicable steel material having an invoice date that falls within the month for which the SI index price was posted.

2. Price Rebate. When the ratio SI/SB is calculated to be less than 0.95, the Department will receive an automatic price rebate, for applicable steel material having an invoice date that falls within the month for which the SI index price was posted, to be determined in accordance with the following formula:

$$P.R. = (0.95 - SI / SB) (SB) (ST)$$

where:

P.R. = Price Rebate

SI = Index price for the month in which applicable steel material is invoiced.

SB = Index price for the month in which project letting occurred.

ST = Quantity (tons) of applicable steel material incorporated into the work during the applicable 3-month period.*

*Computed based on the quantity paid, under applicable contract items, on current estimates processed during the 3-month period addressed in the tabulation provided by the Contractor. Not to exceed the total tonnage of applicable steel material invoiced during the month for which the SI index price was posted, as shown on the Contractor's tabulation.

3. Price Increase. When the ratio SI/SB is calculated to be greater than 1.05, the Contractor will receive a price increase, for applicable steel material having an invoice date that falls within the month for which the SI index price was posted, to be determined in accordance with the following formula:

$$P.I. = (SI / SB - 1.05) (SB) (ST)$$

where:

P.I. = Price Increase

SI = Index price for the month in which applicable steel material is invoiced.

SB = Index price for the month in which project letting occurred.

ST = Quantity (tons) of applicable steel material incorporated into the work during the applicable 3-month period.*

* Computed based on the quantity paid, under applicable contract items, on current estimates processed during the 3-month period addressed in the tabulation provided by the Contractor. Not to exceed the total tonnage of applicable steel material invoiced during the month for which the SI index price was posted, as shown on the Contractor's tabulation.

4. Equivalent Tonnage. For applicable steel material furnished under a separate contract item, under a design-bid-build contract, or under a design-build contract the equivalent steel tonnage will be computed as indicate in the following sections.

For design-build contracts, provide an itemized breakdown of the applicable steel materials addressed herein incorporated into the work and indicate the quantity of each actually installed. Indicated quantities should be based on field measurements or take-offs from the approved plans or shop drawings and be equivalent to those used to compute payments made against the Lump Sum construction item on current estimates.

4.a Guide Rail and Metal Median Barrier. For applicable guide rail and metal median barrier components (i.e. rail elements, posts, and rubbing rail) furnished under separate contract items or as part of a single contract item for guide rail / metal median barrier complete in place, the equivalent steel tonnage is computed as follows:

4.a.1 Guide Rail or Median Barrier Rail Element (Weak Post or Strong Post).

$$\text{Steel Tonnage (ST)} = 7.84 (Q) / 2000$$

where:

Q = Quantity (linear feet) of weak post or strong post guide rail element paid on current estimates processed during the applicable 3-month period

4.a.2. Type 2W Posts.

$$\text{Steel Tonnage (ST)} = 8.67 (L) (Q) / 2000$$

where:

L = Length of each post (feet) as required by the Standard Drawings or as specified

Q = Quantity (each) of Type 2W posts paid on current estimates processed during the applicable 3-month period.

4.a.3 Type 2S Posts.

Steel Tonnage (ST) = 9.17 (L) (Q) / 2000

where:

L = Length of each post (feet) as required by the Standard Drawings or as specified

Q = Quantity (each) of Type 2S posts paid on current estimates processed during the applicable 3-month period

4.a.4 Rubbing Rail.

Steel Tonnage (ST) = 8.56 (Q) / 2000

where:

Q = Quantity (linear feet) of rubbing rail paid on current estimates processed during the applicable 3-month period

4.b Reinforcement Bars. For applicable reinforcement bars furnished under a separate contract item, as a component item associated with an alternate design structure, or as a component item associated with a design-build contract, the equivalent steel tonnage is computed as follows:

Steel Tonnage (ST) = (Q) / 2000

where:

Q = Quantity (pounds) of reinforcement bars paid on current estimates processed during the applicable 3-month period.

4.c Piles. For applicable steel beam bearing piles, cast-in-place concrete bearing piles, cast-in-place concrete piles, and steel pipe piles, furnished under a separate contract item, as a component item associated with an alternate design structure, or as a component item associated with a design-build contract, the equivalent tonnage is computed as follows:

4.c.1 Steel H-Piles.

Steel Tonnage (ST) = (UW) (Q) / 2000

where:

UW= Unit Weight of the Steel Beam* (pounds per foot)

Q = Quantity (linear feet) of steel piles paid on current estimates processed during the applicable 3-month period.

* The unit weight of steel will be the second of the two numbers associated with the size designation for the beam as cited in the item description (i.e. If the item description is "Steel Beam Bearing Piles, HP12x74", the unit weight of the steel is 74 pounds per foot).

4.c.2 Cast-in-Place Concrete Piles.

Steel Tonnage (ST) = 2.80 (D) (Q) / 2000

where:

D = Diameter of the steel shell (inches)*

Q = Quantity (linear feet) of cast-in-place concrete piles paid on current estimates processed during the applicable 3-month period.

* From the approved structure Plans or field measurements. For cylindrical shells of varying diameter, a weighted average diameter will be used, computed based on the number of shells of each diameter actually installed. For tapered shells, an average diameter will be used, computed as the average of the shell diameters at the butt end and at the tip.

4.c.3 Pipe Piles.

Steel Tonnage (ST) = 6.70 (D) (Q) / 2000

where:

D = Diameter of the steel pipe (inches)*

Q = Quantity (linear feet) of pipe piles paid on current estimates processed during the applicable 3-month period.

* From the approved structure Plans or field measurements.

4.d Steel Sign Structure. For applicable steel sign structures constructed under a separate contract item, the equivalent tonnage is computed as follows:

Steel Tonnage (ST) = (Q) / 2000

where:

Q = Quantity (pounds) of steel in each sign structure, or portion thereof, paid on current estimates processed during the applicable 3-month period.*

*Not to exceed the estimated weight of each sign structure as indicated on the structure Plans.

4.e Fabricated Structural Steel. For applicable fabricated structural steel; furnished under a separate contract item, as a component item associated with an "as-designed" or alternate design structure, or as a component item associated with a design-build contract; the equivalent tonnage is computed as follows:

Steel Tonnage (ST) = (Q) / 2000

where:

Q = Quantity (pounds) of fabricated structural steel girders, rolled beams, angle, and plate paid on current estimates processed during the applicable 3-month period.

4.f Precast Reinforced Concrete Box Culverts and Prestressed Concrete Bridge Beams. For applicable precast reinforced concrete box culvert segments and prestressed concrete bridge beams; furnished under a separate contract item, as a component item associated with an "as- designed" or alternate design structure, or as a component item associated with a design- build contract; the equivalent tonnage is computed as follows:

Steel Tonnage (ST) = (UW)(Q)/2000

where:

UW= Unit Weight (pounds per foot) of reinforcing steel in a box culvert segment or of reinforcing steel and prestressing strands in a prestressed bridge beam.*

Q = Quantity (linear feet) of precast reinforced concrete box culvert segments and prestressed concrete bridge beams paid on current estimates processed during the applicable 3-month period.

* Submit documentation indicating the weight (pounds) of reinforcing steel included in and the length (feet) of each box culvert segment, and the weight (pounds) of mild reinforcing steel and prestressing strands included in and the length (feet) of each prestressed bridge beam. UW will be computed as the average of the unit weight of steel (i.e. weight of steel divided by length) in each box culvert segment, or as the average of the unit weight of steel (i.e. weight of steel divided by length) in each prestressed bridge beam. Documentation must be submitted at the time required shop drawings are submitted for approval.

5. Payment/Rebate. The price adjustment will be paid, or rebated, upon approval of a contract adjustment to be prepared on a quarterly basis as applicable work is completed. Cumulative quarterly price adjustments amounting to less than $1,000 will be disregarded.

6. Expiration of Contract Time. When eligible materials are purchased after expiration of contract time and liquidated damages are chargeable, the value for SI used to compute the price adjustment will be either the index price for the month in which applicable steel material is invoiced or the index price at the time contract time expired, whichever is less.

7. Final Quantities. Upon completion of the work and determination of final pay quantities, a final contract adjustment may be prepared to reconcile any difference between estimated quantities previously paid and the final quantities. In this situation, the value for SI used in the price adjustment formula will be the average of all SI values previously used for computing price adjustments.

8. Inspection of Records. The Department, through the Office of Inspector General, reserves the right to inspect the records of the prime contractor and its subcontractors and material fabricators and suppliers to ascertain actual invoicing dates and quantity information for the steel material used in the performance of applicable items of work.

9. Extra Work. When applicable items of work, as specified herein, are added to the contract as Extra Work, in accordance with the provisions of Section 110.03, no price adjustment will be made for fluctuations in the cost of the steel used in manufacturing the materials placed during performance of the extra work. The current price for steel is to be used when preparing required backup data for extra work to be performed at a negotiated price. For extra work performed on a force account basis, reimbursement of actual material costs, along with the specified overhead and profit markup, will be considered to include full compensation for the current cost of steel.

G7038B - a07038 Changes to Specifications: Sections 101, 103, 110, 419, 695, 930, 931, 932, 934, 935, 938,

Addendum:

Associated Item(s):

Header:

a07038 Changes to Specifications: Sections 101, 103, 110, 419, 695, 930, 931, 932, 934, 935, 938, 1012, 1015, and 1103

Provision Body:

SECTION 101—ABBREVIATIONS AND DEFINITIONS OF TERMS

- **Section 101.03 DEFINITIONS.Revise to include the following:**

MAJOR ITEM OF WORK—Any item having a unit of measure of other than Lump Sum, Call, Dollar, or Predetermined Amount (PDA).

SECTION 103—AWARD AND EXECUTION OF CONTRACT

- **Section 103.03 Cancellation of Award.Revise to read as follows:**

103.03CANCELLATION OF AWARD—The Secretary reserves the right to cancel the award of any contract at any time before its approval by the Chief Counsel, the General Counsel, and/or the Attorney General, or their designees, when such cancellation is in the best interests of the State. In the event of such cancellation, payment will be made for the documented costs of insurance and surety bonds required under Sections 103.04 and 103.05, and the documented cost of actual expenses reasonably incurred in accordance with a Letter of Intent, when specified and issued by the Deputy Secretary for Highway Administration.No payment will be made for damages of any other kind including, but not limited to, lost profits.

- **Section 103.07 Cancellation of Contract.Revise to read as follows:**

103.07 CANCELLATION OF CONTRACT—The contract may be canceled by either party if the Notice to Proceed is not issued on or before the Anticipated Notice to Proceed Date specified in the bid package or within 30 days of the Award of the contract, whichever is later. Extension(s) of the cancellation period will be made only by mutual written consent of the parties to the contract provided such written consent is given before the expiration of the cancellation period. Prices will not be renegotiated. The Secretary also reserves the right to cancel the contract any time before the actual Notice to Proceed Date. If the contract is canceled, payment will be made for the documented costs of insurance and surety bonds required under Sections 103.04 and 103.05, and the documented cost of actual expenses reasonably incurred in accordance with a Letter of Intent, when specified and issued by the Deputy Secretary for Highway Administration. No payment will be made for damages of any other kind including, but not limited to, lost profits.

SECTION 110—PAYMENT

- **Section 110.02(d) Required Changes in the Scope of Work.Revise to read as follows:**

(d)Required Changes in the Scope of Work. The Department reserves the right to make, in writing, at any time, such changes in quantities and such alterations in the work as are necessary to satisfactorily complete the project. Such changes in quantities and alterations in the work will neither invalidate the contract or release the surety, and the Contractor agrees to perform the work as changed or altered.

If alterations in the work or changes in quantities do not significantly change the character of the work to be performed under the contract, the work will be paid for at the original contract unit price.

If alterations in the work or changes in quantities significantly change the character of the work under the contract, whether such alterations or changes are in themselves significant changes to the character of the work or by affecting other work cause such other work to become significantly different in character**,** an adjustment, excluding loss of anticipated profits, will be made as specified in Section 110.03. The basis for the adjustment will be agreed upon before the performance of the work. If a basis cannot be agreed upon, the work will be paid for as extra work as specified in Section 110.03.

The term “significant change in character” applies only to the following circumstances:

- If the work as altered differs materially in kind or nature from that involved or included in the original proposed construction, or
- If any major item of work as defined in Section 101 is increased to in excess of 125% or decreased to below 75% of the original contract quantity. Any allowance for an increase in quantity applies only to that portion in excess of 125% of the original contract item quantity or, in case of a decrease below 75%**,** to the actual quantity of work performed.

When a contract item experiences a significant change in character as a result of a decrease to below 75% of the original contract quantity, the actual quantity of work performed may be paid at an adjusted price, as agreed upon with the Contractor and as approved; however, total compensation will not exceed the contract item’s original value. Item value is defined as the original contract quantity multiplied by the contract unit price.

SECTION 419—STONE MATRIX ASPHALT MIXTURE DESIGN, RPS CONSTRUCTION OF PLANT-MIXED HMA WEARING COURSES

- **Section 419.2(d) Stabilizer.Revise to read as follows:**

(d) Stabilizer. Provide mineral fiber, cellulose fiber, or crumb rubber (CR) stabilizers conforming to the requirements below and added at a rate specified in Table B.Use the dosage rate prescribed in the JMF.

1.Requirements for All Fiber Types. Fibers must prevent draindown in the mixture according to the tolerances in Table B.Use a fiber of the type and properties appropriate to the plant's metering and delivery system.

2.Cellulose Fibers. Fibers must be of sufficient quality to prevent mixture draindown.

3.Cellulose Pellets. Use cellulose fiber stabilizing additive in pellet form that disperses sufficiently at mixing temperature to blend uniformly into the asphalt mixture.Use pellets that do not exceed 6 mm (0.25 inch) average diameter.Pellets may contain binder ingredients such as asphalt cement, wax, or polymer.Do not use pellets if the binder ingredient exceeds 20.0% of the total mass (weight) of the pellets.Use binder that produces no measurable effect on the properties of the asphalt cement.Do not use fiber pellets which soften or clump together when stored at temperatures up to 50 °C (122F).

Note: If the binder material constitutes more than 3% of the pellet mass (weight), base the dosage rate on the net fiber content.

4.Mineral Fibers. Use mineral fibers made from virgin basalt, diabase, slag, or other silicate rock.Use an approved mineral fiber meeting the following requirements for shot content, as tested according to ASTM C 612.

Sieve	**Percent Passing**
250 µm (No. 60)	85 - 95
63 µm (No. 230)	60 - 80

5.Crumb Rubber (CR). Use CR derived from the processing of recycled tires.Rubber tire buffings produced by the retreading process qualify as a source of CR.Furnish processed, free flowing CR from a manufacturer listed in Bulletin 15, certified as specified in Section 106.03(b)3.

5.a Gradation. Meet the following gradation as determined according to ASTM D 5461 using 200 mm diameter sized sieves and maintaining a maximum allowable loss after sieve analysis of 7.65%.As an alternative dry sieve analysis test method, perform the sieve analysis of the CR according to Florida Test Method, FM 5-559.

CR Gradation	
Sieve Size	**Percent Passing**
4.75 mm (No. 200)	100
2.36 mm	98 - 100
75 µm (No. 200)	0 - 3

5.b Contaminants. Provide CR relatively free from fabric, wire, cord, and other contaminating materials to a maximum total contaminant content of 2.5% (maximum of 1.0% iron, 1.0% fiber, and 0.5% other contaminants by mass (weight) of total CR sample components).

Remove rubber particles from the fiber balls before weighing.Determine the metal content by thoroughly passing a magnet through a 50 ± g (1.76 ± 0.004 ounces) sample.Determine fiber content by weighing fiber balls, which are formed during the gradation test procedure.

- **Section 419.2(d) Table B.Revise to read as follows:**

TABLE B

Mix Design Requirements for SMA Mixtures

AGGREGATE GRADATION REQUIREMENTS, PERCENT PASSING		
Sieve Size	**9.5-mm Mixture**	**12.5-mm Mixture**
19.0 mm (3/4 inch)	-	100
12.5 mm (1/2 inch)	100	90 – 99
9.5 mm (3/8 inch)	75 – 95	70 – 85
4.75 (No. 4)	30 – 50	28 – 40
2.36 mm (No. 8)	20 – 30	20 – 30
1.18 mm (No. 16)	-	-
600 mm (No. 30)	-	-
300 mm (No. 50)	-	-
150 mm (No. 100)	-	-
75 mm (No. 200)	8 – 13	8 – 11
VOLUMETRIC DESIGN REQUIREMENTS		
Design Gyrations (N_{design})	100	
Voids in Mineral Aggregate	18.0 % Minimum	
Voids in Course Aggregate (VCA)	$VCA_{mix} < VCA_{dry\ rodded}$	
Design air voids	3.5 - 4.0 %	
Minimum asphalt binder content	Table C	
Binder grade	PG 76-22	
Stabilizer content	Cellulose:0.2 to 0.4 % by total mix mass (weight)	

	Mineral:0.3 to 0.4 % by total mix mass (weight) CR:0.3 to 1 % by total mix mass (weight)
Draindown	0.3 % maximum

- **Section 419.3(l) Joints.Revise to read as follows:**

(l)Joints. Section 409.3(k).

SECTION 695—DETECTABLE WARNING SURFACE

- **Section 695.2(a) Detectable Warning Surface (DWS).Revise to read as follows:**

(a) Detectable Warning Surface (DWS). Provide a DWS product from a manufacturer listed in Bulletin 15 and meeting the requirements of the Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG). Provide certification as specified in Section 106.03(b)3 that the DWS meets the following PROWAG criteria:

- **General**.Detectable warning surface with the surface comprised of truncated domes.Dome size and spacing as specified and as indicated on Standard Drawing, RC-67M.
- **Surface**.Slip resistant.
- **Contrast**.Provide a DWS color, as approved by the Representative, that contrasts visually with adjacent walking surfaces either light-on-dark or dark-on-light.

SECTION 930—POST MOUNTED SIGNS, TYPE A

- **SECTION 930.2(a) Extruded Aluminum Channel Signs, Posts, and Miscellaneous Material.Revise to read as follows:**

(a) Extruded Aluminum Channel Signs, Posts, and Miscellaneous Material.

- Extruded Aluminum Channel Signs—Section 1103.02
- Steel S or W Beam Posts and Breakaway System—Section 1103.07
- Galvanized Steel Hex Head Bolts, Nuts, Lock-Washers; Aluminum Post-Clips, Auxiliary Supports for Exit Panels, 1/8-inch Rivets—Section 1103.11

- **SECTION 930.3(h) Erection.Revise to read as follows:**

(h) Erection. Install nuts on post clips with a torque wrench for extruded aluminum channels. Apply 225 inch-pounds of torque to each galvanized nut with the threads dry, clean, and unlubricated.

Attach the sign to posts with twist-in toggle and buckle straps or stainless steel post-clips for flat sheet aluminum. Apply 225 inch-pounds of torque to each stainless steel nut with the threads dry, clean, and unlubricated.

Clean signs after erection, removing any accumulation of oil, grease, dirt, or foreign material.

Brace the panel with one or more auxiliary supports if exit panels cannot be supported by two sign posts.

SECTION 931—POST MOUNTED SIGNS, TYPE B

- **SECTION 931.2 MATERIAL. Revise to read as follows:**

931.2MATERIAL—As shown on the Standard Drawings and as follows:

- Flat Sheet Signs—Section 1103.04
- Breakaway Steel Posts—From a manufacturer listed in Bulletin 15, and as specified in Section 1103.08.
- Anti-Theft Hardware—Section 1103.11, System A
- Packaged Dry Concrete—Section 624.2(b)

SECTION 932—POST MOUNTED SIGNS, TYPE C

- **SECTION 932.2(a) Signs, Posts, Supports, and Miscellaneous Material.Revise to read as follows:**

(a)Signs, Posts, Supports, and Miscellaneous Material.

- Flat Sheet Signs—Section 1103.04
- Treated Wood Posts—Section 1103.09
- Anti-Theft Hardware—Section 1103.11, System A
- Lag Screws—Section 1103.11(d)
- Shims and Bars—Section 1105.02(a)2
- Brackets—Section 1105.02(f)2

SECTION 934—POST MOUNTED SIGNS, TYPE E

- **SECTION 934.2(a) Extruded Aluminum Channel Signs, Posts, Supports, and Miscellaneous Material.Revise to read as follows:**

(a)Extruded Aluminum Channel Signs, Posts, Supports, and Miscellaneous Material.

- Extruded Aluminum Channel Signs—Section 1103.02
- Treated Wood Posts—Section 1103.09(a)
- Composite Posts—Section 1103.09(b)
- Galvanized Steel Hex Head Bolts, Nuts, Lock-Washers; Aluminum Post-Clips, Auxiliary Supports for Exit Panels, Rivets—Section 1103.11
- Angles (Supports)—Section 1103.12(g)
- Shim Bars and Plates (Supports)—Section 1105.02(a)2

- **SECTION 934.2(b) Flat Sheet Aluminum Signs with Stiffeners, Posts, and Miscellaneous Material.Revise to read as follows:**

(b)Flat Sheet Aluminum Signs with Stiffeners, Posts, and Miscellaneous Material.

- Flat Sheet Aluminum Signs with Stiffeners—Section 1103.03
- Treated Wood Posts—Section 1103.09(a)
- Composite Posts—Section 1103.09(b)
- Rivets—Section 1103.11(e)
- Stainless Steel Bolts, Nuts, Washers, Post-Clips; Twist-In Toggles and Buckle Straps; Butting Plates; Auxiliary Supports for Exit Panels—Section 1103.11
- Angles (Support)—Section 1103.12(g)
- Shim Bars and Plates (Supports)—Section 1105.02(a)2

SECTION 935—POST MOUNTED SIGNS, TYPE F

- **SECTION 935.2 MATERIAL.Revise to read as follows:**

935.2MATERIAL—As shown on the Standard Drawing for the corresponding type post and as follows:

- Flat Sheet Signs—Section 1103.04
- Brackets and Bars (Supports)—Section 1103.12
- Extruded Aluminum Channel Signs—Section 1103.02
- Flat Sheet Aluminum Signs with Stiffeners—Section 1103.03
- Galvanized Steel Hex Head Bolts, Nuts, Lock-Washers; Aluminum Post-Clips; Lag Screws; Rivets; Anti-Theft Sign Hardware (System A)—Section 1103.11

SECTION 938—DISTANCE MARKERS

- **SECTION 938.2 MATERIAL.Revise to read as follows:**

938.2MATERIAL—As shown on the Standard Drawings and as follows:

- Aluminum Blanks—Section 1103.04(a)
- Breakaway Steel Posts—Section 1103.08
- Anti - Theft Hardware—Section 1103.11(j)
- Brackets, Bars, Clamps, Straps and Gussett Plates (Supports)—Section 1103.12(i)

SECTION 1012—PEDESTRIAN RAILING

- **SECTION 1012.2(a) Railing.Revise to read as follows:**

(a)Railing.

- Aluminum-Alloy Casting—ASTM B 26/B 26M, Alloy SG70A-T6 or ASTM B 108, Alloy SG70A-T6.
- Aluminum-Alloy Bolts—ASTM B 211/B 211M, Alloy 2024-T4.
- Aluminum-Alloy Nuts—ASTM B 211/B 211M, Alloy 6061-T6.
- Nylon Washers—Section 1103.11(j)2
- Bolt Heads—Regular hexagon, ANSI B18.2.3.5M (ANSI B18.2).
- Nuts. Finished hexagon, ANSI B18.2.4.6M (ANSI B18.2)—Threads, Class 6, 6g, or 6H (Threads, Class 2, 2A, or 2B).
- Aluminum Alloy Balusters – ASTM B 221/B 221M, Alloy 6061-T4.
- Post assembly and panel to post aluminum washers – ASTM B209, Alloy 2024-T3.
- Cast Aluminum Post Base – ASTM B 26/B 26M, Alloy SG70A-T6 or ASTM B 108/ B 108M, Alloy SG70A-T6.
- Other Aluminum Alloys—Section 1013.2(a)

Certify as specified in Section 106.03(b)3.

SECTION 1015—PROTECTIVE BARRIER

- **SECTION 1015.2(a) Barrier.Revise to read as follows:**

(a)Barrier.

- Aluminum-Alloy Extruded Section—ASTM B 221/B 221M, Alloy 6061-T6 or 6351-T5.
- Aluminum-Alloy Sheet and Plate—Alloy 6061-T6
- Aluminum-Alloy Bolts— ASTM B 211, Alloy 2024-T6 or 6061-T6
- Aluminum-Alloy Nuts—ASTM B 211/B 211M, Alloy 6061-T6.
- Nylon Washers—Section 1103.11(j)2
- Bolt Heads—Regular hexagon. ANSI B18.2.3.5M (B18.2)
- Nuts—Finished hexagon, ANSI B18.2.4.6M (B18.2) Thread, Class 6, 6g, or 6H (2, 2A, or 2B)
- Other Aluminum Alloys—Section 1013.02(a)

Certify as specified in Section 106.03(b)3.

SECTION 1103—TRAFFIC SIGNING AND MARKING

- **SECTION 1103.11 MISCELLANEOUS MATERIALS.Revise to read as follows:**

1103.11MISCELLANEOUS MATERIALS—

(a) **Hex Head Bolts, Nuts, and Washers for Extruded Panel Sign Post-Clips.**Galvanized steel as specified in Section 1105.02 (s):

1. Hex Head Bolts.ASTM A307, Grade A or B.

2.Nut.ASTM A563 DH or ASTM A194 Grade 1 or 2.

3.Washer. Carbon steel helical coil or ASTM F436 or ASTM F844 (Note 1)

Note 1: If either ASTM F436 or ASTM F844 flat washers are used, bolt must be fastened either using two nuts or a single nut with the threads galled adjacent to the nut to prevent loosening.

(b)Post - Clips. For extruded panel signs, aluminum, conforming to ASTM B 108, Alloy 356-T6. For flat sheet aluminum signs with stiffeners, stainless steel, Type 304, 14 gage.

(c) Auxiliary Supports for Exit Panels. Aluminum conforming to ASTM B 211/B 211M, Alloy 6061-T6. 3 inches by 3 inches by 3/16-inch angle, 6 1/2 feet long or long enough to attach to three stiffeners on the main sign.

(d) Lag Screws. 5/16-inch round head, galvanized steel as specified in Section 1105.02(s); ASTM A 307.

(e) Rivets. Aluminum, self-plugging or hollow-core, as follows:

- 3/16-inch for mounting reflective units and distance plaques—Alloy 5056 with 7178 mandrels.
- 3/16-inch for mounting flat aluminum sheets to stiffeners sections— Alloy 5056 with carbon steel mandrels.

Rivet size specified is the minimum shank diameter. Use rivets with sufficient grip range to attach to background sign material, stiffeners, or posts. Use a No. 10 drill for 3/16-inch rivets for attachment of stiffeners and splice bars.

(f) Bolts, Nuts, and Washers for Flat Sheet Aluminum Signs with Stiffeners. Stainless steel, Type 304 bolts. Use 5/16-inch by 1 inch long for butting plates and 5/16-inch by 2 inches long for post-clips. Use standard connection bolts or twist-in bolts.

(g) Twist-in Toggle and Buckle Straps. Stainless steel, Type 201, and 0.75 inch wide and 0.03 inch thick, with rounded edges. Spot welded, twist-in type toggle on end of strap. Spot welded, antirotational buckle on other end of strap. Toggles and buckles shall be stainless steel, Type 304, and 1/16 inch thick.

(h) Butting Plates. Fabricate from stainless steel, Type 304.

(i) Anchors. Section 1105.02(c)2.From a manufacturer listed in Bulletin 15.

(j) Anti-Theft Sign Hardware.

1. System A.

- **Bolts.** Section 1105.02(c)1 and as follows:

  Provide 5/16 inch by 2 1/2-inch steel carriage bolts with minimum 1711/16-inch diameter round head, square neck, and threads to within 1 inch of head.

  Furnish bolts having a mechanically deposited cadmium coating, ASTM B 696, or zinc, Type I coating as specified in Section 1105.02(s).

- **Nuts.** Square, pyramidal-shaped nuts with all four sides sloping at an angle of 41 degrees; 5/16-18 UNC threads; C-1010 cold-rolled steel, case hardened to Rockwell hardness of 55 to 60.

  Furnish nuts having a 0.002 inch to 0.005 inch thick, mechanically deposited, zinc, Type II yellow chromate coating as specified in Section 1105.02 (s) (ASTM B 695), tested according to ASTM B 201.

2. System B.

- **Bolts.** Section 1103.11(m) and as follows:

  Provide 5/16-inch by 2 1/2-inch and 5/16-inch by 3-inch bolts with minimum 9/16-inch diameter one-way heads and threads to within 1 inch of head.

- **Nuts.** Section 1103.11(n) and as follows:

  Provide nuts, Alloy 2011-T3, double-chamfered hexagon with self-locking conical shape 9/16-inch - 3/8-inch by 3/16-inch unit under the nut with 5/16-18 UNC threads. Hexagon portion should break away from self-locking unit with 5/16-18 UNC to 40 inch-pounds to 80 inch-pounds of torque.

- **Washers.** Nylon 1/8 inch thick by 1-inch minimum outside diameter with 480 inch-pounds maximum allowable applied torque.

(k) Banding. Stainless steel, Type 201, 0.750 inch wide by 0.030 inch thick, with rounded edges for handling ease and safety. Buckles and other necessary hardware shall be of stainless steel, Type 304.

(m)Aluminum Bolts.ASTM B 211/B 211M. Alloy 2024-T4, thread fit, ANSI Class 6g, and threads shall be within two threads of the head or a minimum of 1 3/4 inches.

(n)Aluminum Nuts.ASTM B 211/B 211M. Alloy 2024-T6, thread fit, ANSI Class 6H (ANSI Class 2B, 18 UNC threads).

N10401B - a10401 BRIDGE PARAPET

Addendum:

Associated Item(s):

Header:
BRIDGE PARAPET

Provision Body:

All references to Precast Parapet in Standard Drawings, BLC Standards, and Publication 408 Specifications are voided. Only cast-in-place parapets are permitted.

N10561A - a10561 ENVIRONMENTAL COMMITMENTS and MITIGATION TRACKING SYSTEM (ECMTS) REPORT

Addendum:

Associated Item(s):

Header:
ENVIRONMENTAL COMMITMENTS and MITIGATION TRACKING SYSTEM (ECMTS) REPORT

Provision Body:

I.DESCRIPTION - This work is the review and reevaluation of the environmental documents and the updating, documentation, and implementation of the environmental commitments identified in the project Environmental Commitments and Mitigation Tracking System (ECMTS) report.

a) Compliance with Environmental Documents

Develop Final Design and complete construction activities in compliance with the mitigation and commitments detailed in the approved Environmental Documents. The Department has obtained environmental clearance for this project in the form of a Categorical Exclusion Evaluation (CEE). The complete environmental document can be obtained online through the CEE Expert System's Approved Document Archive at the following web address: http://dotdom2.state.pa.us/ceea/ceeamain01.nsf by entering Package Number 12477 into the search tool and select the returned document link.

Reevaluate the Environmental Document if the design does not conform to the environmental impacts described in the approved Environmental Document, or if any anticipated impacts to natural or cultural resources are different from the anticipated impacts evaluated in the approved Environmental Document. Reevaluation must be approved before the start of construction activities. Coordinate as needed with the District Environmental Manager to obtain approval of the reevaluations. No extension of the project completion date will be granted.

b)Mitigation Tracking

Refer to the Environmental Commitments and Mitigation Tracking System Report for information related to the mitigation commitments and tracking documents for the project. The following is a list of the commitments to be tracked:

Refer to the Project Development Checklist

Designate a responsible individual (Project Manager or Site Superintendent) to maintain the ECMTS Report during construction. Identify the designated individual's name in a note at the bottom of the matrix. Include additional names if responsible individuals change during the construction of the project.

Review each Mitigation Category and associated mitigation or commitment identified in the ECMTS Report with the Department Construction Project Manager, Inspector- In- Charge, and District Environmental Manager (or Environmental Monitor if one is assigned to the project). As each mitigation or commitment is completed, initial and date the appropriate block. By initialing and dating the block, the designated individual confirms the mitigation or commitment has been reviewed, understood, and has been or will be incorporated in the design and construction of the project, as appropriate.

Ensure that the mitigation commitments are completed at earliest possible stage of the project. Review the ECMTS Report with the Department Construction Project Manager, Inspector-In-Charge, and District Environmental Manager (or Environmental Monitor if one is assigned to the project) at each status meeting. The Department Construction Project Manager (or Environmental Monitor) will verify, date, and initial each mitigation commitment as it is completed.

Direct questions regarding the mitigation and commitments to the District Environmental Manager (or Environmental Monitor). Notify the District Environmental Manager of any problems with implementing the commitments. Changes to mitigation or commitments will be reviewed and approved by the Environmental Manager in coordination with the relevant resource agencies. Notify the Construction Services Engineer of any problems encountered during the implementation of the commitments and mitigation measures.

Maintain one (1) copy of the ECMTS Report at the Contractor's project field office and provide one (1) copy to the Inspector-In-Charge after each update.

Submit one (1) copy of the completed ECMTS Report to the Department Construction Project Manager, one (1) copy to the District Construction Services Engineer, and one (1) copy to the District Environmental Manager upon completion of the project.

II. MEASUREMENT AND PAYMENT – Incidental to the design activities listed in Section IV of the Special Provision titled SPECIAL BIDDING – DESIGN-BUILD.

N13101A - a13101 CONSTRUCTION PROJECT TRAFFIC BARRIER PRE-INSTALLATION REVIEW

Addendum:

Associated Item(s):

Header:
CONSTRUCTION PROJECT TRAFFIC BARRIER PRE-INSTALLATION REVIEW

Provision Body:

Notify the Inspector-in-Charge of the proposed schedule for Traffic Barrier installation, a minimum of two weeks before beginning installation. The Inspector- in- Charge will contact the FHWA Transportation Engineer and the District Guide Rail Mentor to schedule the pre-installation review. Contractor attendance at the pre-installation review is required.

Before the review, place temporary markings (paint, stakes, or flags) indicating planned locations of all permanent traffic barrier to be installed as part of the project. The term Traffic Barrier includes all types of permanent barrier including, but not limited to, W-beam guide rail, concrete median barrier, cable barrier, end treatments, and impact attenuating devices.

Do not install any Traffic Barrier on the project before receiving written authorization from the Inspector-in-Charge.

Costs associated with placement of the temporary markings, and attendance at the Pre- Installation Review are considered incidental to other items of work, and no separate payment will be made. Revisions to contract quantities of Traffic Barrier will be paid in accordance with Section 110.

N29890D - a29890 SPECIAL BIDDING – DESIGN-BUILD

Addendum: 2

Associated Item(s):

Header:
SPECIAL BIDDING – DESIGN-BUILD

Provision Body:

This project will utilize the Low Bid Design- Build method of contracting. The contract for this project will be between the Department and the successful Bidder.

I. ACTIONS REQUIRED BY THE BIDDER AT THE BIDDING STAGE AND BEFORE AWARD

When signing and submitting the bid, the Bidder is required to certify the following for all professional service firms (firms) performing activities listed in Section IV – Design Activities:

- that, if applicable, the Bidder either (a) has obtained assurance that all firms being used have no adverse interests as defined in the State Adverse Interest Act and fully comply with this Special Provision or (b) has faxed a letter to the Contract Awards Officer at (717) 705-1504 disclosing any potential conflicts;
- that, if applicable, the Bidder (a) has obtained assurance that all firms being used have no organizational conflicts of interests and fully comply with this Special Provision or (b) has faxed a letter to the Contract Awards Officer at (717) 705-1504 disclosing any potential conflicts;
- that, if applicable, the Bidder (a) has obtained assurance that all firms being used have fully complied with Section III of this Special Provision or (b) will email or fax a completed "Request for Consideration of Professional Services Involvement Restrictions" form to the District Project Manager indicated in the Section V - Review Submission Contacts of this Special Provision; and
- that, if applicable, the Bidder has obtained assurance that all firms being used are familiar with the necessary AASHTO, PENNDOT, and other applicable design criteria, standards, and construction specifications required to complete the related portion of their associated work.

State Adverse Interest Act – Where required, fully disclose any potential conflict with the State Adverse Interest Act as State Advisor or State Consultant. If there is no adverse interest, certify as such.

Organizational Conflict of Interest – Where required, fully disclose all relevant facts concerning any past, present, or currently planned interests that may present an Organizational Conflict of Interest. This disclosure must state how their interests or those of their chief executives, directors, key project personnel, or any proposed firm could be viewed as, an Organizational Conflict of Interest. If there is no Organizational Conflict of Interest, certify as such. Note: An Organizational Conflict of Interest is defined in *23 CFR 636* as a conflict “that because of other activities or relationships with other persons, a person is unable or potentially unable to render impartial assistance or advice to the owner, or the person’s objectivity in performing the contract work is or might be otherwise impaired, or a person has an unfair competitive advantage.”

Professional Services Involvement Restrictions – Where required, indicate that involvement in such firms can be avoided, neutralized, or mitigated by completing the following:

- present these involvements on the "Request for Consideration for Professional Services Involvement Restrictions" form, located in ECMS File Cabinet (in the References Tab); and
- email or fax this form immediately upon ECMS email notification of apparent low bidder status to the District Project Manager indicated in Section V – Review Submission Contacts of this Special Provision.

The District Project Manager will notify the apparent low bidder of the result.

II. ACTION TO BE TAKEN BY THE BIDDER AFTER AWARD

Design Activity Firm Identification and Qualifications

The awarded bidder is required to complete the form, “Design-Build Design Activities Firm Identification and Qualifications”. This form is located in ECMS File Cabinet (in the References Tab).

Email or fax the completed form to the District Project Manager indicated in the Section V - Review Submission Contacts of this Special Provision within 3 calendar days after the award of the contract.

Include on this form the name and design activity performed by each firm performing activities listed in Section IV Design Activities of this Special Provision. Include with this form resumes for the:

- Lead Design Engineer Project Manager;
- Quality Control (QC) Manager and Alternate QC Manager;
- Quality Assurance (QA) Manager (if applicable) and Alternate QA Manager; and
- Secondary Design Services Professionals (if applicable) Project Manager.

These resumes should show the experience and expertise required by the project special provisions for the applicable design activities listed in Section IV – Design Activities of this Special Provision. At a minimum, these resumes should show experience and expertise during the last 7 years, of two similar projects of comparable complexity on Pennsylvania's State Highway, Pennsylvania Turnpike, or local system. Non-Turnpike projects must have been funded with Federal Aid Highway Funds. Also, include an affidavit stating that the Lead Design Engineer is familiar with AASHTO, the Department, and other applicable design criteria, standards, and construction specifications. Additional design qualifications may be listed in other Design-Build Special Provisions included in this Contract.

All engineering firms must have a current Annual Qualification Package on file with the Bureau of Project Delivery's Contract Management Section and be registered business partners in ECMS. In addition, engineering firms’ business partner relationship in ECMS must include both Consultant and Construction Contractor relationships. The ECMS USER ID security must include Construction Contractor security groups such as "Contractor Principal." Firms must be listed as a Prequalification Exempt Service Provider in the subcontractor database with the Department’s Prequalification Office. These requirements also apply to all subconsultants, including Disadvantaged Business Enterprises, Minority Business Enterprises, and Women-Owned Business Enterprises.

For projects that include Right-of-Way Acquisition services, the right-of-way firm must be pre-approved to provide Right-of-Way Acquisition Services through ECMS.

All firms must comply with the restrictions listed in 23 CFR 636.116 titled *What organizational conflict of interest requirements apply to design-build projects?*

If a firm included in the submission does not meet the necessary requirements indicated in this Special Provision and in the project special provisions for the applicable design activities listed in Section IV – Design Activities of this Special Provision, the Department reserves the right to disallow the firm for this contract. Firms identified on a "Request for Consideration for Professional Services Involvement Restrictions" form that has been submitted but not approved will be disallowed. A notification will be given to the Contractor within 8 calendar days from the time and date of submission indicating the Department approval or disallowance, and justification thereof, of each firm listed on the “Design-Build Design Activities Firm Identification and Qualifications” form. A firm cannot begin work on this contract until approval is received from the Department. Unless indicated otherwise by the Department in writing, the disapproval of any firm will not allow the extension of the contract completion date or price adjustments to any items in the contract.

III. PROFESSIONAL SERVICES INVOLVEMENT RESTRICTIONS

All firms performing activities listed in Section IV – Design Activities of this Special Provision must be in compliance with the following paragraphs and the Professional Services Involvement Restrictions – Design Activities of this Special Provision for Design-Build Contracts charts [Table A and Table B].

- Any Consultant that provided or is providing any design work and services to the Department for the preparation of this design-build bid package will not be eligible to provide any design work and services to the Contractor for the design-build contract.
- Any Consultant performing design work or services to the Contractor for this design-build contract, such as Lead Design Engineer, Quality Control Reviewer, Secondary Design Service Professionals, or Quality Assurance Reviewer (if applicable), is not eligible for any involvement under a Department Agreement on that contract.

DEFINITIONS:

PRIME CONSULTANT (Department agreement) – The contractual party providing design consultant work and services pursuant to an Agreement with the Department. The Consultant may be an individual, partnership, corporation, or joint venture.

SUB-CONSULTANT (Department agreement) - The party providing design work and services to the Prime Consultant (which is providing consultant work and services pursuant to an agreement with the Commonwealth) pursuant to an agreement with the Prime Consultant to which the Department is not a party.

LEAD DESIGN ENGINEER (LDE) (design-build contract) – The design consultant engineering firm or Contractor's personnel that are responsible for the design portion of the design-build contract.

QUALITY CONTROL REVIEWER (QC-R) (design-build contract) - The design consultant engineering firm or individuals that are responsible to manage the quality control of the design-build contract, including the Quality Control Manager and the Alternate Quality Control Manager. The design Quality Control Reviewer is allowed to be the same firm as the Lead Design Engineer.

QUALITY ASSURANCE REVIEWER (QA- R) (Department agreement or design- build contract, if applicable)– The design consultant engineering firm or individuals functioning as Department and FHWA (as appropriate) representatives who check the validity of the Contractor's Quality Plan to ensure all work is done in accordance with the contract documents. Quality Assurance Reviewer may be Department and/or FHWA personnel, consultants under a Department agreement, or a firm providing design services to the design-build Contractor (if included as a design activity in Section IV Design Activities of this Special Provision, as "Quality Assurance by Peer Review). The Quality Assurance Reviewer may <u>not</u> be the same firm as the Contractor, the Lead Design Engineer, or the Quality Control Reviewer.

SECONDARY DESIGN SERVICE PROFESSIONALS (SDSP) (design-build contract)– Other design consultant engineering firms or professional service firms providing professional services to the design-build Contractor beyond roles of Lead Design Engineer or design Quality Control Reviewer.

PROFESSIONAL SERVICES INVOLVEMENT RESTRICTIONS - DESIGN ACTIVITIES FOR DESIGN-BUILD CONTRACTS:

TABLE A: INVOLVEMENT AS PRIME OR SUB CONSULTANT TO THE DEPARTMENT

PROJECT INVOLVEMENT **(Prime Consultant/ Sub- consultant in Department Agreement)**	**DESIGN ACTIVITY RESTRICTIONS**
Feasibility Studies, Traffic Studies, Mapping Services	No restrictions if no recommendations to the Department made by the Consultant
Preliminary Engineering, Preliminary Engineering Constructability Reviews, and Environmental Studies Anticipating a CEE	Not eligible to perform any design work or services to the Contractor for the design-build contract. Exception (1) – See "Sub-consultant Exception" below.

Preliminary Engineering, Preliminary Engineering Constructability Reviews, and Environmental Studies Anticipating an EA/ EIS	Not eligible to perform any design work or services to the Contractor for the design-build contract. Exception (1) – See “Sub-consultant Exception” below.
Conceptual Design / Bid Package Preparation for Design-Build Project	Not eligible to perform any design work or services to the Contractor for the design-build contract. Exception (1) – See “Sub-consultant Exception” below.
Final Design	Not eligible to perform any design work or services to the Contractor for the design-build contract.
Preliminary Engineering-Design Management, Review Note: This includes consultants performing reviews for a District or Central Office Agreement, including an Open End Agreement.	Not eligible to perform any design work or services to the Contractor for the design-build contract. Exception (1) – See “Sub-consultant Exception” below.
Final Design Management, Review Note: This includes consultants performing reviews for a District or Central Office Agreement, including an open-end agreement.	Not eligible to perform any design work or services to the Contractor for the design-build contract.
Department Review (Any design review completed as a representative of the Department, including Quality Assurance Reviews)	Not eligible to perform any design work or services to the Contractor for the design-build contract.
Construction Management Support (Any construction activity completed as a representative of the Department other than construction inspection, or services during construction)	Not eligible to perform any design work or services to the Contractor for the design-build contract
Services during Construction (Any design support services/ reviews conducted during construction)	Not eligible to perform any design work or services to the Contractor for the design-build contract.
Construction Inspection	Not eligible to perform any design work or services to the Contractor for the design-build contract.

(1) Sub-consultant Exception –A Sub-consultant performing certain activities under a Department agreement containing multiple “projects,” which are let under separate construction contracts, can perform design activities as part of the design-build contract provided that the design activities for the design-build contract is for a “project” in which the sub-consultant did not participate in ANY work for the Department.

See Table A.1: Department Agreement Containing Multiple Projects – Sub-consultant Eligibility.

TABLE A.1: DEPARTMENT AGREEMENT CONTAINING MULTIPLE PROJECTS – SUB-CONSULTANT ELIGIBILITY

Sub- consultant Performed Work Only on Project A	**Design Activities for Design-Build Contract (under Design-Build Contract)**				
(under Department Agreement)	**Project A**		**Project B**		
	LDE, QC-R, or SDSP	**QA-R[1]**	**LDE, QC- R, or SDSP**	**QA-R[1]**	
	Preliminary Engineering Activities (Does not include Bid Package Prep)	N	N	Y*	Y*
Conceptual Design/ Bid Package Preparation	N	N	Y*	Y*	
Department Review (includes Quality Assurance Review)	N	N	N	N	
Construction Management or Construction Inspection	N	N	N	N	

Note: Project A and Project B represent multiple projects under one engineering agreement that are bid under separate construction contracts.

N - Sub-consultant is not eligible to perform service.

Y*- A sub-consultant firm, that worked on the preliminary design or the Conceptual Design/Bid Package Prep for Project A, can function as EITHER a Quality Assurance Reviewer (if applicable) OR function as a Lead Design Engineer, Quality Control Reviewer, or Secondary Design Service Provider on Project B.

[1] If applicable

TABLE B: INVOLVEMENT INCLUDES PERFORMING DESIGN ACTIVITIES FOR DESIGN-BUILD CONTRACT

PROJECT INVOLVEMENT (Performance of Design Activities in Design-Build Contract)	**RESTRICTIONS**
LDE	Not eligible for any future involvement under a Department Agreement for project (s) included in design- build contract, including Department Review, Quality Assurance Review, Construction Management, and Construction Inspection services. Not eligible to perform Quality Assurance Reviews (if applicable).
QC-R	Not eligible for any future involvement under a Department Agreement for project (s) included in design- build contract, including Department Review, Quality Assurance Review,

	Construction Management, and Construction Inspection services. Not eligible to perform Quality Assurance Reviews (if applicable)
SDSP	Not eligible for any future involvement under a Department Agreement for project (s) included in design- build contract, including Department Review, Quality Assurance Review, Construction Management, and Construction Inspection services. Not eligible to perform Quality Assurance Reviews (if applicable).
QA-R (if applicable)	Not eligible to function as Lead Design Engineer, Quality Control Reviewer, or Secondary Design Services Professionals. Not eligible for any future involvement under a Department Agreement for project (s) included in design- build contract, including Department Review, Construction Management, and Construction Inspection services.

IV. DESIGN ACTIVITIES

Design activities include:

- Noise Wall Design

V. REVIEW SUBMISSION CONTACTS

Include all design activities, submission dates, and review periods in the construction schedule.Include the submission schedule in the Quality Plan.

(b) Copy the Department's Project Manager on all submission correspondences.

- Department Project Manager

  Madeleine Fausto

  Phone number: 610-205-6848

  Fax number: 610-205-6903

  Email address: mfausto@pa.gov

  Address for final submissions: District Office – location information listed in Section VI of this Special Provision

  Make all required submissions for each design activity to the following contacts:

Noise Wall Design

- Final TS&L
- Final Structure Plans

  Contact: Steven Laws

  Phone number: 610-205-6677

Email address: slaws@pa.gov

Interim (partial) submissions: District 6-0 Office - address listed in Section VI of this Special Provision

Address for final submissions:District Office –location information listed in Section VI of this Special Provision

VI. LOCATION INFORMATION:

Pennsylvania Department of Transportation

District 6-0 Office

Street Address: 7000 Geerdes Boulevard

King of Prussia, PA 19468

File Transfer Protocol (FTP) Site: Provide a password protected FTP site with a specific folder for this Contract, for the purposes of distributing electronic plan submissions to and from reviewing parties. The Department will determine the organization of the subfolders within the folder for the Contract.

VII. SUBMISSION REQUIREMENTS/REVIEW TIMES:

The following table provides the required number of plans and/ or documents and the schedule of review times for complete submissions. Partial submissions, where specified, will be reviewed in the time specified below **for each submission** . Partial submissions will require the submission of the number of plan sets and calculations specified below for the applicable design activity. Be responsible for reproduction costs for submissions and final drawings, including providing the Department with 1 Full Size set of all final drawings for use during construction, in addition to any copies specified below.

Item	Plan Sets	Sets of Calculations	Inital Submission Review Time (Working Days)	Subsequent Submission Review Time (working days)
Noise Wall Design				
Final TS&L	1	1	10	5
Final Structure Plans	1	1	10	5
As-Built Plans	1	1	10	5

* - Review times will be in accordance with the regulations of the reviewing agency.

Review times begin and end when a submission is logged in and out, respectively, by all designated reviewers. The login time will be taken as the latest date in which the submission is received by the reviewers. Submittals received after 11:00 a.m. will be logged in as the next working day following receipt of the submission. For electronic submissions, the login time will be taken when the appropriate reviewer and District Project Manager receive an email stating a submission is ready for review. Logout time occurs when the reviewer sends an email to the Contractor with an approval and/or comments. If a submission is incomplete or otherwise requires additional information or data to complete the review properly, the review time will begin as specified for the submission when all required information is received.

Additional contract time or price adjustment to any contract items will not be considered due to failure to obtain approvals within the specified review times resulting from incomplete or non- conforming submissions. Working days are weekdays, Monday through Friday, excluding official Department holidays.

Include all review periods identified above as activities in the project schedule.

VIII. GENERAL DESIGN REQUIREMENTS

Have the design completed by a Professional Engineer licensed in the State. Have all surveys completed by a Professional Land Surveyor licensed in the State.

Provide the Design Engineer's P.E. seal, the date signed, and business name and address on the first sheet of all computations, including computations for partial submissions. Provide the appropriate seal and signature on plan sheets in accordance with the Department's Design Manuals. Also, provide the Design Engineer's P.E. seal, signature, and date signed on the first sheet of all computations, including computations for partial plans submissions.

Provide all Professional Engineer's seals in accordance with Pa. Code § 37.59.

Designs copied directly from Department Standard Drawings need not be documented through independent computations. List such designs on the submission by referencing the drawing number of the applicable standard, and the sheet number, table, or graph.

Experimental or demonstration-type design concepts, products, structures, or elements not pre-approved by the Department for general usage at the time of bid, will not be allowed.

If Right-of-Way Design and Acquisition Services has not been identified as Design Activity in Section IV of this Special Provision, no additional Right-of-Way may be acquired and no changes to the recorded Right-of-Way Plan will be permitted.

Value engineering construction proposals are allowed, provided that the proposal does not require approval of a Design Exception.

Designs that take advantage of any errors and/or omissions in the following requirements will not be accepted. In the event any such error, omission, or discrepancy is discovered, immediately notify the Department. Failure to notify the Department will constitute a waiver of all claims for misunderstanding, ambiguities, or other situations resulting from the error, omission, or discrepancy.

Final Plans must include a note on all tabulation of quantities sheets included therein that states "Item numbers and descriptions listed in Tabulations are solely for the purposes of identifying the specified units of work and locations, and are not to be construed as contract or pay items."

Design and construct any support of excavation required by any Design Activities identified in Section IV of this Special Provision in accordance with the Special Provision titled TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM FOR DESIGN-BUILD PROJECTS.

Design Specifications

Perform the design activities identified in Section IV, Design Activities, in accordance with the latest published edition of all Department Standards, Specifications, Regulations, Strike-off Letters, and other industry standards, at the time of advertisement, unless directed otherwise, or as identified in the bid package.These include, but are not limited to the following:

- Special Provisions;
- Publication 408, *Specifications*
- Publication 72M, *Standards for Roadway Construction*
- Publication 218M, *Standard Drawings for Bridge Design*
- Publication 219M, *Standard Drawings for Bridge Construction*
- Publication 10 Design Manual Part 1 – *Transportation Program Development and Project Delivery Process*
- Publication 10A Design Manual Part 1A – *Pre-TIP and TIP Program Development Procedures*
- Publication 10B Design Manual Part 1B – *Post-TIP NEPA Procedures*
- Publication 10C Design Manual Part 1C – *Transportation Engineering Procedures*
- Publication 10X Design Manual Part 1X – *Appendices to Design Manuals 1, 1A, 1B, and 1C*
- Publication 13M Design Manual Part 2 – *Highway Design*
- Publication 14M Design Manual Part 3 – *Plans Presentation*
- Publication 15M Design Manual Part 4 – *Structures*
- Publication 16M Design Manual Part 5 – *Utility Relocation*
- Publication 584, *Drainage Manual*
- Publication 46, *Traffic Engineering Manual*
- Publication 149, *Traffic Signal Design Handbook*
- Publication 35, *Approved Construction Materials*
- Publication 203, *Work Zone Traffic Control*
- Publication 213, *Temporary Traffic Control Guidelines*
- Publication 222, *Subsurface Boring, Sampling, and Testing Contract*
- Publication 293, *Geotechnical Engineering Manual*
- Publication 378, *Right-of-Way Manual*
- Pa Code Title 67, Chapter 204, *Guidelines to Implement Act 229 of 2002, Additional Traffic Control Devices in Highway Work Zones, Statement of Policy*
- Pa Code Title 67, Chapter 212, *Official Traffic Control Devices* (Publication 212)
- Publication 236M, *Handbook of Approved Signs*
- Publication 242, *Pavement Policy Manual*

- Publication 281, *Waste Site Evaluation Procedures for Highway Project Development Process*;
- Publication 371, *Grade Crossing Manual*
- Publication 122M, *Surveying and Mapping Manual*
- Publication 111M, *Traffic Control – Pavement Markings and Signing Standards*
- Publication 148, *Traffic Standards – Signals*
- Publication 611, *Waste Management Guidance Manual*
- Publication 7, *Items Catalog*
- *Manual on Uniform Traffic Control Devices* (FHWA)
- *A Policy on Geometric Design of Highway and Streets*, AASHTO "Green Book"
- *A Policy on Design Standards – Interstate System* (AASHTO)
- AASHTO *Guide Specifications for Horizontally Curved Highway Bridges*
- AASHTO *LRFD Bridge Design Specifications* or, when applicable, AASHTO *Standard Specifications for Highway Bridges*

In the event that a clear order of predominance cannot be established, or a difference in interpretation of the design cannot be resolved, the Assistant District Executive-Design will be the arbiter and his/her decision will be final.

For bridge/structures related design activities, refer to the "Bridge/Structures Related Effective Policy Letters" for additional design policy Strike-Off Letters that are applicable to the structure design.

In the event that certain design parameters, stresses, or specifications are in conflict regarding bridge/structures related design activities, the following order of predominance governs:

1. Design requirements listed herein and addenda (addendum) to the proposal.
2. Design related Strike-Off Letters in effect on the date of project advertisement.
3. Publication 15M Design Manual Part 4, *Structures*
4. Publications 218M and 219M *Standard Drawings for Bridge Design* and *Bridge Construction*
5. AASHTO *LRFD Bridge Design Specifications* or, when applicable, AASHTO *Standard Specifications for Highway Bridges*

In the foregoing instances, in the event that a clear order of precedence cannot be established, or a difference in the interpretation of the design criteria, standards, specifications, or methodology cannot be resolved, the Chief Bridge Engineer will be the arbiter and whose decision will be final.

IX. SCHEDULE OF VALUES

Where indicated, partial payment for lump sum design-build items will be made on Current Estimate Payments in accordance with Section 110.05 based on the amount of work completed during the estimate period based on a payout schedule (Schedule of Values). The Department will base amount of the partial payments on the total value of the work performed to the date of the estimate cut-off, less payments previously made, in accordance with the approved Schedule of Values.

Prepare a Schedule of Values for each lump sum Item associated with the design or construction of the Design Activities identified in Section IV of this Special Provision, where the Special Provision for that "Design" or "Construct" Item indicates lump sum measurement and payment by Schedule of Values, using the attached Schedule of Values template as a guide. Hereinafter, Design Items are defined as the Contract Item associated with the Design Activities identified in Section IV, and Construct Items are defined as the Contract Item associated with the construction of the Design Activities identified in Section IV. Distribution of payments among Schedule of Values Components must bear a reasonable resemblance to the actual value of work.

(a) For Design items, if a Component is not applicable, indicate 0%; otherwise do not indicate values less than 5% in any Component. Include those Schedule of Values Components identified in the associated Design Item Special Provisions. Payment for Design Item Schedule of Values Components will be made in the amount of the approved percentage upon completion of the identified task. When Schedule of Values Components are identified in the Special Provisions with “Approval” in the Schedule of Values Component title, 75% of the approved percentage may be paid on the next estimate following login of that submission, and the remaining 25% of the approved percentage will be paid following approval of that submission. Otherwise, no partial payment will be made for Design Item Components.

(b) For Construct Item, include Schedule of Values Components relevant to the scope of work of the particular item, using the attached Schedule of Values template as a general guide. No partial payment will be made for Construct Item Schedule of Values Components. Accordingly, develop the Schedule of Values to include Schedule of Values Components in sufficient numbers and detail to be payable upon semi-monthly estimates throughout the duration of the Contract.

Submit the Schedules of Values to the Department for review and approval. No estimate will be processed until all Schedules of Values are approved.

X. CONSTRUCTION CONTACT

The Department's contact for Current Estimate Payments as defined in Section 110.05 will be:

Steven Laws

Phone number: 610-205-6677

Fax number: 610-205-6672

Email address: slaws@pa.gov

XI. FILES AVAILABLE AFTER AWARD

Microstation CADD files will be made available to the successful bidder. After Award, submit a request to the District Executive agreeing to the terms and conditions for the release of the electronic files.

The following information will be made available for viewing at the District Office after award:

- Complete permit documents
- Foundation Report

Contact the Project Manager identified in Section V of this Special Provision to arrange for viewing the documents.

00 - aARCHITECTURAL SURFACE TREATMENT FOR CONCRETE SURFACES

Addendum:

Associated Item(s):

Header:
ARCHITECTURAL SURFACE TREATMENT FOR CONCRETE SURFACES

Provision Body:

DESCRIPTION –

This work is providing and applying of a special surface finish to the sound barriers and as indicated on the contract drawings.The surface finish involves the use of form liners and stains to produce textured and colored concrete surfaces with the appearance of the textured finishes as indicated below.

MATERIALS –

Products will be limited to the materials necessary for proper completion of the work as specified by the manufacturer of the form liner system and as approved by the Engineer.

General Requirements –

The specific texture and color to be supplied on each sound barrier is as follows:

Structure No.	Highway Side		Residential Side	
	Panel Finish	Panel Color (Federal Standard Color)	Panel Finish	Panel Color (Federal Standard Color)

Ground Mounted Sound Barriers				
S-25698	Ashlar Stone	FS 30372	Exposed Aggregate	FS 37778
S-25699	Ashlar Stone	FS 30372	Exposed Aggregate	FS 37778
S-30979	Ashlar Stone	FS 30372	Exposed Aggregate	FS 37778
S-31942	Ashlar Stone	FS 30372	Exposed Aggregate	FS 37778
S-31036	Ashlar Stone	FS 30372	Exposed Aggregate	FS 37778
S-25922	Ashlar Stone	FS 30372	Exposed Aggregate	FS 37778
S-31039	Ashlar Stone	FS 30372	Exposed Aggregate	FS 37778
S-31601	Ashlar Stone	FS 30372	Exposed Aggregate	FS 37778
S-31040	Ashlar Stone	FS 30372	Exposed Aggregate	FS 37778
S-31037	Ashlar Stone	FS 30372	Exposed Aggregate	FS 37778
S-25738	Ashlar Stone	FS 30372	Castle Stone	FS 37778
S-26764	Ashlar Stone	FS 30372	Castle Stone	FS 37778
Structure Mounted Sound Barriers				
S-26088	Ashlar Stone	FS 30372	Exposed Aggregate	FS 37778

If concrete posts are used in the contractor design, fabricate sound barrier wall post with smooth texture, stained with federal standard color number FS 37778 on both the highway and residential sides.

If steel posts are used in the contractor design, paint galvanized steel in accordance with section 1060 of Pub 408. Paint is to be pigmented with federal standard color number FS 37778 on both the highway and residential sides.

Form Liners –

Reusable, made of high- strength elastomeric materials, easily attachable to forms. Plastic, or other non- durable forms are permitted. Provide removable form liners that do not cause deterioration of the surface or underlying concrete.

Patterns are to be random sizes with a maximum relief of ¾". If this value is less than ¾" thick, do not reduce the required member thickness shown on the drawings.

Provide a pattern that appears natural and non-repeating.Seam lines or patch lines caused by two or more molds coming together will not be apparent when viewing the final product in place.

Provide material and applicator having a minimum of five consecutive years of experience in textured and stained concrete construction. Furnish evidence to the satisfaction of the Engineer, that the proposed products have been successfully used in similar applications to duplicate the appearance of natural stone.

Acceptable form liner suppliers are the following:

Architectural Polymers

1220 Little Gap Road, Palmerton, PA 18071

610-824-3322

Fitzgerald Formliners

1500 East Chestnut Avenue, Santa Ana, CA 92701

714-547-6710 or 1-800-547-7760

Custom Rock International

94 Glatfelter Lane, Elliottsburg, PA 17024

717-438-3387

Or an approved equal.

Color Stain –

Special Penetrating Stain mix as provided by manufacturer, in colors to achieve full natural stone variation. Stain is to create a surface finish that is breathable (allowing water vapor transmission), and that resists deterioration from water, acid, alkali, fungi, sunlight or weathering. Stain mix is to meet requirements for weathering resistance of 1000 hours accelerated exposure measured by weather-o-meter in accordance with ASTM-G26 as approved by the Department.

Release Agent –

Compatible with form liners and with color stain system to be applied to surface.

CONSTRUCTION -

Contractor must be experienced, or choose a subcontractor who is experienced, in the application of textured/colored concrete surfaces using form liners and stains. Applicator must have a minimum of five years of experience. Submit for approval the name and resume of the applicator along with a list of projects with contact persons and phone numbers to the Assistant District Engineer for Construction within 30 days after the Notice To Proceed.

Install form liners on all sound barriers, as indicated on the contract drawings.

Shop Drawings and Submittals - Within 30 days after Notice To Proceed, submit sample pattern 4 foot by 4 foot of form liners to the engineer for approval. The submittals, including the sample, will be reviewed, and approved or rejected by the Department. The panel must demonstrate the form liner, the concrete staining as described in MATERIAL. Once approved, the sample panel will serve as the quality standard for the project.

Along with the sample panel, submit form liner catalog technical data for approval of the engineer. Furnish evidence to the satisfaction of the engineer, that the proposed products have been successfully used in similar applications. Submit stain mix color combination to the engineer for review and approval.

After approval of the sample panel, submit shop drawings that detail the patterns and layout of the form liners to the engineer for review and approval prior to fabrication and construction. Do not begin construction of the forms until the Department has approved technical data, sample panel, and shop drawings.

Construct in accordance with the specifications of the manufacturer of the form liner system approved by the engineer.

Clean the surface on the fresh concrete for application of the architectural surface treatment of all latency, dirt, dust, grease, form oils, efflorescence, and any foreign material prior to stain application.

Do not sandblast for cleaning concrete surfaces. Pressure washing with water is the preferred method of removing latence. If cleaned by pressure washing, provide a pressure of 145 psi at a rate of 3 gallons per minute using a fan nozzle held perpendicular to the surface at a distance of 2' to 3'. Ensure that the completed surface is free of blemishes, discolorations, surface voids and conspicuous form marks to the satisfaction of the engineer.

Apply stain to clean dry surfaces in accordance with the manufacturer's specifications.

Provide full stain coverage on the face and around the edges of the individual stones.

Project Conditions –

Environmental requirements: Apply color stain when ambient temperatures are between 50 and 100 degrees F. Consult manufacturer if conditions differ from this requirement. Schedule color stain application with earthwork and backfilling of any wall areas making sure that all simulated stone texture is colored to the minimum distance below grade, as indicated. Delay adjacent plantings until color application is completed.

Where exposed soil or pavement is adjacent to the textured surface, which may splatter dirt or soil from rainfall or where surface may be subject to over spray from other processes, provide temporary cover of completed work.

Install form liners full height on all sound barriers panels and as indicated on the contract drawings.Additional architectural surface treatment may be constructed below the limits indicated for the ease of construction at no additional expense to the Department.

MEASUREMENT AND PAYMENT –

This work is included in the bid price for the following structures:

Construction of Noise Barrier, S-25698 (Item No. 8259-0001)

Construction of Noise Barrier, S-25699 (Item No. 8259-0002)

Construction of Noise Barrier, S-30979 (Item No. 8259-0003)

Construction of Noise Barrier, S-31942 (Item No. 8259-0004)

Construction of Noise Barrier, S-31036 (Item No. 8259-0005)

Construction of Noise Barrier, S-25922 (Item No. 8259-0006)

Construction of Noise Barrier, S-31039 (Item No. 8259-0007)

Construction of Noise Barrier, S-31601 (Item No. 8259-0008)

Construction of Noise Barrier, S-31040 (Item No. 8259-0091)

Construction of Noise Barrier, S-31037 (Item No. 8259-0092)

Construction of Noise Barrier, S-25738 (Item No. 8259-0010)

Construction of Noise Barrier, S-26764 (Item No. 8259-0011)

Bridge Structure, As Designed, S-26088 (Item No. 8100-0001)

Item in Component Item schedule is to be bid per square foot and includes all labor and materials to provide the indicated architectural treatment and colorizing to the indicated surfaces including, but not limited to, the formliners, sample panel(s), repair and/or patching of damaged surfaces, concrete pigment, or stain. The cost of any additional concrete required to fill the valleys of the formliners is considered incidental to this item.

Square foot of concrete surfaces to receive architectural treatments.

00 - aCOMPOST SOCK WASHOUT

Addendum:

Associated Item(s):

Header:
COMPOST SOCK WASHOUT

Provision Body:
DESCRIPTION - This work is furnishing, placing, maintaining, and removal of a compost sock washout.

MATERIALS.

a) Reinforced Cement Concrete Pavement. Section 506

b) Compost Filter Sock, 24” Diameter. Item 0867-0022.

c) Compost Filter Sock, 18” Diameter. Item 0867-0018. As needed

d) Geomembrane. Section 736

CONSTRUCTION-

a) Place suitable impervious geomembrane at the washout location. Install Compost Filter Sock around the perimeter of the geomembrane on flat grade. Overlap upslope side of filter ring at least 4 feet to form a closed shape. Drive 2”x2”x36” wooden stakes at least 12” deep placed 5- foot on center. Ensure continuous contact of the filter sock with the geomembrane at all locations.

b) Direct concrete washout water into filter ring. Maximum depth of concrete washout water is 50% of filter ring height. To increase washout capacity, stack 18” Diameter Compost Filter Sock onto double 24” Diameter Compost Filter Sock in pyramidal configuration.

c) Dispose of hardened concrete and used filter sock in a manner approved by the Engineer and as indicated on the plans.

MEASUREMENT AND PAYMENT-

a) Reinforced Cement Concrete Pavement. Section 506

b) Compost Filter Sock, 24” Diameter. Item 0867-0022.

c) Compost Filter Sock, 18” Diameter. Item 0867-0018. As needed

d) Geomembrane. Section 736

00 - aLIMITED MOBILITY AND COMPACTION GROUTING FOR BRIDGE STRUCTURES

Addendum:

Associated Item(s):

Header:

LIMITED MOBILITY AND COMPACTION GROUTING, S.R. 0202 OVER PLANEBROOK ROAD – S-24678
COMPACTION GROUTING, S.R. 0202 OVER CHESTER VALLEY TRAIL – S-24744
COMPACTION GROUTING, S.R. 0202 OVER S.R. 0401 – S-26088

Provision Body:

I. DESCRIPTION

(a) GENERAL:

This work is the limited mobility grouting and compaction grouting for S-24678, S-24744, & S-26088 and includes all transportation, plant, labor, equipment, materials, and the performance of all operations in connection with drilling grout holes, mixing, transporting and injecting the grouting materials; care and disposal of drill cuttings, waste water and waste grout; cleaning and restoration of the work areas upon completion of the work; and all such other operations as are incidental to the drilling and limited mobility and compaction grouting. Limited Mobility Grouting and Compaction Grouting is considered specialty work that shall be performed by an approved specialty subcontractor. A representative of AG&E will be on-site, full-time, to oversee all operations.

(b) PURPOSE:

S-24678

The locations of limited mobility grouting are shown on the Contract Drawings. Limited mobility grout injected into the void spaces or the soil-filled cavities of the bedrock will increase the bedrock quality by filling the void spaces and displacing soft, loose soil-filled cavities with high internal friction grout. The grout is intended to remain in a globular mass which will increase in size as pumping proceeds. The limited mobility grout is incapable of flowing under its own weight into the rock fractures. It is the intent of this procedure to limit the extent of grout travel but to fill the void spaces and compress soft soils, to seal off the top of rock surface and to impede the migration of soil particles and minimize sinkhole activity.

Complete compaction grouting after the limited mobility grouting of the bedrock, from the top of rock to the bottom of the excavated area (bottom of dismantled footing or the bottom of the proposed 1-foot thick PennDOT 2A aggregate layer, whichever is lower in elevation). Compaction grouting is intended to densify the soil overburden. Compaction grouting improves ground condition by displacement. A very viscous (low-mobility), aggregate grout is pumped in stages to displace and densify the surrounding soils. By sequencing the grouting work from primary to secondary locations, this densification process can be performed to achieve significant improvement of the subsurface.

S-24744 & S-26088

The locations of compaction grouting are shown on the Contract Drawings. Complete compaction grouting to a depth of 2B below the Class C concrete mudslab. Compaction grouting is intended to densify the soil overburden. Compaction grouting improves ground condition by displacement. A very viscous (low-mobility), aggregate grout is pumped in stages to displace and densify the surrounding soils. By sequencing the grouting work from primary to secondary locations, this densification process can be performed to achieve significant improvement of the subsurface.

(c) UTILITIES:

Field locate all utilities and modify the grouting plan to avoid damage to any existing pipes, utilities or other underground structures. At S-24678, the utilities between the proposed Temporary Excavation Support and Protection Systems and the front face of the abutments will be relocated prior to grouting operations.

(d) DEFINITIONS

1. Back Pressure: Residual pressure in the grout hole in the absence of grout flow.

2. Grouted Zone:

S-24678

The upper 5 feet of rock (top 5 feet of rock) to the bottom of the excavated area (bottom of dismantled footing or the bottom of the proposed 1-foot thick PennDOT 2A aggregate layer, whichever is lower in elevation). Extend grouting operations 10 feet into rock at locations where voids found within 5 feet of top of rock are identified during the drilling operations.

S24744 & S-26088

Soil Overburden to a depth of 2B below the bottom of Class C concrete mudslab, or 5 feet into rock, whichever is less, to the bottom of Class C concrete mudslab.

3. Grout Take: Quantity of grout measured in cubic feet per foot of grout hole depth in any stage.

4. Injection Riser: A flush-joint steel pipe, having a 3-inch minimum inside diameter, installed tightly in a drilled hole through which grout is injected.

5. Limited Mobility Grouting (LMG): The controlled injection of stiff, low slump, mortar-like cement grout that penetrates into open voids or cavities, displaces loose or soft soil in rock cavities and fills open void spaces into which it is injected, without dislodging the rock or traveling into small fractures and joints and seals off the top of the rock surface.

6. Compaction Grouting: The controlled injection of stiff, low slump, mortar-like soil-cement grout (same as LMG) that densifies surrounding soils, penetrates into cavities, displaces loose or soft soil and fills the open void spaces into which it is injected.

7. Production Drill Hole: Any boring advanced for the purpose of conducting limited mobility and/or compaction grouting in that hole.

8. Drilling Termination Depth:

S-24678

Terminate the hole a minimum of 5 feet into the rock. Extend holes 10 feet into rock at locations where shallow voids (within 5 feet of top of rock) are identified during the drilling operations.

S-24744 & S-26088

Terminate the hole at a depth of 2B below the bottom of Class C concrete mudslab, or 5 feet into rock, whichever is less.

9. Sequencing: Sequence grouting as specified on the Limited Mobility and Compaction Grouting Plan for S-24678 and as specified on the Compaction Grouting Plans for S-24744 & S-26088.

10. Split Spacing: The procedure of locating successive grout holes midway between four previously drilled and grouted holes.

11. Primary holes:

S-24678

Primary holes are specified at 10 foot spacing longitudinally and transversely.

S-24744

Primary holes are specified at 8 foot spacing longitudinally (parallel to CVT baseline) and 7 foot spacing laterally (perpendicular to CVT baseline).

S-26088

Primary holes are specified at 6.67 foot spacing longitudinally and laterally.

12. Secondary/tertiary holes:

Secondary holes are the holes spaced midway between four primary holes; tertiary holes are the holes spaced midway between two primary and two secondary holes.

13. Soil-Cement Grout: A mixture of Portland cement, soil or other filler, and water mixed to a uniform consistency similar to a mortar, with a slump of 2 inches.

14. Stage: A partial or complete length of hole that is grouted as a unit. Stage length is two feet.

15. Upstage Grouting: A method of drilling and grouting, in which each hole is drilled to full depth, followed by grouting of successive stages through a pipe set at successively shallower depths.

II. MATERIAL –

(a) GROUT: Composed of water, Portland cement, and filler; may contain water reducing agent or other approved additive as required for the work. Provide grout with a maximum slump of 2 inches and a minimum 28-day compressive strength of 2,000 psi. Use all grout within 90 minutes of mixing with water. Ready mix grout may be used if in accordance with parameters set forth in this special provision. Alternatively, batch all grout on site using an auger type mixer or a horizontal shaft mortar mixer. Do not use drum type mixers.

(b) WATER: Section 720.1.

(c) CEMENT: Section 701.

(d) FILLER: Any combination of soil, fine aggregate, fly ash, ground granulated blast furnace slag and gravel that produces the following gradation, PI and LL, and particle shapes:

Size Size/No. Percent Passing

3/4 inch 100

#4 70-100

#10 40-90

#40 25-65

#200 10-30

1. PI < 5; LL < 30

2. Use sub-angular to well-rounded particle shapes. Angular, flat, elongated or platy particles are not permitted.

3. Do not use clay.

4. SOIL: Composed of silty sand classified ‘SM’ in accordance with the Unified Soil Classification System, free of clay lumps, roots, and aggregate larger than 3/8 inch.

5. CONCRETE SAND: Section 703.1(c), Type B2 Fine Aggregate.

Provide aggregates to be mixed with mineral fillers.

6. FLY ASH: Section 724.2(b), or ground granulated blast furnace slag, Section 724.3(a).

7. FINE GRAVEL: Mineral aggregates of crushed or natural stones being retained between the standard 4.75-mm (No. 4) and 9.5-mm (3/8-in) sieves. Add fine gravel to the grout where large takes occur. Limit size by the capability of the pumping equipment and set by the contractor.

(e) WATER REDUCING AGENT: A compound possessing characteristics which will increase the flowability of the mixture, assist in dispersal of the cement grains, and neutralize the setting shrinkage of the grout. Conform to the requirements of Publication 408, Section 711.3. Bentonite or other high plasticity clays are prohibited.

III. CONSTRUCTION

(a) CONTRACTOR QUALIFICATIONS

The approved limited mobility and compaction grouting subcontractor shall have the following qualifications:

1. Be a Specialist regularly engaged in low slump limited mobility and/or compaction grouting work.

2. Provide references to substantiate having successfully completed at least five similar low slump limited mobility and/ or compaction grouting projects within the last five years.

3. Provide a full-time grouting superintendent with at least 5 years experience in the methods and procedures required by these specifications.

4. Have the indicated and required equipment in good working condition required to perform the work outlined in this specification.

(b) SUBMITTALS

1. Contractor Qualifications: Submit the required information showing the Grouting Subcontractor's qualifications 30 days prior to the start of work. Submit the grouting Subcontractor's job descriptions, references that may be contacted, key personnel resumes, and lists of equipment in possession to be used on this project. Include among the references owners and engineers familiar with the contractor's performance of limited mobility and/or compaction grouting on specific projects.

Provide the grouting subcontractor's detailed information concerning at least five similar limited mobility and/ or compaction grouting projects within the past five years, including the following information for each project:

a. Name and Location of Project

b. Total Dollar Value of the Limited Mobility and/or Compaction Grouting Portion of the Work

c. Quantity of Limited Mobility and/or Compaction Grouting Placed

d. Equipment Used

e. Grout Mix Design

f. Drilling Methods and Depths

g. Name of Site Superintendent or Foreman in Charge of the Grouting

h. Name, Phone Number and Address of Owner

i. Name, Phone Number and Address of Design Engineer

2. Equipment and Materials List: Submit a list of equipment and materials to be used for approval by the Department. Submit appropriate documentation regarding the control of materials as specified in Publication 408, Section 106. Demonstrate all monitoring and measurement devices and orient the Department's representative to the equipment operation and arrangement as part of this demonstration. Replace any equipment found to be inadequate of achieving the project requirements at no cost to the Department.

3. Submit a detailed grouting and operations plan describing operations for drilling and grouting to achieve improvement of ground/ subgrade by filling potential sinkhole cavities, for the approval by the Department. Include location of all grout holes, sequence of grouting the holes, anticipated depths of injections, volumes and rates, methods of drilling, sealing and extracting risers, mixing, pumping and delivery of grout, and all other aspects of the grouting on the plan. Submit Plan to the Department at least 30 days prior to initiating the work.

4. For any area where sinkhole remediation is selected to be performed by limited mobility and/or compaction grouting, submit a plan describing operations for drilling and grouting to achieve improvement of all ground/subgrade by filling the potential sinkhole cavities, for the approval by the Department.

5. Approximate locations of primary grout holes are shown on the Limited Mobility and/ or Compaction Grouting Plans. Locate secondary holes in between the primary holes. These plans are preliminary and for information purposes only. Adjust the grouting plan as necessary for equipment access, subsurface structures (including the proposed drilled caissons at S-24678), utilities, and other factors affecting the drilling and grouting. Submit the plan to the Department 30 days prior to drilling.

6. Grout Mix Design: Submit a grout mix design, meeting the material requirements and physical properties set forth in these provisions, to achieve the specified strength, pumpability, and slump for approval by the Department.

(c) MATERIAL DELIVERY, STORAGE, AND HANDLING

1. General: Conform to the requirements of Publication 408, Section 106. Store sufficient quantities of each material at the site to ensure that grouting operations will not be delayed by material shortages. Store all materials at temperatures above freezing.

2. Bulk Materials: Properly store all bulk and bagged materials to prevent damage from moisture or contamination. Discard any cement, sand, mineral filler, and water reducing agent that is damaged by moisture or contamination.

3. Fine Gravel: In the event the fine gravel is found to contain foreign matter or oversized particles, screen the material to attain the required particle sizes indicated. No additional payment will be made for screening.

(d) EQUIPMENT

1. General: Provide drilling and grouting equipment of a type, capacity, and mechanical condition necessary for performing the work, as indicated. Provide equipment capable of: re-circulation of the grout to purge the lines and adjust the grout consistency between injections, providing accurate control of grout injection rate, and measuring volume injected into each stage. Comply with all applicable requirements of Local, State, and Federal regulations and codes regarding power, equipment, operation and the layout thereof.

2. Submit an equipment list for the Department’s review indicating the manufacturer, model, type, and capacity of all equipment to be used. Correct any deficiencies noted before proceeding further. Do not substitute any piece of equipment after commencement of the work unless approval is given in writing by the Department. If, during the course of grouting, the Department determines that any piece of equipment is not operating satisfactorily, the Department will require it to be removed immediately and replaced with equipment meeting the Department’s approval.

3. Drilling and Riser Equipment: Provide grout injection risers consisting of flush-joint steel pipes having at least a 3-inch inside diameter. Provide risers with sufficient strength to resist the forces of drilling, installation, grouting and extraction. Provide drilling equipment sufficient to penetrate concrete, soil, rock and other materials that may be encountered during the installation of risers to the depths indicated. Use short riser lengths to permit accurate readings of the riser mounted pressure gauge at all times. Provide drilling equipment capable of installing the risers to the depths required on the approved Limited Mobility and/ or Compaction Grouting Plans, with less than a 1/4-inch annulus between the riser pipe and the inside of the drilled hole. The drilling equipment may be pneumatic, hydraulic, percussion or rotary. It is required that the drilling equipment be of a type that advances the riser during drilling.

4. Pump: Provide a positive-displacement grout pump, piston-type with a constant controllable rate of output. Provide pump capable of injecting stiff soil-cement grout with a slump 2 inches or less at controllable rates from 0.05 cfm to 2.0 cfm at pressures of at least 500 psi, measured at the riser. Calibrate the volume displacement rate of the pump by pumping into a container of known volume of 1 cubic ft or larger. Utilize a stroke counter or other approved volume measurement device to provide a record of volume injected in each stage. Provide equipment for the calibration of the volume measurement device, and perform calibration at the start of the work, and at other times as required by the Department.

5. Pressure gauges: Provide calibrated new pressure gauges with capacities of zero to at least 500 psi, but no greater than 1,000 psi. Provide pressure gauges marked in 10 psi divisions for the full scale with a minimum accuracy of one-half division. Provide a sufficient number of each to cover replacement and recalibration without any delay in work. Provide gauges with a minimum face diameter of 3 inches. Submit calibration certificates for each gauge. Place gauges at the top of the injection riser and at the pump. Provide and maintain gauge savers as necessary to provide accurate readings throughout the work. Alternate digital pressure monitoring devices may be acceptable if calibrated to equal or greater accuracy and approved by the Department.

6. Grout Mixing Equipment: Do not use drum type mixers. Batch all grout on site using an auger type mixer or a horizontal shaft mortar mixer. Provide on-site grout mixing equipment capable of mixing, stirring, pumping, and delivering the grout as indicated. Maintain the grout mixing equipment in optimum operating condition at all times. Replace any grout hole lost or damaged due to mechanical failure of equipment or inadequacy of grout supply by drilling and grouting another hole at the Contractor's expense. Furnish at least one mechanically driven, screw or pug mill type grout mixer capable of effectively mixing and stirring stiff soil-cement grout having a slump of 2 inches or less. Provide mixing equipment capable of continuously metering quantities of materials in the grout mix. A batch mixer may be used in place of the previously noted grout mixer, where quantities of materials are measured and blended into each batch. Provide a mixer with means of dispensing stiff soil-cement grout directly to the grout pump in sufficient quantities.

7. Measurement Equipment:

a. Grout Measurement: Provide equipment for performing accurate and rapid measurements of grout quantities injected, and quantities of water, filler, cement, and additives used for mixing. Demonstrate and calibrate all measurement systems and equipment before the start of grouting. Determine volume of grout pumped by tracking the total volumes of materials used to batch the grout. Provide measurement equipment capable of measuring grout quantities to the nearest 0.1 cubic foot.

b. Movement Monitoring: At S-24678, S-24744, & S-26088, provide equipment necessary to detect movements of the ground surface. Provide a rotating laser level or other approved means to measure ground surface movement at a minimum of 3 points during grouting operations to detect settlement/ heaving of the ground surface and nearby utilities and/ or structures. Provide monitoring equipment capable of accurately measuring movements of 0.1 inch or less. Prior to beginning grouting operations at each hole, survey all points which are to be monitored. Observe all monitoring points continuously during the grouting operations.

S-24678

Install heave monitoring systems adjacent to the Planebrook Road shoring in accordance with the Heave Monitoring Special Provision and Detail. Install monitoring points at a maximum of 20 feet spacing.

S-24744 & S-26088

Install monitoring systems on all utilities located within 20 feet of the grouting operations. Place monitoring points at a maximum of 20 feet spacing for each section of the utility which is within 20 feet of the operations. Submit monitoring system design for approval prior to installation.

c. Piezometer: At S-24744 & S-26088, provide equipment and material to install a single level piezometer, as shown on the attached Vibrating Wire Piezometer Detail, to monitor the pore pressure as the grouting operations are taking place. Each piezometer location is shown on the attached Compaction Grouting Plans. Backfill the piezometers with grout once the test readings are complete.

8. Hole Alignment: Locate grout holes within 0.25 ft of the plan location and align grout holes within 1 degree of planned angle.

(e) MIXES

1. Grout Mixes: Proportion mixes as specified in the approved mix design. Provide a mortar grout consisting of cement, filler and water. Add fluidifier or other approved additives, as needed per the approved mix design.

2. Mix Proportions: Vary the constituents of the grouts to include any or all of the additives, to achieve a pumpable low slump mix with a slump of 2 inches or less. Thicken or otherwise modify the mix so that grout does not form lenses or exude from the ground surface around the injection pipe. Reduced slump and/or addition of fine gravel to the grout may be required where open voids are encountered.

When grouting within 5 feet of utilities, the water/cement ratio may be increased as required (maximum 4-inch slump), so long as the strength requirements for grout which are established in this special provision are met.

3. Provide grout consisting of cement, filler and water sufficient to meet the above maximum slump with a minimum 28- day compressive strength of 2,000 psi in accordance with PTM 604. Provide grout with an infinite egress time (i.e. zero flow) when tested with a Marsh Funnel (flow cone).

(f) DRILLING AND INSTALLATION OF RISER

1. S-24678

Drill and install riser into the bedrock. Drill at least 5 ft below the top of rock elevation to install the riser into the bedrock. Install the riser from the upper 5 feet of rock (top 5 feet of rock) to the bottom of the excavated area (bottom of dismantled footing or the bottom of the proposed 1-foot thick PennDOT 2A aggregate layer, whichever is lower in elevation). Extend grouting operations (including riser installation) 10 feet into rock at locations where shallow voids (within 5 feet of top of rock) are identified during the grouting operations. Use a 3-inch minimum inside diameter flush joint pipe riser installed from the ground surface to the bottom of the grout hole.

S-24744 & S-26088

Drill and install riser a minimum depth of 2B below the bottom of Class C concrete mudslab or 5 feet into rock, whichever is less. Use a 3-inch minimum inside diameter flush joint pipe riser installed from the ground surface to the bottom of the grout hole.

2. Maintain a log of observations including hole number, top of hole elevation, total depth of riser installed, drilling methods used, depth of soil overburden, top of bedrock elevation, possible voids, fractured zones, and other conditions noted during the drilling for each grout hole.

3. Fit the riser tightly within the drill hole. Backfill the annulus using uniformly graded fine dry sand (such as play sand) to achieve a tight fit. An annulus larger than ¼-inch around the riser will not be permitted.

4. Set grout risers in the general order shown on the approved Limited Mobility and/or Compaction Grouting Plans. Drill and set risers at the indicated angle.

5. Risers withdrawn during limited mobility and/or compaction grouting may be reused after cleaning to remove any grout.

(g) GROUTING

1. Limited Mobility and/or Compaction Grouting Plans, Bottom-Up Construction:

Include provisions to prevent damage to subsurface structures and other structures in the vicinity. Modify the plan to include avoidance of utilities such that no drilling is done within 2 ft of existing pipes or conduits and reduce grouting pressure to 50 psi within 5 ft of pipes or conduits, horizontally or vertically, such that no displacement and/or distress occurs at the utility. The Contractor is responsible for all costs associated with utility damage.

At S-24678, modify the plan such that no drilling is done within the proposed locations of the drilled caissons.

2. Procedures:

Perform all grouting operations in the presence of the Department's representative (from AG&E), who shall monitor pumping rates and pressures used. Monitor the grouting and maintain records in accordance with "Record Keeping" outlined in Section "h" below. The procedures shall be in general accordance with the following guidelines:

a. Pump grout using a high-pressure piston-type grout pump through 3-inch minimum inside diameter grout lines at pressures to 500 psi, as measured at the riser. All grout lines, fittings, and riser pipe shall be of the same, uniform diameter. Avoid sharp bends and diameter reductions in the lines and fittings. Control the injection rate to prevent pressure building up too rapidly during injection.

b. Pumping (Injection) Rate – Determine the optimal pumping rate (also refer to "Grouting Pressure" in Section "c." below) by slowly increasing the rate until the pressure shows a sudden drop. Use the pumping rate slightly lower than the rate resulting in the sudden pressure drop, as the production pumping rate. Closely monitor the grout pressure. If, while grouting at a determined production rate, the pressure experiences a sudden drop, reduce the rate below the rate at which the pressure drop occurred. The pumping rate may undergo adjustment with every hole due to the variation of subsurface conditions. In no case shall the pumping rate exceed 1.5 cfm.

c. Grouting Pressure:

1) Continually observe grout pressure.

2) Reduce pressure to 50 psi when grouting is performed within 5 feet of existing utilities (horizontally or vertically).

3) Control grout pressure by variation of the pumping rate.

4) Measure the pressure necessary to pump the grout (at 1 cfm) at the surface with the anticipated length of grout hose and casing, so that the line loss can be estimated.

5) Sudden pressure changes or variations of pumping rate at constant pressure always indicate a significant event that must be documented and addressed by the grouting contractor. These generally lead to undesirable consequences and must be addressed by immediate action, usually by lowering the pumping rate or stopping grout injection.

6) As the volume of grout pumped at any given stage increases, the pressure acting over a greater area produces a larger total force within the formation being grouted, than the same pressure in a small grout mass. This will affect the maximum pressure level that can be safely used, requiring a reduction in grout pressure, via a reduction in pumping rate, as the volume pumped increases.

Perform grouting in accordance with the approved grouting plan and Upstage Grouting, as defined earlier. The bottom of the first stage is the bottom of the drilled grout hole.

At S-24678, inject grout in maximum 2 feet stages, with the top of the final stage at the bottom of the excavated area (bottom of dismantled footing or the bottom of the proposed 1-foot thick PennDOT 2A aggregate layer, whichever is lower in elevation). Where the bottom of the dismantled footing controls excavation, fill grout holes from the bottom of the dismantled footing to the bottom of the proposed 1-foot thick PennDOT 2A aggregate layer with grout in accordance with PennDOT Publication 222, Section 210.

At S-24744 & S-26088, inject grout in maximum 2 feet stages, with the top of the final stage at the bottom of the proposed Class C concrete mudslab. Just prior to each stage, extract the riser the required stage length.

d. A stage will be judged complete when one of the following refusal criteria is met:

1) Grout flow ceased at maximum injection pressure of 500 psi at the riser.

2) Ground or structure movement (tolerance as indicated below) is detected.

3) More than 100 cu ft of grout is injected in a stage. If the grout take in two consecutive stages exceeds 50 cu ft per foot of grout stage, suspend grouting in that hole for 24 hours prior to grouting the next stage.

e. Upon meeting one or more refusal criteria, extract the riser the required stage length. Inject grout continuously as the riser is withdrawn between stages. Backfill grout holes with grout to the bottom of the 1 foot PennDOT 2A layer at S-24678 and to the bottom of proposed Class C concrete mudslab at S-24744 & S-26088 in accordance with PennDOT Publication 222, Section 210.

f. Secure risers against lifting under the grout pressures in the hole. Where a riser lifts under pressure from the grout, reinstall the riser to the required depth at the Contractor's expense, secure, and re-grout.

g. Continuously monitor ground and structure movement while pumping grout. Monitor potential movements near the riser and surrounding area, and to whatever distance is required to prevent uncontrolled heave or damage to existing structures and utilities. Note any heave on the grouting log, indicating the nature and magnitude of the movement and stage of grouting when it occurred. Stop pumping grout if the ground movement exceeds ¼-inch. Investigate whether any utilities and/or structures are affected. Resume grouting after raising to the next stage upon approval of the Engineer.

h. Be responsible for any damage to the existing utilities. Repair damage, meeting the utility owners specifications at no cost to the department.

i. Record Keeping: Maintain logs of stage depths, changes in grout mix, and grout injections in each stage, including pressures, takes, refusal criteria for each location grouted, remarks concerning movement monitoring and other information about the grouting.

j. Upon completion of the grout holes as indicated in the approved grouting plans, present the results of the grouting to the Engineer in a format that indicates grout take per hole and grout take per stage so that an evaluation can be made concerning grout procedures. After the evaluation is made, proceed to grouting the secondary (as required) holes with any new procedures as indicated.

(h) HOLE LAYOUT & TOLERANCES

1. Grout Hole Layout: Layout grout holes in accordance with the approved Limited Mobility and/or Compaction Grouting Plans.

2. Grout Hole Tolerances: Do not deviate grout holes more than 1 degree from the planned orientation. Maintain tip of holes within 1 ft of the planned location. Holes may be angled from the planned orientation, if approved by the Engineer, to avoid obstructions, provided that the same required spacing between grout injections, both horizontally and vertically is achieved, within the grouted support zone.

3. At S-24678, locate grout holes no more than 1.5 feet beyond the the 1' PennDOT 2A layer. At S-24744 & S-26088, locate grout holes no more than 1.5 feet beyond the proposed Class C concrete mudslab.

(i) RESTORATION

Remove and properly dispose of all excess grout or other debris generated as part of the work. Fill all holes with grout to the surface through the riser as it is extracted. Patch all holes in pavement with a non-shrink cement or bituminous concrete as directed. Repair damage to structures and utilities caused by the grouting. Complete restoration to the satisfaction of the Department prior to final payment.

(j) QUALITY CONTROL

1. General: Establish and maintain quality control for all operations to assure compliance with specifications, and maintain records of quality control for all operations. Assure that satisfactory drilling and grouting equipment is provided and kept in good mechanical condition, that the work complies with all requirements of the specifications, and that work areas are protected and properly cleaned up. Engage an experienced geotechnical engineer to monitor the grouting operations.

2. Grout Testing: Perform slump tests in accordance with PTM No. 600. Test slump on each batch of grout delivered and at the discharge of the grout pipe at the riser. Perform slump tests at least twice daily and whenever a change in grout consistency or appearance is noted. Provide at least one gradation analysis of the soil/filler used in the grout, or one test for every 2,000 cubic feet of grout, and whenever a change in the appearance of the grout or the soil/filler is noted. Take samples of grout at least once per day for strength testing as directed. Prepare, cure, and test the grout samples in accordance with PTM Nos. 604 and 611.

3. Movement Monitoring: Monitor ground movement as indicated in Section III.(d)7.b. above.

4. Piezometer: Install piezometers as indicated in the piezometer installation special provision, detail, and in Section III.(d)7.c. above.

5. Verification Drilling: As indicated in the Verification Drilling Special Provision.

6. Reporting: Furnish a copy of these records, and a record of any corrective action taken, to the Department.

IV. MEASUREMENT AND PAYMENT –

ITEM 9006-0001 Injection Hole Drilling: Linear foot, hole advanced through soil or rock.

ITEM 9220-0001 Soil-Cement Grout: Cubic yard.

00 - aLIMITED MOBILITY GROUTING FOR SINKHOLE REMEDIATION

Addendum:

Associated Item(s):

Header:
LIMITED MOBILITY GROUTING FOR SINKHOLE REMEDIATION

Provision Body:

DESCRIPTION

(a) GENERAL: The work includes all transportation, labor, equipment, materials, and the performance of all operations in connection with drilling grout holes, and mixing and injecting the grouting materials; care and disposal of drill cuttings, waste

water and waste grout; cleaning and restoration of the work areas upon completion of the work, and all such other operations as are incidental to the drilling and limited mobility grouting. Limited Mobility Grouting is considered a specialty work will be performed by an approved specialty subcontractor. A representative of PENNDOT will be on- site, full- time, to oversee all operations. The Limited Mobility Grouting will be utilized for sinkhole remediation as directed by the Department Representative. The grouting plan will be developed by the Engineer.

(b) PURPOSE: Limited mobility grouting injected into the void spaces or the soil- filled cavities of the bedrock will increase the bedrock quality by filling the void spaces and displacing soft, loose soil-filling in cavities with high internal friction grout. The grout is intended to remain in a globular mass which will increase in size as pumping proceeds. The limited mobility grout is incapable of flowing under its own weight into the rock fractures. It is the intent of this procedure to limit the extent of grout travel but to fill the void spaces and compress soft soils, to seal off the top of rock surface and to impede the migration of soil particles and minimize sinkhole activity.

(c) UTILITIES: The contractor will be responsible for field locating all utilities and modifying the grouting plan to avoid damage to any existing pipes, utilities or other underground structures.

(d) DEFINITIONS

• Back Pressure: Residual pressure in the grout hole in the absence of grout flow.

• Contractor: The Grouting Subcontractor, unless otherwise indicated.

• Department: The Pennsylvania Department of Transportation (PennDOT).

• Grouted Zone: The upper 10 ft of rock (top of rock).

• Grout Take: Quantity of grout measured in cubic feet in any stage.

• Injection Riser: A flush-joint steel pipe, having a 3-inch inside diameter, installed tightly in a drilled hole through which grout is injected.

• Limited Mobility Grouting: The controlled injection of stiff, low slump, mortar-like cement grout that penetrates into open voids or cavities, displaces loose or soft soil in rock cavities and fills open void spaces into which it is injected and seals off the top of rock surface.

• Production Drill Hole: Any boring advanced for the purpose of conducting limited mobility grouting in that hole.

• Sequencing – Order in which planed grout holes are grouted

• Cement Grout: A mixture of Portland cement, filler and water mixed to a uniform consistency similar to a mortar, with a slump of 1 inch or less.

• Stage: A partial length of hole that is grouted as a unit. Stage length is 2 feet.

• Upstage Grouting: A method of drilling and grouting, in which each hole is drilled to full depth, followed by grouting of successive stages through a pipe set at successively shallower depths.

MATERIAL -

(a) GROUT: Composed of water, Portland cement, and filler and may contain water reducing agent or other approved additive as required for the work. Provide grout with a maximum slump of 1 inch and a minimum 28-day compressive strength of 2,000 psi.

1) WATER: Conform to requirements of Publication 408, Section 720.1.

2) CEMENT: Conform to requirements of Publication 408, Section 701.

3) SOIL: Composed of silty sand classified ‘SM’ in accordance with the Unified Soil Classification System, free of clay lumps, roots, and aggregate larger than 3/8 inch. Provide material having particles with rounded or cubical shapes and with the ratio of the smallest to largest dimension of the grains greater than 0.5. The soil may be manufactured as a combination of separately processed sizes or classifications; the different components may be batched separately, or blended prior to delivery to the mixing plant. The soil may consist of a mixture of clean concrete sand with mineral fillers added in lieu of silt. Provide soil meeting the following guidelines:

Size/No. Percent Passing	Percent Passing
9.5 mm(3/8 inch)	100
4.75 mm (No.4)	80-100
2.0 mm (No.10)	50-100
0.075 mm (No. 200)	10-30

• PI < 5; LL < 30

(e) Provide a soil mixture that produces a mix with the minimum amount of fines to meet the grout requirements.

(f) CONCRETE SAND: Provide aggregates to be mixed with mineral fillers. Sand that conforms to the requirements of Publication 408, Section 703.1(c), Type B2 Fine Aggregate.

(g) MINERAL FILLER: Fly ash conforming to the requirements of Publication 408, Section 724.2(b), or ground granulated blast furnace slag conforming to the requirements of Publication 408, Section 724.3(a).

(h) WATER REDUCING AGENT: A compound possessing characteristics which will increase the flowability of the mixture, assist in dispersal of the cement grains, and neutralize the setting shrinkage of the grout. Conform to the requirements of Publication 408, Section 711.3. Bentonite or other high plasticity clays are prohibited at concentrations greater than 1 percent by dry weight.

(i) FINE GRAVEL: Mineral aggregates of crushed or natural stones being retained between the standard 4.75 mm (No. 4) and 9.5 mm (3/8 in) sieves that should be added to the grout where large takes occur. Size should be limited by the capability of the pumping equipment and set by the contractor.

CONSTRUCTION

CONTRACTOR QUALIFICATIONS

(a) Provide an approved limited mobility grouting subcontractor with the following qualifications:

• Be a Specialist regularly engaged in low slump limited mobility grouting work.

• Provide references to substantiate having completed successfully at least five similar low slump limited mobility grouting projects within the last five years.

• Provide a full-time grouting superintendent with at least 5 years experience in the methods and procedures required by these specifications.

• Have the indicated equipment in good working condition required to perform the work outlined in this specification.

(b) SUBMITTALS

1. Contractor Qualifications: Submit the information necessary to show compliance of Grouting Subcontractor with qualifications 30 days prior to the start of work. Submit the grouting Subcontractor’s financial statements, job descriptions, references that may be contacted, key personnel resumes and lists of equipment in possession to be used on this project. Include among the references owners and engineers familiar with the contractor’s performance of limited mobility grouting on specific projects.

Provide the grouting subcontractor’s detailed information concerning at least five similar limited mobility grouting projects within the past five years, including the following information for each project:

• Name and Location of Project

• Total Dollar Value of the Limited Mobility Grouting Portion of the Work

• Quantity of Limited Mobility Grout Placed

• Equipment Used

• Grout Mix Design

• Drilling Methods and Depths

• Name of Site Superintendent or Foreman in Charge of the Grouting

• Name, Phone Number and Address of Owner

• Name, Phone Number and Address of Design Engineer

Submit all of the above information at least 30 days prior to the start of the grouting work.

2. Equipment and Materials List: Submit a list of equipment and materials to be used, for approval by the Department. Submit appropriate documentation regarding the control of materials as specified in Publication 408, Section 106. Demonstrate the grouting subcontractor's equipment to be capable of injecting the required mix at the required pressures at the site, prior to commencement of grouting, by preparing a test injection at a location designated by the Department. Demonstrate all monitoring and measurement devices and orient the Department's representative to the equipment operation and arrangement as part of this demonstration. Replace any equipment found to be inadequate of achieving the project requirements at no cost to the Department.

3. Submit a detailed grouting and operations plan describing operations for drilling and grouting to achieve improvement of rock surface by filling the potential sinkhole cavities, for the approval by the Department. Include location of all grout holes, sequence of grouting the holes, anticipated depths of injections, volumes and rates, methods of drilling, sealing and extracting risers, mixing, pumping and delivery of grout, and all other aspects of the grouting on the plan. Submit Plan to the Department 15 days prior to initiating the work.

4. Grout Mix Design: Submit a grout mix design, meeting the material requirements and physical properties set forth in these provisions, to achieve the specified strength, pumpability, and slump for approval by the Department.

(c) MATERIAL DELIVERY, STORAGE, AND HANDLING

1. General: Conform to the requirements of Section 106. Store sufficient quantities of each material at the site to ensure that grouting operations will not be delayed by material shortages. Store all materials at temperatures above freezing.

2. Bulk Materials: Properly store all bulk and bagged materials to prevent damage from moisture or contamination. Discard any cement, sand, mineral filler, and water reducing agent that is damaged by moisture or contamination.

3. Fine Gravel: In the event the fine gravel is found to contain foreign matter or oversize particles, screen the material to attain the required particle sizes indicated. No additional payment will be made for screening.

(d) EQUIPMENT

1. General: Provide drilling and grouting equipment of a type, capacity, and mechanical condition necessary for doing the work, as indicated. Provide equipment capable of: re- circulation of the grout to purge the lines and adjust the grout consistency between injections, providing accurate control of grout injection rate, and measuring volume injected into each stage. Comply with all applicable requirements of Local, State, and Federal regulations and codes regarding the power, equipment, operation and the layout thereof.

2. Submit an equipment list for the Department's review indicating the manufacturer, model, type, and capacity of all equipment to be used. Prior to commencement of work, demonstrate in the presence of the Department, at the job site, that the mechanical condition of the equipment is satisfactory by pumping a test mix and performing a test injection. Correct any deficiencies noted before proceeding further. Do not substitute any piece of equipment after commencement of the work unless approval is given in writing by the Department. If, during the course of grouting, the Department determines that any piece of equipment is not operating satisfactorily, the Department will require it to be removed immediately and replaced with one meeting the Department's approval.

3. Provide automated recording equipment that continually monitors and records the grout pressure, injection rate, grout volume take per stage, depth and hole number/ location. The equipment must be capable of providing a daily record of operations to provide to the Department.

4. Drilling and Riser Equipment: Provide grout injection risers consisting of flush- joint steel pipes having at least 3- inch inside diameter. Provide risers with sufficient strength to resist the forces of drilling, installation, grouting and extraction. Provide drilling equipment sufficient to penetrate concrete, soil, rock and other materials that may be encountered during the installation of risers to the depths indicated. Use short riser lengths to permit accurate readings of the riser mounted pressure gage at all times. Provide drilling equipment capable of installing the risers to the depths required. The drilling equipment may be pneumatic, hydraulic, percussion or rotary. It is required that the drilling equipment be of a type that advances the riser during drilling.

5. Pump: Provide a positive- displacement grout pump, piston- type with a constant controllable rate of output. Provide pump capable of injecting stiff soil-cement grout with a slump 1 inch or less at controllable rates from 0.05 cfm to 2.0 cfm at pressures of at least 600 psi, measured at the riser. Calibrate the volume displacement rate of the pump by pumping into a container of known

volume of 1 cubic ft or larger. Utilize a stroke counter or other approved volume measurement device to provide a record of volume injected in each stage. Provide equipment for the calibration of the volume measurement device and perform calibration at the start of the work and at other times as required by the Department.

6. Pressure gauges: Provide calibrated new pressure gauges with capacities of zero to at least 600 psi, but no greater than 1,000 psi. Provide pressure gauges marked in 10 psi divisions for the full scale with a minimum accuracy of one-half division. Provide a sufficient number of each to cover replacement and recalibration without any delay in work. Provide gauges with a minimum face diameter of 3 inch. Submit calibration certificates for each gauge. Place gauges at the top of the injection riser and at the pump. Provide and maintain gauge savers as necessary to provide accurate readings throughout the work. Alternate digital pressure monitoring devices may be acceptable if calibrated to equal or greater accuracy and approved by the Department.

7. Grout Mixing Equipment: Do not use ready mix grout or drum type mixers. Batch all grout on site using an auger type mixer or a horizontal shaft mortar mixer. Provide on-site grout mixing equipment capable of mixing, stirring, pumping, and delivering the grout as indicated. Maintain the grout mixing equipment in optimum operating condition at all times. Replace any grout hole lost or damaged due to mechanical failure of equipment or inadequacy of grout supply by drilling and grouting another hole at the Contractor's expense. Furnish at least one mechanically driven, screw or pug mill type grout mixer capable of effectively mixing and stirring stiff soil-cement grout having a slump of 1 inch or less. Provide mixing equipment capable of continuously metering quantities of materials in the grout mix. A batch mixer may be used in place of the previously noted grout mixer, where quantities of materials are measured and blended into each batch. Provide a mixer with means of dispensing stiff soil cement grout directly to the grout pump in sufficient quantities.

8. Measurement Equipment:

• Grout Measurement: Provide equipment for performing accurate and rapid measurements of grout quantities injected, and quantities of water, filler, cement, and additives used for mixing. Demonstrate and calibrate all measurement systems and equipment before the start of grouting. Determine volume of grout pumped by tracking of total of volumes of materials used to batch the grout. Provide measurement equipment capable of measuring grout quantities to the nearest 0.1 cubic ft.

• Movement Monitoring: Provide equipment necessary to detect movements of the ground surface. Provide a rotating laser level or other approved means to measure ground surface movement of ½” around the perimeter of the grouted hole. Provide monitoring equipment capable of accurately measuring movements of 0.1 inch or less.

(e) MIXES

• Grout Mixes: Proportion mixes as specified in the approved mix design. Provide a grout consisting of cement, filler and water. Add other approved additives, as needed per the approved mix design.

• Mix Proportions: Vary the constituents of the grouts to include any or all of the additives, to achieve a pumpable low slump mix with a slump of 1 inch or less. Thicken or otherwise modify the mix so that grout does not form lenses or exude from the ground surface around the injection pipe. Reduced slump and/or addition of fine gravel to the grout may be required where open voids are encountered.

• Provide grout consisting of cement, filler and water sufficient to meet the above maximum slump with a minimum 28- day compressive strength of 2,000 psi in accordance with PTM 604. Provide grout with an infinite egress time (i.e. zero flow) when tested with a Marsh Funnel (flow cone).

(f) DRILLING AND INSTALLATION OF RISER

1. Drill and install riser into the bedrock. Drill at least 10 ft below the top of rock elevation to install the riser into the bedrock. Install 3-inch diameter flush joint pipe riser from the ground surface to the bottom of the grout hole. Terminate grout holes in rock at least 1 ft beyond any encountered voids or soil seams.

2. Maintain a log of observations including hole number, top of hole elevation, total depth of riser installed, drilling methods used, depth of soil overburden, top of bedrock elevation, possible voids, fractured zones, and other conditions noted during the drilling for each grout hole.

3. Fit the riser tightly within the drill hole. Backfill the annulus using uniformly graded fine dry sand (such as play sand) to achieve a tight fit. An annulus larger than 1/4-inch around the riser will not be permitted.

4. Set grout risers in the general order shown on the approved Foundation Grouting Plan. Drill and set risers vertically plumb unless indicated otherwise.

5. Risers withdrawn during limited mobility grouting may be reused after cleaning to remove any grout.

(g) GROUTING

1. Include provisions to prevent damage to subsurface structures and other structures in the vicinity. Modify the plan to include avoidance of utilities such that no drilling is done within 2 ft of existing pipes or conduits and no grout is injected within 5 ft of pipes or conduits horizontally or vertically.

2. Procedures: Perform all grouting operations in the presence of the Department's representative. The Representative will monitor pumping rates, and pressures used. Monitor the grouting and maintain records in accordance with "Record Keeping" outlined below. Specific procedures, in accordance with the following guidelines, will be determined by subsurface conditions:

• Pump grout using a high-pressure piston-type grout pump through 3-inch inside diameter grout lines at pressures up to 600 psi, as measured at the riser. Provide grout lines, fittings and riser pipes of the same, uniform diameter. Avoid sharp bends and diameter reductions in the lines and fittings. Control the injection rate to prevent pressure building up too rapidly during injection.

• Pumping (Injection) Rate – Determine the optimal pumping rate (also refer to Grouting Pressure) by slowly increasing the rate until the pressure shows a sudden drop, indicating that hydro-fracturing has initiated. Use the pumping rate slightly lower than the rate resulting in the sudden pressure drop, as the production pumping rate. Closely monitor the grout pressure. While grouting at a determined production rate, the pressure experiences a sudden drop, reduce the rate below the rate at which the pressure drop occurred. The pumping rate may undergo adjustment with every hole due to the variation of subsurface conditions. Do not exceed a pumping rate of 1.5 cfm.

• Grouting Pressure –

1. Continually observe grout pressure

2. Control grout pressure by variation of the pumping rate

3. Measure the pressure necessary to pump the grout (at 1 cfm) at the surface with the anticipated length of grout hose and casing, so that the line loss can be estimated.

4. Sudden pressure changes or variations of pumping rate at constant pressure always indicate a significant event that must be documented and addressed by the grouting contractor. These generally lead to undesirable consequences and must be addressed by immediate action, usually by lowering the pumping rate or stopping grout injection.

5. As the volume of grout pumped at any given stage increases, the pressure acting over a greater area produces a larger total force within the formation being grouted, than the same pressure in a small grout mass. This will affect the maximum pressure level that can be safely used, requiring a reduction in grout pressure, via a reduction in pumping rate, as the volume pumped increases.

• Perform grouting and Upstage Grouting, as defined earlier. The bottom of the first stage is the bottom of the drilled grout hole. Inject grout in max. 2-ft stages, with the top of the final stage at 1' above the top of bedrock. Just prior to grouting each stage, extract the riser the required stage length.

• A stage will be judged complete when one of the following refusal criteria is met:

1. Grout flow ceased at maximum injection pressure 600 psi at the riser.

2. Ground or structure movement (tolerance as indicated below) is detected.

3. More than 100 cf of grout is injected in a stage. If the grout take in two consecutive stages exceed 50 cf per foot of grout, suspend grouting in that hole for 24 hours prior to grouting the next stage.

• Upon meeting one or more refusal criteria, extract the riser the required stage length. Repeat the grouting process to 1' above the top of bedrock as determined during drilling of the grout hole. Inject grout continuously as the riser is withdrawn between stages. Backfill grout holes with grout to the surface.

• Secure risers against lifting under the grout pressures in the hole. Where a riser lifts under pressure from the grout, reinstall the riser to the required depth at the Contractor's expense, secure, and regrout.

• Continuously monitor ground and structure movement while pumping grout. Monitor for movements near the riser and surrounding area and to whatever distance is required to prevent uncontrolled heave or damage to existing structures. Note any heave on the grouting log indicating the nature and magnitude of the movement and stage of grouting when it occurred. Stop pumping grout if the ground movement exceeds ½ inch. Investigate whether any utilities and/or structures are affected. Resume grouting after approval from the engineer.

• Record Keeping: Maintain logs of stage depths, changes in grout mix, and grout injections in each stage including pressures, takes, refusal criteria for each location grouted, remarks concerning movement monitoring and other information about the grouting.

• Upon completion of the primary grout holes as indicated or directed, present the results of the primary grouting to the Engineer in a format that indicates grout take per hole and grout take per stage so that an evaluation can be made concerning grout procedures. After the evaluation is made, proceed to grouting the secondary holes with any new procedures as directed. Provide tertiary and other additional grouting as directed after verification drilling has been completed.

(h) HOLE LAYOUT & TOLERANCES

1. Grout Hole Layout: Layout grout holes as directed or required.

2. Grout Hole Tolerances: Do not deviate grout holes more than 1 degree from the planned orientation. Maintain tip of holes within 1 ft of the planned location. Holes may be angled from the planned orientation, if approved by the inspector, to avoid obstructions, provided that the same required spacing between grout injections, both horizontally and vertically is achieved, within the grouted support zone.

(i) RESTORATION

1. Remove and properly dispose of all excess grout or other debris generated as part of the work. Fill all holes with grout to the surface through the riser as it is extracted. Patch all holes in pavement with a non- shrink cement or bituminous concrete as directed. Repair damage to structures and utilities caused by the grouting. Restore the site to the satisfaction of the Department prior to final payment.

(j) QUALITY CONTROL

1. General: Establish and maintain quality control for all operations to assure compliance with specifications and maintain records of quality control for all operations. Assure that satisfactory drilling and grouting equipment is provided and kept in good mechanical condition, that the work complies with all requirements of the specifications, and that work areas are protected and

properly cleaned up.

2. Grout Testing: Perform slump tests in accordance with PTM No. 600. Test slump on each batch of grout delivered and at the discharge of the grout pipe at the riser. Perform slump tests at least twice daily and whenever a change in grout consistency or appearance is noted. Provide at least one gradation analysis of the soil used in the grout or one test for every 5,000 cubic ft of grout and whenever a change in the appearance of the grout or the soil is noted. Take samples of grout at least once per day for strength testing as directed. Prepare, cure and test the grout samples in accordance with PTM Nos. 604 and 611.

3. Verification Drilling: Provide diamond core drilling as directed in accordance with Pub. 222 Section 204. Drill unsampled to top of rock in accordance with section 202. Drill through the rock using a split inner barrel to recover as much rock/grout as possible.

4. Reporting: Furnish a copy of these records, and a record of any corrective action taken, to the Department.

MEASUREMENT AND PAYMENT –

ITEM 0203-0001 Class 1 Excavation, Cubic Yard

ITEM 0212-0014 Geotextile, Class 4, Type A, Square Yard

ITEM 9006-0001 Injection Hole Drilling: Linear foot, hole advanced through soil or rock.

ITEM 9006-0002 Verification Drilling – Unsampled, Linear Foot

ITEM 9006-0003 Verification Drilling – Recoverable Core, Linear Foot

ITEM 9220-0001 Soil-Cement Grout: Cubic yard

00 - aPART B - SPECIAL DRAWINGS AND SPECIAL DESIGN REQUIREMENTS

Addendum:

Associated Item(s):

Header:
PART B - SPECIAL DRAWINGS AND SPECIAL DESIGN REQUIREMENTS

Provision Body:
PART B - SPECIAL DRAWINGS AND SPECIAL DESIGN REQUIREMENTS

1. Design alternate structures as specified and in accordance with applicable Strike-Off Letters.

2. Design the structure for Seismic Zone 2 in accordance with PennDOT Design Manual Part 4 and AASHTO LRFD Bridge Design Specifications.

3. If refined method of analysis is required for steel alternatives using straight girders, hire a Department pre-approved bridge design consultant experienced in the design of skewed bridges using refined method of analysis. Contact the Department to obtain a list of pre-approved consultants, prior to beginning the design for the alternate superstructure using refined method of analysis. Use only the Department approved software for design using refined method of analysis.

4. Maintain minimum required clearances.

5. Do not change roadway alignments from the as-designed structures.

6. Do not change the location of the abutment beam seats or wingwalls.

7. Do not change substructure skew, span, roadway profile, or cross sections from as-designed structure.

8. Do not change the wingwall configurations shown in the "as-designed" structure.

9. Where Mechanically Stabilized Earth walls are specified for abutment and wingwalls, alternate wall types are not permitted.

10. Maintain same curb-to-curb bridge width as "as-designed" structure. Provide same bridge barriers as shown on "as-designed" plans, maintaining same out-to-out bridge width.

11. Construct cast-in-place barriers.

12. Do not use lightweight concrete.

13. Use epoxy coated reinforcement bars in locations the same as specified for the "as designed" bridge.

14. Stay- in- place form systems other than that shown on BC-732M will be accepted by the Department if they are determined to be the equivalent to the system shown on BC-732M.

15. Do not use precast panel forms for placing the concrete deck slab in lieu of metal stay-in-place forms.

16. In any alternate superstructure design, use composite design for superimposed dead loads and live loads.

17. Do not use vibrating screed type finishing machines on the bridge deck.

18. Do not use deck joints.

19. Provide no less than four beams on the alternate superstructure.

20. If the steel alternate is selected, paint the structural steel in accordance with Section 1060 and the Contract Special Provisions.

21. If steel I-shaped girders are selected, they can be hybrid girders, or any standard shape, or standard shapes modified in depth and/or configuration to fit the proposed design concept.

22. Prestressed concrete alternate superstructure will only be permitted as standard shape I- beams, bulb- tee beams or box beams.

23. Erection methods are open, but submit to the Engineer for approval. Temporary erection stresses not to exceed the design stresses.

24. Do not use steel box girders.

25. Precast concrete diaphragms are not permitted.

26. An alternate substructure is not allowed. The abutment locations may not be changed in an alternate design structure.

27. If utilities are required to be relocated to accommodate the proposed girder locations in an alternate design, the cost of utility relocations is at the Contractor’s expense.

28. The Department reserves the right to reject alternate designs for aesthetic reasons or quality of product, as determined solely by the Department.

29. Do not blast to excavate or place the bridge footings.

30. Provide a complete set of computations for the alternate designs. Include the designs of the superstructure and appropriate analysis of as- designed substructure and foundation elements. Provide all documentation for all loadings applicable to the alternate designs. Do not use references to the "as- designed" calculations. Reproduce any information contained in the computations for the "as- designed" structure if it is to be included in the alternate designs.

31. Prepare alternate design plans using English (US) units.

32. Use composite design for superimposed dead loads and live loads.

33. Use the same design loads, methods, grade of reinforcement and class of concrete as indicated for the "as- designed" structure.

34. Shop drawings for elastomeric bearing pads are not required.

35. Submit shop drawings for approval by the District Bridge Engineer only after pertinent design drawings are approved.

36. Maintain construction staging per the as-designed structure and MPT plans.

00 - aPRECAST CONSPAN CONCRETE ARCH SYSTEM

Addendum:

Associated Item(s):

Header:
PRECAST CONSPAN CONCRETE SYSTEM

Provision Body:
I DESCRIPTION - This work is the design, manufacture, storage, delivery, installation, and assembly of precast reinforced concrete structure units, (precast segments) along with construction of footings, wingwalls, and headwall as indicated and specified.

II MATERIAL -

(a) Precast Reinforced Concrete Structure. CON/SPAN PRECAST BRIDGE. Drawing No. 86-353 PE (Dated 06/29/01), including design and fabrication requirements is attached as "PENNDOT Drawing No. 86-353 PE". Obtain precast segments from a fabricator listed in Bulletin 15, certify in accordance with Section 106.03(b)3.

(b) Other Material.

Class A Cement Concrete. Section 704. Do not use admixture containing chlorides.

Reinforcement Bars. Section 1002

Galvanizing Anchoring Assembly. Section 1105.02

Concrete Bonding Compound. Section 706.

Premolded Expansion Joint Filler. Section 705.1

Joint Seal: Type I or Type II with primer. ASTM C-877 except exclude steel straps.

Backfill: Refer to special provision: 00 - FLOWABLE BACKFILL, TYPE D, MODIFIED

Geotextile Fabric: Class 1. Section 1001.3(d).

Geotextile Fabric: Class2, Type A. Section 735.

Nonshrink Grout. Section 1080.2(c).

Membrane Sealers. Section 680 or as specified in Special Provisions.

Pipe Underdrain. Section 610.2 and 615.2.

III CONSTRUCTION -

(a) Design. Provide design in accordance with Drawing No. 86-353 PE and contract documents.

(b) Shop Drawings. Provide approved shop drawings before fabricating precast segments.

Show precast segment length on drawing. Provide precast segments of maximum length compatible with hauling equipment in order to minimize the number of joints.

Provide shop drawings meeting the general requirements of Section 105.02(d).

Provide shop drawings clearly showing all items incorporated into the precast segments including all reinforcing. List items such as chairs and inserts by source, type and supplier.

(c) Inspection. Precast segments will be inspected by Department representatives during the complete fabrication process.

(d) Quality Control.

1. General. Each fabricating plant establishes a level of quality control based on uniform practices in all stages of production.

2. Quality Control Personnel. The fabricator provides personnel assigned to, and responsible for, quality control.

(e) Handling and Storage. Handle and Storage. Handle and store precast segments such that damage will not occur to the concrete or reinforcing steel.

(f) Delivery. Replace precast segment damaged by improper storing, handling, transporting or erection at no expense to the Department.

Precast segments will be inspected again by the Engineer at the site for possible damage and cracking during shipment and for tolerances and other dimensions required for the satisfactory assembly.

Do not ship precast segments until the 28 day minimum compressive strength is attained.

Provide 24 hour advance notice of loading and shipping schedule. Have the Department representative verify Form CS-4171 and properly tag precast segments prior to shipping. Do not ship unapproved items.

(g) Installation Requirements.

1. Foundation. Excavate and construct footing in accordance with Section 1001.3 as indicated.

2. Grouting. Grout hand holes, pockets, bolt sleeves, tie rod holes, and lifting lugs after joints are sealed and hardware is installed.

3. Placement. Place precast segments carefully on the footing. Do not damage the precast segments or footing.

4. Backfill. Backfill in accordance with Section 220.3(b).

5. Joints. Seal the outside wall at every joint, with joint wrap.

(h) Wingwalls. Construct wingwalls as indicated.

(i) Concrete Bonding Compound. When wing walls are specified, coat the contact surfaces with an epoxy bonding compound in accordance with ASTM-C881.

(j) Protective Coating. When specified, provide protective coating in accordance with the contract plans.

(k) Curing. Section 714.8

IV MEASUREMENT AND PAYMENT - Linear Foot

This item is considered as a component to the lump sum for S-24744. No separate payment will be made.

00 - aPROTECTIVE COATING FOR REINFORCED CONCRETE SURFACES (PENETRATING SEALERS, SUBSTRUCTURE), MODIFIED

Addendum:

Associated Item(s):

Header:
PROTECTIVE COATING FOR REINFORCED CONCRETE SURFACES, MODIFIED

Provision Body:

DESCRIPTION – Section 1019.1 and as follows:

This work is applying a pigmented protective coating on the concrete pedestal walls as shown on structure drawings S-24744.

MATERIAL – Section 1019.2 and modify Section 1019.2 (b) (2), bullet 5 as follows:

- Pigmentation added so the cured coating conforms to the Federal Color FS 37855.

CONSTRUCTION – Section 1019.3

MEASUREMENT AND PAYMENT – Section 1019.4

This item is a component of the following item:

ITEM 8510-0001 CULVERT SYSTEM, AS DESIGNED, S-24744

No separate payment will be made.

00 - aROAD USERS LIQUIDATED DAMAGES AND MILESTONE DATE

Addendum:

Associated Item(s):

Header:
ROAD USERS LIQUIDATED DAMAGES AND MILESTONE DATE

Provision Body:

In accordance with Section 108.07 and as follows

Section 108.07(b) Road Users Liquidated Damages. Delete the first sentence and add the following:

Road Users Liquidated Damages will be charged as follows:

1. 15-minutes Complete Stoppage of SR 0202

Road Users Liquidated Damages will be charged at the following rate schedule per direction for each 15 minutes, or portion thereof, that the roadway is not opened to the traffic as indicated beyond the allowable 15 minutes between 9:00 PM to 5:00 AM daily Sunday thru Thursday, and from Midnight to 10:00 AM Saturday and Sunday. Open roadway to traffic, as indicated and/or as directed.

10:00 PM to 5:00 AM daily Sunday thru Thursday

TIME PERIOD RATE

9:00 PM to 5:00 AM $ 1222 per 15 minutes

5:00 AM to 6:00 AM $ 1519 per 15 minutes

6:00 AM to 7:00 AM $ 3401 per 15 minutes

7:00 AM to 9:00 AM $ 4439 per 15 minutes

Midnight to 10:00 AM Saturday and Sunday

TIME PERIOD RATE

Midnight to 10:00 AM $ 1222 per 15 minutes

2. Off-Peak Hour Right/Left Lane Closures of SR 0202

Road Users Liquidated Damages will be charged at the following rate schedule per direction for each 15 minutes, or portion thereof, that the right/left lane is not opened to the traffic as indicated by 5:00 AM Monday thru Friday, and by 10:00 AM Saturday and Sunday. Open roadway to traffic, as indicated and/or as directed.

TIME PERIOD RATE

5:00 AM Monday thru Friday $ 558 per 15 minutes

10:00 AM Saturday and Sunday $ 558 per 15 minutes

3. SR 0202 Ramp Interchange Detour (Ramps M, N, O and P)-Nighttime Detour

Road Users Liquidated Damages will be charged at the following rate schedule for each ramp for each hour, or portion thereof, that the roadway is not opened to the traffic as indicated by 5:00 AM Monday thru Friday, and by 10:00 AM Saturday and Sunday. Open roadway to traffic, as indicated and/or as directed.

TIME PERIOD RATE

5:00 AM Monday thru Friday $ 495 per hour

10:00 AM Saturday and Sunday $ 495 per hour

Project Milestone Date

Complete all construction work, including punch list items, by the required Milestone completion date of May 20, 2016. In addition, Road Users Liquidated Damages will be charged in the amount of $ 17,100.00 for each calendar day, or portion thereof, that all roadways within the project limits are not re-opened to unrestricted traffic after the required completion date.

Any Liquidated damages will be deducted from money due or to become due to the contractor.

00 - aROCK LINING FOR SLOPE PROTECTION

Addendum:

Associated Item(s):

Header:
ROCK LINING FOR SLOPE PROTECTION

Provision Body:

DESCRIPTION – This work consists of the construction of rock lining for slope protect in areas between S.R. 0202 mainline station 298+00 and 302+50 where the proposed embankment, to the limits indicated, is steeper than 2H:1V. Rock lining is to be installed against existing embankments and proposed embankment with light weight flowable fills.

MATERIAL –

(a) Rock, Class R-3 – Section 850.2

(b) Rock, Class R-4 – Section 850.2

(c) AASHTO No. 57 Course Aggregate – Section 703.2

(d) Geotextile, Class 2, Type B – Section 735.1

(e) Geotextile, Class 4, Type A – Section 735.1

(f) Cement – Section 701

(g) Water – Section 720.1

CONSTRUCTION - As shown on the Contract Plans and as follows:

(a) Work Plan. At least 30 days prior to start of this work, submit a work plan detailing access, methods and equipment to be used, temporary shoring, bench construction, and procedures which details construction sequences pertaining to the installation of rock lining, sound barrier foundation (S-31942), proposed light weight embankment fills or other types of selected fills within the limits, and the construction of pavement for roadway widening. Include clearing, grubbing and grading; rock drainage installation; delivery and removal of materials from the area; and safety precautions according to applicable Federal and State requirements.

(b) Rock Lining against Existing Embankment.

Excavate to dimensions shown and to the limits indicated, in accordance with Section 203, approved work plan, and as directed. Steps or benches must be cut into the existing slope for the full height of the embankment. The steps or benches must be of such size that the horizontal dimension is at least 6 feet in width. The benching must not be done as a separate preliminary excavation, but must be bladed in as each lift of rock is being placed and spread. Do not leave excavations open overnight or during periods of precipitation. Prepare the area required for placing the geotextile and rock including, but not be limited to, removing unsuitable material, backfilling, and clearing and grubbing as specified in Section 201.3. Place the geotextiles where specified in contract plans in accordance with Section 212.3 (c) or 212.3 (e). As each bench cut proceeds and upon the installation of geotextile, immediately fill the bench with the R-3 to R-4 rock mix. The rock must be placed to produce an even distribution of pieces, with a minimum of voids and without tearing the geotextile. Place the full course thickness in one operation in a manner to prevent segregation and to avoid displacement of the underlying material. Do not place rock by dumping into chutes or by similar methods likely to cause segregation or geotextile damage. Rearrange individual rocks, if necessary, to ensure uniform distribution. Conduct excavation and rock backfill in a manner to preclude migration of materials from upslope. Install pipe underdrain or provide grade to drain. Protect excavations from surface water inflow.

Tamp rock with excavator bucket, vibrating plate, or other approved method as it is being placed, to non-movement. Clean and dress rock slopes after completion of unstable material excavation.

(c) Rock Veneer on Proposed Embankment with Light Weight Flowable Fill.

It is the Contractor’s means and methods to construct such depicted embankment with benches as shown. Maintain 3 feet bench width. Rock veneer installation must be consistent with the requirements specified in paragraph (b), including tamping rock to non-movement and cleaning/dressing rock slopes. Maintain a minimum two (2) feet thickness of the rock lining for the slope.

Grouted rock is required for certain area as indicated on the construction plan. After the rock veneer is in place, saturate the rock with water. Rock must be kept moist for a minimum of 2 hours before grouting. Completely fill the top 6” of rock with cement grout. Ensure that all voids are filled and sweep the grouted surface with a stiff broom to finish.

Grout mix must not be allowed to free fall more than 5 feet unless suitable equipment is used to prevent segregation.

After completion of grouting, no individual(s) or equipment must be permitted on the grouted surface for 24 hours. The grouted surface must be protected from injurious action by flowing water, mechanical injury, or other potential damaging activity.

The completed finished surface must be maintained in a moist condition for a minimum curing period of 7 days following placement. Moisture must be maintained by sprinkling, flooding, or fog spraying or by covering with continuously moistened canvas, cloth mats, straw, or other approved material. Water or moist covering must be used to protect the grout during the curing process without causing damage to the grout surface by erosion or other mechanisms that may cause physical damage.

MEASUREMENT AND PAYMENT

This work is included in the bid price for the following items:

Geotextile Class 2, Type B (Item No 0212-0003)

Geotextile Class 4, Type A (Item No 0212-0014)

6” Pipe Underdrain, Type I Backfill (Item No 0610-0002)

Cement Grout Material, Slab Stabilization (Item No 0679-0301)

No. 57 Coarse Aggregate (Item No 0703-0025)

Rock, Class R-3 (Item No 0850-0031)

Rock, Class R-4 (Item No 0850-0032)

00 - aSECTION 203 - CLASS 1, CLASS 1A, AND CLASS 1B EXCAVATION

Addendum:

Associated Item(s):

Header:
SECTION 203 - CLASS 1, CLASS 1A, AND CLASS 1B EXCAVATION

Provision Body:
Revise as follows:

CONSTRUCTION - Section 203.3

- Blasting is not permitted. Delete Section 203.3(b) Blasting.

00 - aSECTION 204 - CLASS 2, CLASS 3, AND CLASS 4 EXCAVATION

Addendum:

Associated Item(s):

Header:
SECTION 204 - CLASS 2, CLASS 3, AND CLASS 4 EXCAVATION

Provision Body:
Revise as follows:

CONSTRUCTION - Section 204.3

- Blasting is not permitted. Delete Section 204.3(b) Drilling and Blasting.

00 - aSOUND BARRIER ABSORPTIVE PRECAST CONCRETE PANELS

Addendum:

Associated Item(s):

Header:
SOUND BARRIER ABSORPTIVE PRECAST CONCRETE PANELS

Provision Body:

In accordance with Section 1086, except as follows:

DESCRIPTION –

This work is the design, manufacture, storage, delivery, installation, and assembly of Absorptive Precast Concrete Sound Barrier Panels for S-25698, S-25699, S-30979, S-31942, S-31036, S-25922, S-31039, S-31601, S-31040, S-31037, S-25738, S-26764 and S-26088 as indicated and specified on the Contract Drawings. Provide absorptive sound barriers from either of the two PENNDOT approved systems: Whisper Wall or AcoustaCrete.

DESIGN–

Provide absorptive concrete design in accordance PENNDOT Drawing # 2007-040Q (Dated 12/18/07) (Whisper Wall) or Drawing # 2000-335PE (Recommended October 15, 2008) (AcoustaCrete) Provide panel design in accordance with PENNDOT Standard BD and BC Drawings. Provide calculations signed and sealed by a Pennsylvania P.E. to show that panels can be safely lifted and handled with extra weight of absorptive concrete.

MATERIAL–

Absorptive Precast Concrete Sound Barrier Panels in accordance with the PENNDOT Drawing # 2007-040Q or Drawing #2000-335 PE including design, material, and fabrication requirements is available upon request from the District Bridge Engineer. Obtain Absorptive Precast Concrete Sound Barrier Panels from a fabricator listed in Bulletin 15, certify in accordance with Section 106.03(b)3.

Prior to fabrication, submit shop drawings and design calculations for review and acceptance in accordance with Section 105.02. Show complete panel layout for each wall.

Precast Reinforced Concrete Panels per PENNDOT BC and BD Standard Drawings and Publication 408.

CONSTRUCTION –

In accordance with Section 1086.3 and as follows:

Install in accordance with Contract Drawings, PENNDOT Drawing # 2007-040Q or Drawing #2000-335 PE and PENNDOT BC Drawings,

Supply and erect full-size panels to demonstrate architectural finishes and erection procedure. Provide panels representing each type of panel required as indicated on the Contract Drawings. Modify panel construction or erection procedure as directed by the Engineer.

S6081C - b06081 SECTION 608 - MOBILIZATION

Addendum:

Associated Item(s): 0608-0001

Header:

SECTION 608 - MOBILIZATION

Provision Body:

- Section 608.1 Description. Revise by adding the following:

When developing agreements with DBE subcontractors include an opportunity for the DBE to identify an item for their mobilization. Include any agreed upon amounts in the contract lump sum price bid for mobilization. Also, list agreed to amounts for each DBE subcontractor on the DBE Participation for Federal Projects form specified in the "Disadvantage Business Enterprise Requirements" Designated Special Provision in Appendix C of Pub. 408.

- Section 608.4 Measurement and Payment. Revise by adding the following:

(c) DBE Payment Schedule. Within the Schedule submitted as specified in Section 108.03, indicate the starting date of work subcontracted to DBE's. One month before the scheduled start of subcontracted DBE work, but not earlier than the Notice to Proceed, pay 25% of the amount shown for mobilization on the applicable DBE Participation for Federal Projects form. Pay the remaining 75% of the amount shown for mobilization on the applicable DBE Participation for Federal Projects form, in three equal payments, when subcontracted DBE work is 25%, 50%, and 75% complete. Pay the affected DBE within 7 days of its reaching the specified milestones for percentage of work completed.

I6091F - c06091 ITEM 0609-0009 - EQUIPMENT PACKAGE

Addendum: 2

Associated Item(s): 0609-0009

Header:
ITEM 0609-0009 - EQUIPMENT PACKAGE

Provision Body:

Appendix

Table A

EQUIPMENT PACKAGE	
Equipment	**Quantity**
Communications Equipment	
Copier (1)	1
Fax Machine (1)	1
Cellular Phone(s)	10
Electronic Equipment	
Digital Camera	2
Document Scanner (2)	
Laser Printer (2)	
Color Printer (2)	
Specialized Equipment	
Surveyor's Level & Measuring Rod	
Electronic Digitizer	
Digital Display Level	
Infrared Thermometer	1
Laser Range Finder	
Paper Shredder	

Miscellaneous Items	
Internet Service Provider	Yes
Computer Media	Yes
Toners/Cartridges	Yes

(1) Unless otherwise approved, a multifunction machine may not be furnished in lieu of a separate copier and fax.

(2) Unless otherwise approved, a multifunction machine may not be furnished in lieu of a separate scanner, laser printer and color printer.

Microcomputer Systems. A total of ___4___ microcomputer systems will be used on the project.

This information is being provided to assist Bidders in meeting the requirements of Section 609.2(f), Internet Service, and Section 609.2(g), Miscellaneous Materials.

Microcomputer systems may be furnished by the Department. If microcomputer systems are to be furnished by the Contractor, as part of the construction Contract, the bid will include applicable, 0688-XXXX bid items. When indicated, furnish microcomputer systems meeting the requirements of Section 688.

I19992A - c19992 ITEM 1999-9999 - TRAINEES

Addendum:

Associated Item(s): 1999-9999

Header:
ITEM 1999-9999 - TRAINEES

Provision Body:

This Special Provision is an implementation of 23 U.S.C. 140 (a).

I. DESCRIPTION - As part of the project equal employment opportunity affirmative action program, provide on the job training aimed at developing candidates toward full journeymen in the type of trade or job classification involved.

The number of trainees to be trained under this contract is (***as found in the Project Specific Details, Detail 1.)***

II. CONSTRUCTION -

(a) In the event a subcontract is given for a portion of the contract work, determine how many, if any, of the trainees are to be trained by the subcontractor. However, retain the primary responsibility for meeting the training requirements imposed by this special provision. Insure that this Special Provision is physically included and is made applicable to any such subcontract. Where feasible, provide 25% of apprentices or trainees in each occupation, in their first year of apprenticeship or training.

(b) Distribute the number of trainees among the work classifications on the basis of the project needs and the availability of journeymen in the various classifications within a reasonable area of recruitment. Within 10 calendar days following the Notice to Proceed, submit to the Department for approval the number of trainees to be trained in each selected classification and training program to be used, specifying the starting time for training in each of the classifications. The Department will give credit for each trainee employed on the contract who is currently enrolled or becomes enrolled in an approved program and payment will be made for such trainees as provided herein.

(c) Training and upgrading of minorities and women toward journeyman status is a primary objective of this Special Provision. Accordingly, make every effort to enroll minority trainees and women (e.g., by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees) to the extent that such persons are available within a reasonable area of recruitment. Accept responsibility for demonstrating that steps are taken in pursuance thereof, prior to a

determination as to whether compliance is made with this Special Provision. This training commitment is not intended, and do not use it, to discriminate against any applicant for training, whether a member of a minority group or not.

(d) Do not employ a person as a trainee in any classification in which he/ she has successfully completed a training program leading toward journeyman status or in which he/ she has been employed as a journeyman. Candidates may be trained a maximum of 3 times as long as the training is not repetitious in the scope of work and is not on the same project. Those candidates having attained journeyman status would be acceptable as trainee candidates only in classifications where they have not attained journeyman status. Satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used, provide records documenting the findings in each case.

(e) The minimum length and type of training for each classification will be as established in the training program selected and submitted to and approved by the Department. The Department will approve a program if it is reasonably calculated to meet the project equal employment opportunity obligations and gives meaningful training to move candidates toward journeyman status. Furthermore, apprenticeship programs registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved but not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training will also be considered acceptable provided they are being administered in a manner consistent with the equal employment obligations of Federal- aid highway construction contracts. Obtain approval or acceptance of a training program and training candidate from the Department prior to commencing work on the classification covered by the program. It is the intention of these provisions that training is to be provided in the construction crafts rather than clerk- typists or secretarial- type positions. Training is permissible in lower level management positions such as office engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Training in the laborer classification may be permitted provided that significant and meaningful training is provided and approved by the Department. Some offsite training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

(f) Furnish the trainee a copy of the program he/she will follow in providing the training.

(g) Provide each trainee with a certification showing the type and length of training satisfactorily completed.

(h) Provide for the maintenance of records and furnish required reports documenting his/ her performance under this Special Provision.

(i) Pay no less than the common laborer rate for this project to any trainee performing in a construction craft (percentage payments are no longer in effect). Pay non- construction crafts, such as timekeeper, office manager, and surveyor, the fair market rate for those services or classifications. Trainees in construction crafts may remain at the common laborer rate throughout the training program. Upon completion, pay trainees in accordance with wage rates scale for this contract for work performed. In the case of apprentices, the appropriate rates approved by the Federal Departments of Labor or Transportation in connection with the existing program apply to all trainees being trained for the same classification who are covered by this Special Provision.

III. MEASUREMENT AND PAYMENT - Hour

Will be paid as follows:

(a) Except as otherwise noted below, payment will be made per hour of training given an employee on this contract in accordance with an approved training program. As approved by the Engineer, payment will be made for training persons in excess of the number specified herein. Payment for offsite training indicated above may only be made where one or more of the following is done and the trainees are concurrently employed on a Federal- aid project; contributes to the cost of the training, provides the instruction to the trainee or pays the trainee's wages during the offsite training period.

(b) No payment will be made due to failure to provide the training required as stated in the approved training program. Make every good faith effort to retain the trainee upon completion of the training program, if work continues to be available in that classification. It is normally expected that a trainee will begin his/her training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project as long as training opportunities exist in the work classification or until he/she has completed the training program. It is not required that all trainees be on board for the entire length of the contract. Responsibilities will have been fulfilled under this Special Provision if acceptable training has been provided to the number of trainees specified. Determine the number trained on the basis of the total number enrolled on the contract for a significant period.

Project Specific Details:

1. The number of trainees to be trained under this contract as referred to in para I. is: 8

I30141B - c80141 ITEM 8510-0001, 8520-0001 CULVERT SYSTEM, AS DESIGNED

Addendum:

Associated Item(s): 8510-0001, 8520-0001

Header:

ITEM 8510-0001 – CULVERT SYSTEM, AS DESIGNED, S-24744
ITEM 8520-0001 – CAST-IN-PLACE REINFORCED CONCRETE ARCH CULVERT
Construct one of the above for S-24744.

Provision Body:

PART A

I. DESCRIPTION - This work is either construction of the culvert as designed or designing and constructing an equivalent culvert of an alternate design in place of the "as-designed" culvert.

II. DESIGN -

(a) General. If an alternate design culvert is bid, furnish, to the Department, preliminary conceptual design calculations and drawings for the alternate culvert, on reproducible tracing cloth or drafting film. Provide an alternate design equivalent to the original design and meeting applicable design criteria for strength and serviceability. Submit the alternate design to the District Bridge Engineer for acceptance. Furnish, with the preliminary conceptual design submission, a tabulation identifying the major differences between the "as designed" culvert and the alternate design culvert.

Any delay in submission and acceptance of a proposed alternate design will not extend the contract time.

If an alternate design culvert is bid, and an acceptable preliminary conceptual design is not approved within 30 calendar days from the award date (6 days for the submission and 24 days for Department review), the Department reserves the right to reject the alternate design. Resubmit an acceptable alternate design or furnish the "as- designed" culvert at no additional cost to the Department.

Experimental or demonstration-type design concepts; or products, structures, or elements not preapproved by the Department for general usage, will not be permitted in the alternate design.

Value Engineering may be applied to the "as-designed" culvert, but do not Value Engineer an alternate design culvert.

Have the alternate design completed by a Professional Engineer (P.E.) registered in the Commonwealth of Pennsylvania.

In identifying alternate design culverts, retain the "as designed" culvert number, but suffix the number with the letters A, B, etc.

Show, on the alternate design, the seal of a P.E. registered in the Commonwealth of Pennsylvania, a valid signature in ink, the date signed, a business name, a business address, and the note "These drawings (S-XXXXXA) supersede drawings (S-XXXXX) approved (insert appropriate date)".

The Department will furnish tracings for the "as-designed" culvert upon request.

Complete original plans for an alternate design entirely in either ink or pencil. Make changes in the same medium.

Ink reproductions on tracing cloth may be furnished, if made by the "contact negative process".

(b) Design Computations and Design Specifications. On the first sheet of the computations for the alternate design, show the seal of a P.E. registered in the Commonwealth of Pennsylvania, a valid signature, and the date signed.

Perform required design of an alternate culvert in accordance with current Department practice, unless otherwise indicated or specified. Current design practice includes the use of all applicable codes and Department design specifications, publications, policies, and procedures in effect on the date bids are opened.

In the event that certain design parameters, stresses, or specifications are in conflict, the following order of predominance governs:

- Design requirements listed herein and in PART B, "SPECIAL DRAWINGS AND SPECIAL DESIGN REQUIREMENTS".
- Design related Strike-off letters in effect on the date of project advertisement. Refer to the list in PART B.
- Pennsylvania Department of Transportation (PENNDOT) Design Manual Part 4M (Design Manual Part 4).
- PENNDOT Design Standards.
- AASHTO Standard Specifications for Highway Bridges, and interim specifications, as indicated for the "as-designed" walls.

In the event that a clear order of predominance cannot be established, or a difference in the interpretation of the design criteria, standards, specifications, or methodology cannot be resolved, the Chief Bridge Engineer will be arbiter and the Chief Bridge Engineer's decision will be final.

Submit shop drawings to the District Engineer for review and acceptance. The Department will in no way be responsible for work done without approved shop drawings.

(c) Design Requirements. In the design of an alternate culvert, comply with PENNDOT Design Manual Part 4, "Structures", and other design criteria as specified for the "as-designed" culvert, subject to the exceptions and/or additions in PART B, "SPECIAL DRAWINGS AND SPECIAL DESIGN REQUIREMENTS".

Do not change the indicated horizontal and vertical alignment or the waterway opening of the culvert, except as noted in PART B.

Design the alternate culvert to be within the limits of allowable foundation bearing pressures as indicated for the "as-designed" culvert. Do not change the bottom of footing elevation, unless approved by the District Bridge Engineer or District Geotechnical Engineer.

Do not change from the culvert protective system(s) indicated or specified for the "as-designed" culvert.

III. MATERIAL - As indicated and as specified for the "as-designed" culvert; in accordance with applicable sections of the Specifications, Publication 408, and numbered changes thereto; and/or the Special Provisions for each respective item included in the culvert. Provide Class A Cement Concrete for cast-in-place walls and footings.

IV. CONSTRUCTION - In accordance with applicable sections of the Specifications, Publication 408, and numbered changes thereto in effect before the letting date; the Special Provisions for each respective item; and any additional requirements contained herein. Submit construction procedures for an alternate design for acceptance, if other than those contained herein.

If utility relocations are required as part of an alternate design, be responsible for the cost of the utility relocations and any related delay claim costs.

If unsuitable foundation material or rock is encountered, construct footings as specified in Section 1085.3(g)1. Excavation beyond the limits indicated or specified and backfill material required to replace unsuitable material will be paid for in accordance with Section 110.03(c).

Install precast concrete culvert segments starting from the outlet end; taking special care to place segments to the correct line and grade.

Seal all joints between precast concrete culvert segments with membrane waterproofing as shown on the Standard Drawings.

V. MEASUREMENT AND PAYMENT - Lump Sum

For the type of alternate design culvert selected; subject to a reduction of $1,000 for each alternate culvert for the Contractor's share of the Department's engineering costs.

The Contractor's share of the Department's engineering costs will be recovered by processing a work order, using the contract item number for the applicable Alternate Culvert and Item Type Code B. The contract lump sum price will be reduced by an amount equal to the Contractor's share.

A utility company's share of fabricated structural steel and/or installation of sleeves, inserts, casings, hanger assemblies, ducts, etc. for utilities is to be a separate item. Do not include the utility company's share in the bid price for the alternate design culvert unless otherwise specified.

(a) Culvert As Designed. If the "as-designed" culvert is bid, submit the "Component Item Schedule", included with the Proposal, as specified in Section 103.01(a).

Make the "Total" at the end of the "Component Item Schedule" equal the amount of the lump sum bid for Culvert As Designed.

(b) Alternate Culvert. If an alternate design culvert is bid, the apparent low bidder is required to submit a "Component Item Schedule for Alternate Design" as specified in Section 103.01(a). No adjustments will be made to the contract lump sum price bid for alternate design culvert for any field adjustments necessary to complete the structure.

Make the "Total" at the end of the "Component Item Schedule for Alternate Design" equal the amount of the lump sum bid for Alternate Culvert.

(c) Alternate Structure Design Costs. The apparent low bidder is to include a component item for Alternate Design Costs in the Component Item Schedule when an equivalent item of an alternate design is bid. Include this item in the total of the lump sum bid price. Payment of 25% of the total design costs will be made upon approval of the preliminary conceptual design. The remaining amount will be paid for in a proportionate manner, designated by the Department, on the basis of approval of the final design.

00 - c80201 ITEM 8621-0001 MECHANICALLY STABILIZED ABUTMENTS AND WINGWALLS

Addendum:

Associated Item(s): 8621-0001

Header:

c80201 ITEM 8621-0001 MECHANICALLY STABILIZED ABUTMENTS AND WINGWALLS

Provision Body:

I. DESCRIPTION - This work is the designing, furnishing, and erecting of approved mechanically stabilized systems used as retaining walls. These systems, some of which are proprietary, employ either strip or grid type metallic reinforcements in the soil mass and a discrete modular precast facing.

II. DESIGN - Submit to the District Bridge Engineer, for review and for approval, 4 sets of plans and design calculations for mechanically stabilized earth retaining walls, prepared in accordance with PENNDOT Design Manual Part 4. Allow a maximum of 30 calendar days from the day final plans are received by the District Bridge Engineer for review and approval. Perform fabrication of standard panels in accordance with the approved plans using pre-approved standard shop drawings. Do not perform any construction before approval of design and completed plans. Use mylar furnished by the Department.

Have a Professional Engineer (P.E.), registered in the Commonwealth of Pennsylvania, sign and date the first sheet of the computations.

Include the following statement on the first sheet of the drawings above the P.E. seal:

"I hereby certify that all design assumptions have been validated either through construction details or notes on these drawings, or through the contract plans and provisions."

In the event certain design parameters, stresses, or specifications are in conflict, the following order of predominance will govern:

- Design requirements listed herein and in PART B, "SPECIAL DRAWINGS AND SPECIAL DESIGN REQUIREMENTS", of the special provisions.
- Design related Strike-off Letters in effect on the date of project advertisement. Refer to the list in PART B.
- PENNDOT Design Manual Part 4, "Structures"

· PENNDOT Bridge Design and Bridge Construction Standards

· AASHTO Standard Specifications for Highway Bridges (date as indicated) and interim specifications

In the event that a clear order of predominance cannot be established, or a difference in the interpretation of the design cannot be resolved, the Chief Bridge Engineer will arbitrate and such decision will be final.

If weep holes are not indicated, and no other provision for subsurface drainage has been incorporated into the design but is required to validate design assumptions of lateral earth pressure from dry backfill, provide a weep hole in every other precast face panel exposed at ground elevation. Locate weep holes a minimum of 300 mm (1 foot) above finished ground elevation.

Provide cast-in-place or preapproved, precast concrete bridge barriers as shown on plans.

Provide cast-in-place or precast copings.

III. MATERIAL -

(a) Precast Concrete Face Panels. Furnish precast face panels as specified in Section 714, except provide concrete having a 28-day minimum compressive strength of 28 MPa (4,000 pounds per square inch) when tested in accordance with PTM No. 604.

Provide panels having a minimum structural thickness of 140 mm (5 1/2 inches).

Place tie strips, reinforcement bars, connecting rods (where required), PVC pipe for weep holes when indicated, PVC tubes (where required), and handling devices, to the dimensions and tolerances indicated or as approved by the Representative, before casting.

1. Testing and Inspection. Acceptability of the precast panels will be determined on the basis of slump and entrained air content testing of the concrete mixture, compressive strength testing, and visual inspection. Furnish facilities for the Department to perform all necessary sampling and testing in an expeditious and satisfactory manner. Acceptance will be as specified herein.

Acceptance of precast concrete panels with respect to compressive strength will be based on the results of production lot testing. A production lot is defined as the panels represented by 1-day's production or 40 panels whichever is less. Acceptance will be based on compliance with the requirements of Sections 714.4 (b) and 714.7 (a), except the lot compressive strength will be determined as the average of the compressive strength testing of two cylinders and no individual test result may be below 25 MPa (3,600 pounds per square inch).

Acceptance with respect to visual inspection will be based on compliance with the requirements of Section 713.2 (d). In addition, precast units may be rejected for color variations on the front.

Completed precast units will be inspected before shipment, and cracked, damaged, or otherwise unsatisfactory units will be rejected. Properly patch all excessive voids and other defects on exterior surfaces in accordance with the approved QC Plan.

Repairs and repair procedures beyond the limits of repair defined in Publication 145 require the approval of the Representative. Mark rejected panels with the words "Rejected for Department Use" using waterproof paint.

2. Forms. Construct forms of steel in a manner that assures the production of uniform units, and leave forms in place until they can be removed without damage to the unit.

Replace damaged forms or forms having a deteriorated surface on the finished face.

3. Mixing and Placing Concrete. Mix and deliver concrete as specified in Section 704. For transporting, placement, and consolidation of concrete, use methods that will prevent segregation of concrete materials and displacement of steel reinforcement from its proper position in the form. Do not place concrete in forms or casting beds when ambient temperatures are below 4 °C (40F) or above 38 °C (100F). Do not use admixtures containing chlorides.

4. Casting. Cast the panels on a flat area, front face down. Set connection guides into the rear face. Do not attach the panel reinforcing steel to or allow contact with embedded loops, tie strips, reinforcing steel, or other devices. Hold attachment devices in place during concrete placement to ensure that proper alignment is maintained. Place concrete in each unit without interruption and consolidate by use of a vibrator, supplemented by such hand tamping as may be necessary to force concrete into the corners of the form and prevent formation of honeycomb segregation, cracking, or cleavage planes. Use clear form oil throughout the casting operation.

5. Concrete Finish. Provide a conventional surface finish for the front face, unless otherwise indicated or specified, and, for the rear face, a floated surface finish. Screed to eliminate open pockets of aggregate and surface distortions in excess of 6 mm (1/4 inch) on the rear face of the panel.

When a special or decorative surface finish is required, display for approval a typical sample of the face panels, showing the color, texture, and finish intended to be used, before standard production of panels. Acceptability of the production units with respect to their architectural surface treatment will be made at a distance of 9000 mm (30 feet), in natural daylight, when compared to the approved sample(s).

6. Curing. Cure units in accordance with the approved QC plan until the concrete obtains 80% of the specified minimum 28-day compressive strength.

7. Tolerances. Manufacture all units within the following tolerances:

- Do not exceed an angular distortion with regard to height of 5 mm (0.02 inch) in 1525 mm (5 feet).
- Panel Dimensions. Position of panel connection devices within 25 mm (1 inch). All other dimensions within 5 mm (3/16 inch).
- Panel Squareness. Not to exceed 13 mm (1/2 inch), as determined by the difference between two diagonals.
- Panel Surface Finish. Surface defects on smooth formed surfaces, measured over a length of 1525 mm (5 feet), not to exceed 3 mm (1/8 inch) and on texture finished surfaces not to exceed 8 mm (5/16 inch).

For panels using welded wire fabric as grid reinforcement, fabricate panels in a manner that ensures compliance with the wire mesh to panel connection requirements indicated in BC-799M.

8. Marking. Clearly scribe or paint with waterproof paint, on the rear face of each panel, the date of manufacture, lot production number and piece mark.

9. Handling, Storing, and Shipping. Handle, store, and ship all units in such a manner as to eliminate the danger of chipping, cracking, fracture, and excessive bending stress, or damage to connection hardware. Support the panels in storage, on firm blocking located immediately adjacent to the tie strips, to avoid bending tie strips. Care should be taken to not bend or damage tie strips when handling with a forklift. Use dunnage or blocking which will not stain the face of the precast unit.

Do not ship units until the 28-day minimum compressive strength is attained. Provide 24-hour advance notice of loading and shipping schedule.

Repair or replace any unit damaged during handling, transporting, erecting, or backfilling, or any unit that cannot be placed satisfactorily in the wall, in accordance with the approved QC Plan.

(b) Reinforcement.

1. Reinforcing Strips and Tie Strips. Fabricate tie strips of hot rolled steel conforming to the requirements of ASTM A1011/A1011M, Structural Steel (SS) Grade 340 (Grade 50) or ASTM A1011/A1011M, High-Strength Low-Allow Steel (HSLAS), Grade 340 (Grade 50), Class 1 including all trace elements. Hot roll reinforcing strips from bars conforming to ASTM-A36/A36M or ASTM-A572/ A572M (AASHTO-M223/223M), Grade 450, or equivalent, to the required shape and dimensions. Hot dip galvanize reinforcing strips and tie strips, after fabrication, as specified in Section 1105.02(s) and in accordance with ASTM-A123. Cut to length within the tolerances indicated on approved shop drawings. Punch holes for bolts, in the location shown, before galvanizing. Carefully inspect all reinforcing and tie strips to ensure they are true to size and free from defects that may impair their strength and durability. Cutting of reinforcing strips at pile locations, vertical obstacles, or utilities is not acceptable.

Care must be taken to avoid bending or damage to the galvanized coating on reinforcing and tie strips during handling, storing, and shipping.

2. Steel Mesh Reinforcement. Conform to the requirements of ASTM-A82 for cold drawn wire. Shop fabricate and weld the finished mesh fabric in accordance with ASTM-A185. In addition, comply with the following:

- Fabricate, transport, store, and place steel mesh in a manner that ensures compliance with the wire mesh to panel connection requirements as indicated in BC-799M.

· Fabricate wire mesh in a manner that produces a flat mesh with straight longitudinal and transverse wires meeting the following tolerances:

Flatness:

Length of Wire Mesh:	3000 mm (10') or less	3300 mm (11') to 6000 mm (20')	6300 mm (21') to 9000 mm (30')	9300 mm (31') or greater
Permissible Variation	50 mm (2")	70 mm (2 2/3")	90 mm (3 1/2')	100 mm (4")

Straightness of Longitudinal Wires:

Length of Wire Mesh:	3000 mm (10') or less	3300 mm (11') to 6000 mm (20')	6300 mm (21') to 9000 mm (30')	9300 mm (31') or greater
Permissible Variation:	50 mm (2")	70 mm (2 3/4")	90 mm (3 1/2")	100 mm (4")

Maintain flatness and straightness of the wire mesh during transportation and assembly. Wire mesh not meeting the flatness and straightness tolerances may be realigned using a method that does not damage the galvanizing, damage or weaken the weld at intersection points of the longitudinal and transverse wires, or weaken the strength of the wires. Submit the realignment procedure to the Representative for approval.

Galvanize mesh panels as specified in Section 1105.02(s) and in accordance with ASTM-A641, after fabrication. Provide wire size and mesh configuration as indicated. Carefully inspect all mesh reinforcement and attachment devices to ensure they are true to size and free from any defects that may impair their strength and durability. Cutting of steel mesh or grids at pile locations, vertical obstacles, or utilities is not acceptable.

Care must be taken to avoid bending or damage to the galvanized coating on reinforcing mesh or grids during handling, storing, and shipping.

3. Reinforcement Bars. Grade 420 (Grade 60), Section 709.1(a)1. Provide epoxy coated reinforcement bars, as specified in Section 709.1(c), or galvanized reinforcement bars, as specified in Section 709.1(e), for cast-in-place or precast concrete bridge barrier, moment slab (cast-in-place) curb, and copings and precast panels.

(c) Fasteners and Attachment Devices.

· Provide galvanized, high strength hexagonal bolts and nuts as specified in Section 1105.02(d) for reinforcement in Section III(b)1.

· Provide embedded loops fabricated from cold drawn steel wire conforming to ASTM- A82 and welded in accordance with ASTM- A185. Galvanize loops as specified in Section 1105.02(s) and in accordance with ASTM-A641 for reinforcement in Section III(b)2.

· Provide connector bar fabricated from cold drawn steel wire conforming to ASTM-A82 and galvanized as specified in Section 1105.02(s) and in accordance with ASTM-A641 for reinforcement in Section III(b)2.

· Fabricate connector rod (where required) from PVC conforming to material as recommended by the manufacturer or steel conforming to ASTM-A36/A36M and galvanize as specified in Section 1105.02(s) and in accordance with ASTM-A123. Fabricate to required diameters and lengths as indicated.

(d) Bearing Pads

· For horizontal joints between panels, provide preformed EPDM rubber pads conforming to ASTM-D2000 2AA 812 A13 C12 F17, neoprene elastomeric pads having a Durometer Hardness of 80 ± 5, or preformed high density polyethylene panel pads conforming to ASTM-D1505 and having a minimum density of 0.946 g/cm^3.

(e) Granular Fill Material. Provide crushed or natural sand, crushed or uncrushed gravel, blasted limestone, blasted sandstone, or any standard size coarse aggregate meeting the following gradation as determined in accordance with PTM 616:

Sieve Size Percent Passing

75 mm (3 inches) 100

19 mm (3/4 inch) 20 - 100

425 µm (No. 40) 0 - 60

75 µm (No. 200) 0 - 10*

*Determination of the fines content (minus 75 µm (No. 200) sieve material) for MSE wall reinforced backfill must be determined by wash test according to PTM No. 100, Amount of Material Finer Than 75 µm (No. 200) sieve in Aggregate. This is in addition to PTM No. 616, Sieve Analysis of Coarse and Fine Aggregate.

Have the backfill conform to all of the following additional requirements:

1. Furnish materials meeting the quality requirements of Type C coarse aggregate or better as specified in Section 703.2(a), Table B except furnish materials free of clay lumps, friable particles, coal and coke. Do not use metallurgical slag or cinders.

2. Furnish materials with a maximum plasticity index (PI) of 3 as determined in accordance with AASHTO T89 and T90.

3. Furnish material exhibiting an angle of internal friction of not less than 34 degrees as determined, in accordance with AASHTO-T236, on the portion finer than the 2.0 mm (No. 10) sieve compacted to 95% of PTM No. 106, Method B, at optimum moisture content, except for coarse aggregate as specified in Section 703.2.

Direct shear testing may be performed on samples containing material larger than the 2.0 mm (No. 10) sieve, if the shear device conforms with AASHTO-T236, Sections 5.4 and 5.5.

4. Provide materials meeting the following electrochemical criteria:

Test	**Criterion**
pH, AASHTO T289	6.0 - 10.0
Resistivity, AASHTO T288	· >5000 ohm-centimeters - No chloride or sulfate testing is required. · 2000 - 5000 ohm-centimeters -Perform the specified chloride and sulfate tests.
Chlorides, AASHTO T291, Method B	< 100 parts per million (ppm)
Sulfates, AASHTO T290, Method B	< 200 parts per million (ppm)

Provide randomly selected backfill samples for testing 30 calendar days before use, as directed by the Representative. Obtain approval for backfill material, before use. Each sample submitted is to consist of the following:

- Three bags of approximately 20 kg (40 pounds) containing a normal specimen representing the complete gradation.
- One bag containing approximately 5 kg (10 pounds) of material passing the 2.36 mm (No. 8) sieve.

During the backfilling operation, under the direction and supervision of the Representative, obtain verification samples (n=3) as specified in Section 703.5(b), Table F. The Representative will select sample locations according to PTM No. 1

If the material sampled fails to meet the specified requirements, immediately discontinue its use, and remove and replace all material placed since the last passing acceptance or verification sample was obtained. Do not continue backfilling until new backfill material has been sampled and approved.

(f) Pipe Underdrain. Section 610.2(a)

(g) Polyvinyl Chloride (PVC) Pipe. Section 610.2(a)4.

(h) Cast-in-Place Concrete. Section 704. Provide Class A Cement Concrete for footings and leveling pads and Class AA Cement Concrete for curbs, concrete bridge barriers or traffic barriers, moment slabs, and backwalls above bridge seats.

(i) Geomembrane. Section 736.

• Dimensional Stability (ASTM-D1204) ..... + 2%

(j) Geotextiles. Class 2, Type A, Section 735

(k) Certification. Certify as specified in Section 106.03 (b) 3. Furnish a copy of the results of all tests performed which are necessary to assure compliance with the specifications. Furnish a copy of Form CS-4171 with each shipment of precast products.

(l) Nonshrink Grout. Section 1080.2(c)

IV. CONSTRUCTION -

(a) Shop Drawings. Before fabrication, submit and obtain approval for shop drawings. Show complete fabrication details and dimensions, as well as handling, transportation, and construction procedures for all wall elements.

(b) Excavation and Foundations. Grade the structure foundation level, or to the indicated slope, for a width equal to or exceeding the length of the reinforcing strips or mesh, or as indicated. Before wall construction, except where constructed in rock, compact the foundation with a smooth wheel vibratory roller. Remove any foundation soils found to be unsuitable and replace with granular material. Excavate, as specified in Section 204, to the limits and construction stages indicated.

Do not begin wall erection until the foundation has been accepted.

Construct cast-in-place footings and leveling pads as specified in the applicable portions of Section 1001.3, to the dimensions and details indicated and within the right of way, before placement of precast wall units.

Place bottom of footing and/or leveling pad at a minimum depth equal to prevailing frost depth but not less than 900 mm (3 feet) below finished ground elevation unless otherwise indicated.

(c) Stub Abutment on Piles. If stub abutment supported on piles is indicated, construct stub abutment support system, during placement of MSE wall backfill, as follows:

- Drive all piles before MSE wall installation.
- Encase each pile in a Smooth Wall or Corrugated Galvanized Steel (SWCGS) pipe of sufficient thickness to prevent buckling or distortion during placement and compaction of wall backfill.
- Place spacers between the pile and the SWCGS pipe to prevent the pipe from coming in contact with the pile during backfilling of the wall.
- Extend SWCGS pipe from the bottom of MSE wall backfill to the bottom of the bridge stub abutment footer.
- After positioning, seal the top of the SWCGS pipe to prevent debris accumulation during placement of wall backfill, and keep the pipe sealed until filled with Type A fine aggregate.
- Fill the SWCGS pipe loosely with Type A fine aggregate either before or after completion of MSE wall construction and as directed and approved by the Representative.

(d) Wall Erection. Align precast concrete panels, vertically, using inserts cast into the top edge of the panels. Place panels in successive horizontal lifts, in the sequence indicated or shown on the approved shop drawings, as backfill placement proceeds. As the specified granular fill material is placed behind a panel, maintain the panel in a vertical position by means of clamps placed at the junction of adjacent panels and temporary wooden wedges placed in the horizontal joint at the junction of the two adjacent panels on the external side of the wall. Provide external bracing, if required, for the initial lift.

Install drainage system behind the wall as indicated or as shown on the approved shop drawings.

At least two, but no more than three, rows of panel wedges are to remain in place at all times during construction. Carefully remove wooden wedges, as panel erection progresses, so as to prevent chipping or cracking of concrete panels. Properly repair any damage to erected concrete panels as directed. Remove all wedges when the wall is completed.

Install joint filler as indicated or as shown on the approved shop drawings.

Cover all joints between panels, on the back side of the wall, with geotextile fabric. Apply adhesive to panels only. Do not apply adhesive to geotextile fabric or within 50 mm (2 inches) of a joint. Provide geotextile fabric having a minimum width of 300 mm (12 inches), and overlap fabric a minimum of 100 mm (4 inches).

(e) Backfilling. Have backfill placement closely follow the erection of each lift of panels. Roughly level the backfill at each reinforcing element location before placing and bolting.

As indicated, place reinforcing elements normal to the face of the wall. Do not exceed 200 mm (8 inches) (loose) for the maximum lift thickness and closely follow panel erection. Decrease lift thickness if necessary, to obtain the specified density.

Place backfill in such a manner as to avoid any damage or disturbance to wall materials or misalignment of facing panels. Remove and replace any wall materials which become damaged during backfill placement. Correct any misalignment or distortion of wall facing panels due to placement of backfill. Place backfill to the level of the connection and in such a manner as to assure that no voids exist directly beneath reinforcing elements.

Under fill conditions, place specified backfill material to the dimensions as indicated.

At the end of each day, slope the last level of backfill away from the wall in order to rapidly direct runoff away from the wall face. In addition, do not allow surface runoff from adjacent areas to enter the wall construction site. Place and compact the backfill as specified in Section 1001.3 (q) 2.b; except, the 7 day waiting period for backfilling is not required. Place backfill material at a moisture content less than or equal to the optimum moisture content. Compact backfill without causing disturbance to or distortion of reinforcing members and panels. Achieve compaction within 900 mm (3 feet) of the wall by making at least three passes with light mechanical tampers, rollers, or vibratory systems.

For applications where stub abutments are to be used to support bridge or other structural loads, compact the top 1525 mm (5 feet) below footing elevation to 100% of the determined dry mass (weight) density.

Do not exceed 20 mm (3/4 inch) for vertical tolerances and horizontal alignment tolerances when measured along a 3 m (10-foot) straightedge. The maximum allowable offset in any panel joint is 20 mm (3/4 inch). Do not exceed an overall vertical tolerance for the wall (top to bottom) of 12 mm per 3 m (1/2 inch per 10 feet) of wall height. Provide uniform vertical and horizontal joint openings between panels.

Check the top row of panels with a level and 3 m (10- foot) straightedge, after each layer of backfill material is placed and compacted. Satisfactorily correct panels not within specified tolerances, before placing additional backfill material.

For structures at stream crossings, provide a blanket of No. 57 coarse aggregate behind the wall panels, to a width of 460 mm (18 inches), for the full length and to the height indicated (minimum 100-year flood level).

Provide Class 2, Type A geotextile fabric, with a minimum overlap of 100 mm (4 inches), at the interface of the coarse aggregate blanket and the granular fill material.

Place geomembrane as indicated. Overlap seams a minimum of 457 mm (18 inches) or seam joints by use of extrusion welding methods with a maximum overlap of 100 mm (4 inches).

Perform site-specific field or laboratory pullout tests, for fully saturated conditions, as indicated or directed and in the presence of the Representative.

(f) Pipe Underdrain. Place, as required, as specified in Section 610.3 and as indicated.

(g) Dewatering. Furnish, install, operate, and maintain satisfactory dewatering systems as required to maintain the site in a dry and workable condition. Include all equipment and materials, and continue as long as necessary.

(h) Technical Assistance. Arrange for a company representative to be present at the project site to assist the fabricator, Contractor, and Representative until they are familiar and confident in casting, installation, and erection procedures. Arrange for monthly visits to the project site by a company representative/engineer during wall construction. Provide a technical representative to assist in the event unusual problems or special circumstances arise.

V. MEASUREMENT AND PAYMENT - Lump Sum

The apparent low bidder is required to submit a "Component Item Schedule" as specified in Section 103.01(a). Tabulate quantities, unit prices, and extensions for excavation, select granular material, precast wall panels/ units, footing/ leveling pads, and any miscellaneous items such as concrete bridge barriers or traffic barriers, moment slabs, copings, conduit, junction boxes, lighting pole anchorages, and lighting poles. No adjustment will be made to the contract lump sum price bid for as-designed retaining walls and/or wingwalls for field adjustments necessary to complete the structures.

00 - c80600 6” STRUCTURE FOUNDATION DRAIN, MODIFIED

Addendum:

Associated Item(s):

Header:
c80600 6” STRUCTURE FOUNDATION DRAIN, MODIFIED

Provision Body:

DESCRIPTION – This work is the installation of 6” foundation drain as shown on structure drawing S-26088. It includes the foundation drain at the top of the far abutment, the foundation drain at the base of both abutments and the vertical foundation drain connecting the top and bottom foundation drains at the far abutment.

MATERIAL – Section 1001 and as follows:

Rubberized Trough Material – Section 1020.2(g)

Galvanized Steel Termination Bars – Section 1105.02(a)1 or Section 1105.02(a)2.

Galvanize as per Section 1105.02(s).

Self Tapping Stainless Steel Concrete Screws – Section 1101.12(a).

CONSTRUCTION – Section 1001.3

MEASUREMENT AND PAYMENT – Linear Feet.

This work includes all pipe connections, the installation of the Rubberized Trough Material, the Galvanized Steel Termination Bars and the 1.4” Self-Tapping Stainless Steel Concrete Screws; and is a component of the following item:

ITEM 8100-0001 BRIDGE STRUCTURE AS DESIGNED, S-26088

No separate payment will be made.

I82150A - c82150 ITEM 8215-0001 THRU 8215-0011, 8215-0091 THRU 8215-0092 DESIGN OF NOISE BARRIER

Addendum:

Associated Item(s): 8215-0001, 8215-0002, 8215-0003, 8215-0004, 8215-0005, 8215-0006, 8215-0007, 8215-0008, 8215-0010, 8215-0011, 8215-0091, 8215-0092

Header:
ITEM 8215-0001 - DESIGN OF NOISE BARRIER (AS-DESIGNED FOUNDATION PROVIDED), S-25698 (NW-1)
ITEM 8215-0002 - DESIGN OF NOISE BARRIER (AS-DESIGNED FOUNDATION PROVIDED), S-25699 (NW-2)
ITEM 8215-0003 - DESIGN OF NOISE BARRIER (AS-DESIGNED FOUNDATION PROVIDED), S-30979 (NW-3)
ITEM 8215-0004 - DESIGN OF NOISE BARRIER (AS-DESIGNED FOUNDATION PROVIDED), S-31942 (NW-4)
ITEM 8215-0005 - DESIGN OF NOISE BARRIER (AS-DESIGNED FOUNDATION PROVIDED), S-31036 (NW-5)
ITEM 8215-0006 - DESIGN OF NOISE BARRIER (AS-DESIGNED FOUNDATION PROVIDED), S-25922 (NW-6)
ITEM 8215-0007 - DESIGN OF NOISE BARRIER (AS-DESIGNED FOUNDATION PROVIDED), S-31039 (NW-7)
ITEM 8215-0008 - DESIGN OF NOISE BARRIER (AS-DESIGNED FOUNDATION PROVIDED), S-31601 (NW-8)

ITEM 8215-0010 - DESIGN OF NOISE BARRIER (AS-DESIGNED FOUNDATION PROVIDED), S-25738 (NW-10)
ITEM 8215-0011 - DESIGN OF NOISE BARRIER (AS-DESIGNED FOUNDATION PROVIDED), S-26764 (NW-11)
ITEM 8215-0091 - DESIGN OF NOISE BARRIER (AS-DESIGNED FOUNDATION PROVIDED), S-31040 (NW-9-1)
ITEM 8215-0092 - DESIGN OF NOISE BARRIER (AS-DESIGNED FOUNDATION PROVIDED), S-31037 (NW-9-2)

Provision Body:

I. DESCRIPTION - This work is the design and preparation of construction plans for a noise barrier system of the type indicated on the Department's Conceptual Type, Size, and Location (TS&L) Plans or an alternate type noise barrier system. The term “Noise Barrier System” refers to the combination of all components of the recommended noise abatement design, including (but not limited to) noise barrier panels, noise barrier posts, noise barrier caps (separate), noise barrier foundations, and noise barrier textures, colors, and coatings. Preparation of a Final TS&L Submission for the proposed noise barrier is also required.

II. DESIGN

(a) General

The Department's Conceptual TS&L Plans represent a noise barrier type and layout that will meet safety, geometric, acoustical, visual, and load carrying capacity requirements for the project. A noise barrier type and configuration as that shown on the Conceptual TS&L Plans or an alternate type noise barrier subject to the requirements specified herein may be designed and constructed. Prepare and submit a Final TS&L submission for the proposed noise barrier for review and approval.

Foundation type(s) along with geotechnical design parameters are provided for the noise barrier foundation. Use the foundation type(s) and design parameters (hereinafter referred to as "as-designed") to design the noise barrier or develop an alternate foundation type and design parameters subject to the limitations specified.

Provide design and drawings in the units of measurement shown on the Conceptual TS&L Plans.

Provide a complete set of computations for the noise barrier, including the foundation. Provide additional calculations, as requested by the Department's District Bridge Engineer or Chief Bridge Engineer, to evaluate any details throughout the life of the contract.

Structure types, concepts, construction sequencing, or other details that are not covered in the design and construction specifications or standards, or practice not commonly used in Pennsylvania are allowed only when specifically indicated herein. Where design or construction that deviates from standard Department practice is proposed, submit a conceptual design before the Final TS&L for review and approval. Include in the submittal conceptual plans and a list of items that deviate from standard design and construction, including but not limited to design methodology, the computer program that will be used in the design, construction sequencing, and any specialized construction techniques. No extensions of contract time will be granted for pursuits of alternates or non-standard designs.

(b) Additional Designer Qualifications

Individuals responsible for acoustical design must have a minimum of 7 years experience in the analysis of highway related noise using appropriate FHWA highway traffic noise modeling techniques on at least 3 individual projects involving the design of noise barrier systems. Individuals must be familiar with FHWA Traffic Noise Model application and PennDOT noise policies and procedures.

None

(**c) Additional Information/Data Made Available to the Contractor by the Department**

The following information/data will be made available to the Contractor during the advertisement period:

- Test Boring Core Boxes: Test boring core boxes are available for inspection at District 6-0. Contact Ms. Sarah McInnes at 610-205-6544 to arrange for a date and time to inspect the core boxes.
- The July 2002 and Final Design Noise Report as well as any modifications suggested by the Department which have been developed since that time.
- FHWA TMN data files.

(d) Design Specifications

Develop the Final TS&L and prepare the noise barrier construction plan in accordance with the Special Provision titled SPECIAL BIDDING – DESIGN- BUILD, Section VIII – General Design Requirements, Design Specifications, and Publication 24, Project Level Highway Traffic Noise Handbook.

(e) Design Requirements

1. General

- Antigraffiti coating is not required.
- Gaps that allow light to pass through any joints or seams are not allowed.
- Architectural treatment is required
- Use only absorptive sound barrier panels

2. Alternate Noise Barrier Designs

2.a. Allowable Noise Barrier Types

A PENNDOT approved Absorptive panel is to be used.

2.b. Geometry

Design the noise barrier according to the geometrics shown on the Conceptual TS&L Plans, The horizontal and/ or vertical configuration of the noise barrier system may be modified provided that:

- The line of sight break provided by the noise barrier system for any benefited residence is not reduced from that provided by the recommended barrier system, identified as Barrier Option B2 (NW1-NW4), C1(NW5-NW9-2), D(NW10-NW11) in Table 7 of the July 2002 Final Design Noise Report, AND
- The noise level provided by the noise barrier system at any benefited residence is not reduced from that provided by the recommended barrier system identified as Barrier Option B2(NW1-NW4), C1(NW5-NW9-2), D(NW10-NW11) in Table 7 of the July 2002 Final Design Noise Report.

2.c. Other Requirements

- Alternate noise barrier designs that depart from the details shown on the Standard Drawings must be pre-approved before bidding.
- Provide a noise barrier system with a top of barrier profile as smooth and consistent as possible, using the following guidance:
  - Stepped panels will be used. When using stepped rectangular noise wall panels, step panels in a uniform manner. For example, rather than having three level panels followed by a one-foot step, have four panels, each with 3 inch steps.
  - For rectangular noise wall panels, keep steps at a maximum of 6 inches.
  - For rectangular noise wall panels, transition uniformly from level sections or between steps of various dimensions. For example …6”step, 6” step, 6” step, 4” step, 2” step, 2” step, 2” step, 2” step, …; or level section, 2”step, 4” step, 6” step, 6”step, 6” step, …
  - Do not construct noise walls less than 5 feet in height above the finished ground elevation.
- Provide a noise barrier system with an aesthetic design that is compatible with the structural and engineering aspects of the noise barrier system design applying the following guidance:
  - Ensure that systems utilizing stacked panels that the joint(s) between stacked panels is consistent with the specific aesthetic design pattern of the noise barrier. This consistency applies not just to the panels between two posts but between all panel sections within the noise barrier system. Do not intersperse full height and stacked panels on a continuous section of a noise barrier system. If such consistency cannot be assured, use full height panels.
  - Provide a constructed noise barrier system with no visible form liner joint seams unless those seams are an integral part of the noise barrier system’s aesthetic design. This applies to all components of the noise barrier system (panels, posts, caps, etc.) and applies to both full height and stacked panels designs.

    - Keep post spacing consistent. Vary only if dictated by engineering design requirements such as drainage features, utilities, etc.
    - Noise barrier panels and posts are integral parts of the aesthetic design of the noise barrier system. Provide concrete posts. No steel posts are permitted. Provide posts compatible with the panel design in terms of texture, color, acoustical profile, and scale.
    - Incorporate incidental items such as access doors, fire hose connections, etc. in a manner consistent with the aesthetic aspects of the noise barrier systems
    - Provide caulking and coating materials compatible with the aesthetic aspects and acoustical requirements of the noise barrier system
    - Provide light-tight joints between panels and posts and between panels and caps to preclude acoustical leakage
    - On stacked panel systems, provide light-tight horizontal joints that preclude visible warping and acoustical leakage
    - The anticipated appearance of the completed barrier system, in place, will be criteria for acceptability of the proposed design.
- Provide the same architectural finish, noise abatement characteristics, proof of noise abatement characteristics, heights and lengths to the same limits as indicated for the noise barrier shown on the Conceptual TS&L Plans.
- For structure-mounted noise barrier, check structural adequacy and modify all affected structure components to ensure that service life of the structure or the noise barrier is not jeopardized. These components include barrier; slab; sidewalk (where applicable); beams, diaphragms and bracings; and bearings. Verify structural adequacy of both the structure and noise barrier. Substructure units need not be checked unless they are an integral part of the superstructure.
- Account for bridge deflection magnification at the top of the posts to ensure that panels are adequately restrained within the flange space of the post at the top of the posts under full live load plus impact of the bridge. Conversely, the posts and panels should not be influencing each other thereby causing any damage or future maintenance problems. Connecting panels or posts directly to the bridge barrier using bolts through the barrier is not allowed.
- Provide drainage as indicated on the Conceptual TS&L Plans.

3. Seismic

Site Class is not Class E.

4. Maintenance of Traffic During Construction

Refer to the Special Provision “Maintenance and Protection of Traffic During Construction, Item 0901-0001”

5. Inspection and Maintenance Accessibility

Provide inspection and maintenance accessibility as that provided in the Conceptual TS&L Plans. In case of a disagreement on accessibility, the Chief Bridge Engineer's decision will be binding or alternate means acceptable to the Department.

6. Environmental

Refer to the Special Provision titled ENVIRONMENTAL COMMITMENT AND MITIGATION TRACKING SYSTEM (ECMTS) REPORT.

7. Utilities

Design the noise barrier to accommodate the following utility facilities at the noise barrier:

ITEM 8215-0001: Existing Sunoco Petroleum Pipe at Station 239+19 and 242+19(Abandoned). Existing Interstate Energy Petrolium Pipe at Station 247+97. Existing Peco Overhead Electric Lines at Station 251+80 and 254+30. Existing Underground Peco Electric Duct at Station 255+46. Existing Aqua Pennsylvania Water Pipe at Station 255 +35.

ITEM 8215-0003: 10-inch Mobil Petroleum Pipeline at Station 286+60.

ITEM 8215-0004: Existing Sunoco Petroleum Pipe at Station 288+13.

ITEM 8215-0005: 10-inch Mobil Petroleum Pipeline at Station 284+04.

ITEM 8215-0006: PennDOT existing Fiber Optic Line along length of wall from Station 288+44 to Station 304+44. Existing Sunoco Petroleum Pipe at Station287+00.

ITEM 8215-0011: Existing East Whiteland Township Sewer Authority Pipe at Station 345+78.

If utility relocations are required as part of an alternate structure, secure approvals from the affected utility companies.

8. Other

Coordinate the Noise Barrier foundations with the following structures:

ITEM 8215-0002: 9'x6' reinforced concrete box culvert at Station 264+80.

ITEM 8215-0004: 14'x10' arch culvert at Station 297+70 and Proposed Precast Concrete Arch at Station 299+56.

ITEM 8215-0006: 14'x10' arch culvert at Station 296+25 and Proposed Precast Concrete Arch at Station 298+25.

ITEM 8215-0008: 20'x7'-3" reinforced concrete box culvert at Station 328+00 and Sign Structure, S-30658, at Station 327+50.

ITEM 8215-0010: 20'x7'-3" reinforced concrete box culvert at Station 329+00 and Sign Structure, S-30658, at Station 327+50.

ITEM 8215-0011: 20'x7'-3" reinforced concrete box culvert at Station 330+00 and 6'x5'-6" reinforced concrete box culvert at Station 345+60.

(f) Foundations

1. General - Design the noise barrier units using as-designed geotechnical design parameters and requirements or an alternate foundation type as allowed herein.

2. As-Designed Foundation - Use the following in conjunction with the foundation type(s) shown on the Conceptual TS&L Plans:

2.a. Geotechnical Design Parameters

2.a.1. Spread Footings:

Foundation design as per BD-677M / BD-678M is acceptable where applicable.

Use the following soil/rock parameters for design in lieu of BD-677M / BD-678M or where BD-677M / BD-678M is not applicable.

Allowable Bearing Pressure:

Footing supported on soil: allowable bearing pressure is limited to a maximum of: 1.50 tsf

Footing supported on rock; allowable bearing pressure is limited to a maximum of: 1.50 tsf

Soil Parameters	Rock Parameters
Soil Type: *	Rock Types: *
Average N-value = *	Uniaxial Compressive Strength, C_0 = * tsf
Moist Unit Weight, g_m = * pcf	Average Recovery of Bedrock = 75%
Saturated Unit Weight, g_s = g_m pcf	Average RQD = 20%
Effective Unit Weight, g' = (g_m-62.4) pcf	Unit Weight, g = 140 pcf
Cohesion, c = *	Interface Friction Angle, d = 31°
Effective Internal Friction Angle, F' = * °	Ultimate Bearing Capacity, Q_{ult} = 24 tsf
Elastic Modulus, E_s = 150 tsf	Elastic Modulus, E_m = 250x10^3 tsf
Poisson's Ratio, n = 0.3	Poisson's Ratio, n = 0.2

* SEE PROJECT DEVELOPMENT CHECKLIST FOR ATTACHMENT: “GEOTECHNICAL DESIGN PARAMETERS AND FOUNDATION DESIGN INFORMATION FOR NOISE BARRIERS”.

2.a.2. Drilled Caisson:

Foundation design as per BD-677M / BD-678M is acceptable where applicable; use soil type 1 for design with the standards.

Use the following soil/rock parameters for design in lieu of BD-677M / BD-678M or where BD-677M / BD-678M is not applicable:

Soil Parameters	Rock Parameters
Soil Type: *	Rock Types: *
Average N-value = *	Uniaxial Compressive Strength, C_0 = * tsf
Moist Unit Weight, g_m = * pcf	Average Recovery of Bedrock = 75%
Saturated Unit Weight, $g_s = g_m$ pcf	Average RQD = 20%
Effective Unit Weight, g’ = (g_m-62.4) pcf	Unit Weight, g = 140 pcf
Cohesion, c = *	Interface Friction Angle, d = 31º
Effective Internal Friction Angle, F’ = * º	Ultimate Bearing Capacity, Q_{ult} = 24 tsf
Elastic Modulus, E_s = 150 tsf	Elastic Modulus, $E_m = 250x10^3$ tsf
Poisson’s Ratio, n = 0.3	Poisson’s Ratio, n = 0.2

* SEE PROJECT DEVELOPMENT CHECKLIST FOR ATTACHMENT: “GEOTECHNICAL DESIGN PARAMETERS AND FOUNDATION DESIGN INFORMATION FOR NOISE BARRIERS”.

2.b. Foundation Design Information

The BD 677M and BD-678M standard foundation designs are applicable for level ground and consider only footings and caissons on or in soil. The Contractor is required to provide a design if the ground line is sloped.

2.b.1. Spread Footing:

- Coefficient of sliding friction:

  Footing supported on soil = 0.3.

  Footing supported on rock =0.6.

- Design spread footing to incorporate the slope of the proposed ground line where applicable.
- Minimum Factor of Safety (Min. FS) against sliding: 1.5.
- Min. FS against sliding for seismic loading: 1.125
- Min FS against overturning: 2.0
- Min FS against overturning for seismic loading: 1.50
- Provide Minimum of 1.5 ft soil cover above the top of footing.
- The minimum thickness of spread footing is 2.0 ft.
- Spread footing must be designed for no uplift.
- The frost depth is 3.0 ft.
- Maximum allowable settlement is 1.0 inch.
- Follow BD-676M, BD-677M, BD-678M, BD-680M and BC-776M, BC-777M, BC-778M and BC-780M for additional design and construction requirement.

2.b.2. Drilled Shaft:

- For shafts extending into bedrock, provide minimum 3-foot rock socket
- The subsurface conditions may vary within the project, which may result in different rock/soil parameters than those listed above. Alternate shaft design is allowed if

the soil/rock parameters differ significantly; however, the design parameters must be approved by the Department before alternate design development.
- Caisson must be designed in soil and/or rock using the soil properties indicated in Tables in 2.a.2 and 2.b.2.
- The drilled caisson must have a minimum diameter of 3.0 ft.
- Minimum Factor of Safety against overturning is 2.0.
- Maximum allowable vertical displacement is 1.0 inch.
- Maximum allowable lateral design displacement at top of caisson must be 0.5 inches.
- Caisson length must be determined using the LPILE or the COM624P computer program to satisfy bearing and settlement requirements. Final caisson length indicated must include an additional 3.0 ft length to account for freezing, thawing, weathering and other shallow ground disturbance.
- Based on the boring information, rock excavation may be encountered at various sound barrier locations during the construction of caissons. Contractor must provide the equipment required for advancing caisson to the required depth and through the anticipated karstic rock as necessary.
- Within in the project limit, soil, rock properties may vary significantly. Alternative caisson designs are permitted if the soil/rock properties differ from those indicated in Tables in 2.a.2 and 2.b.2. Foundation design parameters must be accepted by the Engineer.
- Because of the variability of typical Karst topography, it is anticipated that the bedrock depth is variable within the project limit. If rock depth and soil properties encountered during construction are significantly different from the soil models provided in the table, re-evaluation of the soil model by the design-build team is required. Foundation design parameters must be approved by the Engineer.
- Follow BD-676M, BD-677M, BD-678M, BD-680M and BC-776M, BC-777M, BC-778M and BC-780M for additional design and construction requirement.

SEE PROJECT DEVELOPMENT CHECKLIST FOR ATTACHMENT: “GEOTECHNICAL DESIGN PARAMETERS AND FOUNDATION DESIGN INFORMATION FOR NOISE BARRIERS” FOR ADDITIONAL INFORMATION.

2.c. Construction Requirements

2.c.1.Subgrade Preparation

Flowable fill and Rock Veneer are proposed at Noise Barrier 4 (Item 8215-0004, S-31942) and Noise Barrier 6 (Item 8215-0006, S-25922) for embankment and culvert construction. If a shallow foundation is proposed, proper subgrade preparation to provide a level surface for support of the shallow foundation is required.

2.c.2. Settlement Monitoring -Perform settlement monitoring at Not Applicable according to the Special Provision Not Applicable.

2.c.3.Other

Sinkhole Treatment – Sinkholes encountered during sound barrier constructions must be repaired in accordance with associated details and the Special Provision "Limited Mobility Grouting".

Rock Lining for Slope Protection – Within Sound Barrier NW4 (Item 8251-0004, S-31942) limit, rock lining for slope protection is required between S.R. 0202 mainline station 298+00 and 302+50 where the proposed embankment, to the limits indicated, is steeper than 2H:1V. Rock lining must be constructed in accordance with the Special Provision "Rock Lining for Slope Protection" and associated details.

Flowable fill is proposed within the limits of NW4(Item 8251-0004, S-31942) and NW6 (Item 8251-0006, S-25922). A special foundation design may be required along with coordination of the Noise Barrier foundations and Culvert construction.

<u>If Spread Footing is selected:</u>

1. Construct embankments and/or cut existing grade to the top of footing elevations.

2. Based on the boring information, rock excavation may be encountered during the construction. Refer to the laboratory results for uniaxial strength of intact rock samples. Blasting is not permitted.

If Drilled Caisson is selected:

1. Construct embankments and/or cut to the top of caisson elevation prior to construction of caissons.

2. The contractor is responsible for maintaining an intact drilled opening and for maintaining the stability of the ground cut slope or fill embankment during drilling and installation of caissons.

3. Temporary casing may be required during caisson construction in order to maintain an open shaft. If casing is used, maintain concrete levels above the bottom of casing at all times during casing extraction to prevent caved material from contaminating the concrete.

4. If groundwater flow enters the caisson excavation during the construction, place concrete by tremie methods to above the groundwater elevation in one continuous operation. Fill the remainder of caisson with class A concrete. Place epoxy bonding compound between pours, as required.

3. Alternate Foundations

Alternate foundations are allowed as follows:

3.a. Allowable Foundation Types

3.a.1. Geotechnical Design Parameter Limitations

Determine the applicable resistances to be used to design the substructures, limited to the maximum Ultimate Capacities given below. Designs utilizing Ultimate Capacities exceeding the maximum values indicated below will not be accepted.

3.a.2. Spread footings on Soil

The Ultimate Bearing Capacity is limited to a maximum of 3 tsf

3.a.3. Spread Footings on Rock

The Ultimate Bearing Capacity is limited to a maximum of 5 tsf

3.a.4. Pile Supported Foundations

Not Applicable

3.a.5. Drilled Caisson Supported Foundations

The Nominal (Geotechnical) Unit Side Resistance for rock sockets is limited to a maximum of 5.5 tsf.

3.b. Required Geotechnical Exploration

Provide and utilize the following number of borings for the foundation design, at a minimum:

- Not Applicable

Previously obtained borings as shown on the Conceptual TS&L Plans may be used as a required boring where the boring lies within the footprint of the footing of the noise barrier.

Perform the geotechnical exploration for the noise barrier as described herein and in accordance with the Special Provision titled SPECIAL BIDDING – DESIGN BUILD, Section IIX – General Design Requirements, Design Specifications.

3.c. Foundation Submission

Prepare and submit a foundation report according to the requirements of Publication 15M, Design Manual Part 4 (DM 4), Policies and Procedures (PP), Section 1.9.4. Cost comparisons per Section 1.9.4.3(c) are not required.

3.d. Construction Requirements

3.d.1. Subgrade Preparation

Not Applicable

3.d.2. Settlement Monitoring

Not Applicable

3.d.3. Other

Not Applicable

(g) Submittals

1. Final TS&L Submission

Include the following information in the TS&L submission:

1. Final TS&L submission letter: In accordance with DM 4, PP Section 1.9.3.3.1(a).

2. Final TS&L plans: In accordance with DM, 4 PP Section 1.9.3.3.1(b).

3. Supply the following additional information:

(a) Route and section number, index map and segment/offset of limits

(b) Name of Lead Design Engineer

(c) Design traffic data including current and projected ADTT and class of highways on relevant roads

(d) Date of line and grade approval and design speed (if changes are made to the as-designed vertical and horizontal alignments)

4. Completed applicable Q/A Forms D-501, D-502, D-503, and/or D-504 (refer to DM 4, Appendix A)

2. Foundation Submission (As Applicable)

In accordance with DM 4, PP Section 1.9.4.3.1 and Section II(f) of this Special Provision for submittal requirements.

3. Final Structure Plans and Computations

In accordance with DM 4. Include in the Final Structure Plans the Core Boring Logs as provided in the Conceptual Drawings in unmodified form; with the exception of superimposition of sheet numbering consistent with the Final Structure Plans and prominent designation of each sheet as "Information Provided by Others." Sign and seal each plan sheet per DM 4, Section PP 1.6.3.1, with the exception of the aforementioned Core Boring Logs. Upon completion of Quality Assurance Review, or Owner’s Perspective Review, as applicable, and receipt of drawings stamped “Recommended for Construction,” provide the Department with one paper copy for signature by the District Bridge Engineer.

4. Revisions During Construction and As-Built Drawings

In accordance with DM 4, PP Section 1.10, except that the Contractor is responsible for making changes to the contract drawings, and making and distributing necessary copies of the revised plans to all affected parties. PP Section 1.10.5 is modified as follows: If a design error occurs, the Contractor is fully responsible for the costs associated with providing additional design analysis and construction modifications, acceptable to the Department, to correct the problem. The Department will require reimbursement for design errors to cover engineering review costs. This amount will be deducted from the lump sum cost for the construction of structure item via work order.

Maintain and submit "As-Built" drawings in accordance with Publication 10C, Design Manual Part 1C, Transportation Engineering Procedures, Section 5.7, As-Built Plans, except include major quantity changes (such as foundation pile length changes, etc).

"As-Built" drawings are the sole responsibility of the Contractor and must be submitted to the District within 3 months of final inspection acceptance as defined in Section 110.08(a).

(**h) Submittal Review, Approval, and Distribution**

Make all submissions in accordance with the Special Provision titled SPECIAL BIDDING – DESIGN-BUILD, except as follows:

- Partial Plans Submissions: None
- Utilities: Additional contract time will not be considered for additional utility relocation work associated with an alternate structure.

III. MEASUREMENT AND PAYMENT-Lump Sum

Partial payment will be made for the design activity based on the approved Schedule of Values in accordance with Section IX of the Special Provision titled SPECIAL BIDDING – DESIGN-BUILD, utilizing the following components:

- Final TS&L Approval
- Final Plan Approval
- Final Plan - for Signature
- As-Built Drawings

I82340A - c82340 ITEM 8259-0001 THRU 8259-0011, 8259-0091 THRU 8259-0092 CONSTRUCTION OF NOISE BARRIER

Addendum:

Associated Item(s): 8259-0001, 8259-0002, 8259-0003, 8259-0004, 8259-0005, 8259-0006, 8259-0007, 8259-0008, 8259-0010, 8259-0011, 8259-0091, 8259-0092

Header:

ITEM 8259-0001 - CONSTRUCTION OF NOISE BARRIER, S-25698 (NW-1)
ITEM 8259-0002 - CONSTRUCTION OF NOISE BARRIER, S-25699 (NW-2)
ITEM 8259-0003 - CONSTRUCTION OF NOISE BARRIER, S-30979 (NW-3)
ITEM 8259-0004 - CONSTRUCTION OF NOISE BARRIER, S-31942 (NW-4)
ITEM 8259-0005 - CONSTRUCTION OF NOISE BARRIER, S-31036 (NW-5)
ITEM 8259-0006 - CONSTRUCTION OF NOISE BARRIER, S-25922 (NW-6)
ITEM 8259-0007 - CONSTRUCTION OF NOISE BARRIER, S-31039 (NW-7)
ITEM 8259-0008 - CONSTRUCTION OF NOISE BARRIER, S-31601 (NW-8)
ITEM 8259-0010 - CONSTRUCTION OF NOISE BARRIER, S-25738 (NW-10)
ITEM 8259-0011 - CONSTRUCTION OF NOISE BARRIER, S-26764 (NW-11)
ITEM 8259-0091 - CONSTRUCTION OF NOISE BARRIER, S-31040 (NW-9-1)
ITEM 8259-0092 - CONSTRUCTION OF NOISE BARRIER, S-31037 (NW-9-2)

Provision Body:

I. DESCRIPTION - This work is the construction of a noise barrier of the type bid in the corresponding specification entitled "Design of Noise Barrier System" and in accordance with the approved design and structure drawings. Construction of a temporary excavation support and protection system is included, if applicable.

II. MATERIAL - As indicated and as specified for each respective item included in the noise barrier.

III. CONSTRUCTION - In accordance with Publication 408, Special Provisions for each respective item, and any additional requirements specified herein.

Prepare and submit Shop Drawings in accordance with Publication 15M, Design Manual Part 4 (DM 4), Policies and Procedures (PP) Section 1.10.2. Include the following in the Shop Drawings:

- Beginning and ending stations of the noise wall section
- Horizontal and vertical alignments of the noise wall section

- Elevations of the top of panel, bottom of panel, and panel joints (if applicable)
- Panel locations by station and offset
- Post locations by station and offset
- Existing and proposed ground locations
- Special post and panel details
- Post, panel, and foundation connection details
- Lifting devices
- Fire hose and access door locations and details
- Special drainage details associated with the noise barrier system
- Utility locations
- Certification by the Contractor's acoustical expert that the barrier system design represented by the shop drawings meets all of the project's acoustical requirements.

The Department will require reimbursement for design errors to cover engineering review costs. This amount will be deducted from the lump sum cost for the construction of structure item In accordance with Section 110.03.

Be responsible for making changes to the contract drawings, and making and distributing necessary copies of revised plans to all affected parties in accordance with applicable sections of DM 4, PP Section 1.10.6.

Do not start construction until structure plans stamped "Released for Construction" are transmitted by a letter indicating which work can proceed. Construction may start on components of the structure provided that partial structure plans stamped "Released for Construction" are transmitted by a letter indicating which work can proceed.

Before starting construction of the project noise barrier systems, erect one full size test panel with cap, and two full size test posts for inspection and approval by the Department. Such inspection will be performed by the Department at the location (s) of fabrication of the post and panels. This inspection will be solely for the purpose of approving the aesthetic appearance of the post and panels and will not replace any structural and/or material requirements of this contract. The post and panels will be inspected in their ultimate aesthetic condition with all surfaces finished and treatments applied. If approved, the post and panels may be used as part of the permanent noise barrier system, provided that the post and panels meet all of the structural and material requirements of this contract. Panel and posts not incorporated into the Contract work will be incidental to the cost of the noise barrier.

Before starting construction of the project noise barrier system on the project site, erect a test wall section on the project site composed of a minimum of 4 posts and 3 panels at a location directed by The Department. This section, if approved, will become a portion of the permanent noise barrier system. The Department will use the erection of this test wall section to determine if the methods and equipment are sufficient to produce a sound barrier system that meets the requirements of the contract documents. Methods and equipment may be revised at any time during the positioning of the test section in order to meet the contract requirements. If the test wall section does not meet the construction tolerances or the aesthetic and/or acoustical requirements of the contract, remove and dispose of the test wall section or portions thereof at no additional cost to the Department. Reconstruct the test wall section until determined by the Department to meet the contract requirements. The test wall section will be incidental to the cost of the noise barrier.

If utility relocations are required as part of a noise barrier, be responsible for the cost of the utility relocations in excess of those indicated in the contract documents. Additional contract time will not be considered for additional utility relocation work associated with an alternate noise barrier.

Flowable fill and rock veneer are proposed within the limits of NW 4 (Item 8259-0004, S-31942) and NW6 (Item 8259-0006, S-25922). Noise Barrier construction in this area must be coordinated with the culvert and embankment construction to avoid conflict between the Noise Barrier foundations and the embankment and culvert construction.

Provide architectural treatment as indicated on the conceptual TS&L plans and in the Special Provision titled "Architectural Surface Treatment for Concrete Surfaces".Provide absorptive panels as indicated in the Special Provision titled "Sound Barrier Absorptive Precast Concrete Panels".

IV. MEASUREMENT AND PAYMENT - Lump Sum

(a) General

Partial payment will be made for all work indicated on the Final Structure Drawings for S-25698, S-25699, S-30979, S-31942, S-31036, S-25922, S-31039, S-31601, S-31040, S-31037, S-25738, S-26764 based on the approved Schedule of Values in

accordance with Section IX of the Special Provision titled SPECIAL BIDDING – DESIGN-BUILD, except as indicated otherwise herein.

The fire access door for S-25922 is incidental to this Item.

I6140B - D06 Item 9999-9962 - Utility Manhole Neck Rebuilding

Addendum:

Associated Item(s): 9999-9962

Header:
ITEM 9999-9962 - UTILITY MANHOLE NECK REBUILDING

Provision Body:

DESCRIPTION - This work is rebuilding manhole necks of size or type indicated for a vertical distance in excess of eight inches and resetting the existing casting as indicated or directed by the Engineer.

MATERIAL - Section 605.2

CONSTRUCTION - Rebuild manholes as determined by the Utility and Engineer.

Carefully remove the existing casting and clean. Adjust the neck using brick and mortar as required. Then set and seal the casting with mortar on the neck at the proper elevation for paving. If the Utility and the Engineer determine that the existing manhole neck is in unsatisfactory condition or cannot be adjusted, then remove the neck and rebuild as required. Parge any exposed brick. Complete all work in accordance with Section 607 or the Utility specifications, if attached.

MEASUREMENT AND PAYMENT - Vertical Foot

Will be measured and paid to the nearest 0.1 of a foot, except that heights less than 1 foot will be paid for as 1 vertical foot.

At the predetermined contract unit price indicated in the proposal by the Department.

I6120B - D06 Items 9999-9950 through 9999-9955 - Utility Casting Adjustment for Resurfacing - Type A

Addendum:

Associated Item(s): 9999-9950, 9999-9951, 9999-9952, 9999-9953, 9999-9954, 9999-9955

Header:
ITEM 9999-9950 - 0 TO 15 INCH DIAMETER UTILITY CASTING ADJUSTMENT FOR RESURFACING - TYPE A - CONCRETE BASE;
ITEM 9999-9951 - 0 TO 15 INCH DIAMETER UTILITY CASTING ADJUSTMENT FOR RESURFACING - TYPE A - FLEXIBLE BASE;
ITEM 9999-9952 - 16 TO 36 INCH DIAMETER UTILITY CASTING ADJUSTMENT FOR RESURFACING - TYPE A - CONCRETE BASE;
ITEM 9999-9953 - 16 TO 36 INCH DIAMETER UTILITY CASTING ADJUSTMENT FOR RESURFACING - TYPE A - FLEXIBLE BASE;
ITEM 9999-9954 - 37 TO 54 INCH DIAMETER UTILITY CASTING ADJUSTMENT FOR RESURFACING - TYPE A - CONCRETE BASE;
ITEM 9999-9955 - 37 TO 54 INCH DIAMETER UTILITY CASTING ADJUSTMENT FOR RESURFACING - TYPE A - FLEXIBLE BASE

Provision Body:

DESCRIPTION - This work is the replacement, resetting or grade adjustment of an existing utility casting for a vertical height of 8 inches or less, as indicated or directed.

MATERIAL - Section 606.2

CONSTRUCTION - Determine casting diameter by measuring the diameter of the lid. Replace the base course with the same type removed, either concrete or flexible.

Complete the resetting or adjustment in a one step operation with no temporary work anticipated. Be responsible for any other change to castings and repair or replace at no expense to the Department or Utility.

Carefully remove the existing castings and clean. Reset the castings to the proper elevation on brick and mortar bed in accordance with Section 606 or the Utility specifications if attached. Do not use inserts, extensions or risers.

Castings requiring replacement will be provided for and delivered to the site by the Utility for installation.

Required adjustment to the conical section of a manhole, will be paid under Item 9999-9962 - Utility Manhole Neck Rebuilding.

MEASUREMENT AND PAYMENT – Each

At the respective predetermined contract unit price indicated in the proposal by the Department.

I6130B - D06 Items 9999-9956 through 9999-9961 - Utility Adjustment for Resurfacing - Type B

Addendum:

Associated Item(s): 9999-9956, 9999-9957, 9999-9958, 9999-9959, 9999-9960, 9999-9961

Header:

ITEM 9999-9956 - 0 TO 15 INCH DIAMETER UTILITY CASTING ADJUSTMENT FOR RESURFACING - TYPE B - CONCRETE BASE;
ITEM 9999-9957 - 0 TO 15 INCH DIAMETER UTILITY CASTING ADJUSTMENT FOR RESURFACING - TYPE B - FLEXIBLE BASE;
ITEM 9999-9958 - 16 TO 36 INCH DIAMETER UTILITY CASTING ADJUSTMENT FOR RESURFACING - TYPE B - CONCRETE BASE;
ITEM 9999-9959 - 16 TO 36 INCH DIAMETER UTILITY CASTING ADJUSTMENT FOR RESURFACING - TYPE B - FLEXIBLE BASE;
ITEM 9999-9960 - 37 TO 54 INCH DIAMETER UTILITY CASTING ADJUSTMENT FOR RESURFACING - TYPE B - CONCRETE BASE;
ITEM 9999-9961 - 37 TO 54 INCH DIAMETER UTILITY CASTING ADJUSTMENT FOR RESURFACING - TYPE B - FLEXIBLE BASE

Provision Body:

DESCRIPTION - This work is the replacement, resetting or grade adjustment of an existing utility casting for a vertical height of 8 inches or less, as indicated or directed.

MATERIAL - Section 606.2

CONSTRUCTION - Determine the casting diameter by measuring the diameter of the lid. Replace the base course with the same type removed, either concrete or flexible.

Complete the adjustment (resetting) in a two-step operation when a casting reset at the proposed final grade will protrude more than 3 inches and may cause damage to vehicular traffic or be a safety hazard prior to paving. Make the first adjustment to a temporary grade that will permit traffic to move safely over the casting. Make the second adjustment to the final grade for paving. Steel plates may be used in lieu of the temporary (first) adjustment for a period not exceeding five calendar days. Provide a means

of access to each utility facility so that one man may enter the facility within 30 minutes without special equipment or tools. Temporarily mark the facility location and name of utility for emergency use. Be responsible for any other change to the castings and repair or replace at no expense to the Department or Utility.

Carefully remove the existing castings and clean. Reset the casting to the proper elevation on a brick and mortar bed in accordance with Section 606 or the Utility specifications if attached. Do not use inserts, extensions or risers. Castings requiring replacement will be provided for and delivered to the site by the Utility for installation.

Required adjustment to the conical section of a manhole, will be paid under ITEM 9999-9962 - Utility Manhole Neck Rebuilding.

MEASUREMENT AND PAYMENT - Each

At the respective predetermined contract unit price indicated in the proposal by the Department.

I6150B - D06 Items 9999-9963 and 9999-9964 - Utility Casting Riser Adjustment For Resurfacing - Type C

Addendum:

Associated Item(s): 9999-9963, 9999-9964

Header:

ITEM 9999-9963 - 0 TO 15 INCH DIAMETER UTILITY CASTING RISER ADJUSTMENT FOR RESURFACING - TYPE C;
ITEM 9999-9964 - 16 TO 54 INCH DIAMETER UTILITY CASTING RISER ADJUSTMENT FOR RESURFACING - TYPE C

Provision Body:

DESCRIPTION - This work is the resetting or grade adjustment of an existing casting using a one-piece prefabricated adjustment riser for a vertical distance less than 3 inches, as indicated or directed.

MATERIAL - Section 606.2

CONSTRUCTION - Section 606.3 and as follows:

Determine the casting diameter by measuring the diameter of the lid.

Complete the resetting or adjustment in a one step operation with no temporary work anticipated. Be responsible for any other changes to the castings and repair or replace at no expense to the Department or Utility.

Carefully clean the existing casting. Adjust the casting to the proper elevation by placing the extension over the cover in order to produce a fit with 100% contact. Tighten the turnbuckle with wrench for swedge fit in accordance with Section 606 or the Utility specifications if attached. Do not permit turnbuckle to protrude into the manhole crawl area.

Install only one extension to each casting adjustment. Do not install over existing extension.

Do not install units with two piece extensions, vertical elevating bolts, or with more than one turn buckle.

Required adjustments to the conical section of a manhole, will be paid under ITEM 9999-9962 Utility Manhole Neck Rebuilding.

MEASUREMENT AND PAYMENT - Each

At the respective predetermined contract unit price indicated in the proposal by the Department.

I6160B - D06 Items 9999-9965 and 9999-9966 - Utility Casting Riser Adjustment For Resurfacing - Type D

Addendum:

Associated Item(s): 9999-9965, 9999-9966

Header:
ITEM 9999-9965 - 0 TO 15 INCH DIAMETER UTILITY CASTING RISER ADJUSTMENT FOR RESURFACING - TYPE D;
ITEM 9999-9966 - 16 TO 54 INCH DIAMETER UTILITY CASTING RISER ADJUSTMENT FOR RESURFACING - TYPE D

Provision Body:

DESCRIPTION - This work is resetting or grade adjustment of an existing casting using a one-piece prefabricated adjustment extension for a vertical distance greater than 3 inches and less than 4 inches, as indicated or directed.

MATERIAL - Section 606.2

CONSTRUCTION - Section 606.3 and as follows:

Determine the casting diameter by measuring the diameter of the lid.

Complete the resetting or adjustment in a one step operation with no temporary work anticipated. Be responsible for any other changes to the castings and repair or replace at no expense to the Department or Utility.

Carefully clean the existing casting. Adjust the casting to the proper elevation by placing the extension over the cover in order to produce a fit with 100% contact. Tighten the turnbuckle with wrench for swedge fit in accordance with Section 606 or the Utility specifications if attached. Do not permit turnbuckle to protrude into the manhole crawl area.

Install only one extension to each casting adjustment. Do not install over existing extension.

Do not install units with two piece extensions, vertical elevating bolts, or with more than one turn buckle.

Required adjustments to the conical section of a manhole, will be paid under ITEM 9999-9962 Utility Manhole Neck Rebuilding.

MEASUREMENT AND PAYMENT - Each

At the respective predetermined contract unit price indicated in the proposal by the Department.

00 - FLOWABLE BACKFILL, TYPE D, MODIFIED

Addendum:

Associated Item(s):

Header:
FLOWABLE BACKFILL, TYPE D, MODIFIED

Provision Body:

DESCRIPTION – Section 220.1 and as follows:

This work is the furnishing, transporting, and placing lightweight flowable backfill as shown on structure drawings S-24744.

MATERIAL – Section 220.2 and as follows:

- Type D Mix Design
- Maximum Density = 30 PCF
- Backfill to be capable of exerting no lateral pressure to pedestal walls, culvert arch and precast wingwalls once hardened

CONSTRUCTION – Section 220.3

MEASUREMENT AND PAYMENT – Cubic Yard

This is a component of the following item:

ITEM 8510-0001 CULVERT SYSTEM, AS DESIGNED, S-24744

No separate payment will be made.

G30270A - HIGH PERFORMANCE CONCRETE

Addendum:

Associated Item(s):

Header:
HIGH PERFORMANCE CONCRETE

Provision Body:

In accordance with Section 1001 and as follows:

Section 1001.1 DESCRIPTION - Revise as follows:

This work pertains to bridge construction and other cement concrete work. This work also consists of furnishing, placing and curing structural Portland cement concrete for use in high performance concrete (HPC) bridge decks, Type 3 approach slab, and barriers as indicated and as directed by the Representative.

Section 1001.2(a) Cement Concrete. Revise as follows:

Section 704 except as follows:

Delete Table A, Cement Concrete Criteria.

Use the following criteria for HPC mix:

• Select a range of water cementitious ratio, for the mix to be produced, from a maximum of 0.45 to a minimum of 0.40.

• Sand Fineness Modulus Range = 2.6 to 3.1

• Minimum mix design 28 day compressive strength = 27.6 MPa (4000 psi)

• A 28 day to 7 day compressive strength ratio of greater than or equal to 1.33

Section 704.1(a) Description. Revise as follows:

Cement concrete is a mixture of Portland cement, fine aggregate, coarse aggregate, water and air-entraining admixture, with or without water reducing admixture, retarding admixture, micro-silica, fly ash, ground granulated blast furnace slag, or property enhancing admixture. Furnish a mix that provides well graded aggregates, sufficient workability, low chloride penetration

permeability, shrinkage resistance, low heat of hydration, freeze-thaw resistance, abrasion resistance, low alkali-silica reactivity, and adequate strength.

Section 704.1(b) Material. Add the following bullet:

• Micro-silica – Section 724 except as follows:

The use of micro-silica in the HPC mix design is optional. For any use of micro-silica, supply the micro-silica as a dry powder or slurry. Only one brand may be specified for any one structural element. Certify materials as specified in Section 106.03(b)3.

The proposed use of a micro-silica admixture must be as listed in Publication 35, Bulletin 15, and conform to the requirements of AASHTO M-307 including the optional chemical and physical requirements, including the following:

a. Fineness: Maximum 5.0% retained on a 45-µm sieve (wet method).

b. Uniformity of Percent Solids (Slurry): Maximum +5% from the accepted value.

Micro-silica slurry must be maintained in storage above the temperature of 0 degrees Celsius (32 degrees Fahrenheit). Slurries exposed to temperatures of 0 degrees Celsius (32 degrees Fahrenheit) or less must be removed or replaced at no cost to the Department. The slurry must be homogeneous and agitated as necessary to prevent separation. For each shipment supplied, the certification must list fineness, silica content, total chloride ion content, and solids content for slurries.

Section 704.1(c) Design Basis.

1. General. Revise as follows:

Base concrete mix design on the material to be used in the work. Select a water cement ratio range within the allowable maximum and minimum that will be used during production.

Make trial mixtures and computations including the molding and curing of test specimens at the proposed minimum and maximum water cement ratio. Prepare and compute each design in accordance with Bulletin 5, except that over design strength must be a minimum of 3.4 MPa (500 psi) and w/c ratio may be computed in increments of 0.01.

Submit a copy of each completed mixture design to the District Materials Engineer at least thirty (30) days prior to its trial use in the work. Submit type of mixer and mixing procedures planned for the project with the final mixture design for approval. The Department reserves the right to review any design through plant production prior to using for Department work at no additional cost to the Department.

At least two weeks prior to its use, mix a minimum of 6.11 cubic Meter (8 cubic yard) trial Placement Mixture using the approved mixture design and the type of placement procedure planned for the project as directed by the District Materials Engineer. All data relevant to Section 704.1(b), Material, regarding the mix design will be forwarded to the Bureau of Construction and Materials and District Office for review and comment before pouring the trial mixture. The Bureau of Construction and Materials and the District Office must be contacted at this time to witness both mixture design specification and trial mixture.

This Placement Mixture must be placed in a 'mock-up' form and evaluated for workability, slump, and plastic air content using similar finishing operation as that proposed for the placement mix operation. Place the placement mixture in a form having the following minimum dimensions:

• Depth: 8 inches

• Width: 10 feet

• Length: 10 feet

Reinforcing steel is not required for the trial placement.

Four (4) cylinders each must be molded. Two (2) cylinders must be field cured and two (2) cylinders must be lime bath cured. Determine the seven (7) day and fourteen (14) day compressive strengths. Follow PTM 611. If any portion of the trial placement does not meet specification, corrections must be made and the trial placement must be performed again.

Compliance is based on the contractor's test results as witnessed and verified by the Representative. Perform sampling and testing at the mixing site. Submit results to the Representative. Take samples of the stockpiles located at the concrete plant during the placement of the bridge deck. Take samples for gradation control from daily stockpile or in accordance with an approved Quality Control Plan. Take and test samples in accordance with PTM 1, PTM 616, and PTM 100.

2. Cement Factor. Delete

3. Air content. Revise the last sentence of the last paragraph as follows:

The entrained air in the hardened concrete must be between 4.0% and 7.5%, inclusive.

4. Mix Design Acceptance. Delete the second and third paragraph and add the following:

As part of the trial mixture acceptance, provide a mixture that meets the following requirements as performed by a certified laboratory acceptable to the Department. Conduct Laboratory Testing by a laboratory with current accreditation Program (AAP) for the Portland Cement Concrete area or having documentation of current Cement and Concrete Reference Laboratory (CCRL) inspection, including evidence of correction of any deficiencies noted in the AAP or CCRL inspections.

Part A: Required Concrete Testing: These preliminary mix design tests must be passed at both the proposed minimum and maximum water cement ratio and proposed admixtures and contents. All tests within this part will be prepared and tested under controlled conditions within a certified laboratory acceptable to the Department.

Part A.1 Maximum Permeability Amended AASHTO T-277 (Coulombs): 2000 coulombs, maximum. Prepare the test specimens to perform rapid chloride permeability (AASHTO T-277). The permeability samples must be cylindrical specimens with a 102 millimeter (4") diameter and at least 102 millimeter (4") in length. Moist cure similar to the strength cylinders for acceptance except that the last three (3) weeks of cure at one-hundred (100) degrees F, with a tolerance of - 12.2 degrees Celsius (10 degrees Fahrenheit). The curing period must be twenty-eight (28) days. Cylinders must be tested at twenty-eight (28) days in accordance with AASHTO T-277. The test result is of the average values of three (3) sets of two (2) test specimens from each batch.

Part A.2 Compressive Strength PTM No. 604 (PSI). Minimum F28 (day): 27.2 MPa (4000 psi).

• Minimum F’(c): 27.2 MPa (4000 psi) - A reduced payment penalty will be enforced for all deck concrete that does not meet this minimum strength requirement.

• Minimum F’(cs). 24 MPa (3500 psi).

• Maximum F’(c): 41.4 MPa (6000 psi). This value must not be exceeded during the laboratory testing of the mix design.

When calculating the water cement ratio and a portion of the cement is replaced by Pozzolan, use water to cement plus Pozzolan ratio by mass 28 day to 7 day compressive strength ratio greater than or equal to 1.33. The Bureau of Construction and Materials will conduct a Quality Assurance Test of the Compressive Strength.

Part A.3 Air Content of Hardened Concrete ASTM C457: The mix design must meet a minimum air entrainment of 4.0% in the hardened concrete state. Provide the proposed mix design to the laboratory performing the test procedure. Report the entrained air content, entrapped air content, and spacing factor.

Part A.4 Specific Heat of Hydration ASTM C186: The mix design must use a combination of cementitious material that will provide a Specific heat of hydration to a maximum of 135.3 BTU/pound (75 calories per gram) at seven (7) days.

Part A.5 Alkali Silica Reaction (ASR): In order to prevent ASR, the components of this mix must meet one of the following two (2) Test Criteria:

a. AASHTO T303: Test results for both coarse and fine aggregates intended for use in the mix are < 0.10% linear expansion, or < 0.08% linear expansion if the aggregates come from a source consisting of metamorphic rocks, OR;

b. ASTM C 441: Use a combination of cement and mineral admixture(s) which reduces expansion in ASTM C 441 mortar bars by at least 65% at 56 days. In no case must the amount of mineral admixture utilized in the mix be less than the following:

Mineral Admixture Cementitious Material Percentage

Class F fly ash 15% (min)

Class C fly ash 15% (min)

Class N Pozzolan No minimum

GGBSF 25% (min)

Silica Fume 5% (min)

For cementitious Material Percentage, measure the minimum content of cementitious material as percent cement plus mineral admixture. Waive these minimums when used in combination with other mineral admixtures

Part A.6 Shrinkage ASTM C157 (Microstrain): Less than 500 microstrain in 28 days. Prepare concrete test specimens according to the procedures in ASTM C157. Remove the concrete specimens from the molds at 23½ ± ½ hour after the addition of water to the cement during the mixing operation. Upon removal of the specimens from the molds, place them in a lime-saturated bath at 73.4° ± 1° F (23° ± 0.5° C) for 30 minutes before measuring the initial length comparator reading. Follow the procedures stated in ASTM C157 for measuring the length of each specimen. After the initial reading, store the specimens in a moist cabinet or room at 73.4° ± 3° F (23° ± 1.5° C) in accordance with ASTM C511 for 7 days before measuring the second comparator reading. After the 7th day, store the specimens in air in a room maintained at 73.4° ± 3° F (23° ± 1.5° C) and 50 ± 4% relative humidity according to ASTM C157. Measure length change after 4, 7, 14, and 28 days of air storage. The test result is the average length change value of the three test specimens over the 28 days of air storage.

Part B: Informational Concrete Testing: The following additional tests are required for informational concrete testing purposes only. The mix which best meets the test requirements and provides reasonable workability will be selected. The individual results will not be considered as a basis of payment. The results indicated for these informational tests are target values only. All tests within this part will be prepared and tested under controlled conditions within a certified laboratory acceptable to the Department.

Part B.1: Resistance of Concrete to Chloride Ion Penetration AASHTO T259: The Contractor will supply four (4) Test specimens for both design and placement mixes for testing. Specimens must meet the following criteria as specified in FHWA Report FHWA RD 78.35:

a. At the 12.7 millimeter (0.5") to 25.4 millimeter (1.0") level, the Cl– content at the 95% confidence limit should be no higher than 1.44 kilogram/cubic meter (2.43 lbs./cubic yard).

b. At the 1.58 millimeter (1/16") to 12.7 millimeter (0.5") level, the Cl– content at the 95% confidence limit should be no higher than (7.21 kilogram/cubic meter (12.16 lbs./cubic yard).

If the specimen result does not meet both a and b, then it fails the ponding test. See Attachment A for example of confidence limit calculation.

Part B.2: Scaling Resistance ASTM C 672 (Visual Rating). A visual rating of the concrete surface for fifty (50) cycles. One cycle is 24 hours in duration. Visual rating performance (X) for this mixture design measured as X = 1.

Part B.3: Freeze-Thaw Durability AASHTO T161 Procedure A (Relative Modulus, 300 Cycles). Measured in terms of the relative dynamic modulus of elasticity after 300 cycles of freeze-thaw. The freeze-thaw performance for this mixture design measured as 80% < Relative Dynamic Modulus of Elasticity < 90%.

Part B.4: Abrasion Resistance ASTM C944 (wear depth, millimeters): The abrasion resistance is measured as millimeters of wear depth (X). The performance for this mixture design must be measured as 0.5 < X < 1.0.

Section 704.2(c). Mixing and Delivery. Revise fourth paragraph, second bullet, last sentence to read:

Do not exceed a total of 300 truck-drum revolutions including discharge. When Silica Fume is used in the mixture, mixing revolutions will require a maximum of 200 truck-drum revolutions.

Section 1001.3(h). Consistency of Concrete at the Time of Placement. Add the following:

The supplier will provide concrete with a water cement ratio within the limits successfully tested and approved during the mix design process.

Section 1001.3(k)1. General Requirements. Revise first paragraph, by adding the following after the first sentence.

The plan must include the methods and sequence of placing concrete and provisions to monitor air temperature, relative humidity, and wind speed and how deck location conditions will be predicted during anticipated duration of the pour to maintain conditions at the point of placement within the limitations of Section 1001.3(k)6.

Add to fourth (4th) paragraph:

Do not float finish fresh concrete for bridge decks, except where needed at gutter line, scuppers, expansion dams, or isolated locations on the deck for required grade.

Section 1001.3(k)4.b Determining QC and Acceptance Testing Location. Revise entirely to read:

Acceptance testing will be conducted from samples obtained at the point of placement.

Section 1001.3(k)6. Bridge Decks. Revise first (1st) paragraph to read:

At least 2 weeks before concrete deck placement, schedule a deck pre-placement meeting to review the specification, method and sequence of placing deck concrete, quality control testing, and method of protective measures to control the concrete evaporation rate. Place concrete at a concrete temperature of between 10 °C and 27 °C (50 °F and 80 °F). Provide the necessary equipment and determine the evaporation rate before starting deck placement and every hour during the placement. The evaporation rate for exposed finished concrete is determined using ACI 305R-91, Figure 2.1.5. The allowable evaporation Rate for exposed finished concrete will not exceed 0.0071 kPa/hr (0.10 lbs./S.F./hr) of exposed surface for micro-silica concrete mix and 0.0088 kPa/hr. (0.15 lbs./S.F./hr) of exposed surface for all other concrete mix using the ACI 305R-91, Figure 2.1.5. The measurements for air temperature, relative humidity, and wind speed must be taken as near as possible to the final placement of the concrete. The measurements must be performed at least once per hour, beginning with the initial concrete placement. Additional measurements may be required by the contractor if changes in the atmospheric conditions occur, or as directed by the Representative. Have readily available and set-up for operation, at the bridge deck placement site, all remediation equipment and procedures as submitted and approved at the deck pre-placement meeting before starting the placement. If the value is exceeded, stop concrete placement until protective measures are taken to reduce the values to an acceptable level. Fog cure misting may be an acceptable method to mitigate an excessive evaporation rate. Use high pressure equipment that generates at least 8.3 MPa (1,204 pounds per square inch) at 8.3 L per minute (2.19 gallons per minute), or with low pressure equipment having nozzles capable of supplying a maximum flow rate of 6.3 L per minute (1.66 gallons per minute). Use nozzles that atomize droplets and can keep a large surface damp without causing water deposits. Apply the fog over the entire placement that is not covered by wet burlap. Fog cure misting may be used from concrete discharge to finishing area only to maintain the evaporation rate below the allowable value. Do not leave concrete exposed for extended duration. Place concrete 1.5 m to 2.5 m (5 feet to 8 feet) ahead of finishing machine to prevent any premature concrete drying.

Revise sixteenth (16th) paragraph to read:

Conduct operations behind the finishing machines or screeds from work bridges of rigid construction, not in contact with the surface of the concrete, set on rails and easily moved. Provide a smooth, accurate surface by the finishing machines. Do not float finish fresh concrete for bridge decks, except where needed at gutter line, scuppers, expansion dams, or isolated locations on the deck for required grade or to provide an adequate finish. Fog misting equipment is allowed on the finishing machine to maintain the evaporation rate below the allowable value.

Revise the eighteenth (18th) paragraph to read:

Perform straightedge testing and surface correction as specified in Section 501.3(k)3 while the concrete is workable. Check the bridge deck at 3000-millimeter (10.0 ft.) intervals with a 3000 millimeter (10.0 ft.) straightedge. After completing the straightedge testing and surface corrections, before the concrete becomes non-plastic, texture the surface as specified in Section 501.3(k)4.

Cure the deck as specified in Section 1001.3(p)3.b. Apply wet burlap covers immediately following finishing and as specified in Section 1001.3(p). Minimal marking of the fresh concrete is allowed. Maintain wet burlap application within 3 ½ m to 6 m (10 feet to 18 feet) behind the finishing equipment at all times.

Section 1001.3(p)1.b Curing Temperature. Revise by adding:

Control the temperature of Concrete placed for bridge decks and/or bridge beams at the time of placement and during the first 48 hours of cure after each pour or pour sequence to maintain a maximum temperature differential of 22 degrees F between the concrete and the mean beam temperature for each deck as determined by Hi-Lo Thermometers.

Section 1001.3(p)3.b Water Curing Revise the third (3rd) paragraph by adding:

Cure bridge deck for minimum of fourteen (14) days. Water cure according to the procedures as submitted and approved at the deck pre-placement meeting.

Section 1001.3(q)2.c Live Loads. Revise first (1st) paragraph as follows:

Do not allow power-operated buggies, diamond grinding, and diamond saw grooving to cross a deck until fourteen (14) days after the deck concrete in a span has been placed and then only if the combined weight of the equipment is less than 10,000 pounds and the deck concrete has attained a minimum compressive strength of 3,000 pounds per square inch.

Revise third (3rd) paragraph, last sentence as follows:

This authorization will be given as follows:

• A truck mixer not exceeding 8.0 kilometers/ hour (5 m.p.h.) can be placed on the deck for construction of other concrete appurtenances when the concrete in the deck has attained a minimum strength of 23 MPa 3350 pound per square inch and after minimum seven (7) day wet cure. Only one truck will be allowed on the deck at a time in a span or continuous unit for each truck placement occurrence.

• Bridge deck open to traffic after a period of 14 days after placing the last deck concrete and a minimum deck concrete strength of 27.6 MPa (4000 pounds per square inch), and;

• After a period of seven (7) days after placing the last barrier concrete and a minimum barrier concrete strength of 21 MPa (3000 pounds per square inch) in barriers.

Revise fourth (4th) paragraph as follows:

Do not construct barriers on new decks until five (5) days after placing the deck concrete and then only if the deck concrete has attained a minimum compressive strength of 21 MPa (3,000 pounds per square inch).

Revise fifth (5th) paragraph as follows:

Do not permit trucks or heavy equipment to travel in a lane adjacent to barriers until seven (7) days after placing the barrier concrete and then only if the barrier concrete has attained a minimum compressive strength of 21 MPa (3000 pounds per square inch).

Section 1001.4 (a) Cement Concrete – Revise “Cement Concrete” to “High Performance Concrete” and add the following:

Reduction in payment due to deficiencies according to Section 110.1 as revised.

Section 110.10(b) Definitions. Revised as follows:

Definitions:

• F'(28-Day). The 28-day minimum mix design concrete compressive strength of 28 MPa (4000 psi).

• C28: Correction Factor for 28-day minimum mix design concrete compressive strength (MPa (psi)) as specified in Section 110.10 Table B "Correction Factor for Quality Index (QL)". Revise Table B Class of Concrete "AAA" to "High Performance Concrete."

• F'(c): 28-Day structural design concrete compressive strength of 4000 psi (28 MPa).

• Cc: Correction Factor for 28-day structural design concrete compressive strength (MPa (psi)), as specified in Section 110.10 Table B "Correction Factor for Quality Index (QL)". Revise Table B Class of Concrete "AAA" to "High Performance Concrete."

• F'(cs): 3500 psi (24 MPa)

• Ccs: Correction factor for minimum allowable concrete compressive strength (MPa (psi)) as specified in Section 110.10 Table B "Correction Factor for Quality Index (QL)". Revise Table B Class of Concrete "AAA" to "High Performance Concrete."

Delete Table A, "Minimum Concrete Compressive Strength Requirements."

Section 110.10(d) Evaluation, Disposition, and Payment of Low Strength Cement Concrete Using Concrete Core Specimens. Revised as follows:

Revise Table B "Correction Factor for Quality Index (QL)", Class of Concrete "AAA" to "High Performance Concrete" and use the existing assigned Correction Factors (Cx).

Section 110.10(d)1.a PWL F'(cs). Revised as follows:

The percent tolerance relative to F'(cs), PWL F'(cs), will be calculated in accordance with Section 106.3(a)3 (except the corrected Quality Index Q'L, as specified in Table B, will be used in place of QL) using F'(cs) value for specified High Performance Concrete placement mix, as the lower limit and the core strengths as lot measurements.

Revise Second Bullet Point, Second Sentence as follows:

Remove and replace deficient lot of High Performance Concrete placement mix, at no additional cost to the Department, unless otherwise directed, in writing, by the Representative.

Section 110.10(d)2.b PWL F'(28-day). Revised as follows:

The percent tolerance relative to F'(28-day), PWL F'(28-day), will be calculated in accordance with Section 106.3(a)3 (except the corrected Quality Index Q'L, as specified in Table B, will be used in place of QL) using the 28-day minimum compressive strength requirement for the specified High Performance Concrete placement mix, as the lower limit and the core strengths as lot measurements.

MEASUREMENT AND PAYMENT - Cubic Yard

00 - ITEM 0901-0001 - MAINTENANCE AND PROTECTION OF TRAFFIC DURING CONSTRUCTION

Addendum:

Associated Item(s): 0901-0001

Header:

ITEM 0901-0001 - MAINTENANCE AND PROTECTION OF TRAFFIC DURING CONSTRUCTION

Provision Body:

In accordance with Section 901, and as follows:

Designate an individual as Traffic Control Coordinator as required in Pub 408, Section 901.3p, to be responsible for items related to the Maintenance and Protection of Traffic and Incident Management. Furnish the name(s), address(s) and telephone number(s) of the Traffic Control Coordinator(s) to the Engineer, the State Police and East Whiteland Township Police Department. The Traffic Control Coordinator will maintain a daily record of crashes, work zone incidents, and maximum daily queue lengths due to the construction. The Traffic Control Coordinator will perform and record queue lengths and travel times through and approaching the work zone on a daily basis during the morning and afternoon peak periods in each direction. The recording of travel times should begin one week prior to the start of any construction stage. The recording of queue lengths and travel times may also be requested at other times when regional events occur. Coordinate this information daily with PennDOT's Inspector-in-charge.

Maintain constant surveillance of the traffic control operation and replace or correct any missing, damaged, ineffective, or misaligned traffic control devices to the satisfaction of the Engineer, and/ or Traffic Control Coordinator within 4 hours of notification. All signs and channelizing devices must be kept clean at all times.

Install and maintain the traffic control for the duration of the project in accordance with the Traffic Control Plans. Have any deviation from the Traffic Control Plan approved by the Engineer before putting the change into operation. As indicated, coordinate with the appropriate utility companies to have all utility poles relocated prior to starting any widening work.

These plans have been reviewed and are in compliance with standards prescribed in Chapter 213 of the 67 PA Code as currently amended. You are reminded that this approval is not intended to relieve you of the responsibility for the protection of the public and the construction personnel. The standards prescribed are minimum and additional protection may be needed if problems are encountered during the term of the contract. Constantly review this plan for adequacy and to recommend changes for department approval when inadequacies are discovered.

Contractor is responsible for coordinating construction activities and maintenance and protection of traffic with all Contractors and subcontractors of adjacent construction projects under contract with the Department. All costs associated with coordination will be the responsibility of the Contractor.

The Department will perform their normal snow removal operation over the travel ways.

Notify the Inspector- in- Charge and District 6-0 Press Office (610) 205-6800 two weeks prior to beginning construction, traffic pattern changes and implementation of any detour.

During the erection of all traffic control devices and signs approaching the work area, and within the work area, maintain traffic around the work area in accordance with the provisions of Publication 213. Do not restrict traffic for the erection of traffic control signs and devices on any roadway between the hours of 6:00 A.M. through 9:00 A.M. and 3:00 P.M. to 7:00 P.M. daily Monday through Friday.

Do not perform travel lane restrictions or perform any activities which will impede traffic during the following periods:

Friday 6:00 A.M. through Monday 9:00 A.M. (Easter Weekend)

Friday 6:00 A.M. through Tuesday 9:00 A.M. (Memorial Day Weekend)

July 3, 6:00 A.M. through July 5, 9:00 A.M. (Independence Day Holiday)

Friday 6:00 A.M. through Tuesday 9:00 A.M. (Labor Day Weekend)

Wednesday 6:00 A.M. through Monday 9:00 A.M. (Thanksgiving Weekend)

December 23, 6:00 A.M. through December 26, 9:00 A.M. (Christmas Holiday)

December 30, 6:00 A.M. through January 2, 9:00 A.M. (New Year Holiday)

The Department reserves the right to limit lane closures with a 48 hour advance written notice.

Stop traffic stoppage SR 202, PA 401 and Planebrook Road 10 to 15- minute periods as required for beam demolition, beam erection, the erection of falsework, sign structure removal/installation, and installation of TR lane kits. No stoppages permitted from 5 A.M. to 9 P.M. Daily Monday thru Thursday, 5 A.M. to midnight Friday, 10 A.M. to midnight Saturday and from 10 A.M. to 9 P.M. Sunday.

During ITS work outside of Section 330 construction limits, maintain existing traffic pattern (i.e., number of lanes, lane width, shoulder width, etc.) in both directions on all roads between the hours of 5 A.M. to 9 P.M. Daily Monday thru Thursday, 5 A.M. to

midnight Friday, 10 A.M. to midnight Saturday and from 10 A.M. to 9 P.M. Sunday. When there are multiple traffic lanes in one direction, single lane closures between 10 P.M. and 5 A.M. are allowed.

Work will not commence until the truck-mounted attenuators are in place as indicated or as directed by the Engineer. The truck-mounted attenuators will have a flashing arrow panel and will remain 100' to 250' behind work crews at all times.

Liquidated damages will be charged as described in the special provisions if the Contractor has not opened SR 0202 to traffic after 15 minute complete stoppage of traffic.

Relocate temporary signing as necessary and as indicated on the traffic control plans.

Relocate channelization devices as necessary and as indicated on the traffic control plans. Construction entrances are to be maintained as indicated. However, the entrances must be barricaded when they are not actively in use. This includes nighttime hours and applicable periods throughout the daytime. Barricades must remain moveable throughout the construction staging.

Do not stop, stand, or park construction equipment or stockpile material during non-working hours in any work areas adjacent to traffic lanes, or within the clear zone area, unless equipment or material is protected by temporary concrete construction barrier or guide rail. If no barrier is provided, equipment or material must be a minimum of 30 feet from the edge of traveled roadway.

Do not allow employees to park personal vehicles on any traveled roadway, shoulder, or seeded area along any local or state highways.

No interference of any kind will be allowed to open traffic lane(s) at any time without the use of appropriate traffic control measures, including flagging operations. This includes, but is not limited to, equipment counterweights swinging into the lane(s), material or equipment being lifted over vehicular or pedestrian travel lane(s).

No staging compounds or construction trailers are allowed within the Right-of-Way, unless the adjacent roadway is closed to all traffic.

Prohibit personnel from crossing the roadway or walking along the highway, except within designated work areas.

Install all signs on “Bulletin 15” approved breakaway posts as specified in TC 7702B with the exception of those signs on barricades.

Assure that warning vests, shirts, or jackets (safety color) are worn by all employees engaged in daylight work operation; on or immediately adjacent to the traveled portion of the highway; on medians, berms, gore areas, and material stocking areas; when flagging; and where worker sight recognition is desirable. When working at night, the warning vests are to be reflectorized.

Have all traffic control devices inspected by the Engineer prior to the start of work.

Install and maintain the temporary signs and traffic control devices as indicated on the Traffic Control Plan and in accordance with the provisions of Publication 213. All signs on S.R. 0202, SR 0030 and SR 0100 are to be Type VIII retroreflective sheeting conforming to the Department’s specification. Reflectorize all other signs, drums and barricades used for traffic control using Type III or Type IV retroreflective sheeting.

Maintain access to all local driveways at all times.

Cover or remove all conflicting signs.

Jointly survey and record with the Department's Representative all official signs and devices by standard number, description, size, and station (left side/right side) before operations begin at all locations within the Project limits where existing official traffic signs and devices are to be removed or relocated. Carefully remove and set aside all existing official traffic signs and devices as needed to perform required operations. Do not scratch or damage reflective sheeting face. Allow any vital traffic signs as determined by the Department's Representative, to remain, although they may be placed on temporary supports on an interim basis. Replace in kind all signs or posts damaged during removal or replacement at no expense to the Department.

Replace all signs or posts damaged during removal or replacement in kind at no expense to the Department.

Maintain and replace as necessary all pavement markings within the work zone (noted as match with existing pavement markings). During change of traffic pattern between various stages, restripe all pavement markings as required.

Remove all existing conflicting pavement markings and snowplowable raised pavement marker lenses in a manner approved by the Engineer. Snowplowable raised pavement marker lenses will be replaced upon completion of the project and are tabulated in the pavement marking plans.

After construction is complete, remove temporary pavement markings where required.

Perform all flagging processes under the supervision of the Traffic Control Coordinator.

Place all traffic control channelizing devices in the direction of the traffic flow. Remove all traffic control channelizing devices in the direction opposite the traffic flow.

Maintain travel lanes in good condition when in use. Immediately remove any earth, gravel, or other material tracked or spilled on traffic lanes or shoulders not in protected work areas.

Face any lighting used for construction purposes during nighttime hours so that the lights do not face motorists approaching the work zone.

Existing utilities are shown on the construction plans in accordance with the best information available and are for the convenience of the contractor only. The correctness of the information is not guaranteed. Verify the information and take all precautions to fully protect the utility and service.

Shielding will be required, in accordance with the provisions of Publication 213, for the construction or demolition of any bridge structure passing over vehicular and/or pedestrian traffic where construction debris, including water, may fall onto the travel way below.

Erect the "WORK ZONE - TURN ON HEADLIGHTS" sign (R22-1) prior to each work zone, typically at a distance of 500 to 1,000 feet prior to the first warning sign or as indicated on the plans.

Erect the "ACTIVE WORK ZONE WHEN FLASHING" sign (W21-19) as close as practical to the beginning of a work zone where construction workers are on the roadway or on the shoulder of the highway or are in the median of the highway, and are adjacent to an open travel lane. Attach a white type B high-intensity flashing light to the upper portion of each W21-9 sign. Activate the light only when workers are present, and deactivate it when workers are not present for 60 minutes or more.

Erect the "END ACTIVE WORK ZONE" sign (W21-20) immediately at the end of each work zone where construction workers are on the roadway or on the shoulder of the highway, and are adjacent to an open travel lane, except when the W21-20 sign would be installed adjacent to the "END ROAD WORK" (G20-2A) sign.

Coordination with East Whiteland Township:

Notify the EAST WHITELAND TOWNSHIP Manager and EAST WHITELAND TOWNSHIP Police Department with information 24 hours in advance pertaining to potential traffic restrictions at the intersections of:

-S.R. 0401 (Conestoga Road) and East Whiteland Township Building Drive

-S.R. 0401 (Conestoga Road) and Mill Lane

-S.R. 0401 (Conestoga Road) and Moores Road

-S.R. 0401 (Conestoga Road) and S.R. 1003 (Phoenixville Pike)

When contractor is providing flag control of an intersection due to traffic signal power interruption and at such time immediately prior to signal turn on, notify the EAST WHITELAND TOWNSHIP Police Department.

Install and maintain traffic control devices as shown on the Traffic Control Plans and perform all work as indicated and as follows:

Chester Valley Trail

Complete 3 phases of trail work before commencement of stage 3 mainline work.

Phase 1

1. Work to be performed

Place all work zone signs as shown on the plan.

Widen existing trail with suitable material as shown on the plan.

Complete grouting operations for footing as shown on s-24744 compaction grouting detail.

Construct footing and pedestal on side of Chester Valley trail as shown on the plan.

Construct temporary trail adjacent to construction for pedestrian use in phases 2-3.

Construct footing and pedestal on the southern side of Chester Valley Trail as shown on the plan.

Construct temporary trail adjacent to construction for pedestrian use in Phases 2-3.

2. Requirements

Maintain 8-ft paved area adjacent to concrete glare screen on Chester Valley Trail.

3. Maintenance and protection of traffic

Limit all construction on Chester Valley Trail to the following hours: between 9:00 P.M. and 5 A.M. March 1 to October 31, between 8 P.M. to 6 A.M. November 1 to February 28.

Phase 2

1. Work to be performed

Place all work zone signs as shown on the plan.

Shift traffic to temporary trail adjacent to construction.

Construct footing and pedestal on the northern side of Chester Valley Trail as shown on the plan.

Place precast concrete arch culvert on Chester Valley Trail.

Reconstruct Chester Valley Trail from pedestal wall to pedestal wall.

2. Requirements

Maintain 8-ft temporary trail area adjacent to construction on Chester Valley Trail.

3. Maintenance and protection of traffic

Limit all construction on Chester Valley Trail to the following hours: between 9:00 P.M. and 5 A.M. March 1 to October 31, between 8 P.M. to 6 A.M. November 1 to February 28.

Phase 3

1.Work to be performed

Place all work zone signs as shown on the plan.

Place roadway fill above concrete arch culvert on Chester Valley Trail.

Construct wingwalls.

2. Requirements

Maintain 10-ft minimum trail width on Chester Valley Trail.

3. Maintenance and protection of traffic

Limit all construction on Chester Valley Trail to the following hours: between 9:00 P.M. and 5 A.M. March 1 to October 31, between 8 P.M. to 6 A.M. November 1 to February 28.

Stage 1

1. Work to be performed

Place all work zone and temporary speed limit signs as shown on the plan.

Remove existing speed limit 55 signs as shown on the plan.

Construct fiber optic duct bank along SR 0401 and coordinate relocation of aerial facilities.

Construct proposed drainage pipes and associated pipe network that cross SR 0202 at approximate stations:

320+00: IN-126 to plug

347+00: EX-IN 347A to plug

Reconstruct right shoulder for Northbound SR 0202 to be utilized throughout stage 2 from approximate Sta 284+50 to Sta 351+50 (south to north) as shown on the plan. Immediately proceed into Stage 2 for the reconstruction of the SR 0401 bridge. See Stage 2 plan sheets for the layout of traffic control devices.

Construct temporary pavement to be utilized during Stages 4A-4C on Ramp N as shown on the plan.

Upon commencing right shoulder reconstruction, place temporary 4-inch white edge line on adjacent lane edge. Reconstruction limited to what can be completed during the allowable working hours for each day.

Place temporary barrier along the outside edge of the constructed temporary pavement along Northbound SR 0202 as shown on the plan to be utilized in Stages 2 and 3A-3C. Daily placement of barrier to be limited to the extent of reconstruction that takes place during each day.

Begin installation of permanent traffic signals and associated equipment at intersections SR 0401 and Moores Road, SR 0401 and Ramps O and M, and SR 0401 and Ramps N and P.

2. Requirements

Maintain two 12-ft lanes in each direction on SR 0202, unless otherwise noted on the plans.

Maintain two 11-ft lanes in each direction on SR 0401, unless otherwise noted on the plans.

Close the right shoulder in the westbound direction of SR 0401 for trenching.

3. Maintenance and protection of traffic

Maintain long-term traffic control in accordance with this plan.

Maintain short-term traffic control for a stationary or mobile operation requiring the closure of the left or right lane in accordance with PennDOT Publication 213, PATA 18 as directed by the engineer for shoulder reconstruction and drainage cross pipe installation on SR 0202. No lane or shoulder closures permitted from 5 A.M. to 9 P.M. daily Monday thru Thursday, 5 A.M. to midnight Friday, 10 A.M. to midnight Saturday, and 10 A.M. to 9 P.M. Sunday.

Plating of pavement is not permitted for drainage cross pipes.

Maintain short-term traffic control for a right lane closure near a freeway entrance ramp in accordance with PennDOT publication 213, PATA 37 (long-term operation) as directed by the engineer for shoulder reconstruction on SR 0202. No lane closures permitted from 5 A.M. to 9 P.M. daily Monday thru Thursday, 5 A.M. to midnight Friday, 10 A.M. to midnight Saturday, and 10 A.M. to 9 P.M. Sunday.

Maintain short-term traffic control for a minor encroachment on SR 0401 in accordance with PennDOT publication 213, PATA 7 as directed by the engineer for shoulder trenching.

Maintain short-term traffic control for a stationary operation lane closure near a freeway or expressway exit or entrance ramp on SR 0401 in accordance with PennDOT publication 213, PATA 21 and 22 as directed by the engineer for shoulder trenching. No lane closures permitted from 6 A.M. to 9 A.M. and 3 P.M. to 7 P.M. daily Monday thru Friday.

Maintain short-term traffic control for a right lane closure near a freeway exit ramp in accordance with PennDOT publication 213, PATA 36 (long-term operation) as directed by the engineer for shoulder reconstruction on SR 0202. No lane closures permitted from 5 A.M. to 9 P.M. daily Monday thru Thursday, 5 A.M. to midnight Friday, 10 A.M. to midnight Saturday, and 10 A.M. to 9 P.M. Sunday.

Maintain short-term traffic control on Ramp N and P for a minor encroachment in accordance with PennDOT publication 213, PATA 7 as directed by the engineer for temporary shoulder/gore reconstruction. No lane closures permitted from 5 A.M. to 9 P.M. daily Monday thru Thursday, 5 A.M. to midnight Friday, 10 A.M. to midnight Saturday, and 10 A.M. to 9 P.M. Sunday.

Maintain short-term traffic control on SR 0202 for intermittent stoppages as directed by the engineer. Refer to included detail for proposed method for nighttime lane closures and temporary stoppages along the highway. Provide all truck-mounted attenuators (TMA) and shadow vehicles per publication 213 to adequately control vehicular traffic.

Maintain short-term traffic control using intersection flagging for the construction of traffic signals along SR 0401 in accordance with PennDOT publication 213, PATA 10b, as directed by the engineer. No lane closures permitted from 6 A.M. to 9 A.M. and from 3 P.M. to 7 P.M. daily Monday thru Friday.

Stage 2

1. Work to be performed

Place all work zone and temporary speed limit signs as shown on the plan.

Remove existing signs on SR 0202 as noted on plan.

Place temporary ground mount signs as shown on the plan.

Shift Northbound SR 0202 traffic onto the Northbound shoulder reconstructed in Stage 1 as shown on the plan.

Construct temporary pavement to be utilized during Stages 3A-3C in the median from approximate Sta 249+00 to 346+50, on SR 0401 from approximate Sta 36+00 to 39+35 and on Ramps M and O as shown on the plan.

Place temporary lighting structures to be utilized in Stages 3A and 3B crossover areas as shown on the plan.

Perform grouting operations on the SR 0202 bridge over SR 0401 as shown on the plan and S-26088 foundation grout plan.

Demolish/construct the widening of the SR 0202 Northbound Bridge over SR 0401 to be utilized during Stages 3A-3C.

Remove mountable median and construct temporary pavement to be utilized during Stages 3A-3C from approximate Sta 219+75 to Sta 36+30 on SR 0401.

Continue installation of permanent traffic signals and associated equipment at intersections SR 0401 and Moores Road, SR 0401 and Ramps O and M, and SR 0401 and Ramps N and P.

2. Requirements

Maintain two 12-ft lanes in each direction on SR 0202, unless otherwise noted on the plans.

Close the left and right shoulders in the Northbound direction of SR 0202 for median reconstruction.

3. Maintenance and protection of traffic

Maintain long-term traffic control on SR 0202 in accordance with this plan.

Maintain short-term traffic control on SR 0202 for the construction of temporary pavement in a shoulder area in accordance with PennDOT publication 213, PATA 18, as directed by the engineer. No lane closures permitted from 5 A.M. to 9 P.M. daily Monday thru Thursday, 5 A.M. to midnight Friday, 10 A.M. to midnight Saturday, and 10 A.M. to 9 P.M. Sunday.

Maintain short-term traffic control on SR 0401 for a stationary or mobile operation in the left or right lane in accordance with PennDOT publication 213, PATA 16 as directed by the engineer for median reconstruction. No lane closures permitted from 6 A.M. to 9 A.M. and from 3 P.M. to 7 P.M., daily Monday thru Friday.

Stage 3A

1. Work to be performed

Place all work zone and temporary speed limit signs as shown on the plan.

Shift southbound traffic onto the Northbound shoulder reconstructed in Stage 2 utilizing the temporary crossover constructed north of mill lane as shown on the plans.

Shift traffic on Ramps M and O onto the temporary pavement constructed in Stage 2 as shown on the plans.

Cover existing overhead signs on Northbound SR 0202 at approximate Sta 263+50, Sta 341+50, and Sta 360+00.

Place temporary ground mount signs as shown on the plan.

Remove existing signs on SR 0202 as noted on plan.

Begin full-depth construction on the Southbound side of SR 0202 from approximate Sta 277+50 to Sta 351+50 and Ramps O and M as shown on the plans.

Perform grouting operations on the SR 0202 bridge over SR 0401 as shown on the plan and S-26088 foundation grout plan.

Begin construction of permanent cantilever sign structure on the Southbound side of SR 0202 at approximate Sta 287+54.

Begin construction of permanent 4 post, 4 chord truss sign structure on the Southbound side of SR 0202 at approximate Sta 251 +50.

Begin construction of sound barrier walls along the Southbound side of SR 0202.

Begin construction and widening of the SR 0202 Southbound bridge over Planebrook Road.

Begin construction and widening of the SR 0202 Southbound bridge over SR 0401.

Begin placement of permanent signs along Southbound SR 0202 and cover until the implementation of Stage 4A.

Begin construction of temporary pavement to be utilized in Stages 4A – 4C in the median and on Ramps P and N.

Begin placement of temporary lighting structures to be utilized in the Stages 4A and 4B crossover areas as shown on the plan.

Construct temporary pavement needed for leveling of grade for Stage 3B temporary Ramps O and M.

Continue installation of permanent traffic signals and associated equipment at intersections SR 0401 and Moores Road, SR 0401 and Ramps O and M, and SR 0401 and Ramps N and P.

2. Requirements

Maintain two 10-ft lanes on Planebrook Road, unless otherwise noted on the plans.

Maintain two 12-ft lanes in each direction on SR 0202, unless otherwise noted on the plans.

Close the left and right shoulders on Planebrook Road for abutment wall construction. Stop traffic on SR 0202 and Planebrook Road for 10 to 15-minute periods for beam demolition/ beam erection. No stoppages permitted from 5 A.M. to 9 P.M. daily Monday thru Thursday, 5 A.M. to midnight Friday, 10 A.M. to midnight Saturday and from 10 A.M. to 9 P.M. Sunday.

Stop traffic on SR 0202 and SR 0401 for 10 to 15-minute periods for beam demolition, beam erection and the erection of falsework. No stoppages permitted from 5 A.M. to 9 P.M. daily Monday thru Thursday, 5 A.M. to midnight Friday, 10 A.M. to midnight Saturday and from 10 A.M. to 9 P.M. Sunday.

3. Maintenance and protection of traffic

Maintain long-term traffic control on SR 0202 in accordance with this plan.

Maintain short- term traffic control on SR 0202, SR 0401, and Planebrook Road for intermittent stoppages as directed by the engineer for beam demolition, beam erection, the erection of false work, and sign structure removal/construction. Refer to included detail for proposed method for nighttime lane closures and temporary stoppages along the highway. Provide all truck- mounted attenuators (TMA) and shadow vehicles per publication 213 to adequately control vehicular traffic.

Maintain short- term traffic control using major encroachment and flagging for construction on SR 0401 in accordance with PennDOT 213, PATA 8 and 10a, as directed by the engineer. No lane closures permitted from 6 A.M. to 9 A.M. and from 3 P.M. to 7 P.M., daily Monday thru Friday.

Maintain short-term traffic control on SR 0401 for a work area in the left or right lane in accordance with PennDOT publication 213, PATA 16 as directed by the engineer for grouting of the SR 0202 bridge over SR 0401. No lane closures permitted from 6 a.m. to 9 a.m. and from 3 p.m. to 7 p.m., daily Monday thru Friday.

Stage 3B

1. Work to be performed

Place all work zone and temporary speed limit signs as shown on the plan.

Shift traffic on Ramps O and M onto the full depth pavement constructed in Stage 3A as shown on the plans.

Place temporary ground mount signs as shown on the plan.

Complete full-depth construction on the Southbound side of SR 0202 from approximate Sta 277+50 to Sta 351+50 and Ramps O and M as shown on the plans.

Continue construction of permanent 4 post, 4 chord truss sign structure on Southbound side of SR 0202 at approximate Sta 251 +50.

Complete construction of permanent cantilever sign structures on Southbound side of SR 0202 at approximate Sta 287+54.

Complete construction of sound barrier walls along the Southbound side of SR 0202.

Perform grouting operations on the SR 0202 bridge over SR 0401 as shown on the plan and S-26088 foundation grout plan.

Complete construction and widening of the SR 0202 Southbound bridge over SR 0401.

Complete construction and widening of the SR 0202 Southbound bridge over Planebrook road.

Complete placement of permanent signs along Southbound SR 0202 and cover until the implementation of Stage 4A as shown on the plans.

Continue construction of temporary pavement to be utilized during Stages 4A – 4C in the median and on Ramps P and N.

Complete placement of temporary lighting structures to be utilized in the Stages 4A and 4B crossover areas as shown on the plan.

Complete installation of permanent traffic signals and associated equipment at intersections SR 0401 and Moores Road, SR 0401 and Ramps O and M, and SR 0401 and Ramps N and P. Electrify and test system before the commencement of Stage 4.

2. Requirements

Maintain two 12-ft lanes in each direction on SR 0202, unless otherwise noted on the plans.

Stop traffic on SR 0202 and SR 0401 for 10 to 15- minute periods for beam demolition, beam erection and the erection of falsework. No stoppages permitted from 5 A.M. to 9 P.M. daily Monday thru Thursday, 5 A.M. to midnight Friday, 10 A.M. to midnight Saturday and from 10 A.M. to 9 P.M. Sunday.

Close the left and right shoulders on Planebrook Road for abutment wall construction. Stop traffic on SR 0202 and Planebrook Road for 10 to 15-minute periods for beam demolition/ beam erection. No stoppages permitted from 5 A.M. to 9 P.M. daily Monday thru Thursday, 5 A.M. to midnight Friday, 10 A.M.to midnight Saturday and from 10 A.M. to 9 P.M. Sunday.

Maintain two 10-ft lanes on Planebrook Road, unless otherwise noted on the plans.

3. Maintenance and protection of traffic

Maintain long-term traffic control on SR 0202 in accordance with this plan.

Maintain short-term traffic control utilizing a short-term closure/detour of Ramps M and O as required for the transition of temporary concrete barrier between Stages 3A and 3B. Utilize the dynamic message sign on SR 0202 Southbound to inform the traveling public of traffic restrictions. No lane closures permitted from 5 A.M. to 9 P.M. daily Monday thru Thursday, 5 A.M. to midnight Friday, 10 A.M. to midnight Saturday and from 10 A.M. to 9 P.M. Sunday.

Maintain short-term traffic control on SR 0401 for a work area in the left or right lane in accordance with PennDOT publication 213, PATA16 as directed by the engineer for grouting of the SR 0202 bridge over SR 0401. No lane closures permitted from 6 a.m. to 9 a.m. and from 3 p.m. to 7 p.m., daily Monday thru Friday.

Maintain short- term traffic control on SR 0202, SR 0401, and Planebrook Road for Intermittent stoppages as directed by the engineer for beam demolition, beam Erection, the erection of false work and sign structure removal/construction. Refer to included detail for proposed method for nighttime lane closures and Temporary stoppages along the highway. Provide all truck- mounted attenuators (TMA) and shadow vehicles per Publication 213 to adequately control vehicular Traffic.

Stage 3C

1. Work to be performed

Shift Southbound traffic onto the full- depth concrete and temporary pavement constructed in Stages 3A and 3B utilizing the temporary crossover constructed south of Mill Lane as shown on the plans.

Construct temporary pavement to be utilized during Stages 4A-4C in the median from approximate Sta 270+00 to Sta 316+76 as shown on the plan.

Construct emergency pull-off along the SR 0202 median as shown on the plan to be utilized in Stages 4A-4C.

2. Requirements

Maintain two 12-ft lanes in each direction on SR 0202, unless otherwise noted on the plans.

Maintain two 10-ft lanes on Planebrook Road, unless otherwise noted on the plans.

3. Maintenance and protection of traffic

Maintain long-term traffic control on SR 0202 and Planebrook Road in accordance with this plan.

Stage 4A

1. Work to be performed

Place all work zone and temporary speed limit signs as shown on the plan.

Shift northbound and southbound traffic onto the full- depth concrete and temporary pavement constructed in Stages 3A and 3B utilizing the temporary crossover constructed south of Mill Lane as shown on the plans.

Shift traffic on Ramps N and P onto the temporary pavement constructed in Stages 3A and 3B as shown on the plans.

Shift traffic on Ramps O and M into its final traffic pattern, utilizing the full- depth pavement constructed in Stages 4A and 4B as shown on the plans.

Uncover permanent signs constructed in Stages 3A and 3B as shown on the plan.

Place temporary ground mount signs as shown on the plan.

Remove existing signs on SR 0202 as noted on plan.

Begin full-depth construction on the Northbound side of SR 0202 at approximate Sta 277+50 to Sta 351+50 and Ramps N and P as shown on the plans.

Perform grouting operations on the SR 0202 bridge over SR 0401 as shown on the plan and S-26088 foundation grout plan.

Complete construction of permanent 4 post, 4 chord truss sign structure on Southbound side of SR 0202 at approximate Sta 251 +50.

Begin construction of permanent cantilever sign structures on Northbound side of SR 0202 at approximate Sta 282+00 and Sta 308+74.

Begin construction of sound barrier walls along the Northbound side of SR 0202.

Begin construction and widening of the SR 0202 Northbound bridge over SR 0401.

Begin construction and widening of the SR 0202 Northbound bridge over Planebrook Road.

Begin placement of permanent signs along Northbound SR 0202 and cover until the implementation of Stage 5 as shown on the plans.

Construct temporary pavement to be utilized during Stage 4B on Ramps N and P for leveling of grade as shown on the plan.

Begin full-depth construction on the right side of SR 0401 at approximate Sta 218+83 to Sta 39+82 as shown on the plans.

2. Requirements

Maintain two 12-ft lanes in each direction on SR 0202, unless otherwise noted on the plans.

Stop traffic on SR 0202 and SR 0401 for 10 to 15- minute periods for beam demolition, beam erection and the erection of falsework. No stoppages permitted from 5 A.M. to 9 P.M. daily Monday thru Thursday, 5 A.M. to midnight Friday, 10 A.M. to midnight Saturday and from 10 A.M. to 9 P.M. Sunday.

Close the left and right shoulders on Planebrook Road for abutment wall construction. Stop traffic on SR 0202 and Planebrook Road for 10 to 15-minute periods for beam demolition/ beam erection. No stoppages permitted from 5 a.m. to 9 p.m. daily Monday thru Thursday, 5 a.m. to midnight Friday, 10 a.m. to midnight Saturday and from 10 a.m. to 9 p.m. Sunday.

Maintain two 10-ft lanes on Planebrook Road, unless otherwise noted on the plans.

Maintain two 11-ft lanes in each direction on SR 0401, unless otherwise noted on the plans.

3. Maintenance and protection of traffic

Maintain long-term traffic control on SR 0202 and Planebrook Road in accordance with this plan.

Maintain short- term traffic control using major encroachment and flagging for construction on SR 0401 in accordance with PennDOT 213, PATA 8 and 10a, as directed by the engineer. No lane closures permitted from 6 A.M. to 9 A.M. and from 3 P.M. to 7 P.M., daily Monday thru Friday.

Maintain short- term traffic control on SR 0202, SR 0401 and Planebrook Road for intermittent stoppages as directed by the engineer for beam demolition, beam erection, the erection of falsework and sign structure removal/construction. Refer to included detail for proposed method for nighttime lane closures and temporary stoppages along the highway. Provide all truck- mounted attenuators (TMA) and shadow vehicles per publication 213 to adequately control vehicular traffic.

Maintain long-term traffic control on SR 0401 in accordance with this plan.

Stage 4B

1. Work to be performed

Begin full-depth construction on the center median of SR 0401 at approximate Sta 218+83 to Sta 36+25 as shown on the plans.

2. Requirements

Maintain two 11-ft lanes in each direction on SR 0401, unless otherwise noted on the plans.

3. Maintenance and protection of traffic

Maintain short- term traffic control using major encroachment and flagging for construction on SR 0401 in accordance with PennDOT 213, PATA 8 and 10a, as directed by the engineer. No lane closures permitted from 6 A.M. to 9 A.M. and from 3 P.M. to 7 P.M., daily Monday thru Friday.

Maintain short-term traffic control on SR 0202 and SR 0401, and Planebrook Road for intermittent stoppages as directed by the engineer for beam demolition, beam erection, the erection of falsework and sign structure removal/construction. Refer to included detail for proposed method for nighttime lane closures and temporary stoppages along the highway. Provide all truck- mounted attenuators (TMA) and shadow vehicles per publication 213 to adequately control vehicular traffic.

Maintain long-term traffic control on SR 0401 in accordance with this plan.

Stage 4C

1. Work to be performed

Place all work zone and temporary speed limit signs as shown on the plan.

Shift traffic on Ramps N and P onto the full-depth pavement constructed in Stages 4A and 4B as shown on the plans.

Place temporary ground mount signs as shown on the plan.

Complete full-depth construction on the Northbound side of SR 0202 at approximate Sta 277+50 to Sta 351+50 and Ramps N and P as shown on the plans.

Complete construction of permanent cantilever sign structures on Northbound side of SR 0202 at approximate Sta 282+00 and Sta 308+74.

Complete construction of sound barrier walls along the Northbound side of SR 0202.

Continue construction and widening of the SR 0202 Northbound bridge over SR 0401.

Continue construction and widening of the SR 0202 Northbound bridge over Planebrook Road.

Complete placement of permanent signs along northbound SR 0202 and cover until the implementation of Stage 5.

Begin full-depth construction on the left side of SR 0401 at approximate Sta 218+83 to Sta 39+82 as shown on the plans.

Upon completion of all proposed work, mill and overlay Planebrook Road from approximate Sta 79+50 to Sta 82+00.

Install traffic control striping and reset temporary concrete barrier on the Northbound side of SR 0202 in preparation of Stage 5 construction.

2. Requirements

Maintain two 12-ft lanes in each direction on SR 0202, unless otherwise noted on the plans.

Stop traffic on SR 0202 and SR 0401 for 10 to 15- minute periods for beam demolition, beam erection and the erection of falsework. No stoppages permitted from 5 A.M. to 9 P.M. daily Monday thru Thursday, 5 A.M. to midnight Friday, 10 A.M. to midnight Saturday and from 10 A.M. to 9 P.M. Sunday.

Close the left and right shoulders on Planebrook Road for abutment wall construction. Stop traffic on SR 0202 and Planebrook Road for 10 to 15-minute periods for beam demolition/ beam erection. No stoppages permitted from 5 a.m. to 9 p.m. daily Monday thru Thursday, 5 a.m. to midnight Friday, 10 a.m. to midnight Saturday and from 10 a.m. to 9 p.m. Sunday.

Stop traffic on SR 0202 for 10 to 15-minute periods for sign structure erection. No stoppages permitted from 5 A.M. to 9 P.M. daily Monday thru Thursday, 5 A.M. to midnight Friday, 10 A.M. to midnight Saturday and from 10 A.M. to 9 P.M. Sunday.

Maintain two 10-ft lanes on Planebrook Road, unless otherwise noted on the plans.

Maintain two 11-ft lanes in each direction on SR 0401, unless otherwise noted on the plans.

3. Maintenance and protection of traffic

Maintain long-term traffic control on SR 0202 and Planebrook Road in accordance with this plan.

Maintain short- term traffic control using major encroachment and flagging for construction on SR 0401 in accordance with PennDOT 213, PATA 8 and 10a, as directed by the engineer. No lane closures permitted from 6 A.M. to 9 A.M. and from 3 P.M. to 7 P.M., daily Monday thru Friday.

Maintain short- term traffic control on SR 0202, SR 0401 and Planebrook Road for intermittent stoppages as directed by the engineer for beam demolition, beam erection, the erection of falsework and sign structure removal/construction. Refer to included detail for proposed method for nighttime lane closures and temporary stoppages along the highway. Provide all truck- mounted attenuators (TMA) and shadow vehicles per publication 213 to adequately control vehicular traffic.

Maintain short- term traffic control on Planebrook Road for a short term stationary operation for flagging in accordance with PennDOT publication 213, PATA 10a as directed by the engineer for mill and overlay on Planebrook Road. No lane closures permitted from 6 A.M. To 9 A.M. and from 3 P.M. To 7 P.M., daily Monday thru Friday.

Maintain long-term traffic control on SR 0401 in accordance with this plan.

Stage 5

1. Work to be performed

Place all work zone and temporary speed limit signs as shown on the plan.

Shift Northbound and Southbound traffic into final traffic pattern, utilizing the full-depth concrete pavement constructed in Stages 3A, 3B, 4A, 4B, and 4C as shown on the plans.

Shift traffic on Ramps N and P into its final traffic pattern, utilizing the full-depth pavement constructed in Stages 4A and 4B as shown on the plans.

Keep all permanent speed limit 55 signs covered for the duration of Stage 5. Uncover these signs when all traffic control for the project has been removed.

Complete full-depth construction on the median of SR 0202 and permanent median barrier from approximate Sta 232+00 to 356 +75 as shown on the plans.

Remove existing overhead sign structure at approximate Sta 252+50.

2. Requirements

Maintain two 12-ft lanes in each direction on SR 0202, unless otherwise noted on the plans.

3. Maintenance and protection of traffic

Maintain long-term traffic control on SR 0202 in accordance with this plan.

Maintain short-term traffic control on SR 0202 for the construction of center median in accordance with PennDOT publication 213, PATA 18, as directed by the engineer. No lane closures permitted from 5 A.M. to 9 P.M. daily Monday thru Thursday, 5 A.M. to midnight Friday, 10 A.M. to midnight Saturday, and 10 A.M. to 9 P.M. Sunday.

Maintain short-term traffic control on SR 0202 intermittent stoppages as directed by the engineer for sign structure removal. Refer to included detail for proposed method for nighttime lane closures and temporary stoppages along the highway. Provide all truck-mounted attenuators (TMA) and shadow vehicles per publication 213 to adequately control vehicular traffic.

Stage 5B

1. Work to be performed

Construct concrete median barrier separating SR 0202 and Ramp EB from approximate Sta 245+35 to Sta 250+20 as shown on the plan.

2. Requirements

Maintain two 12-ft lanes in each direction on SR 0202, unless otherwise noted on the plans.

3. Maintenance and protection of traffic

Maintain short-term traffic control on Ramp EB and SR 202 in accordance with PennDOT publication 213, PATA 18, for work area in the left or right lane.

Maintain long-term traffic control on SR 0202 in accordance with this plan.

Incident Management Coordination Meetings

Allow for multiple coordination meetings to effectively plan, develop, implement, and refine the proposed Incident Management Plan for this project. Such meetings are to foster a team approach that should ultimately improve the effectiveness of the Incident Management Plan. This team approach is to help to reduce traffic delay and decrease the emergency response time by ensuring that each team member understands their responsibilities in providing identification, verification, and access to an incident site for emergency vehicle personnel and other necessary personnel throughout all stages of construction. Update the proposed Incident Management Plan as necessary during construction, including but not limited to emergency contacts, at the direction of the Engineer.

Multiple coordination meetings are to include three levels of meetings, as follows:

• Pre-Construction Meeting - Prior to the commencement of construction a meeting is to be held including, but not limited to, all stakeholders listed on the SR 202 Contact Matrix. The primary goals of this meeting will be presentation of the plan and initial operational-level discussions needed to actually implement the Final Incident Management Plan. The Department is responsible for initiating this meeting and contacting required attendees. The contractor is required to attend.

• Initial Incident Management Meetings - Hold bi-weekly meetings for the first two months of the project for Emergency Responders. The primary goals of these meetings will be to develop strategies and work through various incident scenarios, including hazardous materials incidents, isolated crashes, recurring congestion, construction-related activities, special events, and access to the work area. These meetings will eliminate the "guess work" that could otherwise occur during actual emergencies by further developing specific protocols to be utilized during specific types of incidents. The contractor is required to attend.

• Follow-up Incident Management Meetings - After the first two months of construction and/or once the Incident Management Plan appears to be "fully operational", the frequency of the bi-weekly initial incident management meetings may be reduced, with the Engineer's approval, to monthly follow-up meetings. At this stage, the primary goals of these meetings will be to review protocols, prior incident management histories, and/or develop "lessons learned" for future emergency response implementation. The contractor is required to attend.

I30630C - ITEM 1090-0091 - REPAIR DETERIORATED CONCRETE

Addendum:

Associated Item(s): 1090-0091

Header:

ITEM 1090-0091 - REPAIR DETERIORATED CONCRETE

Provision Body:

DESCRIPTION - This work is repairing the spalled and deteriorated concrete areas as indicated, as specified herein, or as directed.

MATERIALS -

Epoxy Bonding Compound - ASTM C881. Certify as specified in Section 106.03(b)3.

Class AA Cement Concrete - Section 704 except use No. 8 coarse aggregate.

Reinforcement - Section 1002.2.

CONSTRUCTION -

(a) Surface Preparation: The extent of the repair areas will be determined and delineated by the Department's Representative. Outline the area with a 3/4" deep saw cut prior to the removal of the deteriorated concrete. Exercise care so as not to cut the existing reinforcement bars. If during the deteriorated concrete removal it is found that the limits of the repair area need to be extended, delineate the additional area with 3/4" deep saw cut as directed.

Do not damage existing reinforcement bars or the concrete that is to remain in place during the removal operation. Repair or replace any damage to the structure beyond the removal area caused by removal operation to the satisfaction of the Department's Representative.

Blast clean the reinforcement bars that are exposed due to the removal operations to remove all rust and other foreign materials. Provide a minimum clearance of 3/4" around all exposed reinforcement bars.

Satisfactorily dispose of all removed material.

Blast clean the existing concrete that is to come in contact with non-shrink grout or new concrete to remove loose concrete chips and surface laitance. Apply epoxy bonding compound to the cleaned surfaces just prior to placing the patching material. Application of an epoxy bonding compound is not required where polymer modified mortar is used.

(b) Equipment: Use power driven hand tools for removal of deteriorated concrete conforming to the following restrictions:

1. Do not use pneumatic hammers heavier than nominal 30 pounds.

2. Do not operate pneumatic hammers or mechanical chipping tools at an angle in excess of 45 degrees relative to the surface of the concrete that is being removed.

Use hand tools such as hammer and chisels or small air chisels to remove final particles of unsound concrete or to provide necessary clearance around the reinforcement bars.

(c) Patching:

Use forms and Class AA cement concrete. Consolidate concrete by surface vibration. Use epoxy resin anchors and steel wire fabric when the removal area is 3" or greater in depth as indicated.

Cure in accordance with Section 1001.3(p).

MEASUREMENT AND PAYMENT - Square Foot

00 - ITEM 4201-0001 - CLEARING AND GRUBBING MODIFIED

Addendum:

Associated Item(s): 4201-0001

Header:

ITEM 4201-0001 - CLEARING AND GRUBBING MODIFIED

Provision Body:

DESCRIPTION – This work is the clearing and grubbing of the proposed Park and Ride lot at SR 0322 and Lloyd Avenue. The description of this work is in accordance with Section 201.1.

CONSTRUCTION – In accordance with Section 201.3.

MEASUREMENT AND PAYMENT – Lump Sum

00 - ITEM 4204-0100 - CLASS 3 EXCAVATION, MODIFIED

Addendum:

Associated Item(s): 4204-0100

Header:
ITEM 4204-0100 - CLASS 3 EXCAVATION, MODIFIED

Provision Body:
DESCRIPTION – In accordance with Section 204.1 and as follows:
This work includes the over excavation below the bottom of No. 2A aggregate layer to the bottom of existing foundations and the removal of unsuitable material as indicated and directed.
CONSTRUCTION – In accordance with Section 204.3 and as follows:
Over excavate below the bottom of No. 2A aggregate layer to the bottom of the existing foundations for complete removal of the existing structure and foundation.Proof roll the subgrade material using a 10-ton vibratory roller.A walk-behind roller may be used if access to the subgrade is not feasible for a 10-ton roller.Ensure that the bearing material is firm, reasonably dry, and free of water.A PennDOT representative will inspect the foundation area for bearing capacity before placement of material.If directed, drill or drive a bar into the material below the excavation to a depth sufficient to determine the suitability of the material.When subgrade inspection indicates a soft and/or yielding condition, stabilize the area by providing additional compaction. If further compaction does not stabilize the area, excavate soft soil up to 3 feet or as directed by the Engineer.
Backfill the over excavation with compacted subbase (No. OGS) with Class 4, Type A geotextile between the OGS and subgrade as shown on the contract plans.
MEASUREMENT AND PAYMENT – In accordance with Section 204.4(a):Cubic Yard

00 - ITEM 4220-0020 - FLOWABLE BACKFILL, TYPE C MODIFIED

Addendum:

Associated Item(s): 4220-0020

Header:
ITEM 4220-0020 - FLOWABLE BACKFILL, TYPE C MODIFIED

Provision Body:

DESCRIPTION - This work is the installation of flowable backfill within abandoned pipes, manholes and inlets.

MATERIAL - Section 220.2

CONSTRUCTION - Section 220.3 and as indicated.

(b) Placement. Add the following:

Pipe Fill. Bulkhead downstream end of pipe with adequate tie- down or weights. Place flowable backfill to limits indicated. Remove bulkhead after fill has cured for three days.

MEASUREMENT AND PAYMENT - Cubic Yard

00 - ITEM 4910-0001, 4910-0002 & 4910-0004 - JUNCTION BOXES

Addendum:

Associated Item(s): 4910-0001, 4910-0002, 4910-0004

Header:

ITEM 4910-0001 - JUNCTION BOXES, J.B.-1 MODIFIED
ITEM 4910-0002 - JUNCTION BOXES, J.B.-2 MODIFIED
ITEM 4910-0004 - JUNCTION BOXES, J.B.-11 MODIFIED

Provision Body:

In accordance with Section 910 and as follows:

Revise Section 910.3(p) by adding:

Junction Boxes, J.B.-1 for electrical services.Cast the label “ELECTRICAL” on the covers.

Junction Boxes, J.B.-2 for communication services.Cast the label “COMMUNICATION” on the covers.

Junction Boxes, J.B.-11 for communication services.Cast the label “COMMUNICATION” on the covers.

Provide a minimum of four-cable support brackets permanently affixed to the wall of the junction boxes.Use cable support brackets to support all spare cables and any splice enclosures contained within each junction box.

All openings must be cored out at time of fabrication, or cored at time of placement. Where multi- cell or standard nonmetallic conduit is terminated, the coring must be no larger than five (5) or three (3) inches diameter for four (4) or two (2) inch conduit, respectively.The communication junction boxes (J.B.-2 and J.B.-11) must have a one (1) inch diameter drain hole in the base.

CONSTRUCTION – Revise Section 910.3(p) by adding:

Install junction boxes as per manufacturer’s recommendations. Construct junction boxes on top of 12 inches of #57 coarse aggregate; 18 inches in locations subject to flooding and poor drainage.

Place in such a manner that after settling the cover will be flush with the grass line. Junction boxes must be placed six (6) feet (typical) minimum from the edge of the shoulder and twenty (20) feet (typical) minimum from the end of an overpass.

All junction boxes placed in the roadway/shoulder/walkway area must be placed in such a manner that the cover will be flush with the pavement/sidewalk.

MEASUREMENT AND PAYMENT – Each

00 - ITEM 4910-3073 - 150-WATT HIGH PRESSURE SODIUM LUMINAIRE, OVER-HEAD MOUNT MODIFIED

Addendum:

Associated Item(s): 4910-3073

Header:

ITEM 4910-3073 - 150-WATT HIGH PRESSURE SODIUM LUMINAIRE,
OVER-HEAD MOUNT MODIFIED

Provision Body:

DESCRIPTION - This item consists of providing and installing ceiling mounted vandal resistant 150 watt high pressure sodium luminaires in the underpass culvert structure.

MATERIALS – In accordance with Sections 910.2, 1101.06(a) and as follows:

a. Refractor: One piece, injection molded, impact resistent, clear prismatic, UV stabilized polycarbonate lens. Minimum thickness .125".

b. Reflector: Aluminum

c . Housing: Heavy duty, corrosion resistant, cast or die-formed aluminum housing.

d. Finish: Phosphate coated and electrostatically finished with a gray colored polyester powder coating.

e. Gasket: Closed cell neoprene rubber sealed tight to block out moisture and insects.

f. Ballast: HPF, 240 volt operation and capable of operating a 150 watt high pressure sodium lamp within ±5% voltage drop, provide a dependable starting of the lamp at a temperature of -20º F, and have a maximum starting line amps of 2.4 amps.

g. Hardware : Provide Stainless steel, tamper proof, screws to secure refractor to housing.

h. Socket: Medium base, porcelain socket, 4KV pulse rating.

i. Fusing: Provide single fuse and holder. Fuse size in accordance with manufacturer's recommendations.

j. Lamp: 150 watt High Pressure Sodium. In accordance with Section 1101.06(a)

k. Provide luminaire for surface-mounted ceiling applications

l. UL listed for wet locations.

m. Provide one of the following luminaires or approved equal:

1. Fail-Safe, High Abuse, HUD Series, with Photometric Curve #HUD-150S.ies

2. Lithonia Lighting, High Abuse, Series VR4CV, with Photometric Curve #VR4CV_175M_(Probe)_-_ For_International_Use_Only.ies (Pro-rated for 150 watt HPS lamp)

3.Nulite GRT Series with Photometric Curve #GRT-100HPS.IES (Pro-rated for 150 watt)

4. ESCO Lighting S10000 Series with Photometric Curve #E34893.IES

B. Watertight Flexible Galvanized Steel Conduit. In accordance with 1101.09

C. Above Ground Cable. In accordance with Section 1101.08(c)

CONSTRUCTION – In accordance with Section 910.3, manufacturers' recommendations and instructions and as follows:

A. Mount luminaire to ceiling with concrete anchors. Provide neoprene washers between luminaire and concrete ceiling.

B. Provide Watertight Flexible Galvanized Steel Conduit with AWG 10 above ground cable between the 8" x 8" x 4" NEMA 4 junction box and the luminaire.

MEASUREMENT AND PAYMENT – Each

Complete in place as specified which includes luminaire, HPS lamp, mounting to ceiling, flexible conduit, wiring, and grounding.

00 - ITEM 4910-4064, 4910-4066 – AWG ABOVE GROUND CABLE, COPPER, 1 CONDUCTOR, MODIFIED

Addendum:

Associated Item(s): 4910-4064, 4910-4066

Header:

ITEM 4910-4064 – AWG 4 ABOVE GROUND CABLE, COPPER, 1 CONDUCTOR MODIFIED
ITEM 4910-4066 – AWG 8 ABOVE GROUND CABLE, COPPER, 1 CONDUCTOR MODIFIED

Provision Body:

DESCRIPTION – This work is furnishing and installation of the listed conductor sizes at locations indicated on the plans.

MATERIAL – All electrical cable will be in accordance with Section 910 and as follows:

Section 1101.08 Cable.Revise by adding:

Provide soft drawn copper conductors per ASTM B-3. Provide Type THWN/ THHN insulation. Provide 600 volt rated, UL listed conductors.

Provide Class B concentrically stranded conductors per ASTM B-8.

CONSTRUCTION – As indicated and in accordance with applicable Sections 910.3 and 954.3.

Install conductors in conduit and equipment as indicated on the plans.

All cables used for grounding purposes as indicated on the plans must be green insulated or identified with green markings at all termination points.

Triplex cables may be used in lieu of individual cables for aerial runs.

Aluminum conductors are not acceptable.

MEASUREMENT AND PAYMENT – Linear Foot.

00 - ITEM 4910-7020 - COMPLETE POWER SUPPLY SYSTEM MODIFIED

Addendum:

Associated Item(s): 4910-7020

Header:
ITEM 4910-7020 - COMPLETE POWER SUPPLY SYSTEM MODIFIED

Provision Body:
DESCRIPTION - This item consists of furnishing, installing and wiring two separate lighting control cabinets that will comprise the complete power supply system at the locations indicated on the drawings.

MATERIALS – In accordance with Section Publication 408, Section 1101.11

CONSTRUCTION – In accordance with Section 910.3 and as follows:

A. Provide a photocell control arrangement whereby the lighting will be turned “On” at sunrise and “Off” at sunset. The lighting is to be “On” in the daytime and “Off” at night.

MEASUREMENT AND PAYMENT - Each.

Includes service pole and all necessary power supply equipment.

00 - ITEM 4938-0001 - DISTANCE MARKER UNITS MODIFIED

Addendum:

Associated Item(s): 4938-0001

Header:

ITEM 4938-0001 - DISTANCE MARKER UNITS MODIFIED

Provision Body:

DESCRIPTION - This work is the furnishing and installing of intermediate (1/10-mile) reference markers on breakaway steel posts, distance marker supports, or bridge attachment posts on SR 0202 northbound and southbound between the project limits.

MATERIAL - In accordance with Section 938.2

CONSTRUCTION - In accordance with Section 938.3 and as follows:

Reference markers at whole- number increments are to be located in the same location as existing reference markers or as established by the Representative. Measure from existing reference markers to accurately locate Intermediate reference markers at 1/10-mile increments along the outside pavement edge of the northbound roadway. Locate intermediate reference markers on the southbound roadway to be opposite the intermediate reference marker locations established on the northbound roadway.

MEASUREMENT AND PAYMENT - Each.

The price includes establishing reference marker locations, removal of existing mile markers and furnishing and installation of new signs and supports.

00 - ITEM 4951-0140 - TRAFFIC SIGNAL SUPPORT, 40’ MAST ARM MODIFIED

Addendum:

Associated Item(s): 4951-0140

Header:

ITEM 4951-0140 - TRAFFIC SIGNAL SUPPORT, 40’ MAST ARM MODIFIED

Provision Body:

DESCRIPTION:This work is the furnishing and installation of a complete and operational traffic signal support for the mounting of traffic control devices at Ramp O between a single face roadway barrier and a sound barrier.This work includes a modified pole/ mast arm height and foundation length.

MATERIAL:In accordance with Section 951.2.

CONSTRUCTION:In accordance with Section 951.3, as indicated on the plans and as follows:

Construct foundation as shown on contract drawings.

Provide a reduced pole/mast arm height such that the signal height above the pavement does not exceed 19 feet to the bottom of the signal head.

Orient hand holes to avoid access conflict with the sound barrier wall.

Submit for review and approval, pole fabrication plans signed and sealed by a Professional Engineer registered in the Commonwealth of Pennsylvania.

MEASUREMENT AND PAYMENT: In accordance with Section 951.4.

00 - ITEM 4954-0012 - 2 INCH CONDUIT MODIFIED

Addendum:

Associated Item(s): 4954-0012

Header:
ITEM 4954-0012 - 2 INCH CONDUIT MODIFIED

Provision Body:

DESCRIPTION – This work is furnishing and installation of conduit at locations indicated on the plans.

MATERIAL – In accordance with applicable Sections 910.2, 954.2, 1104.05 and as follows:

Provide Schedule 40 Direct Burial PVC conduit

Provide tracer wire in all conduit runs.

CONSTRUCTION – As indicated and in accordance with applicable Sections 910.3 and 954.3.

MEASUREMENT AND PAYMENT – Linear Foot

00 - ITEM 4954-0151 - TRENCH AND BACKFILL, TYPE I MODIFIED

Addendum:

Associated Item(s): 4954-0151

Header:
ITEM 4954-0151 - TRENCH AND BACKFILL, TYPE I MODIFIED

Provision Body:

DESCRIPTION – This work is trench and backfill for conduit installation at locations indicated on the plans.Locations include off the shoulder (earth) and behind roadway barrier wall (earth).

CONSTRUCTION – In accordance with Section 910 and as follows:

Install conduit in trench as indicated in the plans.Maintain a minimum clearance of 18 inches between power and communications conduits when placed in the same trench.

MEASUREMENT AND PAYMENT – Linear Foot

00 - ITEM 4954-0403 - ELECTRICAL SERVICE, TYPE C MODIFIED

Addendum:

Associated Item(s): 4954-0403

Header:
ITEM 4954-0403 - ELECTRICAL SERVICE, TYPE C MODIFIED

Provision Body:

DESCRIPTION: This work is the furnishing and installation of the electrical distribution for the control and illumination of traffic signals.

MATERIAL:Section 954.2.

CONSTRUCTION:Section 954.3, and as follows:

1.Place all conduit for traffic signal electrical services a minimum of 36” below finished grade.

MEASUREMENT AND PAYMENT: Each.

00 - ITEM 5001-0020, 5001-0930 - CLASS C CEMENT CONCRETE, MODIFIED

Addendum: 4

Associated Item(s): 5001-0020, 5001-0930

Header:
ITEM 5001-0020 - CLASS C CEMENT CONCRETE, MODIFIED
ITEM 5001-0930 - CLASS C CEMENT CONCRETE, MODIFIED

Provision Body:

DESCRIPTION – In accordance with Section 1001.1 and as follows:
This work includes the installation of Class C Cement Concrete below the bottom of footing elevation as indicated on the plans and as directed. This work also includes the over excavation and removal of unsuitable material below the bottom of Class C Cement Concrete as directed.
CONSTRUCTION – In accordance with Section 204.3 and as follows:
S-24744
After excavating to the bottom of footing elevation (BFE), proofroll the subgrade material using a static, smooth walk-behind roller (to reduce the risk of displacement and/or distress of the existing sanitary line).Ensure that the in-situ soil subgrade is firm, reasonably dry, and free of water. A PennDOT representative will inspect the subgrade for bearing capacity before construction of the footing. If directed, drill or drive a bar into the material below the foundation to a depth sufficient to determine the suitability of the material. When subgrade inspection indicates a soft and/or yielding condition, stabilize the area by providing additional compaction. If further compaction does not stabilize the area, excavate soft soil up to 3 feet or as directed by the Engineer. Backfill with Class C Cement Concrete.
S-26088
After excavating to the BFE, proofroll the subgrade material using a minimum 10-ton vibratory roller. Ensure that the in-situ soil subgrade is firm, reasonably dry, and free of water. A PennDOT representative will inspect the subgrade for bearing capacity before construction of the footing. If directed, drill or drive a bar into the material below the foundation

to a depth sufficient to determine the suitability of the material. When subgrade inspection indicates a soft and/ or yielding condition, stabilize the area by providing additional compaction. If further compaction does not stabilize the area, excavate soft soil up to 3 feet or as directed by the Engineer. Backfill with Class C Cement Concrete.
MEASUREMENT AND PAYMENT – In accordance with Section 204.4(a):Cubic Yard
Includes placement of Class C Cement Concrete layer below bottom of footing elevation and as necessary to fill over-excavation below bottom of Class C Cement Concrete layer.

00 - ITEM 5018-0050, 5018-0051 & 5018-0052 – REMOVAL OF PORTION OF EXISTING BRIDGE MODIFIED

Addendum:

Associated Item(s): 5018-0050, 5018-0051, 5018-0052

Header:

ITEM 5018-0050 – REMOVAL OF PORTION OF EXISTING BRIDGE MODIFIED
ITEM 5018-0051 – REMOVAL OF PORTION OF EXISTING BRIDGE MODIFIED
ITEM 5018-0052 – REMOVAL OF PORTION OF EXISTING BRIDGE MODIFIED

Provision Body:

DESCRIPTION – This work is the removal and disposal of portions of the existing SR 0202 bridges in accordance with the approved design and structure drawings, including S-24678, S-24744 and S-26088 and includes the temporary structural support system for existing overhangs during staged construction.

MATERIAL – In accordance with Section 1018.2.

CONSTRUCTION – In accordance with Section 1018.3. Add the following to Section (a) General:

Submit calculations, prepared by a Professional Engineer, registered in the Commonwealth of Pennsylvania, for beam removal, temporary shielding, and temporary overhang structural support systems.

Remove debris caused by the removal operations to the satisfaction of the Engineer.

Remove the existing structure to the limits shown on the plans. In areas where there is a conflict with new construction, remove the existing structure in its entirety.

Provide temporary shielding on the existing structure to ensure the safety of the general public and public utilities and to prevent material from falling onto roadways, trails and property below. The temporary shielding must be adequate to support 150 percent of the actual weight of the item(s) that it is intended to prevent from falling. Install the shielding in such a manner that it cannot become loose or dislodged the entire time it is required to remain in place. Maintain the protection shield so it performs as intended the entire time it is in place.

Submit a plan to the Engineer showing and describing the demolition and removal methods to be used for removal of portions of the existing bridge prior to commencing removal operations. Examination and acceptance of the removal procedure by the Engineer does not relieve the contractor of complete responsibility for safety and any damage caused by the removal operations. The contractor is responsible for the structural stability and integrity of the structure during construction.

Removal under this item of work includes, but is not limited to concrete deck, bridge barriers, beams, portions of substructure and connector wall as indicated on the Contract Drawings. Use extreme caution during removal operations to avoid damaging portions of the bridge beyond the removal limits that are to remain in place. Repair or replace any portion of the existing structure damaged or removed beyond the indicated limits as directed by the Engineer at no additional cost to the Department. Do not undercut the existing foundation soil unless it is directed by the Engineer.

Carefully remove any bridge plaques and/or benchmarks from the existing bridge and deliver them to the Engineer at the project field office.

Take the appropriate measures to minimize disturbances to the foundation soils of the remaining structure units.

Provide temporary structural support system for existing overhangs during staged construction.

MEASUREMENT AND PAYMENT – Lump Sum. In accordance with Section 1018.4.

00 - ITEM 5018-0070 - REMOVAL OF PORTION OF EXISTING CULVERT, MODIFIED, S-26620

Addendum:

Associated Item(s): 5018-0070

Header:
ITEM 5018-0070 - REMOVAL OF PORTION OF EXISTING CULVERT, MODIFIED, S-26620

Provision Body:

DESCRIPTION – This work is the removal and disposal of existing Wingwalls A (#2) and C (#3) for S-26620.

MATERIAL – In accordance with Section 1018.2

CONSTRUCTION – In accordance with Section 1018.3 and as follows:

Section 1018.3(a) General - Add the following:

Submit a proposed plan of demolition to the Department showing and describing the removal methods to be used for removal of portions of the existing culvert at the pre-construction meeting. Have the plans and calculations completed, signed, and sealed by a Professional Engineer registered in the Commonwealth of Pennsylvania. Do not proceed with this work until written approval is received from the Engineer.

Remove debris caused by the removal operations to the satisfaction of the Engineer.

Repair or replace any portion of the structure damaged beyond the limits designated for removal to the satisfaction of the Engineer at no additional cost to the Department.

Immediately remove any material that falls into the stream during removal operations.

Remove portion of existing structure via saw- cut and lift method, or by discriminate use of hydraulic hammers to break into manageable pieces.

Remove the existing apron to the limits shown on the plans. In areas where there is a conflict with new construction, remove the portion of existing structure necessary to place the proposed structure at the direction of the Engineer.

MEASUREMENT AND PAYMENT – In accordance with Section 1018.4 and as follows:

d) Removal of Portion of Existing Culvert.Lump Sum

When removal area coincides with excavation area of new construction, the pay limit for removal stands one (1) foot horizontally beyond the outer limits of the wingwall being removed.

The Department will pay for backfilling of voids below the indicated elevation of the bottom of proposed footing for new construction as specified in Section 1001.4(f).

00 - ITEM 5086-0300 & 5086-0350 - SOUND BARRIER WALL PANELS

Addendum:

Associated Item(s): 5086-0300, 5086-0350

Header:

ITEM 5086-0300 – SOUND BARRIER WALL PANELS, PRECAST REINFORCED CONCRETE, MODIFIED
ITEM 5086-0350 – STRUCTURE MOUNTED SOUND BARRIER WALL PANELS, PRECAST REINFORCED CONCRETE, MODIFIED

Provision Body:

DESCRIPTION – This work is the construction of either structure or ground mounted sound barrier wall panels for the reconstruction of the Planebrook Road Bridge, S-24678, as shown on the plans.

MATERIALS – In accordance with Section 1086.2 and as follows:

Provide aggregate finish and color to match the existing sound barrier wall panels located at the Planebrook Road Bridge.

Submit a sample of the panel for review and approval prior to fabrication.

Measure for closure panels prior to fabrication.

CONSTRUCTION – In accordance with Section 1086.3.

MEASUREMENT AND PAYMENT – Square Foot.

00 - ITEM 5091-0331 - EPOXY INJECTION CRACK SEAL MODIFIED

Addendum:

Associated Item(s): 5091-0331

Header:

ITEM 5091-0331 - EPOXY INJECTION CRACK SEAL MODIFIED

Provision Body:

DESCRIPTION – In accordance with Section 1091.1 and including overhead sealing.

MATERIAL – In accordance with Section 1091.2.

CONSTRUCTION – In accordance with Section 1091.3.

MEASUREMENT AND PAYMENT – Linear Foot.

I30041D - ITEM 8000-0001 THRU 8100-0010 - ALTERNATE BRIDGE STRUCTURES

Addendum: 3

Associated Item(s): 8000-0001, 8000-0002, 8010-0001, 8100-0001, 8100-0002, 8100-0010

Header:

ITEM 8010-0001 - BRIDGE STRUCTURE, AS DESIGNED, S-24678
ITEM 8000-0001 - PRESTRESSED CONCRETE BRIDGE STRUCTURE
ITEM 8100-0010 - STEEL BRIDGE STRUCTURE
CONSTRUCT ONE OF THE ABOVE FOR S-24678 on SR 202, Section 330, Segment 0260/0261, Offset 1895/1873

ITEM 8100-0001 – BRIDGE STRUCTURE, AS DESIGNED, S-26088
ITEM 8100-0002 – STEEL BRIDGE STRUCTURE
ITEM 8000-0002 - PRESTRESSED CONCRETE BRIDGE STRUCTURE
CONSTRUCT ONE OF THE ABOVE FOR S-26088 on SR 202, Section 330, Segment 0280/0281, Offset 0918/0868

Provision Body:

PART A

I. DESCRIPTION - This work is either construction of the bridge structure as designed or designing and constructing an equivalent bridge structure of an alternate design in place of the "as-designed" bridge structure.

II. DESIGN -

(a) General. If an alternate design bridge structure is bid, furnish, to the Department, preliminary conceptual design calculations and drawings for the alternate bridge structure, on reproducible tracing cloth or drafting film. Provide an alternate design equivalent to the original design and meeting applicable design criteria for strength and serviceability. Submit the alternate design to the District Bridge Engineer for acceptance. Refer to PENNDOT Design Manual Part 4, PP 1.10, Bridge Submissions-Construction Phase, for details on procedures for contractor submissions. If the equivalency of an alternate design cannot be clearly established, the Chief Bridge Engineer will arbitrate and the Chief Bridge Engineer's decision will be final. Furnish, with the preliminary conceptual design submission, a tabulation identifying the differences between the "as-designed" bridge structure and the alternate design bridge structure.

Any delay in submission and acceptance of a proposed alternate design or a revision, and/or approval of required permits, will not extend the contract time.

If an alternate design bridge structure is bid, and an acceptable preliminary conceptual design is not approved within 30 calendar days from the award date (6 days for the submission and 24 days for Department review), construct the "as-designed" bridge structure at no additional cost to the Department.

Alternate designs which take advantage of any errors and/or omissions in the plans for the "as-designed" bridge structure, or discrepancies between the "as-designed" bridge structure plans and the special provisions covering alternate designs, will not be accepted. In the event any such error, omission, or discrepancy is discovered, immediately notify the Department. Failure to notify the Department will constitute a waiver of all claims for misunderstandings, ambiguities, or other situations resulting from the error, omission, or discrepancy.

Experimental or demonstration-type design concepts; or products, structures, or elements not preapproved by the Department for general usage, will not be allowed in the alternate design.

Only eligible types of bridge structures, as shown in the Project Items and Quantities, bid documents, or special provisions, are allowed as contractor-designed alternates.

Value Engineering will not be allowed for elements changed by an approved alternate design.

Use the same type foundation for an alternate design as that indicated for the "as-designed" bridge structure. Contractor-designed alternate foundation types will not be allowed, but Value Engineering of the as-designed foundation will be allowed.

Do not use Integral or Semi-Integral Abutment design as an alternate or as Value Engineering.

Have the alternate design completed by a Professional Engineer (P.E.) registered in the Commonwealth of Pennsylvania.

Submit an affidavit, before or along with the preliminary conceptual design submission, stating that the designer is familiar with AASHTO, PENNDOT, and other applicable design criteria, standards, and construction specifications. Also, submit a list of bridges designed for the Department within the past 5 years.

In identifying alternate design bridge structures, retain the "as-designed" bridge structure number, but suffix the numbers with the letters A, B, etc.

Show, on all sheets of the alternate design, the seal of a P.E. registered in the Commonwealth of Pennsylvania, a valid signature in ink, the date signed, a business name, a business address, and the note "These drawings (S-XXXXXA) supersede drawings (S-XXXXX) approved (insert appropriate date)".

The Department will furnish tracings and design computations for the "as-designed" bridge structure to the successful bidder upon request.

Complete original plans for an alternate design entirely in either ink or pencil. Make changes in the same medium. Prepare alternate design plans using Department drafting standards.

Ink reproductions on tracing cloth may be furnished, if made by the "contact negative process".

(b) Design Computations and Design Specifications. On the first sheet of the computations for the alternate design show the seal of a P.E. registered in the Commonwealth of Pennsylvania, a valid signature in ink, and the date signed.

Provide a complete set of computations for the alternate design of the superstructure and/or substructure, including foundation. Reproduce and insert computations from the "as- designed" bridge structure, as needed. Provide additional calculations, as needed by the District Bridge Engineer to evaluate any details, throughout the life of the contract.

Designs copied directly from approved Department Standards need not be documented through independent computations. List such designs on the submission by referencing the drawing number of the applicable standard, and the sheet number, table, or graph.

Use PENNDOT Design Manual Part 4 for design policy procedures and criteria. All design related Strike-off Letters listed in PART B, "SPECIAL DRAWINGS AND SPECIAL DESIGN REQUIREMENTS", are applicable to the alternate design.

In the event that certain design parameters, stresses, or specifications are in conflict, the following order of predominance governs:

- Design requirements listed herein and in PART B, "SPECIAL DRAWINGS AND SPECIAL DESIGN REQUIREMENTS."
- Design related Strike-off Letters in effect on the date of project advertisement. Refer to the list in PART B.
- PENNDOT Design Manual Part 4, "Structures"
- PENNDOT Bridge Design and Bridge Construction Standards
- AASHTO Standard Specifications for Highway Bridges, and interim specifications, as indicated for the "as-designed" bridge structure.

In the event that a clear order of predominance cannot be established, or a difference in the interpretation of the design criteria, standards, specifications, or methodology cannot be resolved, the Chief Bridge Engineer will arbitrate and the Chief Bridge Engineer's decision will be final.

Do not use BLC standards unless HS-20 design load is specifically allowed by the "as-designed" plans or in PART B.

Submit shop drawings on standard ANSI D size 863.6 mm × 558.8 mm (34 inch by 22 inch) to the District Bridge Engineer for review and acceptance. The Department is not responsible for work done without approved shop drawings.

If any provisions in PART B conflict with those in PART A, the provisions in PART B are to govern.

Within 60 calendar days after completion of the bridge structure, revise the structure drawings to show "as-built" conditions and submit them to the Representative. If caissons or piles are utilized, show, on the bridge elevation view, the maximum and minimum tip elevation and the average length for each substructure unit.

(c) Design Requirements. In the design of an alternate bridge structure, comply with PENNDOT Design Manual Part 4, "Structures", and other design criteria as specified for the "as-designed" bridge structure, subject to the exceptions and/or additions in PART B, "SPECIAL DRAWINGS AND SPECIAL DESIGN REQUIREMENTS".

Provide clear span distances between faces of substructure units and underclearances of not less than the minimum values indicated for the "as-designed" bridge structure, except as noted in PART B.

The minimum underclearance for stream or river crossings is defined as the high water elevation for the design flood plus the specified debris clearance or as indicated for the "as-designed" bridge structure, whichever is less.

The minimum clearance for overpass structures is defined as the minimum required underclearance plus 75 mm (3 inches) or the minimum underclearance indicated for the "as-designed" bridge structure, whichever is less. Provide additional underclearance to compensate for foundation settlement if applicable to the alternate design.

Provide equivalent inspection and maintenance accessibility for the alternate bridge structure as for the "as-designed" bridge structure. In case of a disagreement on accessibility, the Chief Bridge Engineer's decision will be binding.

Do not change the indicated horizontal and vertical alignments, except as noted in PART B.

For an alternate bridge structure, design the substructure to be within the limits of allowable foundation pressures and allowable pile loads, as indicated for the "as-designed" bridge structure.

Provide structure and end structure drainage as indicated for the "as-designed" bridge structure.

1. Deck Joints. Provide the same type and number of expansion joints for an alternate bridge structure as specified for the "as-designed" bridge structure.

2. Bearings. Provide the same type bearings for an alternate bridge structure as specified for the "as-designed" bridge structure.

Provide an expansion dam support system as indicated for the "as-designed" bridge structure unless otherwise specified in PART B, "SPECIAL DRAWINGS AND SPECIAL DESIGN REQUIREMENTS".

3. Superstructure. If the as-designed bridge superstructure consists of curved girders, as shown on the structure drawings, the alternate design bridge superstructure is also to consist of curved girders.

Provide slab designs conforming to the requirements of Standard Drawing BD-601M. Use composite design only, unless the "as-designed" bridge structure utilized noncomposite design.

4. Super Load Bridge Beams. Do not use super load bridge beams (beams over 48 800 mm (160 feet) in length or total load over 894 kN (201,000 pounds) gross weight) unless included in the "as-designed" bridge structure or permitted in PART B, "SPECIAL DRAWINGS AND SPECIAL DESIGN REQUIREMENTS". Verify that an oversize and/or overweight permit can be issued for superloads, before incorporating them into the alternate design.

If super load bridge beams are used, for transportation of these beams conform to the requirements of PENNDOT Design Manual Part 4, Appendix E, and the following:

- o Requests for waiver of any provisions of Chapter 179 of Title 67 will not be approved, except as noted herein.
- o Transportation equipment axles will not be permitted in excess of 120 kN (27,000 pounds), regardless of gross weight.

5. Alternate Prestressed Concrete Bridge Structure. Use the Department's prestressed concrete girder computer program to design precast prestressed concrete beams.

Prestressed Concrete Beams. Prestressed concrete beam sections, differing significantly from the standards specified herein, will be considered special sections and subject to the requirements of Section 1107.03(a)4. Do not deviate from the minimum flange and web thicknesses or section properties shown in the Bridge Design Standards.

The redesign of precast diaphragms as specified in PENNDOT DWG. #95-604-BQAD dated 11/20/96 from as designed cast-in-place diaphragms will be considered an alternate bridge structure also.

Use of low mass (lightweight) concrete for prestressed beams is not allowed.

o Deck Slab. If the effective slab span is less than 1100 mm (3 1/2 feet), a minimum slab thickness of 190 mm (7 1/2 inches), using all No. 13 (No. 4) reinforcement bars, is allowed.

o Prestressed Concrete Segmental Box Girders. Use either single or multiple cell box girders, trapezoidal in shape (inclined webs) or rectangular in shape (vertical webs). Provide for future deck removal and replacement in the design and details. Conform to design criteria specified for the "as-designed" bridge structure; and as follows:

Cast-in-place joints may be used to join precast segments, in place of match cast joints sealed with epoxy. If cast-in-place joints are used, shear keys may be omitted. However, if shear keys are omitted, striate and/or heavy score the surfaces to be joined to a minimum depth of 6 mm (1/4 inch). Use the same concrete mix for cast-in-place joints as for the precast segments, and ensure that strength development is the same.

Maintain a joint width as needed for coupling conduits, welding or lapping reinforcement, and placement of concrete, but in no case allow a joint width of less than 100 mm (4 inches) at the closest point. Keep adjacent concrete surfaces thoroughly wet or apply an approved bonding agent before placing concrete in the joint.

Identify anchor piers. Provide box girder diaphragms having sufficient openings to allow for continuous inspection of the inside of the box girder. Provide steel access doors with master locks, at each abutment, for each box. Provide diaphragms that are substantially solid at piers and abutments, except for access and utility holes.

Design adjacent prestressed box beam as a composite beam unless otherwise specified in PART B, "SPECIAL DRAWINGS AND SPECIAL DESIGN REQUIREMENTS".

6. Alternate Steel Bridge Structure. Do not use unpainted weathering steel unless permitted in PART B, "SPECIAL DRAWINGS AND SPECIAL DESIGN REQUIREMENTS".

Do not include longitudinal stiffeners in computing steel section properties.

7. Nonstandard Designs. Do not submit an alternate design bridge structure, either prestressed concrete or steel, which is not covered by the aforementioned Standards, or under PART B, "SPECIAL DRAWINGS AND SPECIAL DESIGN REQUIREMENTS".

8. Pile- Supported Foundation. Base pile design for the alternate bridge structure on the same type, size, length, tip reinforcement, maximum design load, and driving criteria specified for piles for the "as-designed" bridge structure. Piles will be measured and paid for as specified herein.

Include test piles in the lump sum price bid for the bridge structure. Provide the same number of test piles per substructure unit for alternate designs as specified per substructure unit for the "as-designed" bridge structure.

Load test piles, when specified for the "as-designed" bridge structure, will be measured and paid for separately, as specified. Provide the same number of load test piles per bridge structure for an alternate design as specified for the "as-designed" bridge structure, located at a substructure unit as close as possible to the "as-designed" location.

Bearing piles, additional test piles, test pile extensions, load test pile extensions, and pile tip reinforcement will be measured and paid for separately as specified in Section 1005.4. Determine test pile extensions and load test pile extensions relative to the pile lengths indicated in the estimated quantities for the "as-designed" bridge structure or approved alternate bridge structure.

Record the bid quantities for bearing piles and pile tip reinforcement in the spaces provided in the Project Items and Quantities for the alternate design.

Base the estimated quantity for bearing piles used in an alternate design on maximum utilization of the allowable design load indicated for piles used in the "as-designed" bridge structure.

Calculate the lengths of bearing piles used in an alternate design as follows:

o Determine the bearing pile length for each as-designed substructure unit, to the next longer 100 mm (foot), by dividing the quantity of bearing piles by the number of bearing piles for that unit, using the estimated quantities indicated for the "as-designed" bridge structure.

o For alternate designs involving the relocation of substructure units, determine bearing pile lengths by straight line interpolation, to the next 100 mm (foot), using as-designed pile lengths and the average distance between as-designed substructure units in back and ahead of the relocated unit. Base the average distance between as-designed substructure units on measurements between the centerlines of piers (or centerline of bearing at abutments) along the centerlines of exterior girders or beams. If the alternate design bridge structure is longer than the "as-designed" bridge structure, provide bearing piles for the relocated abutment of the same length as the bearing piles for the as-designed abutment.

o If one of the as-designed substructure units in back or ahead of a relocated unit is wholly supported on a spread foundation, determine the bearing pile length for the relocated unit, to the next 100 mm (foot), by a straight line interpolation, using the bearing pile length of the as-designed, pile supported unit and zero length at the spread foundation supported unit. However, do not use lengths of less than 3000 mm (10 feet) for determining the bid quantity.

o For relocated substructure units, test pile lengths, which are included in the lump sum price for the alternate design bridge structure, are to be the average lengths determined using the procedures specified above. The load test pile length at a relocated substructure unit is to be the same as the bearing pile length at that unit.

o For the purpose of determining pile lengths at relocated substructure units, consider a unit relocated if the average distance from the closest, as-designed unit is 6000 mm (20 feet) or more. Determine the average distance as specified above.

Show the estimated quantities of as-designed load test piles, test piles, bearing piles, and pile tip reinforcement used in an alternate design on the alternate design plans when submitted for approval. Show test pile lengths, included in the lump sum price bid for the alternate bridge structure, and load test pile length, included in the lump sum price bid for load test piles, in the estimated quantities. Tabulate piling quantities using a format similar to that used for the "as-designed" bridge structure. Show alternate design bid quantities for load test piles, bearing piles, and pile tip reinforcement for comparison with approved, as-designed, estimated quantities.

Value Engineering of as-designed piles used in an approved alternate design bridge structure is allowed.

If as-designed piles for a relocated substructure unit in an alternate design cannot be driven, thereby necessitating a redesign of the substructure unit, furnish the revised design and complete construction drawings as part of the lump sum price bid for the alternate bridge structure.

If the as-designed pile layout can not be used in an alternate design involving a relocated substructure unit, alternate design piles will be measured and paid for as part of the lump sum price bid for the alternate bridge structure. Exclude from the bid all pile load tests specified for as-designed piles which are replaced by alternate design piles.

Compute the pay quantity for as-designed bearing piles incorporated into an alternate design as follows:

Case 1: If D and E are less than or equal to B, the Pay Quantity = D

Case 2: If D and E are greater than B, the Pay Quantity = D - (E-B)

Case 3: If E is greater than B but D is equal to or less than B, the Pay

Quantity = D

For all other cases, use D as the Pay Quantity.

where:

D = Actual acceptable driven quantity per structure

B = Bid quantity per structure entered in the Project Items and Quantities.

E = Estimated quantity per structure shown on the approved

alternate drawings.

III. MATERIAL - As indicated and as specified for the "as-designed" bridge structure; in accordance with applicable Sections of the Specifications, Publication 408, and numbered changes thereto; and/or the Special Provisions for each respective item included in the bridge structure.

IV. CONSTRUCTION - In accordance with applicable Sections of the Specifications, Publication 408, and numbered changes thereto in effect before the letting date; the Special Provisions for each respective item; and any additional requirements contained herein. Submit construction procedures for an alternate design, for acceptance, if other than those contained herein.

Erection methods are open, but submit the proposed method to the Chief Bridge Engineer for approval.

If utility relocations are required to accommodate the proposed locations of substructure units in an alternate design, be responsible for the cost of the utility relocations and any related delay claim costs.

V. MEASUREMENT AND PAYMENT - Lump Sum

For the type of alternate design bridge structure selected, subject to a reduction equal to the amount of the Contractor's share of the Department's engineering costs to be determined as follows:

- For each alternate bridge structure with lump sum bid item amount less than $2,000,000 = 2% of the lump sum bid amount for structure

- For each alternate bridge structure with lump sum bid item amount over $2,000,000 = $40,000 plus 0.25% of the lump sum bid amount over $2,000,000, total amount not to exceed $85,000

Each alternate bridge structure involving a redesign from cast-in-place diaphragms to precast diaphragms will be subject to a reduction of $300 per structure if contractor's bid lump for lump sum item is less than $2,000,000 and a reduction of $750 per lump sum item if structure is over $2,000,000, for the amount of the Contractor's share of the Department's engineering cost.

The Contractor's share of the Department's engineering costs will be recovered by processing a contract adjustment (Alternate Design Review) to reduce the contract lump sum price by an amount equal to the Contractor's share.

A utility company's share of fabricated structural steel and/or installation of sleeves, inserts, casings, hanger assemblies, ducts, etc. for utilities is to be a separate item. Do not include the utility company's share in the bid price for the alternate design bridge structure unless otherwise specified.

For an alternate design bridge structure, all items of work are to be included in and will be paid for as part of the contract lump sum price; except, bearing piles; pile tip reinforcement; pile load tests; dynamic pile testing; Class C cement concrete under footings; Class 3 excavation, reinforcement bars, and Class A cement concrete for pedestals; and caissons.

Placing deck concrete in excess of the indicated quantity will not be considered a change from the design. The contract lump sum price for each alternate bridge structure includes full compensation for all deck concrete.

(a) Bridge Structure As Designed. If the "as-designed" bridge structure is bid, submit the "Component Item Schedule", included with the Proposal, as specified in Section 103.01(a).

Make the "Total" at the end of the "Component Item Schedule" equal the amount of the lump sum bid for Bridge Structure as Designed.

(b) Alternate Bridge Structure. If an alternate design bridge structure is bid, the apparent low bidder is required to submit a "Component Item Schedule for Alternate Design" as specified in Section 103.01(a). No adjustments will be made to the contract lump sum price bid for alternate design bridge structure for any field adjustments necessary to complete the structure.

Make the "Total" at the end of the "Component Item Schedule for Alternate Design" equal the amount of the lump sum bid for Alternate Bridge Structure.

(c) Alternate Structure Design Costs. The apparent low bidder is to include a component item for Alternate Design Costs in the Component Item Schedule when an alternate design is bid. Include the cost of this item in the total of the lump sum bid price. Payment of 25% of the total design costs will be made upon approval of the preliminary conceptual design. The remaining amount will be paid for in a proportionate manner, designated by the Department, on the basis of approval of the final design.

00 - ITEM 9000-0001 - FIBER OPTIC MODEM

Addendum:

Associated Item(s): 9000-0001

Header:
ITEM 9000-0001 - FIBER OPTIC MODEM

Provision Body:

DESCRIPTION: This work consists of the furnishing, installing and testing of Field Ethernet Switches to provide a fully functional communications system between the traffic signal controller assemblies and the Hubs.

MATERIAL:

Provide a Field Ethernet Switch that meets the following requirements:

·Minimum of sixteen (16) 10/100 Base-TX ports. Each port will connect via RJ-45 connector.

Provide a minimum of two (2) Gigabit-Ethernet SFP GBIC optical interfaces (SFPs), each of one of the types as specified below:

·Minimum 10.5dB optical budget, typical, standard reach 10 km (SMFO at 1310nm).

·Minimum 17.0dB optical budget, typical, standard reach 40 km (SMFO at 1550nm).

·Minimum 20.0dB optical budget, typical, standard reach 70 km (SMFO at 1550nm).

·Provide one (1) Gigabit-Ethernet SFP GBIC 10/100/1000TX interfaces (SFP) with RJ45 connector that is fully compatible with the connected OTN Ethernet Interface Card.

·Provide the same make and software revision for all Field Ethernet Switches.

·DIN rail or surface mountable in Remote Node Cabinets.

·Operate between -34 to +74 degree Celsius, including power supply

·Operate from 100 VAC to 200 VAC with internal power supplies. No external power supplies are permitted.

·Operate from 10% to 90% non-condensing humidity.

·Meet the IEEE 802.3 (10Mbps Ethernet) standard.

·Meet the IEEE 802.3u (Fast Ethernet 100 Mbps) standard.

·Meet the IEEE 802.3x (Full Duplex with Flow Control) standard.

·Meet the IEEE 802.1p (Priority Queuing) standard.

·Meet the IEEE 802.1Q (VLAN) standard per port for up to four VLAN’s.

·Meet the IEEE 802.1D-2004 (Rapid Spanning Tree Protocol) standard.

·Capable of mirroring any port to any other port within the switch.

Password manageable through:

·SNMP.

·Telnet/CLI.

·HTTP (Embedded Web Server) with Secure Sockets Layer (SSL).

·Console/terminal port.

Each configuration method above including HTTP and SNMP to allow complete and unconstrained read/write access to every configurable parameter and read status object in the unit. Provide printed and ASCII file documentation, including the manufacturer's custom/enterprise SNMP MIB in the materials submittal.

·Full implementation of SNMPv1, SNMPv2c and SNMPv3.

·Full implementation of RMON I statistics, history, alarms, and event objects.

·Full implementation of GVRP (Generic VLAN Registration Protocol).

·Full implementation of IGMPv2 and IGMP snooping.

·Minimum MTBF of 100,000 hrs using Bellcore TS-332 standard.

·Full implementation of RFC 783 (TFTP) to allow remote firmware upgrades.

·UL approved.

Provide Ethernet field switches that are capable of providing status indicators as follows:

·Power on an off.

·Network status per port (transmit, receive, link, speed).

·Status indicators will be LED.

Use fiber patch cords in accordance with the requirements for item Fiber Optic ST Patch Cables, except use duplex LC connectors on the Field Ethernet Switch end. Use network patch cords that meet all ANSI/ EIA/ TIA requirements for Category-6, 4-pair unshielded twisted pair cabling with stranded conductors and RJ45 connectors. Provide factory-assembled and connectorized patch cords with mechanical cable strain relief and protective boots and that are fully tested to Category-6 requirements.

Provide outdoor rated Category 6 cable as required to provide connectivity between to devices in close proximity. All Category 6 cables and patch cords are considered incidental to this Item.

Provide a Microsoft Windows PC-based standalone Ethernet Network Management System (ENMS) application to monitor and manage, all Field Ethernet Switches. The ENMS software will be fully-licensed for installation on one PC station plus one backup/ redundant PC station, a minimum of 10 password secured user accounts simultaneously logged in through the PC stations and/or remote browser access, and a minimum of 1000 devices with IP addresses. The ENMS application will provide polling/status/alarm monitoring, zoomable network maps and geolocation maps where device icons with active status indications can be fixed to JPG, PNG, or equivalent map files implementation of Syslog and SNMPv3, SNMP get/set and trap receiving, import of custom/private/ enterprise MIBs, and auto network discovery. The ENMS application will include a TFTP server process for upload, download and storage of device configuration settings and firmware updates. Alternately, provide a separate TFTP server application meeting all licensing requirements of the ENMS application. Install the ENMS application on an existing East Whiteland Township workstation as directed by the Engineer.

CONSTRUCTION:

Install all equipment according to the manufacturer's recommendations, the approved shop drawings, construction plans, and as follows:

1.Configure and install the Field Ethernet Switch utilizing manufacturer trained personnel.

2.Install Field Ethernet Switches in accordance with manufacturer's guidelines and requirements.

3. For installation in existing traffic signal controller cabinets, install Field Ethernet Switches either mounted to interior of cabinet surface or shelf mounted in the traffic signal controllers. For new traffic signal cabinets, install in accordance with specification Paragraph 1.17 of Item 9952-2035.

4. Coordinate all work, including the exact switch configuration information, with the Engineer and PennDOT Information Technology resources.

5.Follow all PennDOT network configuration standards including but not limited to all security implementations.

6. Fully provision the Field Ethernet Switches for the SR 0202 SONET network system, the Terminal Servers, and center-to-field communications for all field devices, including but not limited to VLAN, IGMP/multicast, RTP/ RTSP, and quality of service.

Unless approved or directed otherwise by the Engineer, as a minimum configure the Field Ethernet Switches as follows:

1.Network Single subnet, single default VLAN.

a.Contractor will assign IP addresses and ports for devices.

2.Copper ports:

a.RSTP/STP – Off.

b.Unused Ports – Disabled.

3.Terminal Server Port:

a.Filter only for the MAC address of the connected Terminal Server, disable and send alarm trap upon violation.

4. Optical ports:

a. RSTP/ STP – On, with default bridge priority, except the Type B Field Switches in Remote Hub Cabinets will have a higher priority (lower setting) to be the root bridge.

b.A FAT is not required for this equipment.

c. Determine the necessary optical budget for each optical link and provide the appropriate SFP selected from the types specified above.

d.Install fiber optic patch cords to connect all electronic equipment with the fiber optic infrastructure.

e.Coordinate with the fiber optic cable installer and Engineer for port assignments.

f. Install fiber optic patch cords to connect all active optical paths between fiber optic termination panels and the Field Ethernet Switch.

g.Neatly route and dress all patch cords to the connected devices and within cable management facilities

h. Furnish and install optical attenuators as required to maintain optical communications within the switch manufacturer's recommended optical power range.

5. Provide all materials and work associated with furnishing, installing, interconnecting, configuring, integrating and testing Field Ethernet Switches including but not limited to the switch chassis and modules, firmware, SFPs, power cables, fiber optic patch cords, fiber optic attenuator patch cords (if needed), network patch cords, mounting hardware and shelves, ENMS, and all work, equipment, incidentals and appurtenances as required to provide fully functional Field Ethernet Switches.

a. Provide all installation, system engineering, provisioning, integration and testing required for a fully functional and operational ENMS application operating over the RTMC and SR 0202 network. Coordinate all work with the Engineer and PennDOT Information Technology resources. Follow all PennDOT network configuration standards including but not limited to all security implementations. Configure and implement as a minimum the following ENMS features for the all Field Ethernet Switches:

b. Geolocation map that includes the entire project area including the PennDOT RTMC and all Remote Node and Remote Hub Cabinets, and all geography in between.

c. GUI and geolocation map icons with status/alarm indications.

d. Ping and trap monitoring of device status and configuration/access changes. Trap monitoring of all optical interfaces/ports.

e. Trap monitoring of Field Ethernet Switch copper ports connected to Terminal Servers and OTN Ethernet Interface Cards.

f. Trap monitoring of RTMC Ethernet Switch copper ports connected to any project equipment.

g. Trap monitoring of the operational status of all serial interfaces of all Terminal Servers.

h. Include all ENMS manufacturer's warranty and technical support services for the full operational period specified in the OSP.

MEASUREMENT AND PAYMENT: Each

00 - ITEM 9000-0002 - FIBER OPTIC PATCH PANEL

Addendum:

Associated Item(s): 9000-0002

Header:

ITEM 9000-0002 - FIBER OPTIC PATCH PANEL

Provision Body:

DESCRIPTION: Provide Fiber Termination Panels as shown on the Contract Plans, for the splicing and termination of outside plant fiber optic cable to factory terminated connectorized pigtails in a cabinet that provides front access to terminated fibers. As hereinafter provided, including splicing to 12-fiber drop cables as indicated on the Contract Plans, cabinet mounting, attaching of ST fiber optic patch cables, and testing. The surface mounting of 12-port panels is allowable.

MATERIAL: Fiber terminations must be performed at a termination panel. Provide a panel meeting or exceeding the following specifications:

·Number of terminations for FTP: 12 (nodes)

·Connector Type ST Feed-through

·Access: Front and rear, fold-down or swing out

·Cabinet Painted Metal Construction

Include space and a mechanism for storing fiber splices and slack for both used and unused fibers within the panel. Use ST connectors to perform terminations.

Make 12 ST connectors, as required, accessible to a technician standing in front of the cabinet with the front door open. When installed, accommodate fiber optic patch cables between any two connectors without reaching the patch cables' minimum bending radius.

Each ST connector on the panel is to be optically connected to a fiber in the 12-strand fiber drop cable, and not cause in excess of 0.5 dB optical signal loss when tested at 1310 nm.

Meet the optical characteristics of the drop cable used, including cone diameter for single mode fiber used in pigtails.

CONSTRUCTION: Terminate all fibers entering the cabinet on the rear of the panel with ST connectors. Provide and install jumpers of sufficient length to connect the front side of the panel to the fiber equipment contained within the cabinet as specified herein.

Terminate ST connectors in single mode fiber pigtails fusion spliced to the fiber backbone cable or fiber drop cable as described herein and shown on the plans.

MEASUREMENT AND PAYMENT: Each.

00 - ITEM 9000-0003 - JUNCTION BOX, 17" X 30"

Addendum:

Associated Item(s): 9000-0003

Header:

ITEM 9000-0003 - JUNCTION BOX, 17" X 30"

Provision Body:

DESCRIPTION: This work is the furnishing and installation of a junction box of the size indicated for the traffic signal electrical distribution system.

MATERIAL: Section 1101.10, 1104.05(c), and as follows:

Provide a polymer concrete rectangular junction box, with the nominal dimensions of 17"Wx30"Lx24"H.

CONSTRUCTION: Section 910.3(p)

MEASUREMENT AND PAYMENT: Each. Includes any necessary excavation and backfill.

00 - ITEM 9000-0004, 9000-0005 & 9000-0006 – EMERGENCY PRE-EMPTION SYSTEM

Addendum:

Associated Item(s): 9000-0004, 9000-0005, 9000-0006

Header:

ITEM 9000-0004 – EMERGENCY PRE-EMPTION SYSTEM (S.R. 0401 & MOORES ROAD)
ITEM 9000-0005 – EMERGENCY PRE-EMPTION SYSTEM (S.R. 0401 & RAMPS M & O)
ITEM 9000-0006 – EMERGENCY PRE-EMPTION SYSTEM (S.R. 0401 & RAMPS N & P)

Provision Body:

DESCRIPTION: This work is the furnishing and installation of an optical emergency pre-emption system to provide the pre-emption operation for the roadway approaches as indicated on the traffic signal plan.

MATERIAL: Sections 950.2 and 1104.03, and as follows:

Provide a system of basic operational compatibility with the project municipality's existing pre- emption system, if applicable. Provide a system meeting the following requirements:

· First come, first served operation of same priority level emitters

· Emergency band must override the transit band

· Works with encoded and non-encoded emitters

· Plugs into 170 controller input files

· RS-232 communication port on front panel of card

· Optically isolated outputs

· Multifunction test switch

· NEMA and Caltrans environmental and electrical specs

· User-adjustable signal threshold from 200 to 2500 feet

· Voltage: 120VAC 60 Hz

· Temperature range: -40°C to +75°C

· Humidity: 5% to 95% relative

· Dimensions within 9"L x 5.25"W x 6"H

· 2.5 seconds signal acquisition time, maximum

· Four output channels, minimum

· Simultaneous signal reception: Up to ten emitters received simultaneously

· Two auxiliary detectors per channel, minimum

· Max Call feature allows setting of maximum time for call to be active

· Call Extension feature sets the time a call is held after the optical signal terminates

· Call Delay feature sets the time the call must be pending before the assertion of the call

Include all hardware and software to provide a functional system. Include wiring for the emergency pre-emption receivers and fail-safe light indications.

CONSTRUCTION: Section 950.3 and in accordance with manufacturer's instructions.

Provide one pre-emption emitter for use during the testing period. Coordinate emergency pre-emption detector alignment with East Whiteland Township. Realign detectors as necessary to provide, at a minimum, a distance of 1000’ of emitter signal reception for each approach. Ground preemption heads, as soon as possible after installation, and before energizing the system.

MEASUREMENT AND PAYMENT: Each. Includes all necessary equipment and wiring for the pre-emption system.

00 - ITEM 9000-0008 - CONTROLLER ASSEMBLY, TIMER UNIT ONLY

Addendum:

Associated Item(s): 9000-0008

Header:

ITEM 9000-0008 - CONTROLLER ASSEMBLY, TIMER UNIT ONLY

Provision Body:

DESCRIPTION:This work is the furnishing and installation of an Eagle EPAC M52 traffic signal controller timer unit in the existing controller assembly.

MATERIAL:In accordance with Item 9952-2035.

CONSTRUCTION: Section 952.3, as indicated on the plans and as follows: Program timer unit and modify existing controller assembly to provide signal operation as shown on the contract drawings.Provide Ethernet communications to fiber optic network.

MEASUREMENT AND PAYMENT: Each.

00 - ITEM 9000-0009 thru 9000-0015 - INSTALLATION OF TRAFFIC ADAPTIVE SYSTEM

Addendum:

Associated Item(s): 9000-0009, 9000-0011, 9000-0012, 9000-0013, 9000-0014, 9000-0015

Header:

ITEM 9000-0009 – INSTALLATION OF TRAFFIC ADAPTIVE SYSTEM, CONESTOGA ROAD AND PHOENIXVILLE PIKE
ITEM 9000-0011 – INSTALLATION OF TRAFFIC ADAPTIVE SYSTEM, CONESTOGA ROAD AND MOORES ROAD
ITEM 9000-0012 – INSTALLATION OF TRAFFIC ADAPTIVE SYSTEM, CONESTOGA ROAD AND SR 0202 SOUTHBOUND RAMPS M&O
ITEM 9000-0013 – INSTALLATION OF TRAFFIC ADAPTIVE SYSTEM, CONESTOGA ROAD AND SR 0202 NORTHBOUND RAMPS N&P
ITEM 9000-0014 – INSTALLATION OF TRAFFIC ADAPTIVE SYSTEM, CONESTOGA ROAD AND EAST WHITELAND TOWNSHIP DRIVEWAY
ITEM 9000-0015 – INSTALLATION OF TRAFFIC ADAPTIVE SYSTEM, CONESTOGA ROAD AND MILL LANE

Provision Body:

DESCRIPTION: This work consists of the installation of the video detection cameras, mounting hardware, required cables, and other adaptive system equipment as recommended by the manufacturer (Rhythm Engineering) and provides complete coordination with the manufacturer.

MATERIAL: Sections 950.2, 952.2, 956.2, 1104 and as follows:

Provide Ethernet cable environmentally hardened, outdoor rated 350 MHz Category 5e cable. The cable is required to be riser rated, 24 AWG solid copper, have Polyolefin insulation, UV and oil resistant PVC jacket. Pair 1 to be Blue, White/Blue, Pair 2 to be Orange, White/ Orange, Pair 3 to be Green, White/ Green and Pair 4 to be Brown, White/ Brown. The operating temperature is from -40° C to +70° C. The cable to conform to: ISO/ IEC 11801 Category 5e, NEMA WC 63, and ANSI/ TIA/ EIA 568- B. 2 Category 5e. No splices or joints are permitted in a single run of cable. Obtain instructions from the manufacturer about alternate architecture when length of a single run of CAT 5e cable exceeds 320 feet.

Provide RJ-45 plug connectors at both the camera and cabinet ends. Category 5e cable, RJ-45 connectors and crimping tool requires approval from Rhythm Engineering. Follow the manufacturer's instructions to insure proper connection of equipment.

Provide 14 AWG three conductor power cable meeting the requirements of IMSA Specification 20-1.

If required, provide detector card rack assembly to run inputs to controller assembly. Provide card rack meeting all applicable PennDOT and NEMA specifications.

Provide camera mounting bracket matching finish of traffic signal support to which it is mounted. Black painted or powder-coated traffic signal supports require a mounting assembly of similar finish.

CONSTRUCTION: Sections 950.3, 952.3, 956.3, 1104 and as follows:

Mount video camera (s) as directed by the factory certified representative using mounting brackets to obtain manufacturer recommended installation location. Provide mounting bracket detail to Engineer for approval prior to installation. Connect Ethernet cable and power cable in accordance with manufacturer's requirements from each camera back to the controller assembly. Install processor unit in controller cabinet, and connect to cabinet power supply in accordance with manufacturer directions.

MEASUREMENT AND PAYMENT: Each.

00 - ITEM 9000-0010 - UNDERPINNING OF EXISTING FOUNDATION

Addendum:

Associated Item(s): 9000-0010

Header:

ITEM 9000-0010 - UNDERPINNING OF EXISTING FOUNDATION

Provision Body:

DESCRIPTION – This work is the underpinning of the existing culvert foundation prior to the excavation below the bottom of the existing culvert foundation at Wingwalls A and C for S-26620.

MATERIAL –

• Structural Steel: AASHTO M 270M/ 270 (ASTM A709M/ A709) Grade 250 (Grade 36), Grade 345 (Grade 50) or Grade 345W (Grade 50W)

• Steel Sheet Piling: ASTM A328M/A328, ASTM A572M/A572

• Steel H-Piles: AASHTO M 270M/270 (ASTM A709M/A709), Grade 250(Grade 36)

• Other Material: In accordance with applicable Sections of Publication 408

CONSTRUCTION – Prepare and submit supporting calculations, shop drawings and work plan for the underpinning of the existing foundation in accordance with current AASHTO LRFD Bridge Design Specifications and Design Manual, Part 4 Specifications, current FHWA guidelines and AASHTO Guide Spec. Submit 4 sets of calculations and 4 sets of completed detailed drawings, signed and sealed by a Professional Engineer, registered in the Commonwealth of Pennsylvania, to the Engineer for review. Include in the supporting calculations all material properties, loads, and assumptions. Include on the completed detailed drawings all dimensions, limits of work, elevations, material, member sizes and construction sequence. Include specific installation procedures and testing requirements as part of the submittal. Allow 14 working days for the review by the Engineer

Ensure that the underpinning of existing foundation conforms to the following:

a) The underpinning of existing foundation may be comprised of Soldier-piles, Micropiles, Steel Sheet Piling or other approved methods, and may be integral with the excavation support and protection system. The underpinning shall be permanently left in place.

b) Ensure that all components stay within the legal right-of-way, unless an easement is obtained by the Contractor.

c) The culvert slab and/or strip footings shall always be bearing on competent materials and shall not be subjected to any displacement. Excavation support systems shall be designed using at-rest (K0) pressure parameters.

d) Since the area is underlain by limestone and there is evidence of sinkhole activity, verify that there are no voids and/or soft conditions. If voids and/or soft conditions are found, then bring to the attention of the Engineer. After approval, remediate the conditions as per the Limited Mobility Grouting for Sinkhole Remediation special provision and/or method dictated by the Engineer.

Install the underpinning of the existing foundation in accordance with applicable sections of Publication 408.

The work must be supervised by a superintendent or foreman who is experienced in the construction of the underpinning of existing foundations.

MEASUREMENT AND PAYMENT – Lump Sum

00 - ITEM 9000-0016 – TRAFFIC ADAPTIVE SYSTEM

Addendum:

Associated Item(s): 9000-0016

Header:

ITEM 9000-0016 – TRAFFIC ADAPTIVE SYSTEM

Provision Body:

DESCRIPTION: This work is reimbursing the Contractor for payment made to Rhythm Engineering for furnishing and implementing the InSync video detection/traffic adaptive signal control systems which detect and collect vehicle data by processing video images and automatically optimizes the changing of traffic signals in response to real time traffic demands.
MATERIAL: Sections 950.2, 952.2, 956.2, 1104 and as follows:
Rhythm Engineering will provide new equipment and material. Provide new equipment and material from an approved manufacturer conforming to requirements of CALTRANS 170 Specifications, ICEA, IMSA, ITE, MUTCD, NEMA, RETMA, NEX and regulations of the National Board of Fire Underwriters, as applicable, and meets the approval of the Engineer.
System Components:
Rhythm Engineering will provide a InSync video detection/traffic adaptive signal control system manufactured by Rhythm Engineering consisting of color video camera(s) enclosed in secure housing, a shelf/rack mounted processing unit, software and license for system control via a web browser such as the Microsoft Internet Explorer on any authorized computer, a switch with the capability of independently networking a minimum of 4 video cameras and the processor. Ensure video cameras are Ethernet cameras and their video feeds available over standard Ethernet connection in Motion JPEG and MPEG 4 formats using the latest IP technology. Obtain camera views simultaneously without cable swaps. The system is capable of displaying post-processed video on a web browser such as Microsoft Internet Explorer. The Engineer has the option to view one camera at a time or all four cameras on a single browser window. Transport video from the camera to the switch using a standard CAT-5e outdoor rated cable. Provide central system software capable of configuring the traffic adaptive control system.

Ensure video detection system is programmable via a web browser using the same Ethernet connection that delivers the video camera output and thus allowing the Engineer to have complete control of the system without being physically present at the intersection. Provide still image and real time detection displays in color video to a remote computer using a web browser such as Microsoft Internet Explorer. The system shall collect real-time traffic data such as vehicle counts, stop delay and level of service. Real time and historical statistical information will be available to the Engineer in graphical and/ or tabular form as and when required.

System Software:

The system includes software that detects vehicles in multiple lanes using only the video image. The software automatically accounts for changes in scene including but not limited to lighting conditions or adverse weather. The Engineer would have the dual benefit of defining detection zones or count sensors via a web interface accessible from any regular computer with Ethernet connection or using a computer physically connected to the network (which includes a laptop computer). Provide a minimum of 12 detection zones per camera. The detections zones must be capable of counting multiple vehicles within a single detection zone. The system software is required to communicate to an existing signal controller on a real time basis via RS232 serial communication standards. The software is required to determine and display of real-time queue lengths along each approach.

Processing Unit (PU):

The PU to be rack or shelf mounted and be modular in design.

Communications from the PU to any computer to be through RJ45 (8P8C) connector over a regular Ethernet connection at the installation location or over a network. Ensure that the computer has the capability to download detection data as well as the realtime detection information needed to show detector actuations. Ensure that user has the capability of connecting directly to the detection cameras over the Ethernet network and display post- processed and pre- processed color video in the MPEG 4 and MJPEG format.

The PU is compatible with NEMA detector interface. Output levels are required to be compatible with the NEMA TS1 and NEMA TS2 Type 2 standards.

Provide PU meeting the following specifications and/or requirements:

• Store historical split information and compute and deploy optimized signal splits based on historical split information when the system goes into fog mode or emergency mode.

• Input optimized detector calls into a controller that is running in free mode via supplier provided detector cards that plug into standard detector card racks.

• Suspend, for the necessary time, its inputs to a controller when calls of a higher priority are put in to the controller by pedestrians, preemption vehicles or the pre-determined parameters set by traffic officials.

• Automatically send all necessary information to processors at adjacent upstream and downstream intersections in order to facilitate the optimization of traffic flow along an arterial.

• Optimize the flow of traffic at both intersections and arterials based on the possible states of traffic rather than required splits, cycles and offsets.

• Keeps accurate time using a GPS device supplied and mounted on the traffic signal cabinet.

• Capable of functioning in a detector mode or adaptive mode selectable by time of day and day of week.

Vehicle Detection:

Rhythm Engineering will provide a video detection system capable of flexible detection zone and/ or count sensor placement anywhere and at any orientation within the combined field of view of the image processors. Preferred presence detector zone configurations will be a box or polygons across lanes of traffic placed parallel with lanes of traffic. A single detector zone replaces multiple conventional detector loops. Ensure that detection zones are capable of overlapping and are required to detect multiple vehicles within a single detection zone.

Create detection zones by using a pointing device and a graphical user interface (GUI) displayed on any computer connected directly to the PU or a GUI available to any authorized remote terminal over Ethernet connection. It will be possible to add, edit or remove previously defined detector configurations to fine-tune detection zone placement.

Ensure that when a vehicle is detected by crossing a detection zone, there is a visual change on the video display, such as a change in color or intensity, thereby verifying proper operation of the detection system. Compute and display real- time queue information per lane. Compute and store traffic volumes, stop delay and Level of Service per phase and display such information on demand over an Internet Browser.

Overall performance of the video detection system to be comparable to inductive loops. Ensure that using camera, optics and in the absence of occlusion, the system detects vehicle presence with 95% accuracy under normal (day and night) conditions and with only a slight deterioration in performance under adverse (fog, snow, rain) conditions.

Default to emergency mode or fog mode during extremely adverse conditions. Ensure that the processor stores, historical split information and computes and deploys optimized signal splits based on historical split information when the system goes into fog mode or emergency mode.

Provide camera to automatically function in a special mode at night and the processor will utilize such images and conduct image processing after filtering out a high degree of reflected and ambient lighting. The PU to change image parameters such as sharpness and contrast based on the lighting conditions.

Video Camera and Housing:

Rhythm Engineering will furnish the video camera for traffic detection. Provide camera meeting the following specifications and/or requirements:

Produce a usable color video image of vehicles under normal roadway lighting conditions regardless of time of day. Usable video in color is required to be produced for scenes with a minimum luminance of 0.65 lux at aperture f-value 1.0.
Utilize a CCD sensing element and deliver MJPEG and MPEG 4 video streams simultaneously over a standard Ethernet connection.
Include an electronic shutter or auto iris control based upon average scene luminance and be equipped with an auto iris lens.
Variable focal length. The maximum aperture of the lens will not be smaller than f1.8 and the minimum aperture will not be larger than f360.
House camera in an environmental enclosure that is waterproof and dust tight to NEMA-4 specifications.
Incorporate a heater in the camera to prevent the formation of condensation, as well as to assure proper operation of the lens' iris mechanism. The heater is required to not interfere with the operation of the image sensor electronics, and not cause interferences with the video signal. The enclosure must allow the camera to be rotated in the field during installation.
Equip enclosure with a sun shield that prevents sunlight from directly entering the lens. The sun shield is required to include a provision for water diversion to prevent water from flowing in the camera field of view.
Camera to be Ethernet-centric. Ensure camera has an RJ-45 port built into it and delivers the MPEG-4 and MJPEG video from the camera via the RJ-45 port to the switch in the cabinet over a CAT-5e cable. Ensure that the user has ability to access the camera directly over the network and configure the camera parameters using a standard Internet Browser.
Traffic Adaptive Signal Control:
Rhythm Engineering will locate the traffic adaptive control module within the PU. The PU is required to:
• Communicate with neighboring PUs over an Ethernet network.
• Communicate information such as the green and red status of signal, queue lengths, and traffic volumes in real time. Based on such information received from adjacent signals and local traffic data, optimize the phasing sequence, duration, and initiation of movements in order to optimize traffic flow on arterials as well as arterial networks.
Ensure that the traffic adaptive control does not use common cycle lengths but use principles of robotics and artificial intelligence to optimize traffic flow. Ensure real-time optimization using principles of finite state changing machine and not involve the switching between cycle lengths. Ensure that the system is not in a transition at any time but responds to real-time inputs with changing of states.
The supplier's engineers will configure the traffic adaptive signal control system for the most optimal operation of the arterial or arterial network. Traffic flow and anomalous traffic conditions will be programmed into the traffic adaptive signal control system.
Ensure that parameters for the traffic adaptive signal control are capable of being configured remotely over the Ethernet network. Control application to be capable of being loaded on a computer with Microsoft Windows operating system. The software requires the display traffic signal green status and up to 20 camera views.
CONSTRUCTION: Sections 950.3, 952.3, 956.3, 1104 and as follows:
Install the traffic adaptive control system in the controller assembly as recommended by the manufacturer and as documented in the installation materials.
A factory certified representative from the supplier will be on-site for a minimum of two days during installation.
Warranty:
Rhythm Engineering will warrant the hardware for traffic adaptive control system to be free of defects in material workmanship for a minimum of five years from the date of installation.
During the warranty period, unlimited technical support will be available from the supplier via telephone within 4 hours of the time a call is made by the user during the initial two years from the date of installation. Following the initial 2 year period, the supplier will provide 40 hours per year of technical support for an additional three years. During this five year period, all software updates and configuration modifications are also included. This support will be available from factory certified personnel or factory certified installers.
Maintenance and Support:
Rhythm Engineering will maintain an adequate inventory of parts to support maintenance and repair of the traffic adaptive control system.
Rhythm Engineering will maintain an ongoing program of technical support for the traffic adaptive control system. This technical support will be available via telephone, or via personnel sent to the installation site upon placement of an order at the suppliers then current pricing and terms of sale for on site technical support services.
Training:
Rhythm Engineering will provide a minimum of one day of training to personnel in the operation, setup and maintenance of the traffic adaptive control system.
MEASUREMENT AND PAYMENT: Dollar
The proposal will include an item and a predetermined amount of money for Video Detection Traffic Adaptive System. The Contract item will have a unit of measure of Dollar, a unit price of $1.00, and a quantity equal to the predetermined amount. This includes all labor, equipment and material to complete the described work, place the specified equipment into operation to the satisfaction of the Engineer, the training of specified personnel on use and operation of system, and permissible cost reimbursement to the contractor in accordance with Section 110.03(d) 4.
This service deemed to be "Services by Others" and is being paid in accordance with Section 110.03(d) 4.
Payment will be made based on the following schedule:
• Material Delivery – 50%
• Final Acceptance – 50%

00 - ITEM 9000-0023 - GYPSUM SOIL AMENDMENT

Addendum:

Associated Item(s): 9000-0023

Header:
ITEM 9000-0023 - GYPSUM SOIL AMENDMENT

Provision Body:

In accordance with Section 804, as indicated and as follows

DESCRIPTION – In accordance with Section 804.1 Revise by adding the following:

This work is the furnishing and placement of gypsum to enhance soil permeability in the infiltration areas at the stormwater mitigation sites.

MATERIAL – In accordance with Section 804.2 Revise by adding the following:

(a) SOIL SUPPLEMENTS

1. Pulverized Agricultural Gypsum:

• % Gypsum ($CaSO_4 \cdot 2H_2O$) 95.0

• % Calcium (Ca) 22.1

• % Sulfur (S) 17.6

• % Fineness (Minimum % by mass (weight))

Material Passing No. 100 sieve 100

Material Passing No. 200 sieve 99.4

CONSTRUCTION – In accordance with Section 804.3(c) revise by adding the following:

Apply gypsum to infiltration areas at stormwater mitigation sites as directed. Apply gypsum surficially without tilling and with low pressure bearing manual equipment so as not to compact soils as follows unless otherwise indicated:

• Pulverized Agricultural Gypsum - 1,000 pounds per 1,000 S.Y.

MEASUREMENT AND PAYMENT - Pound

Measured by the number of pounds actually incorporated into the work, at the specified rate .

00 - ITEM 9000-0028 - E&S AND PCSM SUPERVISOR(S)

Addendum:

Associated Item(s): 9000-0028

Header:
ITEM 9000-0028 - E&S AND PCSM SUPERVISOR(S)

Provision Body:

DESCRIPTION- This work is the provision of a designated supervisor to assist PennDOT and the Chester County Conservation District (CCCD) by being responsible for implementation, maintenance, repair, and replacement of erosion and sediment pollution controls and oversight of the critical construction stages of stormwater BMPs.

CONSTRUCTION- Designate a qualified person or persons to: Monitor, report, and maintain records of the condition of the erosion and sedimentation control devices. Direct the installation of erosion and sediment pollution control measures and devices, additional measures and devices, maintenance and repair of existing devices, or replacement of erosion control devices when needed, and as required. Provide engineering oversight during the PCSM plan critical stages of construction, specifically, temporary sediment basins and traps and permanent stormwater management detention basins and mitigation sites.

The individual (s) assigned to this task must be a licensed professional, knowledgeable in the design, implementation, and maintenance of erosion and sediment pollution controls and stormwater management BMPs.

The name (s) of the staff, address, and telephone number where they can be reached at all times must be kept available until acceptance of the entire project by the Department.

MEASUREMENT AND PAYMENT - Hour

00 - ITEM 9000-0029 - VEGETATED ROCK FILL STORMWATER WEIR

Addendum:	3
Associated Item(s):	9000-0029

Header:

ITEM 9000-0029 - VEGETATED ROCK FILL STORMWATER WEIR

Provision Body:

DESCRIPTION - This work is the furnishing of material and installation of vegetated rock fill stormwater weirs. The work also includes excavation to provide a base by placing aggregate; selecting and furnishing of appropriate rock size; placing of concrete median barrier, E.P.D.M sheet membrane, topsoil mixture, erosion control mulch blanket, seeding and soil supplements and shredded bark as indicated for the purpose of stormwater mitigation.

MATERIAL - As indicated and as follows:

a) PRECAST CONCRETE MEDIAN BARRIER. In accordance with Section 714, Revise by

adding; Previously used section in good condition may be used.

b) NO. 57 COARSE AGGREGATE. In accordance with Section 703

c) NO. 1 COARSE AGGREGATE. In accordance with Section 703

d) GEOTEXTILES. In accordance with SECTION 735

e) EROSION CONTROL MULCH BLANKET (ECMB). In accordance with Section 806.2(a)2.:

f) SEEDING AND SOIL SUPPLEMENTS. Formula D, in accordance with Section 804

g) SEEDING. Formula E, in accordance with Section 804

h) ROCK, CLASS R-6. In accordance with Section 850

i) ROCK, CLASS R-4. In accordance with Section 850

j) SAND TOPSOIL MIXTURE. Item No. 9802-0002

k) SHREDDED BARK. In accordance with Section 805.2(a)2.c

l) E.P.D.M. SHEET MEMBRANE. Ethylene propylene diene monomer (E.P.D.M.), 45 mil, 0 .28 psf.

1) Provide E.P.D.M. impervious membrane liner that meets or exceeds the following specifications by ASTM standard test method:

• Color: Gray/Black

• Thickness: 45 mil

• Specific Gravity - ASTM D-297: 1.18 +/- .03

• Tensile Strength - ASTM D-412: 1400 psi (9.6 MPa) min.

• Elongation - ASTM D-412: 300%

• Tear Resistance (Die C) - ASTM D-624: 125 lb./in. min.

• Shore A Hardness (5s) - ASTM D-2240: 60 +/- 10

• Ozone Resistance - ASTM D-1149: No cracks 7 days/100 pphm/104 degrees F/50% Ext.

• Heat Aging (Accelerated) - ASTM D-573: Ten min. 1200 psi 7 days/240 degrees F/Elong. min. 210%.

• Brittleness Temperature - ASTM D-746: -75 degrees F.

• Permeability, Water Vapor - ASTM E-96: 2.0 perm-mils Proc. BW.

2) Acceptable Products:

• Syntec, Division of Carlisle Corporation, P. O. Box 99, Carlisle, PA. 17013, (717) 245-7000.

• Kelly Energy Systems, P. O. Box 2583, Waterbury, CT. 06723.

• Mannville Roofing, Systems Division, 200 North Main Street, Anneville, N.J. 08835.

CONSTRUCTION - As indicated and as follows:

1. Use low ground bearing pressure equipment **(<=4 psi)** for weir construction.

2. Clear and grub areas to be disturbed for weir. Stockpile topsoil for use on Vegetated Rock Fill Stormwater Berms. Apply temporary seed mix to stockpiles immediately.

3. Prepare base of compacted No.57 coarse aggregate for placement of the weir berm. Prepare level base of compacted No. 57 coarse aggregate for placement of the precast concrete median barrier and install barrier to line and grade as shown. Place E.P.D.M. sheet membrane over the length of the concrete median barrier as shown on the Post Construction Stormwater Mitigation Details.

4. Construct weir, place Rock, Class R-4 on base on upstream side of concrete barrier, and choke with No. 57 coarse aggregate, cover with sand topsoil mixture. Place Rock, Class R-6 and geotextiles as shown on downstream side of concrete barrier and choke with No. 1 coarse aggregate. Place Rock, Class R-4 on each side of the weir opening. Scarify disturbed areas adjacent to berm prior to installing shredded bark and riparian tree and shrub plantings. Stabilize immediately with seeding- formula E and seeding and soil supplements-Formula D until appropriate time for final plantings to be placed. Place erosion control mulch blanket or mulch on all exposed slopes and disturbed areas.

MEASUREMENT AND PAYMENT - Linear Foot.

Cost per linear foot to include all work, material, and equipment for excavating; removing unsuitable material; furnishing and placing aggregate, concrete median barrier, E.P.D.M. sheet membrane, topsoil mixture, seeding and soil supplements, geotextiles and ECMB

00 - ITEM 9000-0030 - VEGETATED ROCK FILL BERM

Addendum: 3

Associated Item(s): 9000-0030

Header:
ITEM 9000-0030 - VEGETATED ROCK FILL BERM

Provision Body:
DESCRIPTION - This work is the furnishing of material and installation of vegetated rock fill berms. The work also includes excavation to provide a base by placing aggregate; furnishing of appropriate rock size; placing of topsoil and topsoil mixture, erosion control mulch blanket, seeding and soil supplements and shredded bark as indicated for the purpose of stormwater mitigation.

MATERIAL - As indicated and as follows:

a) NO. 57 COARSE AGGREGATE. In accordance with Section 703

b) TOPSOIL. In accordance with Section 801

c) EROSION CONTROL MULCH BLANKET (ECMB). In accordance with Section 806.2(a)2.

d) SEEDING AND SOIL SUPPLEMENTS. Formula D, in accordance with Section 804

e) SEEDING. Formula E, In accordance with Section 804

f) ROCK, CLASS R-4. In accordance with Section 850

g) SAND TOPSOIL MIXTURE. In accordance with Item No. 9802-0002

h) SHREDDED BARK. In accordance with Section 805.2(a)2.c

CONSTRUCTION - As indicated and as follows:

1. Use low ground bearing pressure equipment **(<=4 psi)** for berm construction.

2. Clear and grub areas to be disturbed for the berm construction. Stockpile topsoil for use on berm at downstream toe of slope. Apply temporary seed mix to stockpiles immediately.

3. Prepare base of compacted No.57 coarse aggregate for placement of the berm.

4. Construct the berm; place Rock; Class R-4 on base and choke with No. 57 coarse aggregate; cover with topsoil; and sand topsoil mixture. Scarify disturbed areas adjacent to berm prior to installing shredded bark and riparian tree and shrub plantings. Stabilize immediately with seeding-formula E and seeding and soil supplement-Formula D until appropriate time for final plantings to be placed. Place erosion control mulch blanket or mulch on all exposed slopes and disturbed areas.

MEASUREMENT AND PAYMENT - Linear Foot.

Cost per linear foot to include all work, material, and equipment for excavating; removing unsuitable material; furnishing and placing aggregate; and topsoil, seeding and soil supplements and ECMB

00 - ITEM 9000-0101 - HEAVE MONITORING, S-24678

Addendum:

Associated Item(s): 9000-0101

Header:
ITEM 9000-0101 - HEAVE MONITORING, S-24678

Provision Body:

DESCRIPTION -

This work includes all labor, materials, and equipment for the fabrication, delivery, and construction of the heave monitoring systems. Heave monitoring systems shall be installed adjacent to the TESPS for Planebrook Road at a maximum of twenty (20) foot spacing. Install the heave monitoring systems on the Planebrook Road side of the Temporary Excavation Support and Protection System (TESPS).

MATERIAL -

• Metal riser pipe, 1 inch outside diameter

• 3/8 inch thick, 2-½ inch diameter steel plate

• Fine Aggregate: Sand, Type A – Section 703

• PVC Schedule 40 protective casing, minimum 3 inch inside diameter (or as indicated)

• Cement grout – Section 0701

CONSTRUCTION -

Auger a maximum 4 inch diameter hole as close as possible to the TESPS for Planebrook Road. Extend the hole a minimum of 2 feet below the bottom of the TESPS as shown in the Heave Monitoring Details. Install a minimum 3 inch inside diameter protective PVC casing pipe to a depth of 2 feet above the bottom of the augered hole. Place packing materials in the annulus of the augered hole and the PVC pipe a minimum of 5 feet below ground surface to prevent grout from falling to the bottom of the augered hole. Grout the annulus of the augered hole and PVC pipe from the packing material to the ground surface (i.e. from a minimum of 5 feet below the ground surface to the ground surface). Weld a 3/8 inch thick x, 2-½ inch diameter steel plate to the 1 inch outside diameter metal riser pipe. Place 6 inch to 1 foot of fine aggregate (Type A sand) in the bottom of the augered hole to level the bottom of the hole. Allow for a minimum space of 1 foot between the bottom of the PVC pipe and the top of the sand. Install the welded plate and riser pipe to the top of the sand and gently tamp to seat the plate on a level surface. Provide lateral support at the top of the monitoring system to keep the metal riser pipe plumb by installing a ring spacer (or other approved spacing mechanism).

Use a laser level, or other approved monitoring system, to continuously monitor (without interruption) the three closest metal riser pipes for ground movement during the grouting operations. Report findings as discussed in the Limited Mobility and Compaction Grouting Special Provision.

Remove monitors to a minimum of 3 feet below final grade after grouting operation is complete.

MEASUREMENT AND PAYMENT - Each.

00 - ITEM 9000-0104, 9000-0105 – INSTALLING AND MONITORING VIBRATING WIRE PIEZOMETER

Addendum:

Associated Item(s): 9000-0104, 9000-0105

Header:

ITEM 9000-0104 – INSTALLING AND MONITORING VIBRATING WIRE PIEZOMETER, S-24744
ITEM 9000-0105 – INSTALLING AND MONITORING VIBRATING WIRE PIEZOMETER, S-26088

Provision Body:

I. DESCRIPTION

This work is providing, installing, monitoring and maintaining a Vibrating Wire (VW) piezometer using borehole installation method and monitoring the VW piezometer for the pore water pressure during compaction grouting at locations shown on the Compaction Grouting Plans. The work includes installing the piezometer in a borehole and monitoring the pore pressure prior to, during, and after compaction grouting operations. Continue piezometer readings for two weeks or until the pore pressure dissipates or as directed by the Engineer.

Contractor can choose to install the VW piezometer according to Grout-In method. Submit installation procedure for grout-in method to Engineer for approval.

II. MATERIAL

Items listed below may change depending upon specific application:

(a) Vibrating Wire Piezometer with a high air entry filter stone and a minimum range of 0 to 50 psi (0 to 3.5 bar)

(b) Readout Equipment

(c) Signal Cable, 4-22g PU Alum Shield

(d) 4 inch (100 mm) minimum diameter protective casing with locking lid

(e) Fine Sand – Type A or C per Pub. 408, Section 703

(f) Bentonite – Pelletized Sodium Bentonite, 0.4 inch (9.5 mm) size

(g) Grout Mix – Sand and Cement Mix per Pub. 222, Section 210

III. CONSTRUCTION

(a) General:

Install a minimum of one (1) VW piezometer at the piezometer locations shown on the Compaction Grouting Plans.

A full-time qualified inspector will be provided by the Engineer to verify the sequence of installation, and make any necessary adjustments to the scope of work. Inform the Engineer one week before the start of VW piezometer installation. Ensure that all installations are clearly marked and protected from possible construction and/or other damage. Replace or repair any damaged component of an installation at the cost of the Contractor. Locate all subsurface utilities and structures prior to the installation of piezometers.

Before each piezometer installation, saturate and calibrate the piezometer, maintain saturation during installation, and provide the calibration results to the Engineer prior to installation.

(b) Installation:

(i) Drill the boring to the depth indicated in the Compaction Grouting Plans or as directed by the Engineer. Do not use drilling mud.

(ii) Upon completion of the boring, circulate clean water until the overflow is clear and free of soil particles.

(iii) Place and tamp clean fine sand (Type A or C) up to 12 inches at the bottom of the borehole.

(iv) Carefully lower the VW piezometer into the casing and position it at the specified depth.

(v) Protect the ends of signal cables so that water cannot enter the cable jacket. Terminate signal cables above ground level at a waterproof box or with waterproof connectors.

(vi) As the casing is being withdrawn, fill (tremie) the annular space between the wall of the boring and the piezometer with fine sand (Type A or C) to a point at least 6 inches above the top of the piezometer or as directed by the Engineer.

(vii) As the casing is withdrawn, place 0.4 inch size bentonite pellets. Drop chips in slowly to ensure proper placement of the seal and to avoid bridging. Keep the borehole filled with water to fully hydrate the bentonite and prevent it from drawing water from the surrounding soil.

(viii) Backfill remainder of the borehole with bentonite-cement raising the casing a distance that does not allow the borehole to cave in.

(ix) Do not allow a space between the casing end and the materials, sand, bentonite and cement grout, as the hole is being filled.

(x) Provide the top of the casing with a threaded galvanized or polyvinyl chloride (PVC) cap. The cap must be easily removable.

(xi) Provide the 4 inch minimum diameter protective casing with locking lid. The lid must be easily removable.

(xii) During withdrawal of the casing, take extreme care as not to damage or pull on the cables.

(xiii) During cold weather, do not allow a water-filled piezometer or a saturated filter to freeze.

(c) Submissions

Submit the following to the Engineer at least 7 days prior to the monitoring operation:

a. Plan showing installed location of the piezometers, piezometer number and type, key elevations, and date installed.

b. Description of readout equipment.

c. Resume'(s) of key monitoring personnel.

(d) Instrument Protection

Maintain and protect all pipes, casings, instruments etc., during construction. Immediately repair or replace any damaged pipe or casing at the cost of the Contractor.

(e) Monitoring

After monitoring well and piezometer installation, record elevation readings prior to the start of compaction grouting. Once compaction grouting begins, take readings continuously during the compaction grouting operation.

IV. MEASUREMENT AND PAYMENT - Each

00 - ITEM 9000-0400 - REMOVE AND RESET EXISTING SOUND BARRIER WALL

Addendum:

Associated Item(s): 9000-0400

Header:
ITEM 9000-0400 - REMOVE AND RESET EXISTING SOUND BARRIER WALL

Provision Body:

DESCRIPTION – This work involves the removal, storage and resetting of existing sound barrier wall panels on new single face roadway barrier as shown on the plans.

MATERIALS – In accordance with Section 1086.2.

CONSTRUCTION – In accordance with Section 1086.3 and as follows:

Cut and remove any caulking or sealent between the panel and the posts. Remove the panels and posts and temporarily store in approved manner. Reset the posts and panels and seal the joint between the panel and the post per Section 705.4(a). Backer rods are required for gaps larger than ¼". Replace all elastomeric bearing pads in kind from a Bulletin 15 approved manufacturer.

Repair any damage to the panels or posts caused during removal, storage or resetting operations of the posts and panels matching the existing post and panel finishes as directed by the Engineer at no additional cost to the Department.

Submit required supporting computations, drawings, and details of the proposed removal scheme, sealed by a Professional Engineer registered in the Commonwealth of Pennsylvania, for approval. The following information is to be submitted:

• Detailed sequence of work coordinated with other work items.

• Size, capacity and positioning of cranes or other removal equipment.

• Storage location.

• Lifting lug analysis as required.

• Lifting operations shall be limited and performed only as required to remove and replace the existing panels as required or as indicated in the Contract Drawings.

Reset post and panels before traffic is shifted on the newly constructed portion of the roadway.

MEASUREMENT AND PAYMENT – Lump Sum. Includes new embedment plates, anchor bolts and associated hardware.

00 - ITEM 9000-0901 - LOCATE, SUPPORT AND PROTECTION OF PENNDOT ITS FIBER OPTIC LINE

Addendum:

Associated Item(s): 9000-0901

Header:
ITEM 9000-0901 - LOCATE, SUPPORT AND PROTECTION OF PENNDOT ITS FIBER OPTIC LINE

Provision Body:

DESCRIPTION – This work is the location, support and protection of the existing PennDOT owned underground ITS fiber optic line and associated electrical utilities prior to the installation and implementation of the proposed fiber optic system. The fiber optic line is the backbone of PennDOT's Intelligent Transportation System (ITS) and must be maintained without interruption.

CONSTRUCTION – Existing utilities are shown on the Contract drawings. The correctness of the information is not guaranteed. The Contractor is responsible for locating existing underground ITS and electrical facilities prior to commencing shoulder excavation, installing temporary sign posts, permanent sign structure foundations, guide rail posts, bridge abutment foundations or prior to any activity that could damage ITS or electrical facilities. Method of locating underground facilities is at the discretion of the Contractor.

Record field verification locations of PennDOT facilities on a plan set for use and reference by the Representative during the duration of the contract.

When fiber optic support and protection is required, submit a method and plan for supporting and protecting the PennDOT fiber optic line to the Representative for review and approval.

Do not cut and/or splice the fiber optic cable.

Do not exceed the fiber manufacturer's specified maximum pulling tension or maximum bending radius when handling the fiber optic cable.

Repair and/or replace, within 12 hours, ITS or electrical facilities that are damaged by construction activities at no additional cost to the Department.

Protection of Utilities and Other Existing Facilities – In accordance with Section 105.06, 107.12 and as follows:

Ascertain and locate any existing utilities, including highway lighting, and other facilities in the vicinity of the project area, and take all precautions to fully protect the utility and service. Prior to performing any work in the vicinity of an underground or overhead line, advise the utility company at least 72 hours advance of initiating work. Provide all measures for protection in accordance with the National Electric Safety Code & the Occupational Safety and Health Administration's Regulations and as deemed necessary by the utility company with the Engineer's concurrence. Coordinate protection and relocation of utilities with the utility company. Contact the Pennsylvania One Call System at 1-800-242-1776 for all utilities prior to starting work. The Contractor's attention is directed to the Provisions of Act 172, enacted December 1986 by the General Assembly of the Commonwealth of PA, amended by the provisions of Act 38, and approved by the Governor, which, specified the Contractor's responsibilities in regard to public health and safety during excavation operations in areas of underground utilities.

MEASUREMENT AND PAYMENT – Lump Sum

00 - ITEM 9000-0902 - TEMP. RELOCATION, MAINT. AND REINSTALLATION OF TRAFFIC SIGNAL PRE-EMPTION LINE

Addendum:

Associated Item(s): 9000-0902

Header:

ITEM 9000-0902 - TEMPORARY RELOCATION, MAINTENANCE AND REINSTALLATION OF TRAFFIC SIGNAL PRE-EMPTION LINE

Provision Body:

DESCRIPTION – This work is the temporary relocation, maintenance and reinstallation of the traffic signal pre-emption system attached to the abutment at the Planebrook Road Bridge.The pre-emption system must be maintained and fully functional during construction with limited interruption.

CONSTRUCTION – Prior to commencement of work on the abutment foundation, submit a method and plan for supporting and protecting the traffic signal pre-emption system to the Engineer for review and approval.

Do not cut and/or splice the cable.

Do not exceed the manufacturer's specified maximum pulling tension or maximum bending radius when handling the cable.

Do not damage the cable, other utilities or any bridge components.Repair any damages at no additional cost to the Department.

Protection of Utilities and Other Existing Facilities – In accordance with Section 105.06, 107.12 and as follows:

Ascertain and locate any existing utilities, including highway lighting, and other facilities in the vicinity of the project area, and take all precautions to fully protect the utility and service.Prior to performing any work in the vicinity of an underground or overhead line, advise the utility company at least 72 hours advance of initiating work.Provide all measures for protection in accordance with the National Electric Safety Code & the Occupational Safety and Health Administration's Regulations and as deemed necessary by the utility company with the Engineer's concurrence. Coordinate protection and relocation of utilities with the utility company. Contact the Pennsylvania One Call System at 1-800-242-1776 for all utilities prior to starting work. The Contractor's attention is directed to the Provisions of Act 172, enacted December 1986 by the General Assembly of the Commonwealth of PA, amended by the provisions of Act 38, and approved by the Governor, which, specified the Contractor's responsibilities in regard to public health and safety during excavation operations in areas of underground utilities.

MEASUREMENT AND PAYMENT – Lump Sum

00 - ITEM 9000-0950 - STEEL DRY STANDPIPE

Addendum:

Associated Item(s): 9000-0950

Header:
ITEM 9000-0950 - STEEL DRY STANDPIPE

Provision Body:

DESCRIPTION – This work is the furnishing and installing of Steel Dry Standpipes of the size and type at the locations indicated on the Contract Drawings for S-24678.

MATERIAL –

(a)Steel Pipe – ASTM A 53 Schedule 40, Grade B, Fy = 35000 psi

(b)Structural Steel – Section 1105

(c)Galvanizing – Section 1105.02(s)

(d)Welding – Section 1105.02(t); Use AASHTO/AWS/D1.1-20024 for welding not covered in AASHTO/AWS D1.5-2002

(e)Adhesive Anchors – Section 516.2(k)

The anchors shown on the Contract Drawings were designed using the capacities provided by Hilti HVA HAS Super Anchors.The adhesive anchoring system chosen is to provide the design capacities listed below when embedded in concrete with 28- day strength f'c of 3000 psi:

Allowable Bond/Concrete Capacity:

Tensile – 8 kips

Shear – 10 kips

Do not mix anchoring systems within one bridge structure.

Provide completely threaded and galvanized anchors of the diameter indicated, conforming to ASTM A 193, Grade B7, or approved equal.Use ASTM A 563, Grade DH nuts and ASTM F436 washers.

(f)Other steel shapes – AASHTO M 270, Grade 36 (ASTM A 709, Grade 36) and Section1105

(g)U-bolts, nuts and washers – Section 1105.02(c)

Line all internal surface parts with a minimum of 15 mils of fusion bonded epoxy conforming to the applicable requirements of ANSI/AWWA C 213.Perform a holiday test with a 1500 volt spark test conforming to said specification.

Coat all external surfaces with a catalyzed coal tar epoxy conforming to material requirements of AWWA C 210.

CONSTRUCTION –

(a)Standpipe – Fabricate Steel Dry Standpipes of the size indicated on the Contract Drawings.Provide Storz connection at each end of standpipe with size and configuration indicated on the Contract Drawings.Galvanize all fabricated structural steel including interior surfaces of standpipes, angles, anchor bolts and bolt hardware.

Connections between standpipe and the supports may be shop welded or field welded as required for ease of installation.

(b)Adhesive Anchor Bolts – Field drill holes and install anchor bolts in accordance with manufacturer's recommendations at the locations shown on the Contract Drawings.Field verify all the dimensions; locate and field adjust anchor bolts as necessary to clear the reinforcing steel in the structure.Use pachometer to locate reinforcing bars in structure prior to drilling of holes for installation of anchor bolts.

MEASUREMENT AND PAYMENT –Lump Sum.

00 - ITEM 9000-1000 – CONCRETE FOR UTILITY CONSTRUCTION

Addendum:

Associated Item(s): 9000-1000

Header:
ITEM 9000-1000 – CONCRETE FOR UTILITY CONSTRUCTION

Provision Body:

DESCRIPTION – This work is placing concrete for utility construction.

MATERIALS –

(a)Cement Concrete: Class A, Section 704

CONSTRUCTION –

(a)General: Section 1001, as indicated, and as follows.

(b) Anchorage for Bends: Place concrete reaction backing at tees and bends deflecting 11.25 degrees or more to prevent movement where unbalanced forces exist.

Place concrete between solid ground and the fitting to be anchored; provide the area of bearing on the pipe and on the ground in each instance or as directed by the Engineer. Unless otherwise indicated or directed, place concrete so that the pipe and fitting joints are accessible for repair. Protect steel against corrosion. Apply bituminous coating or encase with 8- mil- thick loose polyethylene film, AWWA C1-5. Grease steel prior to installing polyethylene.

(c)End Cap: Fill end of pipe with concrete.

(d) Plug Pipe: Provide mechanical joint pipe plug with concrete reaction backing.

(e) Encasement: Place concrete around new pipeline as indicated.

MEASUREMENT AND PAYMENT – Cubic Yard

00 - ITEM 9000-1010 – REINFORCED CONCRETE ENCASEMENT OF EXISTING VERIZON LINE

Addendum:

Associated Item(s): 9000-1010

Header:
ITEM 9000-1010 – REINFORCED CONCRETE ENCASEMENT OF EXISTING VERIZON LINE

Provision Body:
DESCRIPTION – This work is the construction of a reinforced concrete encasement around existing underground Verizon line along Planebrook Road at the places where cover is insufficient as directed by the Engineer.
MATERIAL –
Section 1001.2 and 1002.2
CONSTRUCTION –
Section 1001.3, 1002.3, as indicated, and as follows.
Excavate around the facility to determine its depth.Contact Verizon (Dan Bauman at 610-793-6017) and the Engineer to determine the necessity of encasement to existing facility.Excavation and backfilling to expose the Verizon line will be covered under this work.
Submit shop drawings of the reinforced concrete encasement to accommodate construction loading for approval prior to construction.The Department is not responsible for work done without approved shop drawings.
Contact the appropriate facility owner prior to construction to arrange for inspection of this work and inform the Engineer.
MEASUREMENT AND PAYMENT – Dollar.Section 110.03

00 - ITEM 9000-2020 - PERMANENT RIGHT OF WAY MONUMENTS

Addendum:

Associated Item(s): 9000-2020

Header:
ITEM 9000-2020 - PERMANENT RIGHT OF WAY MONUMENTS

Provision Body:

DESCRIPTION - This work is furnishing and accurately installing permanent right of way monuments at the locations directed throughout the length of the project.

MATERIAL - Provide an approved monument having a minimum length of 20 inches and a 3-inch minimum diameter brass cap with a punch hole denoting the exact location of the corner. Stamp each cap with the appropriate centerline station and offset.

Beside each monument furnish and install an approved 5-foot-high fiberglass witness post.

CONSTRUCTION – Construct the right of way monuments according to the applicable parts of Section 686.3 as indicated or directed and as follows:

Have this work performed by a surveyor registered in the Commonwealth of Pennsylvania.

After monuments are set, submit to the District's Chief of Surveys for approval a drawing, signed and certified by a registered surveyor, showing the location of each monument in relation to other monuments, horizontal coordinates for each monument, centerline station and offset for each, and a statement verifying these locations. Error of closure for any traverses used and complete perimeter encompassing all set monuments to be no less than 1 part in 10,000.

MEASUREMENT AND PAYMENT - Each.

00 - ITEM 9005-0530 - STEEL BEAM PILE, HP 12X84

Addendum:

Associated Item(s): 9005-0530

Header:
ITEM 9005-0530 - STEEL BEAM PILE, HP 12X84

Provision Body:
In accordance with Section 1005

00 - ITEM 9006-0001 - INJECTION HOLE DRILLING

Addendum:

Associated Item(s): 9006-0001

Header:
ITEM 9006-0001 - INJECTION HOLE DRILLING

Provision Body:

DESCRIPTION – This work is drilling associated with the Limited Mobility Grouting activities.

MATERIAL –

(a) Casing Pipe

CONSTRUCTION –

In accordance with the project special provision titled Limited Mobility Grouting.Drill holes as directed by the Engineer using 3” riser pipes a minimum of 10’ into rock.

MEASUREMENT AND PAYMENT – Linear Foot

00 - ITEM 9006-0002 THRU 9006-0004 - VERIFICATION DRILLING

Addendum: 3

Associated Item(s): 9006-0002, 9006-0003, 9006-0004

Header:

ITEM 9006-0002 – VERIFICATION DRILLING IN SOIL – UNSAMPLED
ITEM 9006-0003 –VERIFICATION DRILLING IN SOIL – SAMPLED
ITEM 9006-0004 –VERIFICATION DRILLING IN ROCK/GROUT – RECOVERABLE CORE

Provision Body:

DESCRIPTION –
This work is the unsampled soil drilling (Structure S-24678 only), Standard Penetration Test (SPT) soil verification, and rock and grout coring for recovery verification at secondary grout hole locations as required by the LIMITED MOBILITY AND COMPACTION GROUTING FOR BRIDGE STRUCTURES ~~Limited Mobility and/or Compaction Grouting~~ Special Provisions and/or as selected by the Engineer.
CONSTRUCTION -
S-24678
Once the primary hole grouting operations are complete, perform secondary hole grouting operations upon approval by the Engineer. At locations where grout takes in secondary holes exceed an average of 3 cubic feet per foot, perform verification drilling in the surrounding secondary holes prior to injection hole drilling and limited mobility and compaction grouting, unless otherwise directed by the Engineer. Notify PennDOT a minimum of 48 hours prior to commencing verification hole drilling operations to allow PennDOT to supply a PennDOT certified drilling inspector. Unsampled verification drilling in soil includes the required drilling through subbase (No. OGS) to the bottom of the excavation. Sampled verification drilling in soil includes sampling soil below the bottom of excavation using SPT to the top of rock in accordance with Pub. 222, Section 202. SPT blow counts shall indicate an average of 13 blows/foot or greater. In areas where the SPT requirement is not met, perform limited mobility and/or compaction grouting in accordance with the LIMITED MOBILITY AND COMPACTION GROUTING FOR BRIDGE STRUCTURES Special Provision at the verification hole location, ~~drill and grout tertiary holes,~~ unless otherwise directed by the Engineer. Verification drilling in rock includes sampling rock from the top of rock to a minimum of 5 feet into rock in accordance with Pub. 222, Section 204. Extend grouting operations 10 feet into rock at locations where shallow voids (within 5 feet of top of rock) are identified during the grouting operations. Provide diamond core drilling as directed in accordance with Pub. 222, Sections 202 & 204. Drill through the rock/grout using a split inner barrel to recover as much rock/grout as possible. Recovery shall indicate a minimum of 80%. In areas where the recovery requirement is not met, perform limited mobility and/or compaction grouting in accordance with the LIMITED MOBILITY AND COMPACTION GROUTING FOR BRIDGE STRUCTURES Special Provision at the verification hole location, ~~drill and grout tertiary holes,~~ unless otherwise directed by the Engineer. In areas where the SPT and rock recovery requirements are met, backfill the verification hole in accordance with Pub. 222, Section 210, unless otherwise directed by the Engineer. All verification holes shall be performed by a PennDOT prequalified drilling contractor as specified in Pub. 222.
S-24744 & S26088
Once the primary hole grouting operations are complete, perform secondary hole grouting operations upon approval by the Engineer. At locations where grout takes in secondary holes exceed an average of 3 cubic feet per foot, perform verification drilling in the surrounding secondary holes prior to injection hole drilling and compaction grouting, unless otherwise directed by the Engineer. Notify PennDOT a minimum of 48 hours prior to commencing verification hole drilling operations to allow PennDOT to supply a PennDOT certified drilling inspector. Verification drilling in soil includes sampling soil below the proposed bottom of Class C concrete mudslab using SPT to a depth of 2B below the bottom of the proposed Class C concrete mudslab in accordance with Pub. 222, Section 202. SPT blow counts shall

indicate an average of 13 blows/foot or greater. In areas where the SPT requirement is not met, perform limited mobility and/or compaction grouting in accordance with the LIMITED MOBILITY AND COMPACTION GROUTING FOR BRIDGE STRUCTURES Special Provision at the verification hole location, ~~drill and grout tertiary holes,~~ unless otherwise directed by the Engineer. If rock is encountered within a depth of 2B from the proposed bottom of Class C concrete mudslab, provide diamond core drilling as directed in accordance with Pub. 222, Sections 202 & 204. Sample the top 5 feet of rock in accordance with Pub. 222, Section 204. Drill through the rock/grout using a split inner barrel to recover as much rock/grout as possible. Recovery shall indicate a minimum of 80%. In areas where the recovery requirement is not met, perform limited mobility and/or compaction grouting in accordance with the LIMITED MOBILITY AND COMPACTION GROUTING FOR BRIDGE STRUCTURES Special Provision at the verification hole location, ~~drill and grout tertiary holes,~~ unless otherwise directed by the Engineer. In areas where the SPT and rock recovery requirements are met, backfill the verification hole in accordance with Pub. 222, Section 210, unless otherwise directed by the Engineer. All verification holes shall be performed by a PennDOT prequalified drilling contractor as specified in Pub. 222.

MEASUREMENT AND PAYMENT – Linear Foot

Payment for backfilling verification holes with grout in accordance with Pub. 222, Section 210, is incidental to ITEM 9006-0002 THRU 9006-0004 - VERIFICATION DRILLING.

Payment for Verification Drilling Mobilization is incidental to ITEM 9006-0700, 9006-0701 & 9006-0702, MOBILIZATION FOR GROUTING.

00 - ITEM 9006-0206 & 9006-0306 - DRILLED CAISSONS

Addendum:

Associated Item(s): 9006-0206, 9006-0306

Header:

9006-0206 – 30” DIAMETER DRILLED CAISSON, SHAFT SECTION IN SOIL, MODIFIED
9006-0306 – 30” DIAMETER DRILLED CAISSON, SHAFT SECTION IN ROCK, MODIFIED

Provision Body:

DESCRIPTION – In accordance with Section 1006.1 as applicable and as follows:

This work is construction of unreinforced cement concrete drilled caisson foundations consisting of shaft sections in soil and rock with steel shell left in place and steel H-piles.

MATERIAL – In accordance with Section 1006.2.

CONSTRUCTION – In accordance with Section 1006.3 and in accordance with the contract plans.

MEASUREMENT AND PAYMENT – Linear Foot.

ITEM 9006-0206 – 30” Diameter Drilled Caisson, Shaft Section in Soil, Modified

Measured from the shaft top to the top of rock stratum.

ITEM 9006-0306 – 30” Diameter Drilled Caisson, Shaft Section in Rock, Modified

Measured from the top of rock stratum to the top of competent rock.

00 - ITEM 9006-0234 - 66" DIAMETER DRILLED CAISSONS, SHAFT SECTION

Addendum:

Associated Item(s): 9006-0234

Header:
ITEM 9006-0234 - 66" DIAMETER DRILLED CAISSONS, SHAFT SECTION

Provision Body:

In accordance with Section 1006.

00 - ITEM 9006-0612 & 9006-0632 - PROBE HOLES

Addendum:

Associated Item(s): 9006-0612, 9006-0632

Header:
9006-0612 – PROBE HOLES IN SOIL – UNSAMPLED
9006-0632 – PROBE HOLES IN ROCK/GROUT – RECOVERABLE CORE

Provision Body:
DESCRIPTION -

This work is the unsampled probe hole drilling in soil and rock/grout coring for recovery verification of competent rock at S-24678.

CONSTRUCTION -

After limited mobility and compaction grouting operations have been completed, drill probe holes at each drilled caisson location. Drill probe holes with diamond core drilling to determine the rock quality in terms of recovery and RQD using a split inner barrel in accordance with PennDOT Publication 222, Sections 202 & 204. Advance all probe holes 10 feet into rock until a minimum average of 80% recovery and 45% RQD are found with no voids for a depth of 10 feet and/or 10 feet below the predetermined bottom of caisson elevation (BCE) to confirm the BCE is on competent rock, whichever is lower in elevation. Final BCE is to be on top of competent rock. All probe holes are to be grouted in accordance with Publication 222, Chapter 5D, Section 210.

An approved driller in accordance with PennDOT Publication 222 is required.

MEASUREMENT AND PAYMENT – Linear Foot.

00 - ITEM 9006-0700, 9006-0701 & 9006-0702, MOBILIZATION FOR GROUTING

Addendum:

Associated Item(s): 9006-0700, 9006-0701, 9006-0702

Header:
ITEM 9006-0700 – MOBILIZATION FOR GROUTING, S-24678
ITEM 9006-0701 – MOBILIZATION FOR GROUTING, S-24744
ITEM 9006-0702 – MOBILIZATION FOR GROUTING, S-26088

Provision Body:
DESCRIPTION – This work is mobilization associated with Limited Mobility and Compaction Grouting activities.

MATERIAL – In accordance with Section 608.

CONSTRUCTION – In accordance with Section 608.

MEASUREMENT AND PAYMENT

ITEM 9006-0700 – MOBILIZATION FOR GROUTING, S-24678 – Lump Sum.

ITEM 9006-0701 – MOBILIZATION FOR GROUTING, S-24744 – Lump Sum.

ITEM 9006-0702 – MOBILIZATION FOR GROUTING, S-26088 – Lump Sum.

00 - ITEM 9018-0001 REMOVAL OF PORTION OF EXISTING SIGN STRUCTURE

Addendum: 4

Associated Item(s): 9018-0001

Header:
ITEM 9018-0001 REMOVAL OF PORTION OF EXISTING SIGN STRUCTURE

Provision Body:
DESCRIPTION – This work is the removal and disposal of existing sign structures as shown on the Signing and Sign Lighting Plans and as follows:

SR 0202 Southbound Overhead Structure, Sta 252+50

MATERIAL – In accordance with Section 1018.2

CONSTRUCTION – In accordance with Section 201.3, 948.3 and 1018.3 and as follows:

Submit a plan, drawings and details for removal of the existing sign structure, sealed by a Professional Engineer registered in the Commonwealth of Pennsylvania, for approval. The following information is to be submitted:

• Sequence of work coordinated with other work items.

• Size, capacity and positioning of cranes or other removal equipment.

• Calculations verifying the stability of all materials to be lifted by cranes or other equipment.

Do not proceed with removal work until the plan has been reviewed and approved, and the Department's representative is on site.

Maintain traffic in accordance with the traffic control plan restrictions for short term lane closures and traffic stoppages.

Remove debris caused by the removal operations to the satisfaction of the Engineer.

Remove existing sign structures sign panels and associated hardware. Remove pedestal to a minimum of 3 foot below final grade. Return excavated area to existing pavement material and repair as required or directed upon completion of the pedestal removal. Removal of sign structure includes removal of signs structure panels, base plates and associated hardware.

The contractor must handle, process, and recycle this scrap metal in accordance with federal law (including 40 CFR 261) and state regulations (including Section 25 PA Code 260).

Satisfactorily dispose of all materials removed.

MEASUREMENT AND PAYMENT – Lump Sum

00 - ITEM 9086-0500 & 9000-0600 - REMOVE AND RESET SOUND BARRIER WALL

Addendum:

Associated Item(s): 9086-0500, 9086-0600

Header:

ITEM 9086-0500 – REMOVE AND RESET GROUND MOUNTED SOUND BARRIER WALL
ITEM 9086-0600 – REMOVE AND RESET STRUCTURE MOUNTED SOUND BARRIER WALL

Provision Body:

DESCRIPTION – This work involves the removal, storage and resetting of existing ground mounted and structure mounted sound barrier wall panels and posts as necessary for the reconstruction of the Planebrook Road Bridge, S-24678, as shown on the plans. This work also involves the replacement of drilled caisson foundations for ground mounted sound barrier wall posts where foundation removal is necessary to construct the bridge.

MATERIALS – In accordance with Section 1086.2.

CONSTRUCTION – In accordance with Section 1086.3 and as follows:

Cut and remove any caulking or sealent between the panel and the posts. Remove the panels and posts and temporarily store in approved manner. Reset the posts and panels and seal the joint between the panel and the post per Section 705.4(a). Backer rods are required for gaps larger than ¼". Replace all elastomeric bearing pads in kind from a Bulletin 15 approved manufacturer.

Repair any damage to the panels or posts caused during removal, storage or resetting operations of the posts and panels matching the existing post and panel finishes as directed by the Engineer at no additional cost to the Department.

Submit required supporting computations, drawings, and details of the proposed removal scheme, sealed by a Professional Engineer registered in the Commonwealth of Pennsylvania, for approval. The following information is to be submitted:

• Detailed sequence of work coordinated with other work items.

• Size, capacity and positioning of cranes or other removal equipment.

• Storage location.

• Lifting lug analysis as required.

• Lifting operations shall be limited and performed only as required to remove and replace the existing panels as required or as indicated in the Contract Drawings.

Reset post and panels before traffic is shifted on the newly constructed portion of the bridge.

MEASUREMENT AND PAYMENT – Linear Foot

Item 9086-0500 – Remove and Reset Ground Mounted Sound Barrier Wall

Includes excavation, drilled caisson foundations, new embedment plates, anchor bolts and associated hardware and disposal of panels, posts and hardware not to be reused.

Item 9086-0600 – Remove and Reset Structure Mounted Sound Barrier Wall

Includes new embedment plates, anchor bolts and associated hardware and disposal of panels, posts and hardware not to be reused.

00 - ITEM 9091-0335, 9091-0336 – EPOXY INJECTION CRACK SEAL

Addendum:

Associated Item(s): 9091-0335, 9091-0336

Header:
ITEM 9091-0335 – EPOXY INJECTION CRACK SEAL, S-24678
ITEM 9091-0336 – EPOXY INJECTION CRACK SEAL, S-26088

Provision Body:

DESCRIPTION – In accordance with Section 1091.1.

MATERIAL – In accordance with Section 1091.2.

CONSTRUCTION – In accordance with Section 1091.3.

MEASUREMENT AND PAYMENT – Dollar.

00 - ITEM 9100-0001 - TEMPORARY SHEETING/COFFERDAM (CULVERT C-2)

Addendum:

Associated Item(s): 9100-0001

Header:
ITEM 9100-0001 - TEMPORARY SHEETING/COFFERDAM (CULVERT C-2)

Provision Body:

DESCRIPTION – This is the construction, installation, maintenance, and removal of a sheetpile cofferdam system to temporarily divert the existing stream around the in-channel staged work area.

MATERIAL -

For used steel, the salvage design values from AASHTO Guide Design Specification for Bridge Temporary Works (AASHTO Guide Spec) may be used as an alternate to testing to determine grade of steel. Materials need not be new but must be in serviceable condition as determined by the Engineer. Temporary material used does not have to be from a Bulletin 15 source, but must meet the following:

a) Structural Steel..... …..AASHTO M 270M/ 270 (ASTM A709M/ A709) Grade 250 (Grade 36), Grade 345 (Grade 50) or Grade 345W (Grade 50W)

b) Steel Sheet Piling....……ASTM A328M/A328, ASTM A572M/A572

c) Steel H-Piles.....….....AASHTO M 270M/270 (ASTM A709M/A709), Grade 250(Grade 36)

d) Wood Lagging....….....Rough Cut Species in AASHTO Guide Spec, Appendix A and AASHTO Construction Handbook for Bridge Temporary Works Appendix C

e) Cement.....…….....AASHTO M85 and AASHTO M240

f) Pre-Stressing Steel.....ASTM A416 Grade 270

g) Welded Wire Fabric.....AASHTO A55 (ASTM A185)

h) Reinforcement Bars.....AASHTO M 31M/31 (ASTM A615M/A615), AASHTO M42M/M42 (ASTMA616M/A616), Grade420 (Grade 60)

i) Other Material.....In accordance with applicable Sections of Publication 408

CONSTRUCTION –

1) GENERAL.

a. Maintain the continuous flow of the stream within the limits of this contract.

b. Complete cofferdam placement during low flow conditions.

c. Ensure that in-channel work area remains dry at all times.

d. Contractor to obtain CCCD/DEP approval for all construction methods not outlined on approved plans. Comply with all federal, state, and local codes and regulations related to the cofferdam system

2) PROCEDURES.

a. Place sheeting into existing streambed. Ensure at least 1 foot of sheeting remains exposed above the stream elevation.

b. Dewater work areas as needed for culvert and wingwall replacement, repair, and cleaning. Contractor is responsible for any spills of water that occur due to failing to maintain the temporary bypass system.

c. Assure the temporary bypass system remains operable until receipt of written acceptance of this work. Remove all components of the cofferdam system and restore disturbed area to original condition as directed.

MEASUREMENT AND PAYMENT - Each.

00 - ITEM 9100-0002 - TEMPORARY SANDBAG COFFERDAM

Addendum:

Associated Item(s): 9100-0002

Header:

ITEM 9100-0002 - TEMPORARY SANDBAG COFFERDAM

Provision Body:

DESCRIPTION – This is the construction, installation, maintenance, and removal of a sandbag cofferdam system to temporarily divert the existing stream around the in-channel staged work area.

MATERIAL -

a) Sandbag Cofferdam.

b) 6 Mil Polyethylene Liner

c) 30” Bypass Pipe. Item no. 0601-0317.

d) Rock, Class R-5. Item no. 0850-0023.

e) Geotextile, Class 2, Type B. Item no. 0212-0003

CONSTRUCTION –

1) GENERAL.

a. Maintain the continuous flow of the stream within the limits of this contract.

b. Complete cofferdam placement during low flow conditions.

c. Ensure that in-channel work area remains dry at all times.

d. Remove cofferdam at least 6 hours prior to any anticipated storm event.

e. Contractor to obtain CCCD/DEP approval for all construction methods not outlined on approved plans. Comply with all federal, state, and local codes and regulations related to the cofferdam system

2) PROCEDURES.

a. Install downstream rock energy dissipater and 30” bypass pipe.

b. Place sandbags cofferdam. Weave polyethylene liner through sandbags as indicated to ensure stability and impermeability of the cofferdam

c. Dewater work areas as needed for culvert patching, repair, and cleaning. Contractor is responsible for any spills of water that occur due to failing to maintain the temporary bypass system.

d. Assure the temporary bypass system remains operable until receipt of written acceptance of this work. Remove all components of the cofferdam system and restore disturbed area to original condition as directed.

MEASUREMENT AND PAYMENT - Each

I2032C - ITEM 9203-0101, 9203-0102, 9203-0103, 9203-0104 & 9203-0105 - TEMP EXC SUPPORT AND PROT SYSTEM

Addendum:

Associated Item(s): 9203-0101, 9203-0102, 9203-0103, 9203-0104, 9203-0105

Header:

ITEM 9203-0101 - TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM, S-31865
ITEM 9203-0102 - TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM, S-24678
ITEM 9203-0103 - TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM, S-26620
ITEM 9203-0104 - TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM, S-24744
ITEM 9203-0105 - TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM, S-26088

Provision Body:

I. DESCRIPTION - This work is the design and construction of a temporary excavation support and protection system or appropriately designed open cut excavation, as indicated, with a service life of less than or equal to 36 months.

II. MATERIAL - Provide certification or laboratory test results verifying material properties. For used steel, the salvage design values from AASHTO Guide Design Specification for Bridge Temporary Works (AASHTO Guide Spec) may be used as an alternate to testing to determine grade of steel. Materials need not be new but must be in serviceable condition as determined by the Engineer. Temporary material used does not have to be from a Bulletin 15 source, but must meet the following:

- Structural Steel.....….....AASHTO M 270M/270 (ASTM A709M/A709) Grade 250(Grade 36), Grade 345(Grade 50) or Grade 345W(Grade 50W)
- Steel Sheet Piling....….. .....ASTM A328M/A328, ASTM A572M/A572
- Steel H-Piles.....….. .....AASHTO M 270M/270 (ASTM A709M/A709), Grade 250(Grade 36)
- Wood Lagging....…..... ...Rough Cut Species in AASHTO Guide Spec Appendix A and AASHTO Construction Handbook for Bridge Temporary Works Appendix C
- Cement.....…….....AASHTO M85 and AASHTO M240
- Pre-Stressing Steel...….. .ASTM A416 Grade 270
- Welded Wire Fabric..... ..AASHTO A55 (ASTM A185)
- Reinforcement Bars..... ....AASHTO M 31M/31 (ASTM A615M/A615), AASHTO M42M/M42 (ASTMA616M/A616),Grade420(Grade 60)
- Other Material....….....In accordance with applicable Sections of Publication 408

III. DESIGN - Design the temporary excavation support and protection system in accordance with current AASHTO LRFD Bridge Design Specifications and Design Manual, Part 4 (Metric) Specifications, current FHWA guidelines and AASHTO Guide Spec. Design temporary excavation support and protection system for final condition and all construction conditions, including surcharge loads due to vehicle traffic and construction equipment. Submit 4 sets of design calculations and 4 sets of completed detailed drawings, signed and sealed by a Professional Engineer, registered in the Commonwealth of Pennsylvania to the District Executive for review. Include in the design calculations all material properties, design loads, and design assumptions. Include on the completed detailed drawings all design dimensions, limits of work, elevations, material, member sizes and construction sequence. Provide cutoff elevation of steel and wooden components for work in streambed. Include specific installation procedures and testing requirements as part of the submittal. Allow 14 days for the review by the Department.

Ensure that temporary excavation support and protection system design and construction conforms to the following:

a) Open cut excavations are allowed, provided they meet OSHA requirements, the safety of the traveling public, the approved traffic control plan and existing structure is assured, and they stay within the legal right-of-way lines. Cuts can extend beyond legal right- of- way lines only with the written approval of the Department and written permission of the property owners. Ensure environmental compliance if cut extends beyond area cleared by the Department. Submit slope stability analysis in accordance with Publication 293.

b) The temporary excavation support and protection system will be selected by the Contractor. Examples include anchored walls, mechanically stabilized earth walls, prefabricated modular walls, cantilever walls, cofferdams, and soil nailing walls. These systems may be comprised of one or more of the following: Soldier Piles, Timber Lagging, Steel Sheet Piling, Caissons, Slurry Walls, Tiebacks, Soil Nails, Shotcrete, Deadman Anchors, Wales, Cross lot Bracing, Raker Braces, Precast Concrete, Precast Lagging, Soil Cement Lagging, Cement Bentonite, Gabions, Minipiles, Concrete Reaction Blocks, Mechanically Stabilized Earth Walls or other methods.

c) Design temporary excavation support and protection system based on the following parameters:

1. Soil parameters (***see Project Specific Details for following parameters***):

1.a Effective angle of friction _____

1.b Moist unit weight of soil _____

1.c Saturated unit weight of soil _____

1.d Effective cohesion _____

1.e Static groundwater level at elevation _____

1.f Undrained shear strength of cohesive soil_____

1.g Shear strength for rock mass_____

Provide other soil/rock properties with test data, needed in the design of the temporary excavation support and protection system.

2. Ensure that all components stay within the legal right-of-way unless an easement is obtained by the Contractor.

IV. CONSTRUCTION - Install temporary excavation support and protection system in accordance with applicable sections of Publication 408. Be responsible for adequacy, safety and compliance with Traffic Control Plan. If the design is not compliant with the approved Traffic Control Plan, furnish any additional traffic control devices at no additional cost to the Department. All steel and wooden components may remain in place to pavement subgrade or 0.6 meters(2 feet) below finish grade,whichever is higher elevation. Treated wood is not required unless it is within 2 meters(6 feet) of finish grade and is to remain in place. Pressure treat with chromate copper arsenate (CCA) to refusal. Finish grade is defined as top of pavement when a roadway is behind the temporary excavation support and protection system. Have a Professional Engineer, registered in the Commonwealth of Pennsylvania, certify that the temporary excavation support system or open cut excavation has been installed as shown on the Professional Engineer's signed and sealed drawings. Submit the certification to the Representative within 3 working days of completion of the system.

V. QUALIFICATIONS - The work must be supervised by a superintendent or foreman who is experienced, in the construction of temporary excavation support and protection system proposed. If the design height of the temporary excavation support and protection system exceeds 6 meters(20 feet), provide the following with the design submission:

- For the superintendent or foreman who will supervise the work, submit a list containing at least 5 projects which demonstrate a minimum of 3 years experience in the construction of the temporary excavation support and protection system proposed. Include a brief description of each project and the name and phone number of the owner's representative knowledgeable in each project listed.
- The name of the Professional Engineer, registered in the Commonwealth of Pennsylvania and having at least 3 years experience in the design and construction of temporary excavation support and protection systems, who will design and specify the sequence of construction of the temporary excavation support and protection of system.

VI. MEASUREMENT AND PAYMENT - Lump Sum.

This item will be measured and paid for in a proportionate manner, designated by the Department.

If an acceptable open cut excavation is provided in lieu of the temporary excavation support indicated, payment will be made for the as-bid lump sum temporary excavation support item, but no additional payment will be made for any class of excavation, structure backfill or additional shoring as a result of the open cut excavation or to restore the facilities to their original condition.

Project Specific Details:

The Soil Parameters as indicated in para II. (b) 1. are:
S-31865
1.a Effective angle of friction: (31 degrees)
1.b Moist unit weight of soil: (115 pcf)
1.c Saturated unit weight of soil: (120 pcf)
1.d Effective cohesion: (0 psf)
1.e Static groundwater level at elevation: (at the existing ground surface)
1.f Undrained shear strength of cohesive soil: (0 psf)
1.g Shear strength of rock mass: (12 tsf)
S-24678
1.a Effective angle of friction: (30 degrees)
1.b Moist unit weight of soil: (120 pcf) (For intact bedrock, 172.9 pcf)
1.c Saturated unit weight of soil: (125 pcf) (For intact bedrock, 172.9 pcf)

1.d Effective cohesion: (0 psf)
1.e Static groundwater level at elevation: (Varies between elevations 329 and 337)
1.f Undrained shear strength of cohesive soil: (N/A)
1.g Shear strength of rock mass: (1 tsf)
S-26220
1.a Effective angle of friction: (30 degrees)
1.b Moist unit weight of soil: (120 pcf)
1.c Saturated unit weight of soil: (135 pcf)
1.d Effective cohesion: (0 psf)
1.e Static groundwater level at elevation: (at the existing ground surface)
1.f Undrained shear strength of cohesive soil: (N/A)
1.g Shear strength of rock mass: (N/A)
S-24744
1.a Effective angle of friction: (30 degrees)
1.b Moist unit weight of soil: (120 pcf) (For Intact Rock, 178 pcf)
1.c Saturated unit weight of soil: (125 pcf) (For Intact Rock, 178 pcf)
1.d Effective cohesion: (0 psf)
1.e Static groundwater level at elevation: (Varies between elevations 302 and 310)
1.f Undrained shear strength of cohesive soil: (N/A)
1.g Shear strength of rock mass: (8 tsf)
S-26088
1.a Effective angle of friction: (30 degrees)
1.b Moist unit weight of soil: (120 pcf)
1.c Saturated unit weight of soil: (125 pcf)
1.d Effective cohesion: (0 psf)
1.e Static groundwater level at elevation: (Elevation 280)
1.f Undrained shear strength of cohesive soil: (N/A)
1.g Shear strength of rock mass: (20.8 psi)
1.h Unconfined Compression Strength: (648 tsf)

00 - ITEM 9206-0000 - CLAY CORE FOR DETENTION BASIN BERM

Addendum:

Associated Item(s): 9206-0000

Header:
ITEM 9206-0000 - CLAY CORE FOR DETENTION BASIN BERM

Provision Body:
DESCRIPTION - This work is the furnishing of material and installation of clay cores within embankment berms of Stormwater Detention Basins as indicated.

MATERIAL - As indicated in Section 206.2 and as follows:

Embankment Clay, Stockpiled Clay Subsoil - Inorganic and organic clay and silt subsoil encountered within the project as approved by the Engineer.

CONSTRUCTION - As indicated in Section 206.3 and as follows:

Place core in lifts maximum 8” lifts to ensure proper compaction. Ensure core has a minimum top width of 3-feet and maximum side slopes of one horizontal to one vertical. Set the top elevation of the clay core to the primary outlet structure riser elevation.

MEASUREMENT AND PAYMENT – Cubic Yard

00 - ITEM 9212-0001 - BIAXIAL GEOGRID

Addendum:

Associated Item(s): 9212-0001

Header:
ITEM 9212-0001 - BIAXIAL GEOGRID

Provision Body:
DESCRIPTION -

This work consists of furnishing and installing biaxial geogrid as shown on the Contract Drawings.

MATERIAL -

(a) Use a biaxial geogrid of the following types or approved equal:

Enkagrid Max 30

Huesker Fornit 30/30

Checkmate BX 3030PP

NAUE GmbH and Co. Secugrid 30/30 Q6

Samyang TRIGRID EX 30/30

These Geogrids or approved equal must meet the following specifications:

Tensile Strength at Ultimate (MD and CD) - Minimum 2000 lbs./ft. (ASTM D 6637)

Aperture Dimensions - 1.3”x1.3” (min) to 2.0”x2.0” (max)

Acceptable Material - Polypropylene or Polyester

Provide geogrid with aperture geometry and rib and junction cross-sections sufficient to permit significant mechanical interlock with the material being reinforced. Provide geogrid with high flexural rigidity and high tensile strength at ribs and junctions of the grid structure. Provide geogrid that maintains its reinforcement and interlock capabilities under repeated dynamic loads while in service and that is resistant to ultraviolet degradation, to damage under normal construction practices, and to all forms of biological or chemical degradation normally encountered in the material being reinforced.

(b) Material Submittals

Submit three (3) sets of Manufacturer's certification and required test results that demonstrate that the geogrid reinforcements meet the requirements set forth in the respective sections of these provisions, and as indicated submit three (3) sets of inspection verification samples as part of the material submission. Provide samples of sufficient size (minimum 1 foot x 1 foot) to permit direct comparison and verification of geogrid reinforcement placed, to those required by design. Sample geogrid reinforcement in accordance with ASTM D4354, "Standard Practice for Sampling of Geogrid for Testing".

(c) Testing Submittals

Manufacturing Quality Control Geogrid: The purpose of the QC testing program is to verify that the geogrid being supplied to the project is representative of the geogrid used for performance testing described above. Provide documentation that states that geogrid manufacturers have a manufacturing quality control program that includes QC testing no less frequently than each 50,000 square feet of production. Samples not satisfying the specifications will be rejected at no cost to the Owner.

Provide quality certification of the rolls of geogrid from the Manufacturer. At a minimum, provide quality control certificates for each batch of resin and each shift's production. Quality control certificates must be signed by an officer of the Manufacturer (such as the production manager), and supplied to the Engineer at least two (2) weeks priors to installation of the structural geogrid.

Include the following with the quality control certification:

1. Roll numbers and identification

2. Sampling procedures

3. Result of quality control tests, including a description of test methods used.

Mandatory pH testing is required according to EPA SW-846 Method 9045 on at least one sample from each borrow source and at a minimum of one test every 2000 cubic meters.

CONSTRUCTION -

Delivery Storage and Handling: During all periods of shipment and storage, protect the geogrid materials from temperatures greater than 60C, and from debris that may damage the material. Following manufacturer's recommendations, protect all geogrid materials from sunlight. Geogrid with defects, tears, punctures, flaws, deterioration, or damage incurred during installation, manufacture, transportation, or storage will be rejected. Replace any geogrid materials damaged at no additional cost to the Department.

Geosynthetic Placement: Follow the placement procedure in accordance with the Manufacturer's recommendations and in accordance with the contract plans.

MEASUREMENT AND PAYMENT - Square Yard

00 - ITEM 9220-0001 - SOIL-CEMENT GROUT

Addendum:

Associated Item(s): 9220-0001

Header:
ITEM 9220-0001 - SOIL-CEMENT GROUT

Provision Body:
DESCRIPTION – This work is the furnishing and placement of soil cement grout as part of Limited Mobility Grouting activities.

MATERIAL –

(a) GROUT: Composed of water, Portland cement, and filler and may contain water reducing agent or other approved additive as required for the work. Provide grout with a maximum slump of 1 inch and a minimum 28-day compressive strength of 2,000 psi.

1) WATER: Conform to requirements of Publication 408, Section 720.1.

2) CEMENT: Conform to requirements of Publication 408, Section 701.

3) SOIL: Composed of silty sand classified 'SM' in accordance with the Unified Soil Classification System, free of clay lumps, roots, and aggregate larger than 3/8 inch. Provide material having particles with rounded or cubical shapes and with the ratio of the smallest to largest dimension of the grains greater than 0.5. The soil may be manufactured as a combination of separately processed sizes or classifications; the different components may be batched separately, or blended prior to delivery to the mixing plant. The soil may consist of a mixture of clean concrete sand with mineral fillers added in lieu of silt. Provide soil meeting the following guidelines:

Size/No. Percent Passing	Percent Passing

9.5 mm (3/8 inch)	100
4.75 mm (No.4)	80-100
2.0 mm (No.10)	50-100
0.075 mm (No. 200)	10-30

• PI < 5; LL < 30

(e) Provide a soil mixture that produces a mix with the minimum amount of fines to meet the grout requirements.

(f) CONCRETE SAND: Provide aggregates to be mixed with mineral fillers. Sand that conforms to the requirements of Publication 408, Section 703.1(c), Type B2 Fine Aggregate.

(g) MINERAL FILLER: Fly ash conforming to the requirements of Publication 408, Section 724.2(b), or ground granulated blast furnace slag conforming to the requirements of Publication 408, Section 724.3(a).

(h) WATER REDUCING AGENT: A compound possessing characteristics which will increase the flowability of the mixture, assist in dispersal of the cement grains, and neutralize the setting shrinkage of the grout. Conform to the requirements of Publication 408, Section 711.3. Bentonite or other high plasticity clays are prohibited at concentrations greater than 1 percent by dry weight.

(i) FINE GRAVEL: Mineral aggregates of crushed or natural stones being retained between the standard 4.75 mm (No. 4) and 9.5 mm (3/8 in) sieves that should be added to the grout where large takes occur. Size should be limited by the capability of the pumping equipment and set by the contractor.

CONSTRUCTION – In accordance with the Provision titled Limited Mobility Grouting.

MEASUREMENT AND PAYMENT – Cubic Yard.

00 - ITEM 9309-0001 - SAWCUT EXISTING PAVEMENT

Addendum:

Associated Item(s): 9309-0001

Header:
ITEM 9309-0001 - SAWCUT EXISTING PAVEMENT

Provision Body:

DESCRIPTION – This work is the sawcutting of existing bituminous/concrete pavement to a neat even edge line.

CONSTRUCTION – Provide a machine suitable for cutting of bituminous/concrete pavement to the required depth. The machine must be capable of cutting a straight line and leaving a neat even edge.

Provide a qualified operator trained for the operation of the specific machine being used.

Cut along the edge of pavement line or at the stage construction limits to full depth of the existing pavement as required leaving a neat vertical edge.

MEASUREMENT AND PAYMENT – Linear Foot.

00 - ITEM 9601-5902 - CLEANING EXISTING BOX CULVERT, S-27842

Addendum: 2

Associated Item(s): 9601-5902

Header:
ITEM 9601-5902 - CLEANING EXISTING BOX CULVERT, S-27842

Provision Body:
DESCRIPTION: This work is cleaning of the debris in the existing box culvert, S-27842.

MATERIAL: In accordance with Section 601.2

CONSTRUCTION: In accordance with Sections 201.3 and 601.3(j) as applicable and as follows:

Remove debris in the existing box culvert and stream approach as indicated and directed.

MEASUREMENT AND PAYMENT: Lump Sum

00 - ITEM 9601-7014, 9601-7027 & 9601-7511 - REINFORCED CONCRETE ELLIPTICAL PIPE, TYPE A

Addendum:

Associated Item(s): 9601-7014, 9601-7027, 9601-7511

Header:
ITEM 9601-7014 - 14” X 23” REINFORCED CONCRETE ELLIPTICAL PIPE, TYPE A
ITEM 9601-7027 - 19” X 30” REINFORCED CONCRETE ELLIPTICAL PIPE, TYPE A
ITEM 9601-7511 - 14” X 23” REINFORCED CONCRETE ELLIPTICAL PIPE, TYPE A, SHORE/TRENCH BOX

Provision Body:

DESCRIPTION - This work is the construction of a reinforced concrete elliptical pipe culvert as indicated.

MATERIAL - Section 601.2.

CONSTRUCTION - Section 601.3.

MEASUREMENT AND PAYMENT – Linear Foot.

00 - ITEM 9601-7058 - 29" X 45" ELLIPTICAL REINFORCED CONCRETE PIPE, TYPE A

Addendum:

Associated Item(s): 9601-7058

Header:
ITEM 9601-7058 - 29" X 45" ELLIPTICAL REINFORCED CONCRETE PIPE, TYPE A

Provision Body:
DESCRIPTION - This work is construction of an elliptical reinforced concrete pipe culvert as indicated.

MATERIAL – In accordance with Section 601.2

CONSTRUCTION – In accordance with Section 601.3

MEASUREMENT AND PAYMENT – Linear Foot

00 - ITEM 9604-7014, 9604-7510 REINFORCED CONCRETE ELLIPTICAL PIPE, OPEN JOINT

Addendum:

Associated Item(s): 9604-7014, 9604-7510

Header:
ITEM 9604-7014 14” X 23” REINFORCED CONCRETE ELLIPTICAL PIPE, TYPE A, (OPEN JOINT)
ITEM 9604-7510 14” X 23” REINFORCED CONCRETE ELLIPTICAL PIPE, TYPE A, (OPEN JOINT), SHORE/TRENCH BOX

Provision Body:

DESCRIPTION - This work is the construction of combination elliptical storm sewer and underdrain as indicated.

MATERIAL - Section 604.2.

CONSTRUCTION - Section 604.3.

MEASUREMENT AND PAYMENT – Linear Foot.

00 - ITEM 9605-0010 - REMOVAL OF EXISTING INLET OR MANHOLE

Addendum:

Associated Item(s): 9605-0010

Header:
ITEM 9605-0010 - REMOVAL OF EXISTING INLET OR MANHOLE

Provision Body:

DESCRIPTION – This work is the removal of existing inlets or manholes as indicated and as directed.

MATERIAL – Section 409.2

CONSTRUCTION – Remove existing inlet or manhole as indicated. Sawcut existing pavement when inlet is located in paved areas to neat lines delineated by the Engineer.

Restore pavement by matching the existing pavement structure or as directed by the Engineer.

Repair any damaged area beyond the removal limits to the satisfaction of the Engineer at no additional cost to the Department.

MEASURMENT AND PAYMENT – Each

Price includes sawcutting, excavation, backfilling and restoration of pavement matching with the existing pavement in the area.

00 - ITEM 9605-0011 - REMOVAL OF EXISTING PIPE

Addendum:

Associated Item(s): 9605-0011

Header:
ITEM 9605-0011 - REMOVAL OF EXISTING PIPE

Provision Body:

DESCRIPTION – This work is the removal of existing pipe culvert as indicated and as directed.

CONSTRUCTION – Remove existing pipe culvert as indicated. Sawcut existing pavement when pipe culvert is located under paved areas to neat lines delineated by the Engineer.

Remove end wall or end section as specified or directed.

Plug the end of existing pipe as specified.

Restore pavement by matching the existing pavement structure.Provide materials and construction as specified in Publication 408, supplements thereto, and as directed.

Repair any damaged area beyond the removal limits to the satisfaction of the Engineer at no additional cost to the Department.

MEASURMENT AND PAYMENT – Linear Foot.

Includes sawcutting, excavation, plug, removal of end wall, end section, backfilling and restoration of pavement matching with the existing pavement in the area.

00 - ITEM 9605-2600 - TYPE D-W HEADWALL OUTLET STRUCTURE

Addendum:

Associated Item(s): 9605-2600

Header:
ITEM 9605-2600 –TYPE D-W HEADWALL OUTLET STRUCTURE

Provision Body:
DESCRIPTION – This work is construction of a permanent concrete outlet structure for a stormwater management facility and where applicable, the conversion to and from a temporary sediment trap or sediment basin using a type D-W headwall.

MATERIAL - Section 605.2, as indicated and as follows:

• Steel Orifice Plate – Section 1105.02

• Low Flow Orifice Trash Rack

CONSTRUCTION - Section 605.3 and Section 875.3, as indicated and as follows:

Install Steel Orifice Plate and Low Flow Orifice Trash Rack using anchors as indicated.

MEASUREMENT AND PAYMENT – Each

00 - ITEM 9605-2620 - TYPE D-W ENDWALL

Addendum:

Associated Item(s): 9605-2620

Header:
ITEM 9605-2620 - TYPE D-W ENDWALL

Provision Body:
DESCRIPTION - This work is the construction of endwalls as indicated for two parallel 36” reinforced concrete pipes.

MATERIAL – Section 605.2

CONSTRUCTION – Section 605.3 and as indicated.

Refer to PADOT Publication 72M RC-31M (Sheet 2of 2). Submit Shop Drawings for approval prior to fabrication.

MEASUREMENT AND PAYMENT – Each

00 - ITEM 9605-2630 - TYPE E-S ENDWALL

Addendum:

Associated Item(s): 9605-2630

Header:
ITEM 9605-2630 - TYPE E-S ENDWALL

Provision Body:
DESCRIPTION - This work is the construction of an endwall as indicated for one 36” reinforced concrete pipe and one 18” reinforced concrete pipe.

MATERIAL – Section 605.2

CONSTRUCTION – Section 605.3 and as indicated.

Refer to PADOT Publication 72M RC-31M (Sheet 1of 2). Orient endwall as indicated on the plan. Utilize additional reinforcement around each opening as required. Submit Shop Drawings for approval prior to fabrication.

MEASUREMENT AND PAYMENT – Each

00 - ITEM 9605-2850, 9605-2854 SUMPED INLET, WATER QUALITY BOX

Addendum:

Associated Item(s): 9605-2850, 9605-2854

Header:
ITEM 9605-2850 – SUMPED INLET, WATER QUALITY STANDARD BOX
ITEM 9605-2854 – SUMPED INLET, WATER QUALITY TYPE 4 BOX

Provision Body:

DESCRIPTION - This work is the construction of a sumped inlet, water quality box of the type indicated.

MATERIAL – Section 605.2.

CONSTRUCTION – Section 605.3 and as follows:

Construct sumped water quality inlet as indicated.

MEASUREMENT AND PAYMENT – Each.

00 - ITEM 9605-2851 - OUTLET CONTROL STRUCTURE, STANDARD BOX

Addendum:

Associated Item(s): 9605-2851

Header:
ITEM 9605-2851 - OUTLET CONTROL STRUCTURE, STANDARD BOX

Provision Body:
DESCRIPTION – This work is construction of a permanent concrete outlet structure for a stormwater management facility and where applicable, the conversion to and from a temporary sediment trap or sediment basin using a standard inlet box.

MATERIAL - Section 875.2, as indicated and as follows:

• Steel Orifice Plate – Section 1105.02

• Low Flow Orifice Trash Rack

CONSTRUCTION - Section 875.3, as indicated and as follows:

Install Steel Orifice Plate and Low Flow Orifice Trash Rack using anchors as indicated

MEASUREMENT AND PAYMENT – Each

00 - ITEM 9605-2858 - OUTLET CONTROL STRUCTURE, TYPE 5 BOX

Addendum:

Associated Item(s): 9605-2858

Header:
ITEM 9605-2858 - OUTLET CONTROL STRUCTURE, TYPE 5 BOX

Provision Body:
DESCRIPTION – This work is construction of a permanent concrete outlet structure for a stormwater management facility using a Type 5 inlet box.

MATERIAL - Section 875.2, as indicated and as follows:

• Steel Orifice Plate – Section 1105.01(a)

• Low Flow Orifice Trash Rack

CONSTRUCTION - Section 875.3, as indicated and as follows:

Install Steel Orifice Plate and Low Flow Orifice Trash Rack using anchors as indicated

MEASUREMENT AND PAYMENT – Each

00 - ITEM 9616-1202, 9616-1203 CONCRETE END SECTIONS FOR ELLIPTICAL PIPE

Addendum:

Associated Item(s): 9616-1202, 9616-1203

Header:
ITEM 9616-1202 CONCRETE END SECTIONS FOR 14” X 23” ELLIPTICAL PIPE
ITEM 9616-1203 CONCRETE END SECTIONS FOR 19” X 30” ELLIPTICAL PIPE

Provision Body:

DESCRIPTION - This work is the construction of elliptical ends sections as indicated.

MATERIAL - Section 616.2.

CONSTRUCTION - Section 616.3.

MEASUREMENT AND PAYMENT – Each.

The price includes excavation and all backfill as indicated.

00 - ITEM 9620-0502 - REMOVE EXISTING CABLE MEDIAN GUIDE RAIL(DEPARTMENT PROPERTY)

Addendum:

Associated Item(s): 9620-0502

Header:

ITEM 9620-0502 - REMOVE EXISTING CABLE MEDIAN GUIDE RAIL (DEPARTMENT PROPERTY)

Provision Body:

DESCRIPTION – This work is the removal of the existing cable median guiderail, including all appurtenances and associated hardware along SR 0202. Upon removal, all associated material is to be returned to the Departments maintenance yard at SR 0030 and SR 0322. Please contact Vince Hotsur at 610-205-6679 one week prior to delivery of the material.

MATERIAL – In accordance with Section 620.2

CONSTRUCTION – In accordance with Section 620.3(d) and as follows:

Remove existing cable median guiderail in a manner to prevent damage to all reusable components. Store guide rail in a suitable location inside the right of way prior to delivering to the Department, as specified or indicated. Store guide rail in a manner to prevent damage to reusable components. Dispose of all unusable components in a suitable off-site location. Replace any reusable components damaged during the removal process.

MEASUREMENT AND PAYMENT – Linear Foot

Section 620.4

00 - ITEM 9622-0002, 9622-0003 – CONCRETE GLARE SCREEN, TYPE 2 & TYPE 3

Addendum:

Associated Item(s): 9622-0002, 9622-0003

Header:

ITEM 9622-0002 – CONCRETE GLARE SCREEN, TYPE 2
ITEM 9622-0003 – CONCRETE GLARE SCREEN, TYPE 3

Provision Body:

DESCRIPTION – This work is the construction of Concrete Glare Screen Type 2 and Type 3 as indicated on the plans.

MATERIAL – In accordance with Section 622.2.

CONSTRUCTION – In accordance with Section 622.3.

MEASUREMENT AND PAYMENT – Linear Foot.

Pipe openings are incidental to this item.

00 - ITEM 9622-0050 - SINGLE FACE CONCRETE GLARE SCREEN

Addendum:

Associated Item(s): 9622-0050

Header:
ITEM 9622-0050 - SINGLE FACE CONCRETE GLARE SCREEN

Provision Body:

DESCRIPTION – This work is the construction of Single Face Concrete Glare Screen at pier substructures as indicated on the plans.

MATERIAL – In accordance with Section 622.2.

CONSTRUCTION – In accordance with Section 622.3 and as follows:

Construct Concrete Glare Screen and transition sections as shown on the plans.

MEASUREMENT AND PAYMENT – Linear Foot.

00 - ITEM 9623-0001 - CONCRETE MEDIAN BARRIER, TYPE 1

Addendum:

Associated Item(s): 9623-0001

Header:
ITEM 9623-0001 - CONCRETE MEDIAN BARRIER, TYPE 1

Provision Body:

DESCRIPTION – This work is the construction of Concrete Median Barrier Type 1 as indicated on the plans.

MATERIAL – In accordance with Section 623.2 and as follows:

- Nonshrink Grout – Section 1001.2(e)
- Plain Bar Dowels – Section 709.1

CONSTRUCTION – In accordance with Sections 623.3 and 1003.3.

MEASUREMENT AND PAYMENT – Linear Foot.

00 - ITEM 9623-0004 - REMOVAL OF CONCRETE MEDIAN BARRIER

Addendum:

Associated Item(s): 9623-0004

Header:
ITEM 9623-0004 - REMOVAL OF CONCRETE MEDIAN BARRIER

Provision Body:

DESCRIPTION - This work is the removal of the existing concrete median barrier as indicated in the construction plans.

MATERIAL - In accordance with Section 623.2

CONSTRUCTION – In accordance with Sections 623.3 and as follows:

Remove the existing concrete median barrier and satisfactorily dispose of outside the project limits.

MEASUREMENT AND PAYMENT - Linear Foot

00 - ITEM 9623-0050, ITEM 9623-0051 - 42” SINGLE FACE CONCRETE BARRIER

Addendum:

Associated Item(s): 9623-0050, 9623-0051

Header:
ITEM 9623-0050 - 42” SINGLE FACE CONCRETE BARRIER, TYPE 1
ITEM 9623-0051 - 42” SINGLE FACE CONCRETE BARRIER, TYPE 2

Provision Body:

DESCRIPTION – This work is the construction of 42” Single Face Concrete Barrier Type 1 and Type 2 as indicated on the plans.

MATERIAL – In accordance with Section 623.2.

CONSTRUCTION – In accordance with Section 623.3.

MEASUREMENT AND PAYMENT – Linear Foot.

00 - ITEM 9623-0052 THRU 9623-0058 - SINGLE FACE CONCRETE BARRIER WITH MOMENT SLAB

Addendum: 1

Associated Item(s): 9623-0052, 9623-0053, 9623-0054, 9623-0055, 9623-0056, 9623-0057, 9623-0058

Header:
ITEM 9623-0052 – SINGLE FACE CONCRETE BARRIER, TYPE 1
ITEM 9623-0053 – SINGLE FACE CONCRETE BARRIER, TYPE 2
ITEM 9623-0054 – MOMENT SLAB
ITEM 9623-0055 – SINGLE FACE CONCRETE BARRIER, TYPE 3
ITEM 9623-0056 – MOMENT SLAB, TYPE 3
ITEM 9623-0057 – SINGLE FACE CONCRETE BARRIER, TYPE 4
ITEM 9623-0058 – MOMENT SLAB, TYPE 4

Provision Body:

DESCRIPTION – This work is the construction of Single Face Concrete Barriers and associated moment slabs as indicated on the plans.

MATERIAL – In accordance with Sections 623.2 and 658.2.

CONSTRUCTION – In accordance with Section 623.3, Section 658.3 and as follows:

Construct Single Face Concrete Barriers with associated moment slab, transition sections, flared sections and inlet openings as shown on the plans.

MEASUREMENT AND PAYMENT –

Item 9623-0052 – Single Face Concrete Barrier, Type 1 – Linear Foot

Item 9623-0053 – Single Face Concrete Barrier, Type 2 – Linear Foot

Item 9623-0054 – Moment Slab – Square Yard

Item 9623-0055 – Single Face Concrete Barrier, Type 3 – Linear Foot

Item 9623-0056 – Moment Slab, Type 3 – Square Yard

Item 9623-0057 – Single Face Concrete Barrier, Type 4 – Linear Foot

Item 9623-0058 – Moment Slab, Type 4 – Square Yard

Single Face Concrete Barrier transition sections are incidental to their respective items.

00 - ITEM 9623-0500 - CONCRETE CAP

Addendum:

Associated Item(s): 9623-0500

Header:
ITEM 9623-0500 - CONCRETE CAP

Provision Body:

DESCRIPTION – This work is the construction of a 4- inch Class A cement concrete cap over coarse aggregate at locations indicated in the Contract Drawings.

MATERIAL – In accordance with Section 676.2 and as follows:

· Polyethylene Sheeting – Section 711.1(a)

· Galvanized Welded Wire Fabric – Section 709.3(b)

· Reinforcement - Sections 709.1 and 709.3

CONSTRUCTION – As shown on the Contract Drawings and as follows:

(a) Placing Aggregate for Bed. Place aggregate to form a thoroughly compacted bed a minimum 6 inches deep.

(b) Forms. Use acceptable wood or metal forms that extend the full depth of the concrete.

(c) Reinforcement. Place Welded Wire Fabric as indicated. Lap ends and sides 12 inches. Fasten with annealed iron wire or metal clips.

Place reinforcement bars to connect the horizontal concrete cap to the vertical concrete cap at the ends of the concrete barrier.

(d) Bond Breaker. Thoroughly clean the soundwall panel surface that will come into to contact with the concrete cap of laitance and loose foreign material. Apply polyethylene sheeting. Provide certification from the manufacturer concerning the above material requirements.

(e) Concrete. As specified in Section 1001.3.

Place concrete 4 inches deep. Strike off, finish, and test, as specified in Sections 501.3(k) and (p), except that manual operations are allowed and a light broom finish applied.

(f) Expansion Joints. Place 3/4- inch premolded, expansion joint material for the full depth of the concrete cap, between the

concrete cap and the concrete barrier.

(g) Seal Joints. Clean joints of all scale, dirt, curing compound, and other foreign material with a mechanized wire brush. Do not place poured joint-sealing material if the air temperature is less than 5 °C (40F), unless permitted. Use heating equipment of an indirect heating type, constructed as a double boiler. Provide positive temperature control and mechanical agitation. Obtain the safe heating temperature and recommended pouring temperature from the manufacturer's shipping container. Place the material within this temperature range, but as close as possible to the recommended pouring temperature. Maintain a safe heating temperature. Maintain a single material batch at the pouring temperature for no more than 4 hours. Heat the material only once. Fill the joint reservoir, created by the cleaning operation, with sealing material to a depth 1/8 inch below the top of concrete cap. Do not allow sealing material to spread over concrete surfaces.

(h) Removal of Forms. Do not remove side forms until at least 12 hours after placing concrete. After removal of forms, fill minor honeycombed areas with mortar. As directed, remove and replace defective major honeycombed areas.

MEASUREMENT AND PAYMENT – Square Yard

00 - ITEM 9624-0250 - TEMPORARY FENCE

Addendum:	1
Associated Item(s):	9624-0250

Header:
ITEM 9624-0250 - TEMPORARY FENCE

Provision Body:
DESCRIPTION -This work is the furnishing, construction, placement, maintenance and removal of temporary fence of the type indicated and as shown in accordance with Section 624.

MATERIAL- In accordance with Section 624.2 and as follows:

(a) Type 5 Right-of-Way Fence– Eight (8) feet-high by twelve (12) feet-long fence sections.

CONSTRUCTION - In accordance with Section 624.3 and as follows:

Remove temporary fence once permanent Type 1 Right- of- Way fence is installed as shown on plans or as directed by the Representative.

MEASUREMENT AND PAYMENT – Linear Foot

Cost to include all work, material, and equipment for clearing and grubbing, leveling, furnishing, installing, maintaining and removing temporary fence. The cost will include any grading and furnishing of soil and permanent seed and mulch as necessary for restoration of the area when the fence is removed. End posts and corner posts for Type 5 Right-of-Way fence are incidental to this item. The temporary fence will remain the property of the contractor upon removal.

00 - ITEM 9627-0001 - TEMPORARY CONCRETE GLARE SCREEN MEDIAN BARRIER

Addendum:

Associated Item(s): 9627-0001

Header:
ITEM 9627-0001 - TEMPORARY CONCRETE GLARE SCREEN MEDIAN BARRIER

Provision Body:
DESCRIPTION – This work is the furnishing, placing, maintaining and removal of temporary concrete glare screen median barrier, for maintenance and protection of traffic during construction.

MATERIAL – In accordance with Sections 627.2

CONSTRUCTION – In accordance with Sections 627.3

MEASUREMENT AND PAYMENT – Linear Foot.

00 - ITEM 9627-0002 - TEMPORARY CONCRETE BARRIER, GUIDE RAIL STIFFENED

Addendum:

Associated Item(s): 9627-0002

Header:
ITEM 9627-0002 - TEMPORARY CONCRETE BARRIER, GUIDE RAIL STIFFENED

Provision Body:
DESCRIPTION - This work is the furnishing, installing, maintaining and removing of temporary concrete barrier, guide rail stiffened, for the maintenance and protection of traffic during construction in accordance with PennDOT Publication 213, PATA Barrier Stiffening.

MATERIAL - In accordance with Section 627.2 and as follows:

- Barrier Stiffening - Sections 620 and 1109.

CONSTRUCTION - In accordance with Section 627.3 and as follows:

Install in accordance with PennDOT Publication 213, PATA Barrier Stiffening. Install stiffener when barrier is set and before roadway is open to traffic or prior to drop-off condition being exposed in work zone.

When barriers are placed in a radius, shim the area between the W-beam and barrier wall as indicated in PATA Barrier Stiffening.

MEASUREMENT AND PAYMENT - In accordance with Section 627.4 and as follows:

a. Temporary Concrete Barrier - Revise to read:

Linear Foot. Includes all labor, materials, tools and equipment to furnish, place, maintain and remove stiffeners. Drill holes and shimming (if needed) is incidental to the stiffeners.

00 - ITEM 9628-0002 - RESET TEMPORARY CONCRETE BARRIER, GUIDE RAIL STIFFENED

Addendum:

Associated Item(s): 9628-0002

Header:
ITEM 9628-0002 - RESET TEMPORARY CONCRETE BARRIER, GUIDE RAIL STIFFENED

Provision Body:
DESCRIPTION – This work is the resetting of temporary concrete barrier, guide rail stiffened from one construction area to another within the project limits.

MATERIAL – In accordance with Section 628.2

CONSTRUCTION – In accordance with Section 628.3

MEASUREMENT AND PAYMENT – Linear Foot.

00 - ITEM 9696-0639 - REPAIR TEMPORARY IMPACT ATTENUATING DEVICE TYPE V (STANDARD), TEST LEVEL 3

Addendum:

Associated Item(s): 9696-0639

Header:
ITEM 9696-0639 - REPAIR TEMPORARY IMPACT ATTENUATING DEVICE TYPE V (STANDARD), TEST LEVEL 3

Provision Body:
DESCRIPTION – This work is the repair or resetting of project impact attenuating devices used on this project after they have been hit.

MATERIAL – Hardware from attenuator manufacturer. Keep one set of replacement parts available at all times.

CONSTRUCTION – Repair any damaged attenuator within 24 hours of notification by the Department Representative.

Use flaggers in accordance with Publication 213 to control traffic during the repair work.

MEASUREMENT AND PAYMENT – Dollar.

The proposal will include an item and a predetermined amount of money for Repair Or Resetting Of Project Impact Attenuating Devices. The contract item will have a unit of measure of DOLLAR, a unit price of $1.00, and a quantity equal to the predetermined amount.

Due to the contingent or unpredictable nature of the work being performed, the provisions of Section 110.02(d) are not applicable to this item.

Measured and paid for, under the Repair Or Resetting Of Project Impact Attenuating Devices item as follows:

(a) Contract Items. The Department will pay for performance of work, identified as having similar items listed in the contract, at the contract unit price.

(b) Non-Contract Items. The Department will pay for items of work not identified in the contract as follows:

1. Negotiated Price. At price agreed upon with the Department before performing the work. If applicable, agreement is also required with FHWA.

2. Force Account Basis. Section 110.03(d)

00 - ITEM 9736-0001 - 60 MIL LLDPE GEOMEMBRANE LINER

Addendum:

Associated Item(s): 9736-0001

Header:

ITEM 9736-0001 - 60 MIL LLDPE GEOMEMBRANE LINER

Provision Body:

DESCRIPTION- This work consists of furnishing all materials, accessories, tools, testing, equipment, labor and supervision required to install a LLDPE-T Geomembrane. Install the geomembrane in accordance with the Contract Documents and as recommended by the manufacturer(s). The LLDPE-T Geomembrane must be textured or structured on both sides to provide increased surface friction characteristics.

MATERIALS - Fabricated from Low Linear Density Polyethylene – Textured (Textured) meeting the following requirements.

a. LLDPE-T Geomembrane.Nominal 60-mil thick LLDPE-T Geomembrane obtained from a manufacturer that is in the business of manufacturing sheet geomembrane materials. Resin used in the manufacturing of the LLDPE-T Geomembrane must be new, first-quality polyethylene resin. The addition• of recycled polymer (from the manufacturing process) to resin must be permitted if it does not exceed 2% by weight. The addition of reclaimed polymer to resin will not be allowed. Finished sheet surface texture for the LLDPE-T textured sheet must be an integral part of the sheet on both sides and must have an asperity height of no less than 15 mil when measured in accordance with GRI method GM-12. The finished sheet properties must meet or exceed the values specified in Table 1.

TABLE 1 - LLDPE-T GEOMEMBRANE PROPERTIES

Minimum Average Roll Values

Property	Test Method	Test Value	Units
Thickness	ASTM D 5994	60	mils
Density	ASTM D 1505	0.939	g/cc
Melt Flow Index (max)	ASTM D 1238	1.00	g/10 min
Tensile Properties	ASTM D 6693		
	Break Strength	90	lb/in
	Break Strain	250	%
Axi-Symmetric Break Resistance Strain	ASTM D 5617	30	%
Tear Resistance	ASTM D 1004	33	lb
Static (CBR) Puncture Resistance	ASTM D 6241	66	lb
Carbon Black Content	ASTM D 1603	2.0	%
Carbon Black Dispersion	ASTM D 5596	1-2	cat
Oxidative Induction Time (Standard OIT)	ASTM D 3895	100	hrs
Asperity Height	GRI GM 12	15	mil
Seam Strength Properties	ASTM D 6392		
	Shear at Yield(l)	72	lb/in
	Peel at Yield (1, 2)	60	lb/in

Notes: (1) - Seam strength values must be in Film Tear Bond (FTB).

(2) - Peel incursion must be less than 25% by area.

a. Resin. Resin used in extrusion welding must be the same resin type as the parent LLDPE- T Geomembrane material and must have the same physical properties.

b. Interface Frictional Strength Between Liner Components, The liner components (geomembrane, geotextile, and soils beneath and on top of the liner system) must exhibit adequate frictional resistance as required in this document.

SUBMITTALS- The Contractor must prepare and submit to the Engineer for review and acceptance, five copies of the following .

a. Pre-Certification Submittals: Prior to delivery of material to the site, submit the following to the Engineer for acceptance:

1. Manufacturer (s) written certification that the LLDPE- T Geomembrane meet or exceed the physical/ mechanical properties specified herein.

2. LLDPE-T Geomembrane Manufacturer(s) and Installer(s) Qualifications.

3. Manufacturer's written certification that no reclaimed polymer is added to the LLDPE resin during the manufacture of the LLDPE sheet materials to be used on this project.

4. Manufacturer's samples and product literature for LLDPE-T Geomembrane materials that are proposed for use as the primary LLDPE-T Geomembrane.

5. LLDPE-T Geomembrane Installer's QC Manual including recommended installation procedures, standard details and CQC Plan with Proposed Data Sheets.

6. List of qualified Installer's personnel that will be performing the LLDPE- T Geomembrane thermal welding along with their resumes and experience in the installation of similar LLDPE-T Geomembranes.

7. Interface frictional testing results verifying that the actual materials proposed for use to construct the liner system (geomembrane, geotextile. and soils above and below the liner system) exhibit adequate interface frictional strength as required in this document.

b. LLDPE-T Geomembrane Pre-Construction Submittals. Submit the following to the Engineer for review and acceptance within five days of the date of shipment:

1. Written list of the specific lot numbers and rolls to be shipped.

2. Manufacturer's Quality Control data for rolls to be shipped to the site indicating conformance with the material properties specified herein.

3. Manufacturer's Quality Control Certificates for each shifts production signed by a responsible party of the Manufacturer and notarized.

4. Manufacturer's data for raw materials including:

a) Copies of Natural Resin Manufacturer's Quality Control Certificates and production dates of resin used in production of LLDPE sheet for this project.

b) Results of Manufacturer's Quality Control tests indicating the resin quality used to manufacture LLDPE-T Geomembrane rolls assigned to this project and that the tests conform to the requirements specified herein.

c) Test results conducted

c. LLDPE-T Geomembrane Construction Submittals. Submit the following to the Engineer for review and acceptance no later than five days following substantial completion:

1. Quality Control Installation documentation by Installer.

2. As-built draft LLDPE-T Geomembrane panel layout drawings indicating all field seams, repairs and destructive test cut-outs

3. Conformance Test Results.

d. Post-Construction Submittals: Submit the following to the Engineer for review and acceptance no later than 30 days following substantial completion:

1. LLDPE- T Geomembrane Installation Certification.

2. LLDPE- T Geomembrane Warranty for Manufacture and Installation.

3. Quality Control Test Results.

4. Electrical Leak Location Survey Reports, performed in accordance with the Geomembrane Leak Test described elsewhere in these Special Provisions.

5. Final Panel Layout Drawings indicating all field seams, field seam test results, repairs, destructive test cut-outs and Electrical Leak Location Results / Identification for leak sites and repairs.

LLDPE-T GEOMEMBRANE DELIVERY, STORAGE AND HANDLING - The LLDPE-T Geomembrane must be shipped in rolls and protected by appropriate methods to prevent damage to the material during shipping and to facilitate off-loading without damage. No partial rolls will be accepted. LLDPE-T Geomembrane rolls must be marked or tagged with the following information:

a. Product identification including Manufacturer and type.

b. Lot number and roll number.

c. Roll thickness, width (25 feet) length and weight.

Unloading, on-site handling and storage of LLDPE-T Geomembrane rolls are the responsibility of the Installer and must conform to the recommendations of the LLDPE-T Geomembrane Manufacturer and this specification. Use appropriate handling equipment when unloading or moving the LLDPE-T Geomembrane rolls from one place to another. Manufacturer's recommendations for procedures and equipment used in handling LLDPE-T Geomembrane rolls must be followed to prevent damage to the rolls. LLDPE-T Geomembrane material damaged due to poor delivery, storage or handling methods must be repaired or replaced, as determined by the Engineer, at no additional cost to the Department.

The Contractor must provide on-site storage areas for the rolls. Store and protect the LLDPE-T Geomembrane rolls from dirt, water, traffic, vandalism and other sources of damage. Place LLDPE-T Geomembrane rolls on a smooth, level, elevated surface that is easily accessible by transport and placement equipment. Do not stack rolls more than 3 rolls in height Preserve the integrity and readability of LLDPE-T Geomembrane roll labels.

CONSTRUCTION- Coordinate LLDPE-T Geomembrane placement with other work, including subgrade preparation. Once the subgrade has been placed and roller compacted, the Installer must inspect the surface and provide written acceptance for the placement of the LLDPE-T Geomembrane. After the surface has been accepted by the Installer, it must be the Installer's responsibility to indicate to the Contractor any change in conditions that may require repair work.

LLDPE-T Geomembrane must be installed and accepted by on-site QC and CQA prior to placement of the soil cover.

a. LLDPE-T Geomembrane Placement.The subgrade must be prepared, compacted to Contract Specifications and accepted by the Engineer prior to placement of the LLDPE-T Geomembrane. For each day of LLDPE-T Geomembrane installation, the Installer must provide written acceptance of the surface on which the LLDPE-T Geomembrane is to be installed. After the surface is accepted by the Installer, it must be the Installer's responsibility to indicate to the Contractor any change in conditions that may require repair work prior to placement of the LLDPE,-T Geomembrane.

The surface under the LLDPE-T Geomembrane must be firm, smooth (roller compacted) and free from loose aggregate larger than 1/2 inch, debris, sharp objects, etc. Any depressions in the subgrade surface must be filled with select soil and roller compacted to final grade.

For drainage swale placement, excavate swale to a depth of 12 inches and to a length and width as indicated in the plan. If bedrock is exposed during swale excavation, remove a minimum of 2 inches of bedrock and replace with compacted native soil over bedrock to create a smooth surface for liner installation. Place 8 inches of embankment as specified.

The LLDPE-T Geomembrane must not be placed over loose, soft, eroded or saturated subgrade conditions. Any subgrade areas that have become unacceptable since previously compacted / prepared must be reconditioned and/ or re- compacted to the satisfaction of the Engineer.

Heavy equipment such as front- end loaders or forklifts used for moving or deploying materials must not be operated over the LLDPE-T Geomembrane. LLDPE-T Geomembrane roll deployment must utilize a spreader bar or equivalent to prevent damage to the roll edges during unrolling. Equipment used must not damage the LLDPE- T Geomembrane by handling, trafficking, or other means. Defects in material resulting from the use of installation equipment must be repaired at no cost to the Engineer. LLDPE-T Geomembrane in traffic areas must be protected from damage by using sacrificial geomembrane, or other suitable materials.

Personnel working on the LLDPE- T Geomembrane must not smoke, wear damaging shoes or engage in activities that could damage the LLDPE-T Geomembrane. Methods used to unroll panels must not cause scratches or crimps or in any way damage the LLDPE- T Geomembrane and must not damage supporting soil. Methods used to place panels must minimize wrinkles, especially wrinkles between adjacent panels at the overlap.

Prevent uplift from wind by placing adequate ballast such as sand bags along edges of LLDPE-T Geomembrane panels and in the anchor trench. All exposed LLDPE- T Geomembrane must be ballasted to prevent wind uplift and damage. Any damage due to wind on areas that are determined by the Engineer to be inadequately ballasted will be the responsibility of the Installer. Subsequent replacement and repair of damaged panels will be provided by the Installer at no additional cost to the Engineer.

Follow Manufacturer's instructions to ensure panels are unrolled in the proper direction for seaming. Panel sizes must be established by Installer's Panel Layout Drawing showing dimensions, panel numbering and installation details. A field panel is a roll or portion of a roll cut in the field that is to be seamed in the field. When placed, designate each roll with panel number or code number consistent with the layout plan. Position panels on site as shown in the Panel Layout Drawing. Place panels one at a time and seam each panel immediately after its placement. Seam all panels that are placed each day. Place panels in direction of maximum slope (parallel to the slope length).

Panels must not be placed at ambient temperatures below or above the Manufacturer's recommended ambient temperature range for installation. Panels must not be placed during precipitation, in the presence of excessive moisture (e.g., fog, dew, snow) in areas of ponded water or during excessive winds.

Panels that become seriously damaged (torn or twisted beyond repair) must be replaced at no cost to the Engineer. Less serious damage may be repaired at the discretion of the Engineer. Remove rejected panels or portions of panels from the project.

Materials in contact with the LLDPE-T Geomembrane must be carefully installed to minimize any damage potential. Geotextiles must be used as temporary protection for the LLDPE- T Geomembrane in areas of heavy traffic or mechanical attachment. Fasteners such as preformed embed strips, batten strips, bolts, washers, nuts or other items must have a life expectancy equal to or exceeding the LLDPE-T Geomembrane.

If it is applicable, install LLDPE-T Geomembrane to concrete structures as shown on the Contract Documents using mechanical batten bar or cast in place extrusion welded embed strip connections. Final structure connections must be made after LLDPE-T Geomembrane material is placed and seamed. Maintain sufficient overlap or excess material to ensure attachment of LLDPE-T Geomembrane can be accomplished as required. Extreme care must be taken when seaming around structures, as seam destructive or nondestructive testing may not be feasible. Extreme care must be taken while making connections to concrete structures to prevent any damage to the LLDPE-T Geomembrane. Provide corner support under the LLDPE- T Geomembrane with•compacted soil at the subgrade/concrete structure as shown on the Contract Documents.

Excavate anchor trenches to the dimensions shown on the Contract Documents. Round anchor trench edges for smooth transition of LLDPE- T Geomembrane into the trench (no sharp edge or rock allowed). Bottom of trench must be firm with no loose or soft soils and free of standing water prior to the installation.

If it is applicable, orient seams parallel to line of maximum slope. Do not place a horizontal seam within 5 ft from toe of slope. No horizontal or butt seams must be allowed on the slopes. Overlap panels a minimum of 4 inches for fusion welding or 3 inches for extrusion welding. Spot hot air welding procedure used to temporarily bond adjacent panels together for extrusion welding must not damage the LLDPE- T Geomembrane. Temporary adhesive bonding must not be used unless approved by the Manufacturer and accepted in writing by the Engineer.

b. LLDPE-T Geomembrane Seaming.Prior to seaming, the seam area must be clean and free of moisture, dirt, debris of any kind and foreign material. If seam overlap grinding is required, the process must be completed in accordance with the Manufacturer's instructions and in a way that is not damaging to the LLDPE- T Geomembrane. Align seam overlaps with minimal wrinkles or "fishmouths".

Approved processes for field seaming are thermal fusion welding and extrusion welding. Daily production seaming must be by thermal fusion methods only. Extrusion welding must be restricted to repairs and welding applications not possible by fusion welding. Use only welding apparatus specifically approved by the LLDPE-T Geomembrane manufacturer. Seam strengths must meet or exceed the requirements of these special provisions.

1. Thermal Fusion Welding. Use only an automated thermal fusion welding apparatus equipped with applicable temperature, pressure and speed indicators. Seaming equipment sha1l not damage the LLDPE- T Geomembrane. If required, use a movable, protective layer directly below each overlap that is to be seamed to prevent moisture accumulation between the sheets. Protect the LLDPE- T Geomembrane from ancillary equipment such as generators or hot welding apparatus when not in use by using a movable protection layer under the equipment.

Provide temporary sacrificial or protective layer of plastic directly below the overlap of the LLDPE-T Geomembrane to be seamed to prevent moisture accumulation between panel overlaps to be welded. This may not be required if conditions are dry. Seaming must extend to the outside edge of panels to be anchored to concrete or placed in an anchor trench. If required, provide a firm substrate by using flat wood boards, conveyor belt or similar hard surface directly under the seam overlap to achieve proper support. Wrinkles or "fish mouths" that occur at seam overlaps must be cut along the ridge of the wrinkle and laid flat to form a flat overlap. Seam the cut wrinkle and patch any portion that is inadequate with an oval or round patch of the same LLDPE- T Geomembrane material which extends a minimum of 6 inches beyond the cut in all directions.

2. Extrusion Welding.Complete preparatory grinding, for the extrusion welding process, in accordance with the Manufacturer's instructions and no more than one hour prior to seaming. Exposed grind marks must not extend more than 1/4 inch from the seam area. Use only clean, dry weld rod that is manufactured from the same resin as that used in the manufacture of the LLDPE- T Geomembrane material approved for this project. Use only apparatus equipped with temperature sensors at the nozzle and digital indicators at the handle. Provide documentation certifying that the weld rod is comprised of the same resin as the LLDPE- T Geomembrane. Purge extruder prior to beginning of seaming operation until all heat-degraded extrudate has been removed from barrel. Protect LLDPE-T Geomembrane from ancillary equipment such as generators or hot welding apparatus when not in use by using a movable protection layer under the equipment.

Do not attempt seaming when temperatures are below 32 degrees F or above 104 degrees F without acceptance of the Engineer. The Installer must submit written procedures for cold weather or hot weather seaming procedures approved by the Manufacture for acceptance by the Engineer. If seaming is required to be carried out below 32 degrees F or above 104 degrees F, the Installer must certify in writing, that low temperature or high temperature seaming procedures will not cause any polymer modification to the LLDPE-T Geomembrane that will generate any short or long-term deterioration of the LLDPE-T Geomembrane properties. LLDPE-T Geomembrane must be dry and protected from the wind.

Trial seams of sufficient length must be made on fragment pieces of LLDPE-T Geomembrane to confirm seaming equipment and conditions are acceptable for seaming. Trial seams must be made at the beginning of each seaming period and at least once every five hours for each seaming apparatus used that day. Also, each seam technician must make at least one trial seam each day. Additional trial seams may be required at the Engineers discretion.

Trial seam samples must be cut at least 3 feet in length by 1 feet in width with the seam centered lengthwise. Six random test specimens, each 1 inch wide must be cut from the seam sample. Test the six specimens in shear and peel using a field tensiometer. Specimens must not fail in the seam. If the trial seam is unacceptable, a second trial seam must be made and tested. If the second trial seam fails, the seaming apparatus and/or seaming technician must not be accepted and must not be used for seaming until deficiencies are corrected and two consecutive passing trial seams are achieved.

c. Nondestructive (NDT) Seam Continuity Testing. All field seams must be nondestructively tested over their full length. Nondestructive continuity testing must be done as the seaming work progresses and not at the completion of field seaming. Nondestructive continuity testing must be accomplished by one or all of the following methods:

1. Vacuum Chamber Testing - Testing must be performed in accordance with ASTM D 5641 - Standard Practice for Geomembrane Seam Evaluation by Vacuum Chamber. This method must be restricted to testing of extrusion welded seams such as on patches, repairs or cap strips.

2. Dual Seam Air Channel Testing - Testing must be performed in accordance with ASTM D 5820 - Standard Practice for Pressurized Air Channel Evaluation of Dual Seamed Geomembranes. This method is to be used on all daily production seaming by dual track thermal fusion welders.

3. Electrical Spark Testing - Testing must be performed in accordance with ASTM D 6365 - Standard Practice for Nondestructive Testing of Geomembrane Seams using the Spark Test. This method is restricted to extrusion welded seams and areas that are not accessible or practical for testing by (1.) and (2.) noted above.

If a seam area cannot be tested prior to final installation, seaming and/or capstripping must be observed by the Engineer for uniformity and completeness.

d. Destructive Seam Testing. Conduct a minimum of one test per 1000 feet of seam length or as directed by the Engineer. Maximum frequency of test locations must be agreed upon by the Installer and Engineer prior to commencement of the installation. Test locations will be determined during seaming by the Engineer. Additional test locations may be required during seaming at the Engineers discretion. Frequency of test locations may be reduced at the discretion of the Engineer dependent on overall seam quality and trial weld frequency and acceptability. Test locations must not be located on the slope.

Cut samples as seaming progresses to obtain lab test results prior to completion of the LLDPE-T Geomembrane installation. Properly identify each sample by a number / letter sequence and note location on the Panel Layout Drawing. Sample holes must be immediately repaired. Test the seam around repair according to NDT procedures, usually by Vacuum Box - ASTM D 5641.

e. Destructive Seam Sample Size.Cut two 1 inch wide by 12 inch long samples with seam centered. Cut the two specimens a distance of 42 inches apart and test each of the strips for peel and shear. If the two specimens pass the field test, remove the 12 inch wide by 42 inch long section between the two samples and cut it into three equal parts for distribution as follows:

1. One 12 in. x 12 in. portion to Installer for lab testing

2. One 12 in. x 12 in. portion to the Engineer for Archive

3. One 12 in. x 18 in. portion to Independent laboratory for testing.

Submit Installer's laboratory testing to the Engineer as soon as they become available.

Submit Independent laboratory test results to the Engineer no more than 24 hours after laboratory receives the samples. Test the sample for seam strength in "peel" and "shear" in accordance with ASTM D 6392. Minimal acceptable values are as specified herein. Test a minimum of 5 replicate specimens for both "peel" and "shear". To be acceptable, four out of five replicates must pass minimum requirements.

f. Procedures for Destructive Test Seam Failure: Reconstruct seam between any two passed test locations or retrace weld path to intermediate location, 10 feet minimum from location of failed test in each direction, and take samples for additional field tests. If additional samples pass, reconstruct seam between those locations on either side of the original failed sample location. If any

sample fails, the process must be repeated. In any case, acceptable seams must be bounded by two passed destructive test locations.

g. Defects, Reconstruction and Repairs: Repair procedures are as follows:

1. Patching - Use to repair holes, tears, undispersed raw materials and contamination by foreign matter.

2. Spot Welding - Use to repair pinholes, minor localized flaws

3. Cap Strips - Use to repair long lengths of failed seams.

4. Topping or Extrudate Welding - Use to repair seams with an exposed edge or to weld the flap edge of a fusion weld.

Surfaces of LLDPE- T Geomembrane to be repaired must be dry and clean. Surfaces of LLDPE-T Geomembrane to be repaired by extrusion methods must be abraded no more than 1 hour prior to repair. Seams used in repairs must be approved extrusion or fusion welded seams and must be subjected to the same nondestructive test procedures as outlined for other seams. Patches must be of the same LLDPE- T Geomembrane material and must be round or oval in shape. Patches must extend a minimum of 6 inches beyond the edge of defects in all directions and must be applied by approved seam methods only.

h. Reconstruction Procedure: Seam reconstruction must be achieved by cutting out the existing seam and welding in a replacement strip or by welding in a top cover or cap strip that is a minimum of 12 inches in width and centered over the failed seam area. The cap strip must be extrusion welded and vacuum tested.

i. Repair Verification. Test each repair seam by one of the approved non- destructive methods. Repairs passing nondestructive testing must be taken as an indication of an acceptable repair. Identify all repairs and note repair locations on the final panel layout plan.

LLDPE-T Geomembrane Panel Layout Drawings. As-built panel layout drawings for the LLDPE- T Geomembrane must:

1. Identify panel numbers, placement orientation and dimensions.

2. Identify field seams and types.

3. Identify defect repairs, pipe penetrations, connections and additional details that deviate from the Contract Documents.

4. Identify the locations of destructive and nondestructive tests and their results.

LLDPE-T Geomembrane Conformance Testing.

1. At the discretion of the Engineer, LLDPE- T Geomembrane materials that are delivered to the site may be tested for conformance with property requirements specified herein.

2. Samples must be taken across the entire width of the LLDPE-T Geomembrane roll and must not include the first 3 feet or outer wrap of the roll. Samples must be 3 feet in length by the full roll width.

3. The Engineer may request additional conformance testing at any time during the work to confirm that the LLDPE- T Geomembrane meets the property requirements specified herein. The Contractor must bear the costs of any failing• tests.

4. In the event that a portion of the material fails ,the quality control criteria, the Installer must remove non- conforming rolls from site. In the event the material failing the quality control criteria has been installed, the Installer must remove and replace the entire area that failed quality control testing at no cost to the Engineer.

PROTECTION OF COMPLETED WORK - Protect installed LLDPE-T Geomembrane from damage by limiting traffic and access until placement of the cover soil.

LLDPE- T GEOMEMBRANE ACCEPTANCE - Contractor / Installer must retain ownership and responsibility for the LLDPE- T Geomembrane until final acceptance by the Engineer. LLDPE- T Geomembrane installation must be accepted by the Engineer when:

1. LLDPE-T Geomembrane Installation is Complete and accepted by the Engineer.

2. Documentation of installation is complete, including Engineers report and reporting of all LLDPE- T Geomembrane test results.

3. Documentation of all field seaming and repairs is complete, including all associated nondestructive and destructive test results.

4. Documentation of Electrical Leak Location Survey is complete and submitted and all repairs to leak locations have been completed and tested. Performance of the Electrical Leak Location Survey must be done in accordance with the Geomembrane Leak Test described elsewhere in these Special Provisions.

MEASUREMENT AND PAYMENT - Square Yard

00 - ITEM 9802-0002 - SAND TOPSOIL MIXTURE

Addendum:

Associated Item(s): 9802-0002

Header:
ITEM 9802-0002 - SAND TOPSOIL MIXTURE

Provision Body:
DESCRIPTION - This work is the furnishing of sand and topsoil, mixing, stockpiling, and placing the mixture.

MATERIAL -

a) Topsoil Furnished And Placed. Section 802.2

b) Sand. Section 703.1(c.) Type B #3

CONSTRUCTION - Mix the topsoil with equal parts of sand. Place sand topsoil mixture in accordance with Section 203.3 (g) and as shown.

MEASUREMENT AND PAYMENT - Cubic Yard

Includes furnishing, mixing, stockpiling, and placing of mixture

00 - ITEM 9804-0200 THRU ITEM 9804-0201 - HERBICIDE APPLICATION

Addendum:

Associated Item(s): 9804-0200, 9804-0201

Header:
ITEM 9804-0200 - HERBICIDE APPLICATION, NON-SELECTIVE CONTROL
ITEM 9804-0201 - HERBICIDE APPLICATION, SELECTIVE CONTROL, SEEDED AREA

Provision Body:
DESCRIPTION – This work includes the application of herbicides to invasive species as directed.

MATERIAL – Section 804.2 (d) modified as follows:

Herbicide (Non-Selective) materials conforming to PCID No. 1093 and/or Herbicide (Selective) materials conforming to PCID No. 1094 and as directed.

CONSTRUCTION – Section 804.3 (h) modified as follows.

h) Spot spray target invasive species as directed. Implement necessary measures to minimize application to non-target plants. Prior to application of the herbicide(s) submit the formulation(s) and application schedule to the engineer for approval.

MEASUREMENT AND PAYMENT – Modify Section 804.4(c) to Gallons, finished spray (ingredients combined with water) applied

00 - ITEM 9808-0006 THRU ITEM 9808-7120 - PLANTINGS

Addendum:

Associated Item(s): 9808-0006, 9808-0007, 9808-3076, 9808-3137, 9808-3230, 9808-3254, 9808-3270, 9808-3314, 9808-3330, 9808-3465, 9808-3730, 9808-3744, 9808-3805, 9808-3846, 9808-4093, 9808-4100, 9808-7120

Header:

9808-0006 – SHADBRUSH (24” HT.)
9808-0007 – SMOOTH ALDER (12” HT.)
9808-3076 – RED MAPLE (24” HT.)
9808-3137 – SWEET BIRCH (24” HT.)
9808-3230 – BLACK GUM (24” HT.)
9808-3254 – TULIPTREE (24” HT.)
9808-3270 – AMERICAN SYCAMORE (24” HT.)
9808-3314 – SCARLET OAK (24” HT.)
9808-3330 – PIN OAK (24” HT.)
9808-3465 – AMERICAN REDBUD (12” HT.)
9808-3730 – ARROWWOOD VIBURNUM (12” HT.)
9808-3744 – BLACKHAW (12” HT.)
9808-3805 – WHITE SPRUCE (24” HT.)
9808-3846 – WHITE PINE (24” HT.)
9808-4093 – SILKY DOGWOOD (12” HT.)
9808-4100 – RED OSIER DOGWOOD (12” HT.)
9808-7120 – ELDERBERRY (12” HT.)

Provision Body:

DESCRIPTION - This work is furnishing, planting, and maintenance of the following trees and shrubs in areas as indicated:

MATERIAL – In accordance with Section 808.2.

Delete Section 808.2(i)

Revise Section 808.2(a)4 by adding. Provide container-grown plants in minimum size 3”x3”x9” containers or No. 1 containers.

Replace Section 808.2(d) Mulch with Section 805.2(a)2.b Shredded Bark

CONSTRUCTION - In accordance with Section 808.3, as indicated, as directed, and as follows:

Do not establish mow lines or use weed barrier matting. Plant at final elevation to minimize post-planting disturbances. Mulch as indicated. Complete the installation of all plants during the planting season prior to notification that the project is substantially complete.

Delete Publication 408, Section 808.3(g)6. Period of Establishment

MEASUREMENT AND PAYMENT – EACH

00 - ITEM 9808-1000 THRU 9808-5011 - PLANTS AND PLANTINGS

Addendum:

Associated Item(s): 9808-1000, 9808-1006, 9808-1007, 9808-1012, 9808-1014, 9808-1016, 9808-1018, 9808-1019, 9808-1021, 9808-1026, 9808-1028, 9808-1066, 9808-1234, 9808-1238, 9808-2003, 9808-2005, 9808-2007, 9808-2008, 9808-2012, 9808-2014, 9808-2015, 9808-2016, 9808-2017, 9808-2018, 9808-2020, 9808-2021, 9808-3304, 9808-5011

Header:

ITEM 9808-1000 - AMERICAN HOLLY (FEMALE) - 6-7' B&B
ITEM 9808-1006 - BLOODGOOD LONDON PLANETREE - 3" CAL. B&B
ITEM 9808-1007 - BLACK GUM - 2 1/2" CAL. B&B
ITEM 9808-1012 - FOTHERGILLA - 2' HT. CONTAINER
ITEM 9808-1014 - MISS KIM LILAC - 4' HT. B&B
ITEM 9808-1016 - OAKLEAF HYDRANGEA - 4' HT. B&B
ITEM 9808-1018 - SWEET BAY MAGNOLIA - 3" CAL. B&B
ITEM 9808-1019 - SARGENT CHERRY - 2" CAL. B&B
ITEM 9808-1021 - SERBIAN SPRUCE - 6' HT. B&B
ITEM 9808-1026 - VIRGINIA SWEETSPIRE - 3' HT. B&B
ITEM 9808-1028 - WHITE OAK - 3" CAL. B&B
ITEM 9808-1066 - ZAGREB COREOPSIS - #2 CONTAINER
ITEM 9808-1234 - YOSHINO CRYPTOMERIA - 6' HT. B&B
ITEM 9808-1238 - JAPANESE BLACK PINE - 6'-7' B&B
ITEM 9808-2003 - FRASIER FIR - 8' HT. B&B
ITEM 9808-2005 - FEATHER REED GRASS - #2 CONTAINER
ITEM 9808-2007 - HYBRID YELLOW FLOWERING DAYLILY - #2 CONTAINER
ITEM 9808-2008 - SHAMROCK INKBERRY - 24" HT. B&B OR CONTAINER
ITEM 9808-2012 - CATMINT - #2 CONTAINER
ITEM 9808-2014 - RUSSIAN SAGE - #2 CONTAINER
ITEM 9808-2015 - BONICA SHRUB ROSE - 24" HT. CONTAINER
ITEM 9808-2016 - RED MEIDILAND GROUNDCOVER ROSE - 18" SPD CONTAINER
ITEM 9808-2017 - PINK MEIDILAND GROUNDCOVER ROSE - 18" SPD CONTAINER
ITEM 9808-2018 - HYBRID BLACK-EYED SUSAN - #2 CONTAINER
ITEM 9808-2020 - SHOWY AUTUMN SEDUM - #2 CONTAINER
ITEM 9808-2021 - HYBRID EASTERN RED CEDAR - 6'-7' B&B
ITEM 9808-3304 - HYBRID YARROW - QUART CONTAINER
ITEM 9808-5011 - MERMORIAL ROSE - 24" HT. CONTAINER

Provision Body:

DESCRIPTION - This work is furnishing and planting of trees, shrubs, vines, and other woody or herbaceous plants.

MATERIAL – In accordance with Section 808.2.

Delete Section 808.2(i)

Revise Section 808.2(a)4 by adding. Provide container-grown plants in minimum size 3”x3”x9” containers or No. 1 containers.

Replace Section 808.2(d) Mulch with Section 805.2(a)2.b Shredded Bark

CONSTRUCTION - In accordance with Section 808.3, as indicated, as directed, and as follows:

1. Section 803.3(g) The following deciduous plants must not be planted in the October 15 to November 30th time schedule:

• Betula varieties

•Crataegus varieties

• Ilex opaca varieties

• Lirodendron tulipifera

• Malus – in leaf

2. Vines. Vines are not to be placed within five (5) feet of a joint in the walls. This will leave a ten (10) foot gap with no vines at the joint between panels. The other vines designated are to be planted evenly spaced in soil within a foot and a half from the base of the wall. If there is stone or unsuitable material in that location, please contact the client for advice as to how to proceed.

Do not establish mow lines or use weed barrier matting. Plant at final elevation to minimize post-planting disturbances. Mulch as indicated. Complete the installation of all plants during the planting season prior to notification that the project is substantially complete.

MEASUREMENT AND PAYMENT – EACH

00 - ITEM 9808-5000 - PERIOD OF PLANT ESTABLISHMENT AND REPLACEMENT

Addendum:

Associated Item(s): 9808-5000

Header:
ITEM 9808-5000 - PERIOD OF PLANT ESTABLISHMENT AND REPLACEMENT

Provision Body:
DESCRIPTION – This work is providing maintenance care of plant material planted under this contract for a period of 12 months (365 days) from the documented date of acceptance of the entire project by the Department. This work includes planting and seeding operations including watering, fertilizing, insect and disease control, pruning, plant replacement, mulch replacement, stake and guy maintenance, litter removal, protection from wildlife, and re-seeding.

MATERIAL -

Water - Section 720.2

Replacement Mulch - Section 805.2(a)

Replacement Plants - Section 808.2(a) for the Specified Species and applicable Special Provision for the Specified Species

Re-Seeding and Soil Supplements - Section 804.2 and applicable special provision for the specified formulas

Commercial Fertilizer - Section 804.2

Bracing Material - Section 808.2(i)

Organic Pesticides and Fungicides- As approved

CONSTRUCTION – In accordance with Section 808.3 and as follows:

(a) General – The period of establishment and replacement will begin from the documented date of acceptance of the entire project by the Department. Obtain written concurrence on the verified date of planting completion from the Resident Engineer.

Submit for approval to PENNDOT a monthly maintenance inspection report and operational maintenance schedule for work to be performed.

Monitor the condition of the plants and initiate all horticultural practices necessary to maintain the plants in a healthy condition during the period of establishment. Protect plants from wildlife depredation.

(b) Watering. Apply water by open-end hose supplied by gravity or low pressure pump(pressure not to exceed 10 psi). Apply water at a rate so that the water does not completely run-off and will thoroughly soak and percolate into the soil in the planting pit. Perform watering within 1 calendar day if site conditions require water to save the health of the plants. Commercial tree watering bags or other containers that will allow a slow dispensing of water over a period of time equal to the desired amount of water to be provided at each plant can be submitted for use and approval for this operation.

Water each shrub (plant size 3-1/2 ft. or less in height) with approximately 10-gallons of water per application. Shrubs larger than 3-1/2 ft. in height will be treated as a tree. Water each tree with approximately 30-gallons of water per application. A 10-gallon amount can be estimated for application purposes at approximately 3-minutes of water run out of a 5/8-inch diameter hose at the desired water pressure. Some plant pit mulch conditions may require a small portion of the mulch to be loosened or cleared from the pit to allow the water to percolate through the mulch and into the plant pit soil.

Water smaller type perennial or herbaceous plants such as bulbs, tubers, rhizomes, plugs, starter plants, seedlings and small transplants with 2-gallons of water per plant per watering cycle.

Water the plants on a 7 to 10 day cycle based on a natural rainfall condition of less than 1-inch of rainfall per week, or when temperatures and humidity remain greater than 90 degrees for a period of one week. Do not water if soil conditions are determined to be saturated. Do not water at or onto the trunk or stems of the plant.

Provide a watering schedule, source of water, and list of watering equipment to be used for approval prior to commencing this operation. Furnish measurements and capacities of water tanks used in this operation.

(c) Fertilization. Fertilize trees and shrubs during late March following the initial planting season. Apply fertilizer on soil surface by evenly scattering material beneath and slightly beyond the plant's foliage mass and incorporate into the top 1-inch of soil. Apply approximately one cup of fertilizer (8 fl. oz.) per plant except for seedling plants. Apply 1/4 cup (2 fl. oz.) of fertilizer per seedling.

(d) Pruning. Prune periodically to remove dead, damaged, or diseased branches. Cut back damaged branches to live growth. Properly dispose of pruned material. Prune in accordance with 808.3(e) and the ANSI A300 Pruning Standard.

(e) Insect/Fungus Disease Control. Monitor health of plants. Provide insect and disease control as necessary with appropriate approved pesticide or fungicide applications. Submit application schedules and materials to be used for approval prior to application.

(f) Plant Replacement. Replace in accordance with the drawings and specifications, plants that are dead, missing or, in the opinion of the Inspector, are in an unhealthy condition as detailed in Section 808.2(a)9, and/or have lost their natural shape due to dead branches. Replace with plants of the same species, size and root system as specified in the contract unless a substitute species has been approved. Remove all unsatisfactory plants upon notification and replace within 10 calendar days if within the designated planting dates of Section 808.3(g). Replace any other plants at least 30 days prior to the end of the 12 month plant establishment period.

(g) Grass Establishment. Reseed areas not exhibiting acceptable grass establishment as directed with the indicated seed formula in accordance with the applicable specification. Seed within the appropriate seeding dates for the seed type specified.

(h) Mulch Replacement. Reapply mulch of the type indicated when necessary to maintain the desired 3-inch depth in accordance with Section 805.3.

(i) Litter Disposal. Keep all plant areas free of litter and debris. Dispose of all litter off the project and in an approved disposal location.

(j) Weeding. Perform weed removal at all plant bed areas as necessary to prevent competition for existing nutrients, water and sunlight, as will as to remove any volunteer vegetation not originally designed in the plans. Dispose of all weeds and volunteer vegetation at an approved disposal area.

(k) Stake and Guy Removal. Remove all tree bracing material at the end of the establishment period and prior to final inspection.

PENNDOT may conduct independent inspections of all landscape items at any time during the establishment period. Any landscape items failing to meet the minimum standards of the department as specified in the contract or the American Standard for Nursery Stock, must be replaced or the defective items repaired at no additional cost to the Department.

Correct all deficiencies within 10 calendar days after notification by the Department. PennDOT reserves the right to verify all work performed under this work to ensure quality and conformance to these requirements.

MEASUREMENT AND PAYMENT – Lump Sum

Payment will be made every three months for 25% of this item during the 1 year period of plant establishment.

00 - ITEM 9810-0000 - SELECT TREE REMOVAL AND TRIMMING

Addendum:

Associated Item(s): 9810-0000

Header:
ITEM 9810-0000 - SELECT TREE REMOVAL AND TRIMMING

Provision Body:
DESCRIPTION - This work consists of the trimming and/or removal of existing trees and shrubs located outside of the limits of grading in order to construct noise barrier walls or detention basins or to provide a clear line of sight to sign structures, or as directed by the Representative.

MATERIAL- In accordance with Section 810.2

CONSTRUCTION- In accordance with Section 810.3 and as follows:

Trimming and/or removal of existing trees to be approved by the Representative.

MEASUREMENT AND PAYMENT - Lump Sum

00 - ITEM 9860-0001 - TEMPORARY STEEL PLATE INLET PROTECTION (IP-4)

Addendum:

Associated Item(s): 9860-0001

Header:
ITEM 9860-0001 - TEMPORARY STEEL PLATE INLET PROTECTION (IP-4)

Provision Body:
DESCRIPTION - This work is the construction, installation, maintenance and removal of steel plate inlet protection on existing and proposed inlets as directed by the Engineer.

MATERIAL - In accordance with Section 860.2

CONSTRUCTION - In accordance with Section 860.3 and as follows:

Prior to any upstream earthwork activities, construct inlet protection using 1 inch thick steel plate on existing and proposed inlet tops as directed by the Engineer.

Install inlet plate according to manufacturer's specifications. Inspect inlet plate on a weekly basis and before and after each anticipated runoff event. Remove and dispose of accumulated sediment. Damaged inlet plates should be replaced or repaired immediately.

Upon final stabilization of tributary area, when directed by the Engineer, remove inlet protection. Dispose of sediment and materials in a manner satisfactory to the Engineer.

MEASUREMENT AND PAYMENT - Each

00 - ITEM 9861-0001 - SEDIMENT STORAGE DEWATERING FACILITY

Addendum:

Associated Item(s): 9861-0001

Header:
ITEM 9861-0001 - SEDIMENT STORAGE DEWATERING FACILITY

Provision Body:
DESCRIPTION – This work is furnishing, installing, maintaining and removing sediment storage dewatering facilities for sedimentation basins and traps as indicated.

MATERIAL – As indicated and as follows:

• No. 57 Coarse Aggregate – Section 703.2

• Geotextile, Class 3, Type A or B – Section 735

• Barrel/Drum: nominal 30 to 55 gallons clean and free of contaminants

• 2" x 2" wood slats of an approved type

• Pump – of sufficient size

CONSTRUCTION – As indicated and as follows:

Place perforated barrel near temporary riser pipe assembly or sediment trap inlet and surround with wood slats, geotextile material and coarse aggregate to the cleanout elevation, as indicated. Dewater sedimentation facility by means of a pump during sediment cleanout. Upon completion of work or when directed, remove the dewatering facility. Properly dispose of all excavated material.

MEASUREMENT AND PAYMENT – EACH

00 - ITEM 9866-0005 - HABITAT PROTECTION FENCE

Addendum:

Associated Item(s): 9866-0005

Header:
ITEM 9866-0005 - HABITAT PROTECTION FENCE

Provision Body:

DESCRIPTION – This work is the installation of fencing and the coordination necessary to prevent access and destruction of potential Bog Turtle (Glyptemys muhlenbergii) habitat by placement of habitat protection fence as indicated. This work also includes monitoring and coordination of construction activities in and around Wetland E along SR0202, Section 330 northbound, as shown on the plans. Do not begin other construction activities until installation of the habitat protection fence is coordinated and completed.

MATERIAL - As indicated and as follows:

The completed habitat protective fence consists of:

1. Temporary Protective Fence For Existing Plant Material. Section 811.

2. Silt Barrier Fence, 30” Height. Section 865 - Type 3A

CONSTRUCTION - As indicated on the plans and as follows:

1. Install Silt Barrier Fence, 30” Height as indicated and as shown. Extend fabric 12” minimum into hand-excavated trench. Do not use mechanized equipment; hand digging and placement is required.

2. Install the fences prior to March 15 of the project construction year.

3. Install fences around Wetland E, as shown on the plan.

4. Install both types of fence concurrently at the perimeter of wetland site E adjacent to the project area, as shown on plan and as directed. Fasten both types of fence to the posts; in addition, fasten the silt fence to the protective fence at a maximum spacing of 30 inches.

5. When the fencing as described above, cannot be installed prior to March 15 of the project construction year, contractor must notify the pre-designated PENNDOT contact and complete the following.

a. The Permittee must complete a bog turtle clearance search of the proposed project area adjacent to Wetland E, including temporary staging and disturbance areas, prior to any earth disturbance activity, fence installation, or other construction.

b. The preconstruction bog turtle clearance search must be performed by the Engineers representative, who is a qualified bog turtle biologist included on the list of “U.S. Fish and Wildlife Service and Pennsylvania Fish and Boat commission Recognized Qualified Bog Turtle Surveyors”.

c. The bog turtle clearance search must be completed immediately prior to the installation of the Habitat Protection Fence.

d. Install the habitat protection fence as indicated in item 1 above as soon as practicable following the turtle search and clearance by the Engineer’s qualified biologist.

e. Install the fence only after receiving approval to do so from the Engineer’s qualified bog turtle surveyor, following completion of the site search.

CONSTRUCTION ENVIRONMENTAL MONITORING -

1. Monitor all construction activities for the presence of turtles (alive, dead, or injured):

a. Cease construction activities if turtles are observed within or outside of the habitat fencing at any time during construction and immediately inform the pre-designated PENNDOT contact.

b. Immediately inform the pre- designated PENNDOT contact, who will then notify and retain the services of the Engineer’s qualified bog turtle surveyor.

c. The Engineer’s qualified bog turtle surveyor will conduct a thorough search of the project area to identify the species of turtle and to determine if any other turtles may be in the construction area of disturbance.

d. If the Engineer’s qualified bog turtle surveyor identifies the turtle species as a bog turtle (Glyptemys muhlenbergii), then the biologist will immediately notify endangered species biologist at both the U.S. Fish and Wildlife Service and the PA fish and Boat Commission.

e. Contact both agencies within twenty-four (24) hours of the identification.

f. The biologist will consult with these agencies regarding the safe handling of the turtle. The turtle may be handled only by the qualified bog turtle surveyor according to the recommendations of the U.S Fish and Wildlife Service and/or the PA Fish and Boat Commission.

2. Fully implement and maintain an approved Erosion and Sediment Pollution Control Plan.

3. Keep any relocated utilities out of the wetland and minimize all disturbances.

4. Remove fences following completion of the project.

If project plans change with resulting direct or indirect impacts to Wetland E (Stations 340 +45R to 345 +50R), additional consultation with the U.S. Fish and Wildlife Service and PA Fish and Boat Commission regarding habitat impacts avoidance measures will be necessary.

MEASUREMENT AND PAYMENT - Linear Foot.

Coordination, inspection, maintenance, and replacement costs to be incidental to the installation cost

00 - ITEM 9867-0022 - COMPOST FILTER SOCK DIVERSION BERM

Addendum:

Associated Item(s): 9867-0022

Header:
ITEM 9867-0022 - COMPOST FILTER SOCK DIVERSION BERM

Provision Body:
DESCRIPTION - This work is furnishing, placing, maintaining, and removal of a compost filter sock diversion berm.

MATERIALS. In accordance with Section 867.2 and as follows:

a) Netting Fabric - 24” Filter sock with Leno Woven Biodegradable Jute (9.3 lb/ 1000 SF) or 100% Biodegradable Jute (7.7 lb / 1000 SF)

b) Thread - Biodegradable

c) Matrix - 70% straw fiber (0.5lb/SY), 30% coconut fiber (0.15lb/SY)

CONSTRUCTION- In accordance with Section 867.3 as follows:

Blend 30% coconut fiber with 70% straw fiber and fill compost sock with pneumatic (blower) equipment. Install as indicated on the E&S Plans to divert clean water around work areas within the limit of disturbance. Maintain as indicated on the E&S Plans.

MEASUREMENT AND PAYMENT- Linear foot

00 - ITEM 9868-0003 - COMPOST SOCK SEDIMENT TRAP

Addendum:

Associated Item(s): 9868-0003

Header:
ITEM 9868-0003 - COMPOST SOCK SEDIMENT TRAP

Provision Body:

DESCRIPTION - This work is furnishing, placing, maintaining, and removal of a compost filter sock sediment trap.

MATERIALS. In accordance with Section 867.2 and as follows:

a) Compost Filter Sock, 24” Diameter. Item 0867-0022.

b) Compost Filter Sock, 18” Diameter. Item 0867-0018. As required

c) Compost Filter Sock, 12” Diameter. Item 0867-0012. As required

d) 2”x2”x48” Hardwood Stakes

e) 16 Gauge Wire

CONSTRUCTION- In accordance with Section 867.3 and as follows:

a) Install parallel 24” compost filter socks side by side on existing grade to form base of pyramid as shown on the contract drawings, staking as indicated on the contract drawings.

b) Stack additional 12” or 18” filter sock above 24” filter socks to form pyramidal shape as indicated on the contract drawings. Install two - 2”x2”x48” stakes wrapped together with 16 gage wire at 10’ O.C. to secure upper sock to 24” filter socks as shown on the E&S Plan Details. Offset 48” stake spacing 5’ from 36” stake spacing for maximum security.

c) Remove sediment that accumulates behind sock when the height reaches 1/3 of the total height of the sock configuration.

MEASUREMENT AND PAYMENT- Linear foot

Includes maintenance and replacement of filter sock lengths as required.

00 - ITEM 9900-0108, 9900-0109, 9900-0110, 9900-0112 - FIBER OPTIC CABLE

Addendum:

Associated Item(s): 9900-0108, 9900-0109, 9900-0110, 9900-0112

Header:

ITEM 9900-0108 - FIBER OPTIC CABLE, 144 STRANDS
ITEM 9900-0109 - FIBER OPTIC CABLE, 48 STRANDS
ITEM 9900-0110 - FIBER OPTIC CABLE, 24 STRANDS
ITEM 9900-0112 - FIBER OPTIC CABLE, 12 STRANDS

Provision Body:

DESCRIPTION - This work is to include furnishing and installing Fiber Optic Communications Cable. The cable must meet the requirements stated in this specification. The backbone in the project area will require two cut over’s; first from the existing 24 strand backbone cable to the temporary 24 strand cable and the last from the temporary cable to the proposed 144-strand cable. This work will also include the relocation/ installation of an existing 48 strand cable routed on SR 0401 crossing SR 0202 as indicated on the plans.
1.FIBER CHARACTERISTICS
All fibers in the cable must be usable fibers and meet required specifications. Each optical fiber must consist of a doped silica core surrounded by a concentric silica cladding.The fiber must be matched clad design.
Core Diameter:8.3 µm.
Cladding Diameter: 125.0 ± 1.0 µm.
Core-to-Cladding Offset: < 0.8 µm.
Cladding Non-Circularity: < 1.0%.
Coating Diameter: 245±10µm.
Colored Fiber Diameter: nominal 250 µm.
Attenuation Uniformity:No point discontinuity greater than 0.40 dB at 1310 nm or 0.30 dB at 1550 nm.

Attenuation at the Water Peak:The attenuation at 1383 nm must not exceed 2.1 dB/km.
Cutoff Wavelength: < 1260 nm
Mode-Field Diameter:9.30 ± 0.50 µm at 1310 nm, 10.50 ± 1.00 µm at 1550 nm.
The coating must be a dual layered, UV-cured acrylate applied by the fiber manufacturer, and must be mechanically strippable.
2.FIBER PARAMETERS
Fiber Type: Single Mode
The maximum dispersion must be < 3.2 ps/(nm · km) from 1285 nm to 1330 nm and must be < 18 ps/(nm · km) at 1550 nm.
The fiber manufacturer must proof-test 100% of the optical fiber to a minimum load of 100 kpsi.
3.FIBER CONSTRUCTION
Optical fibers must be placed inside a loose buffer tube. Each buffer tube must contain 12 fibers. The fibers must not adhere to the inside of the buffer tube.
Each fiber and buffer tube must be distinguishable by means of color coding according to the TIA/EIA-298 Specifications, "Optical Fiber Cable Color Coding."
The colors must be stable across the specified storage and operating temperature range and not subject to fading or smearing onto each other.Colors must not cause fibers to stick together.
Fillers may be included in the cable core to lend symmetry to the cable cross-section where needed.
The central anti-buckling member must consist of a glass reinforced plastic rod.
Buffer tubes must be stranded around a central member using the reverse oscillation, or "S-Z", stranding process.
The cable core must contain a water-blocking material. The water blocking material must be non-nutritive to fungus, electrically non-conductive and homogenous.It must also be free from dirt and foreign matter and must be readily removable with conventional (nontoxic) solvents.
Binders must be applied with sufficient tension to secure the buffer tubes to the central member without crushing the buffer tubes. The binders must be non-hygroscopic, non-wicking and dielectric with low shrinkage.The cable must contain at least one ripcord under the sheath for easy sheath removal. Tensile strength must be provided by a combination of high tensile strength dielectric yarns.The high tensile strength dielectric yarns must be helically stranded evenly around the cable core.
All-dielectric cables must be sheathed with medium density polyethylene (MDPE). The minimum nominal jacket thickness must be 1.4 mm. Jacketing material must be applied directly over the tensile strength members and water blocking material. The polyethylene must contain carbon black to provide ultraviolet light protection and must not promote the growth of fungus.
An armored cable shall be used for the 12-strand lateral/drop cables for the Temporary Fiber Optic Pole Line.
This will provide the temporary lateral/drop cables with enough protection to be direct buried. The armored cable shall have a layer of corrugated steel under the outer sheath and be manufactured for an outdoor, direct buried application. The armored cables will be replaced with all-dielectric laterals/drops when the ITS devices are spliced to the proposed 144-strand cable.
The jacket or sheath must be free of holes, splits, and blisters.The cable jacket must contain no metal elements and must be of a consistent thickness. Cable jackets must be marked with manufacturer's name, sequential foot markings, year of manufacture, and a telecommunication handset symbol, as required by Section 350G of the National Electrical Safety Code (NESC). The actual length of the cable must be within -0/+1% of the length markings. The marking must be in contrasting color to the cable jacket.The height of the marking must be approximately 2.5 mm.
The shipping, storage, and operating temperature range of the cable must be -40 F to +158 F.The installation temperature range of the cable must be -22 F to +158 F.
When tested in accordance with FOTP-3, "Procedure to Measure Temperature Cycling Effects on Optical Fibers, Optical Cable, and Other Passive Fiber Optic Components," the average change in attenuation at extreme operational temperatures (-40 F to +158 F) must not exceed 0.05 dB/km at 1550 nm for single-mode fiber.The magnitude of the maximum attenuation change of each individual fiber must not exceed 0.15 dB/km at 1550 nm.
4.GENERAL CABLE PERFORMANCE SPECIFICATIONS
The cable must meet the requirements of the following industry standard tests:

- FOTP-82, "Fluid Penetration Test for Fluid-Blocked Fiber Optic Cable"
- FOTP-81, "Compound Flow (Drip) Test for Filled Fiber Optic Cable"
- FOTP-41, "Compressive Loading Resistance of Fiber Optic Cables"
- FOTP-104, "Fiber Optic Cable Cyclic Flexing Test"
- FOTP-25, "Repeated Impact Testing of Fiber Optic Cables and Cable Assemblies"
- FOTP-33, "Fiber Optic Cable Tensile Loading and Bending Test"
- FOTP-85, "Fiber Optic Cable Twist Test"

5.QUALITY ASSURANCE PROVISION
All cabled optical fibers > 1000 meters in length must be 100% attenuation tested.The attenuation of each fiber must be provided with each cable reel. The cable manufacturer must be ISO 9001 registered. The cable manufacturer must provide installation procedures and technical support concerning the items contained in this specification. The manufacturer must certify that the supplied cable meets all requirements of these specifications.
6.PACKAGING

The completed cable must be packaged for shipment on non-returnable wooden reels.Top and bottom ends of the cable must be available for testing.Both ends of the cable must be sealed to prevent the ingress of moisture. Each reel must have a weatherproof reel tag attached identifying the reel and cable.

A cable data sheet must accompany each cable. The following information must be included:

- Cable Number
- Factory Order Number
- Customer Purchase Order Number
- Measured Attenuation of Each Fiber (for lengths > 1000 m (3280 ft))
- Ordered Length
- Actual Shipped Length

7.MISCELLANEOUS

Include any necessary utility pole riser hardware, conduit and attachments for communications drops from existing poles. These components are considered incidental to this item.

CONSTRUCTION - All cable must be installed as per Siecor Recommended Procedure 005-011 "Fiber Optic Cable Placing – Duct".This general procedure will be followed regardless of the manufacturer of the cable.If the cable manufacturer recommends an operation in conflict with this procedure, a request for installation procedure change must be submitted for approval to the Engineer. The contractor is responsible for coordinating; make ready work and permitting required to install risers and attachments to any utility owned pole. This work is considered incidental to the item.

TESTING - Submit testing documentation for Engineer's approval. After test documentation is approved, provide at least 10 working days notice prior to all tests to permit the Engineer to observe each test.

Upon completion of the cable installation, splicing, and termination, the Contractor must test all fibers for continuity, events above 0.30 dB, and total attenuation of the cable in both directions.The test procedure is as follows:

A Certified Technician utilizing an Optical Time Domain Reflectometer (OTDR) and Optical Source/Power Meter must conduct the installation test. The Technician is directed to conduct the test using the Standard Operating Procedure as defined by the manufacturer of the test equipment.

The method of connectivity between the OTDR and the cable must be a factory patch cord of a length equal to the "dead zone" of the OTDR.Optionally, the Technician can use a factory "fiber box" of 100 meters minimum with no splices within the box.The tests must be conducted at 1310 and 1550 nm and in both directions for each fiber optic strand within the cable.

At the completion of the test, the Contractor must provide documentation of the test results to the Engineer. The test documentation must be bound and include the following:

- Cable & Fiber Identification
- Cable ID
- Cable Location - begin and end point
- Fiber ID, including tube and fiber color
- Operator Name
- Date & Time
- Setup Parameters
- Wavelength
- Pulse width (OTDR)
- Refractory index (OTDR)
- Range (OTDR)
- Scale (OTDR)
- Test Results

1.OTDR Test

- Total Fiber Trace
- Splice Loss/Gain
- Events > 0.10 dB
- Measured Length (Cable Marking)
- Total Length (OTDR)

Traces must also be provided on a CD/DVD in PDF format.

2 Optical Source/Power Meter

- Total Attenuation
- Attenuation (dB/km)

These results must be provided in tabular form.The following must be the criteria for the acceptance of the cable:

- The test results must demonstrate that the attenuation (dB/km loss) does not to exceed +3% of the factory test or 1% of the cable's published production loss.The error rate for the test equipment will be taken into account.

- No event must exceed 0.30 dB.If any event is detected above 0.30dB, the Contractor must replace or repair that event point.
- The total dB loss of the cable, less events, must not exceed the manufacturer's production specifications of0.5 db/km at both 1310 and 1550 nm.
- If the total loss exceeds these specifications, the Contractor must replace or repair that cable run at the Contractor's expense, including both labor and materials.

MEASUREMENT AND PAYMENT – Linear Foot

Fiber Optic Communications Cable, measured as provided above, will be paid for at the contract unit price per linear foot, after cable acceptance. The price must be payment in full for furnishing, installing, and testing the cabling; and for all labor, tools, equipment, and incidentals necessary to complete the work.

00 - ITEM 9900-0113 - FIBER OPTIC CABLE, 12 STRANDS ARMORED DIRECT BURIED

Addendum:

Associated Item(s): 9900-0113

Header:

ITEM 9900-0113 - FIBER OPTIC CABLE, 12 STRANDS ARMORED DIRECT BURIED

Provision Body:

DESCRIPTION – This work is to include furnishing and installing a 12- strand armored fiber optic cable for temporary communications and must meet the requirements stated in this specification. This cable is to provide temporary connectivity (drop/ lateral) between each ITS device in the project area to the temporary 24-strand aerial backbone. The armored fiber optic cable will be direct buried to eliminate the need for conduit.

1.FIBER CHARACTERISTICS

All fibers in the cable must be usable fibers and meet required specifications. Each optical fiber must consist of a doped silica core surrounded by a concentric silica cladding.The fiber must be matched clad design.

Core Diameter:8.3 µm.

Cladding Diameter: 125.0 ± 1.0 µm.

Core-to-Cladding Offset: < 0.8 µm.

Cladding Non-Circularity: < 1.0%.

Coating Diameter: 245±10µm.

Colored Fiber Diameter: nominal 250 µm.

Attenuation Uniformity:No point discontinuity greater than 0.40 dB at 1310 nm or 0.30 dB at 1550 nm.

Attenuation at the Water Peak:The attenuation at 1383 nm must not exceed 2.1 dB/km.

Cutoff Wavelength: < 1260 nm

Mode-Field Diameter:9.30 ± 0.50 µm at 1310 nm, 10.50 ± 1.00 µm at 1550 nm.

The coating must be a dual layered, UV-cured acrylate applied by the fiber manufacturer, and must be mechanically strippable.

2.FIBER PARAMETERS

Fiber Type: Single Mode

The maximum dispersion must be < 3.2 ps/(nm · km) from 1285 nm to 1330 nm and must be < 18 ps/(nm · km) at 1550 nm.

The fiber manufacturer must proof-test 100% of the optical fiber to a minimum load of 100 kpsi.

3.FIBER CONSTRUCTION

Optical fibers must be placed inside a loose buffer tube. Each buffer tube must contain 12 fibers. The fibers must not adhere to the inside of the buffer tube.

Each fiber and buffer tube must be distinguishable by means of color coding according to the TIA/EIA-298 Specifications, "Optical Fiber Cable Color Coding."

The colors must be stable across the specified storage and operating temperature range and not subject to fading or smearing onto each other.Colors must not cause fibers to stick together.

Fillers may be included in the cable core to lend symmetry to the cable cross-section where needed.

The central anti-buckling member must consist of a glass reinforced plastic rod.

Buffer tubes must be stranded around a central member using the reverse oscillation, or "S-Z", stranding process.

The cable core must contain a water-blocking material. The water blocking material must be non-nutritive to fungus, electrically non-conductive and homogenous.It must also be free from dirt and foreign matter and must be readily removable with conventional (nontoxic) solvents.

Binders must be applied with sufficient tension to secure the buffer tubes to the central member without crushing the buffer tubes. The binders must be non-hygroscopic, non-wicking and dielectric with low shrinkage.The cable must contain at least one ripcord under the sheath for easy sheath removal. Tensile strength must be provided by a combination of high tensile strength dielectric yarns.The high tensile strength dielectric yarns must be helically stranded evenly around the cable core.

Use an armored cable for the 12-strand lateral/drop cables for the Temporary Fiber Optic Pole Line.This will provide the temporary lateral/drop cables with enough protection to be direct buried. The armored cable shall have a layer of corrugated steel under the outer sheath and be manufactured for an outdoor, direct buried application. Replace the armored cables with all-dielectric laterals/ drops when the ITS devices are spliced to the proposed 144-strand cable. The inner jacket must be applied directly over the tensile strength members and water blocking material. The polyethylene must contain carbon black to provide ultraviolet light protection and must not promote the growth of fungus. The armor is a corrugated steel tape, plastic-coated on both sides and be applied around the outside of a layer of water blocking material. The outer jacket is applied over the armor and provides ultraviolet light protection and will not promote the growth of fungus. The jacket or sheath must be free of holes, splits, and blisters.The cable jacket must contain no metal elements and must be of a consistent thickness. Cable jackets must be marked with manufacturer's name, sequential foot markings, year of manufacture, and a telecommunication handset symbol, as required by Section 350G of the National Electrical Safety Code (NESC). The actual length of the cable must be within -0/+1% of the length markings. The marking must be in contrasting color to the cable jacket.The height of the marking must be approximately 2.5 mm.

The shipping, storage, and operating temperature range of the cable must be -40 F to +158 F. The installation temperature range of the cable must be -22 F to +158 F.

When tested in accordance with FOTP-3, "Procedure to Measure Temperature Cycling Effects on Optical Fibers, Optical Cable, and Other Passive Fiber Optic Components," the average change in attenuation at extreme operational temperatures (-40 F to +158 F) must not exceed 0.05 dB/km at 1550 nm for single-mode fiber.The magnitude of the maximum attenuation change of each individual fiber must not exceed 0.15 dB/km at 1550 nm.

4.GENERAL CABLE PERFORMANCE SPECIFICATIONS

The cable must meet the requirements of the following industry standard tests:

- FOTP-82, "Fluid Penetration Test for Fluid-Blocked Fiber Optic Cable"
- FOTP-81, "Compound Flow (Drip) Test for Filled Fiber Optic Cable"
- FOTP-41, "Compressive Loading Resistance of Fiber Optic Cables"
- FOTP-104, "Fiber Optic Cable Cyclic Flexing Test"
- FOTP-25, "Repeated Impact Testing of Fiber Optic Cables and Cable Assemblies"
- FOTP-33, "Fiber Optic Cable Tensile Loading and Bending Test"
- FOTP-85, "Fiber Optic Cable Twist Test"

5.QUALITY ASSURANCE PROVISION

All cabled optical fibers > 1000 meters in length must be 100% attenuation tested.The attenuation of each fiber must be provided with each cable reel. The cable manufacturer must be ISO 9001 registered. The cable manufacturer must provide installation procedures and technical support concerning the items contained in this specification. The manufacturer must certify that the supplied cable meets all requirements of these specifications.

6.PACKAGING

The completed cable must be packaged for shipment on non-returnable wooden reels.Top and bottom ends of the cable must be available for testing.Both ends of the cable must be sealed to prevent the ingress of moisture. Each reel must have a weatherproof reel tag attached identifying the reel and cable.

A cable data sheet must accompany each cable. The following information must be included:

- Cable Number
- Factory Order Number
- Customer Purchase Order Number
- Measured Attenuation of Each Fiber (for lengths > 1000 m (3280 ft))
- Ordered Length
- Actual Shipped Length

CONSTRUCTION – All cable must be installed as per Siecor Recommended Procedure 005-012 "Fiber Optic Cable Placing – Direct Buried". This general procedure will be followed regardless of the manufacturer of the cable. If the cable manufacturer

recommends an operation in conflict with this procedure, a request for installation procedure change must be submitted for approval to the Engineer. Install warning tape between the direct buried cable and existing grade (usually 12 inches below grade).

TESTING – Submit testing documentation for Engineer's approval. After test documentation is approved, provide at least 10 working days notice prior to all tests to permit the Engineer to observe each test.

Upon completion of the cable installation, splicing, and termination, the Contractor must test all fibers for continuity, events above 0.30 dB, and total attenuation of the cable in both directions.The test procedure is as follows:

A Certified Technician utilizing an Optical Time Domain Reflectometer (OTDR) and Optical Source/Power Meter must conduct the installation test. The Technician is directed to conduct the test using the Standard Operating Procedure as defined by the manufacturer of the test equipment.

The method of connectivity between the OTDR and the cable must be a factory patch cord of a length equal to the "dead zone" of the OTDR.Optionally, the Technician can use a factory "fiber box" of 100 meters minimum with no splices within the box.The tests must be conducted at 1310 and 1550 nm and in both directions for each fiber optic strand within the cable.

At the completion of the test, the Contractor must provide documentation of the test results to the Engineer. The test documentation must be bound and include the following:

- Cable & Fiber Identification
- Cable ID
- Cable Location - begin and end point
- Fiber ID, including tube and fiber color
- Operator Name
- Date & Time
- Setup Parameters
- Wavelength
- Pulse width (OTDR)
- Refractory index (OTDR)
- Range (OTDR)
- Scale (OTDR)
- Test Results

1.OTDR Test

- Total Fiber Trace
- Splice Loss/Gain
- Events > 0.10 dB
- Measured Length (Cable Marking)

- Total Length (OTDR)

Traces must also be provided on a CD/DVD in PDF format.

2 Optical Source/Power Meter

- Total Attenuation

- Attenuation (dB/km)

These results must be provided in tabular form.The following must be the criteria for the acceptance of the cable:

- The test results must demonstrate that the attenuation (dB/km loss) does not exceed +3% of the factory test or 1% of the cable's published production loss.The error rate for the test equipment will be taken into account.

- No event must exceed 0.30 dB.If any event is detected above 0.30dB, the Contractor must replace or repair that event point.

- The total dB loss of the cable, less events, must not exceed the manufacturer's production specifications of 0.5 db/km at both 1310 and 1550 nm.

- If the total loss exceeds these specifications, the Contractor must replace or repair that cable run at the Contractor's expense, including both labor and materials.

MEASUREMENT AND PAYMENT – Linear Feet

Fiber Optic Communications Cable, measured as provided above, will be paid for at the contract unit price per linear foot, after cable acceptance.The price must be payment in full for furnishing, installing, and testing the cabling; and for all labor, tools, equipment, and incidentals necessary to complete the work.

00 - ITEM 9900-0190 - 3/4" x 10’ COPPER CLAD STEEL GROUND ROD

Addendum:

Associated Item(s): 9900-0190

Header:
ITEM 9900-0190 - 3/4" x 10’ COPPER CLAD STEEL GROUND ROD

Provision Body:

DESCRIPTION – This work is furnishing and installation of ¾” x 10’ Copper Clad Steel Ground Rod at the locations indicated for grounding.

MATERIAL – In accordance with Section 1101.11

CONSTRUCTION – Test each installed ground rod using the 3-point method soil resistivity test. Results should comply with the National Electric Code (NEC) and as indicated in the plans.

MEASUREMENT AND PAYMENT – Each

00 - ITEM 9900-0230 - 35’ WOODEN UTILITY POLE

Addendum:

Associated Item(s): 9900-0230

Header:

ITEM 9900-0230 - 35’ WOODEN UTILITY POLE

Provision Body:

DESCRIPTION - This work is furnishing and installation of 35 foot wooden utility pole to install aerial electric and/ or communication service lines.

MATERIAL – Furnish southern yellow pine, Class 4 wood poles that conform to ANSI Specification 05.1.Provide 35 foot wooden poles with a minimum circumference of 1.75 feet on the top, 2.63 feet at the height of 6 feet from the base.Provide pole treatment compound that conforms to the Specification AWPA-Pt.

Furnish, as part of the pole assemblies, the following material:

- Required length of galvanized steel messenger cable of 0.43-inch diameter made of seven strands and conforming to ASTM-A75, Class A Specification.
- Single strand lashing wire 0.006-inch diameter and made of Type 430 stainless steel.
- Suspension and attachment hardware made of galvanized steel, hardware galvanized in accordance with ASTM-A153 Specification.

Furnish Guy anchor assemblies in accordance with Section 1101.11(m)

CONSTRUCTION – Pole treatment process to conform to AWPA-C4 and to provide retention of CCA dry salts of 0.6 pounds per cubic foot.Install the poles within the Department’s right of way, tension messenger cable at 60 F for the poles as directed by the Engineer, and dead end the messenger cable at the poles as directed by the Engineer.Install poles in accordance with the current specifications and standards of NELA, EE1 and NESC.Dig holes with vertical sides and with a diameter large enough to permit use of a mechanical tamper around the pole.The installation of the poles is subject to the inspection and approval by the Engineer prior to backfilling.

Remove existing poles as indicated on the plans and dispose of properly.

MEASUREMENT AND PAYMENT – Each

00 - ITEM 9900-0240 - REMOVAL OF UTILITY POLES

Addendum:

Associated Item(s): 9900-0240

Header:

ITEM 9900-0240 - REMOVAL OF UTILITY POLES

Provision Body:

DESCRIPTION – This work consists of removing a wood pole and ground rod and backfilling the resulting hole.

CONSTRUCTION –

After all facilities are removed from the pole, strip the pole and ground rod of all hardware and connections.Extract using a crane or other approved method in its entirety.

Place borrow material in the accordance with Section 206 in the hole to fill it and to match the existing elevation of the surrounding area.During refill, place the borrow back in layers not to exceed 8 inches (200 mm) loose depth and tamp well with a power tamper.

Furnish and place topsoil in accordance with Section 803.Seed disturbed areas in accordance with the E&S plans.

The pole becomes contractor’s property.

MEASUREMENT AND PAYMENT – Each

00 - ITEM 9900-1000 - DISCONNECT SWITCH

Addendum:

Associated Item(s): 9900-1000

Header:
ITEM 9900-1000 - DISCONNECT SWITCH

Provision Body:

DESCRIPTION – This work is for the furnishing and installation of disconnect switches.

MATERIAL – In accordance with Sections 910.2 and 1101, as applicable, and the following:

Provide NEMA 3R, 200KAIC, 120/240V, single phase, two-pole switch, fusible primary service disconnects. The switch must be lockable in the “ON” position. This “lock on” feature must be manufacturer installed or provided.

Provide Class RK5 time delay current limiting fuses of voltage and current ratings as indicated on the plans.

Provide black phenolic engraved plastic-laminate tags with white lettering, screw on type.

Provide black self-tapping screws for installation on equipment. Label the tag with device numbers as shown on the Plans. Example: “CM-100 DISCONNECT SWITCH”, etc.

Provide ¾”x 10’ copper clad steel ground rods.

Provide copper ground conductor as shown on the plans in one-inch RMC conduit.

CONSTRUCTION – Switches are to be installed where indicated on the plans, and as required for compliance to the National Electric Code (NEC). Switches shall be NEMA 3R.

The ground conductor must be connected to the ground rod by an exothermic weld. Test the ground rod using the 3-point method resistivity test. Results should comply with the National Electric Code (NEC).

Provide locks for all disconnect switches. Coordinate with the Engineer regarding specific key type required.

MEASUREMENT AND PAYMENT – Each

00 - ITEM 9900-1010 - UTILITY PEDESTAL

Addendum:

Associated Item(s): 9900-1010

Header:

ITEM 9900-1010 - UTILITY PEDESTAL

Provision Body:

DESCRIPTION – This work is for the furnishing and installation of utility service pedestals as indicated on the plans and as required.

MATERIAL – Utility pedestal shall meet the local utility company requirements and Publication 647M. Provide NEMA 3R junction boxes as indicated on the plans.

CONSTRUCTION – Provide utility pedestal as shown on the plans for support of electrical equipment. Provide hot- dipped galvanized steel as specified in Section 1105.02(s) after fabrication.Use stainless steel hardware to attach the horizontal members to the pipe uprights of the pedestal.

Provide welded steel plate junction boxes, hot dipped galvanized as specified in Section 1105.02 (s) after fabrication. Provide a watertight closed, cell neoprene gasket with brass or stainless steel screws to secure the cover.Provide factory installed grounding stud and hex nut in rear of box, as applicable.Boxes shall be minimally sized as shown on the plans.

MEASUREMENT AND PAYMENT – Each

00 - ITEM 9900-5070, 9900-5075, & 9900-5080 – FIBER OPTIC CABLE SPLICE ENCLOSURE

Addendum:

Associated Item(s): 9900-5070, 9900-5075, 9900-5080

Header:

ITEM 9900-5070 – 12 STRAND FIBER OPTIC CABLE SPLICE ENCLOSURE
ITEM 9900-5075 - 48 STRAND FIBER OPTIC CABLE SPLICE ENCLOSURE
ITEM 9900-5080 – 144 STRAND FIBER OPTIC CABLE SPLICE ENCLOSURE

Provision Body:

DESCRIPTION - Perform fiber splices, and install splices within Contractor-furnished splice enclosures at the locations shown on the plans and as described in these specifications.Fiber splicing must consist of fusion splices for all fibers described in the cable plan for the particular location, within the appropriately sized splice enclosures.
12 Strand Fiber Communications Cable, 24 Strand Fiber Communications Cable, and 144- strand Fiber Optic Communications Cable must consist of breaking out the required buffer tube(s) from the 144/24 strand fiber communications trunk cable and fusion splicing the appropriate fiber (s) from the 12- strand Fiber Communications Cable, 144/24- strand Fiber Optic Communications Cable, to the appropriate fiber (s) in the 144/24- strand fiber communications trunk cable within the appropriately sized splice enclosure as shown in the plans.
MATERIAL - Splice enclosures must be designed for use under the most severe conditions such as moisture, vibration, and impact as demonstrated by manufacturer's specifications and minimum specifications listed below:
PHYSICAL REQUIREMENTS
The splice enclosure must handle up to four cables in a butt configuration.A butt adapter may be used to increase capacity to six cables.
The splice enclosure must prevent the intrusion of water without the use of encapsulates.
The splice enclosure must be capable of accommodating splice organizer trays that accept fusion splices.
The splice enclosure must have provisions for storing fiber splices in an orderly manner, mountings for splice organizer assemblies, and space for un-spliced fiber.Splice organizers must be re-enterable.The splice case must be UL rated.
Enclosure re-entry and subsequent reassemble must not require specialized tools or equipment.Further, these operations must not require the use of additional parts.
The splice enclosure must have provisions for controlling the fiber bend radius to a minimum of 38 mm.
The Contractor must provide proof and type of factory tests for approval by the Engineer.

CONSTRUCTION - The splice enclosure must be installed according to the manufacturer's recommended guidelines. For the mainline splices, the cables must be fusion spliced.45-days prior to start of the fiber optic cabling installation, submit the proposed locations of the mainline splice points for reviewed by the Department.
Splicing must be performed as per manufacturer instructions for the supplied splice enclosure units.
Drop cable splicing must be performed for each device location at locations shown on the plans. Other splicing at Mill Lane will be according to what is shown on the plans.Coordinate with the Engineer to verify the spare strands on the 24 fiber cable traveling south of Mill Lane and connecting to Hub #2. Splice the devices located in between Hub #2 and Mill Lane to the proposed temporary 24 strand cable as shown in the plans.
On the SR 0401 48 strand cable relocation use 48 strand splice enclosures to butt splice the new cable to the existing cable as required.
All Splicing must be performed as per Siecor Recommended Procedure SRP-004-013, "Drop cable access of Fiber Optic Cable (Cable slack present)", or appropriate manufacturer instructions. All Drop cable splices must be contained within fiber splice enclosures.
Affix the Splice Closure to the side of the manhole using the cable support brackets. All cables must be properly dressed and affixed to rails or racks within the manhole. No cables or enclosures will be permitted to lie on the floor.
MEASUREMENT AND PAYMENT – Each

00 - ITEM 9900-5100, 9900-5110 – FIBER OPTIC DISTRIBUTION / TERMINATION PANELS

Addendum:

Associated Item(s): 9900-5100, 9900-5110

Header:

ITEM 9900-5100 – FIBER OPTIC DISTRIBUTION PANEL (FDP)
ITEM 9900-5110 – FIBER OPTIC TERMINATION PANEL (FTP)

Provision Body:

DESCRIPTION – Provide fiber optic cable termination panels, as shown on the plans, for the splicing and termination of outside plant fiber optic cable to factory manufactured connectors in a cabinet that provide front access to terminated fibers.This work also includes terminating 12-fiber lateral/drop cables, 144-fiber backbone cables, mounting, attaching of ST fiber optic patch cables, and testing.

FDP’s must be rack-mountable to EIA 19-inch equipment racks. 12-port FTP’s must be surface mounted units.

Panels must make 12 ST or 144 ST connectors, as required, accessible to a technician standing in front of the cabinet with the front door open. When installed, the panel must accommodate fiber optic patch cables between any two connectors without reaching the patch cables’ minimum bending radius.

Each ST connector on the panel must be optically connected to a fiber in the 12-strand fiber drop cable, and must not cause in excess of 0.3 dB optical signal loss when tested at 1310 nm.

Single mode fiber used in the pigtails must meet the optical characteristics of the drop cable used, including mode diameter.

MATERIAL – Fiber Optic Terminations must be performed at a termination panel. The panel must meet or exceed the following specifications:

- Number of terminations for FTP: 12 (nodes)

- Number of terminations for FDP: 144 per panel, and 12 per panel

- Connector Type ST Feed-through and shall be in a side by side configuration; staggered port adapter plates are unacceptable.

- Access: Front and rear, fold-down or swing out

- Cabinet Painted Metal Construction

The panel must include space and a mechanism for storing fiber splices and slack for both used and unused fibers within the panel. The terminations must be performed with ST connectors.

CONSTRUCTION – All fibers entering the cabinet must be terminated on the rear of the connector panel, with ST connectors. Jumpers of sufficient length must be provided and installed to connect the front side of the connector panel to the fiber equipment contained within the cabinet as specified herein.

ST connectors must terminate in single mode fiber pigtails fusion spliced to the 144 strand fiber backbone cable or 12 strand fiber drop cable as described herein and shown on the plans.

This work shall also include terminating the existing 24 strand fiber optic cable connected to CCTV 216 and 217 to existing FDP 1 within Hub 2. Terminating and testing the existing 24 strand cable is considered incidental to this Item and will not be paid for separately.

MEASUREMENT AND PAYMENT – Each

Fiber Optic Termination Panel must be measured as a unit, completely installed, with all connectors, fiber optic terminations and jumper cables necessary to make the final connections from the fiber entering the cabinet to the fiber equipment located at each location.

00 - ITEM 9900-5200 - FIBER OPTIC ST PATCH CABLES

Addendum:

Associated Item(s): 9900-5200

Header:

ITEM 9900-5200 - FIBER OPTIC ST PATCH CABLES

Provision Body:

DESCRIPTION – Work under this item must consist of furnishing and installing single mode ST Patch Cables as shown on the plans and as herein provided.

MATERIALS – ST-style connectors (2.5 mm Bayonet type) must be metallic with ceramic ferrule. ST connectors must comply with JIS Mating and must be compatible with NTT-SC.

Patch cords must meet the following specifications:

Insertion Loss:< 0.50 dB typical at 1310 nm

Return Loss: > 40dB

Durability:< 0.1 dB over 200+ insertions

Operating Temperature: -40 C to +75 C (-40 F to 158 F)

Length:3 ft minimum, or as required.

Each ST Patch Cable must be made of 9.3/125 single mode optical fiber, tight-buffered, surrounded with a combination of high tensile strength dielectric yarns, and housed within an impermeable outer plastic jacket.The cable must have a flammability rating of Low Smoke Zero Halogen (LSZH) and must meet or exceed FAR 25.

Each ST Patch Cable must conform to the TIA/EIA-568-A and ISO/IEC 11801 standards.

CONSTRUCTION – ST connectors must be plugged into the appropriate fiber termination and equipment connectors as shown on the plans.

MEASUREMENT AND PAYMENT – Each

00 - ITEM 9900-5300 - FIBER OPTIC ETHERNET MEDIA CONVERTER

Addendum:

Associated Item(s): 9900-5300

Header:

ITEM 9900-5300 - FIBER OPTIC ETHERNET MEDIA CONVERTER

Provision Body:

DESCRIPTION – This work is the furnishing, installing, configuring, integrating and testing of fiber optic Ethernet media converters in the field to support data devices including existing DMS and vehicle detectors as shown in the plans. Each device that is equipped with an Ethernet media converter shall connect to a terminal server that converts the device's serial data to Ethernet to be transported over the fiber optic backbone. The media converters shall be daisy chained together and shall connect end to end to create a loop using spare fibers to provide a secondary data path in the event of a component failure.

All communications for CCTV's, shall remain point-to-point back to the nearest communications hub.

MATERIAL – Provide Ethernet media converters meeting or exceeding the following minimum requirements:

- Layer 2 switch

- Six 10/100Base-T, full duplex, auto negotiating; RJ 45 ports minimum

- Two SFP ports capable of supporting 10/100/1000 fiber or copper interfaces

- Provide two 10/100/1000 SFP interfaces with the required optical power to transport over the fiber optic backbone

- DIN rail, surface or shelf mounting

- Operation Temperatures -40 to 140 degrees F

- 120 -240 VAC power supply

- Meet network standards: IEEE 802.3z, 802.3ab, 802.1p and 802.3u

- Support self healing ring configuration using rapid spanning tree protocol

- UL Listed

Fiber optic Ethernet media converters shall be compatible with network devices providing a fully functional and integrated communications network. Provide the latest revisions of software and firmware available. If a newer version is released during warranty/maintenance period, then upgrade to the newer release.

Provide all necessary cabling, adapters and ancillary hardware required to connect and power the terminal servers. Network cabling shall be rated Category 6.

CONSTRUCTION – Install, connect and configure fiber optic Ethernet media converters in node/ Hub cabinets as shown in the plans. Install fiber optic Ethernet media converters in accordance with manufacturer's recommendations.

Coordinate with the PennDOT IT Department and follow the Department's policies concerning but not limited to: IP addressing schemes, management and security policies, etc.

Provide all necessary expertise to configure and integrate the fiber optic Ethernet media converters into the communications network.

Provide all necessary cabling, adapters and ancillary hardware required to connect and power the terminal servers. Network cabling shall be rated Category 6.

MEASUREMENT AND PAYMENT – Each

00 - ITEM 9900-5400 - FIBER OPTIC VIDEO TRANSCEIVER

Addendum:

Associated Item(s): 9900-5400

Header:
ITEM 9900-5400 - FIBER OPTIC VIDEO TRANSCEIVER

Provision Body:

DESCRIPTION – Work under this item consists of replacing the existing Fiber Optic Video Transceivers at existing camera locations CM-214, CM-215, CM-216 and CM-217 and install their counterparts in Hub 2 as indicated. The work required includes furnishing, installing and testing Video Transceivers as shown on the plans, and as hereinafter provided.

MATERIAL – As follows:

1) Video Transceivers must transmit video from the camera to a remote site, and transmit data for PTZ control from the remote site to the camera, using one single-mode fiber for each link.The units must meet or exceed the following minimum specifications:

Bandwidth: 8 Mhz

Impedance: 75 ohms

I/O voltage: 1 v p-p

S/N ratio: 60 dB typical

Wavelength: 1310/1550 nm

Allowable Loss: 0-13 dB

Connectors ST fiber, BNC video

Data Formats RS-232, RS-422 and RS-485

Surface mount the fiber optic transceivers in each node (camera locations) and rack mountable card within Hub 2.

2) Provide and install a new fiber optic transceiver rack within Hub 2. The rack will provide the space and power for the Fiber Optic Video Transceiver cards. Installation of the rack and any electrical work required to get these components operational are considered incidental to this Item.

3) Coaxial video jumpers or connection cables as necessary to complete installation.

CONSTRUCTION – The Contractor must install the Fiber Optic Video Transceivers units within the field cabinets as shown on the plans.Fiber connections must be made to the Fiber Patch Panel, and video connections must be made to the Video Cameras, and the Video Switch, as applicable.

MEASUREMENT AND PAYMENT – Each

00 - ITEM 9901-0100 - OFF-DUTY UNIFORMED POLICE OFFICER

Addendum:

Associated Item(s): 9901-0100

Header:

ITEM 9901-0100 - OFF-DUTY UNIFORMED POLICE OFFICER

Provision Body:

DESCRIPTION – This work is the scheduling and furnishing of off-duty uniformed police officers from municipalities within the work limits, to control and direct traffic, at intersections indicated and at other locations as directed.

CONSTRUCTION – Schedule and furnish off-duty uniformed police officers as directed by the District Traffic Engineer. Make all arrangements for the furnishing of Off-Duty Uniformed Police with the local law enforcement agency having jurisdiction over the project site.

The contractor is responsible for informing the local law enforcement agency that the amount billed for Off-Duty Uniformed Police services should include the cost of worker's compensation insurance coverage as well as the cost of any other benefits paid as a result of union agreements or employment contracts in effect at the time the service is provided.

Police officers are to wear reflective material when controlling and directing traffic.

The durations of the construction phases are determined by the contract documents.

The District Traffic Engineer may add or delete locations required for police officers.

MEASUREMENT OF PAYMENT - Dollar.

Due to the contingent or unpredictable nature of the work being performed, the provisions of Section 110.02(d) are not applicable to this item.

Measured and paid for, under the Off-Duty Uniformed Police item as follows:

Force Account Basis. Section 110.03 (d). The furnishing of Off- Duty Uniformed Police will be paid as Service By Others and reimbursement will be limited to the invoiced cost for the service plus the applicable 2% markup. The minimum information that must be presented on the invoice is as follows:

1. Construction contract number

2. Police officer's name, badge no., and rank

3. Unique invoice no. (that does not change)

4. Date police officer worked

5. Time police officer worked, including AM and PM

6. Location where police officer worked

7. Total hours worked

00 - ITEM 9901-0193 - TEMPORARY TIMING REVISIONS

Addendum:

Associated Item(s): 9901-0193

Header:
ITEM 9901-0193 - TEMPORARY TIMING REVISIONS

Provision Body:
DESCRIPTION – This work is adjusting the signal timings on existing traffic signal controllers to accommodate the changes in traffic volumes at locations to be determined by the Department.

CONSTRUCTION – This work will be done, as required, when traffic volumes have been altered and stabilized at an intersection. Controller timings to be set will be approved by the Department.

Monitor each intersection requiring a police officer and notify the Engineer of any traffic signal where traffic appears to have stabilized and can be retimed. Also notify the local Township Engineer.

The Engineer will give the Contractor two days notice of when the traffic signal timings can be changed.

Record the existing timing of each controller. Make two copies placing one in the controller cabinet while retaining the other. Change signal timings only with the concurrence of the above agencies.

Reset the controller to its original timing, when the revised timing for any of these signals is no longer required, as directed.

MEASUREMENT AND PAYMENT - Each.

Price includes resetting the original times.

00 - ITEM 9901-0194 - TEMPORARY TRAFFIC SIGNAL TIMING CHANGES

Addendum:

Associated Item(s): 9901-0194

Header:
ITEM 9901-0194 - TEMPORARY TRAFFIC SIGNAL TIMING CHANGES

Provision Body:
DESCRIPTION – This work is making changes to signal controller timings at temporary traffic signals from the date of installation to the date of removal.

CONSTRUCTION – Perform timing changes as shown or as directed within 24 hours of notification. Keep a record of each timing change made in the controller cabinet. The record consists of a copy of the timing and phasing diagram and includes the date, the change made, the name of the person authorizing the change, and the name of the person making the change. Before making a timing change, check the existing timing settings and verify that they are as indicated on the most recent record. Notify the Engineer if unauthorized timing changes have been made. Provide a copy of each change of record.

MEASUREMENT AND PAYMENT – Each

00 - ITEM 9901-2002 - CLASS 1 TOW TRUCK

Addendum:

Associated Item(s): 9901-2002

Header:
ITEM 9901-2002 - CLASS 1 TOW TRUCK

Provision Body:

DESCRIPTION – This work is furnishing and operating on continuous Patrol or standby, one extended cab tow truck to remove disabled vehicles, vehicles involved in accidents, and small non-hazardous debris, on SR 202 and all ramps within the project limits.

This service is to be provided during any of the fully implemented long-term traffic control Stages 2 through 4, unless otherwise directed.

MATERIAL –

TOW TRUCKS:

Provide one extended cab tow truck on continuous patrol on site during hours of operation. Make one spare "back-up" extended cab tow truck available for the Project, as specified. The back-up tow truck is to meet all requirements and is to contain all equipment required for the extended cab tow truck, when on duty.

GENERAL REQUIREMENTS – The following are the MINIMUM requirements for genuine parts, accessories, equipment, and safety features, and are to be considered standard, whether mentioned or not.

The Department means the Department of Transportation, Commonwealth of Pennsylvania.

A. STANDARDS, CODES, RULES, REGULATIONS:

Each tow truck, including the back-up tow truck, is to conform to the Pennsylvania Motor Vehicle Code.

Each tow truck, including back-up tow truck, is to comply with all current applicable Federal Motor Vehicle Safety Standards, Federal and Pennsylvania Exhaust Emission and Noise Standards, Environmental Protection Agency (EPA), and Occupational Safety and Health Administration (OSHA) requirements, with appropriate decals stating compliance.

The tow trucks are to conform to the latest codes, standards and practices of the following professional organizations:

· American Institute of Steel Construction (AISI)

· American National Standards Institute (ANSI)

· American Society of Mechanical Engineers (ASME)

· American Society for Testing and Materials (ASTM)

· American Trucking Association (ATA)

· American Welding Society (AWS)

· Battery Council International (BCI)

· British Standards Institute (BSI): Limits & Fits

· International Standards Organization (ISO)

· Industrial Fastener Institute (IFI)

· National Truck Equipment Association (NTEA)

· Society of Automotive Engineers (SAE)

· Steel Structure Painting Council (SSPC)

· Truck Body Equipment Association, Inc. (TBEA)

Each tow truck is to be certified for 16,500 lbs. (7484 kg) Gross Vehicle Weight Rating (GVWR), minimum. Identify the GVWR in cab or on door as the final complete certification label (minimum rating).

Furnish and identify by decal in cab or on door Gross Combined Weight Rating (GCWR) to indicate the approved weight which can be towed.

Each tow truck, including back-up tow truck, is to bear the latest applicable Pennsylvania

Official Inspection Sticker as required for permanent license plates by Pennsylvania State Inspection Laws.

The truck and wheel hoist is to be of the design and type for a one-man operation of short distance towing.

B. VEHICLE COMPONENTS:

Alarm-backup: Ref: ECCO 450, Shock Mounted, or approved equal.

Chassis: 16,500 lbs. (7484 kg) GVWR manufacturer's rating, minimum, certified in cab or on door. Front bumper; push type extending full width with a guard extending the height and width of front grill. The bumper is to be rubber faced.

Light Bar and Arrow: Light Bar meeting the requirements of and in accordance with title 75, Pennsylvania Consolidated Status, Section 4572 and 67 Pennsylvania Code, Chapter 173. Provide an arrow panel, approved for use in Pennsylvania, 36" high by 72" wide, minimum, with a raise lower mechanism, and a control box-mounted in cab within reach of the operator. The control box is to incorporate lights to signify the arrow panel mode. The arrow panel is to be capable of displaying a left arrow, right arrow, double arrow and four-corner caution.

Safety: Provide a fire extinguisher rechargeable with a vehicle mount. Mount fire extinguisher in cab for easy and quick access. REF: 2A: 10B:C. Furnish grab handles and exit steps providing "optimum safety" for field personnel REF: Non-skid paint. Non-skid tape is unacceptable. Provide first-aid kit, and mount in the utility body.

Paint: Entire unit is to be hot lime green (per PPG Color Chip 46973 or approved equal.)

Markings: The only markings permitted on the tow truck(s) are a vehicle identification number (assigned by the PennDOT District Traffic Unit), PennDOT logo (provided by PennDOT), the words "202 PATROL", and the vehicle identification sign described below. Details and proposed marking locations are to be approved by the Engineer prior to installation on the tow truck.

C. WHEEL LIFT AND BOOM:

As per manufacturer's specifications, and as follows:

· Boom Structural Rating (Crane)

· Fully retracted 35.58 kn. at 30 degree elevation

· Fully extended 8.9 kn. at 30 degree elevation

Wheel Lift: Provide wheel lift system with (3) functions:

· Provide a wheel lift that can hydraulically raise and lower

· Extend and retract

· Tilt function independently or simultaneously

The tilt function provides means of engaging standard "L Arms" to the towed vehicle either on uneven terrain or in mud and snow conditions. The retracting wheel-lift boom in combination with tilt feature allows the towed vehicle to be retracted close to the tow truck for better weight distribution.

CONTROLS –

Provide controls on both sides of the body. Design controls to operate independently or simultaneously. Variable speed of all functions is controlled by the handle movement.

Provide the following:

· Single cable winch hydraulic, with wheel lift and boom, and body on truck chassis

· Tow sling with chains

· Wrecker special light bar

· Upper and lower work lights

· Cable tensioner on winch

· Switch Panel

· Throttle Control (Manual or Electric)

· Push Bumper

· Engine Driven Pump

EQUIPMENT:

Equip each tow truck at the Contractor's expense with the following items. Properly size the compartments of each vehicle to hold this equipment.

· One cellular phone (complete with on-line cellular phone service)

· Scanner

· CB radio

· Three two-way radios of the Contractor's frequency for use by tow truck, contractor's field office, and Superintendent.

· Public address system with external speaker

· Toolbox capable of containing the basic mechanical tools called for

· Set of standard screwdrivers

· Set of Phillips screwdrivers

· Needle nose pliers

· Large crescent wrench

· Small crescent wrench

· 5 lb hammer

· Rubber mallet

· Channel lock pliers

· Common pliers

· Wire cutter

· Electric tape (two rolls)

· Duct tape (two rolls)

· Mechanics wire

· Bolt cutters

· Tire pressure gauge

· One 6 V flashlight with extra batteries

· Safety goggles

· Hazardous materials guide book

· Rain jacket

· Rain pants

· Gloves

· E-50 class first aid kit

· Diesel fuel (18.9 L)

· Unleaded gasoline (18.9 L)

· Radiator coolant (18.9 L)

· Engine oil (2.0 L)

· 20 lb ABC class fire extinguisher

· Fire Axe

· Pry bar

· Wood blocks - four

· Street broom

· Square point shovel

· Fuses - (Highway flares) - 36 minutes

· 28" to 36" Traffic cones - 15 (conforming to Publication 212)

· Four-way lug wrench - standard

· Four-way lug wrench - metric

· Four-way light truck lug wrench

· A jar of putty suitable for temporarily stopping leaks especially from fuel tank

· An absorbent spill containment system

· Hydraulic floor jack (17.79 kn.)

· Rechargeable air bottle (Min. 56.7 L) with hoses and fittings

· Booster cables, heavy duty, min. 25' adapted to truck power

· Outlets

· Large vise grips

· Small vise grips

· Socket set - standard with 3' breaker bar

· Socket set - metric with 3' breaker bar

· Funnels (two)

· Trash can - 18.9 L with lid and trash bags

· 0.5" rope - 100' (minimum)

· Alloy tow chain - large

· Alloy tow chain - small

· Stop sign, (R1-1) 36" x 36" *

· Keep Right sign, (R4-7-B) 36" x 48" *

· Keep Left sign, (R4-8B) 36" x 48" *

· Emergency Ahead sign (W25-1) 48" x 48" *

· Portable sign stands with flags (two stands)*

· Red flags - four

· Highway maps - ten (will be supplied by the Department)

· Whisk broom

· Paper towels - two rolls

· Two bags of sand (40 lb/bag)

· Bags of salt (winter only)

· Hand cleaner

· Tire chocks (two pairs)

· Blanket

· Pen and paper

· Clip board

· Emergency phone numbers

· Vests - two

· Hard hat

· Indicated items that may be used by or given to the motorist at no cost to the motorist

· AM/FM radio

· Trailer hitch (1.875" and 2" capability)

· Local phone book

* SIGNS AND STANDS MAY BE OF THE CLOTH OR PLASTIC ROLL-UP TYPE

CONSTRUCTION -

SERVICES TO BE PROVIDED

The Tow Truck Operator (TTO) is to continuously patrol the project site and assist motorists whose vehicles have suffered mechanical failure or have been involved in minor accidents. The TTO is responsible for clearing the highway of automobiles, motorcycles, small trucks (vehicles with gross weight of 20,000 lbs. (9071.8 kg) or less and small, nonhazardous debris. These incidents are those that are encountered in the normal course of patrolling the 202 corridor or those called out by the PennDOT District 6-0 Regional Traffic Management Center (RTMC), Pennsylvania State Police Embreeville Station (PSP) and local Township Police (TP) to include East Whiteland and Tredyffrin Townships or by the Engineer.

Where no apparent physical injury is evident, the TTO is to request drivers to drive or be pushed or towed to a drop off location to open the lane to traffic. The TTO is to remove the vehicles from the highway to a drop off location after driver's consent or when directed by the TP/PSP. Should the TTO encounter a major incident, their primary duty is to immediately inform the TP, PSP and RTMC and to protect the incident scene by the use of their vehicle combined with the use of the traffic cones and "Keep Right" or "Keep Left" signs, highway flares, and truck-mounted arrow board. Where there is apparent physical injury call 911 and report known accident details and request assistance. A major incident contains any one of the following items:

· A Fatality

· An Injury

· A load that is hazardous as identified by a placard or cannot be identified as being nonhazardous

· A disabled vehicle of 20,000 lbs. (9071.8 kg) or more, or badly damaged vehicles(s), that cannot be pushed or towed by the tow truck. In this instance, the TTO is to make arrangements to secure a Class 2 tow truck or a ramp truck to remove this type of vehicle (s) as appropriate.

· Debris or large spilled loads that are impossible for the TTO to remove.

WHERE APPARENT PHYSICAL INJURY OR DRIVER INTOXICATION IS EVIDENT OR SUSPECTED, DO NOT MOVE VEHICLES INVOLVED IN AN ACCIDENT UNTIL SO DIRECTED BY POLICE.

Do not follow directions or requests by vehicle operators or occupants. Contact police immediately. Remain at the scene prepared to assist police.

A. Mechanically Disabled Vehicles, problem apparent:

If the problem with a disabled vehicle is easily diagnosed and can be remedied quickly, the TTO should perform the needed service. To get the vehicle started, for example, the TTO may change flat tires, provide fuel, provide battery "jump" starts, temporarily tape or repair cooling system hoses and refill radiators. TTO is to spend no more than 10 minutes in attempting to repair a disabled vehicle.

B. Mechanically Disabled Vehicles, problem not readily apparent or repair time exceeds 10 minutes:

If a vehicle cannot be repaired within the 10-minute time limit or the TTO cannot immediately ascertain the source of the problem, the TTO is to push or tow the disabled vehicle to a designated drop-off location identified by the Engineer. The motorist can request the TTO to call a specified towing firm ("Personal Request"), or call a relative/friend to assist them.

C. Accident Vehicles:

Under no circumstances is the TTO to attempt a repair to an accident vehicle in order to make it mobile. For example, the TTO is not to use pry bars or winch cables to pull fenders away from tires, change tires damaged as a result of an accident, or remove/ repair any body parts. All accident vehicles of non-reported accidents will be removed as promptly as possible to the nearest designated drop-off location.

D. Unattended Vehicle:

If the TTO encounters any unattended vehicle that is interfering with the normal movement of traffic (such as blocking a lane or a partial lane of traffic) or constitutes as a safety hazard, the TTO is to immediately contact the RTMC and wait to receive Township Police (TP) or Pennsylvania State Police (PSP) approval to remove the unattended vehicle to a drop-off area or other place of safety. Unattended vehicles not interfering with traffic nor posing a safety hazard are also to be reported to the RTMC by the TTO, but no further action will be necessary by the TTO unless directed to do so by the Engineer, TP or PSP.

E. Assistance to Law Enforcement Officers:

There may be some instances where TTO may be requested to lend assistance to Law Enforcement Officers. TTO is to follow the instructions of the officer at the scene of any incident. The instructions of the officer on the scene override and supersede any conflicting obligations or duties of the contractor or the TTO set forth herein. During its contracted hours of operation, the tow truck is to be exclusively dedicated to the need of this Project and may not be removed from the site for any reason other than the towing of a vehicle to a drop-off area, or replenishment of expendable items such as fuel or fire extinguishers. Temporary removal of the tow truck from the site for those reasons is not to exceed 20 minutes.

F. General Requirements:

1. At the beginning of each service call, or upon finding any disabled vehicles, the TTO is to notify the RTMC of location, model, color and plate number of disabled vehicle. At the end of each service call, the TTO is to notify the RTMC and fill out an incident information form and submit to the RTMC on a weekly basis. Prepare this form and submit it for RTMC approval prior to beginning this service. Obtain and keep adequate supply of forms through the life of the Contract.

2. At the end of each service call, the motorist will be asked to fill out and send into the Department a self-addressed stamped postcard evaluating the service they received. If a TTO receives more than one unfavorable review in the last six shifts worked, the TTO will be counseled; a second such situation will result in a warning; a third will result in a suspension and fourth will be cause for dismissal. Prepare this postcard and submit it for the Engineer's approval prior to beginning this service. Provide and keep an adequate supply of postcards through the life of the Contract.

3. No compensation of any type (tips, etc.) can be accepted by the TTO from the motorist. Stealing is prohibited. Failure to adhere to this requirement will result in an immediate dismissal of the TTO.

4. The TTO, when necessary, is to place the appropriate temporary traffic control devices from the tow truck to protect the incident site.

5. The TTO, unless so directed differently by a law enforcement officer, is to follow normal traffic laws.

6. The tow trucks are to continuously patrol the project limits or are to be stationed at location(s), as directed by the RTMC.

7. Do not tow any vehicle without vehicle operator's approval or police direction. Do not tow any vehicle involved in an accident until so directed by police.

8. Transport individuals to the field office to use phone when TTO's mobile phone is inoperable.

9. Be responsible for any damage caused by services performed under this item.

10. Notify the Department's RTMC of all disabled vehicle incidents and accidents as soon as possible.

11. Offer rides to the nearest off- expressway phone to drivers of disabled vehicles or uninjured occupants of accidents or breakdowns that are not evacuated by police or other rescue services.

12. Have the tow truck at the site of the disabled vehicle within 10 minutes of knowing that a tow truck is required.

G. Two-Way Communications and Cellular-Phone Service

The TTO is to maintain two-way communications with the RTMC and the Engineer using a cellular phone. Cellular phone is to be provided by the Contractor. The cellular phone is to include a phone unit, maintenance, and all service charges for tow truck.

All costs associated with the cellular phone service are incidental to the Hourly Contract rate. It is anticipated that the majority of the communication effort will be via the cellular phone. The communication effort is a critical element of these services. A brief summary of these communication elements is as follows:

· TTO informs the RTMC of a major incident.

· TTO to call for assistance at the request of the motorist.

· TTO to communicate with and take orders only from the Engineer, PSP, and RTMC.

· Notifying the RTMC of an unattended vehicle.

· Dispatching of tow truck to an incident.

· TTO requests the need of Class 2 Tow Truck or Ramp Truck.

· Motorist requests the service of a tow truck or other assistance.

· Motorist requests the service of another tow truck.

· Informing the PSP, TP and the Engineer of any incident involving a tow truck.

When the need arises to use the cellular phone to summon assistance for the motorist, each disabled motorist will be limited to one local (as defined by the cellular phone service area) three minute call (a busy signal, voice mail or answering machine or a does not answer, does not qualify as a call).

Use of the cellular phone for any other purpose than communicating with the TP, the Engineer, RTMC or summoning assistance for the motorist, is strictly prohibited. Violation of this requirement is grounds for immediate dismissal of the TTO.

The Contractor, at the request of the Engineer, is to submit to the Engineer copies of the monthly cellular phone service bills showing the telephone numbers of all calls made and all calls received.

SERVICE PATROL AREAS

A. The tow truck will generally patrol the project limits particularly where long term traffic control is in place.

B. The detection of damaged or disabled vehicles will be primarily via the RTMC, TP, PSP or by TTO. However, TTO will also be dispatched via two-way radio or cellular phone to an incident location by the TP, PSP, the RTMC, or the Engineer.

C. The tow truck will remain in the assigned area and only enter into another area to give assistance only at the direction of the RTMC.

DROP-OFF LOCATIONS

The Department will designate locations within the project area to be known as "drop-off locations". The TTO is to tow or push the vehicle, and transport the vehicle occupants to the next drop-off location in the direction of travel. The motorists can request to call a specified towing firm ("personal request"), or to call a relative/ friend to assist them. Should it be impossible to transport the vehicle occupants to a safe area where they can wait for assistance, the TTO is to immediately call the RTMC to inform them of this and the TTO is to wait with the disabled vehicle and its occupants until the TP/ PSP arrive. Contracted companies (The "Contractor") and/ or their employees/ drivers are not allowed to accept gratuities, perform secondary towing service from the designated drop site, recommend secondary tows, or recommend repair/body shops.

SECONDARY TOWS

If the motorist does not request a specified towing service, repair facility, or other business or individual to assist him/her at the drop-off-location, the TP/PSP defers to the towing service/AAA system that is utilized in the area.

The contracted tow truck company may not receive a call for a secondary tow from a drop- off location even if the company participates on the AAA list and would ordinarily be "next up" on the rotation. The contracted tow truck company would be eligible for AAA tows again at the conclusion of the hours of operation.

When a motorist requests the service of a private tow truck, he may elect to call a tow company of his choice. The TTO are prohibited from giving out the names of any private tow companies or making arrangements to meet any private tow company or to make any type of contracts with any private tow company. If the motorist has to be given the names of another tow company, this information is to be supplied by the TP, PSP or the Engineer in a list format as a handout. TTO may provide such a list to the motorists. The towing company supplying the tow trucks and the TTO is prohibited from conducting any type of secondary tows. The motorist post card required must indicate the type of secondary tow used and how the motorist obtained this secondary tow information and where the motorist plans on taking this vehicle for repairs and why.

The TTO is also prohibited from giving out the names or recommending any repair/body shop establishments.

Violations of any portion of this section are grounds for immediate dismissal of the TTO.

HOURS OF OPERATION

The Engineer and/or the RTMC are responsible for establishing the hours for which the tow trucks are to be on site patrolling. The hours of service for the tow trucks will be designated by the Engineer based upon the relevant local factors affecting traffic congestion such as commuting hours, special events, construction crew hours, and permanent and temporary lane restrictions. The initial hours of duties during Stages 2, 3 and 4 traffic restrictions will be 24 hours a day, 7 days a week.

Tow truck shifts (AM and/or PM) will be extended, if necessary, at the contract hourly rate, a maximum of up to 8 hours per tow truck per shift. Tow truck shifts (AM and/or PM) may be temporarily or permanently changed or extended up to 8 hours (such as being called out earlier for special events) at the contract hourly rate. These changes in the normal work shift must and can be made and authorized by the Engineer and/or the RTMC.

The tow trucks will not normally operate on the following holidays, provided that there are no construction related traffic restrictions: NEW YEARS DAY, THANKSGIVING DAY and CHRISTMAS DAY.

The TTO is to anticipate being stationed on site or patrolling the area during all types of inclement weather unless instructed not to do so by the Engineer.

STARTING OF TOWING SERVICE

Provide tow truck and all their equipment, and qualified TTOs as directed by the Engineer. Keep the back-up tow truck ready for use, when needed.

Obtain the Engineer's approval of the following items 30 days before the start of the towing service:

· Insurance Requirements

· Incident Information Forms

· Postcard Evaluation

· Tow Trucks and all Equipment

· TTOs' Names and Credentials

· TTOs' Training Program

· The Engineer will inform the Contractor of the date and time he is to begin the Towing Service.

DAMAGE COMPLAINTS

Upon receiving a damage complaint from a motorist assisted by the Contractor, that the Contractor damaged their vehicle while lending assistance, notify the Engineer regarding the nature of the damage complaint and its disposition. The Contractor is to reply to the motorist by telephone within 24 hours of receiving the damage complaint notification. If

necessary, send either its authorized representative, or its insurance company representative to inspect the vehicle and complete an incident report within 48 hours after receiving the damage complaint.

If the investigation shows that damage to the vehicle could have been caused by the Contractor, negotiate in good faith to try and resolve the issue and must report to the Engineer the result of the negotiations. Resolve all complaints within a reasonable period of time after being received. All repair costs resulting from these damage complaints are the responsibility of the Contractor.

ACCIDENTS INVOLVING TOW TRUCK

Should any tow truck become involved in any type of accident, the following procedures must be followed:

1. The TTO, if he/she are able, will immediately inform the TP/PSP and the RTMC of the exact nature of the accident and request necessary assistance (ambulance, tow truck) from the TP/PSP including the presence of a TP/PSP officer to investigate the accident and prepare an accident report (required by law for a reportable accident).

2. If the accident is non-reportable (vehicles can be moved, no injuries, no fatalities), all vehicles should be removed from the areas of long term construction. If not, the accident scene should be protected by signs, cones and flares as may be necessary.

3. The TTO will follow normal driver procedures and adhere to current Commonwealth laws and regulations regarding post-accident procedures, including but not limited to, the exchange of driver information (names, addresses, phone number, insurance information) and never flee the site of the accident.

4. The TTO may only resume the patrol of his/her area when requirements 1, 2, and 3 above have been satisfied and:

· The TP or PSP have prepared a written accident report or have instructed the TTO that they are unable to do so (applies to non-reportable accidents only).

· The tow truck is in a condition to resume patrolling.

· The TTO is physically able to resume patrolling.

· Approval has been given by the Engineer to resume patrolling.

5. Should either the tow truck and/or the TTO be unable to resume their patrol area, Contractor must have the "Back-up" tow truck and a fully qualified TTO ready to cover the project area on the next regularly scheduled shift.

6. Repairs to damaged tow truck(s) must be made as quickly as possible.

7. Every accident involving tow truck will be reviewed by a committee consisting of a representative of the Contractor, the Engineer and if applicable the TP/PSP. The main purpose of this review effort will be to insure that the tow trucks are operated in the safest manner possible. Should it be determined by the committee that the accident in question could have been avoided by the TTO, then the TTO may be subject to the following disciplinary actions:

· First Avoidable Accident - Letter of Reprimand

· Second Avoidable Accident - 1 Week Suspension

· Third Avoidable Accident - 1 Month Suspension

· Fourth Avoidable Accident - Termination

All cases will be reviewed on their own merit including the severity of each accident.

THE TOW TRUCK

Provide confirmation that the tow trucks conform to all the specifications specified. Provide a tow truck plus a "back-up" tow truck. Prior to the commencement of service, the Engineer will inspect each vehicle designated for the Project to ensure that it meets or exceeds safety requirements. Succeeding inspections will occur periodically as required by the Engineer. Any unsafe or poorly maintained vehicle(s) are to be removed from service or repaired as directed. Provide a "back-up" tow truck to complete the shifts of the tow truck removed from service. The Contractor is to have the "back-up" tow truck available for service at all times. All tow trucks are required to have a current Pennsylvania Vehicle Registration Card and are required to meet Pennsylvania Vehicle Insurance requirements.

TOW TRUCK EQUIPMENT

Each tow truck is to be equipped at the Contractor's expense as specified.

PRE-OPERATION INSPECTION

Prepare and print inspection/inventory sheet. The TTO is required to complete a pre-operation inspection of the vehicle as well as inventory all the tow truck equipment called for, prior to the start of each shift. An inspection/inventory sheet is to be completed prior to the start of each shift, and is to be kept on file by the Contractor, and is to be made available to the Engineer upon demand. Any item missing is to be replaced before the start of the shift. The Engineer reserves the right to be present at any and all pre-operating inspections and to prohibit the commencement of any tow truck duty if the equipment in the tow truck is not in conformance with specifications.

VEHICLE IDENTIFICATION

Furnish and install, on both sides of the tow trucks, a magnetically attached sign or approved equal, to all tow trucks used on this project. Attach the signs to the vehicle in a prominent position. Maintain signs in a suitable condition as directed.

Size of signs for tow trucks is to be a minimum 18" high by 30" wide with 3" letters. Signs' legend to be orange background with black letters. Signs' lettering is to read as follows:

Towing Service

Provided FREE

By PennDOT

Towing company names, logos, advertising or other markings are prohibited. Keep the vehicle clean and in good appearance.

FUEL

Supply, at the Contractor's cost, all items required for the operation of the tow truck including but not limited to fuel, oil, antifreeze, lubricants, etc. Supply to any motorists who have run out of fuel a maximum of 2 gallons of gasoline or diesel fuel, anti-freeze, oil, etc. as required at no cost to either the motorist or the Department.

“BACK-UP" TOW TRUCK

The Contractor will be required to have one spare "back-up" tow truck available for the Project. The "back-up" tow truck is to meet all specifications and is to contain all the equipment called for. The "back-up" tow truck is to be on site within 30 minutes of the time a permanently dedicated tow truck is taken out of service for any reason.

VEHICLE MAINTENANCE AND STORAGE

All tow trucks (including the "Back-Up" tow truck) when not on duty are to be stored at the Contractor's location in a secure area or at another area. The tow truck is to continuously patrol the assigned areas, or is to be stationed at agreed location(s), respond to communication dispatches for service, and use the Department's identified designated drop-off locations. The Engineer will inspect all tow trucks, including spares; prior to the service start date. Keep on file at the Engineer's Office and the Contractor's Office all documentation of the tow truck identification number and successful completion of the inspection. Tow truck maintenance is to be performed during off-duty hours by the Contractor at his expense. The Contractor may remove the tow trucks from the site or from their storage area during off-duty hours for maintenance, repairs and replenishment of supplies.

EMPLOYEES/DRIVERS/OPERATORS

A. General

All TTOs are required to have a safe driving record, and medical certification. TTOs are to be 18 years of age or older.

Potential TTOs will be subject to driving record and criminal background checks by the Department. Potential TTOs are to be sufficiently experienced in the tasks of tow truck operations to provide safe and proper service and are to be capable of demonstrating their operating abilities prior to beginning their first day of work. Additionally, the TTOs are expected to exercise reasonable judgment in carrying out their duties.

B. License Required

All TTOs are to have a current Pennsylvania Class C Driver's License.

C. Special Training and Knowledge

All TTOs including back-up operators/drivers are to complete a special Expressway

Service Patrol Training Program put together and taught by a training organization, such as WreckMaster, approved by the PA Towing Association, and approved by the Engineer. The course is to include education on the details of the Expressway Service Patrol Program, minor vehicle repair, customer service, and roadside service safety. No driver will be allowed to begin duty without attending this mandatory training class.

At the end of each 12-month period from the notice to proceed, the Contractor is to prepare and conduct, at its own cost, an 8-hour refresher-training course (during off-duty hours) for all TTOs.

The training program and refresher course are to insure that the TTO is fully knowledgeable in the following areas:

· PennDOT Publication 212 and 213M - Work Zone Traffic Control

· Tow Truck Operator Manual

· Proper Tow Truck Maintenance

· All Towing Safety Procedures

· Driver Vehicle Daily Inspection report must be in truck with the driver Tow Truck Preventive Maintenance Procedures

· Proper Tow Truck and Equipment Pre-Operation Inspection Procedure

· Lubrication Procedures

· Control/Gauges

· Proper Start Up

· Use of Transmission

· Backing Procedures

· Over the Road Techniques

· Proper Shutdown

· Air Tank Drain

· Proper Setting of Brakes

· Cleaning of Equipment

· Post Inspection of Tow Truck and Equipment

· Proper Connection of Towed Vehicle

· Equipment Being Towed

· Securing Towed Vehicle

· Emergency Warning Lights

· Towing of Vehicle

· Parking of Towed Vehicle

· Securing Towing Device

· American Red Cross (or equivalent) First Aid

· Knowledge of the geographic area of Philadelphia in general and of the Project area in particular. This is to include such items as names of interchanges and local roads and directions to major landmarks and attractions.

D. Uniform and Other TTOs Equipment

Provide at least two uniforms to all the TTOs, keep uniforms clean, and immediately replace if they become torn or stained. The uniform is to consist of an orange jump suit with reflectorized tape on the front and back or a Contractor submitted uniform. The final uniform is to be approved by the Engineer. This uniform is only be worn while on duty or while traveling to and from the assigned area. The Contractor is also to supply the TTO with protective shoes or boots, jackets, reflectorized rain gear and hard hats.

Supply each TTO with a photo identification card which contains only their names and current photo with no reference to any private tow company. This card is to be prominently displayed on their uniform.

E. Driving and/or Working Under the Influence of Drugs or Alcohol

Use of alcohol or illegal drugs is grounds for immediate dismissal of the TTO by the Engineer. The Contractor is then responsible for finding a replacement TTO by the beginning of the next TTO shift.

F. TTO Behavior

TTOs will be considered as representatives of the Department and their appearance and behavior in front of the general public is to be impeccable. Violations of proper behavior and etiquette will not be tolerated. Such violations are listed as follows:

· Poor grooming, poor personal hygiene

· Dirty, torn or worn uniforms

· Sleeping during normal working hours

· Unsafe acts or violations of traffic laws

· Leaving motorists in unsafe areas, such as in a median divisor or alone on a narrow shoulder without another tow truck or police vehicle present

· Foul language or inappropriate hand gestures

· Yelling or being rude to motorists

· Falsifying information orally or in written form

· Damaging a motorist's vehicle due to careless act

· Insubordination

· Demeaning the Department of the Towing Service Program

· Arriving to patrol area late or leaving patrol area early.

Although each case will be weighed on its own merits, violation of any of the above items by the TTO will be dealt with as follows:

· First offense: Written reprimand

· Second offense: 1 Week suspension

· Third offense: 1 Month suspension

· Fourth offense: Termination

Multiple and continual violations by more than one TTO may result in more severe penalties.

These violations are not intended to be an exhaustive list. The Engineer reserves the right to characterize any unsatisfactory action as a violation and subject to the above actions.

RECORD KEEPING/REPORTING/AUDITS

The TTOs are required to call the RTMC at the beginning and end of each shift, when on break and leaving the assigned patrol area, and are required to complete a daily log which documents beginning and ending shift times, vehicles assisted, type of assistance rendered, any time he/she left the Project site, and total mileage for the day. These records are to be made available upon request of the Engineer and/or the RTMC, or his authorized representatives to inspect and audit.

DISPOSITION OF TOW TRUCKS AFTER THE REQUIRED COMPLETION DATE

At the completion of the contract requirements for this item, Immediately paint the tow truck(s) any color except hot lime green before placing the tow truck(s) in private service. All Department logos, markings and signs are to be removed by the Contractor and given to the Department. This work is subject to Section 110.08

FINAL INSPECTION, ACCEPTANCE AND FINAL PAYMENT

The tow truck(s) provided under this Contract is not to be used for any future PENNDOT construction project or expressway service patrol contract.

MEASUREMENT AND PAYMENT - Hour. Include costs for all work described herein in the price bid per hour. This hourly rate is only for those hours when the tow truck is actually on duty as called for in this specification. No hourly rates will be paid for in such situation as:

· The "Back-up" tow truck when it is not on actual duty.

· Removal of the tow truck from the duty for longer than 20 minutes except as permitted under this Contract.

· TTO travel time to and from the Project site.

· Tow truck maintenance.

Overtime, when required by the Department, will be paid at the straight time rate (Contract rate), and paid in quarter hour increments.

Disabled vehicles discovered within the project limits in areas of long term construction with the operator present, just at the end of a shift period or discovered by the TTO while returning to the Contractor's location, are to be handled in a normal response manner even if this means staying out beyond the normal end of the shift period. The TTO is not to drive past a disabled vehicle when the operator is present. The TTO is to immediately contact the RTMC. The Contractor will be reimbursed for this overtime at a straight time rate (Contract rate), and paid in quarter hour increments. The TTOs daily log, incident information form and motorists post card evaluation, will be used to document this overtime work.

Disabled vehicles discovered within the project limits particularly in areas of long term traffic control without the operator present, just at the end of shift period or discovered by the TTO while returning to the Contractor's location are to be immediately reported to the RTMC. If the disabled vehicle poses no hazard then no further action by the TTO is necessary. If the RTMC, TP, or PSP instruct the TTO to relocate the disabled vehicle to a safer location, the Contractor will then be reimbursed for any overtime in the same manner as if the vehicle had been discovered with the operator present.

00 - ITEM 9901-2003 - CLASS 2 TOW TRUCKITEM 9901-2004 - RAMP TRUCK

Addendum:

Associated Item(s): 9901-2003, 9901-2004

Header:

ITEM 9901-2003 - CLASS 2 TOW TRUCK
ITEM 9901-2004 - RAMP TRUCK

Provision Body:

DESCRIPTION - This work is furnishing and operating a ramp truck or tow truck(s) on a per call basis when traffic control Stages 2 through 5 traffic restrictions are in full effect on SR 202 or as directed. The ramp truck or tow truck must be available 24 hours per day.

EQUIPMENT - Provide the following vehicles for removal of disabled vehicles when directed.:

Class 2 Tow Truck - For Buses (including SEPTA), large trucks and semi-trailer rigs.

Ramp Truck - Flat bed truck with winch for wreck removal.

PROCEDURES -

Upon notification that a disabled vehicle requires removal and operator approval is obtained or removal is directed by police, contact an approved tow truck service and order removal with the required type of towing vehicle (s). Do not tow any vehicle without vehicle operator approval or police direction. Inform the vehicle operator that the tow to the nearest service station is provided at no cost.

Respond by being en route to the site within 15 minutes of notification with the required type of towing vehicle(s).

Be courteous to operators or occupants of vehicles at all times.

Tow vehicles requiring repair or wrecked vehicles to the nearest service station with a public telephone. Transport vehicle beyond this point only at direction of vehicle owner and at owner's expense.

Remove vehicles requiring repairs or wrecked vehicles utilizing a ramp truck when towing is not advisable. Remove these vehicles to a safe location outside the traffic restriction area. Transport vehicle beyond this location at the expense and approval of the operator.

Tow abandoned vehicles and vehicles involved in accidents where the operator is no longer available to a location designated by the police.

Do not tow vehicles which were involved in an accident until so directed by police.

Refer motorists to the Class 1 Tow Truck for phone service or transportation assistance.

Be responsible for any damage caused by towing operations.

Sign-in with the Class 1 Tow Truck operator in all cases when answering a call for record purposes.

MEASUREMENT AND PAYMENT – Call

Verify by sign-in records maintained by the Contractor's Class 1 Tow Truck operator as directed.

Payment when disabled vehicles are first removed by others or under their own power prior to the Class 2 tow truck or ramp truck reaching the site will be paid only upon acceptance certification provided to the Engineer by the Class 1 Tow Truck Operator or the contractor that the trip was directed by the Engineer, Township Police, Pennsylvania State Police or other authorized individual.

00 - ITEM 9910-0001 - 8” x 8” x 4” NEMA 4 JUNCTION BOX

Addendum:

Associated Item(s): 9910-0001

Header:
ITEM 9910-0001 - 8” x 8” x 4” NEMA 4 JUNCTION BOX

Provision Body:
DESCRIPTION

This item of work consists of furnishing and installing a surface mounted NEMA 4 junction box at the locations indicated.

MATERIALS – In accordance with Section 910.2 and as follows:

Provide a NEMA 4 rated junction box, or box rated for wet applications of a type as follows:

a. 16 or 14 gauge steel

b. Continuously welded seams grounded smooth

c. Provide conduit entrance holes as required

d. Lift-off cover

e. External screw clamps

f. Stainless steel retaining chain between box and cover

g. Oil resistant gasket and adhesive

h. Grounding stud

i. Exterior mounting lugs

j. ANSI 61 gray polyester powder coating inside and out over phosphatized surfaces

k. Provisions for padlocking not required.

CONSTRUCTION – In accordance with Section 910.3 and as follows:

Surface mount junction box to ceiling with concrete anchors. Provide neoprene washers between Junction Box and concrete ceiling.

MEASUREMENT AND PAYMENT - Each

00 - ITEM 9910-0004 - FLUSH MOUNTED 30” X 30” X 12” JUNCTION BOX

Addendum:

Associated Item(s): 9910-0004

Header:
ITEM 9910-0004 - FLUSH MOUNTED 30” X 30” X 12” JUNCTION BOX

Provision Body:

DESCRIPTION - This work is furnishing and installation of junction boxes that are structure, barrier wall or retaining wall mounted.

MATERIAL – Provide NEMA 3R rated, junction boxes, hot dipped galvanized as specified in Section 1105.02(S) after fabrication. Provide boxes that can be surface mounted with a cover secured by brass or stainless steel tamperproof screws. Provide factory installed grounding stud and hex nut in rear of box, as applicable.

CONSTRUCTION – Flush mount steel junction box, NEMA 3R, complying with UL – 50 Electrical Cabinets and Boxes. Provide boxes manufactured by: Hoffman Engineering Company, Penn Panel and Box Company, Keystone or approved equal. Boxes are to be installed where indicated on the plans and at intermediate locations along conduit runs such that maximum distance between junction boxes is 800 feet.

MEASUREMENT AND PAYMENT – Each

00 - ITEM 9910-5063 - 4 INCH CONDUIT

Addendum:

Associated Item(s): 9910-5063

Header:
ITEM 9910-5063 - 4 INCH CONDUIT

Provision Body:

DESCRIPTION – This work is furnishing and installation of PVC HDPE multi-duct and heavy wall fiberglass multi-duct conduit as required for a fully functional ITS network.

MATERIAL – Sections 910.2 and 954.2, and as follows:

a. 4 inch PVC multi-duct conduit for underground

Provide a nominal four (4) inch Schedule 40 PVC conduit suitable for direct burial in accordance with section 1101.09(b).1. Provide a nominal four (4) inch multi-duct with four (4) inner-ducts conduit with an integral six (6) inch long extended gasket bell and a spigot coupling. Provide conduits with four (4) pre-assembled nominal 1.25 inch pre-lubricated PVC inner-ducts. Install the inner ducts and apply the lubrication at the factory. Provide a non-cemented spacer system to hold the inner-ducts in a square configuration.

Provide external spacers for the support of the conduit in the trench and for the separation from additional conduits in the trench, if required. Mold all spacers from a high-impact PVC plastic and match the impact resistance of the multi-duct conduit itself. External spacers are considered incidental to conduit installation and will not be measured for separate payment.

The use of four (4) 1.25 inch High Density Polyethylene (HDPE) inner ducts in lieu of four (4) inch multi-duct conduits is acceptable. Solid Wall High Density Polyethylene (HDPE) Conduits must comply with ASTM F 2160.

Provide tracer wire for all underground conduit.

b. 4 Inch Heavy Wall Fiberglass Multi-Duct Conduit for exposed installations.

Provide four (4) inch heavy wall fiber glass conduit, filament wound, epoxy coated, fiberglass conduit suitable for exposed above ground installations conforming to the most current NEMA TC-14 Standard in accordance with section 1101.09(b).1. Provide a

nominal four (4) inch multi-duct with four (4) inner-ducts conduit with an integral six (6) inch long extended gasket bell and a spigot coupling. Provide conduits with four (4) pre-assembled nominal 1.25 inch pre-lubricated PVC inner-ducts. Install the inner-ducts and apply the lubrication at the factory. Provide a non-cemented spacer system to hold the inner-ducts in a square configuration.

Provide external spacers for the support of the conduit in the trench and for the separation from additional conduits in the trench, if required. Mold all spacers from a high-impact PVC plastic and match the impact resistance of the multi-duct conduit itself. External spacers are considered incidental to conduit installation and will not be measured for separate payment.

c. Conduit and Duct Plugs

Provide acceptable water-tight conduit and duct plugs matching the sizes for the conduit, inner ducts, and cables as follows:

Blank Duct Plugs – Use for sealing vacant inner-ducts.

Simplex Duct Plugs – Use to support cable and seal ends of inner-ducts.

Quadplex Conduit Plug – Use to support four inner-ducts and seal ends of conduit.

Provide duct and conduit plugs constructed of plastic or other corrosion proof material, with stainless steel fasteners and hardware.

Submit catalog cuts to the Engineer for review and approval.

CONSTRUCTION – As indicated and in accordance with Publication 647M; Publication 408, Section 910.3(g); Section 910.3(h), except paragraphs 6, 7 and 9; Section 920.3(h); Section 920.3(i) paragraph 1, Section 954 3(b); and as follows:

a. Conduits:

Plug all unused inner-ducts at every cabinet and junction box. Separate payment will not be made for fittings, spacers, warning tape or any installation hardware. Do not use cement to assemble individual conduit or bend sections. Use fixed or flexible bends of the same material as recommended by the manufacturer to avoid obstructions not shown in the plans. Mark the spigot end with a circumferential ring to ensure proper insertion depth during coupling. Identically mark each conduit segment with a longitudinal running print line to assure proper inner-duct orientation and alignment.

Trenching and Backfilling – As indicated in the plans, as required, and as directed by the Engineer, Section 910.3(c) and as follows: Make necessary adjustments to avoid obstructions and underground utilities.

4 Inch Heavy Wall Fiberglass Multi-Duct Conduit Installation on Existing Structures - Attach the conduit to existing structures in accordance with attachment details that are approved by the Engineer. Verify the location of any reinforcement in concrete prior to drilling holes. Utilize a pachometer or similar device to determine reinforcement location.

Conduit Installation – Section 910.3(g), as indicated on the details included in the plans and as shown in the Standard Drawing.

Furnish a conduit system that supports the installation of fiber optic and power cables as per the requirements defined herein and meets the following codes and design standards:

- Distance between communications junction boxes is not to exceed 800 feet, unless otherwise specified by the plans, local code or the National Electric Code.

- Distance between electrical junction boxes is not to exceed 400 feet, unless otherwise specified by the plans, local code or the National Electric Code.

- Bend radius in conduits and junction boxes not to exceed the bending radii recommended by the cable manufacturer.

- Conduit provided with expansion joints at every expansion joint on bridges, every 1000 feet for exposed conduit, and at locations where conduit transitions from buried to exposed.

Test all conduits after backfilling using an appropriately-sized mandrel, as directed by the Engineer.

b. Existing Utilities:

Protection of Utilities and Other Existing Facilities in accordance with section 105.06, 107.l2 and as follows:

Ascertain and locate any existing utilities, including highway lighting, fiber optic lines for ITS, and other facilities in the project area, and take all precautions to fully protect the utility and service. Prior to performing any work in the vicinity of an underground or overhead line, advise the utility company at least 72 hours advance of initiating work. Provide all measures for protection in accordance with the National Electric Safety Code & the Occupational Safety and Health Administration's Regulations and as deemed necessary by the utility company with the Engineer's concurrence. Coordinate protection and relocation of utilities with the utility company. This work is considered incidental to the cost of construction and no separate or additional payment will be allowed. Contact the Pennsylvania One Call System at 1-800-242-1776 for all utilities prior to starting work. The Contractor's attention is directed to the Provisions of Act 172, enacted December 1986 by the General Assembly of the Commonwealth of PA, amended by the provisions of Act 38, and approved by the Governor, which specified the Contractor's responsibilities in regard to public health and safety during excavation operations in areas of underground utilities.

MEASUREMENT AND PAYMENT – Linear Foot

00 - ITEM 9937-0082, 9937-0083 - FLEXIBLE DELINEATOR POST

Addendum:

Associated Item(s): 9937-0082, 9937-0083

Header:

ITEM 9937-0082 - FLEXIBLE DELINEATOR POST – RED
ITEM 9937-0083 - FLEXIBLE DELINEATOR POST – ORANGE

Provision Body:

DESCRIPTION – This work is the furnishing and installation of delineation devices of the color indicated.

MATERIAL –

Delineation Devices – Section 1103.05

CONSTRUCTION – Locate delineation devices of the color indicated and type specified. Attach reflective units to posts or brackets. Drive flexible delineator posts directly into the ground by the method recommended by the manufacturer. Use red delineators to mark the location of electrical junction boxes and orange delineators to mark the location of communication junction boxes.

MEASUREMENT AND PAYMENT – Each

00 - ITEM 9937-0323 - FLEXIBLE DELINEATOR POST CLEANOUT STAKE

Addendum:

Associated Item(s): 9937-0323

Header:
ITEM 9937-0323 - FLEXIBLE DELINEATOR POST CLEANOUT STAKE

Provision Body:
DESCRIPTION – This work is the furnishing and installation of delineation posts as indicated.

MATERIAL –

Delineation Devices – Section 1103.05

CONSTRUCTION – Locate delineation devices in the center of the sedimentation or permanent drainage structure as indicated on the plans. Drive flexible delineator posts directly into the ground by the method recommended by the manufacturer. Permanently mark stake at cleanout elevation noted on the plans.

MEASUREMENT AND PAYMENT – Each

00 - ITEM 9938-0001 - DISTANCE MARKER UNITS DURING CONSTRUCTION

Addendum:

Associated Item(s): 9938-0001

Header:
ITEM 9938-0001 - DISTANCE MARKER UNITS DURING CONSTRUCTION

Provision Body:
DESCRIPTION - This work is the removal of any existing, furnishing and installation, and maintenance and relocation of distance markers on breakaway steel posts or mileage marker supports.

MATERIAL – In accordance with Section 938.2.

CONSTRUCTION - In accordance with Section 938.3 and as follows:

Furnish and install distance marker units at one-tenth of a mile interval. Maintain distance marker units and replace any that become damaged or lost. Relocate distance marker units when construction switches to the next stage. Locate the markers in order along both main roadway sides, beginning as directed. Measure to accurately establish the marker locations, in one-tenth of mile increments, along the outside pavement edge of the northbound roadway only. Locate markers on the southbound roadway, opposite the marker locations established on the northbound roadway. Drive posts or erect supports, as required, and mount markers. After mounting markers, tighten anti-theft nuts and bolts to assure a snug fit.

When a marker location is on a structure, erect markers facing traffic on distance marker brackets.

MEASUREMENT AND PAYMENT - Each.

Includes posts and/or supports, relocation and replacement as directed.

00 - ITEM 9952-2035 - CONTROLLER ASSEMBLY, SOLID STATE, ACTUATED, WITH VOLUME DENSITY 2-8 PHASE

Addendum:

Associated Item(s): 9952-2035

Header:

ITEM 9952-2035 - CONTROLLER ASSEMBLY, SOLID STATE, ACTUATED, WITH VOLUME DENSITY 2-8 PHASE, TYPE I MOUNTING

Provision Body:

DESCRIPTION: Provide and install an Eagle EPAC M52 controller assembly. Controller shall operate in NEMA TS2, Type 1 configuration, with a Type 2 controller unit. The cabinet assembly shall meet, as a minimum, all applicable sections of the NEMA Standard Publication No. TS2-2003. Where differences occur, this specification shall govern.

MATERIAL:

1. Cabinet Design and Construction

1.1 Provide Type 1 mounting (pad mounting), unless otherwise identified on the plans and specifications.

1.2 Construct cabinet from type 5052-H32 aluminum with a minimum thickness of 0.125 inches.

1.3 Design and manufacture cabinet with materials that will allow rigid mounting, whether intended for pole, base, or pedestal mounting. The cabinet must not flex on its mount.

1.4 Seal all seams with RTV sealant or equivalent material on the interior of the cabinet.

1.5 Provide cabinet with one removable shelf manufactured from 5052- H32 aluminum. Shelf shall be a minimum of 10 inches deep.

1.6 Provide shelf with horizontal slots at the rear and vertical slots at the front of the turned down side flange. Install shelf by first inserting the rear edge of the shelf on the cabinet rear sidewall mounting studs, then lowering the shelf on the front sidewall mounting studs. Hold shelf in place by strut nuts.

1.7 Provide front edge of the upper shelf with holes punched every 6 inches to accommodate tie-wrapping of cables/harnesses.

1.8 Mount two set of vertical "C" channels on each interior wall of the cabinet for the purpose of mounting the cabinet components. Accommodate spring mounted nuts or studs. Extent all mounting rails to within 7 inches of the top and bottom of the cabinets. Provide sidewall rail spacing 7.88 inches center-to-center. Provide rear wall rail spacing 18.50 inches center-to-center.

1.9 Close the main door and police door-in-door against a weatherproof and dust-proof, closed-cell neoprene gasket seal. Provide gasket material for the main door a minimum of 0.250 inches thick by 1.00 inch wide. Provide gasket material for the police door a minimum of 0.250 inches thick by 0.500 inches wide. Provide gaskets permanently bonded to the cabinet.

1.10Equip the lower section of the cabinet with a louvered air entrance. Provide air inlet large enough to allow sufficient air flow per the rated fan capacity. Satisfy the NEMA rod entry test for 3R ventilated enclosures. Secure the air entrance with a non-corrosive, vermin- and insect-proof, removable air filter. Fit the filter snugly against the cabinet door wall.

1.10.1 Incorporate the roof of the cabinet with an exhaust plenum with a vent screen. Provide perforations in the vent screen not exceeding 0.125 inches in diameter.

1.11Equip the main door with a three-point latching mechanism with Nylon Rollers at top and bottom.

1.12Utilize a shank of 5/8 inches minimum diameter on the main door. Include a hasp for the attachment of an optional padlock on the handle. Provide a cabinet door handle that rotates counter-clockwise to open. Provide a handle that does not extend beyond the perimeter of the main door at any time. Position the lock assembly so that the handle shall not cause any interference with the key when opening the cabinet door.

1.13 Provide the main door hinge as a one-piece, continuous piano hinge with a stainless steel pin running the entire length of the door. Attach the hinge in such a manner that no rivets or bolts are exposed.

1.14 Provide the main door with a mechanism capable of holding the door open at approximately 90, 125, and 150 degrees under windy conditions. Provide mechanism that does not require placement by the field technician.

1.15 Equip the main door with a tumbler lock. Supply three keys.

1.16Provide the police door-in-door with a treasury type lock. Provide three keys.

1.17 Provide cabinet as a Size 6, as defined in the NEMA TS-2 specification, with an 18 inch base extension. Seal the joint between the extension and the cabinet with RTV or approved sealant. Bolt the extension and cabinet together with minimum 3/8-inch bolts. Other cabinet sizes and/or combinations may be used upon approval by the Engineer.

1.18Provide a NEMA 3R auxiliary cabinet (nominal dimensions 20”h x 17”w x 15”d), with louvered and screened ventilation door, to house communications equipment – fiber optic patch panel, Ethernet switch, and terminal server (if provided). Attach the auxiliary cabinet to the left side of the main cabinet with the back of the auxiliary cabinet as the attachment face. Provide a four inch chase nipple opening with plastic bushing to connect all necessary cables and wiring from the communication equipment to the main cabinet and controller unit. Provide stiffener reinforcement on the main cabinet wall. Seal the joint between the auxiliary cabinet and the main cabinet with RTV or approved sealant. Bolt the auxiliary cabinet and the main cabinet together with minimum 3/8-inch bolts. Install the auxiliary cabinet in such a way so as to allow the main cabinet door to fully open. Provide a DIN rail attached to the inside of the auxiliary cabinet with nylon spacers and #10 screws for attachment of the Ethernet switch to provide thermal isolation of the switch from the auxiliary cabinet sides.

1.19Install one stainless steel eye bolt on the top of the right side of the cabinet foundation, three to six inches from the side of the cabinet. Provide eye bolt with a shoulder, thread diameter of at least ¾”, an eye inside diameter of at least 1 ½”, and a thread length of at least twelve inches.Provide foundation six inches wider (ten inches total) to the right side of the controller cabinet.

2 Terminals and Facilities/Main Panel Design and Construction

2.1 Construct main panel constructed from 5052-H32 brushed aluminum of 0.090 inches minimum thickness and formed so as to minimize any flexing when plug in components are installed.

2.2 Hinge all main panels at the bottom to allow easy access to all wiring on the rear of the panel. Provide a minimum of 12 position main panels.

2.3 Provide Type 3 main panel configuration, as defined in NEMA TS-2 specification.

2.4 Silkscreen label all load switch and flash transfer relay socket reference designators on the front and rear of the main panel to match drawing designations. Mark socket pins for reference on the rear.

2.5 Mount all load switches in a single horizontal row when utilizing 12- position main panels; two rows when utilizing 16-position main panels.

2.6 Support all load switches by a bracket or shelf extending at least half the length of the load switch.

2.7 Provide rack style mounting to accommodate the required BIUs per the configuration listed in section 2.3 above. Provide a dual-row, 64-pin female DIN 41612 Type B connector for each BIU rack position. Provide card guides for both edges of the BIU. Provide terminal and facilities BIU mounting as an integral part of the main panel. Provide detector rack BIU mounting as an integral part of the detector rack.

2.7.1 Provide all BIU rack connectors with pre-wired address pins corresponding to the requirements of the TS2 specification. Provide address pins that control the BIU mode of operation. Provide BIUs capable of being interchanged with no additional programming.

2.7.2 Provide the 4- and 8-load switch position main panels with all field wires contained within one horizontally-mounted terminal block.

2.8 Provide 12- and 16-load switch position main panels with all field wires contained on one row of horizontally mounted terminal blocks. Wire the upper row for the pedestrian and overlap field terminations.

2.9 Terminate all field output circuits on a non-fused compression type terminal block with a minimum rating of 10 amps.

2.10 Identify all field input/output (I/O) terminals by permanent alphanumerical labels. Use standard nomenclature per the NEMA TS2 specification for all labels.

2.11 Accomplish all field flash sequence programming at the field terminals with the use of a screwdriver only. It must also be possible to program which flasher circuit the phase must be programmed to.

2.11.1 Wire field terminal blocks to use three positions per vehicle or overlap phase (green, yellow, red). It will not be necessary to debus field terminal blocks for flash programming.

2.12 Provide main panel with at least one flasher socket (silk screen labeled) capable of operating a 15-amp, 2-pole, NEMA solid state flasher. Support the flasher by a bracket that extends at least half its length.

2.13 Wire one RC network in parallel with each flash-transfer relay and any other relay coils.

2.14 Permanently label all logic-level, NEMA-controller and Malfunction Management Unit input and output terminations on the main panel. Identify the function of each terminal position on the cabinet prints.

2.15 Provide at a minimum, two 20-position terminal blocks at the top of the main panel to provide access to the controller unit's programmable and nonprogrammable I/O. Provide terminal blocks for DC signal interfacing with a number 6-32 x 7/32 inch screw as minimum.

2.16 Conform all wiring, 14 AWG and smaller, to MIL-W-16878/1, type B/N, 600V, 19-strand tinned copper. Provide wire with a minimum of 0.010 inches thick PVC insulation with clear nylon jacket and rated to 105 degrees Celsius. Provide 12 AWG and larger wire with UL listed THHN/THWN 90 degrees Celsius, 600V, 0.020 inches thick PVC insulation and clear nylon jacketed.

2.17 Provide all controller and Malfunction Management Unit cables of sufficient length to allow the units to be placed on either shelf or the outside top of the cabinet in the operating mode. Sleeve connecting cables in a braided nylon mesh. The use of exposed tie-wraps or interwoven cables is unacceptable.

2.17.1 Provide all cabinet configurations with enough RS-485 Port 1 communication cables to allow full capabilities of that cabinet. Provide each communication cable connector as a 15-pin D subminiature type. Provide cable as a shielded cable suitable for RS-485 communications.

2.18 Pre-wire all main panels for a Type-16 Malfunction Management Unit.

2.19 Provide all wiring neat in appearance. Provide all cabinet wiring continuous from its point of origin to its termination point. Butt type connections/splices are not acceptable.

2.20 Provide all connecting cables and wire runs secured by mechanical clamps.

2.21 Provide the grounding system in the cabinet divided into three separate circuits (AC Neutral, Earth Ground, and Logic Ground). Provide these ground circuits connected together at a single point as outlined in the NEMA TS2 Standard.

2.22 Provide all pedestrian push-button inputs from the field to the controller optoisolated through the BIU and operated at logic ground.

2.23 Hook or loop around the eyelet, all wire (size 16 AWG or smaller) at solder joints or terminal block post prior to soldering to ensure circuit integrity. Lap joint soldering is not acceptable.

3 Power Panel Design and Construction

3.1 Provide the power panel consisting of a separate, wholly enclosed module, securely fastened to the right side wall of the cabinet. Wire the power panel to provide the necessary power to the cabinet, controller, Malfunction Management Unit, cabinet power supply and auxiliary equipment. Manufacture from 0.090-inch, 5052-H32 aluminum with a removable plastic front cover. Provide panel of such design so as to allow a technician to access the main and auxiliary breakers without removing the front cover.

3.2 House the following components in the power panel:

a. A 30-amp main breaker. Supply power to the controller, MMU, signals, cabinet power supply and auxiliary panels with this breaker. Provide breakers with thermal magnetic type, U.L. listed for HACR service, with a minimum of 10,000 amp interrupting capacity.

b. A 15-amp auxiliary breaker. Supply power to the fan, light, GFI outlet, and auxiliary outlet with this breaker.

c. A surge arrester.

d. A 50 amp, 125 VAC radio interference line filter.

e. A normally-open, 60-amp mercury contactor.

f. Two (2) 15-position neutral bus bars capable of connecting three #12 wires per position.

g. A 7-position ground bus bar capable of connecting three #12 wires per position.

h. A NEMA type 5-15R GFCI convenience outlet.

4 Auxiliary Cabinet Equipment

4.1 Provide the cabinet with two thermostatically controlled (adjustable between 80-150 degrees Fahrenheit) ventilation fans in the top of the cabinet plenum. Provide fans as a ball bearing type fans and capable of drawing a minimum of 100 cubic feet of air per minute per fan.

4.2 Mount an LED lighting fixture on the top inside of the cabinet, and under the timer shelf. Wire the lamp to a 15-amp door-activated switch mounted near the top of the door.

4.3 Provide an enclosed drawer, of sufficient size to accommodate one complete set of cabinet prints, below the timer shelf.

4.4 Supply three sets of complete and accurate cabinet drawings with each cabinet.

4.5 Supply one set of manuals for the controller, Malfunction Management Unit and vehicle detector amplifiers with each cabinet. Supply the municipality with five additional sets.

4.6 Furnish the cabinet with an in-door switch to advise master/local controller of a “door-open” condition.

4.7 Provide the cabinet with a surge protection package. Provide surge protection as a solid state design, continuous service current — 15A at 120V RMS, rated at 20,000A (8 x 20 microsecond) 20 times, peak clamping voltage: 250V at 20kA. Provide terminals for AC line, AC neutral, AC equipment in, AC equipment out, neutral equipment out and ground.

4.8 Install two five-position auxiliary outlet strip for fiber optic power vertically on the right side of the cabinet between shelves one and two.

5 Cabinet Test Switches and Police Panel

5.1 Mount a test switch panel on the inside of the main door. Provide as a minimum the following:

a. AUTO/FLASH SWITCH. When in the flash position, maintain power to the controller and the place intersection in flash. The controller will not be stop timed when in flash.

b. STOP TIME SWITCH. When applied, stop time the controller in the current interval.

5.2 The police door switch panel must contain the following:

a. SIGNALS ON/OFF SWITCH. In the OFF position, remove power from signal heads in the intersection. Continue to operate the controller. When in the OFF position, do not conflict or require reset of the MMU.

b. AUTO/FLASH SWITCH. In the flash position, do not remove power from the controller and apply stop time.

c. AUTO/MANUAL SWITCH. In the MANUAL position, control the intersection by the provided momentary push button and hand cord.

d. POLICE CORD. Store the cord and push button within the closed police door when not in use. Provide cord with a length of at least 12 feet.

5.3 Provide all toggle type switches as heavy duty and rated 15 amps minimum. Single- or double-pole switches may be provided, as required.

5.4 Cover any exposed terminals or switch solder points with a nonflexible shield to prevent accidental contact.

5.5 Clearly and permanently label all switch functions.

5.6 Provide all wire routed to the police door-in-door and test switch pushbutton panel adequately protected against damage from repetitive opening and closing of the main door.

5.7 Provide all test switch panel wiring hardwire connected to the main panel.

6 Auxiliary Devices

6.1 Load Switches

6.1.1 Conform solid state Load switches to the requirements of Section 6.2 of the NEMA TS2 Standard.

6.1.2 Provide signal load switches with a minimum rating of 10 amperes at 120VAC for an incandescent lamp load.

6.1.3 Provide the front of the load switch with three indicators to show the input signal from the controller to the load switch.

6.1.4 Provide load switches dedicated per phase. The use of load switches for other partial phases is not acceptable.

7 Flashers

7.1 Conform solid state flasher to the requirements of section 6.3 of the NEMA TS2 Standard.

7.2 Accomplish flashing of field circuits for the purpose of intersection flash by a separate flasher.

7.3 Rate flasher at 15 amperes, double pole with a nominal flash rate of 60 FPM.

8 Flash Transfer Relays

8.1 Meet the requirements of Section 6.4 of the NEMA TS2 Standard for all flash transfer relays.

8.2 De-energize the coil of the flash transfer relay for flash operation.

9 Malfunction Management Units

9.1 Supply each cabinet assembly with one Malfunction Management Unit (MMU) as defined by the requirements of Section 4 of the NEMA TS2 Standard.

10 Bus Interface Units

10.1 Meet the requirements of Section 8 of the NEMA TS2 Standard for all Bus Interface Units (BIUs).

10.2 Supply the full complement of Bus Interface Units, a minimum of five, with each cabinet to allow for maximum phase and function utilization for which the cabinet is designed.

11 Cabinet Power Supply

11.1 Meet the requirements of Section 5.3.5 of the NEMA TS2 Standard for the cabinet power supply.

11.2 Provide cabinet power supply with LED indicators for the line frequency, 12 VDC, 12 VAC, and 24 VDC outputs.

11.3 Provide cabinet power supply with jack plugs (on the front panel) for access to the +24 VDC for test purposes.

12 Indicator Light

12.1 Install a Green LED light (0.25"–0.50" in diameter) on the exterior of the controller cabinet to indicate A.C. cabinet power. Install a red LED light (0.25"–0.50" in diameter) on the exterior of the controller cabinet to indicate the generator connection is in use. Illuminate red indicator light when the generator is providing power to run the intersection. Turn off the red light during normal A.C. power operation. Install the lights at a point easily visible from a vehicle traveling on the main arterial of the intersection. Provide watertight seal.

13 Generator/Utility Transfer Assembly

13.1 Provide an assembly that will automatically transfer power between Utility and local-fed electrical power in a safe manner. Install the assembly on the main controller cabinet. Provide the generator plug cover measuring 6" x 5" x 4", placed inside of a NEMA 3R cabinet measuring 14"x10"x7", and key to accommodate a standard traffic cabinet "police door" key.

13.2 Design all elements of the assembly to carry single phase 120vac 60 Hz. electrical current at 30 amperes. Construct the transfer assembly to physically prevent either power source from back-feeding the other. Only one power source may be connected to the load at any one time. Cover or recess within insulating materials all electrical connections. Attach instructions & schematic detailing the transfer procedure and connections to the assembly.

13.3 Provide utility power entering the transfer assembly from a fused or breakered disconnect box. Provide generator power entering the transfer assembly from a compatible three conductor industry standard inlet (NEMA L5-30P). Connect a breaker, of ampacity not to exceed the inlet's rated current, between the inlets "hot" leg and the transfer assembly. Connect a compatible surge protection device (GE V150PA20A or equivalent) between the load side of this breaker and an Earth connection. Connect the common leg of the inlet directly to the load's Neutral bus. Connect the ground leg of the inlet to an Earth connection.

CONSTRUCTION: Section 952.3. Bundle wiring and install equipment neatly with high quality workmanship to provide a neat and organized cabinet space for ease of future Township maintenance and operation.

MEASUREMENT AND PAYMENT: Each. The item includes required controller assembly with Bus Interface Unit (BIU) and detector card rack assembly, conflict monitor or malfunction management unit, flasher unit, load switches or switch packs, cabinet, relays, cable terminal/harness assembly, electric load center, generator adapter kit, police panel, and time clock.

00 - ITEM 9954-0012 - 2 INCH CONDUIT (RMC)

Addendum:

Associated Item(s): 9954-0012

Header:

ITEM 9954-0012 - 2 INCH CONDUIT (RMC)

Provision Body:

DESCRIPTION – This work is furnishing and installation of conduit at locations indicated on the plans.

MATERIAL – In accordance with applicable Sections 910.2 and 954.2, and as follows:

Provide rigid galvanized steel conduits under roadway, attached to barrier wall, retaining wall and structures as indicated in the plans.

CONSTRUCTION – As indicated and in accordance with applicable Sections 910.3 and 954.3 and as shown in the plans.

MEASUREMENT AND PAYMENT – Linear Foot

00 - ITEM 9954-0014 - UTILITY DUCT BANK

Addendum:

Associated Item(s): 9954-0014

Header:
ITEM 9954-0014 - UTILITY DUCT BANK

Provision Body:
DESCRIPTION – This work is the construction of the underground utility duct bank on SR 0401 for PennDOT's fiber optic relocation and conduits for Comcast and Sunesys' use.
MATERIALS –
In accordance with Publication 408 Sections 309, 350, 409, and as follows:
ement Concrete: Class A, Section 1001.2
einforcement Steel: Section 1002.2
Iultiduct Conduit: In accordance with Item Number 9910-5063
onduit: Schedule 40 PVC – 4 inch inside diameter or type C telephone conduit – 4 inch inside diameter.
pacers: High impact spacers; conforming to NEMA TC-2, TC-6, TC-8, and ASTM F 512.
uct Plugs:In accordance with Item Number 9910-5063
etectable Warning Tape: Minimum width of 6 inch wide, orange in color, and have nondegradable imprint, "Caution Fiber Optic Cable Buried Below".
ull Rope: New ¼ inch diameter polypropylene over polyester rope with a minimum 1700 lb. tensile strength.
CONSTRUCTION –
(a)Sawcut existing pavement as necessary.
(b) Excavate trench in accordance with Sections 203 and 204.If shoring is used, provide it in accordance with prevailing underground construction codes, i.e., OSHA, G. O. 128, NESC, and all applicable local, state and federal statutes.
(c) Install duct bank in accordance with Sections 1001.3 and 1002.3 and as indicated in the Miscellaneous Details. Follow pipe installation procedures in RC-30M for providing bedding and backfilling the trench.Use long radius bends (over 30 feet) to make changes in direction.Provide factory-made sweeps (no less than 48 inch radius) attached to poles at the entrance and exit of the duct bank. Construct cold formed trench bends with a radius of not less than 40 feet. Anchor conduit securely before pouring concrete to eliminate the possibility of the conduit floating and distorting.Once the concrete has cured each conduit should be clear and usable.
(d) Patch existing pavement as necessary to match the existing pavement depth.Temporarily seed other disturbed areas in accordance with the E&S plans.
(e) Install a single continuous length pull rope in every new conduit.Secure the pull rope at each end.
MEASUREMENT AND PAYMENT – Linear Foot

00 - ITEM 9954-0016 - STRUCTURE MOUNTED CONDUIT

Addendum:

Associated Item(s): 9954-0016

Header:
ITEM 9954-0016 - STRUCTURE MOUNTED CONDUIT

Provision Body:

DESCRIPTION – This work is furnishing and installation of conduit of various types and sizes, attached to structures, including all materials required for splicing expansion/deflection fittings and connection to structure, as indicated on the contract drawings and as specified herein for all other applications.

MATERIAL – In accordance with Section 1101.09.

Provide conduits of a type and size as indicated in the plans and meeting the material requirements of the following items:

ITEM 4954-0012 – 2 INCH CONDUIT, MODIFIED

ITEM 9910-5063 – 4 INCH CONDUIT

ITEM 9954-0012 – 2 INCH CONDUIT (RMC)

CONSTRUCTION – In accordance with Section 910.3 (g); Section 910.3 (h), except paragraphs 6, 7 and 9; Section 920.3 (h); Section 920.3 (i) paragraph 1; Section 954.3 (b); Section 1105.3 (c), paragraph 3; Section 1105.3 (e); Section 1105.3 (f); Item 9910-5063; and as follows:

Plug all unused conduits at every cabinet and junction box.Separate payment will not be made for fittings, spacers, warning tape or any installation hardware.Do not use cement to assemble individual conduit or bend sections.Use fixed or flexible bends of the same material as recommended by the manufacturer to avoid obstructions not shown on the plans.Provide one expansion joint at every expansion joint on bridges, every 100 linear feet of exposed conduit and at locations where conduit transitions from buried to exposed.Provide one slip stop ring for every 175 feet linear of exposed conduit and at every structure crossing.Provide adapters at every change of conduit size and type.Include mule tape (pull lines) with the installation of all conduits.

Conduit Installation on Existing Structures - Attach the conduit to existing structures as approved.Submit attachment details for approval by the Engineer.Verify the location of any reinforcement in concrete prior to drilling holes.Utilize a pachometer or similar device to determine reinforcement location.

Furnish holes not more than 1/32 inch larger in diameter than the true equivalent of the nominal diameter. The slightly conical hole that results from punching operations is acceptable. Holes produced by flame cutting are not allowed.

For any connection, instead of subpunching and reaming, or subdrilling and reaming, the fabricator may drill holes full size with all thicknesses of material assembled in proper position.

When using a steel template, ream and drill full size all field connection holes through the template after the template has been placed in the proper position and angle and firmly bolted into place. Use templates that are exact duplicates for reaming matching members or the opposite faces of a single member. Accurately locate templates used forconnections on like parts or members so that the parts or members are duplicates and require no match-marking.

Conduit Installation – In accordance with the details indicated on the plan, install conduit under roadways using the trenching and a directional boring method as indicated on the drawings and as indicated by the Engineer. For bridge crossings, attach conduit to the underside of the mainline structure. For wood pole or sign structure mounting, attach GRS conduit with steel conduit straps.

Furnish a conduit system that supports the installation of cabling used for power cables as per the requirements defined herein. Furnish conduit system that supports the installation of fiber optic cable and meets the following codes and design standards: National Electric Code, BC-721M, and applicable parts of PennDOT Publication 408.

Distance between junction boxes is defined on the drawings and is not to exceed 800 feet unless otherwise specified by the contract drawings, local code or National Electric Code. Bend radius in conduits and junction boxes are not to exceed the bending radii recommended by the cable manufacturer.

Test all conduits using an appropriately-sized mandrel, as directed by the Engineer.

All connections, drilled holes in existing structures, mounting brackets and hardware, spacers, fittings, joints, bends, flexible conduit terminators, adapters, etc. required for the installation of the conduit is considered incidental to the conduit and not paid separately. All repairs to concrete paved ditches, and seeding and soil supplements, etc. required for the restoration following trenching, installation of the conduit and backfilling is considered incidental to the conduit and not paid separately.

Ensure adequate clearance for access to existing junction boxes, light fixtures, drainage fixtures and other existing fixtures that may require future access.

MEASUREMENT AND PAYMENT – Linear Foot

00 - ITEM 9954-0152 - BORING

Addendum:

Associated Item(s): 9954-0152

Header:

ITEM 9954-0152 - BORING

Provision Body:

DESCRIPTION – This work includes directional boring under pavement or as indicated in the plans to install conduit. Provide all labor, materials and equipment required to meet the requirements for the directional boring.

MATERIALS – As follows:

A.Steel Casing Pipe:

1.Weldable Steel Pipe

2.Minimum tensile strength: 60,000 psi.

3.Minimum yield strength: 35,000 psi.

4.Minimum wall thickness: 0.532 inches.

5.Lengths and diameters as required.

6.In accordance with ASTM A-139, Grade B.

CONSTRUCTION – As follows:

A.GENERAL

1. Installation of the crossings must be by the directional boring or jacking method and must conform in all respects to the requirements contained herein and the standard provisions, Section 1101.9.

B.PREPARATION

All excavation, backfill, sheeting, shoring, bracing, and dewatering must comply with the applicable requirements of Publication 408 and the requirements of the applicable authorities.

C.INSTALLATION

1.Directional Boring Installation

a.The directional boring method must consist of pushing the pipe into the fill with a boring auger rotating inside the pipe to remove the spoil.

b.Provide the front of the casing pipe with suitable mechanical arrangements or devices that will positively prevent the auger and cutting head from leading the pipe so that there will be no unsupported excavation ahead of the pipe.

c. The equipment and mechanical arrangements or devices used to bore and remove the earth and/or rock must be removable from within the casing pipe in the event an obstruction is encountered.

d.The face of the cutting edge must be arranged to provide reasonable obstruction to the free flow of soft or poor soil.

e.Do not use water or other liquids to facilitate casing emplacement or spoil removal.

f.The diameter of the boring hole must be essentially the same as the outside diameter of the pipe.

g.If voids develop around the casing pipe as it is bored, pump cement grout to fill all such voids, or fill by other means acceptable to the Engineer.

h.Fill all voids as specified hereinafter as soon as possible after completion of boring operation.

2.Jacking Installation

a.The steel casing pipe installed by the jacking method must be weldable steel pipe.The steel pipe and welding thereof must meet all requirements of the steel pipe specified for installation by the boring method specified above.

b.Install in accordance with Publication 408 standards and specifications.

c. Design bracing and backstops and use jacks of sufficient rating such that jacking can be accomplished in a continuous manner until the leading edge of the pipe reaches the required final position.

d. Perform the jacking operation such that the diameter of the jacked hole is essentially the same as the outside diameter of the pipe.

e. If voids develop around the casing pipe as it is jacked, pump cement grout to fill all such voids, or fill by other means acceptable to the Engineer.

f. Fill all voids as specified hereafter as soon as possible after completion of jacking operation.

3. Grouting

a. Start at the lowest, middle hole of each section to be grouted, grout holes above to remain open, and proceed upward progressively and, if possible, simultaneously on both sides of the casing or tunnel until all voids are completely filled.

b. Provide threaded grout holes (at a minimum) as follows:

(1) Three (3) holes spaced equally across the circumference of the pipe with one (1) hole located at the top of the casing pipe.

(2) Grout hole patterns must be repeated every five (5) feet along the pipe.

c. Provide grout holes in addition to those specified where directed by the Engineer to insure filling of all voids.

d. At any given location grouting pressures must not exceed one (1) psi for each foot of overburden in rock and one-half (1/2) psi for each foot of overburden in earth.

4. Obstructions

a. Jacking or Boring Installation: If an obstruction is encountered during installation and it is impossible to advance the casing pipe, the Contractor must choose one of the following:

(1) Abandon the casing pipe in place and fill completely with grout. Provide whatever bulkheading is necessary to accomplish the grouting operation. The crossing will be moved to another location acceptable to the Engineer and the crossing rebored.

(2) With the approval of the Engineer and authority having jurisdiction, the Contractor may continue the casing pipe by tunneling and installation of liner plates. This continuation by the tunneling method must be at the Contractor's expense.

5. End Seals

Install end seals at each end of the casing of sufficient strength and quality to support the filling operation, and to support the backfill.

MEASUREMENT AND PAYMENT – Linear Foot

00 - ITEM 9999-0001 - RETROFIT EXISTING ITS NODES

Addendum:

Associated Item(s): 9999-0001

Header:

ITEM 9999-0001 - RETROFIT EXISTING ITS NODES

Provision Body:

DESCRIPTION – This work includes performing fiber splices for the temporary fiber optic pole line and the proposed 144-stand fiber optic backbone cable to integrate existing ITS devices south of Mill Lane into the existing S.R. 0202, Section 3IT SONET network at Hub #2. Reconfigure point-to-point data ITS devices (DMS, Vehicle Detectors) to the proposed Ethernet ring and shown in the plans.

MATERIAL – Equipment to be in accordance with the following items:

ITEM 9900-5070 – 12-STRAND FIBER OPTIC SPLICE ENCLOSURE

ITEM 9900-5110 – FIBER OPTIC TERMINATION PANEL

ITEM 9900-5300 – FIBER OPTIC ETHERNET MEDIA CONVERTER

ITEM 9900-5400 – FIBER OPTIC VIDEO TRANSCEIVER

ITEM 9900-5500 – TERMINAL SERVER

Furnish and install any miscellaneous components required to bring the ITS devices online to PennDOT's RTMC.

CONSTRUCTION – Install equipment in accordance with the following items:

ITEM 9900-5070 – 12-STRAND FIBER OPTIC SPLICE ENCLOSURE

ITEM 9900-5110 – FIBER OPTIC TERMINATION PANEL

ITEM 9900-5300 – FIBER OPTIC ETHERNET MEDIA CONVERTER

ITEM 9900-5400 – FIBER OPTIC VIDEO TRANSCEIVER

ITEM 9900-5500 – TERMINAL SERVER

Splicing and terminations must occur between the 24-strand temporary fiber optic pole line cable and the proposed 144-strand backbone cable being installed along US 202.The temporary splices shall mimic the existing splices to the existing 24-strand cable as completed by the S.R. 0202, Section 320 project. The final splicing shall follow the communications plans. Splicing and terminations will occur at the following locations:

- DA 218NB, DA 218 SB
- CM-216
- DA 219NB, DA 219SB
- D202S_07

- CM-217

- DA 220NB, DA 218 SB

Reconfigure point-to-point data ITS devices to the proposed Ethernet ring and shown in the plans.

MEASUREMENT AND PAYMENT – Lump Sum

00 - ITEM 9999-0002 - PECO ENERGY SERVICES

Addendum:

Associated Item(s): 9999-0002

Header:

ITEM 9999-0002 - PECO ENERGY SERVICES

Provision Body:

DESCRIPTION – This item incorporates coordination to obtain new services and paying monthly energy charges to PECO Energy.
CONSTRUCTION – Coordinate and apply for new service drops, single phase, 120/240 V, from PECO. PECO contact is as follows:
Steve Moore
Major Commercial Accounts
PECO Energy
2301 market Street (N1-8)
Philadelphia, PA 19101
Tel: 215-841-5427
Service will be made in PennDOT's name but all bills will be received by the Contractor at the Contractor's address. Request a single bill that includes all the charges by meter location. Request from PECO Energy the extension of their electrical services to the points of services (POS) indicated. All work to extend PECO's services to the POSs will be performed by PECO. Be responsible for energy charges up to 60 days after the completion of the Operational Test period. Thirty (30) days after the Operational Test Period, transfer the billing address to a PENNDOT address to be provided by the Engineer.
MEASUREMENT AND PAYMENT – Dollar
The bid proposal indicates a predetermined amount (PDA) of money for this item. Payment will be on a force account basis in accordance with Section 110.03(d) 4. Services by others.

00 - ITEM 9999-0003 - TEMPORARY FIBER OPTIC TRUNK

Addendum:

Associated Item(s): 9999-0003

Header:

ITEM 9999-0003 - TEMPORARY FIBER OPTIC TRUNK

Provision Body:

DESCRIPTION – This work is the construction of a temporary fiber optic trunk as indicated to reroute the existing S.R. 0202 backbone fiber optic cable around the construction areas until the roadway and proposed conduit system construction has been completed and the proposed 144-strand fiber optic backbone cable is installed and cutover. The work consists of furnishing and

installing conduit and fiber optic cable in trench, attaching 24-strand aerial fiber optic cable to the back of an existing sound wall, erecting wooden utility poles and attaching 24-strand aerial fiber optic cable to the wooden utility poles, connecting 12-strand drop/ lateral fiber optic cables to all the existing device cabinets, and removal of the existing aerial fiber optic trunk (sta. 288+50 to sta. 303+35). This temporary system will provide SONET and ITS device communications until the proposed 144-strand back bone is in place.

MATERIAL – The Temporary Fiber Optic Trunk shall be provided under the following Items:

ITEM 9900-0110 FIBER OPTIC CABLE 24 STRANDS

ITEM 9900-0112 FIBER OPTIC CABLE 12 STRANDS

ITEM 9900-0230 35’ WOODEN UTILITY POLE

ITEM 9900-5070 12 STRAND FIBER OPTIC SPLICE ENCLOSURE

ITEM 9900-5080 144 STRAND FIBER OPTIC SPLICE ENCLOSURE

ITEM 9910-0004 FLUSH MOUNTED 30”x30”x12” JUNCTION BOX

ITEM 9999-0001 RETROFIT EXISTING ITS NODES

Furnish and install PVC pole risers to protect the cable as it transitions from the utility pole to underground.

Furnish and install messenger cable and pole attachment hardware as required to lash the 24- strand aerial cable to the messenger and utility poles.

Any other miscellaneous materials and labor specified shall be furnished under this item.

CONSTRUCTION – Install the temporary fiber optic trunk in accordance with these specifications and as shown in the plans.

Provide two cutover plans to explain how each device and SONET network will be spliced into the temporary fiber and to the proposed 144-strand backbone cable. The cutover plan will provide minimal down time for not only the existing ITS devices within the project area but the existing regionwide SONET network as well.

The temporary fiber optic trunk will be installed in accordance with all current standards including:

- EIA/TIA

- NEC

- NESC

Install messenger cable and pole attachment hardware in accordance with manufacturer’s recommendations. Lash the temporary 24-strand fiber optic backbone cable and splice as indicated on the plans and these specifications.

The temporary aerial fiber optic trunk will use direct burial 12- strand armored cable for the ITS device lateral/ drops. This will eliminate the need for temporary conduit to each ITS device. The mainline splices at the ends do require conduit to the junction boxes. Ground the armor sheath within the junction box outside the ITS device cabinet.

Lateral/drop splices will be made at a pole location. Mid-span splices are unacceptable.

The lateral/drops to the temporary 24-strand cable shall mimic the existing device splices completed by S.R. 0202, Section 320. Refer to the plans for mainline temporary and proposed backbone splicing details.

Remove temporary fiber optic trunk line after cutover to 144-strand fiber optic backbone.

MEASUREMENT AND PAYMENT – Lump Sum

00 - ITEM 9999-0004 - RELOCATION OF CM-217

Addendum:

Associated Item(s): 9999-0004

Header:

ITEM 9999-0004 - RELOCATION OF CM-217

Provision Body:

DESCRIPTION – This work consists of providing a new Closed Circuit television camera and relocating the existing camera cabinet, electrical service and related camera equipment from the existing camera pole to the adjacent sign structure as indicated in the plans. The camera site is located on S.R. 0202 southbound at the S.R. 0401 Interchange. Furnish, install, configure and test all necessary equipment, materials, and mounting hardware to relocate and construct a fully operational camera site.
MATERIAL – In accordance with Section 948.2 and as follows:
Steel Pipe – ASTM A53, Grade B
Fabricated Structural Steel – ASTM A709, Grade 36
High Strength Bolts, Nuts, and Washers – Section 1105.02 (d)
Galvanizing – Section 1105.02 (s) (ASTM A123)
Closed Circuit Television Camera—Section 1210.2(a),(b1&b3)
Furnish all hardware, camera pipe mount, traffic mounting bracket, conduit, electrical/ communications equipment and cabling required in bringing CM-217 online. The following items will be paid separately:
ITEM 4910-4064 – AWG 4 CABLE, COPPER, 1 CONDUCTOR, MODIFIED
ITEM 4954-0012 – 2 INCH CONDUIT, MODIFIED
ITEM 9900-0112 – FIBER OPTIC CABLE, 12 STRANDS
ITEM 9900-1000 – DISCONNECT SWITCH
ITEM 9900-1010 – UTILITY PEDESTAL
ITEM 9954-0012 – 2 INCH CONDUIT (RMC)
ITEM 9954-0016 – STRUCTURE MOUNTED CONDUIT
All other materials and labor required shall be furnished under this item.
CONSTRUCTION – Relocate CM-217 in accordance with these specifications, as shown in the plans and as follows:
Closed Circuit Television Camera – Section 1210.3(a&c)
Prepare and submit a work plan for approval to accomplish this task over one (1) weekend to minimize down time.
Dismantle existing camera site CM-217, remove camera pole and remove existing Closed Circuit television camera. Return the Closed Circuit television camera to the PennDOT District 6-0 RTMC at 7000 Geerdes Boulevard, King of Prussia, PA 19406 (Contact Manny Anastasiadis at 610-205-6934). Return the camera pole to PennDOT District 6-0 Montgomery County Maintenance Office at Swede Road and Johnson highway, Norristown, PA 19404 (610-275-2368). Remove the camera pole foundation to a depth of 3 feet below finished ground, restore area, and dispose of foundation material. Remove existing CM-217 electrical service and utility pole as indicated on the plans. Dispose of the utility pole. Relocate camera cabinet onto the sign structure column as indicated. Provide all necessary hardware to attach the camera cabinet onto the sign structure column.
Mount new Closed Circuit Television camera, camera cabinet, conduit and site related equipment to the sign structure as indicated in the plans.Submit shop drawings for the CCTV camera mount to the Engineer for approval prior to fabrication and installation.Do not weld on the existing sign structure.Do not drill into the existing sign structure.Clean and touch-up all existing surfaces that have been marred during the performance of this work in accordance with Section 1070.Do not damage the existing sign, sign lighting, or structural support during this construction.Repair any damages at no cost to the Department.
Install electrical and communications cable and terminate; electrical service, fiber optic lateral/drop, and cabling from the camera to its respective equipment within the camera cabinet.
Coordinate and schedule a time with PennDOT to perform an on- site test for demonstration of field functionality and that all construction requirements are satisfied.The test must be witnessed and signed off by PennDOT and the Engineer.

MEASUREMENT AND PAYMENT – Lump Sum
Price includes all labor, material, hardware, equipment, transportation and work necessary for the removal of existing camera and camera pole, installation and testing of the new camera and relocated camera cabinet. The price includes removal and disposal of the concrete camera pole foundation and transportation of camera and camera pole.

00 - ITEM 9999-0005 - RELOCATION AND EXPANSION OF TR 20206NS

Addendum:

Associated Item(s): 9999-0005

Header:
ITEM 9999-0005 - RELOCATION AND EXPANSION OF TR 20206NS

Provision Body:
DESCRIPTION – This work consists of relocating the existing TR 20206N lane kits, tag reader, cabinet, and expansion of the electrical service and related equipment from the existing tag reader pole/mast arm to the adjacent sign structure as indicated in the plans. The existing tag reader site is located on S.R. 0202 northbound, just north of the S.R. 0030 Interchange. Work also includes the expansion of the re-located site and District travel time and ATMS software to capture vehicle detection in the southbound lanes. Furnish, install, configure and test all necessary equipment and materials to relocate and construct a fully operational tag reader site.

MATERIAL – Furnish all hardware, conduit, electrical/communications equipment and cabling required to bring TR 20206N online. The following items will be paid separately:

ITEM 4910-4066 – AWG 8 CABLE, COPPER, 1 CONDUCTOR, MODIFIED

ITEM 4954-0012 – 2 INCH CONDUIT, MODIFIED

ITEM 9900-0112 – FIBER OPTIC CABLE, 12 STRANDS

ITEM 9954-0012 – 2 INCH CONDUIT (RMC)

ITEM 9954-0016 – STRUCTURE MOUNTED CONDUIT

The lane kits to be installed over the southbound lanes will be provided by PennDOT.

Furnish coaxial cable to connect the lane kit antennas to the tag reader. Size the coax cable according to the distance from the reader to the antenna to provide the required input levels needed for correct transponder recording.

Any other ancillary materials and labor required shall be furnished under this item.

CONSTRUCTION – Relocate TR 20206N in accordance with these specifications and as shown in the plans.

Modify existing software to integrate the proposed location into the existing software at the Travel Time System Workstation, communications server, and data server. Generate real-time and archived travel times. Provide travel time capability from any travel time system (TTS) detection station to any other TTS detection station in the same direction of travel. Provide travel times for a link or combination of links that represents the average travel time of all detected vehicles that have traversed the link or combination of links during the most recent five (5) minute period.

Integrate the new tag reader location with capability to automatically publish real-time travel times from the TRANSMIT system server to appropriate DMS on and around S.R. 0202, S.R. 0030, and S.R. 0100

Provide all necessary miscellaneous conduits and cables for the full operational TTS. Install cable tags for all internal wiring harnesses, and jumper cables. Include the cable function, origin, destination, equipment location, and other information to facilitate testing, operation and maintenance as required and approved by the Engineer.

Dismantle existing TR 20206N site. Remove tag reader pole/ mast arm and return it to the PennDOT Montgomery County Maintenance Office at Swede Road and Johnson Highway, Norristown, PA 19404 (610-275-2368). Remove the tag reader pole/

mast arm foundation and dispose. Mount lane kits, tag reader cabinet, conduit and site related equipment to the sign structure as indicated in the plans.

Install electronic toll collection (ETC) lane kit components at the locations indicated in the plans. Provide the number, location and mounting configuration ETC lane kits to provide full coverage of all mainline travel lanes. Install the ETC antennae and RF modules in accordance with manufacturer recommendations. Provide sufficient cable slack (to the antenna) to allow the antennas to be mounted at different locations from the shoulder to the middle of the lane(s) for each direction of travel.

Configure and tune the software as required to provide a fully functional Travel Time system according to the requirements contained herein. Perform testing of the ETC travel time software in accordance with the requirements contained herein.

Configure system to automatically publish real-time travel time reports from the TRANSMIT system server to appropriate DMS on and around the S.R. 0202, S.R. 0030, and S.R. 0100 corridors.

Install electrical and communications cable and terminate; electrical service, fiber optic lateral/drop, and lane kits to the tag reader within the cabinet.

Coordinate and schedule a time with PennDOT to perform an on-site test for demonstration of field functionality and that all construction requirements are satisfied. The test must be witnessed and signed off by PennDOT and the Engineer.

Price includes all labor, material, equipment, transportation, integration and work necessary for the removal, reinstallation and testing of the tag reader and cabinet. The price includes removal and disposal of the concrete cabinet foundation.

MEASUREMENT AND PAYMENT – Lump Sum

00 - ITEM 9999-9980 - INCIDENT MANAGEMENT

Addendum:

Associated Item(s): 9999-9980

Header:

ITEM 9999-9980 - INCIDENT MANAGEMENT

Provision Body:

DESCRIPTION - This work is the furnishing, installing and maintaining of Traffic Control Devices, including but not limited to, arrow boards, changeable message signs, channelizing devices and Type III barriers, in accordance with the Incident Management Plan and other services requested by the Incident commander for incidents occurring within the work zone or as directed by the Engineer. This will be performed in conjunction with Contract Item 0901-0001 Maintenance and Protection of Traffic during Construction.

CONSTRUCTION –

PennDOT ATMS Coordination- Coordinate the use of existing Dynamic Message Signs (DMS) that are part of the Department's Advanced Traffic Management System (ATMS) and the CMS included in the contract to convey traffic alert messages to motorists for incidents occurring within the work zone. Contact the PennDOT Regional Transportation Management Center at 610-205-6934 in accordance with established IMP guidelines and upon verification of an incident.

Contractor Response Time - During the following times, the contractors' designee as required by Publication 408, Section 901.3p will respond to an incident within 15 minutes. Equip the Designee with a cellular phone and provide the phone number to the Engineer. Upon arrival at the incident site, that employee must have the equipment and resources to set up temporary traffic control, or otherwise resolve the incident.

Monday - Friday 6 A.M. to 8 P.M.

At all other times, the Contractor must have at least one employee on call that can respond to an incident within 45 minutes. Upon arrival at the incident site, that employee must have the equipment and resources to set up temporary traffic control, or otherwise resolve the incident.

MEASUREMENT AND PAYMENT - Dollar

The proposal will include an item and a predetermined amount of money for the implementation of an Incident Management Plan. The contract item will have a unit of measure of Dollar, a unit price of $1.00, and a quantity equal to the predetermined amount.

Due to the contingent or unpredictable nature of the work being performed, the provisions of Section 110.02(d) are not applicable to this item.

Measured and paid for, under the Incident Management item as follows:

(a) Contract Items. The Department will pay for performance of work, identified as having similar items listed in the contract, at the contract unit price.

(b) Non-Contract Items. The Department will pay for items of work not identified in the contract as follows:

1. Negotiated Price. At price agreed upon with the Department before performing the work. If applicable, agreement is also required with FHWA.

2. Force Account Basis. Section 110.03(d)

Payment for the contractor's designee will be incidental to 0901-0001.

The Department will charge the Contractor $750 for each ¼ hour, or any portion thereof, that the Contractor fails to meet the time specified above under Contractor Response Time.

00 - STEEL BEAM TEST PILES, HP 12X84

Addendum:

Associated Item(s):

Header:
STEEL BEAM TEST PILES, HP 12X84

Provision Body:
In accordance with Section 1005

Performance Bonds

Surety Company:	Zurich American Insurance Company	**Status:**	Accepted
Bonding Agency:	Rosenberg & Parker, Inc.	**Bond Number:**	SU1119081
Producer:	Christine A Dunn cad/PennDOT BP-002494	**Bond Amount:**	$14,569,541.93
Co-Insurer:	Yes	**NAIC:**	16535

KNOW ALL MEN BY THESE PRESENTS, That we, *Allan A. Myers, LP* of *1805 Berks Road , P O Box 98, Worcester, PA 19490-0098* as PRINCIPAL,and Zurich American Insurance Company a corporation,as SURETY, are held and firmly bound unto the *Commonwealth of Pennsylvania* in the full and just sum of *$14,569,541.93*, lawful moneyof the United States of America, to be paid to the said Commonwealth of Pennsylvania, or it assigns, to which payment well and truly tobe made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

Sealed with our respective seals and dated this 12 day of November A.D. 2012.

Whereas, the above bounden PRINCIPAL has undertaken to contract with the said Commonwealth of Pennsylvania, by and through the Secretary of Transportation covering the workidentified below for approximately the sum of the bond amount defined above.

The description and location of the project is as follows: For the reconstruction and widening of the existing reinforced plain cement concrete pavement for approximately 2.61 miles of S.R. 0202 to add an additional inside lane and shoulder in each direction; reconstruction of Ramps M, N, O, and P in the S.R. 8035 Interchange; the reconstruction and widening of two (2) single-span bridges, (S-24678) a Dual Single Span Composite P/S Concrete Box Beam bridge over Planebrook Road and (S-26088) a Dual Single-Span Steel Plate Girder Bridge over SR 0401 (Conestoga Road); the removal and replacement of (S-7425), a dual 3 simple span P/S Spread Box Beam Bridge over the Chester Valley Trail with (S-24744) a 20’ x 10’ Precast Concrete Arch Culvert; the rehabilitation of two (2) Culverts, (S-27842) a Reinforced Concrete Box Culvert (C1) Rehabilitation over Valley Creek and (S-26620) a Reinforced Concrete Arch Culvert (C2) Rehabilitation over Valley Creek; the design and construction of twelve (12) Design-Build Sound Barrier Walls with highway side sound absorptive face treatment; the construction of four (4) sign structures, one (1) overhead and three (3) cantilever; the construction of a thirty-two (32) space park and ride lot at the intersection of SR 0322 and Lloyd Ave in Caln Township; the modification and/or installation of six (6) traffic signals and an Adaptive Traffic Signal System along SR 0401; the construction of six (6) stormwater management basins and seven (7) stormwater mitigation sites; drainage improvements; utility installation/ relocation; concrete median barrier; concrete glare screen; guiderail removal and installation; signing; pavement markings; landscape plantings; excavation and the installation of ITS network elements along S.R. 0202 all as indicated on the drawings approved for STATE ROUTE 0202, SECTION 330, in CHESTER COUNTY, EAST WHITELAND TOWNSHIP from approximately the SR 0202 Bridge over SR 0030 (Business) at segment 0250/0251 offset 0006/0001 to approximately 1,100’ north of the Mill Lane Bridge over SR 0202 at segment 0300/0301offset 1025/0985.

and

WHEREAS, it was one of the conditions of the award of the Secretary of Transportation, acting for and on behalf ofthe Commonwealth of Pennsylvania, pursuant to which said contract was undertaken by the PRINCIPAL that these presentsshould be executed, to become binding upon the date the said contract is approved for the office of Budget, by the Comptroller.

NOW, THEREFORE, The conditions of this obligation is such that if the above bounden PRINCIPAL, as Contractor, shall in allrespects comply with and faithfully perform the terms and conditions of said contract, and his, their, or its obligationsthereunder, including the plans, specifications, and conditions therein referred to and made a partthereof, and such alterations as may be made in said specifications as therein provided for, and shall well and truly, and in a manner satisfactory to the Commonwealth of Pennsylvania, complete the work contracted for, and shall save harmless the Commonwealth of Pennsylvania fromany expense incurred through the failure of said contractor to complete the work as specified, or for any damages growing outof the carelessness and/or negligence of said contractor or his, their, or its servants.

And shall save and keep harmless the said Commonwealth of Pennsylvania against and from all losses to it from any causewhatsoever, including patent, trademark, and copyright infringements, in the manner of constructing said section of roadway;then this obligation to be void or otherwise to be and remain in full force and virtue.

It is further provided that any alteration which may be made in the terms of the contract or in the work to be done under itor the giving by the Commonwealth of any extension of time for the performance of the contract or any other forbearance on thepart of either the Commonwealth or the PRINCIPAL to the other shall not in any way release the PRINCIPAL and the SURETY

orSURETIES or either or any of them, their heirs, executors, administrators, successors or assigns, from their liability hereunder,notice to the SURETY or SURETIES of any such alteration, extension, or forbearance being hereby waived.

IN WITNESS WHEREOF, the said PRINCIPAL and SURETY have duly executed this Bond under seal the day and year firstabove written.

Attorney-in-Fact Certification

*The undersigned attorney-in-fact by executing this Performance Bond certifies that he/she is licensed with the company namedas surety for this bond and that to the best of his/ her knowledge the said surety islicensed with the Pennsylvania Insurance Department.

Bond Workflow Status

Status	Name	Disposition	Date/Time
Draft	Donna M Bernstiel/ PennDOT BP-000913	Submit	11/12/2012 10:13:27 AM
Producer Review	Christine A Dunn cad/ PennDOT BP-002494	Sign	11/12/2012 02:36:08 PM
Contractor Review	Murray Blaker/PennDOT BP-000913	Rescind	11/12/2012 04:02:07 PM
Draft	Murray Blaker/PennDOT BP-000913	Submit	11/12/2012 04:02:38 PM
Producer Review	Christine A Dunn cad/ PennDOT BP-002494	Sign	11/12/2012 04:28:00 PM
Contractor Review	Dale R Wilson/PennDOT BP-000913	Sign	11/14/2012 10:39:49 AM
BOD CMD Review	Roland L Rode/PennDOT	Accept	11/14/2012 11:02:35 AM

Surety Company:	Arch Insurance Company	**Status:**	Accepted
Bonding Agency:	Rosenberg & Parker, Inc.	**Bond Number:**	SU1119081
Producer:	Christine A Dunn cad/PennDOT BP-002494	**Bond Amount:**	$31,690,541.92
Co-Insurer:	Yes	**NAIC:**	11150

KNOW ALL MEN BY THESE PRESENTS, That we, *Allan A. Myers, LP* of *1805 Berks Road , P O Box 98, Worcester, PA 19490-0098* as PRINCIPAL,and Arch Insurance Company a corporation,as SURETY, are held and firmly bound unto the *Commonwealth of Pennsylvania* in the full and just sum of *$31,690,541.92*, lawful moneyof the United States of America, to be paid to the said Commonwealth of Pennsylvania, or it assigns, to which payment well and truly tobe made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

Sealed with our respective seals and dated this 12 day of November A.D. 2012.

Whereas, the above bounden PRINCIPAL has undertaken to contract with the said Commonwealth of Pennsylvania, by and through the Secretary of Transportation covering the workidentified below for approximately the sum of the bond amount defined above.

The description and location of the project is as follows: For the reconstruction and widening of the existing reinforced plain cement concrete pavement for approximately 2.61 miles of S.R. 0202 to add an additional inside lane and shoulder in each direction; reconstruction of Ramps M, N, O, and P in the S.R. 8035 Interchange; the reconstruction and widening of two (2) single-span bridges, (S-24678) a Dual Single Span Composite P/S Concrete Box Beam bridge over Planebrook Road and (S-26088) a Dual Single-Span Steel Plate Girder Bridge over SR 0401 (Conestoga Road); the removal and replacement of (S-7425), a dual 3 simple span P/S Spread Box Beam Bridge over the Chester Valley Trail with (S-24744) a 20’ x 10’ Precast Concrete Arch Culvert; the rehabilitation of two (2) Culverts, (S-27842) a Reinforced Concrete Box Culvert (C1) Rehabilitation over Valley Creek and (S-26620) a Reinforced Concrete Arch Culvert (C2) Rehabilitation over Valley Creek; the design and construction of twelve (12) Design-Build Sound Barrier Walls with highway side sound absorptive face treatment; the construction of four (4) sign structures, one (1) overhead and three (3) cantilever; the construction of a thirty-two (32) space park and ride lot at the intersection of SR 0322 and Lloyd Ave in Caln Township; the modification and/or installation of six (6) traffic signals and an Adaptive Traffic Signal System along SR 0401; the construction of six (6) stormwater management basins and seven (7) stormwater mitigation sites; drainage improvements; utility installation/ relocation; concrete median barrier; concrete glare screen; guiderail removal and installation; signing; pavement markings; landscape plantings; excavation and the installation of ITS network elements along S.R. 0202 all as indicated on the drawings approved for STATE ROUTE 0202, SECTION 330, in CHESTER COUNTY, EAST WHITELAND TOWNSHIP from approximately the SR 0202 Bridge over SR 0030 (Business) at segment 0250/0251 offset 0006/0001 to approximately 1,100’ north of the Mill Lane Bridge over SR 0202 at segment 0300/0301offset 1025/0985.

and

WHEREAS, it was one of the conditions of the award of the Secretary of Transportation, acting for and on behalf ofthe Commonwealth of Pennsylvania, pursuant to which said contract was undertaken by the PRINCIPAL that these presentsshould be executed, to become binding upon the date the said contract is approved for the office of Budget, by the Comptroller.

NOW, THEREFORE, The conditions of this obligation is such that if the above bounden PRINCIPAL, as Contractor, shall in allrespects comply with and faithfully perform the terms and conditions of said contract, and his, their, or its obligationsthereunder, including the plans, specifications, and conditions therein referred to and made a partthereof, and such alterations as may be made in said specifications as therein provided for, and shall well and truly, and in a manner satisfactory to the Commonwealth of Pennsylvania, complete the work contracted for, and shall save harmless the Commonwealth of Pennsylvania fromany expense incurred through the failure of said contractor to complete the work as specified, or for any damages growing outof the carelessness and/or negligence of said contractor or his, their, or its servants.

And shall save and keep harmless the said Commonwealth of Pennsylvania against and from all losses to it from any causewhatsoever, including patent, trademark, and copyright infringements, in the manner of constructing said section of roadway;then this obligation to be void or otherwise to be and remain in full force and virtue.

It is further provided that any alteration which may be made in the terms of the contract or in the work to be done under itor the giving by the Commonwealth of any extension of time for the performance of the contract or any other forbearance on thepart of either the Commonwealth or the PRINCIPAL to the other shall not in any way release the PRINCIPAL and the SURETY orSURETIES or either or any of them, their heirs, executors, administrators, successors or assigns, from their liability hereunder,notice to the SURETY or SURETIES of any such alteration, extension, or forbearance being hereby waived.

IN WITNESS WHEREOF, the said PRINCIPAL and SURETY have duly executed this Bond under seal the day and year firstabove written.

Attorney-in-Fact Certification

*The undersigned attorney-in-fact by executing this Performance Bond certifies that he/she is licensed with the company namedas surety for this bond and that to the best of his/ her knowledge the said surety islicensed with the Pennsylvania Insurance Department.

Bond Workflow Status

Status	Name	Disposition	Date/Time
Draft	Donna M Bernstiel/ PennDOT BP-000913	Submit	11/12/2012 10:14:01 AM
Producer Review	Christine A Dunn cad/ PennDOT BP-002494	Sign	11/12/2012 03:46:21 PM
Contractor Review	Dale R Wilson/PennDOT BP-000913	Sign	11/14/2012 10:40:27 AM
BOD CMD Review	Roland L Rode/PennDOT	Accept	11/14/2012 11:01:16 AM

Surety Company:	The Fidelity and Deposit Company of Maryland	**Status:**	Accepted
Bonding Agency:	Rosenberg & Parker, Inc.	**Bond Number:**	PRF09098630
Producer:	Christine A Dunn cad/PennDOT BP-002494	**Bond Amount:**	$17,121,000.00
Co-Insurer:	Yes	**NAIC:**	39306

KNOW ALL MEN BY THESE PRESENTS, That we, *Allan A. Myers, LP* of *1805 Berks Road , P O Box 98, Worcester, PA 19490-0098* as PRINCIPAL,and The Fidelity and Deposit Company of Maryland a corporation,as SURETY, are held and firmly bound unto the *Commonwealth of Pennsylvania* in the full and just sum of *$17,121,000.00*, lawful moneyof the United States of America, to be paid to the said Commonwealth of Pennsylvania, or it assigns, to which payment well and truly tobe made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

Sealed with our respective seals and dated this 12 day of November A.D. 2012.

Whereas, the above bounden PRINCIPAL has undertaken to contract with the said Commonwealth of Pennsylvania, by and through the Secretary of Transportation covering the workidentified below for approximately the sum of the bond amount defined above.

The description and location of the project is as follows: For the reconstruction and widening of the existing reinforced plain cement concrete pavement for approximately 2.61 miles of S.R. 0202 to add an additional inside lane and shoulder in each direction; reconstruction of Ramps M, N, O, and P in the S.R. 8035 Interchange; the reconstruction and widening of two (2) single-span bridges, (S-24678) a Dual Single Span Composite P/S Concrete Box Beam bridge over Planebrook Road and (S-26088) a Dual Single-Span Steel Plate Girder Bridge over SR 0401 (Conestoga Road); the removal and replacement of (S-7425), a dual 3 simple span P/S Spread Box Beam Bridge over the Chester Valley Trail with (S-24744) a 20’ x 10’ Precast Concrete Arch Culvert; the rehabilitation of two (2) Culverts, (S-27842) a Reinforced Concrete Box Culvert (C1) Rehabilitation over Valley Creek and (S-26620) a Reinforced Concrete Arch Culvert (C2) Rehabilitation over Valley Creek; the design and construction of twelve (12) Design-Build Sound Barrier Walls with highway side sound absorptive face treatment; the construction of four (4) sign structures, one (1) overhead and three (3) cantilever; the construction of a thirty-two (32) space park and ride lot at the intersection of SR 0322 and Lloyd Ave in Caln Township; the modification and/or installation of six (6) traffic signals and an Adaptive Traffic Signal System along SR 0401; the construction of six (6) stormwater management basins and seven (7) stormwater mitigation sites; drainage improvements; utility installation/ relocation; concrete median barrier; concrete glare screen; guiderail removal and installation; signing; pavement markings; landscape plantings; excavation and the installation of ITS network elements along S.R. 0202 all as indicated on the drawings approved for STATE ROUTE 0202, SECTION 330, in CHESTER COUNTY, EAST WHITELAND TOWNSHIP from approximately the SR 0202 Bridge over SR 0030 (Business) at segment 0250/0251 offset 0006/0001 to approximately 1,100’ north of the Mill Lane Bridge over SR 0202 at segment 0300/0301offset 1025/0985.

and

WHEREAS, it was one of the conditions of the award of the Secretary of Transportation, acting for and on behalf ofthe Commonwealth of Pennsylvania, pursuant to which said contract was undertaken by the PRINCIPAL that these presentsshould be executed, to become binding upon the date the said contract is approved for the office of Budget, by the Comptroller.

NOW, THEREFORE, The conditions of this obligation is such that if the above bounden PRINCIPAL, as Contractor, shall in allrespects comply with and faithfully perform the terms and conditions of said contract, and his, their, or its obligationsthereunder, including the plans, specifications, and conditions therein referred to and made a partthereof, and such alterations as may be made in said specifications as therein provided for, and shall well and truly, and in a manner satisfactory to the Commonwealth of Pennsylvania, complete the work contracted for, and shall save harmless the Commonwealth of Pennsylvania fromany expense incurred through the failure of said contractor to complete the work as specified, or for any damages growing outof the carelessness and/or negligence of said contractor or his, their, or its servants.

And shall save and keep harmless the said Commonwealth of Pennsylvania against and from all losses to it from any causewhatsoever, including patent, trademark, and copyright infringements, in the manner of constructing said section of roadway;then this obligation to be void or otherwise to be and remain in full force and virtue.

It is further provided that any alteration which may be made in the terms of the contract or in the work to be done under itor the giving by the Commonwealth of any extension of time for the performance of the contract or any other forbearance on thepart of either the Commonwealth or the PRINCIPAL to the other shall not in any way release the PRINCIPAL and the SURETY orSURETIES or either or any of them, their heirs, executors, administrators, successors or assigns, from their liability hereunder,notice to the SURETY or SURETIES of any such alteration, extension, or forbearance being hereby waived.

IN WITNESS WHEREOF, the said PRINCIPAL and SURETY have duly executed this Bond under seal the day and year firstabove written.

Attorney-in-Fact Certification

*The undersigned attorney-in-fact by executing this Performance Bond certifies that he/she is licensed with the company namedas surety for this bond and that to the best of his/ her knowledge the said surety islicensed with the Pennsylvania Insurance Department.

Bond Workflow Status

Status	Name	Disposition	Date/Time
Draft	Donna M Bernstiel/ PennDOT BP-000913	Submit	11/12/2012 12:06:19 PM
Producer Review	Christine A Dunn cad/ PennDOT BP-002494	Sign	11/12/2012 03:48:03 PM
Contractor Review	Dale R Wilson/PennDOT BP-000913	Sign	11/14/2012 10:40:10 AM
BOD CMD Review	Roland L Rode/PennDOT	Accept	11/14/2012 11:03:37 AM

Payment Bonds

Surety Company:	Arch Insurance Company	**Status:**	Accepted
Bonding Agency:	Rosenberg & Parker, Inc.	**Bond Number:**	SU1119081
Producer:	Christine A Dunn cad/PennDOT BP-002494	**Bond Amount:**	$31,690,541.92
Co-Insurer:	Yes	**NAIC:**	11150

KNOW ALL MEN BY THESE PRESENTS, That we, *Allan A. Myers, LP* of *1805 Berks Road , P O Box 98, Worcester, PA 19490-0098* as PRINCIPAL,and Arch Insurance Company a corporation,as SURETY, are held and firmly bound unto the *Commonwealth of Pennsylvania* in the full and just sum of *$31,690,541.92*, lawful moneyof the United States of America, to be paid to the said Commonwealth of Pennsylvania, or it assigns, to which payment well and truly tobe made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

Sealed with our respective seals and dated this 12 day of November A.D. 2012.

Whereas, the above bounden PRINCIPAL has undertaken to contract with the said Commonwealth of Pennsylvania, by and through the Secretary of Transportation covering the workidentified below for approximately the sum of the bond amount defined above.

The description and location of the project is as follows: For the reconstruction and widening of the existing reinforced plain cement concrete pavement for approximately 2.61 miles of S.R. 0202 to add an additional inside lane and shoulder in each direction; reconstruction of Ramps M, N, O, and P in the S.R. 8035 Interchange; the reconstruction and widening of two (2) single-span bridges, (S-24678) a Dual Single Span Composite P/S Concrete Box Beam bridge over Planebrook Road and (S-26088) a Dual Single-Span Steel Plate Girder Bridge over SR 0401 (Conestoga Road); the removal and replacement of (S-7425), a dual 3 simple span P/S Spread Box Beam Bridge over the Chester Valley Trail with (S-24744) a 20’ x 10’ Precast Concrete Arch Culvert; the rehabilitation of two (2) Culverts, (S-27842) a Reinforced Concrete Box Culvert (C1) Rehabilitation over Valley Creek and (S-26620) a Reinforced Concrete Arch Culvert (C2) Rehabilitation over Valley Creek; the design and construction of twelve (12) Design-Build Sound Barrier Walls with highway side sound absorptive face treatment; the construction of four (4) sign structures, one (1) overhead and three (3) cantilever; the construction of a thirty-two (32) space park and ride lot at the intersection of SR 0322 and Lloyd Ave in Caln Township; the modification and/or installation of six (6) traffic signals and an Adaptive Traffic Signal System along SR 0401; the construction of six (6) stormwater management basins and seven (7) stormwater mitigation sites; drainage improvements; utility installation/ relocation; concrete median barrier; concrete glare screen; guiderail removal and installation; signing; pavement markings; landscape plantings; excavation and the installation of ITS network elements along S.R. 0202 all as indicated on the drawings approved for STATE ROUTE 0202, SECTION 330, in CHESTER COUNTY, EAST WHITELAND TOWNSHIP from approximately the SR 0202 Bridge over SR 0030 (Business) at segment 0250/0251 offset 0006/0001 to approximately 1,100’ north of the Mill Lane Bridge over SR 0202 at segment 0300/0301offset 1025/0985.

and

WHEREAS, it was one of the conditions of the award of the Secretary of Transportation, acting for and on behalf ofthe Commonwealth of Pennsylvania, pursuant to which said contract was undertaken by the PRINCIPAL that these presentsshould be executed, to become binding upon the date the said contract is approved for the office of Budget, by the Comptroller.

NOW, THEREFORE, The conditions of this obligation is such that if the above bounden PRINCIPAL shall and willpromptly or cause to be paid in full all sums of money which may be due by contractor or corporation, for all materials furnishedor labor supplied or performed in the prosecution of the work, whether or not the said material or labor entered into and becamecomponent parts of the work or improvement contemplated, and for rental of the equipment used and services rendered by public utilitiesin, or in connection with, the prosecution of such work, then this obligation to be void, otherwise to remain in full force andeffect.

The PRINCIPAL and SURETY hereby, jointly and severally, agree with the obligee herein that any individual, firm,partnership, association or corporation, which has performed labor or furnished material in the prosecution of the work as provided,and any public utility which has rendered services in, or in connection with, the prosecution of such work, and which has not been paidin full therefor, may sue assumpsit on this Payment Bond in his, their, or its own name and may prosecute the same to final judgementfor such sum or sums as may be justly due to him, them, or it, and have execution thereon. Provided, however, that theCommonwealth shall not be liable for the payment of any costs or expenses of such suit.

Recovery by any individual, firm, partnership, association or corporation hereunder shall be subject to theprovisions of the "Public Works Contractors' Bond Law of 1967", Act No. 385, approved December 20, 1967, P.L. 869, which Act shallbe incorporated herein and made a part hereof, as fully and completely as though its provisions were fully and at length herein recited.

It is further provided that any alteration which may be made in the terms of the contract or in the work to be done or materialsto be furnished or labor to be supplied or performed under it or the giving by the Commonwealth of any extension of time for theperformance of the contract or any other forbearance on the part of either the Commonwealth or the Principal to the other shallnot in any way release the PRINCIPAL and the SURETY or SURETIES or either or any of them, their heirs, executors, administrators,successors or assigns, from their liability hereunder, notice to the SURETY or SURETIES of any such alteration, extension, orforbearance being hereby waived.

IN WITNESS WHEREOF, the said PRINCIPAL and SURETY have duly executed this Bond under seal the day and year firstabove written.

Attorney-in-Fact Certification

*The undersigned attorney-in-fact by executing this Payment Bond certifies that he/she is licensed with the company namedas surety for this bond and that to the best of his/her knowledge the said surety islicensed with the Pennsylvania Insurance Department.

Bond Workflow Status

Status	Name	Disposition	Date/Time
Draft	Donna M Bernstiel/ PennDOT BP-000913	Submit	11/12/2012 10:12:05 AM
Producer Review	Christine A Dunn cad/ PennDOT BP-002494	Sign	11/12/2012 02:33:45 PM
Contractor Review	Dale R Wilson/PennDOT BP-000913	Sign	11/14/2012 10:39:32 AM
BOD CMD Review	Roland L Rode/PennDOT	Accept	11/14/2012 11:00:56 AM

Surety Company:	Zurich American Insurance Company	**Status:**	Accepted
Bonding Agency:	Rosenberg & Parker, Inc.	**Bond Number:**	PRF09098630
Producer:	Christine A Dunn cad/PennDOT BP-002494	**Bond Amount:**	$14,569,541.93
Co-Insurer:	Yes	**NAIC:**	16535

KNOW ALL MEN BY THESE PRESENTS, That we, *Allan A. Myers, LP* of *1805 Berks Road , P O Box 98, Worcester, PA 19490-0098* as PRINCIPAL,and Zurich American Insurance Company a corporation,as SURETY, are held and firmly bound unto the *Commonwealth of Pennsylvania* in the full and just sum of *$14,569,541.93*, lawful moneyof the United States of America, to be paid to the said Commonwealth of Pennsylvania, or it assigns, to which payment well and truly tobe made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

Sealed with our respective seals and dated this 12 day of November A.D. 2012.

Whereas, the above bounden PRINCIPAL has undertaken to contract with the said Commonwealth of Pennsylvania, by and through the Secretary of Transportation covering the workidentified below for approximately the sum of the bond amount defined above.

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and

WHEREAS, it was one of the conditions of the award of the Secretary of Transportation, acting for and on behalf ofthe Commonwealth of Pennsylvania, pursuant to which said contract was undertaken by the PRINCIPAL that these presentsshould be executed, to become binding upon the date the said contract is approved for the office of Budget, by the Comptroller.

NOW, THEREFORE, The conditions of this obligation is such that if the above bounden PRINCIPAL shall and willpromptly or cause to be paid in full all sums of money which may be due by contractor or corporation, for all materials furnishedor labor supplied or performed in the prosecution of the work, whether or not the said material or labor entered into and becamecomponent parts of the work or improvement contemplated, and for rental of the equipment used and services rendered by public utilitiesin, or in connection with, the prosecution of such work, then this obligation to be void, otherwise to remain in full force andeffect.

The PRINCIPAL and SURETY hereby, jointly and severally, agree with the obligee herein that any individual, firm,partnership, association or corporation, which has performed labor or furnished material in the prosecution of the work as provided,and any public utility which has rendered services in, or in connection with, the prosecution of such work, and which has not been paidin full therefor, may sue assumpsit on this Payment Bond in his, their, or its own name and may prosecute the same to final judgementfor such sum or sums as may be justly due to him, them, or it, and have execution thereon. Provided, however, that theCommonwealth shall not be liable for the payment of any costs or expenses of such suit.

Recovery by any individual, firm, partnership, association or corporation hereunder shall be subject to theprovisions of the "Public Works Contractors' Bond Law of 1967", Act No. 385, approved December 20, 1967, P.L. 869, which Act shallbe incorporated herein and made a part hereof, as fully and completely as though its provisions were fully and at length herein recited.

It is further provided that any alteration which may be made in the terms of the contract or in the work to be done or materialsto be furnished or labor to be supplied or performed under it or the giving by the Commonwealth of any extension of time for theperformance of the contract or any other forbearance on the part of either the Commonwealth or the Principal to the other shallnot in any way release the PRINCIPAL and the SURETY or SURETIES or either or any of them, their heirs, executors, administrators,successors or assigns, from their liability hereunder, notice to the SURETY or SURETIES of any such alteration, extension, orforbearance being hereby waived.

IN WITNESS WHEREOF, the said PRINCIPAL and SURETY have duly executed this Bond under seal the day and year firstabove written.

Attorney-in-Fact Certification

*The undersigned attorney-in-fact by executing this Payment Bond certifies that he/she is licensed with the company namedas surety for this bond and that to the best of his/her knowledge the said surety islicensed with the Pennsylvania Insurance Department.

Bond Workflow Status

Status	Name	Disposition	Date/Time
Draft	Donna M Bernstiel/ PennDOT BP-000913	Submit	11/12/2012 10:12:59 AM
Producer Review	Christine A Dunn cad/ PennDOT BP-002494	Sign	11/12/2012 03:42:13 PM
Contractor Review	Dale R Wilson/PennDOT BP-000913	Sign	11/14/2012 10:39:05 AM
BOD CMD Review	Roland L Rode/PennDOT	Accept	11/14/2012 11:01:53 AM

Surety Company:	The Fidelity and Deposit Company of Maryland	**Status:**	Accepted
Bonding Agency:	Rosenberg & Parker, Inc.	**Bond Number:**	PRF09098630
Producer:	Christine A Dunn cad/PennDOT BP-002494	**Bond Amount:**	$17,121,000.00
Co-Insurer:	Yes	**NAIC:**	39306

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and

WHEREAS, it was one of the conditions of the award of the Secretary of Transportation, acting for and on behalf ofthe Commonwealth of Pennsylvania, pursuant to which said contract was undertaken by the PRINCIPAL that these presentsshould be executed, to become binding upon the date the said contract is approved for the office of Budget, by the Comptroller.

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Attorney-in-Fact Certification

*The undersigned attorney-in-fact by executing this Payment Bond certifies that he/she is licensed with the company namedas surety for this bond and that to the best of his/her knowledge the said surety islicensed with the Pennsylvania Insurance Department.

Bond Workflow Status

Status	Name	Disposition	Date/Time
Draft	Donna M Bernstiel/ PennDOT BP-000913	Submit	11/12/2012 12:05:49 PM
Producer Review	Christine A Dunn cad/ PennDOT BP-002494	Sign	11/12/2012 03:44:09 PM
Contractor Review	Dale R Wilson/PennDOT BP-000913	Sign	11/14/2012 10:39:19 AM
BOD CMD Review	Roland L Rode/PennDOT	Accept	11/14/2012 11:03:08 AM

Insurance

The Graham Company

The Graham Building
1 Penn Square West
Philadelphia, PA 19102

Company: Zurich American Insurance Company
Policy: GLO352033810
Expiration: 12/31/2012

DBE Commitments

DBE: 10%
Approved: 10.06%

Perform Less Than 50% of Work Items: No
Good Faith Effort Evaluation: No

Status	Business Partner	Business	% of Bid	Submitted	Acknowledged
Conditionally Approved	Bridg-It Fabricators, Inc.	Subcontractor	0.07%	10/24/2012	10/24/2012
Conditionally Approved	General Sewer Service, Inc. t/a General Pipe Cleaning	Subcontractor	0.11%	10/24/2012	10/24/2012
Approved	Callahan Paving Products, Inc.	Regular Dealer	4.85%	10/24/2012	10/24/2012
Approved	Fenix Group, Inc.	Regular Dealer	2.26%	10/24/2012	10/24/2012
Approved	Guidemark, Inc.	Subcontractor	0.52%	10/24/2012	10/24/2012
Approved	On Call Flagging, Inc.	Regular Dealer	0.33%	10/24/2012	10/24/2012
Approved	Ram-T Corporation	Subcontractor	1.92%	10/24/2012	10/24/2012

Bridg-It Fabricators, Inc.

Prime

Contact: Thomas Johnston
Phone: 610-584-3489
DBE: 10%
Status: Conditionally Approved
Revision Number:

DBE

Business Partner: Bridg-It Fabricators, Inc.
Type: DBE
Contact: WENDY L REED
Phone: 215-679-3444
DBE JVT%:
Certification: 12742
Cert. Expiration: 08/31/2013

Agreement Amount: $41,440.00
% of Bid: 0.07
Mobilization: $0.00
Starting: 01/16/2013
Completion: 05/13/2017
Business Type: Subcontractor

Items

None

Partial Items

Item	Description	Unit of Measure	Quantity
8010-0001	BRIDGE STRUCTURE, AS DESIGNED, S-24678	LS	1.000

Comment

None

Workflow

Status	Name	Disposition	Date/Time
Draft	Thomas R Johnston Jr/ PennDOT BP-000913	Submit	10/23/2012 08:59:04 PM
Awaiting Acknowledgement	Wendy L Reed/PennDOT BP-000996	Acknowledge	10/24/2012 01:15:08 PM
Acknowledged	Joe Haines/PennDOT BP-000913	Submit	10/24/2012 03:12:42 PM
PennDOT Review	Delores A Ritzman/PennDOT	Conditionally Approve	10/25/2012 02:57:51 PM

General Sewer Service, Inc. t/a General Pipe Cleaning

Prime

Contact: Thomas Johnston
Phone: 610-584-3489
DBE: 10%
Status: Conditionally Approved
Revision Number:

DBE

Business Partner: General Sewer Service, Inc. t/a General Pipe Cleaning
Type: DBE
Contact: Nora Hopson
Phone: 610-461-1212
DBE JVT%:
Certification: 11869
Cert. Expiration: 04/30/2014

Agreement Amount: $66,931.00
% of Bid: 0.11
Mobilization: $0.00
Starting: 01/16/2013
Completion: 05/13/2017
Business Type: Subcontractor

Items

Item	Description	Unit of Measure	Quantity
0601-5901	CLEANING EXISTING PIPE CULVERTS, DIAMETERS UP TO AND INCLUDING 36"	LF	1,286.000

Partial Items

Item	Description	Unit of Measure	Quantity
0604-9439	36" PERFORATED CORRUGATED ALUMINIZED STEEL PIPE, TYPE I, (2 2/3" X 1/2" CORRUGATIONS), 12 GAGE, 100 YEAR DESIGN LIFE	LF	545.000
0604-7541	42" REINFORCED CONCRETE PIPE, TYPE A, (OPEN JOINT), 10' - 3' FILL, SHORE/TRENCH BOX, 100 YEAR DESIGN LIFE	LF	182.000
0604-7537	36" REINFORCED CONCRETE PIPE, TYPE A, (OPEN JOINT), 10' - 7' FILL, SHORE/TRENCH BOX, 100 YEAR DESIGN LIFE	LF	144.000
0604-7527	30" REINFORCED CONCRETE PIPE, TYPE A, (OPEN JOINT), 10' - 7' FILL, SHORE/TRENCH BOX, 100 YEAR DESIGN LIFE	LF	145.000
0604-7518	24" REINFORCED CONCRETE PIPE, TYPE A, (OPEN JOINT), 10' - 7' FILL, SHORE/TRENCH BOX, 100 YEAR DESIGN LIFE	LF	247.000
0604-7510	18" REINFORCED CONCRETE PIPE, TYPE A, (OPEN JOINT), 10' - 7' FILL, SHORE/TRENCH BOX, 100 YEAR DESIGN LIFE	LF	202.000
0604-7072	48" REINFORCED CONCRETE PIPE, TYPE A, (OPEN JOINT), 10' - 2' FILL, 100 YEAR DESIGN LIFE	LF	320.000
0604-7065	42" REINFORCED CONCRETE PIPE, TYPE A, (OPEN JOINT), 10' - 3' FILL, 100 YEAR DESIGN LIFE	LF	49.000
0604-7042	30" REINFORCED CONCRETE PIPE, TYPE A, (OPEN JOINT), 10' - 3' FILL, 100 YEAR DESIGN LIFE	LF	934.000
0604-7027	24" REINFORCED CONCRETE PIPE, TYPE A, (OPEN JOINT), 10' - 2' FILL, 100 YEAR DESIGN LIFE	LF	2,143.000
0604-7014	18" REINFORCED CONCRETE PIPE, TYPE A, (OPEN JOINT), 15' - 2' FILL, 100 YEAR DESIGN LIFE	LF	3,367.000
0601-9451	48" CORRUGATED ALUMINIZED STEEL PIPE, TYPE I, (2 2/3" X 1/2" CORRUGATIONS), 12 GAGE, 100 YEAR DESIGN LIFE	LF	76.000

0601-7518	24" REINFORCED CONCRETE PIPE, TYPE A, 10' - 7' FILL, SHORE/TRENCH BOX, 100 YEAR DESIGN LIFE	LF	60.000
0601-7511	18" REINFORCED CONCRETE PIPE, TYPE A, 15' - 3' FILL, SHORE/TRENCH BOX, 100 YEAR DESIGN LIFE	LF	443.000
0601-7058	36" REINFORCED CONCRETE PIPE, TYPE A, 15' - 3' FILL, 100 YEAR DESIGN LIFE	LF	15.000
0601-7043	30" REINFORCED CONCRETE PIPE, TYPE A, 15' - 2' FILL, 100 YEAR DESIGN LIFE	LF	322.000
0601-7028	24" REINFORCED CONCRETE PIPE, TYPE A, 15' - 2' FILL, 100 YEAR DESIGN LIFE	LF	574.000
0601-7027	24" REINFORCED CONCRETE PIPE, TYPE A, 10' - 2' FILL, 100 YEAR DESIGN LIFE	LF	115.000
0601-7014	18" REINFORCED CONCRETE PIPE, TYPE A, 15' - 2' FILL, 100 YEAR DESIGN LIFE	LF	1,298.000
0601-4441	48" CORRUGATED ALUMINIZED STEEL PIPE, TYPE I, (2 2/3" X 1/2" CORRUGATIONS), 12 GAGE, SHORE/TRENCH BOX, 100 YEAR DESIGN LIFE	LF	81.000
0601-4440	42" CORRUGATED ALUMINIZED STEEL PIPE, TYPE I, (2 2/3" X 1/2" CORRUGATIONS), 12 GAGE, SHORE/TRENCH BOX, 100 YEAR DESIGN LIFE	LF	238.000
0601-4439	36" CORRUGATED ALUMINIZED STEEL PIPE, TYPE I, (2 2/3" X 1/2" CORRUGATIONS), 12 GAGE, SHORE/TRENCH BOX, 100 YEAR DESIGN LIFE	LF	61.000

Comment

None

Workflow

Status	Name	Disposition	Date/Time
Draft	Thomas R Johnston Jr/ PennDOT BP-000913	Submit	10/23/2012 08:48:53 PM
Awaiting Acknowledgement	Kimberly J Mcerlean/ PennDOT BP-000749	Acknowledge	10/24/2012 09:40:58 AM
Acknowledged	Joe Haines/PennDOT BP-000913	Submit	10/24/2012 03:12:42 PM
PennDOT Review	Delores A Ritzman/PennDOT	Conditionally Approve	10/25/2012 02:56:39 PM

Callahan Paving Products, Inc.

Prime

Contact: Thomas Johnston
Phone: 610-584-3489
DBE: 10%
Status: Approved
Revision Number:

DBE

Business Partner: Callahan Paving Products, Inc.
Type: DBE
Contact: Terry Callahan
Phone: 434-589-9000
DBE JVT%:
Certification: 10452
Cert. Expiration: 09/14/2013

Agreement Amount: $3,076,218.00
% of Bid: 4.85
Mobilization: $0.00
Starting: 01/16/2013
Completion: 05/13/2017
Business Type: Regular Dealer

Items

None

Partial Items

Item	Description	Unit of Measure	Quantity
8259-0092	CONSTRUCTION OF NOISE BARRIER, S-31037	LS	1.000
8259-0091	CONSTRUCTION OF NOISE BARRIER, S-31040	LS	1.000
8259-0011	CONSTRUCTION OF NOISE BARRIER, S-26764	LS	1.000
8259-0010	CONSTRUCTION OF NOISE BARRIER, S-25738	LS	1.000
8259-0008	CONSTRUCTION OF NOISE BARRIER, S-31601	LS	1.000
8259-0007	CONSTRUCTION OF NOISE BARRIER, S-31039	LS	1.000
8259-0006	CONSTRUCTION OF NOISE BARRIER, S-25922	LS	1.000
8259-0005	CONSTRUCTION OF NOISE BARRIER, S-31036	LS	1.000
8259-0004	CONSTRUCTION OF NOISE BARRIER, S-31942	LS	1.000
8259-0003	CONSTRUCTION OF NOISE BARRIER, S-30979	LS	1.000
8259-0002	CONSTRUCTION OF NOISE BARRIER, S-25699	LS	1.000
8259-0001	CONSTRUCTION OF NOISE BARRIER, S-25698	LS	1.000
5086-0350	STRUCTURE MOUNTED SOUND BARRIER WALL PANELS, PRECAST REINFORCED CONCRETE	SF	1,417.000
5086-0350	STRUCTURE MOUNTED SOUND BARRIER WALL PANELS, PRECAST REINFORCED CONCRETE	SF	1,417.000
5086-0300	SOUND BARRIER WALL PANELS, PRECAST REINFORCED CONCRETE	SF	411.000
5086-0300	SOUND BARRIER WALL PANELS, PRECAST REINFORCED CONCRETE	SF	411.000
0516-3035	ACCELERATED CONCRETE PAVEMENT PATCHING, TYPE A, 11" DEPTH	SY	69.000
0516-3034	ACCELERATED CONCRETE PAVEMENT PATCHING, TYPE A, 10" DEPTH	SY	72.000
0516-2008	NEW PAVEMENT JOINT	LF	46.000
0516-2008	NEW PAVEMENT JOINT	LF	46.000
0516-2007	PATCHING JOINT	LF	280.000
0516-2007	PATCHING JOINT	LF	280.000

0506-0036	PLAIN CEMENT CONCRETE PAVEMENT, RPS, 12" DEPTH	SY	80,174.000
0506-0032	PLAIN CEMENT CONCRETE PAVEMENT, RPS, 10" DEPTH	SY	6,563.000
0501-0036	PLAIN CEMENT CONCRETE PAVEMENT, 12" DEPTH	SY	42,135.000
0501-0032	PLAIN CEMENT CONCRETE PAVEMENT, 10" DEPTH	SY	4,211.000

Comment

None

Workflow

Status	Name	Disposition	Date/Time
Draft	Thomas R Johnston Jr/ PennDOT BP-000913	Submit	10/23/2012 09:55:56 PM
Awaiting Acknowledgement	Brian Eberhart/PennDOT BP-000822	Acknowledge	10/24/2012 08:54:24 AM
Acknowledged	Joe Haines/PennDOT BP-000913	Submit	10/24/2012 03:12:42 PM
PennDOT Review	Delores A Ritzman/PennDOT	Approve	10/25/2012 03:02:18 PM

Fenix Group, Inc.

Prime

Contact: Thomas Johnston
Phone: 610-584-3489
DBE: 10%
Status: Approved
Revision Number:

DBE

Business Partner: Fenix Group, Inc.
Type: DBE
Contact: Maria Ziolkowski
Phone: 610-780-3424
DBE JVT%:
Certification: 13515
Cert. Expiration: 12/31/2013

Agreement Amount: $1,430,000.40
% of Bid: 2.26
Mobilization: $0.00
Starting: 01/16/2013
Completion: 05/13/2017
Business Type: Regular Dealer

Items

None

Partial Items

Item	Description	Unit of Measure	Quantity
0623-0112	FLARED END TRANSITION	EACH	8.000
0623-0052	SINGLE FACE CONCRETE BARRIER	LF	2,018.000
0622-0006	TRANSITION, CONCRETE GLARE SCREEN, 50" HEIGHT, 24" TO 41 1/2" WIDTH	EACH	1.000
0622-0001	CONCRETE GLARE SCREEN	LF	1,066.000
9623-0052	SINGLE FACE CONCRETE BARRIER, TYPE 1	LF	156.000
9623-0051	42" SINGLE FACE CONCRETE BARRIER, TYPE 2	LF	1,285.000
9623-0050	42" SINGLE FACE CONCRETE BARRIER, TYPE 1	LF	5,997.000
9623-0001	CONCRETE MEDIAN BARRIER, TYPE 1	LF	218.000
9622-0050	SINGLE FACE CONCRETE GLARE SCREEN	LF	673.000
9622-0003	CONCRETE GLARE SCREEN, TYPE 3	LF	4,957.000
9622-0002	CONCRETE GLARE SCREEN, TYPE 2	LF	5,641.000

Comment

None

Workflow

Status	Name	Disposition	Date/Time
Draft	Thomas R Johnston Jr/ PennDOT BP-000913	Submit	10/23/2012 09:36:38 PM
Awaiting Acknowledgement	Maria Ziolkowski/PennDOT BP-006241	Acknowledge	10/24/2012 10:14:16 AM

Acknowledged	Joe Haines/PennDOT BP-000913	Submit	10/24/2012 03:12:42 PM
PennDOT Review	Delores A Ritzman/PennDOT	Approve	10/25/2012 03:06:11 PM

Guidemark, Inc.

Prime

Contact: Thomas Johnston
Phone: 610-584-3489
DBE: 10%

Status: Approved
Revision Number:

DBE

Business Partner: Guidemark, Inc.
Type: DBE
Contact: Nancy Dolinar
Phone: 215-721-7100
DBE JVT%:
Certification: 11706
Cert. Expiration: 03/31/2014

Agreement Amount: $332,224.00
% of Bid: 0.52
Mobilization: $0.00
Starting: 01/16/2013
Completion: 05/13/2017
Business Type: Subcontractor

Items

Item	Description	Unit of Measure	Quantity
0901-0334	24" STANDARD PAVEMENT MARKINGS, PAINT & BEADS, WHITE	LF	396.000
0901-0332	8" STANDARD PAVEMENT MARKINGS, PAINT & BEADS, WHITE	LF	8,405.000
0901-0331	6" STANDARD PAVEMENT MARKINGS, PAINT & BEADS, WHITE	LF	55,857.000
0901-0330	4" STANDARD PAVEMENT MARKINGS, PAINT & BEADS, WHITE	LF	38,785.000
0901-0324	24" STANDARD PAVEMENT MARKINGS, PAINT & BEADS, YELLOW	LF	778.000
0901-0321	6" STANDARD PAVEMENT MARKINGS, PAINT & BEADS, YELLOW	LF	88,205.000
0901-0320	4" STANDARD PAVEMENT MARKINGS, PAINT & BEADS, YELLOW	LF	31,616.000
0966-0018	SNOWPLOWABLE RAISED PAVEMENT MARKER TWO WAY HOLDER WITH REFLECTOR (W/B)	EACH	831.000
0966-0017	SNOWPLOWABLE RAISED PAVEMENT MARKER TWO WAY HOLDER WITH REFLECTOR (Y/B)	EACH	91.000
0966-0015	SNOWPLOWABLE RAISED PAVEMENT MARKER TWO WAY HOLDER WITH REFLECTOR (W/R)	EACH	55.000
0966-0014	SNOWPLOWABLE RAISED PAVEMENT MARKER TWO WAY HOLDER WITH REFLECTOR (Y/R)	EACH	14.000
0966-0011	SNOWPLOWABLE RAISED PAVEMENT MARKER TWO WAY HOLDER WITH REFLECTOR (Y/Y)	EACH	53.000
0964-0232	WHITE EPOXY LEGEND, "LANE REDUCTION TRANSITION ARROW - RIGHT LANE" , 18'-0" X 5'-6"	EACH	3.000
0964-0224	WHITE EPOXY LEGEND, "LEFT ARROW", 12' - 0" X 3' - 0"	EACH	7.000
0964-0222	WHITE EPOXY LEGEND, "RIGHT ARROW", 12' - 0" X 3' - 0"	EACH	5.000
0964-0220	WHITE EPOXY LEGEND, "STRAIGHT ARROW", 12' - 0" X 1' - 8"	EACH	1.000
0964-0101	WHITE EPOXY LEGEND, "ONLY", 8' - 0"	EACH	15.000
0964-0022	24" YELLOW EPOXY PAVEMENT MARKINGS	LF	1,083.000
0964-0021	24" WHITE EPOXY PAVEMENT MARKINGS	LF	462.000
0964-0008	8" WHITE EPOXY PAVEMENT MARKINGS	LF	10,139.000
0964-0007	6" BLACK EPOXY PAVEMENT MARKINGS	LF	17,327.000
0964-0005	6" WHITE EPOXY PAVEMENT MARKINGS	LF	17,327.000
0964-0002	4" YELLOW EPOXY PAVEMENT MARKINGS	LF	39,614.000

0964-0001	4" WHITE EPOXY PAVEMENT MARKINGS	LF	35,034.000
0963-0010	PAVEMENT MARKING REMOVAL (LEGENDS AND SYMBOLS)	EACH	2.000
0963-0010	PAVEMENT MARKING REMOVAL (LEGENDS AND SYMBOLS)	EACH	2.000
0963-0010	PAVEMENT MARKING REMOVAL (LEGENDS AND SYMBOLS)	EACH	2.000
0963-0001	PAVEMENT MARKING REMOVAL	SF	38,606.000
0963-0001	PAVEMENT MARKING REMOVAL	SF	38,606.000
0963-0001	PAVEMENT MARKING REMOVAL	SF	38,606.000
0962-1062	WHITE WATERBORNE PAVEMENT LEGEND, "LEFT ARROW", 12'-0" X 3'-0"	EACH	4.000
0962-1025	WHITE WATERBORNE PAVEMENT LEGEND, "ONLY", 8'-0"	EACH	3.000
0960-0220	WHITE HOT THERMOPLASTIC LEGEND, "STRAIGHT ARROW", 12' - 0" X 1' - 8"	EACH	4.000
0960-0119	WHITE HOT THERMOPLASTIC LEGEND, "HANDICAP SYMBOL", 3' - 3" X 2-11"	EACH	2.000
0960-0021	24" WHITE HOT THERMOPLASTIC PAVEMENT MARKINGS	LF	20.000
0960-0002	4" YELLOW HOT THERMOPLASTIC PAVEMENT MARKINGS	LF	310.000
0960-0001	4" WHITE HOT THERMOPLASTIC PAVEMENT MARKINGS	LF	960.000
0660-0020	CONCRETE SHOULDER RUMBLE STRIPS	LF	43,129.000

Partial Items

None

Comment

None

Workflow

Status	Name	Disposition	Date/Time
Draft	Thomas R Johnston Jr/ PennDOT BP-000913	Submit	10/23/2012 09:21:33 PM
Awaiting Acknowledgement	Nancy E Dolinar/PennDOT BP-000759	Acknowledge	10/24/2012 09:07:19 AM
Acknowledged	Joe Haines/PennDOT BP-000913	Submit	10/24/2012 03:12:42 PM
PennDOT Review	Delores A Ritzman/PennDOT	Approve	10/25/2012 02:58:28 PM

On Call Flagging, Inc.

Prime

Contact: Thomas Johnston
Phone: 610-584-3489
DBE: 10%
Status: Approved
Revision Number:

DBE

Business Partner: On Call Flagging, Inc.
Type: DBE
Contact: Kathleen Jennings
Phone: 814-749-3160
DBE JVT%:
Certification: 13137
Cert. Expiration: 07/31/2012

Agreement Amount: $206,000.40
% of Bid: 0.33
Mobilization: $0.00
Starting: 01/16/2013
Completion: 05/13/2017
Business Type: Regular Dealer

Items

None

Partial Items

Item	Description	Unit of Measure	Quantity
0948-0302	STEEL SIGN STRUCTURE - CANTILEVER	LS	1.000
0948-0301	STEEL SIGN STRUCTURE - CANTILEVER	LS	1.000
0948-0300	STEEL SIGN STRUCTURE - CANTILEVER	LS	1.000
0948-0101	STEEL SIGN STRUCTURE - SPAN, WITH BOX SHAPED TRUSS	LS	1.000

Comment

None

Workflow

Status	Name	Disposition	Date/Time
Draft	Thomas R Johnston Jr/ PennDOT BP-000913	Submit	10/23/2012 09:44:32 PM
Awaiting Acknowledgement	Tracy Nagle/PennDOT BP-005056	Acknowledge	10/24/2012 10:57:53 AM
Acknowledged	Joe Haines/PennDOT BP-000913	Submit	10/24/2012 03:12:42 PM
PennDOT Review	Delores A Ritzman/PennDOT	Approve	10/25/2012 03:06:49 PM

Ram-T Corporation

Prime

Contact: Thomas Johnston
Phone: 610-584-3489
DBE: 10%
Status: Approved
Revision Number:

DBE

Business Partner: Ram-T Corporation
Type: DBE
Contact: Debbie Turner
Phone: 610-269-4495
DBE JVT%:
Certification: 10439
Cert. Expiration: 08/31/2015

Agreement Amount: $1,215,900.00
% of Bid: 1.92
Mobilization: $0.00
Starting: 01/16/2013
Completion: 05/13/2017
Business Type: Subcontractor

Items

Item	Description	Unit of Measure	Quantity
0811-0003	TEMPORARY PROTECTIVE FENCE	LF	14,049.000
0811-0003	TEMPORARY PROTECTIVE FENCE	LF	14,049.000
0808-6000	WATERING	MGAL	240.000
0808-4990	VIRGINIA CREEPER - (3" POT - 2 YR.)	EACH	650.000
0808-4980	BOSTON IVY - (3" POT - 2 YR.)	EACH	325.000
0808-4843	ROSEBAY RHODODENDRON - (4' HT. B&B)	EACH	26.000
0808-4794	CAROLINA RHODODENDRON - (2 1/2' HT. B&B)	EACH	100.000
0808-4722	ANDORRA JUNIPER - (2' SPD. B&B)	EACH	149.000
0808-4702	SARGENT JUNIPER - (2' SPD. B&B)	EACH	173.000
0808-4572	LEATHERLEAF VIBURNUM - (4' HT. B&B)	EACH	132.000
0808-4563	DOUBLEFILE VIBURNUM - (5' HT. B&B - HEAVY)	EACH	121.000
0808-4552	WAYFARING TREE - (4' HT. B&B)	EACH	26.000
0808-4487	HANCOCK CORALBERRY (24" HT. B.R.)	EACH	1,882.000
0808-4363	IVORY SILK JAPANESE LILAC TREE - (2 1/2" CAL. B&B)	EACH	6.000
0808-4312	COMMON NINEBARK - (3' HT. B.R.)	EACH	85.000
0808-4292	BAYBERRY - (3' HT. B&B)	EACH	550.000
0808-4203	WINTERBERRY - (3' HT. B&B)	EACH	99.000
0808-4197	COMPACT INKBERRY - (36" HT. B&B or CONTAINER)	EACH	35.000
0808-4193	INKBERRY - (2' HT. B&B)	EACH	70.000
0808-4112	YELLOWTWIG DOGWOOD - (3' HT. B.R.)	EACH	198.000
0808-4102	RED OSIER DOGWOOD - (3' HT. B.R.)	EACH	32.000
0808-4061	FLOWERING QUINCE - (2' HT. B.R.)	EACH	10.000
0808-4041	WINTERGREEN BARBERRY - (18" HT. B&B OR CONTAINER)	EACH	75.000
0808-3952	BLACK CHOKEBERRY - (30" HT. B&B)	EACH	581.000
0808-3871	DOUGLAS FIR - (6' HT. B&B)	EACH	4.000
0808-3845	WHITE PINE - (8' HT. B&B)	EACH	35.000
0808-3663	SUGAR TYME CRAB - (1 1/2" CAL. B&B)	EACH	28.000

0808-3657	PRAIRIFIRE CRAB - (2" CAL. B&B)	EACH	14.000
0808-3652	ZUMI CRAB - (2" CAL. B&B)	EACH	11.000
0808-3618	WHITE FRINGETREE - (6' HT. B&B)	EACH	26.000
0808-3577	WINTER KING HAWTHORN - (2 1/2" CAL. B&B)	EACH	4.000
0808-3513	CORNELIAN CHERRY - (6' HT. B&B)	EACH	5.000
0808-3494	RED FLOWERING DOGWOOD - (1 1/2" CAL. B&B)	EACH	3.000
0808-3477	UPRIGHT EUROPEAN HORNBEAM (2 1/2" CAL. B&B)	EACH	8.000
0808-3470	YELLOWWOOD - (1 1/2" CAL. B&B)	EACH	8.000
0808-3464	AMERICAN REDBUD - (1 1/4" CAL. B&B - HEAVY)	EACH	5.000
0808-3403	GREENSPIRE LITTLELEAF LINDEN - (2 1/2" CAL. B&B)	EACH	4.000
0808-3253	TULIPTREE - (2 1/2" CAL. B&B)	EACH	11.000
0808-3136	HERITAGE RIVER BIRCH - (2' CAL. B&B)	EACH	29.000
0808-3111	EUROPEAN WHITE BIRCH CLUMPS - (1 1/4" CAL. B&B)	EACH	4.000
0808-0001	SHRUB BED PREPARATION	SY	12,328.000
0806-0055	TURF REINFORCEMENT MAT	SY	3,859.000
0806-0055	TURF REINFORCEMENT MAT	SY	3,859.000
0806-0052	HIGH VELOCITY EROSION CONTROL MULCH BLANKET	SY	725.000
0806-0052	HIGH VELOCITY EROSION CONTROL MULCH BLANKET	SY	725.000
0806-0051	EROSION CONTROL MULCH BLANKET	SY	76,303.000
0806-0051	EROSION CONTROL MULCH BLANKET	SY	76,303.000
0806-0050	EROSION CONTROL MAT	SY	236.000
0806-0050	EROSION CONTROL MAT	SY	236.000
0805-0044	MULCHING - SPENT MUSHROOM SOIL COMPOST	SY	16.000
0805-0037	MULCHING - SHREDDED BARK WITH WEED BARRIER MAT	SY	12,328.000
0805-0022	MULCHING - STRAW	TON	85.000
0805-0015	MULCHING - SHREDDED BARK	SY	4,345.000
0804-0051	MOWING	ACRE	50.000
0804-0021	SEEDING AND SOIL SUPPLEMENTS - FORMULA W	LB	2.000
0804-0020	SEEDING AND SOIL SUPPLEMENTS - FORMULA L	LB	914.000
0804-0014	SEEDING - FORMULA E	LB	1,346.000
0804-0013	SEEDING AND SOIL SUPPLEMENTS - FORMULA D	LB	602.000
0804-0011	SEEDING AND SOIL SUPPLEMENTS - FORMULA B	LB	65.000
9868-0003	COMPOST SOCK SEDIMENT TRAP	LF	430.000
9867-0022	COMPOST FILTER SOCK DIVERSION BERM	LF	2,480.000
9866-0005	HABITAT PROTECTION FENCE	LF	974.000
9808-7120	ELDERBERRY (12' HT.)	EACH	3,189.000
9808-5011	MEMORIAL ROSE - 24" HT. CONTAINER	EACH	68.000
9808-5000	PERIOD OF PLANT ESTABLISHMENT AND REPLACEMENT	LS	1.000
9808-4100	RED OSIER DOGWOOD (12" HT.)	EACH	3,189.000
9808-4093	SILKY DOGWOOD (12" HT.)	EACH	436.000
9808-3846	WHITE PINE (24" HT.)	EACH	73.000
9808-3805	WHITE SPRUCE (24" HT.)	EACH	73.000
9808-3744	BLACKHAW (12" HT.)	EACH	436.000
9808-3730	ARROWWOOD VIBURNUM (12" HT.)	EACH	2,894.000
9808-3465	AMERICAN REDBUD (12" HT.)	EACH	436.000
9808-3330	PIN OAK (24" HT.)	EACH	432.000
9808-3314	SCARLET OAK (24" HT.)	EACH	73.000
9808-3304	HYBRID YARROW - QUART CONTAINER	EACH	550.000
9808-3270	AMERICAN SYCAMORE (24" HT.)	EACH	432.000

9808-3254	TULIPTREE (24" HT.)	EACH	73.000
9808-3230	BLACK GUM (24" HT.)	EACH	432.000
9808-3137	SWEET BIRCH (24" HT.)	EACH	73.000
9808-3076	RED MAPLE (24" HT.)	EACH	73.000
9808-2021	HYBRID EASTERN RED CEDAR - 6'-7' B&B	EACH	17.000
9808-2020	SHOWY AUTUMN SEDUM - #2 CONTAINER	EACH	350.000
9808-2018	HYBRID BLACK-EYED SUSAN - #2 CONTAINER	EACH	1,210.000
9808-2017	PINK MEIDILAND GROUNDCOVER ROSE - 18" SPD CONTAINER	EACH	97.000
9808-2016	RED MEIDILAND GROUNDCOVER ROSE - 18" SPD CONTAINER	EACH	48.000
9808-2015	BONICA SHRUB ROSE - 24" HT. CONTAINER	EACH	30.000
9808-2014	RUSSIAN SAGE - #2 CONTAINER	EACH	400.000
9808-2012	CATMINT - #2 CONTAINER	EACH	1,020.000
9808-2008	SHAMROCK INKBERRY - 24" HT. B&B OR CONTAINER	EACH	23.000
9808-2007	HYBRID YELLOW FLOWERING DAYLILY - #2 CONTAINER	EACH	1,400.000
9808-2005	FEATHER REED GRASS - #2 CONTAINER	EACH	550.000
9808-2003	FRASIER FIR - 8' HT. B&B	EACH	24.000
9808-1238	JAPANESE BLACK PINE - 6'-7' B&B	EACH	12.000
9808-1234	YOSHINO CRYPTOMERIA - 6' HT. B&B	EACH	9.000
9808-1066	ZAGREB COREOPSIS - #2 CONTAINER	EACH	1,350.000
9808-1028	WHITE OAK - 3" CAL. B&B	EACH	9.000
9808-1026	VIRGINIA SWEETSPIRE - 3' HT. B&B	EACH	85.000
9808-1021	SERBIAN SPRUCE - 6' HT. B&B	EACH	30.000
9808-1019	SARGENT CHERRY - 2" CAL. B&B	EACH	3.000
9808-1018	SWEET BAY MAGNOLIA - 3" CAL. B&B	EACH	7.000
9808-1016	OAKLEAF HYDRANGEA - 4' HT. B&B	EACH	11.000
9808-1014	MISS KIM LILAC - 4' HT. B&B	EACH	39.000
9808-1012	FOTHERGILLA - 2' HT. CONTAINER	EACH	37.000
9808-1007	BLACK GUM - 2 1/2" CAL. B&B	EACH	9.000
9808-1006	BLOODGOOD LONDON PLANETREE - 3" CAL. B&B	EACH	7.000
9808-1000	AMERICAN HOLLY (FEMALE) - 6-7' B&B	EACH	25.000
9808-0007	SMOOTH ALDER (12" HT.)	EACH	2,458.000
9808-0006	SHADBUSH (24" HT.)	EACH	432.000
9000-0023	GYPSUM SOIL AMENDMENT	LB	4,330.000
0873-0001	TEMPORARY BAFFLE WALL	LF	110.000
0873-0001	TEMPORARY BAFFLE WALL	LF	110.000
0867-0022	COMPOST FILTER SOCK, 24" DIAMETER	LF	5,953.000
0867-0022	COMPOST FILTER SOCK, 24" DIAMETER	LF	5,953.000
0867-0022	COMPOST FILTER SOCK, 24" DIAMETER	LF	5,953.000
0867-0012	COMPOST FILTER SOCK, 12" DIAMETER	LF	14,892.000
0867-0012	COMPOST FILTER SOCK, 12" DIAMETER	LF	14,892.000
0867-0012	COMPOST FILTER SOCK, 12" DIAMETER	LF	14,892.000
0866-0005	HEAVY DUTY SILT BARRIER FENCE	LF	765.000
0866-0005	HEAVY DUTY SILT BARRIER FENCE	LF	765.000
0866-0005	HEAVY DUTY SILT BARRIER FENCE	LF	765.000
0865-0001	SILT BARRIER FENCE, 18" HEIGHT	LF	244.000
0865-0001	SILT BARRIER FENCE, 18" HEIGHT	LF	244.000
0865-0001	SILT BARRIER FENCE, 18" HEIGHT	LF	244.000

Partial Items

None

Comment

None

Workflow

Status	Name	Disposition	Date/Time
Draft	Thomas R Johnston Jr/ PennDOT BP-000913	Submit	10/23/2012 09:10:44 PM
Awaiting Acknowledgement	Cathy Diluigi/PennDOT BP-000832	Acknowledge	10/24/2012 10:07:25 AM
Acknowledged	Joe Haines/PennDOT BP-000913	Submit	10/24/2012 03:12:42 PM
PennDOT Review	Delores A Ritzman/PennDOT	Approve	10/25/2012 02:59:25 PM

Plans

Plans	Addendum
Roadway Plan	
Supplemental Plans	
Cross Section	
Erosion and Sediment Pollution Control Plan	
Existing Structure Plan - S-7421	
Existing Structure Plan - S-20158	4
Existing Structure Plan - S-20157	3
Existing Structure Plan - S-7429A	
Existing Structure Plan - S-7425	
Existing Structure Plan - S-7424	
Existing Structure Plan - S-20149	
Highway Lighting Plan - Culvert over Chester Valley Trail	
Landscaping Plan	
Other/Project-Specific Plan - Post Construction Stormwater Management Plan	
Other/Project-Specific Plan - Pavement Marking and Delineation Plan	
Other/Project-Specific Plan - Subsurface Profile	
Other/Project-Specific Plan - ITS Plan	
Other/Project-Specific Plan - Park and Ride Signing Plan	
Other/Project-Specific Plan - Park and Ride Plan	
Other/Project-Specific Plan - Signing & Sign Lighting Plan	
Structure Plan - Conceptual Sound Barrier Wall S-25698	
Structure Plan - Conceptual Sound Barrier Wall S-25699	
Structure Plan - Conceptual Sound Barrier Wall S-26764	
Structure Plan - S-24774	
Structure Plan - S-24678	
Structure Plan - Conceptual Sound Barrier Wall S-25922	
Structure Plan - Conceptual Sound Barrier Wall S-25738	
Structure Plan - Conceptual Sound Barrier Wall S-31037	
Structure Plan - Conceptual Sound Barrier Wall S-31601	
Structure Plan - Conceptual Sound Barrier Wall S-31942	
Structure Plan - Conceptual Sound Barrier Wall S-30979	
Structure Plan - Conceptual Sound Barrier Wall S-31036	
Structure Plan - Conceptual Sound Barrier Wall S-31039	
Structure Plan - Conceptual Sound Barrier Wall S-31040	

Structure Plan - S-27842

Structure Plan - S-26620

Structure Plan - S-26088

Traffic Control Plan

Traffic Signal Plan

Attachments

Project-Specific Checklist Items	Addendum
Project Specific - Schedule of Values Template	
Project Specific - Design Activities Firm Identification and Qualification Form	
Project Specific - Request for Consideration for Engineering Involvement Restrictions	
Project Specific - Incident Management Plan	
Project Specific - GEOTECHNICAL DESIGN PARAMETERS AND FOUNDATION DESIGN INFORMATION FOR SOUND BARRIERS	
Project Specific - Mitigation Tracking System Matrix- Construction Phase	
Project Specific - Steel Escalation Option	
Reviews	
None	
Contract Award Items	
Disclosure of Lobbying Activities	
F.A.R. REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS	
Federal Wage Rate	2
Local Agreements and Coordination	
None	
Environmental Clearances	
None	
Permits	
DEP Water Obstruction and Encroachment Permit 105/404 - E15-820	
Environmental Due Diligence (EDD) - Contractor	
Environmental Due Diligence (EDD) - PennDOT	
NPDES General Permit for Discharge of Storm Water - SR 0202 Section 330- 2012.05.25	
US Army Corps of Engineers Section 404 Permit - CENAP-OP-2011-1060(PASPG-4)	
Right of Way	
None	
Survey	
None	
Utilities Clearance	
None	
Utility Engineering	
None	
Construction Items	
Pre-Bid Construction Schedule	1
Structures and Geotechnical	
None	

Railroad Coordination

None

Traffic

None

Construction Coordination

None

Maintenance Items

None

Estimates

None

Comments: