STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
JACK MARKELL
GOVERNOR
PO BOX 778
DOVER, DELAWARE 19903
JENNIFER COHAN
SECRETARY

VIA OVERNIGHT DELIVERY

(302) 760-2030
FAX (302) 739-2254

October 9, 2015

Contract No. T200911303.01
Federal Aid Project No. NH-2015(23)
US 301, Levels Road to Summit Bridge Rd.
New Castle County

Ladies and Gentlemen:

Enclosed is Addendum No. 1 for the referenced contract consisting of the following:

1. One (1) page, Table of Contents, page xviii, revised, to be substituted for the same page in the Proposal.
2. Two (2) pages, Prospective Bidders Notes, pages i & i-A, revising Paragraph 5, to be substituted for page i in the Proposal.
3. Two (2) pages, Prospective Bidders Notes, pages x & x-A, added Paragraphs 41, 42 &43, to be substituted for page x in the Proposal.
4. Three (3) pages, Special Provisions 732505-Soil Composting, pages 75, 75-A & 75-B, revised to be substituted for page 75 in the Proposal.
5. Two (2) pages, Special Provisions 304501-Permeable Treated Base 4", pages 83 & 86 has been revised, to be substituted for the same pages in the Proposal.
6. Five (5) pages, Special Provisions 736508-Project Control System Development Plan & 763509-CPM Schedule Updates and/or revised Updates, pages 280A, 280B, 280C, 280D & 280E have been added to the proposal.
7. One (1) page, Bid Proposal Form, page 28 revised, Item Number 602014, quantities revised, to be substituted for the same page in the Proposal.
8. Two (2) pages, Bid Proposal Forms, pages 54 & 55 revised, Item Numbers 302005 & 727009 have been added, to be substituted for the same page in the Proposal.
9. The following Item Numbers have been deleted: 302007 & 272003.
10. One (1) page, Prequalification For US 301 Contracts Form, revised, to be substituted for the same page in the Proposal.
11. The following Plan Sheets have been replaced with the following revised pages: 268, 303, 354, 389, 439, 520, 559, 630, 665, 668 & 683.
12. Expedite Bid File, Addendum No. 1.

Please note the revision listed above and submit your bid based upon this information.

Sincerely,

signature on file

James H. Hoagland
Contract Services Administrator

:jhh
Enclosure

STATE OF DELAWARE

DEPARTMENT OF TRANSPORTATION

BID PROPOSAL

for

CONTRACT T200911303.01

FEDERAL AID PROJECT NO. NH-2015(23)

US 301, LEVELS ROAD TO SUMMIT BRIDGE RD

NEW CASTLE COUNTY

ADVERTISEMENT DATE: September 14, 2015

COMPLETION TIME: 1,230 Calendar Days

SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
DELAWARE DEPARTMENT OF TRANSPORTATION
AUGUST 2001

Bids will be received in the Bidder's Room at the Delaware Department of Transportation's Administration Building, 800 Bay Road, Dover, Delaware until 2:00 P.M. local time **October 20, 2015**

Addendum No. 1
October 9, 2015

US 301, LEVELS ROAD TO SUMMIT BRIDGE RD
NEW CASTLE COUNTY

GENERAL DESCRIPTION

LOCATION

These improvements are located in NEW CASTLE County more specifically shown on the Location Map(s) of the enclosed Plans.

DESCRIPTION

The improvements consist of furnishing all labor and materials for US301, Levels Road to Summit Bridge Road, and other incidental construction in accordance with the location, notes and details shown on the plans and as directed by the Engineer.

COMPLETION TIME

All work on this contract must be complete within 1,230 Calendar Days. The Contract Time includes an allowance for 190 Weather Days. It is the Department's intent to issue a Notice to Proceed such that work starts on or about January 11, 2016.

PROSPECTIVE BIDDERS NOTES:

1. **BIDDERS MUST BE REGISTERED** with DelDOT and request an official Bid Proposal that contains plans and specifications in order to submit a bid. Contact DelDOT at dot-special@state.de.us or phone 302-760-2031 to request Bid Documents.
2. **THE BID PROPOSAL** incorporates a cd containing **Expedite**, **version 5.9a** and its installation file. Bidders are to use the cd provided to enter their bid amounts into the Expedite file. The Expedite bid file is to be printed and submitted in paper form along with the cd and other required documents prior to the Bid due date and time.
3. **QUESTIONS** regarding this project are to be e-mailed to dot-special@state.de.us no less than six business days prior to the bid opening date in order to receive a response. Responses to inquiries will be posted on-line at http://www.bids.delaware.gov.
4. **BONDS**: Each proposal must be accompanied by a deposit of either surety bond or security for a sum equal to at least 10% of the bid. The Bid Bond form submitted must be the form included with this proposal, or the identical form located here. The successful bidder will be required to present a Payment/Performance Bond in the amount of 100% of their bid prior to contract execution.
5. **PREQUALIFICATION**. As a prequalification to submit a bid on the US 301 project, all Contractors and Subcontractors must certify that their company, either independently or through agreement with other organizations, is providing craft training for journeyman and apprentice levels through a bona fide program approved by and registered with the State of Delaware and/or United States Department of Labor, to comply with 29 Del C. 6962(c)(11). The provided form, *"Prequalification for US 301 Contracts"*, is required to be completed and submitted by each prime contractor and their subcontractors no later than 10 a.m. local time on the date of bid opening along with supporting program documentation. DelDOT will review this information to prequalify bidders in advance of the bid opening. If the prequalification package is missing any portion of the certification or program documentation, the bidder will be deemed not have met the prequalification requirement and their bid will not be accepted. The contact for certified craft training programs is Kevin Calio, Delaware DOL, 302-451-3419 or, Kevin.Calio@state.de.us. A Delaware Business License is not needed as part of the pre-qualification to bid. A Delaware Business License will be required as part of the Contract award and execution process. In order to establish a bona fide Apprenticeship & Training program approved by and registered with the Delaware Department of Labor (DDOL):

   Step 1 - The contractor and/or subcontractor will submit a completed Sponsor Application form along with their Worker's Compensation Insurance Declaration page to DDOL. The contractor and/or subcontractor can also become a sponsor as part of a Joint Apprenticeship Committee (JAC), which is a group of contractors establishing an Apprenticeship & Training program.
   Step 2 - DDOL will review the information provided to confirm the truth/accuracy of all information provided on the application.

Step 3 - Once DDOL has approved the application, they work with the sponsor to execute the Standards of Agreement, either with the contractor and/or subcontractor or with the JAC. Once the Standards of Agreement are signed by all parties, the sponsor and/or JAC has a bona fide program recognized by DOL and will receive a Certificate of Registration. If the contractor and/or subcontractor provide all of the required information, Steps 2 and 3 are expected to take one to two weeks to complete.

'Prequalification for US 301 Contracts' forms and documentation can be sent via hardcopy or electronic submission. If sending via electronic submission, the apparent low bidder will need to submit the originals prior to award of the project.

Send electronic submissions to: dot-project@state.de.us Subject: QUAL DOCS

Send hardcopy overnight delivery to: DelDOT Contract Admin
800 Bay Road, Dover, DE 19901
RE: *QUAL DOCS*

6. **ALTERNATE BID ITEMS**. This contract contains options for Alternate Bid Items. The Bid pages contain five separate Section Option Groups. There are two choices for each of these Groups. Bid only one of the choices in each ALT GROUP. One Section choice is titled PILE ALTERNATIVE 1 and the other Section choice is titled PILE ALTERNATIVE 2. Bid only one of these sections. Leave the other section blank. (NOTE: In the event of a bidder error mistakenly bidding both Alternatives, the Alternative that is fully completed and contains the lowest price will be utilized for the bid).

whichever is later. If the work just described is not completed within 750 Calendar Days, then for each and every Calendar Day charged beyond the 750 Calendar Days, Liquidated Damages shall be assessed and deducted from monies due the contractor per Section 108.08 in the amount of sixty percent (60%) of the value shown in Section 108.09 until such time as the described work is complete and accepted by the Engineer.

b. An Interim Completion Date of forty-five (45) Calendar Days is established for completion and acceptance by the Engineer of all work required to be complete by the contractor for Contract T200911303 in order for the Toll Integrator to install and test all toll equipment at the four interchange ramps. This work shall include: guardrail and end treatment installation; final grading and stabilization; installing conduits and junction wells connecting to the Toll Equipment Hut and Gantries; and installing any electric and communication connections to the Toll Equipment Hut and Gantries. The contractor for Contract T200911303 shall then provide unrestricted access to Ramps C, F, I and L for the Toll Integrator to install and test the toll collection facilities for a period of ninety calendar days after the work just described is completed. This forty-five Calendar Day period shall begin upon completion and acceptance by the Engineer of the work being constructed under the separate Toll Equipment Hut and Gantries contract. The Engineer shall notify the contractor for Contract T200911303 when the work under the Toll Equipment Hut and Gantries contract has been accepted. If the work just described is not completed within the proscribed 45 Calendar Days, then for each and every Calendar Day charged beyond the 45 Calendar Days, Liquidated Damages shall be assessed and deducted from monies due the contractor per Section 108.08 in the amount of eighty percent (80%) of the value shown in Section 108.09 until such time as the described work is complete and accepted by the Engineer.

c. These liquidated damages for Interim Completion Dates are in addition to and do not void or alter any liquidated damages that may be assessed if work for other Interim Completion Dates is not completed and accepted by the Engineer within the identified Interim Completion Date or if all of the work in the contract is not completed and accepted by the Engineer within the identified Completion Date for the entire contract.

38. The Completion Date for all of the work in this contract is identified elsewhere in the contract documents. In addition, an Interim Completion Date of one thousand and sixty five (1,065) Calendar Days is established for completion and acceptance by the Engineer of all work required to open all lanes of traffic on US301, the South Middletown Interchange (Levels Road) ramps and the North Middletown Interchange (Summit Bridge Road) ramps, including toll collection. This will include completing all work through the end of Mainline Construction Stage 3 and all Phases of construction on Bunker Hill Road and Summit Bridge Road as identified in the plans. If the work just described is not completed within 1,065 Calendar Days, then for each and every Calendar Day charged beyond the 1,065 Calendar Days, Liquidated Damages shall be assessed and deducted from monies due the contractor per Section 108.08 in the amount of ninety percent (90%) of the value shown in Section 108.09 until such time as the described work is complete and accepted by the Engineer. These liquidated damages are in addition to and do not void or alter any liquidated damages that may be assessed if work for other Interim Completion Dates is not completed and accepted by the Engineer within the identified Interim Completion Date or if all of the work in the contract is not completed and accepted by the Engineer within the identified Completion Date for the entire contract.

39. DelDOT will be advertising a separate contract to install landscaping within the limits of construction for this Contract. The Contractor for T200911303 shall coordinate their Work and cooperate with the Landscape Contractor per Section 105.08 Cooperation between Contractors.

40. Updates to DelDOT's Erosion and Sediment Control Standard Specifications and Pay Items have been issued under the Supplemental Specifications to the August 2001 Standard Specifications, as Revised November 24, 2014 (viewed here), and the work shall be performed with respect to these Supplemental Specifications and any other updates issued up to the date of advertisement.

    References in the Contract Documents to the following sections or pay items shall be understood to be performed under the corresponding revised section or pay item and the Contractor shall comply with the new specifications at no additional cost to DelDOT:

41. Upon execution of the contract, the Department will provide the Contractor with .pdf files of the awarded Contract Plans and Special Provisions. The Contractor shall be responsible for making all printed copies of these documents for his use and the use of his subcontractors. In the case of any plan revisions that the Department may issue, the Department will provide the Contractor up to five (5) full size sets and five (5) half size sets of the revised plans and specifications. The Department shall also provide the Contractor .pdf files of the revised plans and specifications and the Contractor shall be responsible for making any additional printed copies for his use and the use of his subcontractors.

42. The Contractor shall name the following as an Additional Insured on all insurance certificates: "United States Department of Transportation, acting by and through the Federal Highway Administration - TIFIA Lender". The Department will also be sharing copies of the final executed contract documents with the Federal Highway Administration - TIFIA Lender.

43. Under Item 763501 Construction Engineering, Machine Control Grading, the Contractor shall provide the Engineer a total of three (3) Rovers. Each Rover shall be of the same manufacture as the Contractor's base station, shall be dual frequency, and shall be provided with: a survey program that has the baselines of construction pre-loaded; a two (2) meter fixed height rover pole; and a clamp to affix the survey controller to the Rover pole. The contractor will be responsible for localizing each Rover on the job specific control points. The automatic level to be provided by the Contractor shall be an automatic (self-leveling) level with a minimum 25X magnification. The Contractor shall also provide a tripod for the automatic level which shall be of wood or wood and fiberglass construction (aluminum legs will not be accepted) and a 25 foot fiberglass survey rod, graduated in tenths and hundredths of a foot.

continued on following pages...

732505 - SOIL COMPOSTING

Description:

Soil Composting shall consist of the incorporation of compost into the soil as a soil amendment in accordance with the Plans, accompanying notes and details, and this specification.

Materials:

Compost shall be a well decomposed, stable, weed free organic matter source. The compost shall be free of noxious weed seed as defined by the Delaware Code. It shall be derived from agricultural, food, or industrial residuals; treated sewage sludge; yard trimmings, or source-separated or mixed solid waste. The compost must not contain any visible refuse or other physical contaminants, substances toxic to plants, or over 5% sand, silt, clay or rock material by dry weight. The compost shall possess no objectionable odors. The moisture level shall be such that no visible water or dust is produced when handling the material. When any part of the compost is derived from sewage sludge, the compost must meet all applicable USEPA CFR, Title 40, Part 503 Standards for Class A.

Testing: Prior to delivery, the Contractor shall submit to the Engineer for approval a sample of the compost material and a test report from an independent laboratory verifying that the material conforms to the following requirements:

Parameter	Units	Test Method	Acceptable Results
pH	pH units	TMECC 4.11A	5-7.5
Organic Matter Content	%, dry weight basis	TMECC 5.07-A	45% or greater
Moisture Content	%, wet weight basis	SMEWW 2540B	30-60%
Soluble Salt Concentration	dS/m (mmhos/cm)	TMECC 4.10-A	Maximum 10
Particle Size	% passing a selected mesh size	TMECC 2.02-B	98% pass through 3/4" screen or smaller
Stability (Carbon dioxide evolution rate)	Mg CO2-C/g OM/day	TMECC 5.08-B	<80% relative to positive control
Maturity (Bioassay) Seed Emergence and Seedling Vigor	%, relative to positive control %, relative to positive control	TMECC 5.05-A	 Minimum 80% Minimum 80%
Physical Contaminants (inerts)	%, dry weight basis	TMECC 3.08-A	< 1%
Chemical Contaminants	mg/kg (ppm)	TMECC 4.06	Meet or exceed US EPA Class A standard, 40 CFR § 503.13, Tables 1 and 3 levels
Biological Contaminants			

Select Pathogens Fecal Coliform Bacteria, or Salmonella	MPN per gram per dry weight MPN per 4 grams per dry weight	TMECC 7.01 TMECC 7.02	Meet or exceed US EPA Class A standard, 40 CFR § 503.32(a) levels

Recommended compost testing methodologies and sampling procedures are provided in Test methods for the Examination of Composting and Compost (TMECC), and Standard Methods for the Examination of Water and Wastewater (SMEWW).

Construction Methods:

Compost shall be mixed into the topsoil prior to placement under Topsoiling. The compost shall be mixed with stockpiled topsoil at a rate specified on the Plans. The compost shall be thoroughly mixed with topsoil such that the mixture is uniform with no visible portions of unmixed topsoil and compost and so that any spade full of the mixture shall contain the approximate ratio of compost to topsoil. The mixing method shall be approved by the Engineer and mixed materials shall be kept separate from unmixed compost and topsoil. The compost and topsoil mixture shall be approved by the Engineer prior to loading or placement.

Method of Measurement:

The quantity of compost will be measured in cubic yards (cubic meters) of approved and acceptable compost. The volume will be measured at the stockpile, by cross sections and computed by the method of average end areas.

When requested by the Contractor and approved by the Department in writing, compost, which is specified to be measured in cubic yards (cubic meters), may alternatively be weighed and the weight converted to cubic yards (cubic meters). Factors for conversion from weight measurement to volumetric measurement will be determined by the Engineer and shall be agreed to by the Contractor, before the method is used.

Unless stated otherwise, all compost material that is to be measured by weight shall be measured as follows:

A. The weight of each load shall be determined by weighing each loaded truck or other approved hauling equipment and then deducting the tare weight of the truck or hauling equipment. The tare weight shall be checked once daily, or as often as directed by the Engineer. Appropriate adjustments shall be made in the use of the tare weight as directed by the Engineer.

B. The scale platform shall be of such length and width that it will conveniently accommodate all trucks and other approved hauling equipment. The entire vehicle, including its load, must rest on the scale platform and be weighed as one unit.

C. Scales will be certified by the State sealer of weights and measures.

D. Weight tickets showing a net weight of each load of material delivered to the Project will be signed by a Department inspector.

Basis of Payment:

Soil Composting shall be paid for at the Contract unit price per cubic yard bid for Section 732505 - Soil Composting. Price and payment shall be full compensation for material, delivery, and mixing the compost with topsoil and for all labor, equipment, tools and incidentals necessary to complete the work and all other work indicated on the Plans as being incidental to this item.

10/6/15

304501 - PERMEABLE TREATED BASE, 4"

Description:

This work consists of furnishing all materials and constructing permeable treated base on a prepared subbase in accordance with these specifications and in reasonably close conformity with the lines and grades shown on the Plans or established by the Engineer. This base course shall consist of a mixture of graded, crushed aggregate and a binder material of asphalt cement or portland cement. Unless otherwise shown on the Plans, the Contractor may use either asphalt cement or portland cement as the base course binder, after obtaining approval of the Engineer.

Materials:

Written approval of all materials shall be obtained prior to delivery. Samples of each source shall be submitted as directed by the Engineer. Materials and their use shall conform to the following requirements.

A. Aggregate - The aggregate shall be comprised of clean, hard, durable crushed stone meeting the requirements of AASHTO M43, size number 57, and AASHTO M283, Class B. Adherent coating on aggregate after the initial dry sieving on 3 mils sieve shall not exceed 0.5 percent when tested when in accordance with the requirements of AASHTO T11 - Determining the minus 3 mils sieve fraction by washing.

B. Asphalt Cement - The asphalt for the permeable treated base shall be AC-20 viscosity grade paving asphalt conforming to the requirements of AASHTO M226 Table 2 and Sections 823.02 of the Standard Specifications. In addition, an approved heatstable anti-strip additive conforming to the requirements of Section 829 of the Standard Specifications shall be added to all asphalt cement used in the production of permeable base treated with asphalt.

C. Portland Cement - Portland cement used as the binder for the permeable base shall be Type I or Type II conforming to the requirements of Section 801 of the Standard Specifications. In addition, a membrane curing compound shall be used in conjunction with the portland cement treated aggregate base and shall conform to AASHTO M148, Type 2, Class A - White Pigmented Wax Base Curing Compound. Other curing methods may be used if approved by the Engineer.

Proportioning Stabilized Mixtures - The Contractor shall submit or shall have his source of supply submit, for the Engineers approval, a job mix for the asphalt treated base mixture (Permeable Asphalt Treated Base) in accordance with Section 823.19 or a mix design for the portland cement treated base (Permeable Cement Treated Base). The composition of the mixture shall be within the requirements specified herein and shall produce a stable mix having a minimum coefficient of permeability of 2950 ft/day determined by the falling head or constant head test method. Coefficient of permeability data shall be submitted with job mix/mix design information to the Materials and Research Section.

Permeable Asphalt Treated Base - Permeable asphalt treated base shall be a hot, plant-mixture of paving grade asphalt cement with ~~a~~an heat-stable anti-strip adhesive and #57 crushed aggregate within the following mixture requirements:

~~A. Gradation Band~~

~~Sieve Size~~	~~1.5" (37.5 mm)~~	~~1" (25 mm)~~	~~1/2" (12.5 mm)~~	~~3/16" (4.75 mm)~~	~~3/32" (2.36 mm)~~	~~3 mils (75 um)~~
~~%Passing~~	~~100~~	~~95-100~~	~~25-60~~	~~0-10~~	~~0-5~~	~~0-2~~

The asphalt cement shall be 2%-2.5% AC-20 by weight of the total mix. The target temperature of the mix leaving the mixer shall be established by the Materials and Research Section on the basis of laboratory tests. A target temperature of 250°F + 40°F is typical. The aggregate for the mixture shall be dried and heated to the required temperature but not to exceed 325°F. Flames used for drying and heating shall be properly adjusted to avoid damage to the aggregate and to avoid soot on the aggregate. The temperature of the aggregates as introduced into the mixer shall not exceed a temperature which causes segregation of the asphalt and aggregate during transportation. The temperature shall not be lower than is required to obtain complete coating and uniform distribution on the aggregate particles and to provide a mixture of satisfactory workability.

Method of Measurement:

The quantity of permeable treated base will be measured as the actual number of square yards of surface area at the specified thickness completed and accepted according to Plans and cross-section. Material placed beyond the designated lines and grades as shown on the Plans or beyond the limits established by the Engineer will not be measured for payment.

Basis of Payment:

The quantity of permeable treated base will be paid for at the Contract unit price per square yard. Price and payment will constitute full compensation for furnishing all materials, mixing, hauling, and compacting all materials for production and construction of an asphalt treated or cement treated permeable base, and for required protection of placed materials, removal and replacement of any damaged or contaminated permeable treated base, and for all labor, equipment, tools, and incidentals necessary to complete the work.

~~7/27/2015~~ 10/6/2015

763508 - PROJECT CONTROL SYSTEM DEVELOPMENT PLAN
763509 - CPM SCHEDULE UPDATES AND/OR REVISED UPDATES

Description:

The Contractor Shall plan, schedule and construct the Project by using a Critical Path Method Project Schedule (CPM) meeting the requirements of these specifications. Use the CPM for coordinating and monitoring the Work specified in the Contract Documents including all activities of Subcontractors, vendors, suppliers, utilities, railroads, the Department, and all other parties associated with the construction of the Contract. Include all Work in the CPM; including but not limited to submittals, major procurement, delivery, and construction activities. Include all activities, including bid items, quantified in the Contract Documents. Base the CPM upon the entirety of the Contract Documents. Utilize CPM software that generates files compatible with Primavera P6 Project Management Release: 7.0.0.

Scheduling Representative:

Designate a scheduling representative prior to submission of the Original Critical Path Method Project Schedule (OCPM). The scheduling representative is the person primarily responsible for development and maintenance of the CPM schedule; the Contractor's representative in all matters regarding the schedule; and the Contractor's designated attendee for all schedule related meetings. The scheduling representative shall also be knowledgeable of the status of all parts of the Work throughout the duration of the Project. Replacement of the scheduling representative will require written approval from the Engineer.

Submit the qualifications of the scheduling representative to the Engineer for approval. This approval is required before the OCPM will be accepted. The scheduling representative shall have at least three years of verifiable experience for preparing and maintaining CPM project schedules on Contracts of similar size and complexity.

Critical Path, Project Completion Date, and Float:

The critical path is defined as the series of activities in a CPM that has the longest path in time. The submitted activity sequence and durations must generate a CPM with only one critical path. Divide Project wide activities such as Maintenance of Traffic, Construction Engineering, or Temporary Erosion Control that, by their nature, generate long durations and complement other activities into "establish" and "conclude" activities to prevent this type of Work from occupying a significant portion of the critical path.

The project start date, or initial data date, of the original CPM shall be the first chargeable day of Work. Nonproductive Work and administrative activities may begin and/or end prior to the project start date. The Original CPM must use all of the Contract Time and contain a critical path containing exactly zero float. Early completion schedules are not permitted. The schedule ending date of the Original CPM that uses all of the Project Time is the contract completion date.

Total Float is the difference between the schedule's finish date and the contract completion date. Free float is the difference in time between an activity's early finish and late finish. Free float is a shared commodity for the use of the Department and the Contractor and is not for the exclusive use or benefit of either party. Both parties have the full use of free float until depleted.

Submittal of the OCPM; the Start of Work and the Schedule of Record:

Complete and submit the proposed original CPM schedule (OCPM) database and the written narrative (WN) within 30 calendar days after Contract is Awarded. The WN is a description of any elements of the Schedule that deviate from the proposed construction sequence shown in the Contract Documents. Submit the OCPM in CPM format fully compatible with Primavera P6 Project Management Release: 7.0.0 by email or CD ROM as a single compressed database in CPM format.

The Engineer will complete the review of the OCPM within 30 calendar days after submittal. If required, a Joint Review Conference will be convened at which time the Engineer and Contractor may make corrections and adjustments to the proposed OCPM. If a revision is necessary due to the Engineer's review or the Joint Review Conference, submit the proposed revision within seven calendar days after receiving the

Engineer's review comments or within seven calendar days after the date of the Joint Review Conference, whichever is the latest. Make revisions in accordance with the requirements for the OCPM. The Engineer will respond to the revised OCPM within seven calendar days after receipt. Clearly identify each submittal and resubmittal for clarity by labeling "2nd Draft", "3rd Draft", etc.

Do not start any Work until the OCPM is accepted. If the Engineer is ready to issue a Notice to Proceed but the OCPM is not yet accepted, the Engineer may issue the NTP and start Contract Time, but forbid Work to begin until the OCPM is accepted. The Engineer may partially accept a OCPM and allow Work to begin if the required corrections to the OCPM are minor, but the Engineer will not accept submittals that do not show the complete schedule. The Engineer will not pay any estimates until the OCPM is partially accepted. Once the OCPM is partially accepted, the Engineer will pay the first estimate. If the Contractor fails to make a good faith effort to address the Engineer's comments before the second estimate is due for payment, the Engineer will not pay the second estimate until a good faith effort is made by the Contractor to comply. The Engineer may not withhold an estimate payment if, within the estimate period in question, the Engineer has failed to provide timely review comments in response to the Contractor's submittal. The Engineer may, however, withhold the payment of subsequent estimates if the Contractor fails to make a good faith effort to address the Engineer's comments. Upon issuance of the Notice to Proceed, the start date utilized in the OCPM will be adjusted to comply with the first chargeable day of Work. Any delay in starting Work caused by the acceptance of the OCPM by the Engineer will not be considered as a basis for any adjustment in the Contract amount or time. For Contracts that have fast-tracked starts, the Engineer and the Contractor may agree to alter the response times and approval dates listed above.
Upon notification that the OCPM has been accepted, the corrected copy will become the CPM of record. The CPM of record shall be the Contractor's work plan for completing the entire Contract as specified in the Contract Documents.

Requirements for the OCPM:

The format of the OCPM database shall be the precedence diagram method with days as the planning unit and shall be based on Calendar Days. Use the Department's partially predetermined coding structure (CS) that is furnished by the Engineer.

Activity Sequencing. Activity sequence must be logical and representative of the Contractor's order of the Work. Successors and predecessors determine the schedule logic or activity sequence. A given activity cannot start until all of the given activity's predecessors have been completed. Use only finish to start dependency relationships (links); do not use lag times without approval from the Engineer. The Engineer may request that the Contractor resequence the activities to reflect realistic job logic. When scheduling using multiple resources, each resource unit shall have a corresponding activity. Durations of activities include all the time necessary to complete the activity including, but not limited to, Contractor's non-work periods (other than those shown on the calendars), reasonably foreseeable inclement weather, weekends and holidays. Base schedule calculations on retained logic, contiguous durations, and total float as finish float.

Activity Resources. Sequence activities to reflect resource apportionment. Logically connect and code each activity to reflect the crew (resource) performing the operation. Submit a summary list of crews, their crew codes, and their operation(s) with each schedule submission, unless unchanged. Identify responsibility for each activity. Identify Subcontractors, DBE's, utilities and Work performed by others that affects the Schedule.

Breakdown and Durations of Activities. An individual activity is required for each construction element or each activity not under the control of the Contractor that affects the sequence or progress of the Work. The Engineer reserves the right to require additional breakdown of the Work activities at any time. Each activity must be identified by a name, symbol and coding, and shall have a duration, sequence, responsibility and resource(s). Choose activity names that are descriptive and identify single construction elements. Activity symbols, or ID's, shall be unique and systematic.

Activity types must be either "task", "start milestone", or "finish milestone". Do not use "hammock" type activities. Date constraints, float and duration constraints, and/or flags for activities are not permitted.

Assign a reasonable duration to each activity representative of its scope. Durations may not exceed 14 calendar days unless approved by the Engineer. Determine the duration of each activity by using productivity rates based on Calendar Days.

Include the preparation and approval of Working Drawings as activities. Include phasing (staging) milestones as activities. Correlate phasing milestones with the sequence of construction provided in the Contract Documents. Use a separate start and finish milestone activity to delineate each phase (stage).

Utility Work. Include all Work performed by utilities on the Project as activities in the OCPM. Include each utility item of Work shown in the Contract's Utility Statement as an activity. Durations for utility activities shall be the same as the durations shown in the Utility statement for each activity unless otherwise approved by the Engineer.

Calendars. Assign a calendar to each activity in the schedule. Use a minimum of 6 calendars, when applicable: (1) Full Schedule; (2) Permit Requirements; (3) Winter Condition; (4) Concrete Work; (5) Asphalt Paving Work; and (6) Nighttime Asphalt Paving Work. Use additional calendars if needed. Calendar non-work periods shall reflect the average Delaware weather history for the jobsite and the restrictions identified in the Contract Documents. The Contractor may choose perform Work during an activity's calendar non-work period at no additional cost to the Department if weather conditions are favorable for such Work and the Work does not violate a set forth in the Contract Documents. The maximum allowable non-work period for each calendar is set forth below. The Contractor may choose to shorten non-work periods at his/her discretion.

CALENDAR	MAXIMUM NON-WORK PERIOD
Full Schedule	None
Winter Condition	December 1 through March 15
Concrete Work	December 1 through March 15
Asphalt Paving	November 15 through March 15
Nighttime Asphalt Paving	October 15 through April 30

Written Narrative (WN). Provide a written narrative (WN) as part of the OCPM explaining the following:

(a) Relationships between activities not obviously identified
(b) Equipment usage and limitations.
(c) Manpower usage and limitations.
(d) Use of additional shifts and overtime.
(e) Activity codes, abbreviations, and activity identification system.
(f) All calendars utilized in the CPM and the basis of determining each non-work period
(g) All abbreviations.
(h) Use of calendars.
(i) Any other conditions that affect the schedule and are not readily discernible in the database.

CPM Updates:

Provide monthly updates to the CPM of record. Meet with the Engineer once a month prior to submitting the update to review the status of the schedule's activities. Prepare an updated list of activities showing all of the actual start and actual finish for each of the schedule's activities so that both parties can agree on the dates. Use the dates that were agreed upon in the meeting to status the CPM of record and submit the updated schedule to the Engineer for approval. Assign a unique file name to each update (Number/version). The data date of the update shall be the next day after the end of the update period. As part of the monthly update, submit a written description that identifies any delays or disruptions to the schedule experienced during the period of an update, any change in manpower or equipment, and any potential delays to the completion date of the schedule.

Do not include any revisions to the CPM without prior approval. Failure to submit complete updates in a timely manner may result in the withholding of estimates by the Engineer. The Engineer agrees to refrain from withholding estimates unless the Contractor is habitually late in providing updates, is more than four weeks late in submitting an update or has failed to submit an update that is part of a resolution to a serious problem that must be addressed immediately.

Revisions to the Schedule of Record:

Revisions are defined as any changes to the database other than status updates, log entries and moving the data date. Discuss any proposed revisions to the CPM verbally with the Engineer. If the revision is minor

in nature, the Engineer may allow the revision to be included on the next Update of the CPM. If the Engineer determines that the revision is not minor in nature, submit the proposed revision for review and approval prior to deviating from the approved CPM. When a revision to the CPM is required due to changes in the Contract initiated by the Engineer, immediately contact the Engineer to discuss the changes. The Engineer may allow a deviation from the approved CPM for specific mitigating activities.

The Engineer may direct the Contractor to revise the schedule of record at the Contractor's expense if: the critical path has less than minus ten (-10) Calendar Days of total float due to the Contractor's failure to perform the Work in accordance with the schedule; the Contractor requests to re-sequence the Work; and/or the Contractor has performed a significant amount of Work out of sequence. The Engineer may direct the Contractor to revise the schedule for any other reason; and such a revision will be paid at the unit cost for a CPM Revision.
The Engineer will review and respond to the proposed revision within 7 Calendar Days after receipt. Resubmit, if required, within seven calendar days after receipt of the Engineer's review comments. The Engineer reserves the right to reject any proposed revision that adversely impacts the Department, utilities, or other concerned parties.

Extensions of Contract Time and/or Incentive/Disincentive Dates.

Make requests for extension of Contract time in writing and subject to the notice and timeliness of submission provisions as provided for elsewhere in the Contract. Requests for an extension of Contract time or change in an incentive/disincentive date will be evaluated by the Engineer's analysis of the CPM of record and any proposed revision submitted. Include in the request a written narrative of the events that impacted the schedule and a detailed explanation of why the Contractor cannot meet the requirements of the schedule of record. Only delays to activities that affect the Contract completion date or will be considered for an extension of Contract time. Only delays to activities that affect the completion duration of an incentive/disincentive period will be considered for an extension of an incentive/disincentive completion date. The extension of the specified Contract completion date or incentive/disincentive date will be based upon the number of Calendar Days the Contract completion date or incentive/disincentive date is impacted as determined by the Engineer's analysis. The Engineer and Contractor may agree to defer the analysis of a potential impact to the schedule until the completion of the activities that are affected. Such a deferment does not relieve the Contractor of his/her duty to identify potential impacts to the schedule in the applicable schedule updates.

All requests for extensions of Contract Time must be supported by the most recent CPM Update. If, within a reasonable period of time, the Contractor fails to make a good faith effort to produce an acceptable CPM update and uses an unacceptable CPM update to support a request for a time extension, the Contractor loses the right to receive that time extension; and/or the right to receive compensation for that delay caused in whole or in part by the Engineer.

Final As Built Schedule.

Submit a final CPM Schedule database within 14 Calendar Days of Substantial Completion. Failure to submit a final CPM Schedule may result in the withholding of estimates by the Engineer.

Method of Measurement:

The Project Control System will be measured in two items. The item, "Project Control System Development Plan" will be lump sum. The item "CPM Schedule Updates and/or Revised Updates" will be measured one each per update that is submitted and accepted.

Basis of Payment:

The item, "763508 - Project Control System Development Plan" will be paid at the Contract's lump sum bid price on the next monthly estimate after completion of the requirements of the Project Control System Development Plan, which includes the approval of the Original CPM Schedule. Price and payment will constitute full compensation for preparing the CPM database, acquiring the necessary software, attending all scheduling meetings with the Department, submitting and resubmitting all documents and for all labor, tools, equipment and incidentals necessary to complete the Work.

The item, "763509 - CPM Schedule Updates and/or Revised Updates" will be paid at the Contract unit price per each approved CPM schedule update as described above. Price and payment will constitute full

compensation for preparing, submitting and resubmitting all CPM updates, for attendance at all scheduling meetings with the Department, for preparing and reviewing a list of actual start and actual finish dates with the Engineer, and for all labor, tools, Equipment and incidentals necessary to complete the Work.

2/11/2015

DELAWARE DEPARTMENT OF TRANSPORTATION PAGE: 28
SCHEDULE OF ITEMS DATE:

CONTRACT ID: T200911303.01 PROJECT(S): NH-2015(23)

All figures must be typewritten.

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
2700	910007 OUTLET STRUCTURE	LUMP	LUMP			
	SECTION 0001 TOTAL					

SECTION 0002 BRIDGE 1-468 STANDARD ITEMS

2710	202505 SETTLEMENT PLATFORM	2.000 EACH				
2720	202518 SETTLEMENT MONUMENT	2.000 EACH				
2730	302012 DELAWARE NO. 57 STONE	172.000 TON				
2740	602003 PORTLAND CEMENT CONCRETE MASONRY, ABUTMENT FOOTING, CLASS A	207.000 CY				
2750	602013 PORTLAND CEMENT CONCRETE MASONRY, SUPERSTRUCTURE, CLASS D	360.000 CY				
2760	602014 PORTLAND CEMENT CONCRETE MASONRY, APPROACH SLAB, CLASS D	408.000 CY				
2770	602015 PORTLAND CEMENT CONCRETE MASONRY, ABUTMENT ABOVE FOOTING, CLASS A	69.000 CY				

DELAWARE DEPARTMENT OF TRANSPORTATION PAGE: 54
SCHEDULE OF ITEMS DATE:

CONTRACT ID: T200911303.01 PROJECT(S): NH-2015(23)

All figures must be typewritten.

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
	SECTION 0020 CULVERT 1-508A STANDARD ITEMS					
4980	207000 EXCAVATION AND BACKFILL FOR STRUCTURES	2600.000 CY				
5000	602001 PORTLAND CEMENT CONCRETE MASONRY, CLASS A	140.000 CY				
5010	602506 PRECAST CONCRETE CULVERT	LUMP	LUMP			
5020	604000 BAR REINFORCEMENT, EPOXY COATED	26000.000 LB				
5030	712531 CHANNEL BED FILL	280.000 CY				
5040	713001 GEOTEXTILES, STABILIZATION	1060.000 SY				
5050	715001 PERFORATED PIPE UNDERDRAINS, 6"	45.000 LF				
5160	302005 GRADED AGGREGATE BASE COURSE, TYPE B	570.000 TON				
5170	727009 CHAIN-LINK FENCE, 5' HIGH	100.000 LF				
	SECTION 0020 TOTAL					

DELAWARE DEPARTMENT OF TRANSPORTATION PAGE: 55
SCHEDULE OF ITEMS DATE:

CONTRACT ID: T200911303.01 PROJECT(S): NH-2015(23)

All figures must be typewritten.

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS		UNIT PRICE DOLLARS	CTS	BID AMOUNT DOLLARS	CTS
	SECTION 0021 CULVERT 1-508B STANDARD ITEMS						
5060	207000 EXCAVATION AND BACKFILL FOR STRUCTURES	1090.000	CY				
5080	602002 PORTLAND CEMENT CONCRETE MASONRY, CLASS B	268.000	CY				
5090	602556 PRECAST P.C.C. ARCH	LUMP		LUMP			
5100	604000 BAR REINFORCEMENT, EPOXY COATED	22500.000	LB				
5110	712021 RIPRAP, R-5	620.000	TON				
5120	712531 CHANNEL BED FILL	288.000	CY				
5130	713001 GEOTEXTILES, STABILIZATION	385.000	SY				
5140	713003 GEOTEXTILES, RIPRAP	460.000	SY				
5180	302005 GRADED AGGREGATE BASE COURSE, TYPE B	210.000	TON				
5190	727009 CHAIN-LINK FENCE, 5' HIGH	195.000	LF				
	SECTION 0021 TOTAL						
	TOTAL BID						

Prequalification for US 301 Contracts

I certify that _____ ,
Contractor/Subcontractor Company

Check One:

☐ **Either independently or through agreement with other organizations, is providing craft training for journeyman and apprentice levels through a bona fide program approved by and registered with the State of Delaware and/or United States Department of Labor, to comply with 29 Del C. 6962(c)(11). Enclosed is a copy of the certification of this program.**

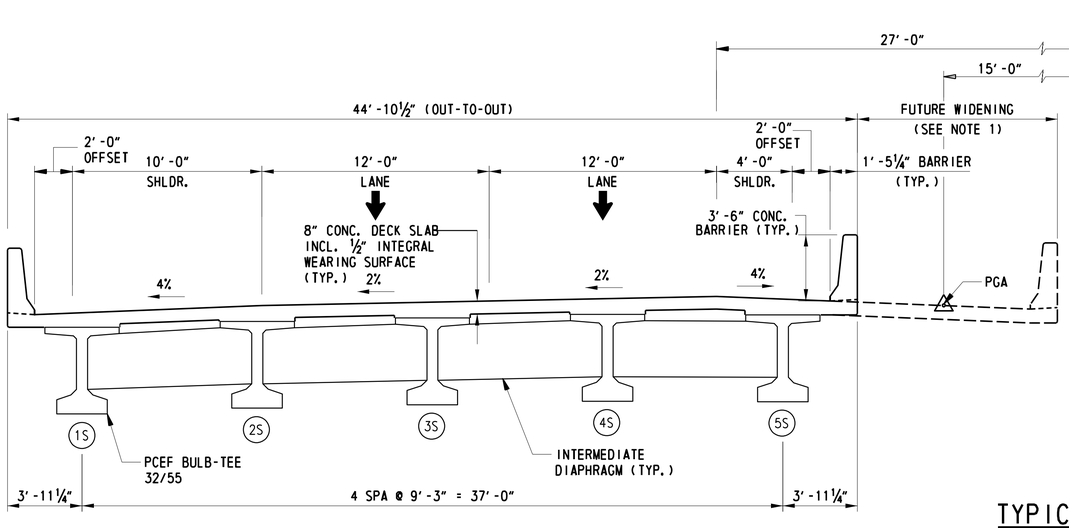
☐ **Does not have a Craft Training Program because we do not have any apprenticeable trades, as defined in the Rules and Regulations Relating to Delaware Apprenticeship and Training Law Sections 5 and 6. Enclosed is documentation from the State of Delaware and/or United States Department of Labor confirming this determination.**

☐ **The completed form and supporting documentation must be submitted no later than 10 a.m. local time on the day of the bid opening for prequalification.**

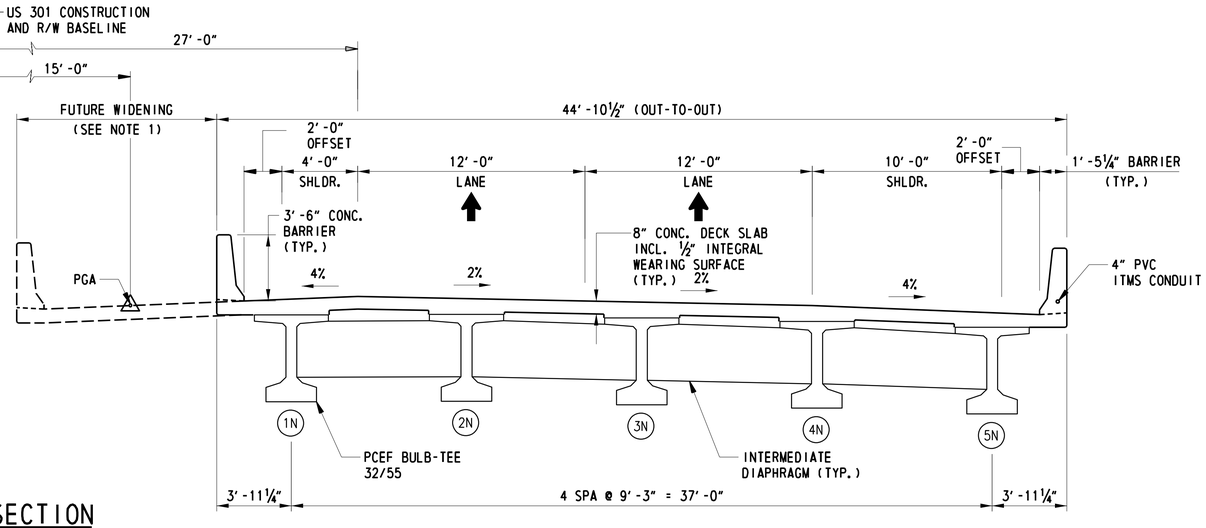
Name: _____

Title: _____

Date:_____



SOUTHBOUND



NORTHBOUND

TYPICAL SECTION

STATIONS AHEAD
SCALE: 1/4"= 1'-0"

ESTIMATED BRIDGE QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	NORTHBOUND QUANTITIES	SOUTHBOUND QUANTITIES	TOTAL
202505	SETTLEMENT PLATFORM	EA.	1	1	2
202518	SETTLEMENT MONUMENT	EA.	1	1	2
302012	DELAWARE NO. 57 STONE	TON	86	86	172
602003	PORTLAND CEMENT CONCRETE MASONRY, ABUTMENT FOOTING, CLASS A	CY	102	105	207
602013	PORTLAND CEMENT CONCRETE MASONRY, SUPERSTRUCTURE, CLASS D	CY	180	180	360
602014	PORTLAND CEMENT CONCRETE MASONRY, APPROACH SLAB, CLASS D	CY	~~194~~ 204	~~194~~ 204	~~388~~ 408
602015	PORTLAND CEMENT CONCRETE MASONRY, ABUTMENT, ABOVE FOOTING, CLASS A	CY	34	35	69
602017	PORTLAND CEMENT CONCRETE MASONRY, PARAPET, CLASS A	CY	49	49	98
602772	MECHANICALLY STABILIZED EARTH WALLS	LS	-	-	-
604000	BAR REINFORCEMENT, EPOXY COATED	LBS	103,320	103,810	207,130
605511	PREFABRICATED EXPANSION JOINT SYSTEM, 3"	LF	125	125	250
618041 (ALTERNATE)	FURNISH CAST-IN-PLACE CONCRETE PILES, 14"	LF	1,200	1,195	2,395

ESTIMATED BRIDGE QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	NORTHBOUND QUANTITIES	SOUTHBOUND QUANTITIES	TOTAL
618046 (ALTERNATE)	FURNISH CAST-IN-PLACE CONCRETE TEST PILES, 14"	LF	170	170	340
618081	FURNISH PRECAST PRESTRESSED CONCRETE PILE, 14"x14"	LF	1,312	1,307	2,619
618091	FURNISH PRECAST PRESTRESSED CONCRETE TEST PILE, 14"x14"	LF	184	184	368
619021 (ALTERNATE)	INSTALL CAST-IN-PLACE CONCRETE PILES, 14"	LF	1,200	1,195	2,395
619025 (ALTERNATE)	INSTALL CAST-IN-PLACE CONCRETE TEST PILES, 14"	LF	170	170	340
619061	INSTALL PRECAST PRESTRESSED CONCRETE PILE, 14"x14"	LF	1,312	1,307	2,619
619067	INSTALL PRECAST PRESTRESSED CONCRETE TEST PILE, 14"x14"	LF	184	184	368
619501	PRODUCTION PILE RESTRIKE	EA	2	2	4
619502	TEST PILE RESTRIKE	EA DY	2	2	4
619519	DYNAMIC PILE TESTING BY CONTRACTOR	EA	2	2	4
619539	SIGNAL MATCHING ANALYSIS BY CONTRACTOR	EA	2	2	4
623000	PRESTRESSED REINFORCED CONCRETE MEMBERS	LS	-	-	-

CROSS REFERENCE NOTE:

1. FOR CONDUIT DETAILS, SEE DWG. DT-07.
2. FOR DEPTH OF DECK AT CENTER LINE OF BEARING, SEE DWG. PA-1.

NOTE:

1. CROSS SLOPE OF FUTURE LANE SLOPES AT 2% DOWN TO PGA. THE CURRENT FASCIA BEAM HAUNCH WOULD NEED TO BE INCREASED TO ACCOUNT FOR CHANGE IN ELEVATION OF DECK SLAB.

1-468 TS-1

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS
1 REVISED QUANTITY, ADH

SCALE
1 0 1 2 3 4 5
FEET

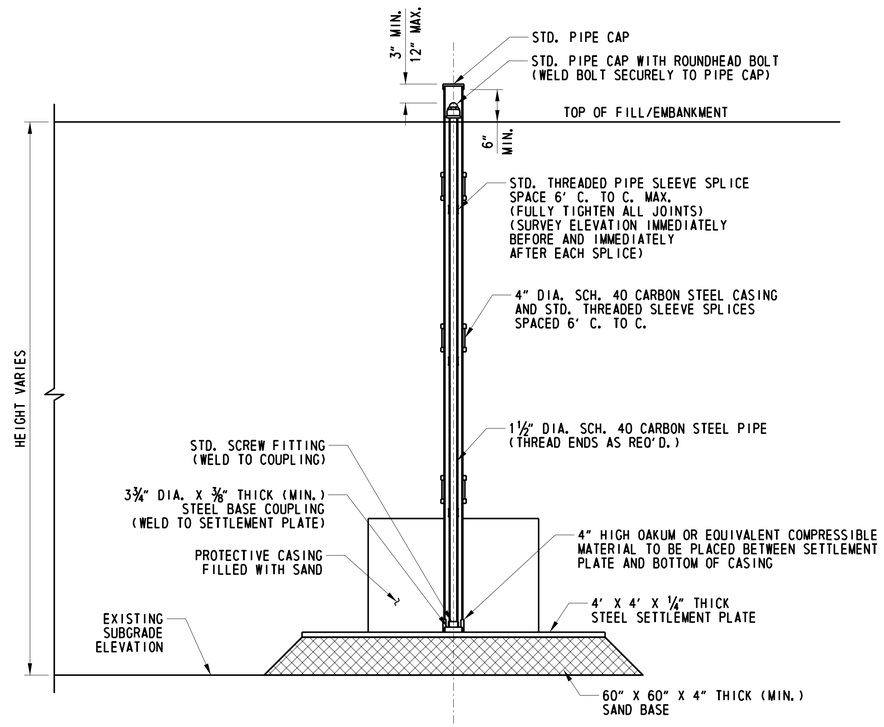
US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-468N&S
T200911303	DESIGNED BY: ADH	
COUNTY	CHECKED BY: DHG	
NEW CASTLE		

US 301 MAINLINE OVER NORFOLK SOUTHERN RAILROAD
TYPICAL SECTION AND QUANTITIES

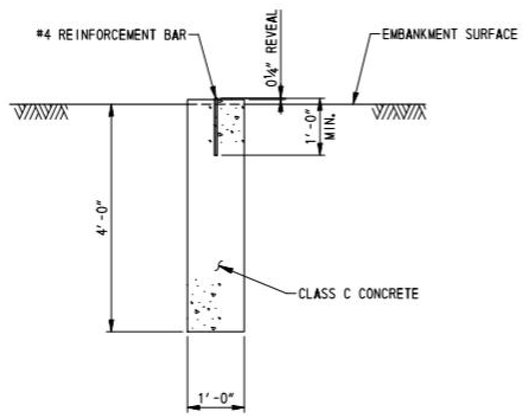
SHEET NO.	TOTAL SHTS.
268	1256

P:\CADD2\60049040 US301\STRUCTURE\PLANS\FINAL\B2-INS\BR2-1 CONTRACT 2A\TS01-B2-INS.DGN



SETTLEMENT PLATFORM

NTS



⚠ SETTLEMENT MONUMENT DETAIL

SCALE: ¾"=1'-0"

SETTLEMENT PLATFORM	STATION	OFFSET	SETTLEMENT MONUMENT	STATION	OFFSET
SP-1-468-1	493+33.57	39.00' RT	SM-1-468-1	493+28.81	44.00' RT
SP-1-468-2	494+07.64	39.00' LT	SM-1-468-2	494+11.09	44.00' LT
SP-1-468-3	494+63.17	39.00' RT	SM-1-468-3	494+59.73	44.00' RT
SP-1-468-4	495+37.24	39.00' LT	SM-1-468-4	495+42.24	44.00' LT

CROSS REFERENCE NOTE:

1. FOR LOCATION OF SETTLEMENT PLATFORMS AND MONUMENTS, SEE DWG. 1-468 PE-1.

NOTE:

1. THE BASE OF THE SETTLEMENT PLATFORM SHALL BE PLACED ON THE TOP OF THE EXISTING SUBGRADE.
2. READINGS ON THE SETTLEMENT PLATFORMS SHALL BE MADE AFTER THE INITIAL INSTALLATION OF THE RISER AND CASING PIPES AND INSTALLATION RECORD SHEETS ARE APPROVED BY THE ENGINEER AND PRIOR TO FILL PLACEMENT. DURING FILL PLACEMENT, READINGS ON ALL SETTLEMENT PLATFORMS SHALL BE TAKEN AT A MINIMUM OF 3 CALENDAR DAY INTERVALS. AFTER COMPLETION OF THE FILL, INSTALL SETTLEMENT MONUMENTS AS INDICATED ON THE BRIDGE PLANS AND TAKE INITIAL READINGS. READINGS ON ALL SETTLEMENT MONITORING DEVICES SHALL THEN BE TAKEN AT A MINIMUM OF 3 CALENDAR DAY INTERVALS. AFTER THE FILL HAS BEEN COMPLETED AND TWO (2) SECCESSIVE READINGS OF EACH DEVICE HAS RECORDED LESS THAN OR EQUAL TO 0.1", THE IMMEDIATE SETTLEMENT WILL BE DEEMED COMPLETE AND THE GEOTECHNICAL ENGINEER CAN RELEASE THE SUBSTRUCTURE FOR INSTALLATION OF PRODUCTION PILES SO LONG AS THE MINIMUM 30 DAY QUARANTINE PERIOD HAS BEEN MET. AFTER COMPLETION OF THE MSE WALL PANEL PLACEMENT, THE CONTRACTOR SHALL ESTABLISH REFERENCE POINTS TO MONITOR SETTLEMENT ON TOP OF THE MSE WALL PANELS OR ON TOP OF THE MSE WALL LEVELING PAD AT POINTS WITHIN FIVE FEET OF ALL ENDS AND CORNERS AND AT THE CENTER OF BRIDGES AND THE CENTERLINE OF US301. AFTER THE SUBSTRUCTURE HAS BEEN RELEASED, READINGS ON ALL SETTLEMENT MONITORING DEVICES AND REFERENCE POINTS SHALL CONTINUE TO BE TAKEN AT A MINIMUM OF 30-DAY INTERVALS FOR THE NEXT 6 MONTHS OR AS DIRECTED BY THE ENGINEER.
3. COST OF MATERIALS, FABRICATION, INSTALLATION AND MONITORING OF SETTLEMENT PLATFORMS IS INCLUDED IN ITEM 202505.
4. COST OF MATERIALS, FABRICATION, INSTALLATION AND MONITORING OF MONUMENTS IS INCLUDED IN ITEM 202518.
5. ABUTMENT 1 NORTHBOUND AND SOUTHBOUND SETTLEMENT PLATFORMS AND MONUMENTS ARE TO BE MONITORED UNDER CONTRACT T200911303. ABUTMENT 2 NORTHBOUND AND SOUTHBOUND SETTLEMENT PLATFORMS AND MONUMENTS ARE TO BE MONITORED UNDER CONTRACT T200911301.

1-468 DT-2

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	
⚠ ADDED DETAIL, DRB	

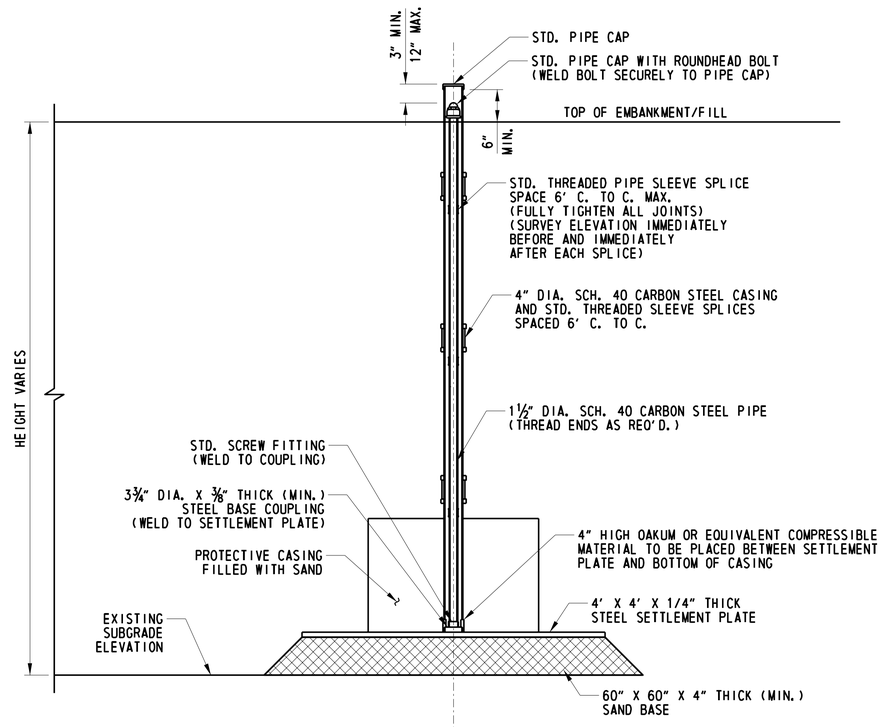
US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-468N&S
T200911303	DESIGNED BY: ADH	
COUNTY	CHECKED BY: DHG	
NEW CASTLE		

US 301 MAINLINE OVER NORFOLK SOUTHERN RAILROAD
SETTLEMENT PLATFORM DETAIL

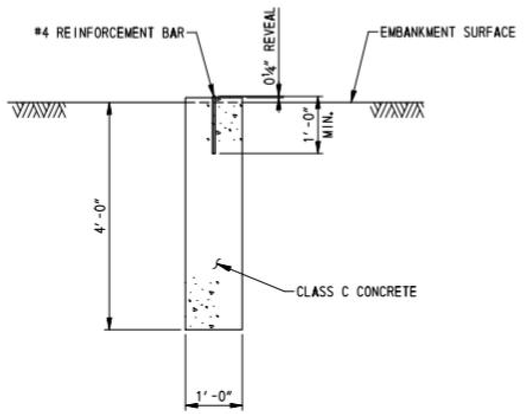
SHEET NO.	TOTAL SHTS.
303	1256

P:\cadd2\60049040 US301\Structure\Plans\FINAL\B2-INS\BR2-1 Contract 2A\BR2-1DT-01.dgn



SETTLEMENT PLATFORM

NTS



⚠ SETTLEMENT MONUMENT DETAIL

SCALE: ¾"=1'-0"

SETTLEMENT PLATFORM	STATION	OFFSET	SETTLEMENT MONUMENT	STATION	OFFSET
SP-1-470-1	484+90.46	46.00' RT	SM-1-470-1	484+85.46	51.00' RT
SP-1-470-2	486+01.24	42.00' LT	SM-1-470-2	486+06.24	47.00' LT
SP-1-470-3	487+29.78	46.00' RT	SM-1-470-3	487+24.78	51.00' RT
SP-1-470-4	488+40.56	42.00' LT	SM-1-470-4	488+45.56	47.00' LT

CROSS REFERENCE NOTE:

1. FOR LOCATION OF SETTLEMENT PLATFORMS AND MONUMENTS, SEE DWG. 1-470 PE-1.

NOTE:

1. THE BASE OF THE SETTLEMENT PLATFORM SHALL BE PLACED ON THE TOP OF THE EXISTING SUBGRADE.
2. READINGS ON THE SETTLEMENT PLATFORMS SHALL BE MADE AFTER THE INITIAL INSTALLATION OF THE RISER AND CASING PIPES AND INSTALLATION RECORD SHEETS ARE APPROVED BY THE ENGINEER AND PRIOR TO FILL PLACEMENT. DURING FILL PLACEMENT, READINGS ON ALL SETTLEMENT PLATFORMS SHALL BE TAKEN AT A MINIMUM OF 3 CALENDAR DAY INTERVALS. AFTER COMPLETION OF THE FILL, INSTALL SETTLEMENT MONUMENTS AS INDICATED ON THE BRIDGE PLANS AND TAKE INITIAL READINGS. READINGS ON ALL SETTLEMENT MONITORING DEVICES SHALL THEN BE TAKEN AT A MINIMUM OF 3 CALENDAR DAY INTERVALS. AFTER THE FILL HAS BEEN COMPLETED AND TWO (2) SECCESSIVE READINGS OF EACH DEVICE HAS RECORDED LESS THAN OR EQUAL TO 0.1", THE IMMEDIATE SETTLEMENT WILL BE DEEMED COMPLETE AND THE GEOTECHNICAL ENGINEER CAN RELEASE THE SUBSTRUCTURE FOR INSTALLATION OF PRODUCTION PILES SO LONG AS THE MINIMUM 30 DAY QUARANTINE PERIOD HAS BEEN MET. AFTER COMPLETION OF THE MSE WALL PANEL PLACEMENT, THE CONTRACTOR SHALL ESTABLISH REFERENCE POINTS TO MONITOR SETTLEMENT ON TOP OF THE MSE WALL PANELS OR ON TOP OF THE MSE WALL LEVELING PAD AT POINTS WITHIN FIVE FEET OF ALL ENDS AND CORNERS AND AT THE CENTER OF BRIDGES AND THE CENTERLINE OF US301. AFTER THE SUBSTRUCTURE HAS BEEN RELEASED, READINGS ON ALL SETTLEMENT MONITORING DEVICES AND REFERENCE POINTS SHALL CONTINUE TO BE TAKEN AT A MINIMUM OF 30-DAY INTERVALS FOR THE NEXT 6 MONTHS OR AS DIRECTED BY THE ENGINEER.
3. COST OF MATERIALS, FABRICATION, INSTALLATION AND MONITORING OF SETTLEMENT PLATFORMS IS INCLUDED IN ITEM 202505.
4. COST OF MATERIALS, FABRICATION, INSTALLATION AND MONITORING OF MONUMENTS IS INCLUDED IN ITEM 202518.

1-470 DT-1

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	
⚠ ADDED DETAIL, DRB	

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-470N&S
T200911303	DESIGNED BY: ADH	
COUNTY	CHECKED BY: DHG	
NEW CASTLE		

US 301 MAINLINE OVER SUMMIT BRIDGE ROAD

SETTLEMENT PLATFORM DETAIL

SHEET NO.	TOTAL SHTS.
354	1256

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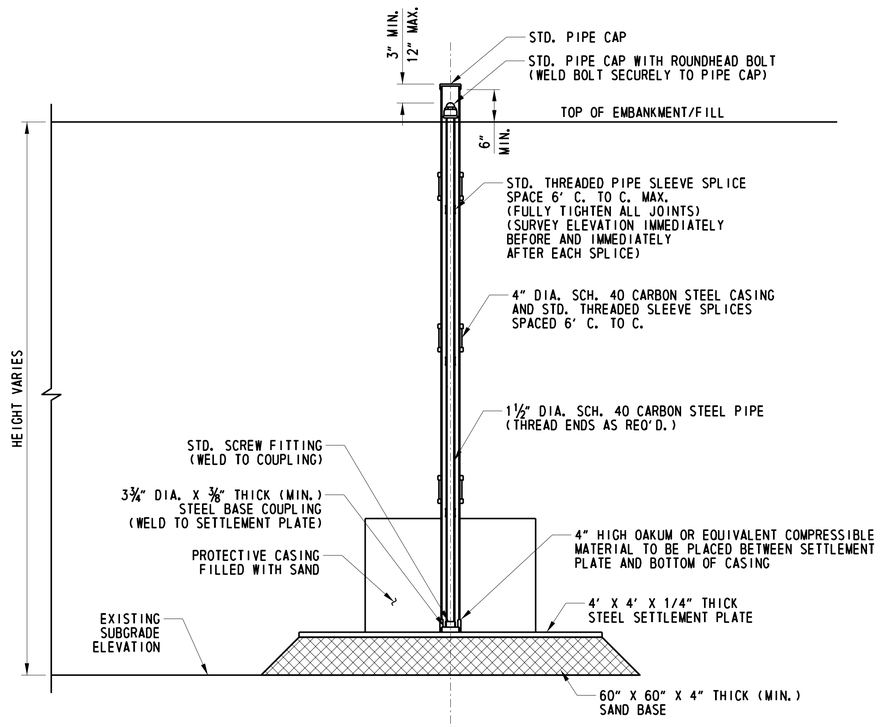
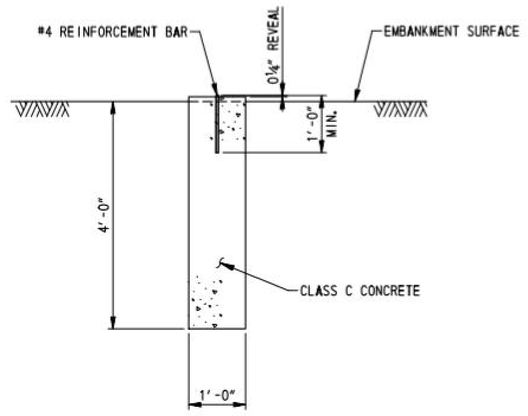


SETTLEMENT PLATFORM

NTS



⚠ SETTLEMENT MONUMENT DETAIL

SCALE: ¾"=1'-0"

SETTLEMENT PLATFORM	STATION	OFFSET	SETTLEMENT MONUMENT	STATION	OFFSET
SP-1-472-1	450+11.22	46.00' RT	SM-1-472-1	450+13.04	51.00' RT
SP-1-472-2	449+77.73	46.00' LT	SM-1-472-2	449+75.91	51.00' LT
SP-1-472-3	451+22.20	46.00' RT	SM-1-472-3	451+24.02	51.00' RT
SP-1-472-4	450+88.72	46.00' LT	SM-1-472-4	450+86.90	51.00' LT

CROSS REFERENCE NOTE:

1. FOR LOCATION OF SETTLEMENT PLATFORMS AND MONUMENTS, SEE DWG. 1-472 PE-1.

NOTE:

1. THE BASE OF THE SETTLEMENT PLATFORM SHALL BE PLACED ON THE TOP OF THE EXISTING SUBGRADE.
2. READINGS ON THE SETTLEMENT PLATFORMS SHALL BE MADE AFTER THE INITIAL INSTALLATION OF THE RISER AND CASING PIPES AND INSTALLATION RECORD SHEETS ARE APPROVED BY THE ENGINEER AND PRIOR TO FILL PLACEMENT. DURING FILL PLACEMENT, READINGS ON ALL SETTLEMENT PLATFORMS SHALL BE TAKEN AT A MINIMUM OF 3 CALENDAR DAY INTERVALS. AFTER COMPLETION OF THE FILL, INSTALL SETTLEMENT MONUMENTS AS INDICATED ON THE BRIDGE PLANS AND TAKE INITIAL READINGS. READINGS ON ALL SETTLEMENT MONITORING DEVICES SHALL THEN BE TAKEN AT A MINIMUM OF 3 CALENDAR DAY INTERVALS. AFTER THE FILL HAS BEEN COMPLETED AND TWO (2) SECCESSIVE READINGS OF EACH DEVICE HAS RECORDED LESS THAN OR EQUAL TO 0.1", THE IMMEDIATE SETTLEMENT WILL BE DEEMED COMPLETE AND THE GEOTECHNICAL ENGINEER CAN RELEASE THE SUBSTRUCTURE FOR INSTALLATION OF PRODUCTION PILES SO LONG AS THE MINIMUM 30 DAY QUARANTINE PERIOD HAS BEEN MET. AFTER COMPLETION OF THE MSE WALL PANEL PLACEMENT, THE CONTRACTOR SHALL ESTABLISH REFERENCE POINTS TO MONITOR SETTLEMENT ON TOP OF THE MSE WALL PANELS OR ON TOP OF THE MSE WALL LEVELING PAD AT POINTS WITHIN FIVE FEET OF ALL ENDS AND CORNERS AND AT THE CENTER OF BRIDGES AND THE CENTERLINE OF US301. AFTER THE SUBSTRUCTURE HAS BEEN RELEASED, READINGS ON ALL SETTLEMENT MONITORING DEVICES AND REFERENCE POINTS SHALL CONTINUE TO BE TAKEN AT A MINIMUM OF 30-DAY INTERVALS FOR THE NEXT 6 MONTHS OR AS DIRECTED BY THE ENGINEER.
3. COST OF MATERIALS, FABRICATION, INSTALLATION AND MONITORING OF SETTLEMENT PLATFORMS IS INCLUDED IN ITEM 202505.
4. COST OF MATERIALS, FABRICATION, INSTALLATION AND MONITORING OF MONUMENTS IS INCLUDED IN ITEM 202518.

1-472 DT-1

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	
⚠ ADDED DETAIL, DRB	

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

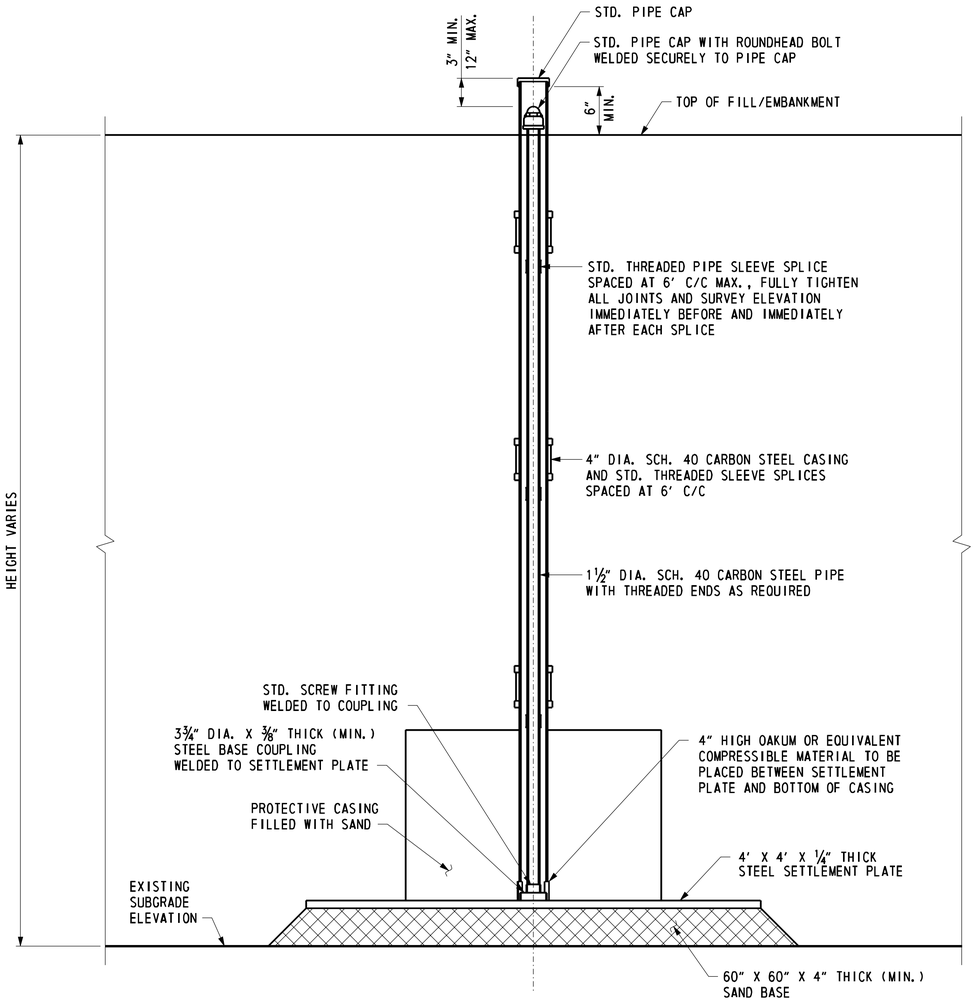
CONTRACT	BRIDGE NO.	1-472N&S
T200911303	DESIGNED BY: ADH	
COUNTY	CHECKED BY: DHG	
NEW CASTLE		

US 301 MAINLINE OVER ARMSTRONG CORNER ROAD

SETTLEMENT PLATFORM DETAIL

SHEET NO.	TOTAL SHTS.
389	1256

P:\cadd2\60049040 US301\Structure\Plans\FINAL\B2-3NS\BR2-3DT-01.dgn



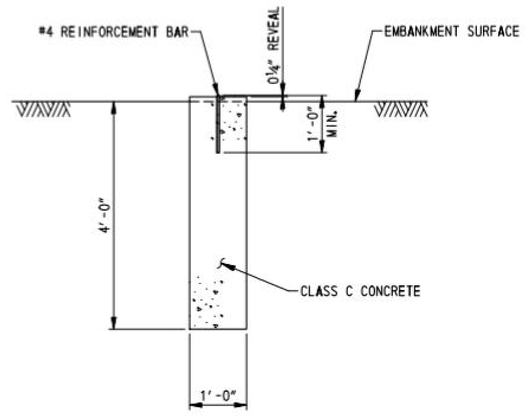
SETTLEMENT PLATFORM

NOT TO SCALE

SETTLEMENT PLATFORM	STATION	OFFSET	SETTLEMENT MONUMENT	STATION	OFFSET
SP-1-475-1	15+86.00	4.00' RT	SM-1-475-1	15+86.00	1.00' LT
SP-1-475-2	17+57.00	4.00' RT	SM-1-475-2	17+57.00	1.00' LT

SETTLEMENT NOTE

READINGS ON THE SETTLEMENT PLATFORMS SHALL BE MADE AFTER THE INITIAL INSTALLATION OF THE RISER AND CASING PIPES AND INSTALLATION RECORD SHEETS ARE APPROVED BY THE ENGINEER AND PRIOR TO FILL PLACEMENT. DURING FILL PLACEMENT, READINGS ON ALL SETTLEMENT PLATFORMS SHALL BE TAKEN AT A MINIMUM OF 3 CALENDAR DAY INTERVALS. AFTER COMPLETION OF THE FILL, INSTALL SETTLEMENT MONUMENTS AS INDICATED ON THE BRIDGE PLANS AND TAKE INITIAL READINGS. READINGS ON ALL SETTLEMENT MONITORING DEVICES SHALL THEN BE TAKEN AT A MINIMUM OF THREE (3) CALENDAR DAY INTERVALS. AFTER THE FILL HAS BEEN COMPLETED AND TWO (2) SUCCESSIVE READINGS OF EACH DEVICE HAVE BEEN RECORDED LESS THAN OR EQUAL TO 0.1", THE IMMEDIATE SETTLEMENT WILL BE DEEMED COMPLETE AND THE GEOTECHNICAL ENGINEER CAN RELEASE THE SUBSTRUCTURE FOR INSTALLATION OF PRODUCTION PILES SO LONG AS THE MINIMUM THIRTY (30) DAY QUARANTINE PERIOD HAS BEEN MET. AFTER COMPLETION OF THE MSE WALL PANEL PLACEMENT, THE CONTRACTOR SHALL ESTABLISH REFERENCE POINTS TO MONITOR SETTLEMENT ON TOP OF THE MSE WALL PANELS OR ON TOP OF THE MSE WALL LEVELING PAD AT POINTS WITHIN FIVE FEET OF ALL ENDS AND CORNERS AND AT THE CENTER OF BRIDGES AND THE CENTERLINE OF US 301. AFTER THE SUBSTRUCTURE HAS BEEN RELEASED, READINGS ON ALL SETTLEMENT MONITORING DEVICES AND REFERENCE POINTS SHALL CONTINUE TO BE TAKEN AT A MINIMUM OF 30-DAY INTERVALS FOR THE NEXT SIX (6) MONTHS OR AS DIRECTED BY THE ENGINEER.



⚠ SETTLEMENT MONUMENT DETAIL

SCALE: ¾"=1'-0"

NOTES:

1. THE BASE OF THE SETTLEMENT PLATFORM SHALL BE PLACED ON THE TOP OF EXISTING GROUND.
2. COST FOR MATERIALS, FABRICATION, INSTALLATION AND MONITORING SHALL BE PAID UNDER THE RESPECTIVE SPECIAL PROVISION ITEM (SETTLEMENT PLATFORM OR SETTLEMENT MONUMENT).

CROSS REFERENCE NOTE:

FOR LOCATION OF SETTLEMENT PLATFORMS AND MONUMENTS, SEE DWG. 1-475 PE-1.

U:\Projects\AA\21387385\CAD\Bridge\BR2-4\dt01_BR2-4_US301.dgn 8/17/2015 Steve_Lambert

DELAWARE
DEPARTMENT OF TRANSPORTATION

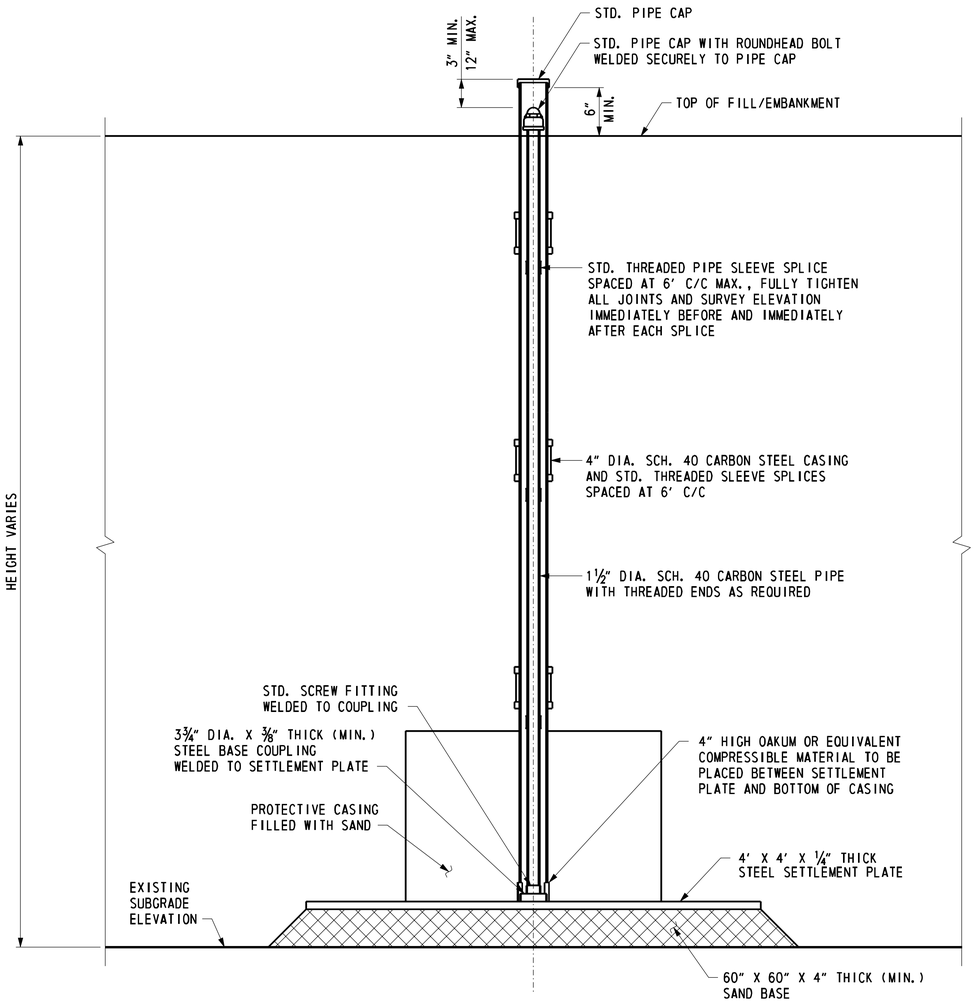
ADDENDUMS / REVISIONS
⚠ ADDED DETAIL, DRB

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-475
T200511303	DESIGNED BY: ADH	
COUNTY	CHECKED BY: DHG	
NEW CASTLE		

BUNKER HILL ROAD
OVER US 301 MAINLINE
SETTLEMENT PLATFORM

1-475 DT-1	
SHEET NO.	439
TOTAL SHTS.	1256



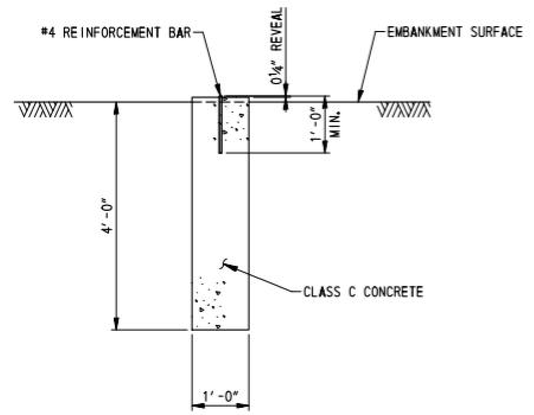
SETTLEMENT PLATFORM

NOT TO SCALE

SETTLEMENT PLATFORM	STATION	OFFSET	SETTLEMENT MONUMENT	STATION	OFFSET
SP-1-477-1	312+65.00	46.00' RT	SM-1-477-1	312+69.00	51.00' RT
SP-1-477-2	311+93.00	46.00' LT	SM-1-477-2	311+89.00	51.00' LT
SP-1-477-3	315+02.00	46.00' RT	SM-1-477-3	315+06.00	51.00' RT
SP-1-477-4	313+80.00	46.00' LT	SM-1-477-4	313+76.00	51.00' LT

SETTLEMENT NOTE

READINGS ON THE SETTLEMENT PLATFORMS SHALL BE MADE AFTER THE INITIAL INSTALLATION OF THE RISER AND CASING PIPES AND INSTALLATION RECORD SHEETS ARE APPROVED BY THE ENGINEER AND PRIOR TO FILL PLACEMENT. DURING FILL PLACEMENT, READINGS ON ALL SETTLEMENT PLATFORMS SHALL BE TAKEN AT A MINIMUM OF 3 CALENDAR DAY INTERVALS. AFTER COMPLETION OF THE FILL, INSTALL SETTLEMENT MONUMENTS AS INDICATED ON THE BRIDGE PLANS AND TAKE INITIAL READINGS. READINGS ON ALL SETTLEMENT MONITORING DEVICES SHALL THEN BE TAKEN AT A MINIMUM OF THREE (3) CALENDAR DAY INTERVALS. AFTER THE FILL HAS BEEN COMPLETED AND TWO (2) SUCCESSIVE READINGS OF EACH DEVICE HAVE BEEN RECORDED LESS THAN OR EQUAL TO 0.1", THE IMMEDIATE SETTLEMENT WILL BE DEEMED COMPLETE AND THE GEOTECHNICAL ENGINEER CAN RELEASE THE SUBSTRUCTURE FOR INSTALLATION OF PRODUCTION PILES SO LONG AS THE MINIMUM THIRTY (30) DAY QUARANTINE PERIOD HAS BEEN MET. AFTER COMPLETION OF THE MSE WALL PANEL PLACEMENT, THE CONTRACTOR SHALL ESTABLISH REFERENCE POINTS TO MONITOR SETTLEMENT ON TOP OF THE MSE WALL PANELS OR ON TOP OF THE MSE WALL LEVELING PAD AT POINTS WITHIN FIVE FEET OF ALL ENDS AND CORNERS AND AT THE CENTER OF BRIDGES AND THE CENTERLINE OF US 301. AFTER THE SUBSTRUCTURE HAS BEEN RELEASED, READINGS ON ALL SETTLEMENT MONITORING DEVICES AND REFERENCE POINTS SHALL CONTINUE TO BE TAKEN AT A MINIMUM OF 30-DAY INTERVALS FOR THE NEXT SIX (6) MONTHS OR AS DIRECTED BY THE ENGINEER.



⚠ SETTLEMENT MONUMENT DETAIL

SCALE: ¾"=1'-0"

NOTES:

1. THE BASE OF THE SETTLEMENT PLATFORM SHALL BE PLACED ON THE TOP OF EXISTING GROUND.
2. COST FOR MATERIALS, FABRICATION, INSTALLATION AND MONITORING SHALL BE PAID UNDER THE RESPECTIVE SPECIAL PROVISION ITEM (SETTLEMENT PLATFORM OR SETTLEMENT MONUMENT).

CROSS REFERENCE NOTE:

FOR LOCATION OF SETTLEMENT PLATFORMS AND MONUMENTS, SEE DWGS. 1-477 PE-1 AND 1-477 PE-2.

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9/17/2015
Steve_Lambert

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS
⚠ ADDED DETAIL, DRB

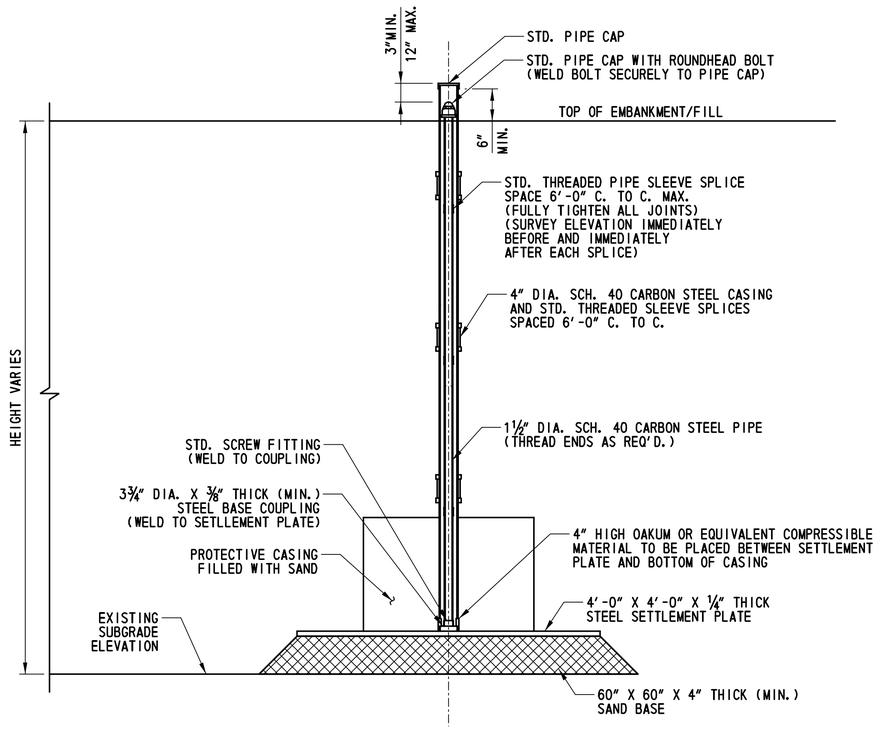
US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT T200511303
COUNTY NEW CASTLE
BRIDGE NO. 1-477N&S
DESIGNED BY: ADH
CHECKED BY: DHG

US 301 MAINLINE OVER TRIBUTARY TO SANDY BRANCH
SETTLEMENT PLATFORM

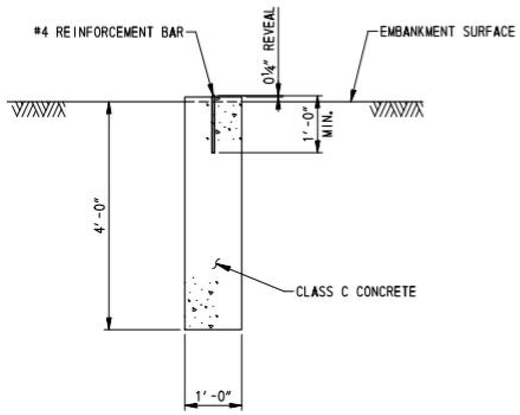
1-477 DT-1
SHEET NO. 520
TOTAL SHTS. 1256

SETTLEMENT PLATFORM	STATION	OFFSET	SETTLEMENT MONUMENT	STATION	OFFSET
SP-1-479-1	45+00.85	14.25' RT	SM-1-479-1	45+02.19	9.25' RT
SP-1-479-2	46+70.85	14.25' RT	SM-1-479-2	46+72.19	9.25' RT



SETTLEMENT PLATFORM

N.T.S.



⚠ SETTLEMENT MONUMENT DETAIL

SCALE: ¾"=1'-0"

NOTES:

1. THE BASE OF THE SETTLEMENT PLATFORM SHALL BE PLACED ON THE TOP OF THE EXISTING GROUND.
2. READINGS ON THE SETTLEMENT PLATFORMS SHALL BE MADE AFTER THE INITIAL INSTALLATION OF THE RISER AND CASING PIPES AND INSTALLATION RECORD SHEETS ARE APPROVED BY THE ENGINEER AND PRIOR TO FILL PLACEMENT. DURING FILL PLACEMENT, READINGS ON ALL SETTLEMENT PLATFORMS SHALL BE TAKEN AT A MINIMUM OF THREE (3) CALENDAR DAY INTERVALS. AFTER COMPLETION OF THE FILL AND SURCHARGE PLACEMENT, INSTALL SETTLEMENT MONUMENTS AS INDICATED ON THE BRIDGE PLANS AND TAKE INITIAL READINGS. READINGS ON ALL SETTLEMENT MONITORING DEVICES SHALL THEN BE TAKEN AT A MINIMUM OF THREE (3) CALENDAR DAY INTERVALS. AFTER THE FILL HAS BEEN COMPLETED AND TWO (2) SUCCESSIVE READINGS OF EACH DEVICE HAS RECORDED LESS THAN OR EQUAL TO 0.1 INCH, THE IMMEDIATE SETTLEMENT WILL BE DEEMED COMPLETE AND THE GEOTECHNICAL ENGINEER CAN RELEASE THE SUBSTRUCTURE FOR REMOVAL OF SURCHARGE AND INSTALLATION OF PRODUCTION PILES SO LONG AS THE MINIMUM 30 DAY QUARANTINE PERIOD IS MET. AFTER COMPLETION OF THE ABUTMENT, THE CONTRACTOR SHALL ESTABLISH REFERENCE POINTS TO MONITOR SETTLEMENT ON TOP OF THE ABUTMENT SEAT WITHIN 5 FEET OF ALL ENDS AND CORNERS AND AT THE CENTER OF BRIDGES AND THE CENTERLINE OF US301. AFTER THE CONCRETE ABUTMENTS HAVE BEEN CONSTRUCTED, READINGS ON ALL SETTLEMENT MONITORING DEVICES AND REFERENCE POINTS SHALL CONTINUE TO BE TAKEN AT A MINIMUM OF THIRTY (30) DAY INTERVALS FOR THE NEXT SIX (6) MONTHS OR AS DIRECTED BY THE ENGINEER.
3. COSTS OF MATERIALS, FABRICATION, INSTALLATION AND MONITORING OF SETTLEMENT PLATFORMS IS INCLUDED IN 202505.
4. COST OF MATERIALS, FABRICATION, INSTALLATION AND MONITORING OF MONUMENTS IS INCLUDED IN ITEM 202518.

CROSS REFERENCE NOTE:

FOR LOCATION OF SETTLEMENT PLATFORMS AND MONUMENTS, SEE DWG. 1-479 PE-1.

DELAWARE
DEPARTMENT OF TRANSPORTATION

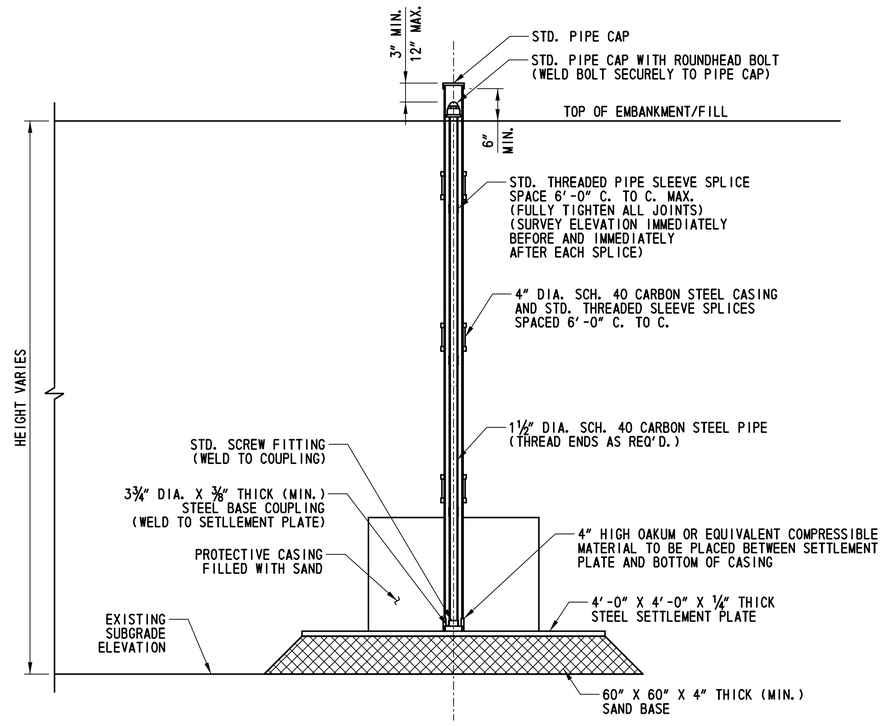
ADDENDUMS / REVISIONS	
⚠ ADDED DETAIL, DRB	

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-479
T200911303	DESIGNED BY: PRH	
COUNTY		
NEW CASTLE	CHECKED BY: JW	

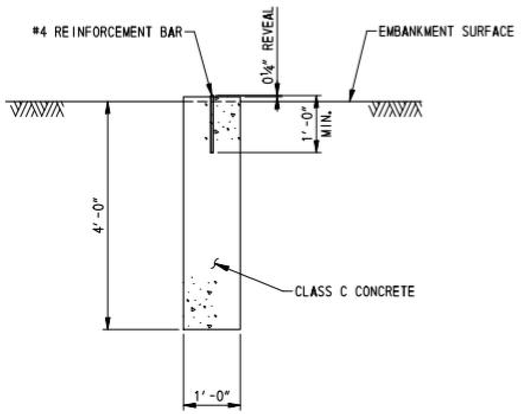
RAMP F OVER
SANDY BRANCH
SETTLEMENT PLATFORM
DETAIL

1-479 DT-1
SHEET NO.
559
TOTAL SHTS.
1256



SETTLEMENT PLATFORM

NTS



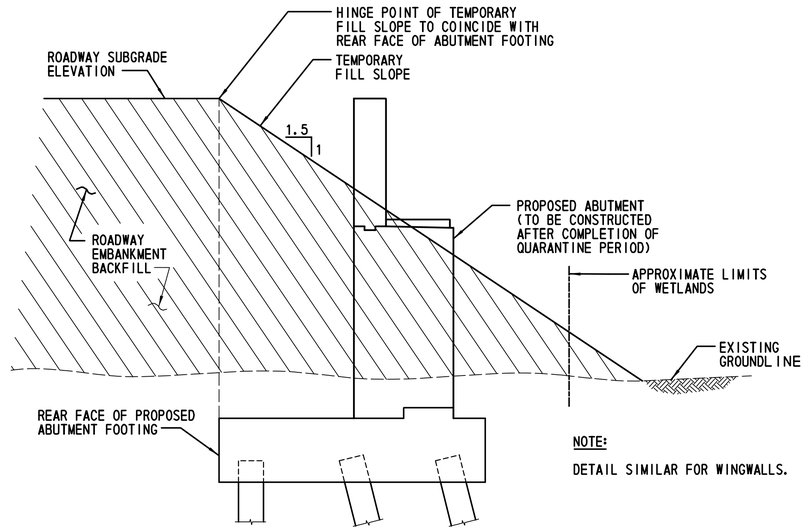
⚠ SETTLEMENT MONUMENT DETAIL

SCALE: ¾"=1'-0"

SETTLEMENT PLATFORM	STATION	OFFSET	SETTLEMENT MONUMENT	STATION	OFFSET
SP-1-480-1	302+07.81	39.00' RT	SM-1-480-1	302+04.31	44.00' RT
SP-1-480-2	302+72.43	39.00' LT	SM-1-480-2	302+75.93	44.00' LT
SP-1-480-3	304+94.32	39.00' RT	SM-1-480-3	304+90.82	44.00' RT
SP-1-480-4	305+08.94	39.00' LT	SM-1-480-4	305+12.44	44.00' LT

NOTES:

1. THE BASE OF THE SETTLEMENT PLATFORM SHALL BE PLACED ON THE TOP OF THE EXISTING GROUND.
2. READINGS ON THE SETTLEMENT PLATFORMS SHALL BE MADE AFTER THE INITIAL INSTALLATION OF THE RISER AND CASING PIPES AND INSTALLATION RECORD SHEETS ARE APPROVED BY THE ENGINEER AND PRIOR TO FILL PLACEMENT. DURING FILL PLACEMENT, READINGS ON ALL SETTLEMENT PLATFORMS SHALL BE TAKEN AT A MINIMUM OF THREE (3) CALENDAR DAY INTERVALS. AFTER COMPLETION OF THE FILL AND SURCHARGE PLACEMENT, INSTALL SETTLEMENT MONUMENTS AS INDICATED ON THE BRIDGE PLANS AND TAKE INITIAL READINGS. READINGS ON ALL SETTLEMENT MONITORING DEVICES SHALL THEN BE TAKEN AT A MINIMUM OF THREE (3) CALENDAR DAY INTERVALS. AFTER THE FILL HAS BEEN COMPLETED AND TWO (2) SUCCESSIVE READINGS OF EACH DEVICE HAS RECORDED LESS THAN OR EQUAL TO 0.1 INCH, THE IMMEDIATE SETTLEMENT WILL BE DEEMED COMPLETE AND THE GEOTECHNICAL ENGINEER CAN RELEASE THE SUBSTRUCTURE FOR REMOVAL OF SURCHARGE AND INSTALLATION OF PRODUCTION PILES SO LONG AS THE MINIMUM 30 DAY QUARANTINE PERIOD HAS BEEN MET. AFTER COMPLETION OF THE ABUTMENT, THE CONTRACTOR SHALL ESTABLISH REFERENCE POINTS TO MONITOR SETTLEMENT ON TOP OF THE ABUTMENT SEAT WITHIN 5 FEET OF ALL ENDS AND CORNERS AND AT THE CENTER OF BRIDGES AND THE CENTERLINE OF US301. AFTER THE CONCRETE ABUTMENTS HAVE BEEN CONSTRUCTED, READINGS ON ALL SETTLEMENT MONITORING DEVICES AND REFERENCE POINTS SHALL CONTINUE TO BE TAKEN AT A MINIMUM OF THIRTY (30) DAY INTERVALS FOR THE NEXT SIX (6) MONTHS OR AS DIRECTED BY THE ENGINEER.
3. COST OF MATERIALS, FABRICATION, INSTALLATION AND MONITORING OF SETTLEMENT PLATFORMS IS INCLUDED IN ITEM 202505.
4. COST OF MATERIALS, FABRICATION, INSTALLATION AND MONITORING OF MONUMENTS IS INCLUDED IN ITEM 202518.



FILL PLACEMENT DURING QUARANTINE PERIOD

NTS

NOTE:

DETAIL SIMILAR FOR WINGWALLS.

NOTE:

1. CONTRACTOR IS RESPONSIBLE FOR HAVING THE LIMITS OF WETLANDS MARKED IN THE FIELD PRIOR TO CONSTRUCTION.

CROSS REFERENCE NOTES:

1. FOR LOCATION OF SETTLEMENT PLATFORMS AND MONUMENTS, SEE DWG. NOS. 1-480 PE-1 AND 1-480 PE-2.
2. FOR ADDITIONAL ENVIRONMENTAL NOTES, SEE DWG. EC-05.
3. FOR ADDITIONAL ENVIRONMENTAL DETAILS, SEE DWG. EC-12 & EC-14.

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

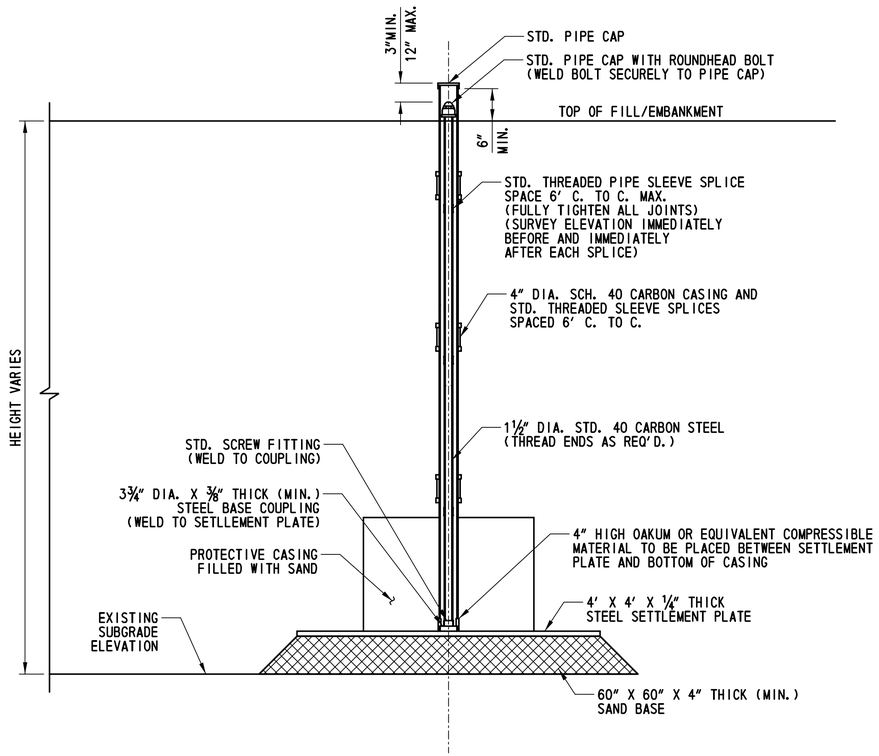
⚠ ADDED DETAIL, DRB

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-480N&S
T200911303	DESIGNED BY: PRH	
COUNTY		
NEW CASTLE	CHECKED BY: JW	

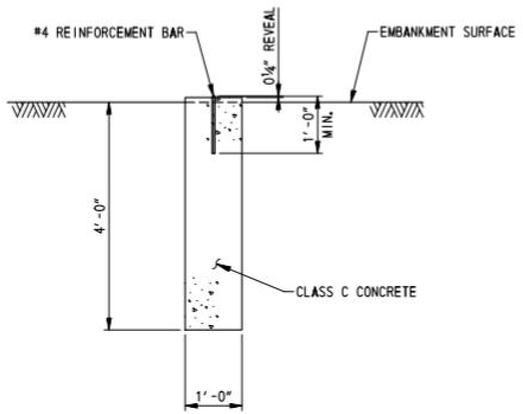
US 301 MAINLINE OVER SANDY BRANCH
SETTLEMENT PLATFORM DETAIL

1-480 DT-1
SHEET NO. 630
TOTAL SHTS. 1256



SETTLEMENT PLATFORM

N.T.S.



⚠ SETTLEMENT MONUMENT DETAIL

SCALE: ¾"=1'-0"

SETTLEMENT PLATFORM	STATION	OFFSET	SETTLEMENT MONUMENT	STATION	OFFSET
SP-1-507-1	464+55.41	42.00' LT	SM-1-507-1	464+55.41	47.00' LT
SP-1-507-2	464+55.41	42.00' RT	SM-1-507-2	464+55.41	47.00' RT
SP-1-507-3	465+92.25	42.00' RT	SM-1-507-3	465+92.25	47.00' RT
SP-1-507-4	465+92.25	42.00' LT	SM-1-507-4	465+92.25	47.00' LT

NOTES:

1. THE BASE OF THE SETTLEMENT PLATFORM SHALL BE PLACED ON THE TOP OF THE EXISTING GROUND.
2. READINGS ON THE SETTLEMENT PLATFORMS SHALL BE MADE AFTER THE INITIAL INSTALLATION OF THE RISER AND CASING PIPES AND INSTALLATION RECORD SHEETS ARE APPROVED BY THE ENGINEER AND PRIOR TO FILL PLACEMENT. DURING FILL PLACEMENT, READINGS ON ALL SETTLEMENT PLATFORMS SHALL BE TAKEN AT A MINIMUM OF THREE (3) CALENDAR DAY INTERVALS. AFTER COMPLETION OF THE FILL, INSTALL SETTLEMENT MONUMENTS AS INDICATED ON THE BRIDGE PLANS AND TAKE INITIAL READINGS. READINGS ON ALL SETTLEMENT MONITORING DEVICES SHALL THEN BE TAKEN AT A MINIMUM OF THREE (3) CALENDAR DAY INTERVALS. AFTER THE FILL HAS BEEN COMPLETED AND TWO (2) SUCCESSIVE READINGS OF EACH DEVICE HAS RECORDED LESS THAN OR EQUAL TO 0.1 INCH, THE IMMEDIATE SETTLEMENT WILL BE DEEMED COMPLETE AND THE GEOTECHNICAL ENGINEER CAN RELEASE THE SUBSTRUCTURE FOR INSTALLATION OF PRODUCTION PILES SO LONG AS THE MINIMUM 30 DAY QUARANTINE PERIOD HAS BEEN MET. AFTER COMPLETION OF THE MSE WALL PANEL PLACEMENT, THE CONTRACTOR SHALL ESTABLISH REFERENCE POINTS TO MONITOR SETTLEMENT ON TOP OF THE MSE WALL PANELS OR ON TOP OF THE MSE WALL LEVELING PAD AT POINTS WITHIN 5 FEET OF ALL ENDS AND CORNERS AND AT THE CENTER OF BRIDGES AND THE CENTERLINE OF US301. AFTER THE SUBSTRUCTURE HAS BEEN RELEASED, READINGS ON ALL SETTLEMENT MONITORING DEVICES AND REFERENCE POINTS SHALL CONTINUE TO BE TAKEN AT A MINIMUM OF THIRTY (30) DAY INTERVALS FOR THE NEXT SIX (6) MONTHS OR AS DIRECTED BY THE ENGINEER.
3. COST OF MATERIALS, FABRICATION, INSTALLATION AND MONITORING OF SETTLEMENT PLATFORMS IS INCLUDED IN ITEM 202505.
4. COST OF MATERIALS, FABRICATION, INSTALLATION AND MONITORING OF MONUMENTS IS INCLUDED IN ITEM 202518.

CROSS REFERENCE NOTE:

1. FOR LOCATION OF SETTLEMENT PLATFORMS AND MONUMENTS, SEE DWG. 1-507 PE-1.

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	
⚠ ADDED DETAIL, DRB	

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-507N&S
T200911303	DESIGNED BY: LT	
COUNTY	CHECKED BY: ML	
NEW CASTLE		

US 301 MAINLINE OVER CONNECTOR ROAD
SETTLEMENT PLATFORM DETAILS

1-507 DT-2
SHEET NO.
665
TOTAL SHTS.
1256

ESTIMATED BRIDGE QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	QUANTITY
207000	EXCAVATION AND BACKFILL FOR STRUCTURES	CY	2,600
~~302007~~ 302005	GRADED AGGREGATE BASE COURSE, TYPE B (FOR FOUNDATION STABILIZATION)	TON	570
602001	PORTLAND CEMENT CONCRETE MASONRY, CLASS A	CY	140
602506	PRECAST CONCRETE CULVERT	LS	1
604000	BAR REINFORCEMENT, EPOXY COATED	LB	26,000
712531	CHANNEL BED FILL	CY	280
713001	GEOTEXTILE (FOR GRADED AGGREGATE BASE)	SY	1,060
715001	PERFORATED PIPE UNDERDRAIN, 6"	LF	45
727009	CHAIN LINK FENCE	LF	100

INDEX OF DRAWINGS

SHEET NO.	DRAWING NO.	TITLE
667	1-508A PE-1	PLAN AND SECTION
668	1-508A PN-1	INDEX OF DRAWINGS
669	1-508A CU-1	ELEVATIONS AND SECTIONS
670	1-508A CU-2	CAST IN PLACE CULVERT PLAN
671	1-508A CU-3	UPSTREAM FOOTING PLAN
672	1-508A CU-4	WINGWALL REINFORCEMENT 1
673	1-508A CU-5	DOWNSTREAM FOOTING PLAN
674	1-508A CU-6	WINGWALL REINFORCEMENT 2
675	1-508A CU-7	CIP CULVERT REINFORCEMENT 1
676	1-508A CU-8	CIP CULVERT REINFORCEMENT 2
677	1-508A CU-9	REINFORCING BAR LIST 1
678	1-508A CU-10	REINFORCING BAR LIST 2
679	1-508A CU-11	PRECAST BOX REINFORCEMENT
680	1-508A BO-1	BORINGS 1
681	1-508A BO-2	BORINGS 2

PROJECT NOTES

SPECIFICATIONS: DELDOT BRIDGE DESIGN MANUAL, MAY 2005, WITH JANUARY 2008 REVISIONS; DELDOT STANDARD SPECIFICATIONS, 2001, WITH 2009 REVISIONS; AASHTO, LRFD BRIDGE DESIGN SPECIFICATIONS, 4TH EDITION, WITH 2009 INTERIM; US 301 DESIGN MANUAL.

DESIGN: LRFD DESIGN METHOD.

LOADING: HL 93 TRUCK LOADING.

CONCRETE: ALL CAST IN PLACE CONCRETE SHALL BE CLASS A (4,500 PSI). WINGWALLS AND HEADWALLS SHALL BE CAST IN PLACE. ALL PRECAST CONCRETE SHALL BE f'c = 5000 PSI.

REINFORCING STEEL: REINFORCING STEEL SHALL BE AASHTO M31, GRADE 60 UNLESS OTHERWISE NOTED AND SHALL BE PROTECTED WITH FUSION BONDED EPOXY CONFORMING TO AASHTO M284 WHERE INDICATED ON PLANS. ALL REINFORCING STEEL SHALL HAVE A CLEAR COVER OF TWO (2) INCHES UNLESS OTHERWISE SPECIFIED ON THE PLANS.

POST TENSIONING STEEL: FOUR LONGITUDINAL ONE HALF INCH DIAMETER, 270 ksi LOW RELAXATION POLYPROPYLENE SHEATHED PRESTRESSING STRANDS WITH CORROSION INHIBITOR OR OTHER APPROVED POST-TENSIONING DEVICE, SHALL BE PLACED IN POSITION THROUGH PREFORMED HOLES IN THE CORNERS OF PRECAST UNITS. THESE SHEATHED PRESTRESSING STRANDS SHALL BE STRESSED TO A TENSION OF 31 KIPS PER STRAND. THE MINIMUM ULTIMATE STRENGTH OF EACH STRAND SHALL BE 41 KIPS.

HYDRAULIC DATA:
DRAINAGE AREA = 0.70 SQ. MI.
DESIGN FREQUENCY = 100 YEARS
DESIGN FLOOD ELEVATION = 62.5
50 YEAR FLOOD ELEVATION = 61.4
DESIGN DISCHARGE = 509 CFS
PROPOSED OPENING = 72 SF

CULVERT 1-508A IS A CLOSED BOTTOM BOX CULVERT. CLOSED CELL CULVERTS DO NOT REQUIRE A SCOUR ASSESSMENT WITH FLOW NOT CONTACTING NATIVE SOIL. A PRE-FORMED SCOUR POOL IS DESIGNED TO PROTECT THE OUTLET FROM POTENTIAL SCOUR AND SLOW OUTLET VELOCITY PRIOR TO DISCHARGE ENTERING THE NATURAL CHANNEL DOWNSTREAM OF THE CULVERT.

POST-TENSIONING NOTES:

1. SHOW ALL POST-TENSIONING DETAILS ON SHOP DRAWINGS.
2. SNUG FIT ALL JOINTS BEFORE POST-TENSIONING.
3. INSTALL STRANDS IN PRECAST SECTIONS. STRESS EACH STRAND TO AN EFFECTIVE FORCE OF 10 PSI OVER THE CROSS SECTION OF ANY SECTION. CHECK RAM AREA AND CALIBRATION CURVES OF EQUIPMENT FURNISHED FOR GAGE PRESSURES.
4. COMPLETE TENSIONING IN THREE PASSES; ONE-THIRD, ONE-HALF AND FULL POST TENSIONING FORCE. FIRST AND SECOND TENSIONINGS MAY BE ALTERED AS REQUIRED TO MAINTAIN PROPER ALIGNMENT OF THE CULVERT. WHERE MORE THAN EIGHT STRANDS ARE REQUIRED, TENSION ADDITIONAL STRANDS SIMILARLY AROUND THE CENTRAL AXIS.
5. AFTER STRESSING, GROUT ALL STRAND DUCTS, RECESSES AND BLOCKOUTS.
6. SUBMIT POST-TENSIONING COMPUTATIONS WITH SHOP DRAWINGS SHOWING THE STRAND PATTERN AND REQUIRED POST-TENSIONING FORCE. BASE DESIGN UPON THE FOLLOWING CRITERIA:
   a. THE TOTAL POST-TENSION FORCE IS THE SUM OF THE FORCE REQUIRED TO OVERCOME SOIL FRICTION PLUS THE FORCE REQUIRED TO CREATE A PRESSURE OF 10 PSI OVER THE CROSS SECTION OF THE CULVERT.
   b. MAXIMUM TOTAL POST-TENSION FORCE SHOULD NOT CREATE A PRESSURE GREATER THAN 100 PSI OVER THE CROSS SECTION OF ANY SEGMENT.
   c. MAXIMUM LOAD ON A ½" DIAMETER STRAND IS 31 KIPS.
   d. USE A COEFFICIENT OF SOIL FRICTION OF 0.6.
   e. PLACE STRANDS SYMMETRICALLY ABOUT BOTH AXES OF THE CULVERT CROSS SECTION.
   f. LOCATE STRANDS SO AS TO NOT INTERFERE WITH REINFORCEMENT DETAILS.
7. ALL POST-TENSIONING MUST BE WITNESSED AND APPROVED BY THE ENGINEER.
8. AFTER POST-TENSIONING IS APPROVED, CUT STRANDS TO PROVIDE A MINIMUM OF 2½" CLEAR FROM OUTSIDE FACE OF CONCRETE AND COAT RECESS WITH EPOXY BONDING COMPOUND. FILL ALL RECESSES WITH NON-SHRINK GROUT.
9. POST-TENSION AND GROUT BEFORE BACKFILLING AND PLACING TRAFFIC OVER THE BOX. AFTER GROUTING, WAIT AT LEAST TWO (2) DAYS BEFORE BACKFILLING.
10. ALL POST-TENSIONING CHUCKS MUST BE OF THE REUSABLE TYPE. OPERATORS MUST EXERCISE PROPER PRECAUTIONS WHEN RE-ALIGNING WEDGES AFTER RELEASE OF TENDONS AND PRIOR TO RETENSIONING AND RE-SEATING.
11. KEEP JOINT CLEAN AT POST-TENSIONING STAGE.
12. POST-TENSIONING DUCTS MAY BE PLACED WITHIN THE WALLS OR SLAB ANYWHERE BETWEEN THE LAYERS OF REINFORCEMENT TO AVOID THE SLOPED PORTION OF THE JOINT SO AS TO PROMOTE SEALING OF THE DUCT.
13. REMOVE A MINIMAL AMOUNT OF POLYSTRAND TO ACCOMMODATE INTERMEDIATE SPLICES AT BOX ENDS.
14. AS AN ALTERNATE TO A POST-TENSIONING STRAND SYSTEM, THE CONTRACTOR MAY USE AN EQUIVALENT POST-TENSIONING THREADED BAR SYSTEM WITH EACH UNIT TENSIONED AND COUPLE NUTS PROVIDED TO LINK THE ADJACENT UNITS TOGETHER.

PRECAST BOX CULVERT NOTES:

1. DESIGN PLANS / WORKING DRAWINGS

   INFORMATION PERTAINING TO THE PRECAST REINFORCED CONCRETE BOX CULVERT IS INTENDED TO SERVE AS AN INDICATION OF THE TYPE OF CONSTRUCTION ACCEPTABLE FOR USE. THE CONTRACTOR WILL BE REQUIRED TO PREPARE AND SUBMIT FOR APPROVAL A COMPLETE SET OF DETAILED SHOP DRAWINGS FOR THE PRECAST CONCRETE UNITS INCLUDING:

   A. AN OVERALL PLAN SHOWING ALL UNITS TOGETHER AND DETAILS OF EACH TYPE OF UNIT .
   B. A PLAN VIEW OF REINFORCEMENT FOR ANY IRREGULAR SHAPED SECTIONS.
   C. REINFORCING BAR LIST.
   D. BILL OF MATERIALS INCLUDING ALL ACCESSORIES.
   E. METHOD AND SEQUENCE OF POST-TENSIONING.

2. PRECAST ELEMENTS, ACCESSORIES AND INSTALLATION

   PAYMENT FOR ITEM 602506 - PRECAST CONCRETE CULVERT SHALL INCLUDE:

   A. ALL PRECAST ELEMENTS.
   B. ALL ASSOCIATED REINFORCEMENT.
   C. ALL ACCESSORIES (INCLUDING, BUT NOT LIMITED TO, CONCRETE FINISH, POST-TENSIONING TENDONS, POST-TENSIONING PVC CONDUIT SLEEVES, CONNECTION PLATES, GROUT, JOINT WRAP, JOINT GASKETS, THREADED INSERTS) UNLESS NOTED OTHERWISE.
   D. DELIVERY AND INSTALLATION OF ALL PRECAST ELEMENTS AND ALL ACCESSORIES.

3. JOINTS BETWEEN PRECAST SECTIONS

   A. FLEXIBLE PREFORMED GASKET MATERIAL IN ACCORDANCE WITH ASTM C990 SHALL BE PROVIDED AT THE JOINTS BETWEEN ALL PRECAST UNITS IN ORDER TO MAKE THE JOINTS WATERTIGHT. AFTER INSTALLATION, THE GASKETS SHALL BE COMPRESSED SUCH THAT GAPS ARE NOT VISIBLE.
   B. ALL JOINTS BETWEEN PRECAST BOX CULVERT SECTIONS SHALL BE TONGUE AND GROOVE.
   C. THE LOCATIONS OF THE JOINTS IN THE BOX CULVERT SHALL BE DETERMINED BY THE PRECASTER AND SUBMITTED IN THE SHOP DRAWINGS FOR APPROVAL.
   D. THE REINFORCEMENT SHALL HAVE 2 INCH COVER AT THE END OF EACH SECTION AND MEET OR EXCEED THE MINIMUM AREA OF STEEL PER FOOT DENOTED IN THE PLANS.
   E. ALL JOINT EXTERIORS SHALL BE COVERED WITH A MINIMUM 9 INCH WIDE GEOTEXTILE OR WRAP CENTERED ON THE JOINT TO PREVENT LOSS OF FILL MATERIAL. THE GEOTEXTILE OR WRAP SHALL COMPLY WITH ASTM C877 OR PETROLAC, PHILLIPS FIBER CORPORATION.

4. MISCELLANEOUS NOTES

   A. ALL EXPOSED SURFACES SHALL BE PROTECTED WITH A WATER MISCIBLE, PENETRATING SILANE SEALER BEFORE BACKFILLING.
   B. ALL EXPOSED EDGES SHALL BE CHAMFERED ¾" UNLESS OTHERWISE NOTED.
   C. SUGGESTED PLACEMENT OF PRECAST SEGMENTS: CONTRACTOR SHALL UTILIZE A CRANE TO LIFT EACH UNIT FROM TRAILER HOLDING IN PLACE WHILE INSTALLATION CREW PULLS THE UNITS TOGETHER WITH COME-ALONGS OR AN INTERNALLY ANCHORED SYSTEM.
   D. FOR PRECAST UNITS ADJACENT TO THE CAST IN PLACE BOX SEGMENTS, #5 @12" EPOXY COATED CONNECTING DOWELS, WITH 1'-3" MINIMUM EMBEDMENT, SHALL BE PROVIDED AT THE CENTER OF THE TOP, BOTTOM AND SIDES OF THE BOX CULVERT SECTION.

CROSS REFERENCE NOTE:

1. FOR SEQUENCE OF CONSTRUCTION, SEE CONSTRUCTION PHASING, MOT AND EROSION AND SEDIMENT CONTROL PLANS FOR PHASE 1-1 AND PHASE 1-2, SEE DWGS. CS-95 THRU CS-97.
2. FOR PAYMENT OF CLASS R-5 RIPRAP AND GEOTEXTILE UNDER RIPRAP, SEE STREAM RESTORATION PLANS, DWGS. SR-01 THRU SR-03.

NOTES FOR PRECAST ELEMENTS

1. DESIGN PLANS AND WORKING DRAWINGS

   THE INFORMATION SHOWN ON THESE PLANS FOR THE PRECAST CONCRETE ARCH CULVERT AND THE WINGWALL SECTIONS DEMONSTRATES THE TYPE OF CONSTRUCTION THAT IS ACCEPTABLE FOR USE ON THIS PROJECT. THE CONTRACTOR IS REPONSIBILE FOR CONSTRUCTION OF THE PRECAST ARCH CULVERT AND WINGWALLS TO THE LINES, GRADES AND DIMENSIONS SHOWN ON THE PLANS. THE CONTRACTOR SHALL VERIFY ALL ELEVATIONS PRIOR TO CONSTRUCTION. THE CONTRACTOR IS REQUIRED TO SUBMIT SHOP DRAWINGS OF THE CULVERT AND WINGWALL UNITS FOR APPROVAL PRIOR TO CONSTRUCTION. THE SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING:

   A. AN OVERALL PLAN SHOWING ALL UNITS IN ONE VIEW, AS WELL AS DETAILS OF EACH UNIT.
   B. A PLAN VIEW OF THE REINFORCEMENT LAYOUT FOR ANY IRREGULAR SHAPED (CURVED, SKEWED, ETC...) PORTION OF THE STRUCTURE.
   C. A REINFORCEMENT BAR SCHEDULE.
   D. A BILL OF MATERIALS INCLUDING ALL ACCESSORIES.
   E. THE METHOD AND SEQUENCE OF POST-TENSIONING.

2. PAYMENT FOR PRECAST ELEMENTS, ACCESSORIES AND INSTALLATION
   PAYMENT FOR ITEM 602737 - "PRECAST CONCRETE ARCH" SHALL INCLUDE:

   A. ALL PRECAST ELEMENTS.
   B. ALL REINFORCEMENT IN PRECAST ELEMENTS.
   C. ALL ACCESSORIES (INCLUDING, BUT NOT LIMITED TO, DRAINAGE SYSTEM, CONCRETE FINISH, CONNECTION PLATES, POST-TENSIONING TENDONS, GROUT, JOINT WRAP, JOINT GASKETS, THREADED INSERTS) THAT IS MENTIONED IN THE FOLLOWING NOTES UNLESS NOTED OTHERWISE.
   D. DELIVERY AND INSTALLATION OF ALL PRECAST ELEMENTS AND ASSESSORIES.

3. MISCELLANEOUS CONCRETE NOTES

   A. ALL EXPOSED SURFACES SHALL BE PROTECTED WITH A WATER MISCIBLE, PENETRATING SILANE SEALER SUCH AS ENVIROSEAL 20 BY BASF SUPERIOR OR APPROVED EQUAL.
   B. ALL EXPOSED EDGES SHALL BE CHAMFERED ¾" UNLESS OTHERWISE NOTED.

4. ARCH POST-TENSIONING

   THE PRECAST ARCH SECTIONS SHALL BE POST-TENSIONED TOGETHER WITH A MINIMUM OF FOUR POST-TENSIONING TENDONS. THE SECTIONS SHALL BE POST-TENSIONED SUCH THAT THE NEOPRENE GASKETS ARE COMPRESSED ALL AROUND AND THERE IS A ½" MAXIMUM GAP BETWEEN SECTIONS. THE MAXIMUM POST-TENSIONING FORCE PER TENDON SHALL BE 28,900 LBS. POST-TENSIONING DETAILS (PLACEMENT, SEQUENCE OF TENSIONING, ETC...) SHALL BE SHOWN ON THE SHOP DRAWINGS. ALL POCKETS FOR POST-TENSIONING DUCTS SHALL BE FILLED WITH NON-SHRINK GROUT.

5. WINGWALL POST-TENSIONING

   THE PRECAST WINGWALL SECTIONS SHALL BE POST-TENSIONED TOGETHER WITH A MINIMUM OF TWO POST-TENSIONING TENDONS, USING THE SAME REQUIREMENTS AS NOTE 4, AND SHALL ALSO BE POSITIVELY CONNECTED TO THE CULVERT. A BOLTED CONNECTION TO THE CULVERT MAY BE USED, WITH THE DETAILS SHOWN IN THE SUBMITTED SHOP DRAWINGS.

6. BOLTED CONNECTIONS

   THE BOLTED CONNECTIONS SHALL CONSIST OF AT LEAST TWO SETS OF STEEL PLATES WITH AT LEAST TWO BOLTS OR THREADED RODS ON EACH SIDE OF EACH CONNECTION. SLOTTED HOLES IN THE PLATE SHALL NOT BE PERMITTED. HOLES FOR BOLTS OR THREADED RODS MAY BE FIELD DRILLED.

7. JOINTS BETWEEN PRECAST SECTIONS

   A. NEOPRENE GASKETS SHALL BE PROVIDED AT THE JOINTS BETWEEN ALL PRECAST UNITS IN ORDER TO MAKE THE JOINTS WATERTIGHT.
   B. JOINTS BETWEEN RIGID FRAME SECTIONS SHALL HAVE A SHEAR KEY ALL AROUND.
   C. THE LOCATION OF THE JOINTS IN THE PRECAST CULVERT SHALL BE DETERMINED BY THE MANUFACTURER AND SHALL BE SUBMITTED WITH THE SHOP DRAWINGS FOR APPROVAL.
   D. THE EXTERIOR OF ALL JOINTS SHALL BE COVERED WITH A MINIMUM OF 9" WIDE JOINT WRAP CENTERED ON THE JOINT.

8. BEARING RESISTANCE

   ARCH CULVERT BEARING RESISTANCE = 7.0 PSF.
   WINGWALL BEARING RESISTANCE = 4.0 PSF.

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	QUANTITY
207000	EXCAVATION AND BACKFILL FOR STRUCTURES	CY	1090
~~302007~~ 302005 ⚠1	GRADED AGGREGATE BASE COURSE, TYPE B (FOR FOUNDATION STABILIZATION: WINGWALLS AND CULVERT STRUCTURE)	TON	210
602002	PORTLAND CEMENT CONCRETE MASONRY, CLASS B (CULVERT FOOTING)	CY	200
602002	PORTLAND CEMENT CONCRETE MASONRY, CLASS B (WINGWALL FOOTING)	CY	70
602737	PRECAST CONCRETE ARCH	LS	1
604000	BAR REINFORCEMENT, EPOXY COATED (CULVERT AND WINGWALL FOOTINGS)	LB	22,500
712021	RIPRAP: R-5 (FOR CULVERT STRUCTURE CHANNEL SCOUR PROTECTION)	TON	620
712531	CHANNEL BED FILL	CY	288
713001	GEOTEXTILE, GRADED AGGREGATE BASE	SY	385
713003	GEOTEXTILE, RIPRAP	SY	460
727009	CHAIN LINK FENCE	LF	195

INDEX OF DRAWINGS

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9/7/2015
Steve_Lambert

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS
⚠1 REVISED ITEM NUMBER, DRB

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT T200511301
COUNTY NEW CASTLE
BRIDGE NO. 1-508B
DESIGNED BY: K. D. BEAVER
CHECKED BY: J. S. LI

RAMP C OVER SANDY BRANCH
INDEX OF DRAWINGS

1-508B PN-1
SHEET NO. 683
TOTAL SHTS. 1256