STATE OF DELAWARE

DEPARTMENT OF TRANSPORTATION

BID PROPOSAL

for

CONTRACT T201612001.01

CEDAR LANE ROAD AND MARL PIT ROAD INTERSECTION IMPROVEMENTS

NEW CASTLE COUNTY

ADVERTISEMENT DATE: July 1, 2019

COMPLETION TIME: 124 Calendar Days

SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
DELAWARE DEPARTMENT OF TRANSPORTATION
AUGUST 2016

Bids will be received in the Bidder's Room at the Delaware Department of Transportation's Administration Building, 800 Bay Road, Dover, Delaware prior to 2:00 P.M. local time **July 30, 2019**

Contract No.T201612001.01

CEDAR LANE ROAD AND MARL PIT ROAD INTERSECTION IMPROVEMENTS
NEW CASTLE COUNTY

GENERAL DESCRIPTION

LOCATION

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

DESCRIPTION

The improvements consist of furnishing all labor and materials forCedar Lane Road and Marl Pit Road Intersection Improvements, and other incidental construction in accordance with the location, notes and details shown on the plans and as directed by the engineer. This project will reconfigure the existing 4-way stop controlled intersection at cedar lane road and marl pit road to a roundabout. Shoulders will be added on the four approaches to the roundabout. Additionally, pedestrian improvements will be made by adding multi-use paths around the roundabout. The multi-use path will extend southward to the sidewalk on W. Middlepark Drive at the Parkside Development entrance and eastward along Marl Pit Road. The shared-use path on the east side will eventually be connected to sidewalks within the Parkside Subdivision by the developer. Drainage improvements will be incorporated within the project limits and infiltration facilities at the north and south ends of the project will reduce runoff from the project, and other incidental construction in accordance with the location, notes and details shown on the plans and as directed by the Engineer.

COMPLETION TIME

All work on this contract must be complete within 124 Calendar Days. The Contract Time includes an allowance for 20 Weather Days. It is the Department's intent to issue a Notice to Proceed such that work starts on or about September 16, 2019.

PROSPECTIVE BIDDERS NOTES:

1. BIDDERS MUST BE REGISTERED with DelDOT and request a cd of the official plans and specifications in order to submit a bid. Contact DelDOT at dot-ask@delaware.gov, or (302) 760-2031. Bids will be received in the Bidder's Room at the Delaware Department of Transportation's Administration Building, 800 Bay Road, Dover, Delaware prior to 2:00 P.M. local time July 30, 2019 unless changed via addendum.

2. QUESTIONS regarding this project are to be e-mailed to dot-ask@delaware.gov no less than six business days prior to the bid opening date in order to receive a response. Please include T201612001.01 in the subject line. Responses to inquiries are posted on-line at http://www.bids.delaware.gov.

3. PREQUALIFICATION REQUIREMENT - 29 Del.C. §6962 (c)(12)(a) requires DelDOT to include a performance-based rating system for contractors. The Performance Rating for each Contractor shall be used as a prequalification to bid at the time of bid. Refer to Contract ***'General Notices'*** for details. ***NEW***

4. **THE BID PROPOSAL software used by DelDOT has changed. We now use Bid Express.** This new software is an updated version of the previous software used and operates similarly. The cd you request from DelDOT contains the Bid Express file and its installation file. Bidders are to use the cd provided to enter their bid amounts into the Bid Express file. The Bid Express bid file must be printed and submitted in paper form along with the electronic bid file and other required documents prior to the Bid due date and time. (DelDOT is not utilizing web based electronic bidding for this project).

5. SURETY BOND - Each proposal must be accompanied by a deposit of either surety bond or security for a sum equal to at least 10% of the bid.

6. DRUG TESTING - Regulation 4104; The state Office of Management and Budget has developed regulations that require Contractors and Subcontractors to implement a program of mandatory drug testing for Employees who work on Large Public Works Contracts funded all or in part with public funds pursuant to 29 **Del.C.** §6908(a)(6). **Refer to the full REVISED requirements at the following link:** http://regulations.delaware.gov/register/december2017/final/21 DE Reg 503 12-01-17.htm

Note a few of the Drug Testing requirements;

* At bid submission - Each bidder must submit with the bid a single signed affidavit certifying that the bidder and its subcontractors has in place or will implement during the entire term of the contract a Mandatory Drug Testing Program that complies with the regulation, *the form is attached*;

* At least two business days prior to contract execution - The awarded Contractor shall provide to DelDOT copies of the Employee Drug Testing Program for the Contractor, and any other listed Subcontractors;

* Subcontractors - Contractors that employ Subcontractors on the job site may do so only after submitting a copy of the Subcontractor's Employee Drug Testing Program along with the standard required subcontractor information. A Subcontractor shall not commence work until **DelDOT** has approved the subcontractor in writing;

* Penalties for non-compliance are specified in the regulation.

7. No RETAINAGE will be withheld on this contract unless through the Prequalification Requirements.

8. EXTERNAL COMPLAINT PROCEDURE can be viewed on DelDOT's Website here, or you may request a copy by calling (302) 760-2555.

9. REMINDER; A copy of your firm's Delaware Business License must be submitted with your bid.

10. SECTION 106.06 BUY AMERICA Contract Requirement in the Delaware Standard Specifications for Road and Bridge Construction, August, 2016 does not apply to this contract.

11. AUGUST 2016 STANDARD SPECIFICATIONS apply to this contract. The Contractor shall make himself aware of any revisions and corrections (Supplemental Specifications, if any) and apply them to the applicable item(s) of this contract. The 2016 Standard Specifications can be viewed here.

11a. FLATWORK CONCRETE TECHNICIAN CERTIFICATION TRAINING:
Section 501.03, 503.03, 505.03, 610.03, 701.03 and 702.03 of the 2016 Standard Specifications require contractor's to provide an American Concrete Institute (ACI) or National Ready Mix Concrete Association (NRMCA) certified concrete flatwork technician to supervise all finishingof flatwork concrete. Concrete flatwork certification will be effective starting on June 1, 2018.

12. WINTER SUSPENSION:

A) An estimated 106 calendar day Winter Suspension is to occur from approximately mid-December 2019 through March 2020. This Winter Suspension is planned to occur between Phase 1 and Phase 2.

B) The Winter Suspension will start when there is a reasonable expectation of unfavorable weather in December 2019 and Phase 1 Work has been completed, or at the Engineer's discretion based on ambient weather conditions preventing productive work from continuing. The date of the Winter Suspension will be issued in writing by the Engineer. The Winter Suspension will end when there is a reasonable expectation of favorable weather to begin Work for Phase 2, on or about the end of March 2020. The end date for the Winter Suspension will be determined by the Engineer and written notice as to the resumption of time charges will be provided at least 10 days in advance.

C) During the Winter Suspension, the contractor will remain responsible for a limited scope of work, including Maintenance of Traffic, environmental and stormwater controls and all other requirements of Standard Specification Section 104.15, Contractor's Responsibility for the Work. The contractor will not be responsible for snow removal during the Winter Suspension.

D) Time charges will be stopped and Weather Days will not accrue during the Winter Suspension.

E) Include all costs related to the Winter Suspension in the prices bid for the respective contract items and the Initial Expense/De-Mobilization item.

13. Road User Costs (RUC) & Incentive/Disincentive:

Phase 2 of the Maintenance of Traffic Plan has Road User Costs associated with the detour of Cedar Lane Road and Marl Pit Road. As detailed in the plans, all work requiring the complete closure of Cedar Lane Road or Marl Pit Road must be completed within 21 Calendar Days from the first day of closure.

The Contractor will be paid at the rate of $10,000 per day, as an incentive for early completion, for each Calendar Day work is completed before the period of closure expires up to a maximum of 7 Calendar Days. A full day's incentive will be paid if both roads are fully reopened to traffic by 6:00 AM.

Should the Contractor fail to complete work and reopen Cedar Lane Road and Marl Pit Road to regular operation within the allotted road closure duration, the Department will deduct from payment due the Contractor a Road User Cost of $10,000 per each Calendar Day beyond the allotted road closure duration. A full day's Road User Cost will be assessed if both roads are not fully reopened to traffic by 6:00 AM.

The Contractor shall notify the Engineer in writing, a minimum of two weeks in advance, of the intent to begin the detour of the Cedar Lane Road and Marl Pit Road Intersection. The detour shall not begin without written approval from the Engineer. After the roads are reopened to regular operations, no additional closures shall be permitted, except for Type C paving and minor punch-list type work, as approved by the Engineer.

STATE OF DELAWARE
CONSTRUCTION ITEMS UNITS OF MEASURE

English Code	English Description	Multiply By	Metric Code	Metric Description	Suggested CEC Metric Code
ACRE	Acre	0.4047	ha	Hectare	HECTARE
BAG	Bag	N/A	Bag	Bag	BAG
C.F.	Cubic Foot	0.02832	m^3	Cubic Meter	M3
C.Y.	Cubic Yard	0.7646	m^3	Cubic Meter	M3
EA-DY	Each Day	N/A	EA-DY	Each Day	EA-DY
EA-MO	Each Month	N/A	EA-MO	Each Month	EA-MO
EA/NT	Each Night	N/A	EA-NT	Each Night	EA/NT
EACH	Each	N/A	EA	Each	EACH
GAL	Gallon	3.785	L	Liter	L
HOUR	Hour	N/A	h	Hour	HOUR
INCH	Inch	25.4	mm	Millimeter	MM
L.F.	Linear Foot	0.3048	m	Linear Meter	L.M.
L.S.	Lump Sum	N/A	L.S.	Lump Sum	L.S.
LA-MI	Lane Mile	1.609	LA-km	Lane-Kilometer	LA-KM
LB	Pound	0.4536	kg	Kilogram	KG
MFBM	Thousand Feet of Board Measure	2.3597	m^3	Cubic Meter	M3
MGAL	Thousand Gallons	3.785	kL	Kiloliter	KL
MILE	Mile	1.609	km	Kilometer	KM
S.F.	Square Foot	0.0929	m^2	Square Meter	M2
S.Y.	Square Yard	0.8361	m^2	Square Meter	M2
SY-IN	Square Yard-Inch	0.8495	m^2-25 mm	Square Meter-25 Millimeter	M2-25 MM
TON	Ton	.9072	t	Metric Ton (1000kg)	TON
N.A.*	Kip	4.448	kN	Kilonewton	N.A.*
N.A.*	Thousand Pounds per Square Inch	6.895	MPa	Megapascal	N.A.*

*Not used for units of measurement for payment.

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GENERAL NOTICES

SPECIFICATIONS:

The specifications entitled "Standard Specifications for Road and Bridge Construction, August, 2016", hereinafter referred to as the Standard Specifications, and Supplemental Specifications, the Special Provisions, notes on the Plans, this Bid Proposal, and any addenda thereto shall govern the work to be performed under this contract. The Specifications and Supplemental Specifications can be viewed here.

CLARIFICATIONS:

Under any Section or Item included in the Contract, the Contractor shall be aware that when requirements, responsibilities, and furnishing of materials are outlined in the details and notes on the Plans and in the paragraphs preceding the " Basis of Payment" paragraph in the Standard Specifications or Special Provisions, no interpretation shall be made that such stipulations are excluded because reiteration is not made in the "Basis of Payment" paragraph.

ATTESTING TO NON-COLLUSION:

The Department requires as a condition precedent to acceptance of bids a sworn statement executed by, or on behalf of, the person, firm, association, or corporation to whom such contract is to be awarded, certifying that such person, firm, association, or corporation has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with such contract. The form for this sworn statement is included in the proposal and must be properly executed in order to have the bid considered.

QUANTITIES:

The quantities shown are for comparison of bids only. The Department may increase or decrease any quantity or quantities without penalty or change in the bid price.

PREQUALIFICATION REQUIREMENT

NEW

29 Del.C. §6962 (c)(12)(a) requires a Department of Transportation project, excluding a Community Transportation Fund or municipal street aid contract, to include a performance-based rating system. At the time of bid, the Performance Rating for each Contractor shall be used as a prequalification to bid.

Bidders with Performance Rating scores equal to or greater than 85% shall be permitted to bid. Bidders with scores of less than 85% who comply with the retainage requirements of 29 Del.C. §6962 shall be permitted to bid provided the *Agreement to Accept Retainage* (located on the Certification Page) is executed and submitted with the bid. Lack of an executed *Agreement to Accept Retainage* will result in the rejection of the bid by the Department. Successful bidders awarded Department contracts who have no performance history within the last five (5) years will be assigned a provisional Performance Rating of 85% at the date of advertisement.

Notification of Performance Rating. The Department shall post publicly the Performance Rating for all Contractors on the Department's website. DelDOT will complete performance-based evaluations on the construction company contracted by the Department to build the project (the "Contractor"). Provisions to appeal Performance Ratings are described in the regulations. The regulations are set forth in Section 2408 of Title 2, Delaware Administrative Code, found here.

PREFERENCE FOR DELAWARE LABOR:

Delaware Code, Title 29, Chapter 69, Section 6962, Paragraph (d), Subsection (4)b:

> "In the construction of all public works for the State or any political subdivision thereof, or by firms contracting with the State or any political subdivision thereof, preference in employment of laborers, workmen or mechanics shall be given to bona fide legal citizens of the State who have established citizenship by residence of at least 90 days in the State. Each public works contract for the construction of public works for the State or any political subdivision thereof shall contain a stipulation that any

person, company or corporation who violates this section shall pay a penalty to the Secretary of Finance equal to the amount of compensation paid to any person in violation of this section."

EQUALITY OF EMPLOYMENT OPPORTUNITY ON PUBLIC WORKS:

Delaware Code, Title 29, Chapter 69, Section 6962, Paragraph (d), Subsection (7) states;

a. As a condition of the awarding of any contract for public works financed in whole or in part by State appropriation, such contracts shall include the following provisions:

During the performance of this contract, the contractor agrees as follows:

1. The contractor will not discriminate against any employee or applicant for employment because of race, creed, color, sex, sexual orientation, gender identity or national origin. The contractor will take positive steps to ensure that applicants are employed and that employees are treated during employment without regard to their race, creed, color, sex, sexual orientation, gender identity or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places available to employees and applicants for employment notices to be provided by the contracting agency setting forth this nondiscrimination clause.
2. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, creed, color, sex, sexual orientation, gender identity or national origin.
3. The contractor will ensure employees receive equal pay for equal work, without regard to sex. Employee pay differential is acceptable if pursuant to a seniority system, a merit system, a system which measures earnings by quantity or quality of production, or if the differential is based on any other factor other than sex.

TAX CLEARANCE:

As payments to each vendor or contractor aggregate $2,000, the Division of Accounting will report such vendor or contractor to the Division of Revenue, who will then check the vendor or contractor's compliance with tax requirements and take such further action as may be necessary to insure compliance.

LICENSE:

A person desiring to engage in business in this State as a contractor shall obtain a license upon making application to the Division of Revenue.

CONTRACTOR / SUBCONTRACTOR LICENSE: 29 DEL. C. §6967:

(b) No agency shall accept a proposal for a public works contract unless such contractor has provided a proper and current copy of its occupational and/or business license, as required by Title 30, to such agency.

(c) Any contractor that enters a public works contract must provide to the agency to which it is contracting, within 30 days of entering such public works contract, copies of all occupational and business licenses of subcontractors and/or independent contractors that will perform work for such public works contract. However, if a subcontractor or independent contractor is hired or contracted more than 20 days after the contractor entered the public works contract the occupational or business license of such subcontractor or independent contractor shall be provided to the agency within 10 days of being contracted or hired.

DIFFERING SITE CONDITIONS,

SUSPENSIONS OF WORK and SIGNIFICANT CHANGES IN THE CHARACTER OF WORK:

Differing site conditions: During the progress of the work, if subsurface or latent physical conditions are encountered at the site differing materially from those indicated in the contract of if unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the contract are encountered at the site, the party discovering such conditions shall promptly notify the other party in writing of the specific differing conditions before they are disturbed and before the affected work is performed.

Upon written notification, the engineer will investigate the conditions, and if he/she determines that the conditions materially differ and cause an increase or decrease in the cost or time required for the performance of any work under the contract, an adjustment, excluding loss of anticipated profits, will be made and the

contract modified in writing accordingly. The engineer will notify the contractor of his/her determination whether or not an adjustment of the contract is warranted.

No contract adjustment which results in a benefit to the contractor will be allowed unless the contractor has provided the required written notice.

No contract adjustment will be allowed under their clause for any effects caused on unchanged work.

Suspensions of work ordered by the engineer: If the performance of all or any portion of the work is suspended or delayed by the engineer in writing for an unreasonable period of time (not originally anticipated, customary or inherent to the construction industry) and the contractor believes that additional compensation and/or contract time is due as a result of such suspension or delay, the contractor shall submit to the engineer in writing a request for adjustment within 7 calendar days of receipt of the notice to resume work. The request shall set fourth the reasons and support for such adjustment.

Upon receipt, the engineer will evaluate the contractor's request. If the engineer agrees that the cost and/or time required for the performance of the contract has increased as a result of such suspension and the suspension was caused by conditions beyond the control of and not the fault of the contractor, its suppliers, or subcontractors at any approved tier, and not caused by weather, the engineer will make an adjustment (excluding profit) and modify the contract in writing accordingly. The engineer will notify the contractor of his/her determination whether or not an adjustment of the contract is warranted.

No contract adjustment will be allowed unless the contractor has submitted the request for adjustment within the time prescribed.

No contract adjustment will be allowed under this clause to the extent that performance would have been suspended or delayed by any other cause, or for which an adjustment is provided for or excluded under any other term or condition of this contract.

Significant changes in the character of work: The engineer reserves the right to make, in writing, at any time during the work, such changes in quantities and such alterations in the work as are necessary to satisfactorily complete the project. Such changes in quantities and alterations shall not invalidate the contract nor release the surety, and the contractor agrees to perform the work as altered.

If the alterations or changes in quantities significantly change the character of the work under the contract, whether or not changed by any such different quantities or alterations, an adjustment, excluding loss of anticipated profits, will be made to the contract. The basis for the adjustment shall be agreed upon prior to the performance of the work. If a basis cannot be agreed upon, then an adjustment will be made either for or against the contractor in such amount as the engineer may determine to be fair and equitable.

The term "significant change" shall be construed to apply only to the following circumstances:

(A) When the character of the work as altered differs materially in kind or nature from that involved or included in the original proposed construction or

(B) When a major item of work, as defined elsewhere in the contract, is increased in excess of 125 percent or decreased below 75 percent of the original contract quantity. Any allowance for an increase in quantity shall apply only to that portion in excess of 125 percent of original contract item quantity, or in case of a decrease below 75 percent, to the actual amount of work performed.

RIGHT TO AUDIT

The Department shall have the right to audit the books and records of the contractor or any subcontractor under this contract or subcontract to the extent that the books and records relate to the performance of the contract or subcontract. The books and records shall be maintained by the contractor for a period of 3 years from the date of final payment under the prime contract and by the subcontractor for a period of 3 years from the date of final payment under the subcontract (*29 Del.C. §6930*)

PREVAILING WAGES

Included in this proposal are the minimum wages to be paid various classes of laborers and mechanics as determined by the Department of Labor of the State of Delaware in accordance with Title 29 Del.C. §6960, relating to wages and the regulations implementing that Section.

REQUIREMENT BY DEPARTMENT OF LABOR FOR SWORN PAYROLL INFORMATION

Title 29 Del.C. §6960 stipulates;

(b) Every contract based upon these specifications shall contain a stipulation that the employer shall pay all mechanics and laborers employed directly upon the site of the work, unconditionally and not less often than once a week and without subsequent deduction or rebate on any account, the full amounts accrued at time of payment, computed at wage rates not less than those stated in the specifications, regardless of any contractual relationship which may be alleged to exist between the employer and such laborers and mechanics. The specifications shall further stipulate that the scale of wages to be paid shall be posted by the employer in a prominent and easily accessible place at the site of the work, and that there may be withheld from the employer so much of accrued payments as may be considered necessary by the Department of Labor to pay to laborers and mechanics employed by the employer the difference between the rates of wages required by the contract to be paid laborers and mechanics on the work and rates of wages received by such laborers and mechanics to be remitted to the Department of Labor for distribution upon resolution of any claims.

(c) Every contract based upon these specifications shall contain a stipulation that sworn payroll information, as required by the Department of Labor, be furnished weekly. The Department of Labor shall keep and maintain the sworn payroll information for a period of 6 months from the last day of the work week covered by the payroll.

Bidders are specifically directed to note the Department of Labor's prevailing wage regulations implementing §6960 relating to the effective date of the wage rates, at Section 6.3, which in relevant part states:

"Public agencies (covered by the provisions of 29 Del.C. §6960) are required to use the rates which are in effect on the date of the publication of specifications for a given project. In the event that a contract is not executed within one hundred twenty (120) days from the date the specifications were published, the rates in effect at the time of the execution of the contract shall be the applicable rates for the project."

Contractor may contact:

Department of Labor, Division of Industrial Affairs, 4425 N. Market Street, Wilmington, DE 19802
Telephone (302) 761-8200

STATE OF DELAWARE
DEPARTMENT OF LABOR
DIVISION OF INDUSTRIAL AFFAIRS
OFFICE OF LABOR LAW ENFORCEMENT
PHONE: (302) 761-8200

Mailing Address:
4425 North Market Street
3rd Floor
Wilmington, DE 19802

Located at:
4425 North Market Street
3rd Floor
Wilmington, DE 19802

PREVAILING WAGES FOR **HIGHWAY CONSTRUCTION** EFFECTIVE MARCH 15, 2019

CLASSIFICATION	NEW CASTLE	KENT	SUSSEX
BRICKLAYERS	55.89	55.89	55.89
CARPENTERS	55.95	55.63	44.22
CEMENT FINISHERS	35.48	35.70	28.39
ELECTRICAL LINE WORKERS	29.40	47.49	23.24
ELECTRICIANS	70.49	70.49	70.49
IRON WORKERS	65.24	26.10	27.72
LABORERS	45.30	41.69	40.93
MILLWRIGHTS	17.62	17.10	14.76
PAINTERS	71.29	71.29	71.29
PILEDRIVERS	72.65	25.98	29.47
POWER EQUIPMENT OPERATORS	67.07	43.32	39.68
SHEET METAL WORKERS	24.89	22.21	20.12
TRUCK DRIVERS	37.52	30.88	37.62

CERTIFIED: 06/18/2019 BY: _____
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 302-761-8200

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

PROJECT: T201612001.01 Cedar Lane Rd and Marl Pit Rd Intersection Improvements , New Castle County

SUPPLEMENTAL SPECIFICATIONS TO THE STANDARD SPECIFICATIONS

EFFECTIVE AS OF THE ADVERTISEMENT DATE OF THIS PROPOSAL AND INCLUDED BY REFERENCE

The Supplemental Specifications can be viewed and printed from the Department's Website.

To access the Website;
- in your internet browser, enter; https://www.deldot.gov
- under 'BUSINESS', Click; 'Publications'
- scroll down under 'MANUALS' and Click; "Standard Specifications"
- be sure and choose the correct Standard Specification year; 2001 or 2016
- choose the latest revision prior to the date of this advertisement

The full Website Link is;
https://www.deldot.gov/Publications/manuals/standard_specifications/index.shtml

Copies of the Supplemental Specifications can be printed from the Website.

The Contractor shall make himself aware of these revisions and corrections (Supplemental Specifications), and apply them to the applicable item(s) of this contract.

SPECIAL PROVISIONS

CONSTRUCTION ITEM NUMBERS

All construction pay items are assigned a six (6) digit number, shown as Item Number on the Plans and/or in the Special Provisions, and shall be interpreted in accordance with the following:

Standard Item Number:

The first three digits of the construction item numbers indicates the Section number as described in the Standard Specifications, and all applicable requirements of the Section shall remain effective unless otherwise modified by the Special Provisions. The last three digits of the construction item identifies the item by sequential number under that Section. A comprehensive list of construction item numbers are listed in the Standard Specifications. Additions to this list will be made as required.

Special Provisions Item Number:

The first three digits of the construction items, covered under Special Provisions, indicates the applicable Section number of the Standard Specifications, and shall be governed fully by the requirements of the Special Provisions. The last three digit of the items covered under Special Provisions identifies the item by sequential number.

Examples

Standard Item Number - 202000 Excavation and Embankment

202 Indicates Section Number

000 Indicates Sequential Number

Special Provision Item Number - 202500 Grading and Reshaping Roadway

202 Indicates Section Number

500 Indicates Sequential Number

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 here.

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

If the Contractor exceeds the authorized allotted completion time, the price of asphalt cement on the last authorized allotted work day, 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.

5/05/15

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 – 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 to 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, 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) – 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 "n" 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 – Quality Level Analysis by the Standard Deviation Method

PU or PL	QU and QL for "n" Samples						
	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 – Quality Level Analysis by the Standard Deviation Method

PU or PL	QU and QL for "n" Samples						
	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	-100*
96.5	96.26 – 96.74	-5
96.0	95.75 – 96.25	-3
95.5	95.26 – 95.74	-2
95.0	94.75 – 95.25	0
94.5	94.26 – 94.74	0
94.0	93.75 – 94.25	1

93.5	93.26 – 93.74	3
93.0	92.75 – 93.25	5
92.5	92.26 – 92.74	3
92.0	91.75 – 92.25	0
91.5	91.26 – 91.74	0
91.0	90.75 – 91.25	-5
90.5	90.26 – 90.74	-15
90.0	89.75 – 90.25	-20
89.5	89.26 – 89.74	-25
89.0	88.75 – 89.25	-30
88.5	88.26 – 88.74	-50
=<88.0	=<88.25	-100*

* or remove and replace it at Engineer's discretion

Table 5A: Compaction Price Adjustment Other[1] Locations		
Degree of Compaction	Range	Pay Adjustment Factor (%)
>= 97.0	>= 96.75	-100*
96.5	96.26 – 96.74	-5
96.0	95.75 – 96.25	-3
95.5	95.26 – 95.74	-2
95.0	94.75 – 95.25	0
94.5	94.26 – 94.74	0
94.0	93.75 – 94.25	0
93.5	93.26 – 93.74	1
93.0	92.75 – 93.25	3
92.5	92.26 – 92.74	1
92.0	91.75 – 92.25	0
91.5	91.26 – 91.74	0
91.0	90.75 – 91.25	0
90.5	90.26 – 90.74	0
90.0	89.75 – 90.25	0
89.5	89.26 – 89.74	0
89.0	88.75 – 89.25	-1
88.5	88.26 – 88.74	-3

88.0	87.75 – 88.25	-5
87.5	87.26 – 87.74	-10
87.0	86.75 – 87.25	-15
86.5	86.26 – 86.74	-20
86.0	85.75 – 86.25	-25
85.5	85.26 – 85.74	-30
85.0	84.75 – 85.25	-40
84.5	84.26 – 84.74	-50
=< 84.0	=<84.25	-100*

* or remove and replace at Engineer's discretion

[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

11/3/14

501526 - PATTERNED PORTLAND CEMENT CONCRETE PAVEMENT, 8"

Description:

The item shall consist of furnishing all materials and constructing Patterned Portland Cement Concrete Pavement, in accordance with the notes and details on the Plans, as described herein, and as directed by the Engineer.

Materials:

Materials shall conform to Subsection 501.02, the requirements of the manufacturer, and these specifications. In case of a conflict, the requirements of the manufacturer shall govern.

The imprinted concrete shall be colored using ready to use dry-shake type hardener and shall be streak free integrands of pigments, include surface conditioning and dispersing agents. The color hardener shall have a sufficient history of use with proven durability and stability. All shake hardener shall be distributed evenly by mechanical spreader.

The dispersing/ releasing agent shall be clear liquid compatible with color hardener. This shall be specifically formulated to prevent bonding of texturing tools to the concrete surfaces. The powdered pigmented dispersing/-releasing agent can be allowed, if this is of the same color as hardener and recommended by the manufacturer.

The imprinted concrete shall be sealed with penetrating sealer of acrylic polymer in the organic solvent having sufficient resistant to discoloration, abrasion, acids and alkalis.

All materials including hardener, dispersing agent, sealer shall be compatible and preferably manufactured by the same manufacturing firm.

The colors shall be as depicted on the Plans. Modifications of color during the sample approval process shall not affect bid prices.

To assure a high quality imprinted/stamped concrete, work should be performed by experience contractor must have minimum 5-year experience dealing with stamped concrete and must be approved by the manufacturer. The contractor shall submit materials source of materials, previous successful history of work to Materials & Research for approval. A sample of minimum size of 3'x3' for each pattern of patterned concrete pavement for shall be submitted for color and design approval from the Engineer. Any necessary changes to the color will be directed by the Engineer.

Construction Methods:

Construction methods shall conform to the applicable requirements of Subsection 501.03, the recommendations of the manufacturer, and these specifications. In case of a conflict, the requirements of the manufacturer shall govern.

Special concrete mix shall be placed and screened to the proper grade and floated to a uniform surface in the normal manner as per standard specification. The depth of the concrete pavement shall be as noted on the Plans.

Color hardener shall be applied evenly to the concrete while in the plastic, stage of set by dry shake method using a minimum of 60 lbs per 100 sq-ft. It shall be applied in two or more shakes, floated after each and trowel led only after the final floating. The first shake shall consume two third of materials, one third being withheld for the second shake and final touch up. Release agent and sealer shall be applied in accordance with manufacturers instructions.

While concrete is still in plastic stage of set, the imprinting tools shall be applied to make the desired pattern and texture. The patterns shall be as noted on the Plans.

Method of Measurement:

The quantity of Patterned P.C.C. Pavement will be measured as the number of square feet completed and accepted.

Basis of Payment:

The quantity of Patterned P.C.C. Pavement will be paid for at the contract unit price per square feet. Price and payment will constitute full compensation for furnishing and placing all materials, constructing all joints, curing the concrete, installing seals, imprinting and coloring the surface, removing and replacing rejected concrete pavement, and all labor, equipment, tools, and incidentals required to complete the work.

4/5/17

602505 - PERSONAL SAFETY GRATE

Description:

This work consists of furnishing all materials, fabricating, delivering and constructing personal grates for pipe inlets in accordance with the Standard Details, at locations as shown on the Plans, as directed by the Engineer and as required by these Special Provisions.

Materials:

Materials shall conform to the requirements of Sections 601 and 611 and shall be galvanized in accordance with Subsection 1039.10 including all rebar, hardware and fasteners as shown on the Standard Details.

Working drawings shall be submitted in accordance with Subsection 105.04.

Construction Methods:

Personal grates for pipe inlets shall be constructed based on the Standard Details and at the size and locations shown on the Plans.

Method of Measurement:

The number of inlet grates to be paid for under this item shall be the actual number of inlet grates installed and accepted.

Basis of Payment:

The quantity of personal grate for pipe inlet will be paid for at the Contract unit price per each. Price and payment will constitute full compensation for furnishing, hauling and installing materials, including bar reinforcement; lock, for excavating including removal and disposal of existing end sections, backfilling, and compacting; for cribbing, shoring, sheeting, coating, and paving; and for all labor, materials, equipment, tools, and incidentals required to complete the work. Design services for the personal grate for pipe inlet including the preparation and submittal of working drawings shall be incidental to this item.

8/27/2018

701502 - STONE CURB
701503 - CURVED STONE CURB

Description:

This work consists of furnishing and installing stone curb in accordance with the details and notes shown on the Plans, and as directed by the Engineer.

Materials and Construction Methods:

The stone curb shall conform to the dimensions and description shown in the Plan notes and details. On Contracts where new stone curb is being placed with existing stone curb the new material shall match the existing in quality and color to the satisfaction of the Engineer.

Portland cement concrete for the work shall be Class C, and shall conform to the requirements of Section 1022 of the Standard Specifications. Mortar shall conform to the requirements of Section 619.

The stone curb shall be set in accordance with the details and at locations shown on the Plans and as directed by the Engineer. After setting the stone curb, it shall be thoroughly cleaned of all spots, concrete, mortar etc. to present a clean surface.

Method of Measurement:

The quantity of stone curb will be measured as the number of linear feet along the front face of the curb.

Basis of Payment:

The quantity of stone curb will be paid for at the Contract unit price per linear foot. Price and payment will constitute full compensation for furnishing all materials, excavation, supplying and placing GABC, compaction, supplying and placing Portland cement concrete, setting the stone curb in concrete, backfilling, disposal of excess material, and for all labor, equipment, tools and incidentals necessary to complete the work.

7/25/2018

706500 - RIGHT-OF-WAY MARKER, CAPPED REBAR

Description:

Furnish necessary materials and labor to set at the locations shown on the Plans, and as directed by the Engineer.

Materials:

Provide Right-of-Way Marker, Capped Rebar constructed in accordance with the details shown in the Standard Construction Details using materials specified in:

Bar Reinforcement	Section 611
Aluminum 2" Flat Survey Marker for Rebar	As Submitted and approved by Engineer

Construction Methods:

A. Exact location to be set by a Delaware Professional Land Surveyor in accordance with the plans or as directed by the Engineer;
B. Place Rebar in a vertical position at depth shown on the plans;
C. Place Aluminum 2" flat survey marker on rebar taking care not to move the location of the rebar.

Method of Measurement:

Right-of-Way Marker, Capped Rebar will be measured as the actual number of Right-of-Way Marker, Capped Rebar set and accepted.

Basis of Payment:

The quantity of Right-of-Way Marker, Capped Rebar will be paid for at the Contract unit price per Each. Price and payment will constitute full compensation for furnishing all materials required and setting the Right-of-Way Marker, Capped Rebar by a Delaware Professional Land Surveyor and any incidentals necessary to complete the item. Existing Right-of-Way Marker, Capped Rebar damaged will be replaced as required by Subsection 107.09 of the Standard Specifications and will be repaired, replaced, and set at the Contractor's expense.

8/03/17

763501 - CONSTRUCTION ENGINEERING

Description:

This work consists of construction lay out including; stakes, lines and grades as specified below. Subsection 105.10 Construction Stakes, Lines and Grades of the Standard Specifications is voided.

Based on contract plans and information provided by the Engineer, the Contractor shall stake out right-of-way and easements lines, limits of construction and wetlands, slopes, profile grades, drainage system, centerline or offset lines, benchmarks, structure working points and any additional points to complete the project.

The Engineer will only establish the following:

(a) Original and final cross-sections for borrow pits.
(b) Final cross-sections: Top and bottom pay limit elevations for all excavation bid items that are not field measured by Construction inspection personnel. 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.
(c) Line and grade for extra work added on to the project plans.

Equipment. The Contractor shall use adequate equipment/instruments in a good working order. He/she shall 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. The Contractor shall 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. If the Contractor chooses to use GPS technology in construction stakeout, the Contractor shall provide the Engineer with a GPS rover and Automatic Level for the duration of the contract. The GPS rover shall be in good working condition and of similar make and model used by the Contractor. The Contractor shall provide up to 8 hours of formal training on the Contractor's GPS system to a maximum of four Engineer's appointees (DELDOT Construction Inspectors). At the end of the contract, the Engineer will return the GPS rover to the Contractor. If any of the equipment/instruments are found to be out of adjustment or inadequate to perform its function, such instrument or equipment shall be immediately replaced by the Contractor to the satisfaction of the Engineer. Choosing to use GPS technology does not give the contractor authority to use machine control.- Construction Engineering (GPS) Machine Control Grading shall only be used if noted in the General Notes in the plan set outlining the available files that will be provided to the Contractor 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 General Notes shall be provided to the contractor. 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.

Engineering/Survey Staff. The Contractor shall provide and have available for the project an adequate engineering staff that is competent and experienced to set lines and grades needed to construct the project. The engineering personnel required to perform the work outlined herein shall have experience and ability compatible with the magnitude and scope of the project. Additionally, the Contractor shall 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 sub contracting requirements of Subsection 108.01 of the Standard Specifications. The Contractor shall assume full responsibility for any errors and/or omissions in the work of the engineering staff described herein. If construction errors are caused due to erroneous work done under Construction Engineering the Contractor accepts full responsibility, no matter when the error is discovered. Consideration will not be given 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 by this specification.

Construction Methods:

Performance Requirements:

(a) Construction Engineering shall include establishing the survey points and survey centerlines; finding, referencing, offsetting the project control points; running a horizontal and vertical circuit to verify the precision of given control points. Establishing plan coordinates and elevation marks for culverts, slopes, subbase, subsurface drains, paving, subgrade, retaining walls, and any other stakes required for control lines and grades; and setting vertical control elevations, such as footings, caps, bridge seats and deck screed. The Contractor shall be responsible for the preservation of the Department's project control points and benchmarks. The Contractor shall 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 by the Contractor. The Contractor as directed by the Engineer must replace any or all stakes that are destroyed at any time during the life of the contract. The Contractor shall 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 ft times. The Horizontal Control precision ratio shall have a minimum precision of 1:20,000 feet of distance traversed prior to adjustment.

(b) The Contractor shall perform construction centerline layout of all roadways, ramps and connections, etc. from project control points set by the Engineer. The Contractor using the profiles and typical sections provided in the plans shall calculate proposed grades at the edge of pavement or verify information shown on Grades and Geometric sheets.

(c) The Contractor shall advise the Engineer of any horizontal or vertical alignment revisions needed to establish smooth transitions to existing facilities. The Contractor must 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.

(d) The Contractor shall establish the working points, 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 as per Contract Plans. Before completion of the fabrication of beams for bridge superstructures, the Contractor shall verify by accurate field measurements the locations both vertically and horizontally of all bearings and shall 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, the Contractor shall survey top of beam elevations at a maximum of 10-ft stations and compute screed grades. These shall be submitted 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 sufficiently frequent intervals to assure that all components of the structure are constructed in accordance with the lines and grades shown on the plans. The Contractor will be responsible for all structure alignment control, grade control and all necessary calculations to establish and set these controls.

(e) The Contractor, using contract plans, shall investigate proposed construction for possible conflicts with existing and proposed utilities. The Contractor shall then report such conflicts to the Engineer for resolution. All stakes for utility relocations, which will be performed by others, after the Notice to Proceed has been given to the Contractor, shall be paid for under item 763597 - Utility Construction Engineering.

(f) The Contractor shall be responsible for the staking of all sidewalk and curb ramp grades in accordance with the plans and the Departments Standard Construction Details. The Contractor shall review the stakeout with the Engineer prior to construction. The Engineer must approve any deviation from plans, Department Standard Construction Details and Specifications in writing. The Contractor shall be responsible for any corrective actions resulting from problems created by adjustments if they fail to obtain such approval.

(g) If wetland areas are involved and specifically defined on the Plans the following shall apply:

i. It is the intent of these provisions to alert the Contractor, that he/she shall not damage or destroy wetland areas, which exist beyond the construction limits. These provisions will be

strictly enforced and the Contractor shall advise his/her personnel and those of any Subcontractor of the importance of these provisions.

ii. All clearing operations and delineation of wetlands areas shall be performed in accordance with these Special Provisions. Before any clearing operation commences the Contractor shall demarcate wetlands at the Limits of Construction throughout the entire project as shown on the Plans labeled as Limits of Construction or Wetland Delineation to the satisfaction of the Engineer.

iii. The material to be used for flagging the limits of construction shall be orange vinyl material with the wording "Wetland Boundary" printed thereon. In wooded areas, the flagging shall be tied on the trees, at approximate 20-foot intervals through wetland areas. In open field and yard areas that have been identified as wetlands, 6 foot posts shall be driven into the ground at approximate 50-foot intervals and tied with the flagging. The flagging shall extend approximately 12 inches in length beyond the post. Posts shall be oak with cross sectional dimensions of 1 ½ inches to 2 inches by 1 ½ inches to 2 inches or ¼ inch rebar.

iv. If the flagging has been destroyed and the Engineer determines that its use is still required, the Contractor shall reflag the area at no cost to the Department. If the Contractor, after notification by the Engineer that replacement flagging is needed, does not replace the destroyed flagging within 48 hours, the Engineer may proceed to have the area reflagged. The cost of the reflagging by the Engineer will be charged to the Contractor and deducted from any monies due under the Contract.

v. At the completion of construction, the Contractor shall remove all posts and flagging.

vi. The Contractor shall be responsible for any damages to wetlands located beyond the construction limits, which occurs from his/her operations during the life of the Contract. The Contractor shall restore all temporarily disturbed wetland areas to their preconstruction conditions. This includes restoring bank elevations, streambed and wetland surface contours and wetlands vegetation disturbed or destroyed. The expense for this restoration shall be borne solely by the Contractor.

(h) 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.

Submittals. All computations necessary to establish the exact position of all work from the control points shall be made and preserved by the Contractor. All computations, survey notes, electronic files, and other records necessary to accomplish the work shall be 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 made by the Contractor and any necessary correction to the work shall be made as soon as possible. The Contractor shall furnish the Engineer with such assistance as may be required for checking all lines, grades, and measurements established by the Contractor and necessary for the execution of the work. Such checking by the Engineer shall not relieve the Contractor of his/her responsibility for the accuracy or completeness of the work. Copies of all notes must be furnished to the engineer at the completion of the project.

The Contractor shall 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.

Machine Control Grading

This Section of the specification shall only be used if machine control is authorized for use on the project.

Description:

This specification contains the requirements for grading operations utilizing Global Positioning Systems (GPS).

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.

The Contractor may use any manufacturer's GPS machine control equipment and system that results in achieving the grading requirements outlined in section 202 of the standard specifications. The Contractor shall convert the electronic data provided by the Department into the format required by their system. The Department will only provide the information outlined in this document and no additional electronic data will be provided.

The Contractor shall perform at least one 500 foot test section with the selected GPS system to demonstrate that the Contractor has 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. If the Contractor fails to demonstrate this ability to the satisfaction of the Department, the Contractor shall construct the project using conventional surveying and staking methods.

Materials:

All equipment required to perform GPS machine control grading, including equipment needed by DelDOT to verify the work, shall be provided by the Contractor and shall be able to generate end results that are in accordance with the requirements of Division 200 - EARTHWORK of the Standard Specifications.

Construction:

A. DelDOT Responsibilities:

1. The Department will set initial vertical and horizontal control points in the field for the project as indicated in the contract documents, (plans set). If the Contractor needs to establish new control points they shall be traversed from existing control points and verified to be accurate by conventional surveying techniques.

2. The Department will provide the project specific localized coordinate system.

3. The Department will provide data in an electronic format to the Contractor as indicated in the General Notes.

    a. The information provided shall not be considered a representation of actual conditions to be encountered during construction. Furnishing this information does not relieve the Contractor from the responsibility of making an investigation of conditions to be encountered including, but not limited to site visits, and basing the bid on information obtained from these investigations, and the professional interpretations and judgments of the Contractor. The Contractor shall assume the

risk of error if the information is used for any purpose for which the information is not intended.

b. Any assumption the Contractor makes from this electronic information shall be at their risk. If the Contractor chooses to develop their own digital terrain model the Contractor shall be fully responsible for all cost, liability, accuracy and delays.

c. The Department will develop and provide electronic data to the Contractor for their use as part of the contract documents in a format as indicated in the General

Notes. The Contractor shall independently ensure that the electronic data will function in their machine control grading system.

4. The Files that are provided were originally created with the computer software applications MicroStation (CADD software) and INROADS (civil engineering software). The data files will be provided in the native formats and other software
formats described below. The contractor shall perform necessary conversion of the files for their selected grade control equipment. The Department will furnish the Contractor with the following electronic files:

a. CAD files

i. Inroads -Existing digital terrain model (.DTM)
ii. Inroads -Proposed digital terrain model (.DTM)
iii. Microstation -Proposed surface elements - triangles

b. Alignment Data Files:
i. ASCII Format

5. The Engineer shall perform spot checks of the Contractor's machine control grading results, surveying calculations, records, field procedures, and actual staking. If the Engineer determines that the work is not being performed in a manner that will assure accurate results, the Engineer may order the Contractor to redo such work to the requirements of the contract documents, and in addition, may require the Contractor to use conventional surveying and staking, both at no additional cost to the Department.

B . Contractor's Responsibilities

1. The Contractor shall 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 to the Contractor. The Contractor shall provide a total of 8 hours of formal training on the Contractor's GPS machine control system to the Engineer and up to three additional
Department appointees per rover.

2. The Contractor shall review and apply the data provided by the Department to perform GPS machine control grading.

3. The Contractor shall bear all costs, including but not limited to the cost of actual reconstruction of work, that may be incurred due to application of GPS machine control grading techniques. Grade elevation errors and associated corrections including quantity adjustments resulting from the contractor's use of GPS machine control shall be at no cost to the Department.

4. The Contractor shall convert the electronic data provided by the Department into a format compatible with their system.

5. The Contractor's manipulation of the electronic data provided by the Department shall be performed at their own risk.

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

7. The Contractor shall meet the accuracy requirements as detailed in the Standard Specifications.

8. The Contractor shall 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 be at intervals not to exceed 1000 feet. 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. The Contractor shall be responsible for all errors resulting from their efforts and shall correct deficiencies to the satisfaction of the Engineer and at no additional cost to the Department.

9. The Contractor shall provide stakes at all alignment control points, at every 500 foot stationing, and where required for coordination activities involving environmental agencies and utility
companies at the Contractor's expense. Work that is done solely for utility companies and that is beyond the work performed under item 763501 - Construction shall follow and be paid for under item 763597 -Utility Construction Engineering.

10. The Contractor shall at a minimum set hubs at the top of finished grade at all hinge points on the cross section at 500 foot intervals 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, wetland mitigation sites etc. These control points shall be established using conventional survey methods for use by the Engineer to check the accuracy of the construction.

11. The Contractor shall preserve all reference points and monuments that are identified and established by the Engineer for the project. If the Contractor fails to preserve these items the Contractor shall reestablish them at no additional cost to the Department.

12. The Contractor shall provide control points and conventional grades stakes at critical points such as, but not limited to, PC's, PT's, superelevation points, and other critical points required for the construction of drainage and roadway structures.

13. No less than 2 weeks before the scheduled preconstruction meeting, the Contractor shall 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.

14. The Contractor shall 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.

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 (as described below under Contract Control Plan) 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. The Contractor shall operate and maintain all elements of the Machine Grade Control continuously once the operations begin until otherwise approved by the Engineer.

Contract Control Plan:

The Contractor shall develop and submit a Contract Control Plan for all contracts which use Machine Control Grading. Contract control includes all primary and secondary horizontal and vertical control which will be used for the construction contract. Upon the Contractor's completion of the initial survey reconnaissance and control verification, but prior to beginning primary field operations, the Contractor shall submit a Contract Control Plan document (signed and sealed by the Delaware licensed Land Surveyor or Delaware Professional Engineer who oversees its preparation) for acceptance by the
Engineer, which shall include the following:

1. A control network diagram of all existing horizontal and vertical control recovered in the field as contract control.

2. 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.

3. 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.

4. 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.

5. 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.

6. 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.

7. If the Contractor chooses 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 Contractor 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.

8. Issues with equipment including inconsistent satellite reception of signals to operate the GPS machine control system will not result in adjustment to the "Basis of Payment" for any construction items or be justification for granting contract time extension.

Method of Measurement:

The quantity of Construction Engineering will not be measured.

Basis of Payment:

Payment will be made at the Lump Sum price bid for the item "Construction Engineering". The price bid shall include the cost of furnishing all labor, equipment, instruments, stakes and other material necessary to satisfactorily complete the work as herein described under this item for all roads and structures that are a part

of the contract. Adjustment in payment will be made for the deletion or addition of work not shown in the contract documents.

Monthly payment will be made under this item in proportion to the amount of work done as determined by the Engineer.

2/28/2018

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

Description:

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

Scheduling Representative:

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

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

Critical Path, Project Completion Date, and Float:

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

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

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

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

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

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

the latest. Make revisions in accordance with the requirements for the OCPM. The Engineer will respond to the revised OCPM within seven calendar days after receipt. Clearly identify each submittal and resubmittal for clarity by labeling "2nd Draft", "3rd Draft", etc.

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

Requirements for the OCPM:

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

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

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

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

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

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

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

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

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

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

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

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

CPM Updates:

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

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

Revisions to the Schedule of Record:

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

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

The Engineer may direct the Contractor to revise the schedule of record at the Contractor's expense if: the critical path has less than minus ten (-10) Calendar Days of total float due to the Contractor's failure to perform the Work in accordance with the schedule; the Contractor requests to re-sequence the Work; and/or the Contractor has performed a significant amount of Work out of sequence. The Engineer may direct the Contractor to revise the schedule for any other reason; and such a revision will be paid at the unit cost for a CPM Revision.

The Engineer will review and respond to the proposed revision within 7 Calendar Days after receipt. Resubmit, if required, within seven calendar days after receipt of the Engineer's review comments. The Engineer reserves the right to reject any proposed revision that adversely impacts the Department, utilities, or other concerned parties.

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

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

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

Final As Built Schedule.

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

Method of Measurement:

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

Basis of Payment:

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

The item, "763509 – CPM Schedule Updates and/or Revised Updates" will be paid at the Contract unit price per each approved CPM schedule update as described above. Price and payment will constitute full compensation for preparing, submitting and resubmitting all CPM updates, for attendance at all scheduling meetings with the Department, for preparing and reviewing a list of actual start and actual finish dates with the Engineer, and for all labor, tools, Equipment and incidentals necessary to complete the Work.

2/11/2015

763598 - FIELD OFFICE, SPECIAL I

Description:

The field office work shall consist of furnishing, erecting, equipping, maintaining, and removing a singlewide modular office and adjacent parking area. The Contractor shall submit a specific location layout drawing and construction details for the proposed field office and its parking area for approval by the Engineer. The field office and parking area shall be for the exclusive use of Department Officials, Engineers, Designers, North Region Construction (NRC) Personnel, Consultants, and Inspectors.

The field office structure shall be free of asbestos and/or other hazardous materials. The field office and its parking area shall be constructed and installed in accordance with all applicable city, county, state, and federal codes. The Contractor shall be responsible for obtaining all required licenses and permits for installation and placement of the field office and its parking area. The costs of obtaining such licenses and permits to be incidental to the "Field Office, Special" Item. The field office shall be available for use by the Department continuously throughout the duration of the project.

Construction and Equipment:

The field office shall be new and have a minimum floor space of 600 square feet with minimum exterior dimensions of 50'-0" length by 12'-0" width. The floor to ceiling height shall be nominal 8'-0". The exterior walls, ceiling, and floor shall be insulated. The field office shall be of weather-proof construction, tightly floored and roofed, constructed with an air space above the ceiling for ventilation, supported above the ground, safely secured to its support if the support is an inground anchored foundation or otherwise by tie-downs to the ground, and fully skirted with rigid watertight covering overlapping the bottom of the exterior siding to the existing ground.

The Contractor shall provide entries to the field office by constructing a stair and deck platform with canopy at each exterior door. These entries shall be fabricated using treated dimension lumber, be constructed with hand and safety railing, be designed to last the life of the Contract, and conform to the requirements of the Architectural Accessibility Board and other federal, state and local boards, bodies and/or courts having jurisdiction in the Contract limits.

The Contractor shall construct and maintain an all weather parking area adjacent to the office of at least 2500 square feet and having a minimum of 10 functional parking spaces striped for full size cars. All weather pathways from the parking area to the entrances of the field office shall also be constructed and maintained. This parking area and entrance pathways shall have a minimum of 2" type "C" hot mix on top of minimum 6" graded aggregate subbase. Snow and/or ice shall be removed from the parking area and from the entrance pathways to the field office within 12 hours after each occurrence. Costs for furnishing, placing, and maintaining the aggregate base and hot mix, and for snow and/or ice removal, to be incidental to the Field Office, Special" Item.

The ground area 30'-0" from around the perimeter of the field office to the field office shall be landscaped and maintained. If the earthen grounds do not have a stand of weed free grass, the surface of this area shall be loosened to a depth of 4" and a satisfactory seedbed shall be prepared free of debris and extraneous matter. The area shall be seeded to a healthy stand of grass or sodded, after which the area shall be watered, mowed, and trimmed a minimum of three times a month during the growing seasons. Cost for this landscaping and maintenance to be incidental to the "Field Office, Type I Special" Item.

The field office shall have full carpeting, kitchenette facilities, and interior and exterior paneling, lighting, and plumbing fixtures. The field office shall have a minimum of two (2) exterior doors, each door having a passage and a deadbolt lock. These door locks shall be keyed and at least 2 complete sets of keys shall be supplied to the Engineer's representatives. The exterior doors shall be insulated or have storm doors. The field office shall have a minimum of six (6) windows, each window having a minimum glass area of 1150 square inches and a horizontal mini-blind covering the full glass area. The windows shall be insulated or have storm windows. All windows shall be equipped with a locking device. All doors and windows shall have screens installed and repaired when damaged.

At least two (2) outside water service connections shall be provided at the field office. Each water connection shall have a 3/4" frost proof hose bib with vacuum breaker and shall include 100 linear feet of 5/8" minimum diameter reinforced, industrial or commercial grade, soft rubber hose per connection.

The field office shall be provided with sufficient natural and artificial light and shall be adequately heated and cooled to provide comfortable working conditions.

The field office shall have satisfactory lighting, electrical outlets, heating equipment, exhaust fan, and air-conditioning connected to an operational power source. Plan and drawing areas shall have individual fluorescent lights situated over their worktables. Replacement fluorescent lights shall be furnished as required. Electrical current, water, and any fuel for heating equipment shall be furnished and the cost of such shall be borne by the Contractor. Maintenance of the heating, exhaust fan, and air-conditioning equipment shall be provided for by validated service contracts for the length of the Contract. These service contracts shall allow a Department authorized project person to deal directly with the service organization to request repair.

The Contractor shall furnish and maintain two fire extinguishers and provide one lighted "Exit" sign for each exterior passage door. Fire extinguisher(s) may be chemical or dry power and shall be UL Classification 10-B:C(min.) and shall be suitable for Types A:B:C fires. A commercial or industrial type first aid and safety kit suitable for project conditions and hazards (including snakebite) shall be provided and maintained to full capacity on a monthly basis.

The Contractor shall provide an alarm system for field office security with electronic, direct connection to a security service provider. The security system shall have interior motion, window, and entrance detectors and built in manual fire alarm. All windows of the field office shall be covered with steel bar grids as a deterrent to forced entry. The Contractor shall provide validated monitoring and service contracts for the length of the Contract. These contracts shall allow a Department authorized project person to deal directly with the security service provider to request service and/or repair.

The Contractor shall furnish and maintain an adequate supply of cold potable water, a minimum 23 cubic foot new refrigerator, and a minimum 900-watt new microwave oven. Maintenance of the potable water supply equipment, refrigerator, and microwave shall be provided for by validated service contracts for the length of the Contract. These service contracts shall allow a Department authorized project person to deal directly with the service organization to request repair.

Suitable indoor toilet facilities, conforming to the requirements of the State and Local Boards of Health or of other bodies or courts having jurisdiction in the area, shall be provided. When separate facilities for men and women are not available or required, a sign with the wording "Rest Room" (letter heights 1" minimum) shall be placed over the doorway and an adequate positive locking system shall be provided on the inside of the doorway to insure privacy. The facility(s) shall be maintained by the Contractor to be clean and in good working condition and shall be stocked by the Contractor with adequate lavatory and sanitary supplies at all times during the period of the Contract.

The Contractor shall be responsible for performing or for making arrangements for all necessary telephone connections and/or for their maintenance; for providing a new telephone equipment system, for payment of all connections and the new telephone system equipment and its installation; and for final disconnection of the telephones.

The field office telephone system shall have a total of 5 lines consisting of 2 direct single lines with call forward busy feature, 2 dedicated computer use line with broadband connection for either DSL or cable, and 1 dedicated facsimile line and have 5 key sets consisting of 1 master key set having privacy feature, and 4 four-button key sets having privacy feature (1 set which may be for wall mounting), all for the official and exclusive use of the Engineer and other representatives of the Department. Arrangement shall be made to allow a Department authorized project person to deal directly with the telephone company to report outages and/or request repair. Monthly billings for the field office telephone system shall be received and paid by the Contractor. A copy of each bill shall be forwarded to the Project Resident for reimbursement on the subsequent contract pay estimate. The reimbursement will be for the amount of the bill only and shall not include any additional mark-up or profit.

For all other utilities, the Contractor shall be responsible for performing or for making arrangements for all necessary utility connections and/or for their maintenance; for payment of all utility connections, installations, service fees and bills; and for final disconnection of utilities.

The field office interior shall be furnished by the Contractor. The Contractor shall provide new and maintain the following office furnishings, all which are to be approved by the Engineer prior to installation in the field office. Placement of these furnishings shall be as directed by the Engineer. 6 full size office desks each with filing drawer and fully adjustable ergonomic design swivel chair with armrests and five leg base having wheel casters, 1 computer station with acoustical panels having minimum 60 NRC rating for privacy screen and fully adjustable ergonomic design swivel chair with armrests and five leg base having wheel casters, 1 large conference table for a minimum of 12 people with surrounding chairs with armrests, 2 folding tables minimum 6'-0" by 3'-0" each with ergonomic design straight back chair with armrests, 1 work table, 1 supply cabinet, 2 rough plan racks, 2 legal size filing cabinets with 4 drawers, 2 legal size fire-resistant filing cabinets with lock and key with 4 drawers and meeting fire underwriters' approval for not less than one hour test, 2 book shelves minimum 3'- 6" by 4'- 6", 3 vertical surface legal size three compartment pockets, 2 dry erase boards minimum 4' by 3' each with markers and erasers, and 2 cork bulletin boards minimum height 3' by 2'. These office furnishings will remain the property of the Contractor at the conclusion of the project.

The Contractor shall also furnish new and maintain the following office equipment, all which are to be approved by the Engineer prior to installation in the field office. The required equipment will enable the Department to synchronize project record keeping and office functions. The equipment shall be delivered in working and useable condition:

4 heavy-duty calculators having extra large 12-digit fluorescent display, full size keyboard with contoured keys, two-color ribbon printer, and AC powered;

1 compact plain paper copying machine and cabinet with stationary platen, bypass feeding, and dual loading cassette system with cassettes for letter, legal, and ledger size paper. Copy machine to have zoom and preset reduction and enlargement features, automatic two (2) sided copying, automatic document feeder with minimum 30 sheet capacity, and 20 bin collator with automatic stapling capacity;

1 desktop model, compact facsimile machine with automatic paper cutter, 10-sheet feeder, halftones with 16 levels of gray, 50-number auto dialing, answering machine hook-up, large LCD readout, date and time stamp, and advanced telephone features;

1 DVD camcorder with on-screen programming, full-range auto focus, high-speed shutter, high-resolution, bookmark search, time-lapse recording, rechargeable batteries and charger, tripod, and protective carrying case;

1 integrated color monitor and DVD/VHS cassette recorder having minimum 20" screen, automatic on/play/rewind/stop, remote, full range speaker, and digital auto tracking;

1 micro cassette recorder, having fast playback, voice-activated system, three-digit tape counter, silent auto-stop and pause, two tape speeds, one-touch and follow-up, built-in condenser microphone, cue and review, and rechargeable with combination battery charger/AC adapter;

1 telephone answering machine having all-digital recording, 14 minute message capacity, selectable message time, voice prompt assistance, day/time stamp, call screening, two-digit LED message indicator, toll saver, power failure memory back-up, and message interrupt from any station; and

2 digital cameras with minimum 1/2.7" 4.0 mega pixel, 3X optical / 6X precision digital zoom, 12-bit DXP A/D conversion, 2.5" 123K pixel LCD display, 5-mode program AE and each with dual media slots, SXGA/XGA/VGA image resolution, E-mail mode. Also intelligent flash with red-eye protection, MPEG movie mode, clip motion, light metering, TEXT mode (GIF), playback zoom and resize, white balance, lithium battery system and in-camera picture effects, memory stick/card (minimum 256MB) capability, and storage case.

Consumables as required to manage the business of the project shall be provided for all office equipment for the length of the Contract. These consumables shall be furnished on request and shall include but not be limited to paper, tapes, ribbons, rolls, toner, cleaning kits, microcassette tapes and batteries, answering machine cassettes, camera batteries and memory sticks and/or discs, DVD and CD R/RW media, etc.

Maintenance of all office equipment shall be provided for by a validated service contract for the length of the Contract. This service contract shall allow a Department authorized project person to deal directly with the service organization to request repair.

Included in the unit price bid per month for the Field Office on this project will be two (2) IBM compatible Microcomputer Systems both which will be furnished and maintained by the Contractor for use by the Engineer. The specified computer systems will synchronize the construction management functions of the Department to monitor, report, and perform the accounting of the project work. The computer systems and all their related equipment specified below shall be furnished new and remain the property of the Contractor at the conclusion of the Contract. A detailed listing of the proposed computer systems and all their related equipment to be provided by the Contractor shall be submitted for approval by the Engineer prior to furnishing the Microcomputer Systems. The Microcomputer Systems shall be Laptop Computer Systems each with docking station. Each of the two (2) Microcomputer Systems shall consist of:

Central Processing Unit (CPU) – Lap Top

Pentium M processor, 740 (1.7 GHz) or better with integrated USB 2.0 and IEEE 1394 ports (firewire) and wireless networking included,

Minimum 1.0 GB RAM with expansion capability to at least 3.0 GB and clock/calendar card equivalent, and

Microsoft "Windows® XP Professional" operating system;

Memory (Storage)

CD/DVD +/- RW with double layer write capability, and 100GB hard drive minimum, integrated Ethernet 10/100, and internal modem. Included software shall support double layer media writing and automatic backup of data;

Monitor (Cathode Ray Tube)

Monitor for docking station and docking station - Super Video Graphics Adapter (SVGA) minimum. 19" minimum diagonal visual area flat panel with .26 dot pitch capable of multiple frequency 256 color graphics and at least 1024 pixel resolution. Swivel base with low radiation and eyestrain protection, brightness and contrast control and

Laptop - shall have 15.4” display minimum;

Color Graphics Card

Card must be SVGA AGP interface with 64 MB onboard video memory having maximum resolution of at least 1280x720 with at least 16 bit color and video control hardware and software;

Keyboard

Keyboard shall be ergonomic, enhanced layout minimum with keyboard interface cable;

Printers

LaserJet HP 2550N network capable printer or latest model with 64 MB minimum total memory having up to 600 dpi resolution and using HPL6 printer language with all necessary software and cables for proper operation; and a HP Desk Jet color printer or latest model with photo quality print capability and with all necessary software, equipment, and cables for general operation as well as connection and sharing on a local network;

Scanner

A HP6100 color scanner with HP5770 ScanJet ADF (or equivalent brand) with all necessary software, equipment, and cables for general operation as well as connection and sharing on a local network;

Software

The latest version programs for application management (operating system), word processing, spreadsheet, and anti-virus shall be provided with all user manuals. Upgrades, maintenance, and full technical support by the manufacturer shall be provided for the length of the Contract. The required software will enable the Department to synchronize accounting and record keeping functions between the project, District, and Department offices. A list of programs to be provided shall be submitted to the Engineer for approval. Software, other than for application management and anti-virus, is to be delivered unopened to the Department's administrative office. All software is to be compatible with and for use to run on "Windows® XP Professional". The required applications software follows and is to be latest version unless noted:

office suite - "Microsoft® Office XP Professional",
antivirus - "McAfee® Total Protection for Small Business,
software supporting creation of DVD +/- R/RW disks (supporting double layer media writing) and DVDR and DVDRW disks using DVDRW drive, for example: Ahead Nero, Roxio DVD/CD Creator, or some equivalent product. Note: software commonly included as part of the standard CDRW upgrade/standalone package is acceptable if included with the unit;

Related Equipment

Wireless networking hub/router (802.11g or better) with all associated hardware (adapters, cables, etc) and soft to enable wireless networking and internet connection sharing for all office computers and printers,

An electrical outlet with dedicated circuit for the main computer unit,

An optical mouse with proper driving software having complete Microsoft emulation,

An internal 56/28.8/14.4 fax modem with MNP5 error checking and complete Hayes emulation having high-speed 14.4 fax capability and regular data transmission between 2400 and 56 baud, with the latest version proper driving software,

Necessary cables for proper operation,

An uninterruptible power supply (UPS) units for protection from power loss or fluctuation, minimum of 6 outlets, adequate to provide a minimum of 30 minutes backup power for an orderly shut down of the computer system with software and connections for automatic system shutdown,

24 bit Sound Blaster compatible PCI soundcard with quality desktop speakers,

A combination surge, spike, and noise protection device with receptacles for all peripherals (may be in combination with the UPS power supply),

A wrist rest suitable for use with the furnished keyboard,

Cleaning kits for disk drives,

An anti-glare filter with grounding wire suitable for use with the furnished monitor, and

All cards, hardware, and operating, anti-virus, and equipment software to be fully installed and operational;

Maintenance and Service

Maintenance of all specified equipment and components shall be provided for by a validated service agreement for the length of the Contract. Maintenance (upgrades, replacement, full technical support) for each software application shall be provided for by validated maintenance agreement for the length of the Contract. These agreements shall allow an authorized project person to deal directly with the service organization to request repair or the maintenance organization to request assistance; and

Supplies

Consumables as required to manage the business of the project shall be provided for the Microcomputer Systems for the length of the Contract. These consumables shall be furnished on request and include but not be limited to 3-1/2" double sided high density micro floppy diskettes, compatible diskettes for provided digital cameras and memory stick media, DVDR and DVDRW media compatible supporting operational minimum to maximum speed of the DVD/RW drive unit, cut sheet paper and labels compatible with the printers, hardware and screen cleaners, and toner cartridges.

Maintenance of the field office including its adjacent parking area, for the time required, shall consist of maintenance and/or replacement of all provided items, security system, furniture and equipment, computer systems, providing lavatory supplies, providing trash containers and waste baskets, providing entrance mats at each door, providing replacement items for lighting fixtures, maintaining all utilities, providing satisfactory and sanitary janitorial and waste disposal services twice a week, providing cleanup of trash and debris on the parking lot and landscaped area once a week, and shall be included in the monthly unit cost.

The Contractor shall provide and deliver a current copy of all validated field office, equipment, and computer maintenance, service, assistance and/or monitoring agreements and/or contracts as mentioned hereinabove to the Department's administrative office on or before the first day the field office is ready for use.

Method of Measurement:

This item will not be measured but will be paid for on a monthly basis. Partial months will be paid at the rate of 0.033 months per day.

Basis of Payment:

The field office will be paid for on a unit price bid per month, which price shall be full compensation for performing the work specified and the furnishing of all materials, labor, tools, equipment and incidentals necessary to maintain the field office and its adjacent parking area and restore the field office area and adjacent parking area to match the original site condition. No separate payment will be made for costs involved for removing hazardous material or underground tanks to install these offices or the parking area.

Payment will be made only for the actual number of months that the office is acceptably provided by the Contractor.

The field office shall be ready for use not later than thirty (30) calendar days after the date of the fully executed Contract and before construction operations begin.

3/3/08

850521 - LUMINAIRE (LED), 250 WATTS HPS EQUIVALENT

Description:

This work consists of furnishing and installing an LED light fixture (luminaire) on pole (not inclusive in this item) with wattage, lamp type and distribution type in accordance with these and the standard specifications as applicable and as shown on the plans. **The LED Wattage above is based on the equivalent output to HPS lighting. Refer to maximum LED Wattage below.**

The complete fixture shall have a heavy-duty, cast-aluminum housing, door with extruded aluminum heat sink, tool-less entry, hinged removable power tray door for easy maintenance, and have fastening hardware that is stainless steel or zinc plated steel. The fixture shall meet ANSI 136.31 3.0 G vibration requirements. Fixture should have a minimum of a two-bolt slip fitter system for mounting on a 1-1/4 inch to 2-3/8 inch mounting arm connection. A grey powder coat finish shall be applied to the fixture unless otherwise shown on the plans, or as directed by the engineer.

The fixture shall also meet the following criteria:

1. Lamps: LED
2. Wattage: 175 Watt Maximum for Item No. 850521 and 850524
3. Voltage: 120V - 277V
4. CRI: 70 Minimum
5. Lumens: 16,000 to 20,000 for Item No. 850521 and 850524
6. Rated L70 Lamp Life: 100,000 Hours Minimum when operated at 25 Degrees C (77 Degrees F)
7. Distribution: Type II or Type III (unless otherwise indicated)
8. Color Temperature: 3,000 K - 4,500 K
9. Drive Current: 850 mA Maximum
10. Driver: 0-10V Dimming
11. IP66 Rating for optical portion of the housing
12. 10kV/10kA minimum internal surge suppression module, meeting UL 1449/ANSI C62.41.2 Category C
13. 3 Pin NEMA Photocontrol Receptacle with a Shorting Cap.

Luminaire mounting height shall be as indicated on drawings. Luminaire shall provide point illumination of not less than the given values in the table that follows

Luminaire	Foot-candle Point Table	
	Point 1	Point 2
Luminaire (LED), 250 Watts HPS Equivalent	0.27	0.37

Point 1 coordinates are 90 feet longitudinal distance. Point 2 coordinates are 90 feet longitudinal and 30 feet transverse. The point values given in the table are based on a 30 foot mounting height with a Light Loss Factor of 1. The point values produced by the submitted fixture shall be included with the fixture submittal.

Metal Parts shall be free of burrs and sharp corners and edges. Doors, frames, and other internal access shall be smooth operating and free of light leakage under operating conditions.

Factory applied labels shall comply with UL 1598. Labels shall be located where they will be readily visible to service personnel, but not seen from normal viewing angles when lamps are in place. Labels shall include the following lamp characteristics:

1. CCT and CRI for all luminaires

Luminaire finish shall be manufacturers standard paint applied to factory-assembled and tested luminaire before shipping.

Construction Methods:

Contractor should install luminaires in accordance with the manufacturer's installation instructions and shall follow the following installation requirements:

1. Comply with NECA 1.
2. Fasten luminaire to pole.
3. Install luminaires at height indicated on drawings and level and square with finished grade.
4. Perform an illumination test.

Luminaire identification decals shall be installed to the luminaire housing in accordance with NEMA conventions. The contractor shall ensure the decal is readily visible from the ground and meets **ANSI C136.15-2015 Roadway and Area Lighting Equipment-Luminaire Field Identification standard.**

After installation of luminaires and control devices and after electrical circuitry has been energized, test units to confirm proper operation.

Inspect each installed luminaire for damage. Replace damaged luminaires and components.

Luminaires will be considered defective if they do not pass tests and inspections.
Contractor shall provide fixture cutsheets, details, and the IESNA LM-79 and LM-80 test reports to the engineer for shop drawing review before purchasing.

Provide documentation that demonstrates that the proposed model of LED luminaire has been tested for electromagnetic compliance following the measurement protocols specified in ANSI standard C63.4-2003, and required by 47 CFR 15.31.

If Contract Documents require each light fixture to be provided with an independent photoelectric control device, a photocell shall be provided with each lighting fixture in place of the shorting cap. Provide photoelectric control using solid state circuitry, cadmium sulfide type with hermetically sealed silicone rectifier rated 120volt, 60 cycle AC and 1000 watts maximum load. Photoelectric control shall be provided with "Fail On" functionality such that in the event of a photocell becoming inoperative, the light fixture will remain in a permanent "On" state through day and nighttime hours. Photo control shall be twist lock type, with suitable mounting bracket with locking type receptacle.

The photoelectric control shall be set to operate, by default factory setting or by field adjustment, using the following criteria:

- Turn on the light fixture at a minimum vertical illumination value of 3 foot-candles.
- Turn off the light fixture at a maximum vertical illumination value of 6 foot-candles.

All electrical Materials shall conform to the requirements of the National Electrical Code of the National Fire Protection Association, and to all local and state laws and/ordinances governing such installations.

Warranty:

Luminaire to be free from defects and operate as indicated for a period of 5 years from the date of delivery.

Method of Measurement:

The quantity of LED luminaires will be measured as the number luminaires furnished, installed, complete in place, and accepted

Basis of Payment:

The quantity of luminaires will be paid for at the Contract unit price per each. Price and payment will constitute full compensation for furnishing all materials, including the luminaires, and for all labor, equipment, tools, and incidentals required to complete the item installation.

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

JENNIFER COHAN
SECRETARY

UTILITY STATEMENT
1 February, 2019
STATE CONTRACT # T201612001
F.A.P. # N/A
P6#16-00402
CEDAR LANE ROAD AND MARL PIT ROAD
INTERSECTION IMPROVEMENTS
NEW CASTLE COUNTY,

Location:
The intersection of maintenance roads, N427 & N429.

General Scope of work:
Intersection improvements (round-a-bout) at the intersection of Cedar Lane Road and Marl Pit Road.

The following utility companies maintain facilities within the project limits:

ARTESIAN WATER
CHESAPEAKE UTILITIES
DELMARVA POWER – ELECTRICAL DISTRUBUTION
TOWN OF MIDDLETOWN DEPARTMENT OF PUBLIC WORKS
TOWN OF MIDDLETOWN ELECTRICAL DEPARTMENT
NEW CASTLE COUNTY DEPARTMENT OF SPECAL SERVICES
VERIZON

The following is a breakdown of the Utilities involved, adjustments and/or relocations as required:

Artesian Water:
Artesian Water Company maintains underground gas facilities within the project limits with anticipated impacts.
Artesian Water Company maintains the following underground facilities within the project limits:
1. On Marl Pit Road, Artesian Water, maintains a 16" DIP water main, approximately 12' from

the edge of the existing pavement, from the LOC on the west end of the contract location to the intersection of Cedar Lane. There is an existing 16" valve at station 511+98 20'L.
2. At station 512+38 20'L the 16" DIP water main turns north for 38', running 14' from the edge of the existing pavement. At station 426+02 there is an existing 20" steel casing under Cedar Lane Road from 20"L to 10'R.
3. On Cedar Lane Road, Artesian Water, maintains a 12" DIP water main, approximately 2' from the edge of the existing pavement, from the LOC on the north end of the contract location to the existing 20" steel casing at station 426+02, at the intersection of Marl Pit Road. There is an existing 6" valve at station 433+27 13'R. There is an existing valve and hydrant at station 433+27 15'R.
4. On Cedar Lane Road, Artesian Water, maintains a 12" DIP water main, approximately 15' from the edge of the existing pavement, from station 413+81 48"R on the south end of the contract location to the existing 20" steel casing at station 512+78, at the intersection, and under Marl Pit Road. There is an existing 6" valve and tee at station 513+02 38'R.
5. On Marl Pit Road, Artesian Water, maintains a 12" DIP water main, approximately 20' from the edge of the existing pavement, from the LOC on the east end of the contract location to the intersection of Cedar Lane at the existing 20" steel casing at station 512+78. There is an existing 12" valve at station 513+00 36'R. There is an existing 12" valve and tee at station 525+02 27'R. There is an existing valve and hydrant at station 525+02 29'R.

Artesian Water Company proposed changes to the underground facilities include but are not limited to:

1. On Cedar Lane Road, Artesian Water will tie in to the existing 12" DIP water main at station 424+16 69'R. Artesian Water will install a new water main in the PE, approximately 7' behind the ROW to station 516+80 16'R along Marl Pit Road. At station 516+80 16'R Artesian Water will tie in to the existing 12" DIP water main. Artesian Water will install a tee and valves at 516+80 41'R. There will be a section of 12" DIP capped just east of the tee and valves.
2. At station 513+96 Artesian Water will install a road crossing under Marl Pit Road, below the elevation of the new drainage pipes. This water main will turn toward Cedar Lane Road behind the ROW line in the PE. This water main will continue along Cedar Lane Road to station 431+68 42'R. At station 431+68 42'R there will be a section of 12" DIP capped just north of the tee and valves. The water main will tie into the existing water main at station 431+68 12'R.
3. At station 427+35 Artesian Water will install a road crossing under Cedar Lane Road, below the elevation of the new drainage pipes. This water main will turn toward Marl Pit Road behind the ROW line in the PE. This water main will continue west, along Marl Pit Road to station 506+32 48'L. At station 506+32 48'L there will be a section of 16" DIP capped just west of the tee and valves. The water main will tie into the existing water main at station 506+32 19'L.

It is envisioned, but not assured, that this work will be complete before the first chargeable day of the contract. The State Contractor is advised to contact the utility to verify the relocations are complete.

No working Artesian Water, facilities can be taken out of service during the construction project.

These facilities will remain in place and active during the duration of this contract.

Chesapeake Utilities:

Chesapeake Utilities maintains underground gas facilities within the project limits with anticipated impacts.

Chesapeake Utilities maintains the following underground facilities within the project limits:

1. On Marl Pit Road, Chesapeake Utilities, maintains a 6" PE gas main from the LOC on the west end of the contract location to the LOC at the east end of the contract location. There is an existing gas valve at station 509+44 13'R. There is an existing 6" tee, 6"x4" reducer, and a 4" valve at station 513+51 18'R.

2. On Cedar Lane, Chesapeake Utilities, maintains a 4" PE gas main from the LOC on the south end of the contract location to the road crossing at station 424+54 15'L. The 4"PE gas main crosses under Cedar Lane from station 424+54 15'L to station 424+54 15'R. The 4'PE gas main follows the existing edge of roadway and is in the grass shoulder approximately 10' from the edge of paving, around the corner to Marl Pit Road to the gas valve at station at 513+51 18'R .

Chesapeake Utilities proposed changes to the underground facilities include but are not limited to:

1. On Marl Pit Road, at station 508+93 12'R Chesapeake Utilities will intercept the 6" PE gas main. A new HDPE gas main will be placed 6 feet below existing grade, 5 feet from the ROW. This new 6" HDPE gas main will follow the ROW line around the corner to Cedar Lane. At station 424+23 44'L, Chesapeake Utilities will install a 6" tee, 6"x4" reducer, a 6" valve, a 4" valve, vent, locate station and locator balls. The 4" HDPE gas main shall continue along the ROW line to station 422+88 15'L, and tie in to the existing 4" PE gas main.

2. On Cedar Lane, at station 424+23 40'L, Chesapeake Utilities will install 5 feet below existing grade, a 10" HDPE (min wall thickness 0.50") casing for 80 feet, ending at station 424+23 40'R. From station 424+23 44'L to 424+23 44'R, Chesapeake Utilities will install a 6" HDPE gas main, 5 feet from the ROW. This 6" HDPE gas main will continue around the corner, 4 feet below existing grade, to Marl Pit Road at station 516+95 17'R. Chesapeake Utilities will intercept the existing 6" PE gas main and tie-in the new 6" HDPE main. The existing 6" PE gas main in between station 508+93 12'R and 516+95 17'R will be retired in place and cut and caped at the new tie-in locations. The existing 4" PE gas main in between stations 422+88 15'L and 424+54 15'L will be retired in place. The existing 4" PE road crossing from station 424+54 15'L to station 424+54 15'R will be retired in place. The existing 4" PE gas main on Cedar Lane will be retired in place from station 424+54 15'R to the existing tie-in point at the existing gas valve at station 513-51 18'R.

3. The existing gas valve at station 513+51 18'R will be retired in place.

4. The existing gas valve at station 509+44 13'R will be retired in place.

It is envisioned, but not assured, that this work will be complete before the first chargeable day of the contract. The State Contractor is advised to contact the utility to verify the relocations are complete.

No working Chesapeake Utilities, facilities can be taken out of service during the construction project.

These facilities will remain in place and active during the duration of this contract.

DelDOT:

Del Dot maintains ITMS, fiber, lighting and/or signal systems throughout the project limits of this location. These facilities will remain in place and active during the duration of this project. The Contractor must use care when working in these areas. Should any adjustments to Del DOT facilities be needed they shall be performed by the State's contractor in accordance with the Standard Specifications as directed by the District Engineer. The contractor shall report any

impacts to any vehicle detection system to the Traffic Management Center (TMC) (Cell #77) (24 HR 302-659-4600), seven (7) calendar days before the loop system is impacted.

Delmarva Power & Light, Electric Distribution:

Delmarva Power & Light, Electric maintains overhead and underground electrical facilities within the project limits with anticipated impacts.

Delmarva Power & Light, Electric Distribution proposed changes to the overhead facilities include but are not limited to:

These are the stations and offsets from the proposed Poles along Marl Pit Road.

Utility Pole	Station	Offset	Northing	Easting	Elevation
Prop_UP1	507+37.56	-34.58	538585.5871	574888.9408	60.89
Prop_UP2	509+85.00	-50.00	538469.5803	575108.2266	61.79
Prop_UP3	511+31.85	-57.26	538399.0974	575237.2642	62.92
Prop_UP4	511+52.95	-84.17	538411.0358	575269.3085	62.41
Prop_UP5	513+43.44	-45.33	538267.5369	575408.7298	62.75
Prop_UP6	515+17.64	-42.51	538162.3531	575547.6183	63.19
Prop_UP7	516+90.51	-37.90	538056.5124	575684.3829	62.11
Prop_UP8*	518+78.77	47.13	537876.6878	575786.0530	60.91

* Prop_UP8 is an old point that will not be used. It was intended to be a guy pole behind the proposed shared use path before the tie-in pole was changed to DPL 44233-33620.

Stations and offsets from the proposed Poles along Cedar Lane Road are listed below.

Utility Pole	Station	Offset	Northing	Easting	Elevation
Prop_UP9	427+12.85	-67.32	538451.4638	575368.9331	60.34
Prop_UP10	429+15.67	-87.07	538622.8399	575479.1880	57.13
Prop_UP11	431+17.46	-86.41	538780.7526	575604.8270	54.57
Prop_UP12	433+18.94	-83.55	538937.2852	575732.4326	53.56
Prop_UP13	435+21.94	-67.85	539086.0695	575871.4263	51.69

These are the stations and offsets of recently installed and surveyed poles along Marl Pit Road. Before the advance utility relocations began.

Utility Pole	Station	Offset	Northing	Easting	Elevation
DPL 44233-33620	518+03.64	32.35	537933	575734.2	63.68
DPL 44246-33611	519+64.09	32.63	537838	575863.5	59.85
DPL 44259-33601	521+27.47	33.44	537740.8	575994.8	57.71
DPL 44272-33591	522+89.61	33.15	537644.7	576125.1	56.59
DPL 44285-33581	524+53.19	32.61	537547.6	576256.8	55.61

DPL 44298-33571	526+15.91	32.08	537451.1	576387.8	54.94
DPL 44311-33561	527+79.99	32.38	537353.1	576519.4	55.01
DPL 44324-33551	529+44.02	32.71	537255.1	576650.9	56.72
DPL 44338-33541	XXXXX	XXX	537155.8	576784	56.60

These are the existing utility poles for DPL to tie back into.

Utility Pole	Station	Offset	Northing	Easting	Elevation	Tie-in Location
DPL 44133-33691	505+65.91	17.60	538629.9077	574715.0896	61.37	Western Side - Marl Pit Road
DPL 44255-33735	435+73.35	-13.25	539092.1475	575946.1771	52.42	Northern Side - Cedar Lane Road

Delmarva Power will complete these changes. These relocations/adjustments are expected to take approximately 60 calendar days to complete after the company has been given a minimum of 30 calendar days advance notice that work shall begin and the right-of-way and proposed work has been laid out in the field by the State's contractor and required tree trimming and clearing has been performed. These facilities will remain in place and active during the duration of this project. The contractor must use care when working in these underground areas as well as overhead conductor crossings where Delmarva Power facilities are present. Should any adjustments to Delmarva's manhole risers be needed they shall be made by Delmarva with a minimum fourteen (14) calendar days in advance given to Delmarva by the State Contractor. 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 at this location 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"

It is envisioned, but not assured, that this work will be complete before the first chargeable day of the contract. The State Contractor is advised to contact the utility to verify the relocations are complete.

No working/existing Delmarva Power facilities can be taken out of service during the construction project.

No provisions have been made with Delmarva Power to support any pole or facility during construction. Should the contractor decide Delmarva Power facilities require support, it is at the contractor's sole responsibility and expense.
These facilities will remain in place and active during the duration of this contract.

Town of Middletown, Electric:

Town of Middletown, Public Works, Electric, maintains underground electrical facilities within the project limits with no anticipated impacts. The Town of Middletown, electrical facilities will remain in place and active during the duration of this project, including the primary enclosure at station 425+59 56'R and the direct buried primary cables along Cedar Lane Road from station 425+59 56'R to the LOC at station 101+75. The contractor must use care when working in these underground areas where electric facilities are present. If the elevation of the primary enclosure at station 425+59 56'R requires adjusting, it shall be made by the Town of Middletown with a minimum fourteen (14) calendar days in advance given to Middletown Public Works, Electric by the State Contractor, once the proper elevation is identified by the States Contractor.

The Town of Middletown, Public Works, Electric, maintains underground electrical facilities to supply power to the two light poles in the entrance to the Parkside sub-division on Cedar Lane Road, within the project limits. The Town of Middletown, Public Works, Electric will relocate these two light poles and the underground cables from station 414+58 46.9R and 415+41 47.7R to 414+58 51.9R and 415+41 52.7R. It is envisioned that these light poles will be relocated ahead of the construction project.

A new single phase 120/240V transformer and pad for DelDOT lighting, will be installed by Town of Middletown, Public Works, Electric on the south east corner at sta.425+60 56'R during the contract. The contractor shall provide grade and location stakes to the Town of Middletown, Public Works, Electric upon request from the Town of Middletown, Public Works, Electric. (See the roadway lighting construction plans for exact location and details). Payment for survey and engineering shall be incidental to the lighting system components being installed.

No working/existing Town of Middletown, Public Works, Electric facilities can be taken out of service during the construction project.
No provisions have been made with Town of Middletown, Public Works, Electric to support any pole or electrical facility during construction. Should the contractor decide Town of Middletown, Public Works, Electric facilities require support, it is at the contractor's sole responsibility and expense.
These facilities will remain in place and active during the duration of this contract.

Town of Middletown, Water & Waste Water:

Town of Middletown Public Works, Water & Waste Water, owns and maintains underground facilities within the project limits. These facilities will remain in place and active during the duration of this project. There are manhole lids and water valve risers in the roadway and unpaved areas that may require elevation adjustments. The Contractor must use care when working in these areas. Should any adjustments to Town of Middletown, Water & Waste Water, facilities be needed they shall be performed by the State's contractor in accordance with the Specifications as directed by the District Engineer.

No working/existing Town of Middletown, Public Works, facilities can be taken out of service during the construction project.
These facilities will remain in place and active during the duration of this contract.

New Castle County Special Services;

New Castle County Special Services maintains underground sanity sewer force main at this location with no apparent conflicts. Elevation adjustments to New Castle County sewer manhole lids are expected and shall be performed by the state contractor in accordance with the respective agencies' standard specifications as directed by the District Engineer.

Any other adjustments and/or relocations of New Castle County Special Services owned sewer facilities shall be performed by the State's contractor in accordance with the New Castle County Special Services standard specifications as directed by the District Engineer. The State contractor shall coordinate any potential conflicts with New Castle County Special Services and provide adequate notice prior to performing work.

No working/existing New Castle County facilities can be taken out of service during the construction project.

These facilities will remain in place and active during the duration of this contract.

Verizon Delaware:

Verizon owns and maintains overhead and underground facilities within the project limits of this location.

Verizon of Delaware Inc. maintains the following aerial facilities within the project limits:

1. Verizon maintains aerial facilities on the Northwest side of Marl Pit Rd. from Pole #44176/33664 at station 510+51 Right 18 and extends Northwest past the project limits.

2. Verizon maintains aerial facilities on the Northwest side of Cedar Lane Rd. from Pole #44195/33661 at station 425+83 Left 09 and extends Northeast past the project limits.

3. Verizon maintains aerial facilities on the Southwest side of Marl Pit Rd. from Pole #44208/33643 at station 513+32 Right 19 and extends Southeast past the project limits.

Verizon of Delaware Inc. maintains the following underground facilities within the project limits:

1. Verizon maintains buried/underground facilities on the Southeast side of Cedar Lane Rd. from a Verizon Handhole at station 415+67 Right 47 extending Southwest past the project limits.

2. Verizon maintains buried/underground facilities on the Northeast side of West Middlepark Dr. from a Verizon Handhole at station 415+67 Right 47 extending Southeast past the project limits.

3. Verizon maintains buried/underground facilities on the Southeast side of Cedar Lane Rd. from a Verizon Handhole at station 415+67 Right 47 extending Northeast to another Verizon Handhole at the intersection of Marl Pit Rd. at station 424+88 Right 47.

4. Verizon maintains buried/underground facilities on the Southwest side of Marl Pit Rd. from a Verizon Handhole at station 424+88 Right 47 extending Southeast to Pole #44208/33643 at station 514+33 Right 19.

5. Verizon maintains buried/underground facilities from a Verizon Handhole at station 424+88 Right 47 that extends Northwest across Cedar Lane before turning Northeast crossing Marl Pit Rd. and extending to Pole #44210/33678 at station 428+34 Left 14 on the Northwest side of Cedar Lane Rd.

6. Verizon maintains buried/underground facilities on the Southwest side of Marl Pit Rd. from a Verizon Pedestal at station 512+12 Right 17 extending Northwest to Pole #44176/33664 at station 510+51 Right 18.

7. Verizon maintains buried/underground facilities from a Verizon Pedestal at station 512+12 Right 17 that extends Southeast across Cedar Lane Rd. before turning Southwest extending along the Southeast side of Cedar Lane Rd. and past the project limits.

8. Verizon maintains buried/underground facilities from a Verizon Pedestal at station 512+12

Right 17 that extends Southeast across Cedar Lane Rd. and along the Southeast side of Marl Pit Rd. and past the project limits.
9. Verizon maintains buried/underground facilities from a Verizon Pedestal at station 512+12 Right 17 that extends Northeast across Marl Pit Rd. to Pole #44195/33661 at station 425+83 Left 9.
10. Verizon maintains buried/underground facilities from a Verizon Pedestal at station 512+12 Right 17 that extends Northeast across Marl Pit Rd. to a Verizon Pedestal at station 425+83 Left 13 before continuing along the Northwest side of Cedar Lane Rd. and past the project limits.
11. Verizon maintains buried/underground facilities from a Verizon Pedestal at station 512+12 Right 17 that extends Southeast along the Northeast side of Marl Pit Road and past the project limits.

Verizon of Delaware Inc. proposed changes to the underground facilities include but are not limited to:

1. Relocating the Verizon Handhole at station 424+88 Right 47 approximately 30 feet South to station 424+63 Right 62 to avoid conflict with proposed roadway and sidewalk.
2. Relocating the Verizon Pedestal at station 512+12 Right 17 approximately 117 feet South to station 424+71 Right 69 to avoid conflict with the proposed roadway.
3. Removing an existing Verizon Pedestal at station 430+76 Left 14.
4. Removing an existing Verizon Pedestal at station 425+83 Left 13.
5. Removing an existing Verizon Pedestal at station 512+12 Right 22.
6. The 1 buried cable along the Northwest side of Cedar Lane Road will be relocated to the Southeast side of Cedar Lane Road from an existing Verizon Pedestal at station 435+69 Left 14 before crossing Cedar Lane Road to a New Verizon Handhole at station 435+44 Right 15 and extending Southwest along Cedar Lane to a relocated Verizon Handhole at station 424+63 Right 62.
7. The 1 buried cable along the Northeast side of Marl Pit Road will be relocated to the Southwest side of Marl Pit Road from a New Verizon Pedestal at presumed station 519+66 Left 14, crossing Marl Pit Road and extending Northwest to relocated Verizon Pedestal at station 424+71 Right 69.
8. The 1 buried cable on the Southwest side of Marl Pit Road will be relocated further Southwest of Marl Pit Road to a New Verizon Pedestal at station 516+84 Right 30 then extending Northwest to a Relocated Verizon Pedestal at station 424+71 Right 69 to avoid conflict with proposed drainage inlet and drain pipe
9. The 2 buried FO cables on the Northwest side of Cedar Lane Road will be moved from the existing Verizon Handhole at station 424+88 Right 47 to the new Handhole location at station 424+63 Right 62
10. The 1 buried cable on the Center of Cedar Lane Road will be relocated to the Southeast side of Cedar Lane from the relocated Verizon Pedestal at station 424+71 Right 69 extending Southwest past the project limits.

Verizon of Delaware Inc. will complete these changes. These relocations/adjustments are expected to take approximately 90 calendar days to complete after the company has been given a minimum of 30 calendar days advance notice that work shall begin and the right-of-way and proposed work has been laid out in the field by the State's contractor and required tree trimming and clearing has been performed. These facilities will remain in place and active during the duration of this project. The contractor must use care when working in these underground areas as well as overhead cable crossings, where Verizon facilities are present. Should any adjustments

to Verizon manhole risers be needed they shall be made by Verizon with a minimum of fourteen (14) calendar days in advance given to Verizon by the State Contractor.
It is envisioned, but not assured, that this work will be complete before the first chargeable day of the contract. The State Contractor is advised to contact the utility to verify the relocations are complete.
No working/existing Verizon facilities can be taken out of service during the construction project.
These facilities will remain in place and active during the duration of this contract.

General Utility Notes:
Outside of the companies and facilities discussed above, no additional utility involvement is anticipated. Should any conflicts be encountered as a result of the 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. The State Contractor shall coordinate any potential conflicts with utility companies and provide adequate notice prior to performing work.

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 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 owned sewer or water facilities with facility owners and provide adequate notice to the municipally and to the District Engineer prior to performing work.

General Notes

1. **The Contractor's attention is directed to Section 105.09 Utilities, Delaware Standard Specifications, August 2016. The Contractor shall contact Miss Utility (1-800-282-8555) two working days prior to any excavation. The Contractor is responsible for the support and protection of all utilities when excavating. The Contractor is**

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 his 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 105.09 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. The State's Contract 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.**

4. **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 do <u>not</u> work on weekends or legal holidays.**

CONTACT NAME	COMPANY	E-MAIL	PHONE NUMBER
Wayne Tyler	Artesian Water Co.	wtyler@artesianwater.com	302 453-6987
Garth Jones	Chesapeake Gas	gjones@chpk.com	302 213-7455
James Bunting	DelDOT Traffic	Jim.Bunting@state.de.us	302 222-5970
Angel Collazo	Delmarva Power & Light, Elec.	angel.collazo@delmarva.com	302 454-4370
Clarence Swift	Town of Middletown Sewer & Water	cswift@middletownde.org	302 449-2147

CONTACT NAME	COMPANY	E-MAIL	PHONE NUMBER
Shawn Lane	Town of Middletown Electric	slane@middletownde.org	302 378-5143
Dave Clark	New Castle County Dept. of Spec. Services	dclark@nccde.org	302 395-5705
Kevin Penoza	New Castle County Dept. of Spec. Services	kpenoza@nccde.org	302-395-5723
George Zang	Verizon Delaware	george.w.zang@verizon.com	302-422-1238

5. **As outlined in Chapter 3 of the DelDOT Utilities Manual, individual utility companies are responsible for obtaining all required permits from municipal, State and federal government agencies and railroads. 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.**

6. **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 highway contractor perform the necessary restoration. Any additional costs incurred as a result will be forwarded to the utility company.**

7. **16 Del. C. § 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. All contractors/other utilities must also maintain a distance of 10'-0" from all overhead energized lines.**

8. **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.**

9. **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.**

DIVISION OF TRANSPORTATION SOLUTIONS

Chuck Ferguson

UTILITY COORDINATOR

chuck.ferguson@state.de.us

1 Feb, 2019

DATE

STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
PO BOX 778
DOVER, DELAWARE 19903

CERTIFICATE OF RIGHT-OF-WAY STATUS

STATE PROJECT NO. T201612001

F.A.P. NO. N/A for R/W

CEDAR LANE ROAD AND MARL PIT ROAD INTERSECTION IMPROVEMENTS

NEW CASTLE COUNTY

Certificate of Right-of-Way Status – 100%

Status - 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

J. Pappas

James Pappas
Acting Chief of Right of Way

January 7, 2019

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

JENNIFER COHAN
SECRETARY

October 22, 2018

ENVIRONMENTAL REQUIREMENTS

FOR
State Contract No. T201612001
Federal Aid No.: N/A

Contract Title: Cedar Lane Road & Marl Pit Road Intersection Improvements

Due to the nature of the proposed construction activities, permits are not required for this project. However, the following construction requirements and special provisions have been developed to minimize and mitigate impact to the surrounding environs. These requirements by DelDOT, not specified within the contract, are listed below. These requirements are the responsibility of the contractor and are subject to risk of shut down at the contractor's expense if not followed.

GENERAL REQUIREMENTS:

1. All construction debris, excavated material, brush, rocks, and refuse incidental to such work shall be placed either on shore above the influence of flood waters or on some suitable dumping ground.

2. That effort shall be made to keep construction debris from entering adjacent waterways or wetlands. Any debris that enters those areas shall be removed immediately.

3. The disposal of trees, brush, and other debris in any stream corridor, wetland, surface water, or drainage area is prohibited.

4. DelDOT Environmental Studies Section must be notified ((302)760-2264) 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.

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

JENNIFER COHAN
SECRETARY

RAILROAD STATEMENT
For

State Contract No.: T201612001

Federal Aid No.: N/A

Project Title: Cedar Lane Road and Marl Pit Road Intersection Improvements

The following railroad companies maintain facilities within the contract limits:

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

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

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 DelDOT's Railroad Program Manager at (302) 760-2183.

☐ Railroad Agreement required. The necessary Railroad Agreement is pending. The Contractor cannot begin work untill 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 DelDOT's Railroad Program Manager at (302) 760-2183.

Approved As To Form:

Robert A. Perrine
DelDOT Railroad Program Manager

24Oct17
DATE

BID PROPOSAL FORMS

CONTRACT T201612001.01

UNLESS OTHERWISE DIRECTED, SUBMIT ALL FOLLOWING PAGES TO:

DEPARTMENT OF TRANSPORTATION
BIDDERS ROOM
800 BAY ROAD
DOVER, DELAWARE 19901

Identify the following on the outside of the sealed envelope:
- Contract Number T201612001.01
- Name of Contractor

CONTRACT ID: T201612001.01 PROJECT(S): T201612001

All figures must be typewritten.

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
	SECTION 0001 ROAD CONSTRUCTION					
0010	201000 CLEARING AND GRUBBING	LUMP	LUMP			
0020	202003 UNDERCUT EXCAVATION	592.000 CY				
0030	207000 STRUCTURAL EXCAVATION	1588.000 CY				
0040	209001 BORROW, TYPE A	1050.000 CY				
0050	209005 FURNISHING BORROW, TYPE C FOR PIPE AND UTILITY TRENCH BACKFILL	1640.000 CY				
0060	209006 BORROW, TYPE F	2037.000 CY				
0070	211000 REMOVAL OF STRUCTURES AND OBSTRUCTIONS	LUMP	LUMP			
0080	211001 REMOVAL OF PORTLAND CEMENT CONCRETE PAVEMENT, CURB AND SIDEWALK	42.000 SY				
0090	301001 GRADED AGGREGATE BASE COURSE, TYPE B	3044.000 CY				

CONTRACT ID: T201612001.01 PROJECT(S): T201612001

All figures must be typewritten.

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0100	301002 GRADED AGGREGATE BASE COURSE, TYPE B, PATCHING	52.000 CY				
0110	302002 DELAWARE NO. 3 STONE	18.000 TON				
0120	401005 SUPERPAVE TYPE C, PG 64-22 (CARBONATE STONE)	1897.000 TON				
0130	401014 SUPERPAVE TYPE B, PG 64-22	1534.000 TON				
0140	401021 SUPERPAVE TYPE BCBC, PG 64-22	1514.000 TON				
0150	401029 SUPERPAVE TYPE C, PG 64-22, PATCHING	21.000 TON				
0160	401030 SUPERPAVE TYPE B, PG 64-22, PATCHING	41.000 TON				
0170	401031 SUPERPAVE TYPE BCBC, PG 64-22, PATCHING	40.000 TON				
0180	401036 SUPERPAVE TYPE C, PG 64-22, WEDGE	215.000 TON				
0190	401037 SUPERPAVE TYPE B, PG 64-22, WEDGE	326.000 TON				

CONTRACT ID: T201612001.01 PROJECT(S): T201612001

All figures must be typewritten.

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0200	501526 PATTERNED PORTLAN CEMENT CONCRETE, 8"	7203.000 SF				
0210	601011 REINFORCED CONCRETE PIPE, 15", CLASS III	554.000 LF				
0220	601012 REINFORCED CONCRETE PIPE, 18", CLASS III	608.000 LF				
0230	601013 REINFORCED CONCRETE PIPE, 21", CLASS III	529.000 LF				
0240	601100 REINFORCED CONCRETE ELLIPTICAL PIPE, 14" X 23", CLASS III	61.000 LF				
0250	601141 REINFORCED CONCRETE FLARED END SECTION, 15"	5.000 EACH				
0260	601142 REINFORCED CONCRETE FLARED END SECTION, 18"	3.000 EACH				
0270	601143 REINFORCED CONCRETE FLARED END SECTION, 21"	1.000 EACH				
0280	601170 REINFORCED CONCRETE FLARED END SECTION, 14" X 23"	1.000 EACH				
0290	602003 DRAINAGE INLET, 34" X 24"	2.000 EACH				

CONTRACT ID: T201612001.01 PROJECT(S): T201612001

All figures must be typewritten.

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0300	602004 DRAINAGE INLET, 48" X 30"	2.000 EACH				
0310	602005 DRAINAGE INLET, 48" X 48"	7.000 EACH				
0320	602008 DRAINAGE INLET, 66" X 66"	1.000 EACH				
0330	602100 REPLACE DRAINAGE INLET GRATE(S)	1.000 EACH				
0340	602505 PERSONAL SAFETY GRATE	4.000 EACH				
0350	701013 PORTLAND CEMENT CONCRETE CURB, TYPE 1-8	209.000 LF				
0360	701016 INTERGRAL PORTLAND CEMENT CONCRETE CURB AND GUTTER, TYPE 1-4	2110.000 LF				
0370	701023 INTEGRAL PORTLAND CEMENT CONCRETE CURB AND GUTTER, TYPE 3-8	51.000 LF				
0380	701025 PORTLAND CEMENT CONCRETE CURB TYPE 2 MODIFIED	1652.000 LF				
0390	701027 PORTLAND CEMENT CONCRETE CURB, TYPE 1-2 MODIFIED	327.000 LF				

CONTRACT ID: T201612001.01 PROJECT(S): T201612001

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CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0400	701502 STONE CURB	47.000 LF				
0410	705002 PORTLAND CEMENT CONCRETE SIDEWALK, 6"	1441.000 SF				
0420	705007 SIDEWALK SURFACE DETECTABLE WARNING SYSTEM	380.000 SF				
0430	705011 PEDESTRIAN CONNECTION	3228.000 SF				
0440	706000 MONUMENT	26.000 EACH				
0450	706500 RIGHT-OF-WAY MARKER, CAPPED REBAR	14.000 EACH				
0460	707001 RIPRAP, R-4	283.000 SY				
0470	708003 GEOTEXTILES, RIPRAP	712.000 SY				
0480	709001 PERFORATED PIPE UNDERDRAINS, 6"	2077.000 LF				
0490	709011 UNDERDRAIN OUTLET PIPE, 6"	33.000 LF				

CONTRACT ID: T201612001.01 PROJECT(S): T201612001

All figures must be typewritten.

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0500	709017 UNDERDRAIN OUTLET	2.000 EACH				
0510	727006 TEMPORARY CONSTRUCTION FENCE	114.000 LF				
0520	760010 PAVEMENT MILLING, BITUMINOUS CONCRETE PAVEMENT	8985.000 SYIN				
0530	762000 SAW CUTTING, BITUMINOUS CONCRETE	2705.000 LF				
0540	762001 SAW CUTTING, CONCRETE, FULL DEPTH	16.000 LF				
0550	763000 INITIAL EXPENSE/DE-MOBILIZATION	LUMP	LUMP			
0560	763501 CONSTRUCTION ENGINEERING	LUMP	LUMP			
0570	763508 PROJECT CONTROL SYSTEM DEVELOPMENT PLAN	LUMP	LUMP			
0580	763509 CPM SCHEDULE UPDATES AND/OR REVISED UPDATES	5.000 EAMO				
0590	763598 FIELD OFFICE, SPECIAL I	8.000 EAMO				

CONTRACT ID: T201612001.01 PROJECT(S): T201612001

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CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0600	801000 MAINTENANCE OF TRAFFIC	LUMP	LUMP			
0610	803001 FURNISH AND MAINTAIN PORTABLE CHANGEABLE MESSAGE SIGN	60.000 EADY				
0620	804001 FURNISH AND MAINTAIN PORTABLE LIGHT ASSEMBLY (FLOOD LIGHTS)	786.000 EADY				
0630	805001 PLASTIC DRUMS	42000.000 EADY				
0640	810001 TEMPORARY WARNING SIGNS AND PLAQUES	3480.000 EADY				
0650	811001 FLAGGER, NEW CASTLE COUNTY STATE	1792.000 HOUR				
0660	811013 FLAGGER, NEW CASTLE COUNTY, STATE, OVERTIME	358.000 HOUR				
0670	813001 TEMPORARY BARRICADES, TYPE III	8610.000 LFDY				
0680	817002 PERMANENT PAVEMENT STRIPING, SYMBOL/LEGEND, ALKYD-THERMOPLASTIC	1219.000 SF				
0690	817003 TEMPORARY MARKINGS, PAINT, 4"	23748.000 LF				

CONTRACT ID: T201612001.01 PROJECT(S): T201612001

All figures must be typewritten.

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0700	817004 TEMPORARY MARKINGS, PAINT, SYMBOL/LEGEND	2494.000 SF				
0710	817013 PERMANENT PAVEMENT STRIPING, EPOXY RESIN PAINT, WHITE/YELLOW, 5"	11388.000 LF				
0720	817014 PERMANENT PAVEMENT STRIPING, EPOXY RESIN PAINT, WHITE/YELLOW, 10"	71.000 LF				
0730	817015 PREFORMED RETROREFLECTIVE THERMOPLASTIC MARKINGS, BIKE SYMBOL	8.000 EACH				
0740	819016 INSTALLATION OF 4" DIAMETER HOLE, LESS THAN OR EQUAL TO 6" DEPTH	8.000 EACH				
0750	819018 INSTALLATION OR REMOVAL OF TRAFFIC SIGN(S) ON SINGLE SIGN POST	93.000 EACH				
0760	819019 INSTALLATION OR REMOVAL OF TRAFFIC SIGN(S) ON MULTIPLE SIGN POSTS	32.000 SF				
0770	830001 CONDUIT JUNCTION WELL, TYPE 1, 20" X 20" PRECAST CONCRETE	5.000 EACH				
0780	830002 CONDUIT JUNCTION WELL, TYPE 4, 20" X 42-1/2" PRECAST CONCRETE	1.000 EACH				

CONTRACT ID: T201612001.01 PROJECT(S): T201612001

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CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0790	831004 FURNISH AND INSTALL UP TO 4" SCHEDULE 80 PVC CONDUIT (TRENCH)	970.000 LF				
0800	831006 FURNISH AND INSTALL UP TO 4" GALVANIZED STEEL CONDUIT (TRENCH)	25.000 LF				
0810	832006 FURNISH AND INSTALL 1-CONDUCTOR #2 AWG STRANDED COPPER, TYPE USE-2	100.000 LF				
0820	832008 FURNISH AND INSTALL 1-CONDUCTOR #6 STRANDED COPPER, TYPE USE-2	3400.000 LF				
0830	834006 POLE BASE, TYPE 6	6.000 EACH				
0840	835004 CABINET BASE TYPE R	1.000 EACH				
0850	842007 FURNISH AND INSTALL ELECTRICAL UTILITY SERVICE EQUIPMENT 120/240	1.000 EACH				
0860	847006 LIGHTING CONTROL CABINET - 100A	1.000 EACH				
0870	850521 LUMINAIRE (LED), 250 WATTS, HPS EQUIVALENT	6.000 EACH				

CONTRACT ID: T201612001.01 PROJECT(S): T201612001

All figures must be typewritten.

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0880	851003 ALUMINUM LIGHTING STANDARD WITH SINGLE DAVIT ARM, 40' POLE	6.000 EACH				
0890	905001 SILT FENCE	2062.000 LF				
0900	905003 SEDIMENT TRAP	853.000 CY				
0910	905004 INLET SEDIMENT CONTROL, DRAINAGE INLET	14.000 EACH				
0920	905006 INLET SEDIMENT CONTROL, CULVERT INLET	7.000 EACH				
0930	907017 COMPOST FILTER LOGS	234.000 LF				
0940	908004 TOPSOIL, 6" DEPTH	7884.000 SY				
0950	908010 TOPSOILING, 6" DEPTH	13142.000 SY				
0960	908014 PERMANENT GRASS SEEDING, DRY GROUND	17568.000 SY				
0970	908015 PERMANENT GRASS SEEDING, STORMWATER	4414.000 SY				

CONTRACT ID: T201612001.01 PROJECT(S): T201612001

All figures must be typewritten.

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS		UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0980	908017 TEMPORARY GRASS SEEDING	43963.000	SY				
0990	908020 EROSION CONTROL BLANKET MULCH	6357.000	SY				
1000	908021 TURF REINFORCEMENT MATTING, TYPE 1	77.000	SY				
1010	908023 STABILIZED CONSTRUCTION ENTRANCE	313.000	SY				
1020	910009 INFILTRATION TRENCH	515.000	LF				
	SECTION 0001 TOTAL						

SECTION 0002 FIXED QUANTITIES

1030	202000 EXCAVATION AND EMBANKMENT	14917.000	CY				
	SECTION 0002 TOTAL						
	TOTAL BID						

Contract No. T201612001.01

AFFIDAVIT

OF

EMPLOYEE DRUG TESTING PROGRAM

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors implement a program of mandatory drug testing for Employees who work on Large Public Works Contracts funded all or in part with public funds.

We hereby certify that we have in place or will implement during the entire term of the contract a Mandatory Drug Testing Program for our employees on the jobsite, including subcontractors, that complies with this regulation:

Contractor Name: _____

Contractor Address: _____

_____

_____

Authorized Representative (typed or printed): _____

Authorized Representative (signature): _____

Title: _____

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

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED, NOTARIZED, AND RETURNED WITH YOUR BID.

(This form is required from the prime contractor only, not required from subcontractors)

CA 02/2019

CERTIFICATION
Contract No. T201612001.01

The undersigned bidder, _____

whose address is _____

and telephone number is _____hereby certifies the following:

I/We have carefully examined the location of the proposed work, the proposed plans and specifications, and will be bound, upon award of this contract by the Department of Transportation, to execute in accordance with such award, a contract with necessary surety bond, of which contract this proposal and said plans and specifications shall be a part, to provide all necessary machinery, tools, labor and other means of construction, and to do all the work and to furnish all the materials necessary to perform and complete the said contract within the time and as required in accordance with the requirements of the Department of Transportation, and at the unit prices for the various items as listed on the preceding pages.

The foregoing quantities are considered to be approximate only and are given as the basis for comparison of bids. The Department of Transportation may increase or decrease the amount of any item or portion of the work as may be deemed necessary or expedient. Any such increase or decrease in the quantity for any item will not be regarded as a sufficient ground for an increase or decrease in the unit prices, nor in the time allowed for the completion of the work, except as provided in the contract.

Accompanying this proposal is a surety bond or a security of the bidder assigned to the Department of Transportation, for at least ten (10) percentum of total amount of the proposal, which deposit is to be forfeited as liquidated damages in case this proposal is accepted, and the undersigned shall fail to execute a contract with necessary bond, when required, for the performance of said contract with the Department of Transportation, under the conditions of this proposal, within twenty (20) days after date of official notice of the award of the contract as provided in the requirement and specifications hereto attached; otherwise said deposit is to be returned to the undersigned.

I/We are licensed, or have initiated the license application as required by Section 2502, Chapter 25, Title 30, of the Delaware Code.

By submission of this proposal, each bidder and each person signing on behalf of any bidder, certifies as to its own organization, under penalty of perjury, that to the best of each signer's knowledge and belief:

1. The prices in this proposal have been arrived at independently without collusion, consultation, communication, or Agreement with any other bidder or with any competitor for the purpose of restricting competition.
2. Unless required by law, the prices which have been quoted in this proposal have not been knowingly disclosed and will not knowingly be disclosed by the bidder, directly or indirectly, to any other bidder or competitor prior to the opening of proposals.
3. No attempt has been made or will be made by the bidder to induce any other person, partnership, or corporation to submit or not to submit a proposal for the purpose of restricting competition.

==========

I/We acknowledge receipt and incorporation of addenda to this proposal as follows:

No.	Date	No.	Date	No.	Date	No.	Date	No.	Date

BIDDERS MUST ACKNOWLEDGE RECEIPT OF ALL ADDENDA

MUST INSERT DATE OF FINAL QUESTIONS AND ANSWERS ON WEBSITE: _____

==========

AFFIRMATION:

Within the past five (5) years, has your firm, any affiliate, any predecessor company or entity, owner, Director, officer, partner or proprietor been the subject of a Federal, State, Local government suspension or debarment?

YES_____ **NO**_____ if yes, please explain _____

Agreement to Accept Retainage

"Bidder acknowledges that if its Performance-Based Rating as defined in 29 Del.C. §6962 and section 2408 of Title 2 of Delaware's Administrative Code is below the required minimum threshold, as a condition to bid, Bidder acknowledges, consents and agrees to the Department withholding retainage of up to 5% from the monies due at the time of each progress payment under the contract." ***NEW***

Sealed and dated this _____ day of _____ in the year of our Lord two thousand _____ (20___).

_____
Name of Bidder (Organization)

Corporate Seal

By: _____
Authorized Signature

Attest _____ _____
Title

SWORN TO AND SUBSCRIBED BEFORE ME this ____ day of _____, 20____.

Notary Seal

_____
Notary

BID BOND

TO ACCOMPANY PROPOSAL
(Not necessary if security is used)

KNOW ALL MEN BY THESE PRESENTS That:_____

of_____ in the County of _____and State of _____

as **Principal**, and _____ of _____ in the County of

_____ and State of _____ as **Surety**, legally authorized to do business in the State of Delaware ("**State**"), are held and firmly bound unto the **State** in the sum of _____

_____Dollars ($_____), or _____ percent not to exceed _____

_____ Dollars ($_____) of amount of bid on Contract No. T201612001.01 , to be paid to the **State** for the use and benefit of its Department of Transportation ("**DelDOT**") for which payment well and truly to be made, we do bind ourselves, our and each of our heirs, executors, administrators, and successors, jointly and severally for and in the whole firmly by these presents.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH That if the above bounden **Principal** who has submitted to the **DelDOT** a certain proposal to enter into this contract for the furnishing of certain materiel and/or services within the **State**, shall be awarded this Contract, and if said **Principal** shall well and truly enter into and execute this Contract as may be required by the terms of this Contract and approved by the **DelDOT**, this Contract to be entered into within twenty days after the date of official notice of the award thereof in accordance with the terms of said proposal, then this obligation shall be void or else to be and remain in full force and virtue.

Sealed with _____ seal and dated this _____ day of _____ in the year of our Lord two thousand and _____ (20___).

SEALED, AND DELIVERED IN THE
presence of

_____
Name of Bidder (Organization)

Corporate
Seal

By: _____
Authorized Signature

Attest _____

_____
Title

_____
Name of **Surety**

Witness:_____

By: _____

_____
Title