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DEPARTMENT OF TRANSPORTATION
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February 9, 2016

Contract No. T201011302.01
Federal Aid Project No. NH-2015 (26)
US 13 And Port Penn Road Intersection Improvements
New Castle County

Ladies and Gentlemen:

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

1. One (1) page, Bid Proposal Cover revised, to be substituted for the same page in the Proposal.
2. Two (2) pages, Table of Contents, pages xi and xii, revised, to be substituted for the same pages in the Proposal.
3. One (1) page, Special Provision, 202555 - Subsoil Tillage, page 71A has been added to the Proposal.
4. Nine (9) pages, Special Provision, 737523 - Plantings, pages 153A-153I has been added to the Proposal.
5. One (1) page, Bid Page #16, Item #753515 UOM changed from L.F. to L.S.
6. One (1) page, Plan Sheet 179 of 179, revised, to be substituted for the same page in the Proposal, signature added.
7. Expedite File, Addendum No. 1.

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

Sincerely,

signature on file

James H. Hoagland
Contract Services Administrator

:jhh
Enclosure

STATE OF DELAWARE



DEPARTMENT OF TRANSPORTATION

BID PROPOSAL

for

CONTRACT T201011302.01

FEDERAL AID PROJECT NO. NH-2015 (26)

US 13 AND PORT PENN ROAD INTERSECTION IMPROVEMENTS

NEW CASTLE COUNTY

ADVERTISEMENT DATE: January 25, 2016

COMPLETION TIME: 789 Calendar Days

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

Bids will be received in the Bidder's Room at the Delaware Department of Transportation's Administration Building, 800 Bay Road, Dover, Delaware until 2:00 P.M. local time March 1, 2016

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202555 - SUBSOIL TILLAGE

Description:

Subsoil Tillage shall consist of conducting deep tillage in areas designated on the plans or as directed by the Engineer. Unless indicated on the plans, the depth of tillage shall be twenty-four inches vertical.

Materials:

The subsoiler used in the work shall be specially designed for subsoil tillage. All subsoilers and tractors utilized are subject to approval by the Department. Within thirty days, the Contractor shall supply the Department with the name and model number of the subsoiler and tractor, and the subsoiler and tractor manufacturer's guidelines related to equipment size, power and drawbar pounds pull. Plows or disks shall not be utilized for this work. The subsoiler shall have a minimum net weight of 6500 pounds. Unless specified on the plans, the subsoiler shall have the capability of operating with a minimum of five steel shanks, and the distance between adjacent shanks shall not exceed thirty (30) inches. Unless specified on the plans or directed by the Engineer, the maximum number of shanks as designed for the subsoiler shall be utilized when conducting this work. Each steel shank shall have the minimum dimensions of one and one-half inches by seven and one-half inches by thirty inches (1½ x 7½ x 30). Larger shanks are acceptable. The minimum vertical tillage depth shall be twenty-four (24) inches as measured by field performance, as determined solely by the Engineer. Each shank shall be equipped with replaceable steel points.

A crawler-tracked tractor shall be utilized for the subsoiling operations. The tractor shall conform to the subsoiler and tractor manufacturer's recommendations as to minimum size, power and drawbar pounds pull for the subsoiler with reference to specified tillage depth, soil texture and soil conditions. The tractor shall have the hydraulic lines and characteristics necessary for proper operation of the subsoiler as designed and recommended by the manufacturer. It shall be the Contractor's responsibility to ensure that all equipment possesses sufficient power and is of appropriate design and weight distribution to complete the subsoiling operations.

Construction Methods:

Subsoil tillage shall be performed within the areas shown on the plans. Unless directed by the Engineer or indicated on the plans, the subsoiling operation shall be conducted in two series of passes, with the second series of passes being made perpendicular to the first series or as directed by the Engineer. The distance between parallel passes of the same series shall not exceed the distance between the individual shanks. Unless directed by the Engineer, the subsoiler shall be operated at a speed of four to five (4-5) miles per hour. If shown on the plans, the subsoil tillage shall be conducted during the specified period. Commencement of the subsoiling operations shall begin within seven (7) days of the direction by the Engineer and completed within fourteen (14) days.

Method of Measurement

The quantity of Subsoil Tillage will be measured by the number of square yards accepted to the limits shown on the Plans, conforming to all the requirements of these specifications, complete and accepted.

Basis of Payment:

This item will not be measured for payment but shall be incidental to Item 743000 - Maintenance of Traffic, as noted on the plans.

2/04/16

737523 - PLANTINGS

737.1 Description.

This work consists of furnishing and planting specified plants, shrubs, and trees and the replacement and cultural care of the material.

MATERIALS.

737.2 Plant Material.

- a. *Quality.* All plants shall be true to type and nomenclature and typical of their species or variety. They shall have a normal habit of growth with well-developed branch systems and vigorous root systems. They shall be sound, healthy, and vigorous plants, free from defects, disfiguration, injury, disease of any kind, insect eggs, borers, and any infestation. All plants shall be nursery grown. They shall have been growing under similar climatic conditions to those of the locality of the Project for at least two years prior to planting. All plant material shall have been grown in a soil that is similar to this area and shall not have been grown in a muck type soil or other foreign type. It shall be the responsibility of the Contractor to inspect the plants before removal from the nursery where they have been grown to make sure that the plants meet these requirements. All plants shall be freshly dug, and no heeled-in or cold storage plants will be accepted, with the exception of plant material delivered prior to planting as outlined in Subsection 737.14.
- b. *Measurements.* All plants shall conform to all sizes and measurements specified in the Plant List. Plants that conform to the requirements specified in the Plant List but do not have a normal balance between height and spread will not be accepted. Where any requirement or exact measurement is omitted, the plants furnished shall be normal for the species and variety as listed in AAN's "USA Standards for Nursery Stock". Plants for use where symmetry is required shall be matched as close as possible. All plants shall be measured for height and spread with the branches in their normal position. The trunk diameter of all trees shall be taken 6" above the ground level for up to and including 4" diameter sizes, and 12" above the ground level for larger sizes. The height of the branches on the tree trunks need not be as specified if the required height can be obtained by pruning the lower branches without leaving unsightly scars and damaging the trunk. No pruning of branches for this effect shall be done before delivery to the site unless approved. Plants larger in size than specified may be used. Larger plants, when selected for use over that which is specified, shall be dug with an earth ball or root spread proportionate to the increased size. With plants smaller than specified, credit shall be offered to the Department for approval. The basis of a credit shall be the average wholesale value based on the difference between the specified size and the next smaller size. The average wholesale value shall be substantiated with written submissions in accordance with Subsection 737.02 (e).
- c. *Inspection.* The Contractor shall be responsible for all certificates of inspection of plant materials that may be required by Federal, State, or other authorities to accompany shipment of plants. The Contractor shall furnish complete information as to the location of all plants

which it intends to supply and use. The right is reserved to inspect, tag, and approve all plants at the source of supply. This inspection and tagging shall not in any way eliminate the right of rejection at the site. All plants must be inspected and approved before they are planted. Any plants placed without prior inspection at the site will be rejected at the discretion of the Engineer. The Plant materials shall be protected according to best horticultural practice while in transit in such a way as to prevent the drying or possible desiccation of plant tissue. All plant material arriving at the site with broken or loose balls, or dry or insufficiently developed roots, and plants which are weak or thin, damaged or defective, or which do not comply with the specifications, will not be accepted. The Engineer reserves the right to reject all stock that is found to be unsatisfactory. All plant material determined as unsatisfactory by the Engineer shall not be planted under any circumstances and shall be removed from the Project site by the close of the working day. Failure on the part of the Contractor to comply with any of the above procedures will require an immediate suspension of all work.

- d. *Nomenclature.* Plants shall conform to the nomenclature of "Standard Plant Names" as accepted by the American Joint Commission of Horticulture Nomenclature, 1942 Edition. Names of varieties not included shall conform to names accepted in nursery trade. Size and grading shall conform to those listed in AAN's "USA Standards for Nursery Stock". No substitution will be permitted except by written permission of the Engineer.
- e. *Availability.* The Engineer, after receiving written request from the Contractor for substitution, will verify and establish the non-availability of the specified plant and size to this satisfaction. Upon determining that a substitution is justified, the Contractor will be directed to provide certification in the form of five letters from five independent growers who list the specified plant form in their most current catalog, stating that the item in question is not available as specified.
- f. *Experience.* Under Special Condition No. 22 of the U.S. Army Corps of Engineers 404 Permit, it is stipulated that: *The mitigation and post-planting monitoring plans shall be developed and implemented by a firm with demonstrated expertise in wetland creation activities.*

Therefore, the firm that does the actual planting and seeding of the mitigation site shall possess a record of successful wetland woody and wetland herbaceous and seeding programs that have received final approval by the U.S. Army Corps of Engineers, or have on-site staff personnel who have managed successful wetland woody and herbaceous planting and seeding programs that have received final approval by the U.S. Army Corps of Engineers. At the request of the Department, information indicating compliance with this "Special Condition" shall be forwarded within 14 days.

737.3 Trees. Trees shall have straight trunks according to their habit of growth and shall be well branched and rooted. Shade trees of standard variety shall have a single leader and shall be branched at 6 to 8' height unless otherwise directed.

737.4 Shrubs. Shrubs shall be well branched, with full and compact growth and have ample well branched root systems capable of sustaining vigorous plant growth.

- a. *Woody Shrub Cuttings* Cuttings shall be fresh 24" long stems of woody plants. Each cutting shall have a living terminal bud (end bud). Prior to installation, the cutting shall be kept cool and moist to prevent desiccation of the material. Degraded, rotting, or dried out material will not be accepted.

737.5 Ground Cover and Herbaceous Perennials.

Ground cover shall be one year old, container grown plants, unless otherwise approved or specified in the Contract documents and shall have been growing for at least six months in the size specified as verified by the Department's inspection representative.

Herbaceous plant material shall be at least six months old and shall have been growing for at least three months in the size specified unless otherwise detailed in the plans, and as verified by the Department's inspection representative.

737.6 Soil Mix.

- a. *Topsoil.* Planting topsoil shall consist of natural surface soil from well drained areas from which no topsoil has previously been stripped. The topsoil shall be free of subsoil, heavy clay, hard clods, weeds, roots, sticks, toxic substances, or any other extraneous material. The topsoil shall have a pH range of from 5.5 to 6.8 and contain not less than 2% nor more than 10% organic matter. The topsoil shall exhibit the following grading analysis:

Sieve Size Minimum Percent Passing

2" 100

No. 4 90

No. 10 80

The Contractor shall take the necessary action to ensure that the topsoil meets the sieve analysis, acidity, and organic matter requirements. A certificate of analysis of soil samples shall be provided to the Engineer and approved prior to delivery of topsoil to the Project site.

- b. *Peat Moss and Peat Humus.*
 - i. *Peat Moss.* Peat moss shall be from sphagnum peat bogs. All peat moss shall be shredded, not dusty, and free of twigs, stones, hard lumps, roots, or any other undesirable materials. All peat moss must be moistened before using, but not watered to a saturated or puddled, unworkable condition. Peat moss shall show an acid reaction of 3.5 to 5.5 pH. The Contractor shall provide written certification from the manufacturer that the peat moss was obtained from sphagnum peat bogs.
 - ii. *Peat Humus.* Peat humus shall be a natural peat or peat humus from fresh water saturated areas, consisting of sedge, sphagnum, or reed peat and be of such physical condition that it passes through a 2" sieve. The humus shall be free from sticks, stones, roots, and other objectionable materials. Samples taken at the source of supply shall have the following analysis:

<i>Acidity Range</i>	<i>4.0 to 7.5 pH</i>
<i>Minimum Water Absorbing Ability</i>	<i>200% by weight on oven-dry basis</i>
<i>Minimum Organic Content</i>	<i>60% when dried at 221 EF (105 EC)</i>

- c. *Composted leaf mulch free of wood, metallic substances, glass or other contaminants may be used in lieu of peat moss or peat humus.*

737.7 Fertilizer. Fertilizer shall be a 20-10-5 analysis or approved equal in accordance with the following minimum guaranteed analysis:

Total Nitrogen (N)	20.00%
Derived from urea-formaldehyde	
7.0% water soluble nitrogen	
13.0% water insoluble nitrogen	
Available Phosphoric Acid (P ₂ O ₅)	10.00%
Derived from calcium phosphate	
Soluble Potash (K ₂ O)	5.00%
Derived from potassium sulfate	
Combined Calcium (Ca)	2.60%
Derived from calcium phosphate	
Combined Sulfur (S)	1.60%
Derived from ferrous and potassium sulfates	
Iron (expressed as elemental Fe)	0.35%
Derived from ferrous sulfate	

The fertilizer shall be formulated in tablet form weighing a minimum of 20g per tablet.

The fertilizer shall conform to all State and Federal regulations. The Engineer will require the Contractor to furnish an affidavit from the vendor or a testing laboratory as to the available nutrients contained therein.

Fertilizer shall be furnished in new, clean, sealed, and properly labeled packages or containers. Fertilizer failing to meet the specified analysis may be used as determined by the Engineer, providing sufficient materials are applied to comply with the specified nutrients per unit of measure.

737.9 Mulch. Mulch shall be shredded hardwood bark or wood chips, or an approved equal as accepted by the Engineer. All mulching materials will be visually inspected by the Engineer prior to delivery at the planting site and shall conform to the following requirements:

- a. Shredded hardwood bark shall be from a deciduous hardwood source and be mechanically ground to a maximum size of 6". In addition, the bark shall be relatively free of bark fines dust and shall exclude all foreign and toxic substances.
- b. Wood chips must be stockpiled for at least one year prior to placement as verified by the Department's inspection representative and shall not contain leaves, twigs, wood shavings and sawdust, or any foreign or toxic substances. In addition, loose, non-pelletized fertilizer with analysis in accordance with Subsection 737.07 shall be applied at the rate of 0.5 lb/yd² prior to wood chip placement.

Only one of the above mulches will be selected and approved for use throughout the entire Project, and written certification for the above listed requirements of the mulch shall be submitted by the Contractor.

737.10 Stakes, Guys, and Related Materials. Staking and guying shall be as per the Standard Construction Details or alternate method approved by the Engineer.

- a. *Tree Stakes.* Hardwood stakes shall be at least 2" by 2" rough sawed to the length required.

- Stakes shall be free from knots, rot or other defects that impair strength.
- b. *Guying straps.* Guying straps shall be one and one-half to two inches (1.5-2.0”) wide, of polymer or nylon construction, with grommets at both ends to accept wire or heavy twine.
 - c. *Anchoring systems.* Anchors for guy wire shall be malleable iron or aluminum alloy with 3000 lb holding capacity designed to be inserted with a driving rod to a depth specified by the manufacturer. The anchor assembly shall be designed to turn, once located at the proper depth, at a right angle to the line of force applied. All manufacturers’ recommendations shall be followed for installing ground anchoring systems.

737.11 Water. Conform to the requirements of Section 803.

CONSTRUCTIONMETHODS.

737.12 Planting Periods. Plant during the following planting period with the exceptions as noted:

Balled or Burlapped and Potted or Container Grown Plant Material:

March 1 to May 15; September 1 to November 30:

- (1) All planting of broadleaf evergreens during the fall season shall be completed by November 1.
- (2) All material planted from May 16 to August 31 must be treated with an approved antitranspirant in a manner recommended by the manufacturer, and written approval for moving plants within this period must first be obtained from the Engineer.
- (3) Woody Shrub Cuttings Install as dormant materials between October 30 and December 1 or between March 1 and April 1.

The above mentioned periods may be extended or reduced according to weather and soil conditions at the time and upon written request from the Contractor to the Engineer for approval. Planting outside the planting window does not relieve the contractor of his guarantee. The Engineer reserves the right to stop planting operations at any time.

The Contractor shall not plant when weather conditions are unfavorable for proper work or when the soil is in a frozen condition.

737.13 Soil Mixture. Soil mixtures for the various plantings shall consist of the following:

- a. *All Plants Except Ericaceous Material.* For each cubic yard of baled peat moss, or approved equal, add from 43 to 54 yd³; of planting topsoil.
- b. *Ericaceous Plants.* For each cubic yard of baled peat moss, or approved equal, add from 36 to 45 yd³; of planting topsoil. If peat humus is furnished in lieu of peat moss in the above mix, the mixture shall be based in the proportion of 1.8 yd³; of peat humus for each cubic yard (cubic meter) bale of peat moss specified for the above soil mix. Other approved equal materials shall be mixed according to manufacturer's printed recommendations which shall be submitted to the Engineer for written approval.

The above soil mixtures shall be mixed as specified in an area approved by the Engineer. No mix shall be prepared prior to notification of the Engineer at least 48 hours in advance of the mixing operation. Where ground covers or herbaceous perennials are specified, the soil mix may be mixed in place providing the existing topsoil conforms to the requirements of subsection 737.06.

The fertilizer as specified in accordance with Subsection 737.07 shall be placed according to the following requirements:

- a. *Balled and Burlapped, or Container Stock.* Position the plant in the hole, and backfill no higher than halfway up the root ball. Place the recommended number of tablets evenly around the perimeter of and immediately adjacent to the root ball. Complete the backfilling, tamping, and watering.
- b. *Small Ground Cover Plants and Herbaceous Perennials.* Position the plant in the hole, and backfill no higher than halfway up the root ball. Place the recommended number of tablets evenly around the perimeter of and immediately adjacent to the root ball. Complete the backfilling, tamping, and watering.
- c. *Trees.* Use one 20 g tablet for each 1/2" of tree trunk diameter based on size specified for planting.
- d. *Shrubs.* Use one 20 g tablet for each 12" of height or spread based on size specified for planting.
- e. *Ground Cover and Herbaceous Perennials.* Use one 20 g tablet for each plant.

No backfill shall be placed in any pit until the excavation has been inspected. Excess excavated material shall be removed from the Project site.

737.14 Digging and Handling. All precautions customary in good trade practice shall be taken in preparing plants for transplanting. Plants transplanted with workmanship that fails to meet the highest standards will be rejected. All balled and burlapped plants shall have firm, natural balls of earth of ample proportions and diameter not less than as specified in AAN's "USA Standards for Nursery Stock". Plants with cracked, broken, or crushed balls, which occur either before or during planting operations, will be rejected or shall be removed from the site immediately. All plants shall be handled so that roots are adequately protected and moist at all times. Material that cannot be planted immediately after delivery shall be adequately protected by covering with canvas, wet straw, burlap, moss, or other suitable material and kept covered until ready to be planted. Trees should not be planted with frozen earth balls. Containerized plant material shall be growing in the specified size container for at least six months and shall not display signs of being root bound or unnatural ratio of planting medium vs. root mass.

737.15 Location of Plants. Plants shall be located as indicated on the Plans, but may be shifted to avoid utilities subject to the approval of the Engineer. No excavation shall commence until locations are approved.

737.16 Planting. All trees and shrubs shall be planted in pits as detailed on the Standard Construction Details. Pits shall not be excavated with vertical sides. Pits shall be of such a depth that, when planted and settled, the crown of the plant shall bear the same relation to finished grade as it did to soil surface in its place of growth. With the approval of the Engineer, the Contractor may elect to plant wetland grown containerized shrubs on small mounds raised no more than 2" above the final grading elevation shown on the Plans.

Open plant pits shall not be allowed overnight in residential areas or in any location where it is determined by the Engineer to pose a potential hazard to pedestrians or traffic. All backfill topsoil shall be covered with a waterproof material after mixing. Pits shall be backfilled with specified soil mix and compacted firmly under ball of roots to establish a firm foundation. Plants shall be set in the center of pits in a vertical position so that the crown of the plant is level with the finished grade after allowing for watering and settling of soil. The "Soil Mixture" shall be carefully and firmly worked and tamped under and around the base of the ball to fill all voids. When partially backfilled and compacted, the burlap and any wire baskets shall be removed from the sides and tops of the balls and cut away to prevent air pockets, but no burlap shall be pulled from under the balls. All burlap, wire baskets and other containers

shall be removed from the jobsite at the end of the workday. The balance of the planting hole shall be filled with the planting mixture and a ring of earth shall be formed around the plant to produce a dish for watering. All plants shall be thoroughly watered immediately after planting as directed by the Engineer. This initial watering shall mean complete saturation of all backfill in the pits and beds during the same day of planting. Care shall be taken during all planting operations to ensure that no excavated material is dumped on any grassed area unless a suitable type of matting or protective underlay is used. The Contractor shall be responsible for all damage to any grassed, planted, or other landscaped area caused by its operations and shall repair any damage so caused in a manner satisfactory to the Engineer.

Ground cover and herbaceous perennial areas shall be prepared by rototilling to a minimum depth of 10". The mixing of peat moss, peat humus, or approved equal may be performed separately in order to obtain the proportion of ground cover or herbaceous perennial soil mixture as specified. Beyond the minimum excavation as stated above for soil mixing, the root system of the plant shall determine the actual depth for individual plant excavation. Plants shall be backfilled with the soil mixture and compact firmly around roots. All areas shall have a smooth and uniform grade and a minimum of 2" of approved mulch.

- a. *Pruning.* All plants shall be pruned immediately after planting or transplanting to remove all injured or dead wood. All trees inspected and tagged at the nursery shall conform to AAN Standards, and any subsequent pruning by the Contractor shall in no way alter the natural habit or shape of the plant. All pruning shall be done with sharp tools by workers skilled in this operation. All cuts shall be made flush, leaving no stubs. On all cuts over 3/4" in diameter and bruises or scars on the bark, the injured cambium shall be traced back to living tissue and removed; wounds shall be smoothed and shaped so as to preserve the branch bark ridge.
- b. *Watering.* Plants shall be watered on the same day as planting unless otherwise approved by the Engineer. Quantity of water per plant shall be as detailed in Section 737.17.
- c. *Mulching.* Trees and shrubs shall be mulched with at least a 4" cover of mulch. Mulch shall be placed the same day of planting, unless otherwise approved by the Engineer.
- d. *Wire baskets, nylon binding and treated burlap* shall be cut away and removed from the top half of the root ball.
- e. *Staking and Guying.* Unless approved by the Engineer, all staking and guying specified shall be completed the same day as planting and mulching.
- f. *Cleaning Up.* Throughout the course of planting, excess and waste materials shall be immediately removed from the site, seeded areas kept clean, and all precautions taken to avoid damage to existing structures, trees, shrubs, plants, and grass. When planting in an area that has been otherwise completed, the area shall, upon completion of the planting, be immediately and thoroughly cleared of all debris, rubbish, subsoil, and all waste materials removed from the site. All ground surfaces shall be raked smooth. All sodded areas disturbed as a result of construction shall be repaired by the Contractor.

737.17 Plant Establishment. The plant establishment period for all planting shall begin immediately after all planting and replacements (as specified under Section 737.16, Planting) are complete and acceptable to the Engineer. The plant establishment period will consist of one full growing season during which time the Contractor shall be responsible for all work necessary to keep the plants in a live and healthy condition. A growing season is defined as the period from May 1 through September 30. If the Contractor completes all planting (as specified under Planting) by May 1, the inspection will be held on or about October 1 of that year. In the event the Contractor does not complete all planting by May 1, the inspection will be held on or about October 1 of the following year. All replacement plant material determined to be necessary at the inspection must then be approved at the replacement plant source by October 15. At this time, the Engineer will direct the Contractor to replace those plants determined to be dead or unhealthy by December 1. The

Contractor will notify the Engineer in writing that all replacement planting has been accomplished. The Engineer will conduct an inspection within 15 days after such notification to determine the acceptability of the replacements. If all replacements are determined satisfactory by the Engineer, the Contractor will be relieved of all further responsibility for care and replacement.

All planting areas shall be kept free of weeds and grass during the life of the Contract. The Contractor may utilize a pre- or post-emergent herbicide to control such grass and broadleaf weeds incidental to the cost of planting and be totally responsible for the proper use and placement of any such herbicide. As requested in writing by the Engineer, the Contractor shall be responsible to weed within all plant beds and within the saucer limits of individual plants, beginning 10 calendar days after the date of notification. The Contractor shall prune and apply insecticides or fungicides as required, repair or replace stakes and guy wires, tighten guy cable or wire and repair plant saucer washouts when and as specified by the Engineer.

Any plants that settle below or rise above the desired finished grades shall be reset at the proper grades.

If dead or unhealthy plants are discovered, they shall be removed within 10 calendar days and replaced with the next appropriate planting season.

All replacements shall be plants of the same kind, size and quality as originally specified in the Contract and they shall be furnished, planted, mulched, guyed, watered, etc. as specified herein for new plant material.

The Contractor shall warrant all plant material against defects including death and unsatisfactory growth, except for defects resulting from incidents beyond the Contractor's control, such as vehicular impacts or vandalism. Submission of appropriate police reports or other approved evidence verifying the cause of the damage shall be required to relieve the Contractor of responsibility for replacement.

The cost of the above described work shall be incidental to Section **737**, Planting. Contractor shall be required to water all major and minor trees, shrubs and all herbaceous beds bi-weekly during the period from June 15 through October 1. Watering, once initiated, shall continue without interruption until all plants on the project have been watered. Payment shall be per 1,000 gals of water applied and shall be based on the following schedule: Major trees-15 gals per tree, minor trees-10 gals per tree, shrubs-5 gals per shrub, perennials-10 gals per 100 square feet of planting bed. Water used for this item shall meet the requirements of Section 803 of the Standard Specifications. Tree watering bags, if utilized, shall be filled as a part of the watering operation; payment shall be as detailed herein. Tree watering bags shall remain the property of the contractor and shall be removed prior to final inspection.

737.18 Method of Measurement. The quantity of planting will not be measured.

737.19 Maintenance Bond. Upon Substantial Completion of the Work, the Contractor shall furnish to the Department a Maintenance Bond on the form provided by the Department for item 737523 - Planting. The Maintenance Bond shall meet the following requirements:

A sum equal to 100% of the value of all Planting Items paid to the Contractor, as detailed in the Breakout Sheet; All signatures are original signatures, in ink, and not mechanical reproductions or facsimiles of any kind; The Contractor is the named principle; Section 737.17 – Plant Establishment Work items associated with this section requires completion after substantial completion of the Project. The term of the

Maintenance Bond will be for a period of one full growing season, as defined in the section, beyond the completion of permanent planting Work; and, Written by a Surety or insurance company that is in good standing and currently licensed to write surety bonds in the State of Delaware by the Delaware Department of Insurance.

737.20 Basis of Payment.

This item will not be measured for payment but shall be incidental to Item 743000 - Maintenance of Traffic, as noted on the plans.

The incidental cost will constitute full compensation for furnishing and placing all materials, including plants, soil mixes, and mulch; for protecting plants after digging and prior to planting; for staking, excavating plant pits, pruning, and guying; for the cultural care of the plants until the completion and acceptance of all landscape work; for disposing of excess and waste materials; for replacement planting; for cleanup; for repairs to plant material, tree protection, wire, or staking; for repairs to damaged grassed, planted, or other landscaped area due to the Contractor's operations; for ensuring that topsoil meets the sieve analysis, acidity, and organic matter requirements; for applying sufficient materials to fertilizer that originally failed to meet the specified analysis; for using pre- or post-emergent herbicide to control grass and weeds; for the work outlined under Subsection 737.17; and for all labor, equipment, tools and incidentals required to complete the work. The quantity of watering will not be measured but shall also be incidental to Item 743000 - Maintenance of Traffic.

On contracts where assessment of time is in working days, the Contractor will be charged working days while engaged in actual planting and directly related work such as plant pit excavation, staking, wrapping, and mulching. The Contractor will not be charged time for indirectly related work such as watering, weed control, pruning, and other responsibilities as described under Subsection 737.17

The cost to remove and replace plants that settle below or rise above the desired finished grades, or that die or are unhealthy as described in Subsection 737.17 shall be the responsibility of the Contractor.

2/04/16

DELAWARE DEPARTMENT OF TRANSPORTATION
SCHEDULE OF ITEMS

PAGE: 16
DATE:

CONTRACT ID: T201011302.01 PROJECT(S): NH-2015(26)

All figures must be typewritten.

CONTRACTOR : _____

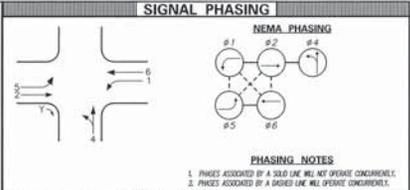
LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE		BID AMOUNT	
			DOLLARS	CTS	DOLLARS	CTS
1450	749687 INSTALLATION OR REMOVAL OF TRAFFIC SIGN(S) ON SINGLE SIGN POST	EACH 78.000				
1460	749689 INSTALLATION OF 4" DIAMETER HOLE, GREATER THAN 6" DEPTH	EACH 2.000				
1470	749690 INSTALLATION OR REMOVAL OF TRAFFIC SIGNS ON MULTIPLE SIGN POSTS	SF 1115.000				
1480	753515 INSTALLING SANITARY SEWER (FORCE MAIN), PVC, 2"	LUMP	LUMP			
1490	758000 REMOVAL OF EXISTING PORTLAND CEMENT CONCRETE PAVEMENT, CURB, SIDEWALK, ETC.	SY 181.000				
1500	760003 PAVEMENT - MILLING, HOT-MIX, VARIABLE DEPTH	SY 1856.000				
1510	760006 PAVEMENT - MILLING, HOT-MIX, 2" DEPTH	SY 81993.000				
1520	760016 RUMBLE STRIPS, HOT-MIX	LF 10055.000				
1530	760017 RUMBLE STRIPS, CONCRETE	LF 3129.000				
1540	762001 SAW CUTTING, BITUMINOUS CONCRETE	LF 15764.000				

CONDUIT RUN SCHEDULE				
CON	# OF CONDUITS	SIZE	LENGTH B/T/O	AMOUNT AND TYPE OF CABLE / WIRE
1*	1	2.0 IN	20 FT	T (0) 2" x 8 UF, W/GROUND
2*	1	2.0 IN	5 FT	T (0) 2" x 8 UF, W/GROUND
3	4	4.0 IN	17 FT	T (0) 2" x 4 FIBER OPTIC CABLE (BY OTHERS)
4	1	4.0 IN	4 FT	T (0) 2" x 4 FIBER OPTIC CABLE (BY OTHERS)
5	1	4.0 IN	28 FT	T (0) 2" x 4
6	1	4.0 IN	122 FT	B (0) 2" x 4
7	1	4.0 IN	63 FT	T (0) 2" x 4
8	1	4.0 IN	152 FT	T (0) 2" x 4
9	1	4.0 IN	202 FT	T (0) 2" x 4
10	1	4.0 IN	89 FT	B (0) 2" x 4
11	1	4.0 IN	65 FT	B (0) 2" x 4
12	1	4.0 IN	92 FT	T (0) 2" x 4
13	1	4.0 IN	75 FT	B (0) 2" x 4
14	1	4.0 IN	156 FT	T (0) 2" x 4
15	1	4.0 IN	182 FT	T (0) 2" x 4
16	1	4.0 IN	16 FT	T FIBER OPTIC CABLE (BY OTHERS)
17*	2	3.0 IN	4 FT	T (0) 2" x 4 (3) 4" x 8
18	2	3.0 IN	18 FT	T EMPTY
19	2	3.0 IN	30 FT	T EMPTY
20	2	3.0 IN	18 FT	T EMPTY

* RIGID GALVANIZED STEEL CONDUITS
 † RIGID GALVANIZED STEEL CONDUITS INSTALLED BY DELDOT FORCES

B = BORE, T = TRENCH, O = OPEN CUT

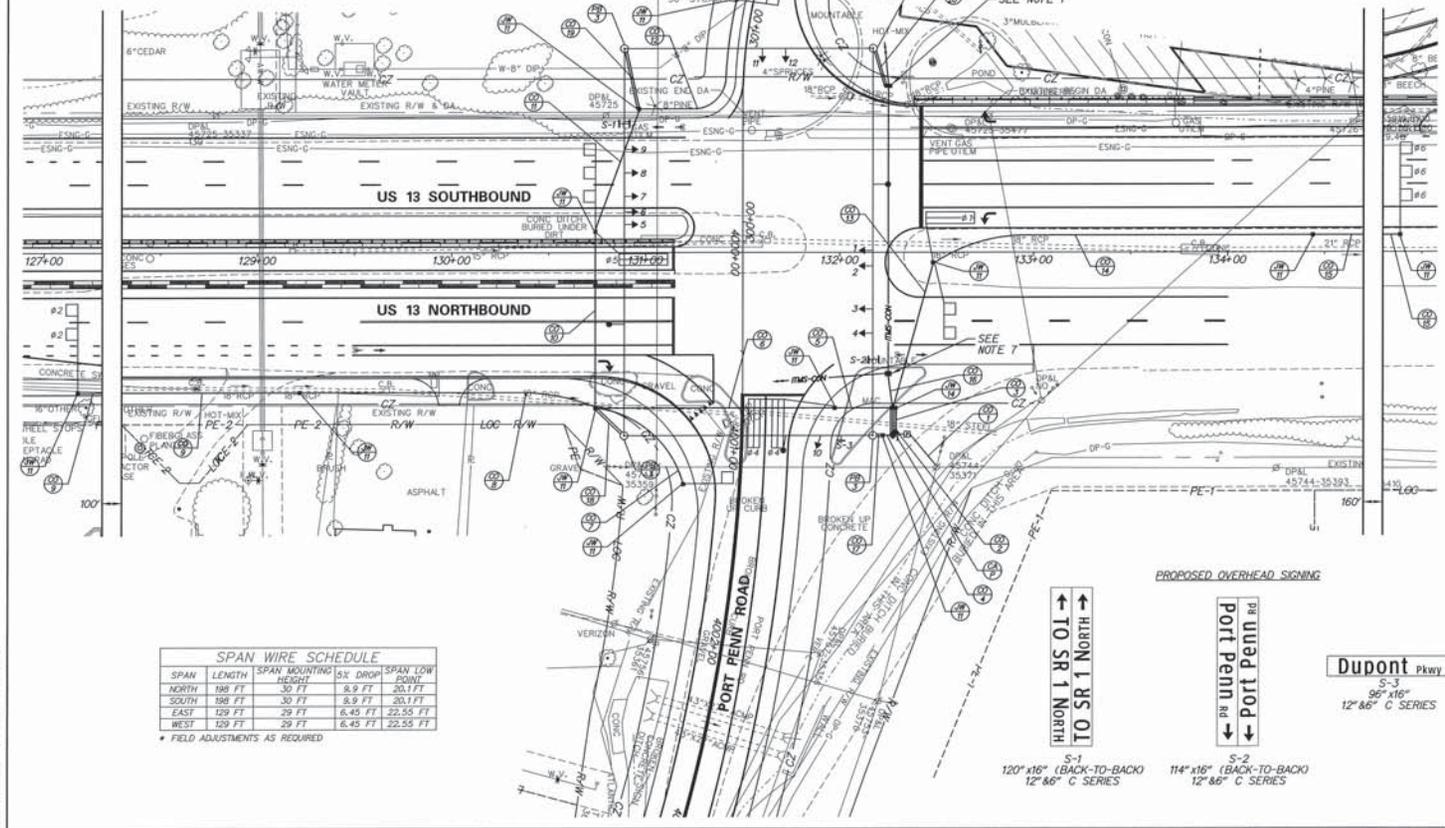
- NOTES:**
- UNLESS OTHERWISE NOTED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND REMOVAL OF ALL UNDERGROUND SIGNAL EQUIPMENT - E.G. JUNCTION WELLS, CABINET AND POLE BASES, AND CONDUIT. DELDOT'S TRAFFIC CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND REMOVAL OF ALL ELECTRICAL CABLES AND ABOVE GROUND SIGNAL EQUIPMENT - E.G., HEADS, OPTICOM RECEIVERS, SPAN WIRES, SERVICE PEDESTAL, POLES, AND CABINET.
 - INSTALL SIGNAL HEAD BACK PLATES ON SIGNAL HEADS 1 THROUGH 9.
 - SEE SIGNING, STRIPING AND CONDUIT PLANS FOR CONTINUATION OF THIS CONDUIT AND INSTALLATION OF TYPE 14 AND 7 JUNCTION WELLS.
 - INSTALL TUNNEL VISORS ON SIGNAL HEADS 11 AND 12.
 - ALL CONDUITS SHALL BE RIGID POLYVINYL CHLORIDE, SCHEDULE 80, UNLESS OTHERWISE NOTED.



LEGEND

PROPOSED SIGNAL CABINET	REMOVE BY CONTRACTOR
EXISTING SIGNAL CABINET	REMOVE BY OTHERS
PROPOSED SIGNAL POLE BASE	ABANDON
EXISTING SIGNAL POLE BASE	ABANDON
PROPOSED POLE BASE IDENTIFIER (TYPE OF POLE BASE)	PROPOSED POLE BASE IDENTIFIER (TYPE OF POLE BASE)
EXISTING PEDESTRIAN POLE BASE	EXISTING POLE BASE IDENTIFIER (TYPE OF POLE BASE)
PROPOSED WOOD POLE	PROPOSED JUNCTION WELL IDENTIFIER (TYPE OF JUNCTION WELL)
EXISTING UTILITY POLE	EXISTING JUNCTION WELL IDENTIFIER (TYPE OF JUNCTION WELL)
PROPOSED JUNCTION WELL	EXISTING JUNCTION WELL IDENTIFIER (TYPE OF JUNCTION WELL)
EXISTING JUNCTION WELL	EXISTING JUNCTION WELL IDENTIFIER (TYPE OF JUNCTION WELL)
PROPOSED CONDUIT RUN IDENTIFIER (TYPE OF CONDUIT RUN)	EXISTING CONDUIT RUN IDENTIFIER (TYPE OF CONDUIT RUN)
EXISTING SIGNAL HEAD	PROPOSED OVERHEAD RUN IDENTIFIER (TYPE OF OVERHEAD RUN)
PROPOSED PEDESTRIAN SIGNAL HEAD	EXISTING OVERHEAD RUN IDENTIFIER (TYPE OF OVERHEAD RUN)
EXISTING PEDESTRIAN SIGNAL HEAD	EXISTING OVERHEAD RUN IDENTIFIER (TYPE OF OVERHEAD RUN)
PROPOSED PEDESTRIAN PUSHBUTTON	PROPOSED MAST ARM IDENTIFIER (LENGTH OF ARM)
EXISTING PEDESTRIAN PUSHBUTTON	EXISTING MAST ARM IDENTIFIER (LENGTH OF ARM)
PROPOSED VIDEO DETECTION	PROPOSED CABINET IDENTIFIER (TYPE OF CABINET)
EXISTING VIDEO DETECTION	EXISTING CABINET IDENTIFIER (TYPE OF CABINET)
PROPOSED MICROWAVE DETECTION	EXISTING MICROWAVE DETECTION
EXISTING MICROWAVE DETECTION	PROPOSED SPAN WIRE
OVERHEAD SIGNING	EXISTING SPAN WIRE
PROPOSED OPTICOM RECEIVER	RIGHT-OF-WAY OR PROPERTY LINE
EXISTING OPTICOM RECEIVER	PROPOSED SPAN INSULATOR
PROPOSED MAST ARM	EXISTING MAST ARM
EXISTING MAST ARM	EXISTING SPAN INSULATOR
PROPOSED LUMINAIRE	SERVICE PEDESTAL
EXISTING LUMINAIRE	
PROPOSED LOOP DETECTOR (TYPE T-01)	
EXISTING LOOP DETECTOR (TYPE T-01)	

- GENERAL SIGNAL NOTES**
- LOOP DETECTORS: TYPE T-1 - 6" x 6" - 10' TO BE INSTALLED ON US 13 THROUGH MOVEMENTS. TYPE T-2 - 6" x 6" - 10' TO BE INSTALLED ON US 13 LEFT-TURN MOVEMENTS AND WESTBOUND PORT PENN ROAD MOVEMENTS. SYSTEM T-3 - 6" x 6" - 10' TO BE INSTALLED ON US 13, RAMP R AND PORT PENN ROAD RECEIVING LANES AS SHOWN.
 - ALL SIGNAL POLES WILL BE 33 FEET, EXCEPT WHERE SHOWN.
 - ALL GALVANIZED CONDUIT (GRC) SHALL BE REAMED AND THREADED, ALL GRC SHALL BE THREADED TOGETHER WITH APPROVED COUPLINGS. SET SCREW, BOLTED, AND COMPRESSION FITTINGS ARE NOT ACCEPTABLE.
 - ALL UNDERGROUND AND OVERHEAD UTILITIES SHOWN ON THESE PLANS ARE SCHEMATIC ONLY AND MAY NOT BE COMPLETE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING MISS UTILITY AND/OR THE APPROPRIATE UTILITY PRIOR TO THE BEGINNING OF CONSTRUCTION FOR THE UTILITY MARK-OUTS. IF THE CONTRACTOR PERCEIVES THAT A CONFLICT BETWEEN UTILITIES AND THE TRAFFIC SIGNAL WILL OCCUR, THE CONTRACTOR SHALL NOTIFY DELDOT TRAFFIC IMMEDIATELY BEFORE CONSTRUCTION.



RECOMMENDED _____ DATE: 9-25-15	RECOMMENDED _____ DATE: _____	RECOMMENDED _____ DATE: _____	APPROVED TRAFFIC ENGINEER <i>[Signature]</i> DATE: 9/24/15	APPROVED FOR INSTALLATION CHIEF TRAFFIC ENGINEER <i>[Signature]</i> DATE: 9/27/15																		
ADDENDUM / REVISIONS																						
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		<p>US 13 & PORT PENN RD INTERSECTION</p> <table border="1" style="width: 100%;"> <tr> <td>CONTRACT</td> <td>PERMIT NO.</td> <td rowspan="2" style="text-align: center;">N784</td> <td rowspan="2" style="text-align: center;">SG-01: SIGNAL PLAN US 13 @ PORT PENN RD</td> <td rowspan="2" style="text-align: center;">SHEET NO. 179</td> </tr> <tr> <td>T210011302</td> <td>DESIGNED BY: J.D.C. (WR&A)</td> <td>TOTAL SHEETS 179</td> </tr> <tr> <td>COUNTY</td> <td>CHECKED BY: J.M.M. (WR&A)</td> <td colspan="3"></td> </tr> <tr> <td>NEW CASTLE</td> <td></td> <td colspan="3"></td> </tr> </table>			CONTRACT	PERMIT NO.	N784	SG-01: SIGNAL PLAN US 13 @ PORT PENN RD	SHEET NO. 179	T210011302	DESIGNED BY: J.D.C. (WR&A)	TOTAL SHEETS 179	COUNTY	CHECKED BY: J.M.M. (WR&A)				NEW CASTLE				
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