REFERENCED DOCUMENTS

Contract No. T201907103

BR 1-084 ON N234 TWADDELL MILL ROAD
OVER TRIBUTARY TO BRANDYWINE CREEK

This page contains the referenced documents in the proposal for the above-mentioned contract.

- PREVAILING WAGE RATES
  - State of Delaware Wage Rates
  - Davis-Bacon Wage Rates (if applicable)
- SPECIAL PROVISIONS LIST
- STATEMENTS
  - Utility
  - Right-of-Way
  - Environmental
  - Railroad
- SAMPLE AFFIDAVIT - CRAFT TRAINING
- ITEMS LIST (Quantity Summary Sheets)

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PREVAILING WAGES FOR **HIGHWAY CONSTRUCTION** EFFECTIVE MARCH 13, 2026

CLASSIFICATION	NEW CASTLE	KENT	SUSSEX
BRICKLAYERS	68.29	68.29	73.01
CARPENTERS	69.62	64.06	52.30
CEMENT FINISHERS	74.68	45.80	46.69
ELECTRICAL LINE WORKERS	37.71	60.93	29.82
ELECTRICIANS	86.87	86.87	86.87
IRON WORKERS	91.78	33.47	35.55
LABORERS	58.11	53.49	52.49
MILLWRIGHTS	22.60	21.94	18.96
PAINTERS	84.99	84.99	84.99
PILEDRIVERS	100.98	33.34	93.69
POWER EQUIPMENT OPERATORS	87.03	55.57	50.91
SHEET METAL WORKERS	31.93	28.51	25.80
TRUCK DRIVERS	54.70	39.63	48.26

CERTIFIED: 5/20/2026 BY: For Fran Chudzik
ADMINISTRATOR, OFFICE OF LABOR LAW ENFORCEMENT

NOTE: THESE RATES ARE PROMULGATED AND ENFORCED PURSUANT TO THE PREVAILING WAGE REGULATIONS ADOPTED BY THE DEPARTMENT OF LABOR ON APRIL 3, 1992.

CLASSIFICATIONS OF WORKERS ARE DETERMINED BY THE DEPARTMENT OF LABOR. FOR ASSISTANCE IN CLASSIFYING WORKERS, OR FOR A COPY OF THE REGULATIONS OR CLASSIFICATIONS, PHONE (302) 318-2769.

NON-REGISTERED APPRENTICES MUST BE PAID THE MECHANIC'S RATE.

PROJECT: T201907103 T201907103, BR 1-084 on N234 Twaddell Mill Road Over Tributary To Brandywine Creek, New Castle, New Castle County

SPECIAL PROVISIONS

S.P. Code	SPECIAL PROVISION DESCRIPTION
202560-25	CONTAMINATED MATERIAL
401502-25	ASPHALT CEMENT COST ADJUSTMENT
401580-25	RIDE QUALITY OF BITUMINOUS CONCRETE PAVEMENT
401699-25	QUALITY CONTROL/QUALITY ASSURANCE OF BITUMINOUS CONCRETE
621500-25	TEMPORARY TIMBER MAT
763501-25	CONSTRUCTION ENGINEERING
801600-25	MAINTENANCE OF TRAFFIC, ALL INCLUSIVE

202560 - CONTAMINATED MATERIAL

Description:

Contaminated Material is defined as solids or liquids (including soil) potentially contaminated with a hazardous substance, requiring special handling and/or disposal per state or federal regulation.

Overview of Costs:

A. Potential contaminated solids may affect contractor's costs as follows:

1. Additional cost to normal excavation requirements:
    a. Cost of 8 mil plastic for placement under and over solid contaminated material,
    b. Maintaining the segregated contaminated solids staging area.
2. Reduced cost to normal excavation requirements:
    a. Not required to, or charged for, transport of contaminated material from site.
    b. Not required to, or charged for, disposal of contaminated soil.

B. Potential contaminated liquids will affect contractor’s cost as follows:

1. Additional cost to normal excavation requirements:
    a. Cost of supplying appropriately sized watertight containers.
    b. Cost of cleaning of rented frac tanks (if applicable).
2. Reduced cost to normal excavation requirements:
    a. Not required to, or charged for, transport of contaminated material from site.
    b. Not required to, or charged for, disposal of contaminated liquids.

Construction Methods and Responsibilities:

A. Contractor's Responsibilities for potential contaminated solids:

1. The Contractor shall provide the appropriate equipment and personnel necessary to excavate, stage, and load contaminated material for off-site disposal. If required for the site, the work will be performed in accordance with the procedures described in the site specific "Contaminated Materials Management Plan".
2. The Contractor shall immediately be responsible for notifying the Department's HAZMAT Program Manager’s office (302-894-6308) for scheduling coordination with the environmental representative. Submit a proposed schedule of work for review and approval prior to any commencement of work on this site. Coordinate with all utility companies prior to excavation. The Department's environmental representative shall be present during all phases of work associated with the excavation and removal of potentially contaminated material.
3. The Contractor shall excavate material in accordance with the project specifications. Separate the contaminated soil from the clean soil as designated by the Department. The contaminated soil shall be placed in the designated staging area. The staging area shall be lined with 8-mil plastic and a berm constructed to minimize storm water run-off. Cover the staging area with 8-

mil plastic at the end of each workday. Ensure the cover is secured so the contaminated soil remains entirely under the plastic. The Contractor shall load contaminated soil onto trucks arranged by the Department's environmental representative when the contaminated soil is shipped off-site to a licensed disposal/treatment facility. Backfill and compact the excavated area(s) in accordance with the contract.

B. Contractor's Responsibilities for potential contaminated liquids:

1. The Contractor shall provide the appropriate equipment and personnel necessary to remove and stage contaminated liquids for off-site disposal. If required for the site, the work will be performed in accordance with the procedures described in the site specific "Contaminated Materials Management Plan".
2. The Contractor shall immediately be responsible for notifying the Department's HAZMAT Program Manager's office (302-894-6308) for scheduling coordination with the environmental representative. Submit a proposed schedule of work for review and approval prior to any commencement of work on this site. Coordinate with all utility companies prior to excavation. The Department's environmental representative shall be present during all phases of work associated with the removal of potentially contaminated liquids.
3. The Contractor shall remove liquids in accordance with the project specifications. The potentially contaminated liquids shall be placed in the appropriate watertight container(s). The watertight container(s) shall be placed in the designated staging area. If rented frac tanks are utilized, once removal of the contaminated liquids by the Department's environmental representative is completed, the Contractor shall be responsible to have the frac tanks cleaned prior to ending the rental.

Department's Responsibilities:

A. The Department is responsible for providing:

1. the environmental representative;
2. the transportation of contaminated material for disposal; and
3. the disposal of contaminated material.

B. When issued, the "Contaminated Materials Management Plan" will identify;

1. the procedures to be used to excavate and stage the contaminated material;
2. the licensed treatment/disposal facility where the Department will ship the contaminated material;
3. the method the material will be transported to the treatment/disposal facility; and
4. any additional health and safety requirements for site personnel.

C. The Department's environmental representative will be responsible to:

1. conduct a health and safety briefing prior to commencement of activities on the sites to ensure an understanding of all applicable standards, guidelines, laws, procedures, etc. consistent

with successful completion of this type of activity;

2. potentially conduct air monitoring during any excavation activities at the site to identify and mitigate fire, explosion and vapor hazards;

3. coordinate the excavation activities with all applicable local, state, and federal environmental regulatory agencies;

4. oversee the excavation, removal and treatment/disposal of the material in the designated area(s) and perform such tests as field screening for soil contamination utilizing vapor monitoring techniques and collect soil samples for laboratory analysis to meet the requirements of the treatment/disposal facility, DNREC and/or the USEPA;

5. subcontract with the disposal/treatment facility to provide transportation and disposal/treatment of all contaminated materials to be removed as part of the project;

6. measure the quantity of the contaminated material removed, via certified scale weights, for the Department's records.

Method of Measurement:

The Department will not measure contaminated material. It will be included in the excavation quantity.

Basis of Payment:

A. The Department will make no additional payment for the handling of contaminated material. Price and payment will be included in the excavation items and will constitute full compensation for:

1. excavation and backfilling;
2. constructing and maintaining soil staging area;
3. placement of contaminated soil;
4. providing plastic and daily covering; and
5. loading of contaminated soil for removing.

B. The Department reserves the right to delete this contingency item from the contract. The Contractor shall make no claims for additional compensation because of deletion of the item.

C. No payment will be made for any work done without a Department approved Inspector or environmental representative present to provide environmental oversight.

D. The Department will pay for the following:

1. the environmental representative;
2. the transportation of contaminated material for disposal; and
3. the disposal of contaminated material.

401502 - ASPHALT CEMENT COST ADJUSTMENT

For Sections 304, 401, 402, 403, 404, and 405, payments to the Contractor shall be adjusted to reflect increases or decreases in the Delaware Posted Asphalt Cement Price when compared to the Project Asphalt Cement Base Price, as defined in these Special Provisions.

The Delaware Posted Asphalt Cement Price will be issued monthly by the Department and will be the industry posted price for Asphalt Cement, F.O.B. Philadelphia, Pennsylvania. The link for the posting is https://deldot.gov/Business/bids/index.shtml?dc=asphalt_cement_english.

The Project Asphalt Cement Base Price will be the Delaware Posted Asphalt Cement Price in effect on the date of advertisement.

All deviations of the Delaware Posted Asphalt Cement Price from the Project Asphalt Cement Base Price are eligible for cost adjustment. No minimum increases or decreases or corresponding percentages are required to qualify for cost adjustment.

Actual quantity of asphalt cement qualifying for any Asphalt Cement Cost Adjustment will be computed using the weight of eligible asphalt that is shown on the QA/QC pay sheets as a percentage for the delivered material.

If the mix was not inspected and no QA/QC pay sheet was generated, then the asphalt percentage will be obtained from the job mix formula for that mix ID. The asphalt percentage eligible for cost adjustment shall only be the virgin asphalt cement added to the mix.

There shall be no separate payment per ton cost of asphalt cement. That cost shall be included in the various unit prices bid per ton for those bid items that contain asphalt cement (mentioned above).

The Asphalt cement cost adjustment will be calculated on grade PG 64-22 asphalt regardless of the actual grade of asphalt used.

If the Contractor exceeds the authorized allotted completion time, the price of asphalt cement on the last authorized allotted workday, shall be the prices used for cost adjustment during the time

liquidated damages are assessed. However, if the industry posted price for asphalt cement goes down, the asphalt-cement cost shall be adjusted downward accordingly.

NOTE:

Application of Asphalt Cement Cost Adjustment requirements as indicated above shall apply only to those contracts involving items related to bituminous base and pavements, and with bitumen, having a total of 1,000 tons or more of hot-mix bid quantity in case of Sections 401, 402 and 403; and 15,000 gallons or more in case of Sections 304, 404 and 405.

12/14/2020

401580 - RIDE QUALITY OF BITUMINOUS PAVEMENT

Description:

This specification outlines requirements for an acceptable ride surface in addition to requirements established in DelDOT Standard Specifications. The Contractor is responsible for providing smoothness characteristics that meet these requirements. The Contractor is responsible for providing equipment, maintenance of traffic (MOT) as required by the Delaware MUTCD, and performing testing in accordance to this specification. All costs for testing and MOT are incidental to this item. Both the International Roughness Index (IRI) and deviations located within a 10' straightedge are used to characterize smoothness in this Special Provision.

Definitions:

Class 1 Project - a project that consists of full depth construction. Full depth construction is considered to be when contract documents or modifications provide opportunity for preparation of the subgrade prior to paving.

Class 2 Project - a project that consists of a minimum of two smoothness opportunities.

Class 3 Project - a project that consists of one smoothness opportunity.

Deviation - a hump or depression that exceeds defined tolerances.

Smoothness Opportunity - a smoothness opportunity is considered to be any of the following; roadway milling, placement of a leveling course, in-place recycling, or placement of a lift of bituminous concrete. The final wearing surface is considered one smoothness opportunity.

Equipment:

The Contractor must have a 10' straightedge available during all paving operations.

The Contractor must also have a high speed or lightweight inertial profiling system that meets requirements of AASHTO M328 capable of collecting data in both wheelpaths simultaneously.

Prior to the start of corrective actions, the Contractor must provide to the Engineer:

1. Manufacturer, Make, and Model of the test system
2. Equipment Owner,
3. Relevant Certifications,
4. Manufacturer Calibration Procedures, and
5. Relevant Operator Training information.

Testing:

The Contractor is responsible for testing the pavement surface using an approved inertial profiler in accordance to manufacturer and AASHTO R57 from the start of paving limits to the end of pavement

limits. Testing must be performed 3 times in each lane paved in the direction of traffic flow. Testing must be performed within seven (7) days of completion of project paving operations in each location.

The Contractor is responsible for providing information relative to locations that are to be excluded from calculation of the International Roughness Index. These areas must still meet 10' straightedge requirements.

Areas that are to be tested but will be removed prior to IRI analysis are:

1. 50 feet prior to the first bridge deck expansion joint and 50 feet after the last expansion joint if a bridge deck is excluded from smoothness operations.
2. 50' longitudinally from the center of an existing obstruction within the test area such as a manhole, water main, or catch basin that impedes paving operations.
3. 50' longitudinally from transverse joints that separate it from existing pavement not included on this contract.

Areas that are not to be profiled but are still subject to 10' straightedge requirements are:

1. Shoulder areas
2. Parking lots
3. Ramps, Streets, or Acceleration / Deceleration lanes less than 1000' in length.

Submission Requirements:

Test results must be submitted to the Engineer within five working days of completion of testing. Results not received within the allotted time frame will be assessed a charge of $1,000.00 per day at the discretion of the Engineer.

The Contractor is required to submit summary table IRI reports from their test equipment for 1 run for each lane and direction of paving. This report must also include:

1. Profiling Company Name
2. Date of Test
3. Contract Number
4. Location Description
5. Testing Personnel

The Contractor is required to submit ERD files for each of the 3 tests run in each lane and direction of paving to the Engineer for analysis. The Contractor must provide to the Engineer written documentation indicating the start and end of bridges and the center of obstructions relative to the stationing used on the testing that are not subject to IRI analysis.

Acceptance and Payment:

Acceptance of the final pavement will be based on Engineer calculated IRI values using ProVAL software upon removal of allowable areas of exemption and the number of deviations found in the pavement surface. The IRI measurements will be calculated in 0.1 mile (528 foot) sections for payment purposes. The average value of the three test runs will be used and the average value will be rounded to the nearest tenth. Payments for each section will be based on estimated tonnage calculated from plan

thickness and widths using the average maximum specific gravity ("Rice") for all surface mix used at that location.

Deviations equal to or in excess of 0.25" in 10' are to be corrected at the Contractor's expense or will have a discount charge of $200.00 per deviation.

*Estimated Tonnage = [L*W*T) * Rice * 62.4 (lb/ft;)*(0.0005 tons / 12 in.)*

Where: L = Length Segment (ft.)
W = Lane Width (ft.)
T = Plan Thickness (in.)

*IRI Incentive / Disincentive = Estimated Tonnage * UP * (PA-100)/100*

Where: UP = Contract Unit Price (Dollars)
PA = Pay Adjustment (Table A)

The total pay adjustment for paving work performed on each location is:

*(3 IRI adj for each section) - Total Deviations * 200*

It is possible to receive incentive for IRI measurements and a discount charge for excessive deviations on the same project. If a 528' section has an IRI value resulting in a deduction of at least 84% of the section pay, the deviation discount charge for that section is disregarded and the IRI discount charge is the only action taken for that section.

Table A: Payment Adjustments for IRI	
Class 1	
IRI per 0.1 mile Segment (in./mi.)	**Pay Adjustment**
≤ 50	103%
> 50 and < 145	100+ 0.2(65- IRI)
≥ 145	84%
Class 2	
IRI per 0.1 mile Segment (in./mi.)	**Pay Adjustment**
≤ 60	106%
> 60 and < 170	100+ 0.2(90- IRI)
≥ 170	84%

Correction to the paving surface, such as diamond grinding with approved equipment, patching, or other measures may be taken at the Contractor's expense and at the Engineers discretion to correct pavement surfaces assessed a discount charge. The Engineer may require corrective actions including remove &

replace if the deviation discount charge exceeds 50% of the cost of materials or the IRI pay adjustment is 84%. Deviations must be corrected if it is determined that they are at a height or depth that may create a safety concern.

4/10/2019

401699 - QUALITY CONTROL/QUALITY ASSURANCE OF BITUMINOUS CONCRETE

.01 Description

This item shall govern the Quality Assurance Testing for supplying bituminous asphalt plant materials and constructing bituminous asphalt pavements and the calculation for incentives and disincentives for materials and construction. The Engineer will evaluate all materials and construction for acceptance. The procedures for acceptance are described in this Section. Include the costs for all materials, labor, equipment, tools, and incidentals necessary to meet the requirements of this specification in the bid price per ton for the bituminous asphalt. Payment to the Contractor for the bituminous asphalt item(s) will be based on the Contract price per ton and the pay adjustments described in this specification.

.02 Bituminous Concrete Production B Quality Acceptance

(a) Material Production - Tests and Evaluations.

All acceptance tests shall be performed by qualified technicians at qualified laboratories following AASHTO or DelDOT procedures and shall be evaluated using Quality Level Analysis. The Engineer will conduct acceptance tests. The Engineer will directly base acceptance on the acceptance test results, the asphalt cement quality, the Contractor=s QC Plan work, and the comparisons of the acceptance test results to the QC test results. The Engineer may elect to utilize test results of the Contractor in some situations toward judging acceptance.

Supply and capture samples, as directed by the Engineer under the purview of the Engineer from delivery trucks before the trucks leave the production plant. Hand samples to the Engineer to be marked accordingly. The sample shall represent the material produced by the Contractor and shall be of sufficient size to allow the Engineer to complete all required acceptance tests. The Engineer will direct the Contractor when to capture these samples, on a statistically random, unbiased basis, established before production begins each day based upon the anticipated production tonnage. The captured sample shall be from the Engineer specified delivery truck. The Contractor may visually inspect the specified delivery load during sampling and elect to reject the load. If the contractor elects to reject the specified delivery truck, each subsequent load will be inspected until a visually acceptable load is produced for acceptance testing. All visually rejected loads shall not be sent to a Department project.

The first sample of the production day will be randomly generated by the Engineer between loads 0 and 12 (0-250 tons). Subsequent samples will be randomly generated by the Engineer on 500-ton sub-lots for the production day. Samples not retrieved in accordance with the Contractor’s QC plan will be deemed unacceptable and may be a basis for rejection of material produced. Parallel tests or dispute resolution tests will only be performed on material captured at the same time and location as the acceptance test sample. Parallel test samples or Dispute Resolution samples will be created by splitting a large sample or obtaining multiple samples that equally represent the material. The Engineer will perform all splitting and handling of material after it is obtained by the Contractor.

The Contractor may retain dispute resolution samples or perform parallel tests with the Engineer on any acceptance sample.

The Engineer will evaluate and accept the material on a lot basis. All the material within a lot shall have the same JMF (mixture ID). The lot size shall be targeted for 2000 tons or a maximum period of three days, whichever is reached first. If the 2000th ton target lot size is achieved during a production day, the lot size shall extend to the end of that production day. The Contractor may interrupt the production of one JMF in order to produce different material; this type of interruption will not alter the determination of the size or limits of material represented by a lot. The Engineer will evaluate each lot on a sublot basis. The size for each sublot shall be 100 to 500 tons and testing for the sub lots will be completed on a daily basis. For each sublot, the Engineer will evaluate one sample.

The target size of sub-lots within each lot, except for the first sample of the production day, is equal-sized 500 ton sub lots and will be based upon anticipated production, however, more or fewer sublots, with differing sizes, may result due to the production schedule and conditions. If the actual production is less than anticipated, and it's determined a sample will not be obtained (based upon the anticipated tonnage), a new sample location will be determined on a statistically random, unbiased basis based upon the new actual production. If the actual production is going to be 50 tons or greater over the anticipated sub lot production, a new sample location will be determined on a statistically random, unbiased basis based upon the new actual production. The Engineer will combine the evaluation and test results for all of the applicable sublots in order to evaluate each individual lot.

If the Engineer is present, and the quantity exceeds 25 tons, a statistically random sample will be used for analysis. When the anticipated production is less than 100 tons and greater than 25 tons, and the Engineer is not present, the contractor shall randomly select a sample using the Engineer=s random location program. The captured sample shall be placed in a suitable box, marked to the attention of the Engineer, and submitted to the Engineer for testing. A box sample shall also be obtained by the contractor at the same time and will be used as the Dispute Resolution sample if requested by the Engineer. The Contractor shall also obtain one liquid asphalt sample (1 pint) per grade of asphalt used per day and properly label it with all pertinent information.

The Engineer will conduct the following tests in order to characterize the material for the pavement compaction quality and to judge acceptance and the pay adjustment for the material:

- AASHTO T312 - Preparing and Determining the Density of Hot Mix Asphalt (HMA) Specimens by Means of the Superpave Gyratory Compactor
- AASHTO T166, Method C (Rapid Method) - Bulk Specific Gravity of Compacted Hot Mix Asphalt (HMA) Using Saturated Surface Dry Specimens
- AASHTO T308 - Determining the Asphalt Binder Content of Hot Mix Asphalt (HMA) by the Ignition Method
- AASHTO T30 - Mechanical Analysis of Extracted Aggregate
- AASHTO T209 - Theoretical Maximum Specific Gravity and Density of Hot Mix Asphalt (HMA)
- ASTM D7227 - Standard Practice for Rapid Drying of Compacted Asphalt Specimens using Vacuum Drying Apparatus

(b) Pavement Construction - Tests and Evaluations.

The Engineer will directly base acceptance on the compaction acceptance test results, and on the inspection of the construction, the Contractor's QC Plan work, ride smoothness as referenced in the contract

documents, lift thickness as referenced in the contract documents, joint quality as referenced in the contract documents, surface texture as referenced in the contract documents, and possibly the comparisons of the acceptance test results to the independent test results. For the compaction acceptance testing, the Engineer will sample the work on a statistically random basis and will test and evaluate the work based on daily production.

Notify the Engineer of any locations within that road segment that may not be suitable to achieve minimum (93%) compaction due to existing conditions prior to paving the road segment. Schedule and hold a meeting in the field with the Engineer in order to discuss all areas that may potentially be applicable to Table 5a before paving starts. Areas that will be considered for Table 5a will be investigated in accordance with the method described in Appendix B. If this meeting is not held prior to paving, no areas will be considered for Table 5a. Areas of allowable exemptions that will not be cored include the following: partial-depth patch areas, driveway entrances, paving locations of less than 100 tons from cold joint to cold joint, areas around manholes and driveway entrances, and areas of paving that are under 400 feet in continuous total length and/or 5 feet in width.

The exempt areas around manholes will be a maximum of 4 feet transversely on either side from the center of the manhole, and 20 feet longitudinally on either side from the center of the manhole. The exempt areas around driveway entrances shall be the entire width of the driveway, and 3 feet from the edge of the longitudinal joint next to the driveway. Areas of exemption that will be cored for informational purposes only include: areas where the mat thickness is less than three times the nominal maximum aggregate size as directed by the Engineer, violations of Section 401.08 in the Standard Specifications as directed by the Engineer, and areas shown to contain questionable subgrade properties as proven by substantial yielding under a fully legally loaded truck. Failure to obtain core samples in these areas will result in zero payment for compaction regardless of the exempt status.

The Engineer will evaluate and accept the compaction work on a daily basis. Payment for the compaction will be calculated by using the material production lots as referenced in **.02 Acceptance Plan (a) Material Production - B Tests and Evaluation** and analyzing the compaction results over the individual days covered in the material production lot. The compaction results will be combined with the material results to obtain a payment for this item.

The minimum size of a compaction lot shall be 100 tons. If the compaction lot is between 101 and 1000 tons, the Engineer shall randomly determine four compaction acceptance test locations. If the compaction lot is between 1001 and 1500 tons, the Engineer shall randomly determine six compaction acceptance test locations. If the compaction lot is between 1501 and 2000 tons, the Engineer shall randomly determine eight compaction acceptance test locations. If the compaction lot is greater than 2000 tons, the Engineer shall randomly determine two compaction acceptance test locations per 500 tons.

If a randomly selected area falls within an Engineer approved exemption area, the Engineer will select one more randomly generated location to be tested per the requirements of this Specification. If that cannot be accomplished, or if an entire location has been declared exempt, the compaction testing shall be performed as per these Specifications, but a note will be added to the results that the location was an Engineer approved exempt location.

Testing locations will be a minimum of 1.0 feet from the newly placed longitudinal joint and 50 feet from a new transverse joint. Cut one six (6) inch diameter core through the full lift depth at the exact location marked by the Engineer. Cores submitted that are not from the location designated by the Engineer

will not be tested and will be paid at zero pay. Notify the Engineer prior to starting paving operations with approximate tonnage to be placed. The Contractor is then responsible for notifying the appropriate Engineer test personnel within 12 hours of material placement. The Engineer will mark core locations within 24 hours of notification. After determination of locations, the Contractor shall complete testing within two operational days of the locations being marked. If the cores are not cut within two operational days, the area in question will be paid at zero pay for compaction testing.

Provide any traffic control required for the structural number investigation, sampling, and testing work at no additional cost to the Department. Commence coring of the pavement after the pavement has cooled to a temperature of 140°F or less. Cut each core with care in order to prevent damaging the core. Damaged cores will not be tested. Label each core with contract number, date of construction, and number XX of XX upon removal from the roadway Place cores in a 6-inch diameter plastic concrete cylinder mold or approved substitute for protection. Separate cores in the same cylinder mold with paper. Attach a completed QC test record for the represented area with the corresponding cores. The Engineer will also complete a test record for areas tested for the QA report and provide to Materials & Research. Deliver the cores to the Engineer for testing, processing, and report distribution at the end of each production day. Repair core holes per Appendix A, Repairing Core Holes in Bituminous Asphalt Pavements. Core holes shall be filled immediately. Failure to repair core holes at the time of coring will result in zero pay for compaction testing for the area in question.

The Engineer will conduct the following tests on the applicable portion of the cores in order to evaluate their quality:

- AASHTO T166, Method C (Rapid Method) B Bulk Specific Gravity of Compacted Hot Mix Asphalt (HMA) Using Saturated Surface Dry Specimens
- AASHTO T209 - Theoretical Maximum Specific Gravity and Density of Hot Mix Asphalt
- ASTM D7227 - Standard Practice for Rapid Drying of Compacted Asphalt Specimens using Vacuum Drying Apparatus

The Engineer will use the average of the last five test values of the same JMF (mixture ID) material at the production plant in order to calculate the average theoretical maximum specific gravity of the cores. The average will be based on the production days test results and as many test results needed from previous days production to have an average of five samples. If there are less than five values available, the Engineer will use the JMF design value in addition to the available values to calculate the average theoretical maximum specific gravity.

.03 Payment and Pay Adjustment Factors

The Engineer will determine pay adjustments for the bituminous asphalt item(s) in accordance with this specification. The Engineer will determine a pay adjustment factor for the material produced and a pay adjustment factor for the pavement construction. Pay adjustments for material and construction will be calculated independently. When the pay adjustment calculation for either material or construction falls to zero payment per tables 4, 5, or 5a, the maximum pay adjustment for the other factor will not exceed 100.

Pay Adjustment factors will only be calculated on in place material. Removed material will not be used in payment adjustment calculations. Material Production Pay Adjustments will be calculated based upon 70% of the contract unit price and calculated according to section .03(a) of this specification. Pavement construction Pay Adjustments will be calculated based upon 30% of the contract unit price and

calculated according to section .03(b) of this specification.

(a) Material Production - Pay Adjustment.

Calculate the material pay adjustment by evaluating the production material based on the following parameters:

Table 2 - Material Parameter Weight Factors		
Material Parameter	**Single Test Tolerance (+/-)**	**Weight Factor**
Asphalt Content	0.4	0.30
#8 Sieve (>=19.0 mm)	7.0	0.30
#8 Sieve (<=12.5 mm)	5.0	0.30
#200 Sieve (0.075mm Sieve)	2.0	0.30
Air Voids (4.0% Target)	2.0	0.10

Using the JMF target value, the single test tolerance (from Table 2), and the test values, the Engineer will use the following steps to determine the material pay adjustment factor for each lot of material:

1. For each parameter, calculate the mean value and the standard deviation of the test values for the lot to the nearest 0.1 unit.
2. For each parameter, calculate the Upper Quality Index (QU):
   QU = ((JMF target) + (single test tolerance) - (mean value)) / (standard deviation).
3. For each parameter, calculate the Lower Quality Index (QL):
   QL = ((mean value) - (JMF target) + (single test tolerance)) / (standard deviation).
4. For each parameter, locate the values for the Upper Payment Limit (PU) and the Lower Payment Limit (PL) from Table 3 - Quality Level Analysis by the Standard Deviation Method. (Use the column for An@ representing the number of sublots in the lot. Use the closest value on the table when the exact value is not listed).
5. Calculate the PWL for each parameter from the values located in the previous step:
   PWL = PU + PL - 100.
6. Calculate each parameter=s contribution to the payment adjustment by multiplying its PWL by the weight factor shown in Table 2 for that parameter.
7. Add the calculated adjustments of all the parameters together to determine the Composite PWL for the lot.
8. From Table 4, locate the value of the Pay Adjustment Factor corresponding to the calculated PWL. When all properties of a single test are within the single test tolerance of Table 2, Pay Adjustment factors shall be determined by Column B. When any property of a single test is outside of the Single Test Tolerance parameters defined in Table 2, the Material Pay Adjustment factor shall be determined by Column C.
9. For each lot, determine the final material price adjustment:

Final Material Pay Adjustment =

(Lot Quantity) x (Item Bid Price) x (Pay Adjustment Factor) x 70%. This final pay calculation will be paid to the cent.

In lieu of being assessed a pay adjustment penalty, the Contractor may choose to remove and replace the material at no additional cost to the Department. When the PWL of any material parameter in Table 2 is below 60, the Engineer may require the removal and replacement of the material at no additional cost to the Department. Test results on removed material shall not be used in calculation of future PWL calculations for Mixture ID.

The test results from the Engineer on production that is less than 100 tons will be combined with the two most recently completed Engineer tests with the same Mixture ID to calculate payment for the lot encompassing the single test. If that cannot be accomplished, the approved JMF will be used to calculate payment for the lot encompassing the single test. Payment for previously closed lots will not be affected by the analysis.

When a sample is outside of the allowable single test tolerance for any Materials criteria in Table 2, that sample will be isolated. For payment purposes, the test result of the out of acceptable tolerance sample will be combined with the two previous acceptable samples of the same JMF and analyzed per this specification. The material that is considered out of the acceptable tolerance will only include the material within the represented sub-lot (i.e., a maximum of 500 tons). If the previous acceptable test result is from the previous production day, only the material produced on the second production day will be considered out of tolerance. All future sub lots will not include the isolated test. The pay factors for the out of tolerance sample lot will be calculated using column C of table 4.

If, during production, a QA sample test result does not meet the acceptable tolerances and the Contractors QC sample duplicates the QA sample test result, the Contractor can make an appropriate change to the mixture (within the JMF boundaries), and request to have that sample further isolated. After the Contractor has made appropriate changes, the Contractor will visually inspect each produced load. The first visually acceptable load will be sampled and tested. If that sample test result shows compliance with the specifications, the material that is considered out of the acceptable tolerance will include the material from the previous acceptable test result to the third load after the initially sampled and tested sample. If the sample does not meet the specification requirements, the Engineer will no longer accept material. Production may resume when changes have been made and an acceptable sample and test result is obtained.

Table 3 B Quality Level Analysis by the Standard Deviation Method

	QU and QL for An@ Samples						
PU or PL	**n = 3**	**n = 4**	**n = 5**	**n = 6**	**n = 7**	**n = 8**	**n = 9**
100	1.16	1.50	1.79	2.03	2.23	2.39	2.53
99	-	1.47	1.67	1.80	1.89	1.95	2.00
98	1.15	1.44	1.60	1.70	1.76	1.81	1.84
97	-	1.41	1.54	1.62	1.67	1.70	1.72
96	1.14	1.38	1.49	1.55	1.59	1.61	1.63
95	-	1.35	1.44	1.49	1.52	1.54	1.55

94	1.13	1.32	1.39	1.43	1.46	1.47	1.48
93	-	1.29	1.35	1.38	1.40	1.41	1.42
92	1.12	1.26	1.31	1.33	1.35	1.36	1.36
91	1.11	1.23	1.27	1.29	1.30	1.30	1.31
90	1.10	1.20	1.23	1.24	1.25	1.25	1.26
89	1.09	1.17	1.19	1.20	1.20	1.21	1.21
88	1.07	1.14	1.15	1.16	1.16	1.16	1.17
87	1.06	1.11	1.12	1.12	1.12	1.12	1.12
86	1.04	1.08	1.08	1.08	1.08	1.08	1.08
85	1.03	1.05	1.05	1.04	1.04	1.04	1.04
84	1.01	1.02	1.01	1.01	1.00	1.00	1.00
83	1.00	0.99	0.98	0.97	0.97	0.96	0.96
82	0.97	0.96	0.95	0.94	0.93	0.93	0.93
81	0.96	0.93	0.91	0.90	0.90	0.89	0.89
80	0.93	0.90	0.88	0.87	0.86	0.86	0.86
79	0.91	0.87	0.85	0.84	0.83	0.82	0.82
78	0.89	0.84	0.82	0.80	0.80	0.79	0.79
77	0.87	0.81	0.78	0.77	0.76	0.76	0.76
76	0.84	0.78	0.75	0.74	0.73	0.73	0.72
75	0.82	0.75	0.72	0.71	0.70	0.70	0.69
74	0.79	0.72	0.69	0.68	0.67	0.66	0.66
73	0.75	0.69	0.66	0.65	0.64	0.63	0.63
72	0.74	0.66	0.63	0.62	0.61	0.60	0.60
71	0.71	0.63	0.60	0.59	0.58	0.57	0.57
70	0.68	0.60	0.57	0.56	0.55	0.55	0.54
69	0.65	0.57	0.54	0.53	0.52	0.52	0.51
68	0.62	0.54	0.51	0.50	0.49	0.49	0.48
67	0.59	0.51	0.47	0.47	0.46	0.46	0.46
66	0.56	0.48	0.45	0.44	0.44	0.43	0.43
65	0.52	0.45	0.43	0.41	0.41	0.40	0.40
64	0.49	0.42	0.40	0.39	0.38	0.38	0.37
63	0.46	0.39	0.37	0.36	0.35	0.35	0.35

62	0.43	0.36	0.34	0.33	0.32	0.32	0.32

Table 3 B Quality Level Analysis by the Standard Deviation Method

	QU and QL for An@ Samples						
PU or PL	**n = 3**	**n = 4**	**n = 5**	**n = 6**	**n = 7**	**n = 8**	**n = 9**
61	0.39	0.33	0.31	0.30	0.30	0.29	0.29
60	0.36	0.30	0.28	0.27	0.27	0.27	0.26
59	0.32	0.27	0.25	0.25	0.24	0.24	0.24

Table 4 - PWL Pay Adjustment Factors

PWL	Pay Adjustment Factor (%) Column B	Pay Adjustment Factor (%) Column C
100	+5	0
99	+4	-1
98	+3	-2
97	+2	-3
96	+1	-4
95	0	-5
94	-1	-6
93	-2	-7
92	-3	-8
91	-4	-9
PWL<91	PWL - 100	PWL - 100

(b) Pavement Construction - Pay Adjustments.

The Engineer will determine the pavement construction pay adjustment by evaluating the construction of the pavement, based on the following parameter:

- Degree of compaction of the in-place material

Using the test values for the cores, the Engineer will use the following steps to determine the pavement construction pay adjustment for each lot of work.

1. Calculate the core bulk specific gravity values from the sublot tests values, to the nearest 0.001 unit. Obtain the Theoretical maximum Specific Gravity values from the corresponding laboratory sublot tests.
2. Calculate the Degree of Compaction:
   Degree of Compaction =
   ((Core Bulk Specific Gravity) / (Theoretical Maximum Specific Gravity)) x 100% recorded to the nearest 0.1%.
3. The average compaction for the sublots shall be averaged together for the compaction level of the lot. The lots compaction test level shall be averaged and recorded to the nearest whole percent.
4. Locate the value of the Payment Adjustment Factor corresponding to the calculated degree of compaction from Table 5 or Table 5a.

5. Determine the pavement construction price adjustment by using the following formula:
   Construction Pay adjustment = (Lot Quantity) x (Bid Price) x (Pay Adjustment Factor) x 30%.

Table 5: Compaction Price Adjustment Highway Locations

Degree of Compaction (%)	Range	Pay Adjustment Factor (%)*
>= 97.0	>= 96.75	1
96.5	96.26 B 96.74	1
96.0	95.75 B 96.25	1
95.5	95.26 B 95.74	1
95.0	94.75 B 95.25	1
94.5	94.26 B 94.74	1
94.0	93.75 B 94.25	1
93.5	93.26 B 93.74	3
93.0	92.75 B 93.25	5
92.5	92.26 B 92.74	3
92.0	91.75 B 92.25	0
91.5	91.26 B 91.74	0
91.0	90.75 B 91.25	-5
90.5	90.26 B 90.74	-15
90.0	89.75 B 90.25	-20
89.5	89.26 B 89.74	-25

89.0	88.75 B 89.25	-30
88.5	88.26 B 88.74	-50
=<88.0	=<88.25	-100*

*remove and replace it at Engineer's discretion for Pay adjustment factor equal to -100% or breaking the mat by crushing aggregate or displacing mixture.

Table 5A: Compaction Price Adjustment Other[1] Locations		
Degree of Compaction	Range	Pay Adjustment Factor (%)*
>= 97.0	>= 96.75	1
96.5	96.26 B 96.74	1
96.0	95.75 B 96.25	1
95.5	95.26 B 95.74	1
95.0	94.75 B 95.25	1
94.5	94.26 B 94.74	1
94.0	93.75 B 94.25	1
93.5	93.26 B 93.74	1
93.0	92.75 B 93.25	3
92.5	92.26 B 92.74	1
92.0	91.75 B 92.25	0
91.5	91.26 B 91.74	0
91.0	90.75 B 91.25	0
90.5	90.26 B 90.74	0
90.0	89.75 B 90.25	0
89.5	89.26 B 89.74	0
89.0	88.75 B 89.25	-1
88.5	88.26 B 88.74	-3
88.0	87.75 B 88.25	-5
87.5	87.26 B 87.74	-10
87.0	86.75 B 87.25	-15
86.5	86.26 B 86.74	-20
86.0	85.75 B 86.25	-25

85.5	85.26 B 85.74	-30
85.0	84.75 B 85.25	-40
84.5	84.26 B 84.74	-50
=< 84.0	=<84.25	-100*

* remove and replace at Engineer's discretion for Pay adjustment factor equal to -100% or breaking the mat by crushing aggregate or displacing mixture.

[1]This chart is to be used for areas where the structural value of the area to be paved is less than 1.75 as determined by the Engineer. See Appendix B - Method for Obtaining Cores for Determination of Roadway Structure. This chart is applicable to rehabilitation work only; full depth construction will not be considered for Table 5a.

.04 Dispute Resolution

Disputes or questions about any test result shall be brought to the attention of the Contractor and the Engineer within two operational days of reported test results. The following dispute resolution procedures will be used. The Engineer and the Contractor will review the sample quality, the test method, the laboratory equipment, and the laboratory technician. If these factors are not the cause of the dispute, a third-party dispute resolution will be used.

Third party resolution testing can be performed at either another Contractor=s laboratory, the Engineer=s laboratory, or an independent accredited laboratory. Unless otherwise mutually agreed upon by DAPA and the Engineer, the Engineer=s qualified laboratory in Dover and qualified personnel shall conduct the necessary testing for third party Dispute Resolution after the Engineer has provided reasonable notice to allow the Contractor to witness this testing. When disputes over production testing occur, the samples used for Dispute Resolution testing will be those samples the properly captured, labeled, and stored, as described in the second paragraph of the section of these specifications titled **.02 Acceptance Plan, (a) Material Production - Tests and Evaluations**. If no samples are available, the original testing results will be used for payment calculations.

Dispute Resolution samples for air void content will be heated by a microwave oven.

If there is a discrepancy between the Engineer=s acceptance test result and the Contractor=s test result, the Contractor may ask for the Dispute Resolution sample to be tested. The Contractor may request up to two dispute resolution samples be tested per calendar year without charge. Any additional Dispute Resolution samples run at the Contractors request where the results substantiate the acceptance test result will be assessed a fee of $125. Any additional Dispute Resolution samples that substantiate the Contractors test result will not be assessed the fee.

When disputes over compaction core test results occur, the Engineer=s acceptance core will be used for the dispute resolution sample. The Contractor will be advised on when the testing will occur as referenced above to witness the testing. The results of the dispute resolution testing shall replace all of the applicable disputed test results for payment purposes.

Appendix A - Repairing Core Holes in Bituminous Asphalt Pavement

Description.

This appendix describes the procedure required to repair core holes in a bituminous concrete pavement.

Materials and Equipment.

The following material shall be available to complete this work:

- Patch Material - DelDOT approved High Performance Cold Patch material shall be used.

The following equipment shall be available to complete this work:

- Sponge or other absorbent material - Used to extract water from the hole.
- Compaction Hammer - mechanical (electrical, pneumatic, or gasoline driven) tamping device with a flat, circular tamping face smaller than 6 inches in diameter.

Construction Method.

After core removal from the hole, remove all excess water from within the hole, and prevent water from re-entering the hole.

Place the patch material in lifts no greater than 3 inches and compact with mechanical tamping device. If the hole is deeper than 3 inches, use two lifts of approximately equal depths so that optimum compaction is achieved. Make sure that the patch surface matches the grade of the existing roadway. Make every effort to achieve the greatest possible compaction

Performance Requirements.

The Engineer will judge the patch on the following basis:

- The patch shall be well compacted
- The patch surface shall match the grade of the surrounding roadway surface.

Basis of Payment.

No measurement or payment will be made for the patching work. The Contractor must gain the Engineer=s acceptance of the patching work before the Engineer will accept the material represented by the core.

Appendix B - Method for Obtaining Cores for Determination of Roadway Structure

The Contractor is responsible for obtaining cores in areas that they propose are eligible for compaction price adjustments according to Table 5a in this specification. Table 5a is not applicable for new full-depth pavement box construction. Cores submitted for this process shall be obtained according to the following process.

1. Contact Materials & Research (M&R) personnel to determine if information about the area is already available. If M&R has already obtained cores in the location that is being investigated, the contractor may opt to use the laboratory information for the investigation and not core the area on their own.

2. If M&R does not have information concerning the section of the roadway, the contractor needs to contact M&R to arrange for verification of coring operations. Arrangements shall be made to allow for an individual from M&R to be on the site when the cores are obtained. Cores will be turned over to M&R for evaluation.

3. The Contractor is responsible for providing all traffic control and repairing core holes in accordance to 401699 Appendix A - Repairing Core Holes in Bituminous Asphalt Pavements.

4. Cores are to be taken throughout the entire project for the area in question. Cores will be spaced, from the start of the project in increments determined based on field and project specifics. Cores will be evenly distributed throughout the project location. The cores will be taken in the center of the lane in question.

5. Additional cores may be taken at other locations, if surface conditions indicate that there may be a substantial difference in the underlying section. The location of these cores should be documented and submitted to M&R.

6. Cores shall be full depth and include underlying materials. If there is a stone base included in the pavement section, at a minimum 1 core must have information concerning the thickness of the base. This is determined by augering to the subgrade surface.

7. The calculations used to determine the structural capacity of the roadway is as follows. If the contractor finds, upon starting the coring process, that the areas are of greater thickness than applicable to Table 5a, they may terminate the coring process on their own and retract the request.

Structural Number Calculations

Each pavement box material is assigned a structural coefficient based upon AASHTO design guides. The structural coefficient is used to determine the total strength of the pavement section.

Materials used in older pavement sections are assigned lower structural coefficients to compensate for aging of the materials. The coefficients used to determine the structural number of an existing pavement are:

Existing Material	Structural Coefficient
HMA	0.32
Asphalt Treated Base	0.26
Soil Cement	0.16
Surface Treatment (Tar & Chip)	0.10
GABC	0.14
Concrete	0 - 0.7*

* The Structural Coefficient of Concrete is dependent upon the condition of the concrete. Compressive strengths & ASR analysis are used to determine condition - contact the Engineer if this situation arises.

Newly placed materials use a different set of structural coefficients. They are as follows:

New Material	Structural Coefficient
HMA	0.40
Asphalt Treated Base (BCBC)	0.32
Soil Cement	0.20
GABC	0.14

Example:

Location includes placement of a 1.25" Type C overlay on 2.25" Type B. Existing roadway is cored and is shown to consist of 2" HMA on 7" GABC.

Calculation:

For the Type B lift the calculation would be:

Existing HMA	2 * 0.32	=	0.64
GABC	7 * 0.14	=	0.98
			1.62

For the Type C lift the calculation would be:

Newly Placed B	2.25 * 0.4	=	0.90
Existing HMA	2 * 0.32	=	0.64
GABC	7* 0.14	=	0.98
			2.52

4/21/2026

621500- TEMPORARY TIMBER MAT

Description.

The work consists of placing temporary timber mats for heavy equipment to access areas with wetlands, high water table and poor soils.

Materials.

A. Wood Section 1041

1. Temporary timber mats must have a strength and grade adequate to support anticipated vehicular or equipment loads. Environmentally safe preservative treatments for wet conditions must be applied to the matting and be preapproved by the Department.

B. Hardware Section 1041.5

Construction.

A. Submit Shop Drawings and design calculations to the Department for approval.

1. Indicate the layout, size of members, arrangement of members and the construction methods at least 2-weeks prior to initiating construction.
2. A temporary timber mat system shown on the plans will be used for conceptual purposes only.
3. Design the temporary timber mat system utilized for the construction for the anticipated construction loads, anchorage, resistance to high water flows, and compatibility with the environment.
4. Placement of stone within the wetland area is not permitted.

B. Inspect the temporary timber matting periodically and replace any damaged or deteriorated components as directed by the engineer.

C. Retrieve any lost mats and repair any damage caused by naturally occurring weather events.

Method of Measurement.

The Department will not measure temporary timber mats.

Basis of Payment.

A. The Department will pay for temporary timber mat system as a lump sum item. Payment will constitute full compensation for:

1. Providing and placing all materials;
2. submittals and Shop Drawings;

3. installation and removal; and

4. incidentals required to complete the Work.

B. The Department will grant no additional compensation for repairing any portion of the system damaged during naturally occurring weather events or usage.

10/18/23

763501 - CONSTRUCTION ENGINEERING
763597 – UTILITY CONSTRUCTION ENGINEERING

DESCRIPTION:

A. This work consists of construction lay out. Subsection 105.10 Construction Stakes, Lines and Grades will be replaced by this spec.

B. The Department will only establish the following:
   1. Original and final cross-sections for borrow pits.
   2. Final cross-sections:
      a. Top and bottom pay limit elevations for all excavation bid items that are not field measured by construction inspection personnel.
      b. The contractor shall notify the engineer when these pay limit elevations are ready and allow for a minimum of two calendar days for the engineer to obtain the information.
   3. Line and grade for extra work added on to the Plans.

C. When applicable, this work will also consist of providing construction and right-of-way/easement information to utility companies performing work (as defined in the Utility Statement) within the LOC.

MATERIALS:

Not applicable.

CONSTRUCTION METHODS:

A. Equipment
   1. Use and provide written certification that the equipment/instrument has been calibrated and is within manufacturer's tolerance. The certification shall be dated a maximum of 9-months before the start of construction. Renew the certification a minimum of every 9-months. The equipment/instrument shall have a minimum measuring accuracy of [3mm+2ppmxD] and an angle accuracy of up to 2.0-arc-seconds or 0.6-milligons.
   2. If the use of GPS technology in construction stakeout is chosen, provide the engineer with a GPS rover and automatic level for the duration of the contract. The GPS rover must be in good working condition and of similar make and model. Provide formal training on the GPS system being used to a maximum of 4, of the engineer’s appointees. The formal training must be up to 8-hours or to the satisfaction of the engineer. At the end of the contract, the engineer will return the GPS rover. If any of the equipment/instruments are found to be out of adjustment or inadequate to perform its function, they shall be immediately replaced to the satisfaction of the engineer.

3. Choosing to use GPS technology does not give the authority to use machine control. Construction Engineering (GPS) Machine Control Grading shall only be used if noted in the contract outlining the available files that will be provided and "the Release for delivery of documents in electronic form to a contractor" are signed by all parties prior to delivery of any electronic files. Only files designated in the contract shall be provided. If machine control grading is allowed on the project, see the machine control section of this specification. GPS technology and machine control technology shall not be used in the construction of bridges.

B. Engineering/Survey Staff

1. Provide and have available an adequate engineering staff that is competent and experienced to set lines, grades, and compatibility with the scope of the project. Additionally, employ an engineer or surveyor, licensed in the State of Delaware, to be responsible for the quality and accuracy of the work done by the engineering staff. When individuals or firms other than the contractor perform any professional services under this item, that work shall not be subject to the subcontracting requirements of Section 108.1. Assume full responsibility for any errors and/or omissions in the work of the engineering staff.

C. Performance Requirements

1. Construction Engineering shall include establishing:
   a. the survey points and survey centerlines;
   b. finding, referencing, offsetting the project control points;
   c. running a horizontal and vertical circuit to verify the precision of given control points.
2. Establishing plan coordinates and elevation marks for:
   a. culverts,
   b. slopes,
   c. subbase,
   d. subsurface drains,
   e. paving,
   f. subgrade,
   g. retaining walls,
   h. any other stakes required for control lines and grades.
3. Setting vertical control elevations for:
   a. footings,
   b. caps,
   c. bridge seats and deck screed.

4. Preserve the Department's project control points and benchmarks. Establish and preserve any temporary control points (traverse points or benchmarks) needed for construction. Any project control points (traverse points) or benchmarks conflicting with construction of the project shall be relocated. Replace any or all stakes that are destroyed at any time during the life of the contract as directed by the engineer. Re-establish centerline points and stationing prior to final cross-sections by the engineer. The vertical control error of closure shall not exceed 0.035-feet. The horizontal control precision ratio shall have a minimum precision of 1:20,000 feet of distance traversed prior to adjustment.
5. Perform construction centerline layout of all roadways, ramps, connections, and driveways from project control points set by the engineer. Use the profiles and typical sections provided in the plans shall calculate proposed grades at the edge of pavement or verify information shown on the Plans.
6. Advise the engineer of any horizontal or vertical alignment revisions needed to establish smooth transitions to existing facilities. Immediately bring to the attention of the engineer any potential drainage problem within the project limits. The engineer must approve any proposed variation in profile, width, or cross slope.
7. Establish the working points at centerlines of bearings on bridge abutments and on piers, mark the location of anchor bolts to be installed, check the elevation of bearing surfaces before and after they are ground, and set anchor bolts at their exact elevation and alignment in accordance with the contract. Before completion of the fabrication of beams for bridge superstructures, verify the locations, both vertically and horizontally, of all bearings and assume full responsibility for fabricated beams fitting and bearing as constructed. After beam erection and concurrently with the Department project surveyors or their designated representative, survey top of beam elevations at a maximum of 10-foot stations and compute screed grades. Submit the beam elevations to the engineer for review and approval before the stay-in-place forms are set. Construction stakes and other reference control marks shall be set at intervals as established by the engineer to assure that all components of the structure are constructed in accordance with the lines and grades shown on the plans. Take full responsibility for all structure alignment control, grade control and all necessary calculations to establish and set these controls.
8. Investigate proposed construction for possible conflicts with existing and proposed utilities. Report any conflicts to the engineer for resolution.

9. Stake all sidewalk and curb ramp grades in accordance with the contract. Review the stakeout with the engineer prior to construction. The engineer must approve any deviation from the Contract in writing.
10. Stake all drainage inlets in accordance with the Contract. The offsets and top of grate elevations need to be calculated for each type of drainage inlet specified in the contract in order to line up the drainage inlet's flow line with the specified curb or ditch flow line as shown in the contract. The engineer must approve any deviations from the Contract in writing.
11. If wetland areas are involved and specifically defined on the plans the following shall apply:
    a. Do not enter, damage, or destroy wetland areas, which exist beyond the LOC. These provisions will be strictly enforced, and all personnel shall understand the importance of these provisions.
    b. Delineate wetlands at the LOC throughout the entire project, before any clearing operations commence as shown on the plans to the satisfaction of the engineer.
    c. Use orange vinyl flagging material with "Wetland Boundary" printed on the flagging. In wooded areas, tie the flagging on the trees, at approximate 20-foot intervals through wetland areas. In open field and yard areas that have been identified as wetlands, drive 6-foot posts into the ground at approximate 50-foot intervals and tie with the flagging. The flagging shall extend approximately 12-inches in length beyond the post. Use oak posts with cross sectional dimensions of 1 1/2-inches to 2-inches by 1 1/2-inches to 2-inches or 1/4-inch rebar.
    d. If the flagging has been destroyed and the engineer determines that its use is still required, reflag the area. Flagging shall be replaced within 48-hours of notification that replacement is needed. After 48-hours the engineer may proceed to have the area reflagged.
    e. Remove all posts and flagging at Project acceptance.
    f. Assume any responsibility for any damages to wetlands located beyond the LOC, which occurs from his/her operations during the life of the contract. Restore all temporarily disturbed wetland areas to their preconstruction conditions.
12. Whenever the engineer will be recording data for establishment of pay limits, the Contractor will be invited to obtain the data jointly with the engineer's survey crew(s) in order to agree with the information. If the Contractor's representative is not able to obtain the same data, then the information obtained by the engineer shall be considered the information to be used in computing the quantities in question.

D. Submittals

1. All computations, survey notes, electronic files, and other records necessary to accomplish the work shall be preserved and made available to the Department in a neat and organized manner at any time as directed by the engineer. The engineer may check all or any portion of the stakeout survey work or notes and any necessary correction to the work shall be made as soon as possible. Provide the engineer with such assistance as may be required for checking all lines, grades, and measurements necessary for the execution of the work. Checking by the engineer shall not relieve responsibility for the accuracy or completeness of the work. Copies of all notes must be provided to the engineer at the completion of the Project.
2. Submit any of the following at the engineer's request:
    a. Proposed method of recording information in field books to ensure clarity and adequacy.
    b. A printout of horizontal control verification, as well as coordinates, differences, and error of closure for all reestablished or temporary control points.
    c. A printout of vertical control verification, with benchmark location elevation and differences from plan elevation.
    d. Sketch of location of newly referenced horizontal control, with text printout of coordinates, method of reference and field notes associated with referencing control - traverse closure report.
    e. Description of newly established benchmarks with location, elevation, and closed loop survey field notes - bench closure report
    f. All updated electronic and manuscript survey records.
    g. Stakeout plan for each structure and culvert.
    h. Computations for buildups over beams, screed grades, and overhang form elevations.
    i. A report showing differences between supplied baseline coordinates and field obtained coordinates, including a list of preliminary input data.
    j. Any proposed plan alteration to rectify a construction stakeout error, including design calculations, narrative and sealed drawings.
    k. Baseline for each borrows pit location.
    l. Detailed sketch of proposed overhead ground mounted signs or signals showing obstructions that may interfere with their installation.
    m. Copies of cut sheets.

E. Machine Control Grading

1. Machine control grading to be used on the project if authorized by the engineer.
2. Use of this procedure and equipment is intended for grading the subgrade surface; it is not intended for the use in constructing final surface grades.
3. Materials:
   a. Provide all equipment required to perform GPS machine control grading, including equipment needed by to verify the work to the engineer.
   b. Use manufacturer's GPS machine control equipment and system to achieve the grading requirements in accordance with the Contract.
4. Construction
   a. Convert the electronic data provided by the Department into the format required for the equipment.
   b. The Department will provide no additional electronic data.
   c. Perform at least one 500-foot test section with the selected GPS system to demonstrate the capabilities, knowledge, equipment, and experience to properly operate the system and meet acceptable tolerances. The engineer will evaluate and make the determination as to whether additional 500-foot test sections are required. Failure to demonstrate this ability to the satisfaction of the engineer, construct the project using conventional surveying and staking methods.
   d. DelDOT Responsibilities:
      i. The Department will set initial vertical and horizontal control points in the field for the project as indicated in the contract.
      ii. The Department will provide the project specific localized coordinate system.
      iii. The Department may provide data in an electronic format as indicated in the general notes.
         (1.) The information provided shall not be considered a representation of actual conditions to be encountered during construction. Providing this information does not relieve the responsibility of making an investigation of conditions to be encountered. This includes site visits and basing the bid on information obtained from these investigations, and the professional interpretations and judgments of the Contractor.
         (2.) The Department will develop and provide electronic data for use as part of the Contract in the format as indicated in the Plans.
      iv. The Department will provide the following electronic files:

(1.) ASCII data files with coordinates and elevations for proposed points as selected by the engineer.

(2.) Existing digital terrain model in .dtm file format compatible with software currently used by the Department.

(3.) Proposed digital terrain model in .dtm file format compatible with software currently used by the Department.

(4.) Design file in .dgn file format, that contains 3D features lines for the proposed design, 3D feature lines are for the proposed top surface elevation only.

v. The engineer will perform spot checks of the machine control grading results, surveying calculations, records, field procedures, and actual staking. If the work is not being performed in a manner that will assure accurate results, the engineer may order the work to be redone to the requirements of the contract. The engineer may also require the use of conventional surveying and staking.

e. Contractor's responsibilities:

i. No less than 2-weeks before the scheduled preconstruction meeting, submit to the engineer for review a written machine control grading work plan which shall include the equipment type, control software manufacturer and version, and proposed location of the local GPS base station used for broadcasting differential correction data to rover units.

ii. If the need to establish new control points, traverse from existing control points and verify to be accurate by conventional surveying techniques.

iii. Assume all risks and liabilities of any assumptions or manipulations marked from the electronic information provided or if chosen to develop a separate digital terrain model.

iv. Ensure that the electronic data provided will function in their machine control grading system.

v. Provide the engineer with a GPS rover and Automatic Level, for use during the duration of the contract. At the end of the contract, the GPS rover and Automatic Level will be returned. Provide a total of 8-hours of formal training on the GPS machine control system to the engineer and up to 3 additional Department appointees per rover.

vi. Review and apply the data provided by the Department to perform GPS machine control grading.

vii. Convert the electronic data provided by the Department into a format compatible with their system.

viii. At the beginning of each workday check and if necessary, recalibrate the GPS machine control system in accordance with the manufacturer's recommendations, or more frequently as needed to meet the requirements of the project.

ix. Meet the accuracy requirements as detailed per the Department’s standards.

x. Establish secondary control points at appropriate intervals and at locations along the length of the project. These points shall be outside the project limits and/or where work is performed. These points shall not to exceed 1000-foot intervals. The horizontal position of these points shall be determined by conventional survey traverse and adjustments from the original baseline control points. The conventional traverse shall meet or exceed the Department's Standards. The elevation of these control points shall be established using differential leveling from the project benchmarks, forming a closed loop. A copy of all new control point information including closure report shall be provided and approved by the engineer prior to construction activities. Assume responsibility for all errors resulting from these efforts and correct deficiencies to the satisfaction of the engineer.

xi. Provide stakes at all alignment control points, at every 500-foot stationing, and where required for coordination activities involving environmental agencies and utility companies.

xii. Set hubs, at a minimum of 500-foot intervals, at the top of finished grade at all hinge points on the cross section on the main line and at least 4 cross sections on side roads and ramps as directed by the engineer or as shown on the plans. Placement of a minimum of 4 control points outside the limits of disturbance for the excavation of borrow pits, Stormwater Management Ponds, and wetland mitigation sites. These control points shall be established using conventional survey methods for use by the engineer to check the accuracy of the construction.

xiii. Preserve all reference points and monuments that are identified and established by the engineer for the Project.

xiv. Provide control points and conventional grades stakes at critical points such as, PC's, PT's, superelevation points, and other critical points required for the construction of drainage and roadway structures.

xv. Follow the guidelines set forth in the "Geometric Geodetic Accuracy Standards and Specifications for Using GPS Relative Positioning Techniques" and follow a minimum of Second Order Class 1, (2-I) classification standards.

xvi. Automated equipment operations have a high reliance on accurate control networks from which to take measurements, establish positions, and verify locations and features. Therefore, a strong contract control network in the field which is the same or is strongly integrated with the project control used during the design of the contract is essential to the successful use of this technology with the proposed Digital Terrain Model (DTM). Consistent and well designed site calibration for all machine control operations are required to ensure the quality of the contract deliverables. The Contract Control Plan is intended to document which horizontal and vertical control will be held for these operations. Continued incorporation of the Base Station(s) as identified in the Contract Control Plan is essential to maintaining the integrity of positional locations and elevations of features. The Contract Control Plan shall be submitted to the Department for review and approval by the Departments Survey Section 3 weeks prior to the start of any machine control work. Operate and maintain all elements of the Machine Grade Control continuously once the operations begin until otherwise approved by the engineer.

5. Contract Control Plan:
   a. Develop and submit a Contract Control Plan for use of Machine Control Grading. Contract control includes all primary and secondary horizontal and vertical control which will be used for the construction contract. Upon the completion of the initial survey reconnaissance and control verification, but prior to beginning primary field operations, submit a Contract Control Plan document. The Contract Control plan shall be signed and sealed by a Delaware licensed Land Surveyor or Delaware Professional Engineer who oversees its preparation for acceptance by the engineer. The plan shall include the following:
      i. A control network diagram of all existing horizontal and vertical control recovered in the field as contract control.
      ii. Include a summary of the calculated closures of the existing control network, and which control has been determined to have been disturbed or out of tolerance from its original positioning.
      iii. An explanation of which horizontal and vertical control points will be held for construction purposes. If necessary, include all adjustments which may have been made to achieve required closures.
      iv. An explanation of what horizontal and vertical control (including base stations) was set to accomplish the required stakeout or automated machine operation. Include how the position of these new control points was determined.

v. Describe the proposed method and technique (technology and quality control) for utilizing the control to establish the existing and/or proposed feature location and to verify the completed feature location and/or measured quantity.

vi. A listing of the horizontal and vertical datums to be used and the combined factor to be used to account for ellipsoidal reduction factor and grid scale factor.

vii. If chosen to use machine control as a method of measuring and controlling excavation, fill, material placement or grading operations as a method of measuring and controlling excavation, fill, material placement or grading operations, the Control Plan shall include the method by which the automated machine guidance system will initially be site calibrated to both the horizontal and vertical contract control, and shall describe the method and frequency of the calibration to ensure consistent positional results.

F. Utility construction methods:

1. The engineer must approve all requests for Utility Construction Engineering before the work begins.
2. Instruct utility companies to submit their requests to the engineer. The engineer will decide if the requested work meets the criteria for Utility Construction Engineering or is normal Construction Engineering and pass the requests along with the decision.
3. The survey crew size shall be adequate to efficiently perform the work required and must be approved by the engineer.
4. Work covered under Utility Construction Engineering will fall into two categories:
   a. Engineering/surveying work that is not necessary for construction of the Project, staking the clear zone line, providing cut/fill grades at proposed utility pole locations, staking back of drainage structures, and staking right-of-way lines where construction of the Project (exclusive of utilities) is within the right-of-way.
   b. Engineering/surveying work that is necessary for construction but must be provided for utility companies well in advance of the need and will likely need to be redone later, as determined by the engineer. This can be any of the Construction Engineering work that when done early cannot be expected to remain undisturbed until needed for construction of the Project (non-utility).

METHOD OF MEASUREMENT:

A. The Department will not measure construction engineering.

B. The Department will measure the quantity of utility construction engineering as the number of hours the survey crew is in the field actively engaged in utility construction engineering work.

BASIS OF PAYMENT:

A. The Department will pay the lump sum unit bid price for this work. Price and payment constitute full compensation for:
   1. the work associated with construction engineering;
   2. providing all equipment and instruments;
   3. providing and placing stakes;
   4. flagging and any reflagging;
   5. reconstruction of work;
   6. all costs related to the development of separate digital terrain model;
   7. reestablishing reference points; and
   8. wetland restoration.

B. The Department will pay for utility construction engineering at the contract unit price per hour actively engaged in performing the work. Price and payment will constitute full compensation for:
   1. Office work;
   2. providing all labor;
   3. equipment;
   4. instruments;
   5. stakes; and
   6. other materials necessary to complete the Work.

C. The Department will make monthly payment in proportion to the amount of work done as determined by the engineer.

D. The Department will not make any adjustment in payment for any issues with equipment to operate the GPS machine control system for any construction items or be justification for granting contract time extension.

E. The Department will not make any consideration for any extension of Contract Time or additional compensation due to delays, corrective work, or additional work that may result from faulty and erroneous construction stakeout, surveying, and engineering required.

F. The Department will not make any adjustments for all liability, costs, or delays if the Contractor chooses to develop a separate digital terrain model.

2/9/23

801600 – MAINTENANCE OF TRAFFIC, ALL INCLUSIVE

DESCRIPTION:

This work consists of providing temporary traffic control to maintain vehicular, bicycle, and pedestrian traffic through the project work zone.

MATERIALS:

A. Crashworthy temporary traffic control devices per the DelDOT Temporary Traffic Control Approved Product List: https://deldot.gov/Business/prodlists/pdfs/APL_TTCDevices.pdf

B. Category I through Category III temporary traffic control devices, in accordance with MASH – Certification of compliance with MASH is required.
    1. Category I devices – The manufacturer or contractor may self-certify that the devices meet the MASH criteria.
    2. Category II and III devices – Provide devices selected from the Approved Products List and MASH eligibility letter, including all applicable attachments required for each type of device.

C. Submit documentation requesting approval of temporary traffic control devices 14-days before the start of work. Submission requirements and instructions for source information are listed on DelDOT's website: https://deldot.gov/Business/prodlists/index.shtml. The Department approves temporary traffic control devices based on:
    1. Self-Certification
    2. Approved products lists

CONSTRUCTION:

A. General Requirement.
    1. Place temporary traffic control devices in accordance with the contract and DE MUTCD. Follow the manufacturer's installation instructions.
    2. Maintain temporary traffic control devices throughout the project duration. Replace damaged temporary traffic control devices within 24-hours of notification or when directed by the engineer.
    3. Maintain temporary traffic control devices at a minimum in a "marginal" condition in accordance with the brochure entitled "Quality Guidelines for Temporary Traffic Control Devices," available from the American Traffic Safety Services Association (ATSSA). The engineer may reject a temporary traffic control device that does not meet the "marginal" condition.

4. Temporary traffic control devices are the contractor's property unless otherwise indicated in the contract.
5. Provide ATSSA traffic control supervisor in accordance with the contract.

B. General Temporary Traffic Control and Traffic Maintenance.

1. Maintain a work zone that protects the travelling public and persons working on the project. If necessary, implement additional safety measures not expressly required by the contract to ensure the safety of all persons.
    a. The contractor may adjust longitudinal dimensions for maintenance of traffic configurations to fit field conditions.
2. Inventory existing signs within the contract limits
    a. Maintain existing signs that must remain in place during the project as noted in the contract or as directed by the engineer.
    b. Remove other existing signs and store.
3. Always maintain access within the project limits.
    a. Businesses and residences.
        i. Coordinate temporary driveway or entrance closures for tie-in purposes with the engineer and the property owner in advance of the closures.
    b. Bus stops, unless otherwise directed by the contract or the engineer.
        i. Maintain an area for the bus vehicle to safely pick-up and drop-off passengers.
        ii. Provide an accessible path for pedestrians to safely access the bus stop.
    c. Bicycles and pedestrians.
        i. Maintain existing access for bicycles and pedestrians. If temporary sidewalk closures are necessary, install pedestrian detours in accordance with the DE MUTCD. Damage to existing sidewalk will be repaired at the Contractor's expense. Clear sidewalks of all construction debris at the end of each workday.
4. Conduct construction operations in a manner that minimizes delays to traffic.
    a. Follow the requirements of the memorandum titled, "Temporary Traffic Control within Intersections," of the DE MUTCD for work within intersections or in close proximity to intersections.
    b. Schedule work in the vicinity of traffic signals to minimize the time during which the signal operates without detection.
    c. Set temporary traffic control devices on the work zone side of the pavement marking, if possible, when closing a lane adjacent to an open lane.

d. Do not close lanes unless a construction activity requiring a lane closure is taking place or will take place within 1-hour of closure, except for buffer lanes on high volume or high-speed roadways. Reopen lanes immediately upon completing the work. Shorten the lane closure for moving operations as work progresses, and as traffic conditions warrant, to keep the length of the closure to a minimum. Conduct construction operations in a manner that minimizes disruption to traffic during peak hours and periods of heavy traffic flow. The Department will stop the contractor's operations if, in the opinion of the engineer, such operations are unnecessarily impeding traffic.

C. Notification to the engineer.

1. Notification of the engineer for road closures and detours.
    a. Submit notification no less than 14 calendar days before the start of detours and road closures.
    b. Obtain the approval of the chief traffic engineer, or designee, a minimum of 48-hours in advance of proposed restrictions beyond those specified in the contract.
2. Written notice to property owners, businesses, and residents.
    a. Provide written notice 48-hours in advance of the start of construction work including the following:
        i. The scope of work, working hours, anticipated start and completion dates, and a summary of construction activities that might interfere with property access.
        ii. A schedule and access coordination plan.
        iii. The contractor's name, address, and a Department contact phone number.
    b. Provide written verification to the engineer that the property owners and residents were notified.
        i. Failure to give proper notice may result in suspension of work in accordance with Section 104.2.D of the standard specifications.
3. Before obstructing a fire hydrant, notify the local 911 center and provide the engineer with written confirmation of the notice.

D. Pavement Edge Drop-offs and Vertical Differences.

1. At the end of each workday, correct all pavement edge drop-offs and vertical differences, in accordance with the DE MUTCD.
    a. Use TRM to accomplish this work unless the contract specifies an alternate method. Place TRM in accordance with the applicable sections of this specification.
2. When temporary elimination of a drop-off hazard is not possible, follow the requirements of Section 6G.20 of the DE MUTCD. Mark and protect the drop-off hazard with temporary

barriers, barricades, or warning signs.

3. Use steel plates to cover unprotected open trench areas accessible by vehicular traffic within the clear zone that will not receive backfill material before the end of the day.
    a. Provide and install steel plates in accordance with the Standard Construction Details.
    b. Submit steel plate shop drawings prepared and signed by a professional engineer registered in the State of Delaware when using steel plates larger than those specified in the Standard Construction Details. Obtain approval before starting construction. Ensure that the shop drawings:
        i. Show the intended method to brace, sheet, support, or shore the excavation to prevent a trench failure.
        ii. Show details of the plating design, the method of fastening the plates, plate thickness, span, bearing, and the method of preventing plate movement.
        iii. The Department will not allow use of steel plates between November 1 and March 31, without the engineer's approval.

E. Temporary Pavement Markings.

1. Apply temporary pavement markings at the end of each day's operation to all locations that require permanent pavement markings before returning traffic to unrestricted roadway use.
2. Match temporary pavement markings to the permanent pavement markings shown in the contract or as directed by the engineer.
    a. Maintain retroreflectivity levels in accordance with the applicable temporary pavement marking Section.
    b. Refresh temporary pavement markings as required or as directed by the engineer.
    c. Apply temporary pavement markings in accordance with the applicable temporary pavement marking Section, the DE MUTCD, and DelDOT's Temporary Pavement Markings Policy of the DE MUTCD, when the contract does not provide a layout for temporary markings.
3. Remove conflicting pavement markings as directed by the engineer in accordance with Section 868. The Department will not allow painting over the conflicting pavement markings unless specifically allowed by the contract.
4. When the contract does not provide existing pavement marking information, before beginning construction, submit detailed drawings showing the existing elements for each project location. Include lane and shoulder widths, turn lane lengths, locations of stop bars, turn arrows, crosswalks, and railroad crossings in the drawings.
5. The engineer may require changes to the final pavement markings.

F. Travel Lane and Road Closure Restrictions.

1. The Department will not allow travel lane, turn lane, ramp, or road closures on interstates, freeways, expressways, or principal arterials during the following holidays, unless otherwise noted in the contract:
    a. Christmas Day
    b. New Year's Day
    c. Memorial Day
    d. Independence Day
    e. Labor Day
    f. Thanksgiving Day
    g. Special Events
2. Keep lanes open for a period of time that depends on the day of the week that the legal or observed holiday falls. The following schedule determines the periods of time the lanes must remain open, unless otherwise allowed by the contract:

TABLE 1: DAY OF HOLIDAY LANE CLOSURES BY DAY OF THE WEEK	
Day of holiday or event	***Time all lanes must be open to traffic***
Sunday	12:00 PM Friday through 5:59 AM Monday
Monday	12:00 PM Friday through 11:59 PM Monday
Tuesday	12:00 PM Monday through 11:59 PM Tuesday
Wednesday	12:00 PM Tuesday through 11:59 PM Wednesday
Thursday	12:00 PM Wednesday through 11:59 PM Thursday
Thursday (Thanksgiving)	6:00 AM Wednesday through 11:59 PM Sunday
Friday	12:00 PM Thursday through 5:59 AM Monday
Saturday	12:00 PM Friday through 5:59 AM Monday

3. Do not close travel lanes or roads within 1-mile of a designated polling place during the primary and general elections that fall during an even numbered year.
4. Follow all additional restrictions that may apply as noted in the contract or as directed by the engineer.

G. Non-Compliance.

1. The Department will consider failure to comply with the requirements of this section as justification for suspension of work in accordance with Section 104.2.D of the standard specifications. The Department will continue assessing time charges until the contractor corrects the deficiencies.
2. Non-compliance includes:
    a. Failure to correct deficiencies within 24-hours of written deficiency notices related to temporary traffic control.
    b. Non-compliance with the DE MUTCD or the contract.

c. Unsafe operations.

d. Placement of non-compliant temporary traffic control devices.

METHOD OF MEASUREMENT:

The Department will not measure this item.

BASIS OF PAYMENT:

A. The Department will pay for temporary traffic control at the lump sum contract price. Price and payment will constitute full compensation for:

1. Maintenance of traffic activities accepted by the engineer;
2. supply, installation, maintaining, and removing maintenance of traffic devices as required to maintain traffic and as specified by the contract;
3. submitting TTCPs;
4. submitting certifications;
5. use of traffic cones;
6. correcting edge drop-offs;
7. providing and placing steel plates;
8. repairing damage to sidewalks and clearing debris; and
9. a certified ATSSA traffic control supervisor.

B. The Department will consider the cost to move temporary traffic control devices in accordance with the TTCPs or as necessary to address safety issues as included in this item.

C. If the contractor does not complete the contract work within the allowable contract time, including approved time extensions, the Department will hold the contractor responsible for providing and maintaining the necessary temporary traffic control devices required to complete remaining work. The Department will not pay for providing or maintaining traffic control beyond expiration of the contract time.

D. The Department will pay for:

1. Traffic officers in accordance with Section 806.
2. Flaggers in accordance with Section 811.

10/28/2024

STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

SHANTÉ A. HASTINGS
SECRETARY

UTILITY STATEMENT
FEBRUARY 16, 2026
STATE CONTRACT NO. T201907103
F.A.P. NO. N/A
PROJECT I.D. NO 19-07103
BR 1-084 ON N234 TWADDELL MILL ROAD OVER TRIBUTARY TO BRANDYWINE CREEK
NEW CASTLE COUNTY

The following utility companies may own and/or maintain facilities within the project limits:

Delmarva Power Electric

The following is a breakdown of the utilities involved, adjustments and/or relocations as required (all locations, offsets, lengths, working days and calendar days are approximate):

Delmarva Power Electric Distribution (DPL-E):
Delmarva Power Electric Distribution (Delmarva) maintains underground facilities within the project limits.

1. DPL-E maintains a 1 phase underground primary 12KV electric facilities in conduit on Twaddell Mill Road along the north side of the roadway (left of the construction alignment) which enters into the project limits at approximately Sta. 10+00, L10' to junction well at Sta. 10+98, L18'.
2. DPL-E maintains a 1 phase underground primary 12KV electric facilities in conduit across Twaddell Mill Road from the existing junction well at Sta. 10+98, L18' to an existing junction well at Sta. 11+02, R14'.
3. DPL-E maintains a 1 phase underground primary 12KV electric facilities in conduit on Twaddell Mill Road along the south side of the roadway (right of the construction alignment) from the existing junction well at Sta. 11+02 R14' to Sta. 11+40 R18' to where the electric facilities angles to cross the Tributary to Brandywine Creek.
4. DPL-E maintains a 1 phase underground primary 12KV electric facilities in conduit on Twaddell Mill Road along the south side of the roadway (right of the construction alignment) from Sta. 11+40 R18' the underground electric facilities cross the Tributary to Brandywine Creek to Sta. 13+00 R26' then follows the road around the curve at the intersection of Montchanin Road to travel south along the west side to leave the project limits at Sta. 13+22 R45'.

No DPL-E involvement is anticipated during the contract duration. The State's contractor must use caution while working in the area of the existing underground electric facilities. The State's contractor will perform all excavation and placement of the material by hand in the vicinity of the underground HDPE conduit line.

Delmarva's review is based upon information contained in DelDOT's **Final** Plans for contract **T201907103**, received on **02/17/2026** and all data available as of this date. Changes in the project scope or in the construction phasing outlined in the previously referenced plan submission may alter the utility company's ability to perform the work. Changes in the project scope or construction phasing may also alter the ability for the company to perform the work in the duration outlined above. Changes in the design or construction means and methods after the contract award date shall be coordinated with the utility company by the State's Contractor to ensure any possible impact is reviewed and approved by the utility. The cost of utility coordination is incidental to the contract. See "general notes" below for additional information.

Should the utility apertures be in conflict with the scope of work, the contractor shall coordinate directly with the utility company. Cost of any coordination with the utility companies shall be incidental to the contract.

Should any conflicts be encountered as a result of the contractor's means and methods during construction, the necessary relocation work shall be accomplished by the respective utility company and funded by the State's Contractor as described by the District Engineer. See General Utility Notes below.

The state contractor is advised to use caution when working in the area near any utility pole or the overhead cables. Contractor should verify clearance of existing ground to any aerial utility facility under which any truck and/or equipment is operated.

DelDOT has not planned for or coordinated with Delmarva Power -Electric Distribution for any temporary power outages, relocations, physical pole support for excavation nor arranged for the installation of insulation of any power line during this contract other than as outlined in the above description. Due to varying construction possibilities; if a contractors means-and-methods should require support from Delmarva Power to fulfill the requirement of 16 Del. C. § 7405B, OSHA Regulations Table A of § 1926.1408, other applicable federal, state or local law or regulation or the Contractor's company policy; it shall be at the Contractor's sole expense and the contractor shall directly coordinate this request with Delmarva Power. All costs associated with any temporary power outages, relocations, physical pole support for excavation or the installation of insulation of any power line during this contract shall be incidental, including the cost of the coordination, to the work being performed. The Department makes no guarantees that the request for any temporary power outages, relocation or the installation of insulation of any power line during this contract will be granted by Delmarva Power in part or in total; or during the time periods requested by the Contractor for construction purposes. Any proposed coordination with Delmarva Power shall be included in the contractor's CPM schedule. In addition, Delmarva Power will determine if these outages can be accommodated.

No working/existing Delmarva facilities can be taken out of service. These facilities will remain in place and active during the duration of this contract.

General

For exact location of electric facilities, please contact Miss Utility at (800) 282-8555.

Delmarva Power has a written requirement regarding working near overhead power lines.

Customer/Contractor Acknowledgement: Performing Work within Dangerous Proximity of High Voltage Lines:

"You are hereby notified by Delmarva Power that NO work can be performed within dangerous proximity to Delmarva's overhead lines and that you are required by law to comply with applicable OSHA regulations and the applicable state High Voltage Safety Act. Performance of any activity or causing any person, equipment, or things to come within dangerous proximity of Delmarva's overhead lines creates an extreme risk of severe injury or death. You are further notified that no activities may be conducted within dangerous proximity of Delmarva's overhead lines until mutually agreeable measures to prevent contact with overhead lines have been reached with Delmarva and Delmarva has provided you with written authorization to perform the activities.

Additionally, any work involving the use of a crane with intentions to remain outside of dangerous proximity, but within 20 feet of the Company's overhead lines, requires an Encroachment Prevention Plan in order to satisfy OSHA"

Delmarva Power relocations shown on highway plans are an approximate proposed location. Actual location of electric facilities could change due to field conditions or any unforeseen conflict.

To report a downed wire, call 1-800-898-8042.

For exact location of electric facilities, please contact Miss Utility at (800) 282-8555.

General Utility Notes:

Outside of the utility companies and facilities discussed above, no additional utility involvement is anticipated. Should any conflicts be encountered as a result of the State Contractor's means and methods during construction requiring adjustment and/or relocation, the necessary relocation work shall be accomplished by the respective utility company and funded by the State's Contractor as directed by the District Engineer. Following contract award date, the State's Contractor shall coordinate any and all potential changes including, but not limited to, identification of potential field conflict; changes in project construction scope; changes in construction phasing; or changes in contractor means and methods of construction with required parties, including the District Engineer and Utility Companies, for approval prior to finalizing and performing work. The State's Contractor shall provide utility companies with adequate notice (not less than 30 calendar days) prior to performing work once approved.

Any utility conflicts that are not readily discernable shall be coordinated by the State Contractor once the conflict is recognized. The time to complete any relocations/adjustments found to be necessary during construction of the highway project will depend on the nature of the work.

Once the State's contractor has given the Utility the advance notice required above, it is the responsibility of the State's contractor to have the work area prepared and accessible for the Utility to perform the tasks listed above. If the site conditions are not ready and the state contractor has given notice to the utility on when the work is to be accomplished, the State's Contractor shall be responsible for any extra cost incurred by the utility company and the State Contractor shall also be responsible for any time delays. Between when the required notice is given to the Utility and when the work is performed and completed, the coordination and scheduling of the Utility is the sole responsibility of the State's Contractor. All costs related to the coordination and scheduling of the utilities is incidental to the contract.

Any adjustments and/or relocations of municipally or county owned sewer or water facilities shall be performed by the State's Contractor in accordance with the respective agency's standard specifications as directed by the District Engineer. The State contractor shall coordinate any potential conflicts of municipally or county owned sewer or water facilities with facility owners and provide adequate notice to the municipally or county and to the District Engineer prior to performing work.

General Notes

1. **The Contractor's attention is directed to Section 105.9 of the DelDOT Standard Specifications (see the contract documents for applicable date/version to reference). The Contractor shall contact Delmarva811 (previously known as Miss Utility of Delmarva) at 1-800-282-8555 at least two working days prior to any excavation. The Contractor is responsible for the support and protection of all utilities when excavating. The Contractor is also responsible for ensuring proper clearances, including safety clearances, from overhead utilities for construction equipment. The Contractor is advised to check the site for access purposes for proposed equipment and, if necessary, make arrangements directly with the utility companies for field adjustments for adequate clearances.**

2. **The information shown in the Contract Documents, including the Utility Statement and the Utility Schedule contained herein, concerning the location, type and size of existing and proposed utilities, their locations, and construction timing has been compiled by the preparer based on information furnished by each of the involved Utility Companies. It shall be the responsibility of the State's Contractor to verify all information and coordinate with the Utility Companies prior to and during construction, as specified in Section 105.9 of the Standard Specifications.**

3. **It is understood and agreed that the Contractor has considered in his bid all permanent and temporary utility appurtenances in their present and relocated positions as shown on the plans or described in the Utility Statement or are readily discernible and that no additional compensation will be allowed for any delays, inconvenience, or damage due to any interference from the utility facilities and appurtenances or the operation of moving them, except that the Contractor may be granted an equitable extension of time. The Contractor's means and method of construction are not taken into account when known utility conflicts are identified. If the Contractor's means and method of construction create a utility conflict the Utility Statement will prevail in discussions with the utility and the Contractor.**

4. **The State's Contractor shall be responsible for any costs associated with any temporary outages; holding, bracing and shielding of utility facilities; temporary relocations; or permanent relocations that are not specifically identified in this Utility Statement or shown in the contract plan set.**

5. **The State's Contractor is responsible for rough grading as required by the roadway construction prior to the Utility Company's placing their proposed facilities, unless otherwise indicated on the plans and/or outlined elsewhere in the Contract Documents.**

6. **Coordination and cooperation among the Utility Companies and the State's Contractor are of prime importance. Therefore, the Contractor is directed to contact the following Utility Company representatives with any questions regarding this work prior**

to submitting bids and work schedules. Proposed work schedules should reflect the Utility Companies' proposed relocations. The Utility Companies and their contractors do <u>not</u> work on nights, weekends, or legal holidays.

COMPANY	NAME	PHONE	EMAIL
Comcast Cable	DarrenMarsteller, Americomm, LLC	(717) 509-7873 x 1002	dmarsteller@americomm-llc.com
Delmarva Power Electric Distribution	Tom Smith	(302) 283-5757	Thomas.Smith1@delmarva.com
Delmarva Power Gas	Fikayo Falade	(667) 313-0873	Fikayo.Falade@exeloncorp.com
Verizon Delaware, LLC	Joe Scelsa	(215) 789-7792	joseph.x.scelsa@verizon.com
Verizon Delaware, LLC	Darren Coppersmith, Sr., KCI	(410) 316-7974	darren.coppersmith@kci.com

7. **As outlined in Chapter 4 of the DelDOT Utilities Manual, individual utility companies are responsible for obtaining all required permits from municipal, State and federal government agencies and railroads prior to performing their work. This includes but is not limited to water quality permits/DNREC Water Quality Certification, DNREC Subaqueous Lands/Wetlands permits, DNREC Coastal Zone Consistency Certification, County Floodplain permits (New Castle County only), U.S. Coast Guard permits, US Army Corps 404 permits, sediment and erosion permits, and railroad crossing permits.**

8. **Individual utility companies are required to restore any areas disturbed in conjunction with their relocation work. If an area is disturbed by a utility company and is not properly restored, the Department may have the State's Contractor perform the necessary restoration. Any additional costs incurred as a result will be forwarded to the utility company.**

9. **16 Del. C., Chapter 74B, § 7405B requires notification to and mutually agreeable measures from the public utility operating the electric line for the any person intending to carry on any function, activity, work, or operation within dangerous proximity of any high voltage overhead electric lines. 16 Del. C., Chapter 74B, § 7402B defines "dangerous proximity" as "a distance up to and including 10 feet of high-voltage lines, or within such greater distances as may be set forth in the current editions and any subsequent revisions of the regulations of the United States Occupational Safety and Health Administration (29 C.F.R. § 1902.1 et seq.) and the National Electrical Safety Code." With that, all contractors/other utilities must maintain a minimum distance of 10 feet from all overhead energized lines unless otherwise required in OSHA or the NESC.**

10. **Any existing facilities that are comprised of hazardous materials will be removed by the Utility Company unless otherwise outlined in the contract documents or language above. Any existing facilities containing hazardous materials will be purged by the Utility Company unless otherwise outlined in the contract documents or language above.**

11. **In conjunction with bid preparation and prior to starting work, the State's Contractor shall confirm with all respective Utility Companies noted in this Utility Statement to have advance utility relocations that the advance relocations have in fact been accomplished as summarized herein.**

12. **Contractors are not permitted to draw water from any hydrant for any use, without the written permission of the municipality/water company having jurisdiction and proper metering and backflow prevention equipment in place.**

13. **Under no circumstances shall any valve box, manhole, handhole, or other at grade structure be paved over, filled, or knocked out of alignment during construction.**

DIVISION OF TRANSPORTATION SOLUTIONS

Prepared and Recommended by:

Deborah L Kukulich — Deborah.Kukulich@delaware.gov — March 16, 2026

Deborah L. Kukulich,
Utility Coordination Program Manager II

DATE

STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

SHANTÉ A. HASTINGS
SECRETARY

RIGHT OF WAY CERTIFICATE
STATE PROJECT NO. T201907103
F.A.P. NO. N/A for R/W

BR1-084 ON N234 ON TWADDELL MILL ROAD OVER TRIBUTARY TO BRANDYWINE CREEK

NEW CASTLE COUNTY

Certificate of Right-of-Way Status – 100%

Level 1

As required by 23 CFR, Part 635, and other pertinent Federal and State regulations or laws, the following certifications are hereby made in reference to this highway project:

All necessary real property interests have been acquired in accordance with current FHWA/State directives covering the acquisition of real property; and,

All necessary rights-of-way, including control of access rights when pertinent, have been acquired including legal and physical possession; and,

All project rights of way are currently available in accordance with the project right-of-way plans; and,

Any residential displaced individuals or families have been relocated to decent, safe and sanitary housing, or adequate replacement housing has been made available in accordance with the provisions of the current Federal Highway Administration (FHWA) directive(s) covering the administration of the Highway Relocation Assistance Program; and,

All occupants have vacated the lands and improvements; and,

The State has physical possession and the right to remove, salvage, or demolish any improvements acquired as part of this project, and enter on all land.

RIGHT OF WAY SECTION

Breanna Kovach, P.E.
Chief of Right-of-Way

April 29, 2026

STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

SHANTÉ A. HASTINGS
SECRETARY

April 21, 2026

ENVIRONMENTAL REQUIREMENTS

FOR

Contract Title: **BR 1-084 on N234 Twaddell Mill Road over Tributary to Brandywine Creek**

State Contract No.: **T201907103**

Federal Aid No.: **N/A**

PERMIT REQUIREMENTS:

The proposed construction work for this project requires permit approval from the agencies listed below. It is the responsibility of the contracting agency -- the Delaware Department of Transportation, Division of Transportation Solutions -- to obtain the necessary permits to ensure that the contractor complies with the requirements and conditions established by the regulatory agencies. Written authorization from the permitting agencies is required and paperwork for on-site posting is anticipated. The proposed work for this project will be authorized under the permits listed below:

REQUIRED PERMITS AND APPROVAL STATUS:

- U.S. Army Corps of Engineers (USACE) – Nationwide Permit #3 Maintenance (a) & (c)
    - No Pre-construction Notification (PCN) required
    - FYI Email sent on 4/7/2026
    - Expires on 3/15/2031
- Delaware Department of Natural Resources and Environmental Control (DNREC) Wetlands & Subaqueous Lands Section (WLSL) – Delaware Code Chapter 72, Section 7217, Special Exemption (b)
    - FYI Email sent on 4/7/2026
    - Concurrence received on 4/17/2026
- Delaware Coastal Zone Management (CZM) – Issued under Nationwide Permit (NWP) #3 Maintenance (a) & (c)
- DNREC Water Quality Certification (WQC) - Issued under Nationwide Permit (NWP) #3 Maintenance (a) & (c)
    - Project is not located in Critical Resource Waters
- NCC Department of Land Use (NCC) – New Castle County (NCC) Floodplain Permit
    - NCC Application # 20260261
    - FEMA Panel 10003C0338K
    - Expires on 10/14/2026
        - Permits are valid for 180 days. Contact the DelDOT Environmental Studies Section for an extension at DOT_EnvironmentalStudies@delaware.gov and/or 302-760-2259.

SPECIFIC REQUIREMENTS:

Compliance with all requirements of the permits is the responsibility of the contractor, who will follow all special conditions or requirements as stated within those permits. The contractor will be subject to penalties, fines, and the risk of shut down as mandated by laws governing permitting agencies if such conditions and requirements are violated or ignored. Therefore, all special conditions, general requirements, and/or other required provisions specified within the permits must be followed. Those obligations are indicated or listed within the permit package, which can be obtained from the DelDOT Contract Administration Office.

Additional requirements by DelDOT not specified within the permits, but listed below, are also the responsibility of the contractor. Noncompliance with these requirements may result in shut down of the project at the contractor's expense.

1. The contractor shall employ measures during construction to prevent spills of fuels or lubricants. If a spill should occur, efforts shall be undertaken to prevent its entry into wetlands, aquatic, or drainage areas. Any spills entering wetlands, aquatic, or drainage

areas shall be removed immediately. The Division of Water Resources (DNREC), Wetlands & Aquatic Protection Branch, 302-739-4691, shall be notified of any spill(s) within six (6) hours of their occurrence. That office will determine the effectiveness of spill and contamination removal and specify remediation efforts as necessary.

2. All construction debris, excavated material, brush, rocks, and refuse incidental to the work shall be placed either on shore above the influence of flood waters or on some suitable disposal site approved by the department.
3. The disposal of trees, brush, and other debris in any stream corridor, wetland surface water or any drainage ditch is prohibited.
4. There shall be no stockpiling of construction materials or temporary fills in wetlands or subaqueous lands unless otherwise specified on project plans and approved by permitting agencies that govern them. It is the contractor's responsibility to coordinate and secure those additional permits/amendments in deviating from the plan.
5. Construction debris shall be kept from entering adjacent waterways, wetlands, ground cover, or drainage areas. Any debris that enters these areas shall be removed immediately. Netting, mats, or establishing confined work areas in stages may be necessary to address these issues.
6. Refuse material resulting from routine maintenance of worker equipment and heavy machinery is prohibited from being disposed of or deposited onto or into the ground. All used oils and filters must be recycled or disposed of properly.
7. Use of harmful chemical wash water to clean equipment or machinery is discouraged. If undertaken, the residue water and/or material must be collected or contained such that it will be disposed of properly. It shall not be deposited or disposed of in waterways, streams, wetlands, or drainage areas.
8. The contractor shall follow all requirements as indicated in the Environmental Compliance Sheet. It is the contractor's responsibility to ensure that workers also follow this requirement. As part of the restrictions, please note the timetables reflected in the contract for the in-stream/water work for endangered species protection.
9. Fill material shall be free of oil and grease, debris, wood, general refuse, plaster and other pollutants, and shall contain no broken asphalt.

ENVIRONMENTAL COMPLIANCE SHEET:

Construction Restrictions

A) Fisheries – None

B) Endangered Species –

a. **Southern Rein Orchid (***Platanthera falva var. herbiola***)**: Follow stringent sedimentation and erosion control measures to avoid indirect impacts.

b. **Tricolored bat (***Perimyotis subflavus***)**: Only conduct tree clearing and trimming activities from August 1 to May 14, outside the pup season, and ensure that all tree removal and trimming occur within 100 feet of the road or rail surface.

C) Migratory birds –

a. If bridge work is proposed during the breeding season (April 15 to August 1), contact DelDOT Environmental Studies at DOT_EnvironmentalStudies@delaware.gov no more than 14 days prior to the start of work for a survey to determine if active nests are present. If the survey detects nesting activity, the following steps must be taken to avoid nest destruction and take, which is a violation of state law:

i. Only perform construction activities from August 2 to April 14;

ii. Or if construction cannot be performed from August 2 to April 14, a deterrent such as mesh netting must be used to block access to nesting sites on the underside of the bridge(s) in accordance with special provision 763623 – netting migratory bird exclusion. The material would need to be in place no later than April 14, the underside of the bridge(s) would need to be fully encapsulated, and the material must be left in place until construction begins.

Cultural Resources

- The Delaware State Historic Preservation Office concurred with a finding of No Historic Properties Affected dated 5/13/2025.
- Contractor access beyond the LOC (as identified on the construction plans) without prior approval from DelDOT Environmental Studies staff is prohibited. Should it be necessary to add additional access locations or staging/stockpiling areas, or otherwise modify the project scope, methods, or LOC, DelDOT Environmental Studies staff (DOT_EnvironmentalStudies@delaware.gov) must be contacted.

Protection of Resources

- Keep clearing in wetland areas to a minimum absolutely necessary for construction access. Support all equipment traversing wetlands and subaqueous land on mats. Payment for mats will be made under item 621500 – temporary timber mat, payment will be incidental to item 604004 – wetland access. In wetland areas that are cleared, no grubbing except where necessary to construct project components such as foundations and riprap protection is permitted. Cut vegetation flush with the ground (i.e. No disturbance of the root mat). Restore temporarily disturbed wetland areas to grade and seed with item 908017 – temporary grass seeding -wetlands (TGS-W).

- Use silt fence or construction safety fence along the limits of construction in all areas where water/wetlands are being impacted (as shown on environmental compliance sheets), and also in any area where water/wetlands exist within 20 feet of the limit of construction (as shown on construction plan sheets). Any contractor access beyond the limit of construction is strictly prohibited.
- Use sandbags or compost filter log (CFL) to secure silt fence at areas adjacent to wooded uplands/ all wetlands in lieu of trenching unless proper erosion and sediment control cannot be maintained. Remove sandbags and CFLS (and contents) in their entirety when no longer needed. Sandbags/CFLS used to secure the silt fence is incidental to item 905001 - silt fence. The environmental studies section (302-760-2259 or dot_environmentalstudies@delaware.gov) can provide further guidance regarding this method of installation.
- Clearly mark all trees to be removed with paint prior to the erosion and sediment control meeting. Make every reasonable effort to preserve large, mature trees by removing only the minimum number of trees necessary.

Stream Restoration and Riprap Treatment

- Follow the standard provision for item 707021 – channel bed fill in regard to the salvaging of on-site natural stream bottom material or the furnishing of off- site material. If sufficient sources for channel bed fill do not exist on-site, any new material must conform to the requirements of item 707021 – channel bed fill. Recess all riprap in the channel bottom (i.e. Below the water line) one foot below stream bed elevation and choke with borrow type 'b' so that all of the voids in the riprap are filled with specified material. Payment under item 209002 – borrow, type b. Cover the riprap with a minimum of 12" channel bed fill. Match the final channel elevations with existing elevations at the upstream and downstream project limits. Through the structure, elevations will be as noted on the plans. Payment under item 707021 – channel bed fill.
- Restore other areas of the channel bottom affected by construction (including, but not limited to, the location of sump pits, stabilized outfalls, temporary pipes and/or sandbag dikes and diversions) to existing conditions. Fill any cavities or scour holes resulting from construction activities with channel bed fill. Payment under item 707021 – channel bed fill.
- When all erosion and sediment control measures are removed and the stream returns to its natural flow conditions, the flow must remain above ground and above the riprap (i.e. The flow cannot be "lost" in the riprap or beneath the structure). If this is not achieved, the contractor will be required to take corrective action at the contractor's expense.
- Choke all riprap on the stream bank, outside the channel bed, with delaware #57 stone. Place just enough choke material to prevent the loss of channel bed fill or topsoil (depending on location as indicated below) through the riprap.

    - Beneath the bridge: after placing delaware #57 stone, perform a final choke of channel bed fill so that the riprap peaks are barely visible. Payment under item 707021 – channel bed fill. Delaware #57 stone is incidental to the riprap item.
    - All other locations: finish filling the voids with topsoil so that the riprap peaks are barely visible. Place an additional 6-inch topsoil layer on top of the riprap. Slope seeding will be done with item 908019 – streambank seed mix, seeding. Following the seeding operation, install item 908020 – erosion control blanket (ECB) mulch, or other blanket as shown on the plans. ECB at toe of slope can be either trenched in or stapled at 6" on center. Complete all work, starting with the initial choking with topsoil through the seeding and mulching prior to any rain event. Delaware #57 stone is incidental to the riprap item. All other items will be paid for under their respective items.
- The topsoil/seed/mulch can be placed before or after the removal of the stream diversion. If the placement occurs after stream diversion removal, use a turbidity curtain to minimize in-stream sedimentation.

The contractor shall pay special attention to specific construction requirements as indicated in the US Army Corps of Engineer Permit as well as the Environmental Compliance (EC) Sheet.

DelDOT Environmental Studies Section must be notified if there are any changes to the project methods, footprint, materials, or designs, to allow the Department to coordinate with the appropriate resource agencies (COE, DNREC, and SHPO), for approval at DOT_EnvironmentalStudies@delaware.gov and/or 302-760-2259.

Maia Lee

Environmental Specialist II

Environmental Stewardship

Delaware Department of Transportation

STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

SHANTÉ A. HASTINGS
SECRETARY

RAILROAD STATEMENT
For

State Contract No.: T201907103

Federal Aid No.: N/A

Project Title: BR 1-084 on N234 Twaddell Mill Road over Tributary to Brandywine Creek

The following railroad companies maintain facilities within the contract limits:

- ☐ Amtrak
- ☐ CSX
- ☐ State of Delaware Delmarva Central
- ☐ East Penn
- ☐ Maryland & Delaware
- ☐ Norfolk Southern
- ☐ Wilmington & Western
- ☐ Delmarva Central
- ☑ None

DOT Inventory No.: N/A No. Trains/Day: N/A Passenger Trains (Y / N): N/A

In accordance with 23 CFR 635, herein is the railroad statement of coordination (check one):

☑ No Railroad involvement.

☐ Railroad Agreement unnecessary but railroad flagging required. The contractor shall follow requirements stated in the DelDOT Maintenance of Railroad Traffic Item in the Special Provisions. Contractor shall coordinate railroad flagging with the DelDOT Railroad Coordinator at (302) 659-4087.

☐ Railroad Agreement required. The Contractor cannot begin work until the Agreement is complete and fully executed. Railroad related work to be undertaken and completed as required for proper coordination with physical construction schedules. The Contractor shall follow requirements stated in the DelDOT Maintenance of Railroad Traffic Item in the Special Provisions. Contractor shall coordinate railroad flagging with the DelDOT Railroad Coordinator at (302) 659-4087.

Approved As To Form:

DelDOT Railroad Coordinator

2/3/2026
DATE

SAMPLE AFFIDAVIT OF CRAFT TRAINING COMPLIANCE

(Actual form for signature will be provided to the awarded contractor)

(PROJECT NAME)
(CONTRACT NUMBER)

AFFIDAVIT OF CRAFT TRAINING COMPLIANCE

We, the contractor, hereby certify that we and all applicable subcontractors will abide by the contractor and subcontractor craft training requirements outlined below for the duration of the contract. Craft training must be provided by a contractor and/or subcontractor for each craft on a project for which there are Delaware Department of Labor approved and registered training programs or, if the contractor and/or subcontractor meets the requirements under Title 29, Chapter 69, Section 6960A.(b)(1)c.1.-3., payment may be made in accordance with Title 29, Chapter 69, Section 6960A.(b)(1)d. A list of crafts for which there are approved and registered training programs is maintained by the Delaware Department of Labor and can be found at: https://laborfiles.delaware.gov/main/det/apprenticeship/DE%20Craft%20Training%20Occupation%20List%20Effective%20March%201%202022.pdf. If you have questions regarding craft training programs, please submit all questions in writing to the Delaware Department of Labor at: apprenticeship@delaware.gov. ***This Affidavit of Craft Training Compliance must be submitted prior to contract execution***.

In accordance with Title 29, Chapter 69, Section 6960A.(a)(1), a contract relating to a public works project under § 6962 of Title 29 must include a craft training program for each craft in the project if at the time the contractor executes a public works contract, all of the following apply:

a. A project meets the prevailing wage requirement under Section 6960 of Title 29.
b. The contractor employs 10 or more total employees.
c. The project is not a federal highway project, except for the project under Section 6962(c)(11) of Title 29.
d. There is an apprenticeship program for a craft in the project on the list of crafts under Section 204(b)(2) of Title 19.

Pursuant to Title 29, Chapter 69, Section 6960A.(a)(2), ***a contractor must commit that all subcontractors provide craft training*** if paragraph (a)(1) of this section applies to the subcontractor. Failure to provide required craft training or payment on the project may subject the successful contractor and/or subcontractor(s) to penalties as outlined in Title 29, Chapter 69, Section 6960A.(d)(1)-(3).

Craft(s): _____

Contractor Name: _____

Contractor Address: _____

_____

_____

Contractor Program Registration Number(s) _____
On this line also indicate whether DE, Other State (identify) or US Registration Number

REVISED 8/10/2022

Or

☐ **A payment has been made in the amount established under Section 204(b)(2)b.2. of Title 19, for the craft into the Delaware Department of Labor's Apprenticeship and Training Fund.**

Or

☐ **Craft Training requirements are not applicable because:**

_____

Authorized Representative (typed or printed): _____

Authorized Representative (signature): _____

Title: _____

State of Delaware)
) ss:
County of _____)

Before me, a notary public, in and for said county and state, personally appeared, _____, who acknowledged to me that she/he did execute the foregoing instrument on behalf of _____.

IN TESTIMONY WHEREOF, I have subscribed my name and affixed my official seal this ____ day of _____ 20___.

_____
Notary Public

Commission Expires _____

THIS PAGE MUST BE SIGNED AND NOTARIZED TO BE CONSIDERED.

DelDOT

Delaware Department of Transportation
Quantity Sheet Summary

Proposal ID: T201907103

Project Descripton: BR 1-084 on N234 Twaddell Mill Road over Tributary to Brandywine Creek

NOT TO BE USED FOR BIDDING

Item Number	Description	Unit	Quantity
201000	CLEARING AND GRUBBING	LS	1
202000	EXCAVATION AND EMBANKMENT	CY	375
207003	STRUCTURE BACKFILLING	CY	950
207004	STRUCTURE EXCAVATION	CY	725
209006	BORROW, TYPE F	CY	45
211000	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	LS	1
301001	GABC	CY	185
302002	DELAWARE NO. 3 STONE	TON	35
302005	DELAWARE NO. 57 STONE	TON	50
401014	SUPERPAVE TYPE B, PG 64-22	TON	150
601022	REINFORCED CONCRETE PIPE, 60", CLASS III	LF	32
607012	CONCRETE MASONRY UNIT MODULAR BLOCK RETAINING WALLS	SF	980
706002	RIGHT-OF-WAY MARKER, CAPPED REBAR	EACH	9
707016	RIPRAP, R-5	TON	90
707021	CHANNEL BED FILL	CY	25
708001	GEOTEXTILES, STABILIZATION	SY	350
708003	GEOTEXTILES, RIPRAP	SY	250

This page is for information only. Do not use this page to submit a Bid.

Delaware Department of Transportation
Quantity Sheet Summary

Proposal ID: T201907103

Project Descripton: BR 1-084 on N234 Twaddell Mill Road over Tributary to Brandywine Creek

NOT TO BE USED FOR BIDDING

Item Number	Description	Unit	Quantity
762000	SAW CUTTING, BITUMINOUS CONCRETE	LF	105
763000	INITIAL EXPENSE/DE-MOBILIZATION	LS	1
763501	CONSTRUCTION ENGINEERING	LS	1
801600	MAINTENANCE OF TRAFFIC, ALL INCLUSIVE	LS	1
811001	FLAGGER, NEW CASTLE COUNTY	HOUR	40
811013	FLAGGER, NEW CASTLE COUNTY, OVERTIME	HOUR	10
905001	SILT FENCE	LF	700
906001	PORTABLE SEDIMENT TANK	EACH	1
906003	SUMP PIT	EACH	1
908004	TOPSOIL, 6" DEPTH	SY	650
908020	EROSION CONTROL BLANKET MULCH	SY	700
908023	STABILIZED CONSTRUCTION ENTRANCE	SY	10
909005	STREAM DIVERSION	LS	1
401005	SUPERPAVE TYPE C, 9.5 mm, PG 64-22 (CARBONATE STONE)	TON	70
909006	STILLING WELL	CY	5
207023	STRUCTURAL BACKFILL, BORROW TYPE C, PROVIDING ONLY	CY	950
209002	BORROW, TYPE B	CY	15

This page is for information only. Do not use this page to submit a Bid.

Delaware Department of Transportation
Quantity Sheet Summary

Proposal ID: T201907103

Project Descripton: BR 1-084 on N234 Twaddell Mill Road over Tributary to Brandywine Creek

NOT TO BE USED FOR BIDDING

Item Number	Description	Unit	Quantity
818001	SUPPLY OF ROADSIDE FLAT SHEET ALUMINUM SIGN PANEL, TYPE IV, RETROREFLECTIVE SHEETING	SF	16
818003	SUPPLY OF ROADSIDE FLAT SHEET ALUMINUM SIGN PANEL, TYPE XI, RETROREFLECTIVE SHEETING	SF	7
908017	TEMPORARY GRASS SEEDING	SY	650
908019	PERMANENT GRASS SEEDING, STREAMBANK	SY	650
908024	STABILIZED CONSTRUCTION ENTRANCE, TOPDRESSING	TON	2
908027	TEMPORARY GRASS SEEDING, WETLANDS	SY	10
621500	TEMPORARY TIMBER MAT	LS	1
207010	ROCK EXCAVATION FOR STRUCTURES AND TRENCHES	CY	10
819001	PROVIDE GALVANIZED TELESCOPING SIGN POST	EACH	1
819002	INSTALL OR REMOVE GALVANIZED TELESCOPING SIGN POST	EACH	1
819003	INSTALL OR REMOVE TRAFFIC SIGNS	EACH	5
861001	PERMANENT PAVEMENT STRIPING, EPOXY RESIN PAINT, 6"	LF	615
860004	TEMPORARY MARKINGS, LATEX, 4"	LF	615
862006	PERMANENT PAVEMENT STRIPING, ALKYD-THERMOPLASTIC, SYMBOL/LEGEND	SF	13
204000	TEST HOLE	CY	10

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