

ITEM 0608-0001 MOBILIZATION

DESCRIPTION

This work shall consist of the assembling and setting up for the project, the Contractor's necessary general plant, including offices, shops, plants, storage areas, sanitary and any other facilities, as required by the specifications and special requirements of the contract, as well as by local or state law and regulation. The determination of the adequacy of the Contractor's facilities, except as noted above, shall be made by the Contractor. The cost of required insurance and bonds and/or any other initial expense required for the start of work will be included in this item.

MATERIALS

The Contractor shall furnish all materials, furnishings and schedules required for this item. These materials, furnishings and schedules will not be considered as a part of the various items of the completed contract.

CONSTRUCTION REQUIREMENTS

At the pre-construction meeting, the Contractor shall submit to the Engineer a schedule indicating the sequence and schedule of work for the first sixty (60) days of the project, along with an estimated "look-ahead" schedule for the remainder of the project. The Contractor will not be issued a Notice to Proceed until this submission has been reviewed and approved by the Engineer.

After the start of construction, the Engineer will convene regular status meetings for the project with all involved parties. Such meetings will be held on two- to four-week intervals at the discretion of the Engineer. The Contractor shall submit an updated project schedule prior to each status meeting. Prior to the completion of the first sixty (60) days of the project, the Contractor shall submit a final detailed schedule showing completion of all items of work within the time allowed by the contract. When the Engineer accepts this final schedule in writing, it will be considered the official schedule for the project.

The schedule shall be in bar chart or spreadsheet format and shall show all aspects of work, including applicable milestones.

The Contractor shall provide all tools, equipment, materials, labor and work for the construction and furnishing of the required facilities and services. All work under this item shall be performed in a safe and workmanlike manner.

METHOD OF PAYMENT

Forty percent (40%) will be paid on the first estimate. Forty percent (40%) will be paid when the Contractor completes work equal to the sum of ten percent (10%) of the total bid price excluding the bid price for this item. Twenty percent (20%) will be paid upon written acceptance of the Contractor's detailed schedule.

BASIS OF PAYMENT

Lump Sum

ITEM 0901-0001 MAINTENANCE AND PROTECTION OF TRAFFIC DURING CONSTRUCTION

DESCRIPTION

This work shall consist of the maintenance and protection of vehicular and pedestrian traffic for all traveled roadways and footways within and adjacent to the construction area in accordance with Section 901 of PDT 408, the drawings, standard pavement marking handbooks and these special provisions.

MATERIALS

This work shall include, as required or directed by the Engineer, temporary roadway lighting, temporary signals, lane striping, removal of striping, pedestrian walkways, warning lights, arrow boards, traffic cones, flagmen, delineators, barricades, temporary construction signs, specialty construction signs, periodic cleanups, snow removal, and all materials, equipment and labor necessary for the acceptable maintenance and protection of traffic as indicated on the drawings and specified herein.

CONSTRUCTION METHODS

General:

Maintenance and protection of traffic shall be in accordance with PDT 408 and MUTCD except as herein modified and/or supplemented.

Maintain travel (10' minimum) lanes as indicated on the details during construction operations.

Uniformed traffic control officers will be utilized for travel restrictions as directed by the Engineer. All other closures will follow MUTCD standards and will be referenced in the contract drawings.

In accordance with the requirements of PDT Section 901.3(a), the plans contain a Traffic Control Plan showing the minimum acceptable requirements for vehicular and pedestrian traffic. The Contractor, at their option, may present an alternate staging and maintenance of traffic scheme in accordance with the requirements of Section 901.3(a) for approval by the Engineer at the preconstruction conference.

Work Area Restrictions

- Parking lanes
 - A parking lane may be closed at any time. If Parking is permitted on both sides of a street, only one side of the street may be closed at a time.
- Travel Lane Closures
 - Only single lane travel lane closures are permitted.
 - Day time travel lane closures are limited to the following hours:
 - Monday through Friday – 9:00 AM to 3:30 PM
 - Saturday and Sunday – 7:00 AM to 5:00 PM

- Night Time travel lane Closures are limited to the following Hours:
Any Day – 7:00 PM to 6:00 AM*

* See Night Work below for noise restrictions

Night Work

Night work is limited to the hours of 7:00 PM to 6:00 AM. No noise from construction operations in excess of City of Philadelphia Ordinance is permitted between the hours of 11 PM and 7 AM. Plate trenches between 5:00 AM and 6:00 AM prior to opening all lanes to through streets.

Sequence of Construction:

It is the intention of the Traffic Control Plan and the Sequence of Construction provisions that the work be pursued in a logical expeditious manner which minimizes the time period for which local access to the community is disrupted. To accomplish this objective the Contractor shall complete each stage of the work as quickly as possible. The purpose is to identify a method for maintaining local and through traffic, emergency access and access by service vehicles.

The Contractor shall coordinate his activities with all other Contractors operating in this area, whether under contract to the City of Philadelphia, CCD, or public utility companies.

The Contractor shall designate an individual or individuals as his Maintenance of Traffic Engineer who is to be responsible for the Maintenance of Traffic items. The name, address and phone number(s) where the Maintenance of Traffic Engineer can be reached at all times shall be furnished to the Engineer. His responsibility will be to conduct daily field reviews of all devices with the Engineer and to correct all deficiencies.

Maintenance of Pedestrian Traffic on Footways and Across Intersecting Streets:

The Contractor shall conduct his work in the footway areas as expeditiously as practical and with a minimum disruption to the abutting properties. Any work that will affect access to a property shall be coordinated with the occupant. A minimum 6-foot wide clear footway shall be provided for access to abutting properties along the project during all hours that the properties are open and require access. Surfaces open to pedestrians must be kept clean and safe at all times. The Contractor shall remove snow from footways within the work zone immediately after the storm event.

The Contractor will be responsible for the safe passage of pedestrians through the construction area. To this end, approved barricades shall be provided for protection from any construction area. All materials stored adjacent to the 6-foot footway shall be barricaded. No materials storage will be permitted within blocks not actively under construction. Stored or stockpiled materials must be kept secure from use for vandal destruction (i.e. pavers used to smash windows).

Timber barricades shall be constructed of smooth lumber and painted in accordance with PDT Publication 203. In lieu of barricades, the Contractor may erect safety fencing adjacent to construction areas, subject to approval by the Engineer.

Footway surfaces shall be of materials that provide a hard, smooth and even surface thereby causing no danger of injury to pedestrian traffic. All footways shall be subject to the approval of

the Engineer and in no case shall footway surfaces be constructed of bare earth or stone.

The Contractor shall be required to provide approved pedestrian crossings or foot bridges over the work area so as to provide access to each residence, commercial property, or business.

The location and design of each pedestrian crossing shall be submitted to the Engineer for approval at such time as the Contractor submits his traffic control plan. The Engineer may reserve his approval of the pedestrian crossing until work on the particular stage in question is imminent. The pedestrian crossing shall be such so as to allow for the efficient and safe crossing of the general walking public. It shall be constructed of suitable timber members or suitable paving material and shall be segregated from the active work area by effective barriers. The material and construction of the crossings shall be left to the discretion of the Engineer. In no case shall pedestrians be permitted to walk directly on an excavated or partially completed work area.

The Contractor shall be responsible for providing the general public with safe access to public transit service at transit stops affected by his operations. Notify SEPTA a minimum of two weeks before relocating or restricting transit stops.

The Contractor shall provide a plan, detailing the work to be performed in each block, for approval by the Engineer. The plan shall define hours of work, means of maintaining access and pedestrian traffic during working and non-working hours, placement of barricades and/or safety fencing, placement of specialty construction signs, means of performing the work including equipment to be used, and other elements that may be applicable. Provide the plan a minimum ten (10) days prior to starting work in the particular block.

Sawcutting:

The staging of construction to maintain traffic lanes and pedestrian footways may require sawcutting of roadway pavement, curbs, and footways. Cost for sawcutting for traffic control purposes is to be considered incidental to this item for maintenance and protection of traffic.

Street Lighting During Construction:

The Contractor shall maintain the existing street lighting system. The Contractor shall provide and maintain temporary lighting within the project area along all roadways where construction causes disruption to the existing street light system. The Contractor shall not remove existing street lights without the prior approval of the Engineer. The temporary lighting shall be maintained in service until the release of such responsibility is given by the Engineer. All wiring and material needed to maintain temporary lighting is incidental to this item. The sequence of construction should begin furthest from the breaker pole in order to obtain the least impact on the existing lighting circuit and further minimizing material needed to provide temporary lighting.

The Contractor shall coordinate his activities with PECO Energy who shall determine where connections to their facilities shall be made. Any costs for temporary construction related services by PECO Energy or temporary energy costs shall be included in the lump sum price for Maintenance and Protection of Traffic.

Maintenance of Traffic Signals:

The Contractor shall be responsible for the continued operation of all traffic signals at the

intersections within the streetscape improvement area.

Traffic signal operations must remain uninterrupted at all times during construction at all intersections. The Contractor shall supply all cable, support poles, signal heads, regulatory signs, controllers and connections to existing or new power sources as necessary to maintain each signalized intersection in proper operation as specified herein.

The Contractor shall maintain at least two traffic signals for each approach at all times.

The Contractor shall bag all signal heads not operating.

In the event it becomes necessary to turn off the present system of signalization, the Contractor shall provide flagmen to direct traffic within the intersection during any period when the signals are not operating.

The Contractor shall coordinate his work and cooperate fully with the City of Philadelphia, Department of Streets, Traffic Engineering Division, in order to eliminate or curtail delays and minimize interferences with traffic operation during construction of the project. The City's contact person is Pat O'Donnell.

PROJECT REQUIREMENTS AND COORDINATION

A. Objectives

This contract will be a very high profile contract which will impact many motorists, pedestrians, business/commercial establishments, adjacent construction, utilities, etc. It is critical to all stakeholders that impacts and inconveniences be kept to a minimum.

The principal objectives of this contract are:

- 1) To complete the work as expeditiously as possible while maintaining vehicular and pedestrian movement on all streets within the construction area to the highest possible degree.
- 2) To minimize the impact of this construction on all abutting business properties and in particular to maintain access to these businesses during construction.
- 3) To provide for the safe movement of pedestrians throughout the project area during all phases of construction activity.

B. Restrictions

Restrictions apply at many construction locations which impact the staging and sequence of construction. Restrictions are as follows:

- Do not work on opposite sides of the street on adjacent blocks. Provide straightthrough open lanes of traffic during working hours.
- Do not work more than three (3) blocks on a roadway at any given time.
- Work in some areas will require completion of construction by ongoing City

Streets Department contracts. Coordinate work with this these Contractors.

At certain locations the work may require the removal of scaffolding by others. Coordinate this work with the owner/tenant and their Contractor.

The Contractor may work a second shift from 7:00 PM to 6:00AM provided this work does not interfere or interrupt any business operations.

C. Relocations

If any U.S. mailboxes are affected by the work will be removed and reset by U.S. Postal Service personnel. The Contractor shall contact the U.S. Postal Service no earlier than five business days prior to when construction work begins on the block and no later than five business days prior to date removal is needed. The U.S.P.S. shall perform the removal.

When all other construction work is complete in the immediate area of the final location of the mailbox. The Contractor shall mark out the permanent location as shown on the plans with nonpermanent marker. The Contractor shall then contact the U.S.P.S. for reinstallation of the mailbox. The U.S.P.S. shall reset the mailbox including placing the anchors.

D. Coordination

Coordinate and schedule all work with adjacent Contractors, utility companies, abutting business and commercial enterprises, and any and all other adjoining interests. Also, coordinate lane closings and temporary parking restrictions with the Police Department, PSD Traffic Engineering, and the Philadelphia Parking Authority. Advise the Engineer of all coordination efforts. Notify the Engineer a minimum ten (10) calendar days in advance of the start of any new operation and provide the Engineer with details of the work to be done. Acceptance by the Engineer is required before commencing all new operations.

CONSTRUCTION STAGING AND SEQUENCE

The scheduling of all work in the area of the project is subject to restrictions necessitated by holiday/cultural activities scheduled throughout the City.

The Engineer reserves the right to restrict operations with 48 hours advance notification for special events, extraordinary situations, or any circumstance which would require the Contractor to restrict work activities.

E. Schedule of Development

The construction schedule shall be developed in accordance with Item No. 4-1110, Project Control System.

METHOD OF MEASUREMENT

Lump Sum

This work will include all necessary protective devices as specified in PDT Publication 203 or as directed by the Engineer, temporary sidewalk paving, temporary lighting and signalization facilities, temporary curbs, barricades, sawcutting, pavement marking removal, paint striping,

lane marking and signing as necessary to provide a safe and efficient movement of traffic as herein specified and indicated on the drawings and any additional cost for complying with the sequence of construction as specified.

The costs of moving and reinstalling traffic control devices for the various construction stages and phases or any other reason, are incidental to this item and no additional compensation will be considered.

Reimbursement of the contract share for this item will be paid on a proportionate manner, based on a per-day basis determined by the following formula:

Per-day price = 100% bid price divided by the number of calendar days in the contract.

Liquidated Damages:

A. Deficiencies in Traffic Control

Maintain constant surveillance of the traffic control operation and replace or correct any missing, damaged, ineffective or misaligned equipment to the satisfaction of the Engineer. Standard and specialty signs are to be kept clean at all times. The Contractor shall remove all graffiti within 48 hours of placement or the City will remove graffiti and charge the Contractor at City prevailing rates.

In addition to the requirements of Paragraph 21 of the City of Philadelphia Standard Contract Requirements for Public Works Contracts, the Contractor will be charged Liquidated Damages for each incident on each day that he has not complied with the requirements of this item. The amount chargeable per incident per day will be five hundred dollars (\$500.00) per calendar day.

Liquidated Damages will be charged for those days where needed corrections are not made within 8 hours after notification by the Engineer.

B. Failure to Meet Milestone(s)

Due to the critical nature of this project and the numerous impacts to motorists, pedestrians, business/commercial establishments, and others, it is essential that all work be completed as quickly as possible. \$1500.00 liquidated damages will be assessed for each calendar day, or portion thereof, that all work indicated to be completed by the interim milestone date remains incomplete.

The Liquidated Damages assessed as specified above in subarticles A and B will be deducted from monies due the Contractor.

ITEM 9000-0600 UNFORESEEN ROADWAY CONSTRUCTION

I. DESCRIPTION - This work includes any unforeseen construction that is not specified in the contract which is required for the completion of the project as determined by the Engineer.

II. MATERIAL - Appropriate sections as needed, and as approved by the Engineer.

III. CONSTRUCTION -

Perform this work per the direction of the Engineer, at locations determined by the Engineer and as follows:

The Contractor is not to leave any premises without adequately securing the premises during this work.

Any roadside appurtenances damaged by the Contractor are to be repaired at the sole expense of the Contractor with no compensation paid by the City.

Provide approval, in writing, from the roadside appurtenances owner or agency, including their requirements.

IV. MEASUREMENT AND PAYMENT - DOLLAR

The proposal includes an item and a predetermined amount of money for Unforeseen Construction. The contract item has a unit of measure of Dollar, a unit price of \$1.00, and a quantity equal to the predetermined amount.

Due to the contingent or unpredictable nature of the work being performed, the provisions of Section 110.02(d) are not applicable to this item.

Measured and paid for, under the Unforeseen Construction item as follows:

(a) Contract Items. The City pays for performance of work, identified as having similar items listed in the contract, at the contract unit price.

(b) Non-Contract Items. The City pays for items of work not identified in the contract as follows:

1. Negotiated Price. At price agreed upon with the City before performing the work. If applicable, agreement is also required with FHWA.

2. Force Account Basis. Section 110.03(d)

ITEM 9909-0010 SEEDING AND SOIL SUPPLEMENTS, FORMULA B

DESCRIPTION -

This work consists of furnishing and placing of seed and soil supplements, Formula B, the application of herbicides, and mowing requirements, as indicated.

MATERIAL -

Section 804.2

CONSTRUCTION -

Section 804.3

Perform the permanent seeding within the specified seeding dates as soon as possible following the completion of finished grading.

MEASUREMENT AND PAYMENT - Square Yard

If seeding and soil supplement work on a slope has been satisfactorily completed and erosion, slide, or slip occurs which required redressing, excavation, or the establishment of a new slope, perform the seeding and soil supplement operations again and are paid for as specified, in addition to payment for the original work performed.

ITEM 9909-1001 TOPSOIL

DESCRIPTION:

This work consists of furnishing, placing four inches (4") of topsoil on prepared areas as indicated on the drawings or as directed by the Engineer. Topsoil will be placed to cover existing exposed conduit.

MATERIALS:

Topsoil consists of friable loam, reasonably free of subsoil, clay lumps, brush, roots, weeds, or other objectionable vegetation. It does not contain stones or other similar objects larger than two inches (2") in any dimension, litter, or other materials unsuitable or harmful to plant growth. It contains not less than two percent (2.0%) nor more than ten percent (10%) organic matter as determined by AASHTO Designation T-194.

Furnished topsoil meets the following grading analysis:

Sieve Minimum Percent Passing

2" 100

No. 4 75

No. 10 60

Sand, silt and clay material passing the No. 10 sieve are present within the following ranges:

Minimum Percent Maximum Percent

Sand 5 70

Silt 10 70

Clay 5 36

CONSTRUCTION:

Dress the areas designated for topsoiling and shape them to provide for the uniform placement of four inches (4") of topsoil. Clear these areas of all stones and foreign materials two inches (2") or larger in any dimension and loosen to a depth of two inches (2") by discing or another approved method. The finished surface is smooth, even and true to the lines, grades and cross-sections specified or required.

TESTING:

Prior to placement, supply the City with a twenty-pound (20 lb.) test sample. Any material placed prior to the testing is done at the risk of the Contractor.

MEASUREMENT AND PAYMENT - Square Yard

ITEM 9910-0600 CONDUIT TRENCHING AND RESTORATION

DESCRIPTION:

This work consist of the excavation, backfilling and restoration of a trench for traffic and street lighting conduit as indicated on the drawings or as directed by the Engineer.

MATERIALS:

(a) Superpave Asphalt Mixture Design, HMA Wearing Course, PG 64-22, 0.3 to < 3 Million ESALs, 9.5 MM Mix, 1 ½" Depth, SRL-H – Section 409.2.

(b) Superpave Asphalt Mixture Design, HMA Binder Course, PG 64-22, 0.3 to < 3 Million ESALs, 9.5 MM Mix - Section 409.2.

(c) H.E.S Cement Concrete – Section 704.

(d) Sand- Section 703.1, PDT 408

CONSTRUCTION:

The trench must be of sufficient width and depth for the conduit, as indicated in the attached conduit installation detail TE0545.

Perform the trenching in such a manner as to avoid impacting any of the existing curb cut ramps with detectable Warning Surfaces (DWS), unless determined necessary by the Engineer:

According to the information available there are paved tracks in the project. Please refer to the attached drawings for track locations.

Coordinate the work with all utilities in the area.

Restoration - Restore all curbs, sidewalks, and unpaved areas in kind as directed by the Engineer.

Restore all curbs and sidewalks in kind and in accordance with detail SC0101. Restore unpaved areas in kind as directed by the Engineer. Restoration of roadways must be in accordance with detail IC0104.

Provide for E&S Best Management Practice during construction.

MEASUREMENT AND PAYMENT: Linear Foot

This work includes excavation and the restoration of all affected areas.

Also included without additional compensation is trenching and restoration across any railroad tracks and track beds that are paved over.

ITEM 9910-1001 CLEAN EARTH FILL

DESCRIPTION:

This work consists of furnishing, placing and compacting clean earth fill.

MATERIALS:

Section 206.2, PennDOT Specification Publication 408/2011

CONSTRUCTION

Material is placed in uniform horizontal layers of not more than eight inch (8") lifts for the full width of the area.

Each layer is compacted to not less than one hundred percent (100%) of the dry weight density, determined in accordance with PTM No. 106.

MEASUREMENT AND PAYMENT - Cubic Yard

ITEM 9915-0060 STREET LIGHT WIRING, #4 AWG, 1 CONDUCTOR

DESCRIPTION:

This work consists of furnishing and installing street lighting wire of the specified size. The wire is installed in conduit for the purpose of electrical distribution between the PECO service point and the terminal block of each new street light.

MATERIALS:

- The wire is color-coded, single conductor, copper wire of the specified size, 600V, type USE, XLP insulation, in accordance with Section 1101.08 of PDT 408.

CONSTRUCTION METHODS:

- The wire is installed in the respective conduits connecting the PECO service lines and each roadway lighting and pole fixture base. Complete all service connections as necessary.
- The installed wire is only spliced at the base of a pole or in a manhole. The splice is made with a UL approved electrical connector.

METHOD OF MEASUREMENT:

This item is paid per linear foot of each wire installed from the service point to the terminal block of each new street light.

BASIS OF PAYMENT:

Linear Foot

ITEM 9915-0061 - STREET LIGHT WIRING, #12 AWG, 2 CONDUCTORS WITH GROUND

DESCRIPTION:

This work consists of furnishing and installing street lighting wire of the specified size. Wire to be installed in street light poles for the purpose of electrical distribution between the terminal block and each new street light luminaire.

MATERIALS:

- The wire is to be color-coded, two conductor, copper wire of the specified size, with ground, 600V, type UF, XLP insulation, in accordance with Section 1101.08 of PDT 408.

CONSTRUCTION METHODS:

- The wire is to be installed in the respective street light poles connecting the PECO service lines and each roadway lighting and pole fixture base. Complete all service connections as necessary.
- The installed wire is only be spliced at the base of a pole or in a manhole. The splice is made with a UL approved electrical connector.

METHOD OF MEASUREMENT:

This item is paid per linear foot of wire installed from the terminal block and luminaire of each new street light.

BASIS OF PAYMENT:

Linear Foot

ITEM 9915-0062 STREET LIGHTING GROUND WIRE, #6 AWG

DESCRIPTION:

This work consists of furnishing and installing street lighting ground wire of the specified size. Wire is installed in conduit and run between each street light pole.

MATERIALS:

The wire is color-coded, single conductor, copper wire, #6 AWG, 600V, type USE, XLP insulation, in accordance with Section 1101.08 of PDT 408.

CONSTRUCTION METHODS:

- The wire is installed in the respective conduits connecting each street light pole to form a complete ground grid system. Complete all connections as necessary.
- The installed wire is spliced only at the base of the street light pole. The splice is made with a UL approved electrical connector.

METHOD OF MEASUREMENT:

This item is paid per linear foot of each wire installed from street light pole to street light pole.

BASIS OF PAYMENT:

Linear Foot

ITEM 9915-0070 2" PVC CONDUIT

I. DESCRIPTION -

This work consists of furnishing and installing PVC conduit of the specified size, including fittings.

II. MATERIAL -

Conduit, Fittings (Including Couplings, sweeps, and End Connectors), and Caps

In accordance with Section 1101.09 of PDT 408 except as follows:

- Made from compounds, ASTM-D1784.
- Cement adhesive must be in accordance with the manufacturer's recommendations.

Identification Tape:

- 3" red plastic tape with the words 'LIGHTING' spaced at regular intervals.
- The Contractor must submit a sample to the Engineer for approval prior to installation.

PVC Shield and Brackets (If required for pole installation):

- PVC shield and brackets must be in accordance with the requirements of the pole owner.

III. CONSTRUCTION -

In accordance with Section 910.3 except as follows:

- Install conduit at a depth of 24", measured from the top of the conduit and in accordance with Standard Drawing #IC0104
- Perform work in such a manner as to avoid impacting any of the existing curb cut ramps with detectable Warning Surfaces (DWS), unless determined necessary by the Engineer
- Restore the adjacent sidewalk and curb to its original condition.
- Make connections with couplings in accordance with the manufacturer's recommendations unless otherwise approved by the Engineer.
- Place a plastic identification tape 12" above the conduit.
- Cut the conduit using a hacksaw, or other means approved by the Engineer, with the cut made square to its length. Ream the cut ends of conduit to remove all rough edges prior to installation.
- Use manufactured elbows for any 90° upsweep from each horizontal to vertical run of conduit. The bending of a length of conduit to provide this upsweep is not acceptable.
- The vertical extension of the conduit (riser) used to extend the conduit above grade will consist of a straight length of conduit terminated 2" above the top of the foundation.
- If the conduit is being installed on a wood pole, the installation will be in accordance with the requirements of the pole owner and as follows:
 - Install the conduit to a height of 10' above the sidewalk and secured every 2' unless otherwise directed by the Engineer.
 - The top of the conduit will have a cap with an opening for the cable(s).
 - Install a PVC shield the top of the conduit to a point 10' above the top of the conduit for the protection of exposed cable. Mount this shield to the pole in the same manner as the conduit.
 - Any sign or other object that causes an obstruction will be removed or relocated.

- The installed conduit must have smooth edges.
- The installed conduit must not create a hazardous condition for pedestrians.

IV. MEASUREMENT AND PAYMENT - Linear Foot

All labor and materials necessary to install conduit on a wood pole are incidental to this item of work.

The removal of any signs or other objects required to complete the installation will be payable under separate items.

Conduit trenching and restoration is payable under a separate item.

ITEM 9915-0300 REMOVE STREET LIGHT POLE

DESCRIPTION:

This work consists of removing an existing street light pole, including bracket/davit, luminaire and all appurtenances as indicated on the plan or as directed by the Engineer.

CONSTRUCTION METHODS:

- Prior to beginning this work, the existing street light electrical service is disconnected from its source by the Contractor. In lieu of the Contractor performing this work, the Contractor may make arrangements for PECO forces to disconnect the electrical service at no additional cost to the City. Cap all wires as necessary.
- The Contractor documents existing damage to the fiberglass street light poles, luminaires, lamps, photocells, and brackets prior to removal.
- Care must be exercised during removal, transport, and/or storage of the street lighting equipment. The Contractor is responsible for any damage to the equipment during these operations.
- The luminaire is tagged with a permanent ink-marking pen, giving the order number on which the item was removed.
- The Contractor removes all service wiring.
- Abandoned conduit is cut below the surface and grouted.
- The removed fiberglass street light poles, luminaires, lamps, photocells, and brackets are delivered to the Street Lighting Shop. The Contractor must contact the Street Lighting Shop at least 24 hours prior to delivery.
- All material is stripped from the poles prior to delivery.
- All other materials and appurtenances, including aluminum poles and davits, become the property of the Contractor and are removed from the site.

- For direct-bury poles, the existing concrete footway is removed to the nearest joint. All cuts are made in accordance with Division 7-0050, Sawcutting, Footway.
- The restoration of the excavated area is consistent with the surrounding area and constructed in accordance with appropriate Divisions.
- Excessive damage to the existing pavement caused by the Contractor, as determined by the Engineer, is corrected at the Contractor's expense.

METHOD OF MEASUREMENT:

- This item includes all labor and materials necessary to remove and deliver or dispose of all street lighting hardware as indicated on the plan or as directed by the Engineer.
- This item includes all labor and materials necessary to seal abandoned conduit.
- The disconnection of electrical service is incidental to this item of work.
- The removal of any abandoned signs, banners, or other mounted items is incidental to this item unless otherwise indicated or directed to be relocated. The relocation of any mounted items is paid under a separate item.
- The removal of a street light foundation is payable under a separate item.
- Sawcutting and the restoration of excavated areas are payable under separate items.

BASIS OF PAYMENT:

Each

ITEM 9915-0301 INSTALL STREET LIGHT POLE WITH BRACKET AND LUMINAIRE

DESCRIPTION:

This work consists of the installation of a foundation-mounted fiberglass street light pole and aluminum bracket(s) as indicated on the plan or as directed by the Engineer. The City will furnish material.

MATERIALS:

The City will furnish the below material. The material is to be picked up from the Street Lighting Shop at 701 Ramona Avenue, Philadelphia, PA 19120. Contact Street Lighting to arrange for pickup of material.

In accordance with Standard Drawing #SL0501 and as follows:

Pole Length:

- 30'.

Pole Finish:

- The resin used to make the pole shall be ultraviolet resistant and pigmented the same color as the final coating to be applied.
- The color (National Park Service Brown, Federal Color # 20040) shall be uniform throughout the entire wall thickness of the pole.
- A highly weather resistant, pigmented, polyurethane coating shall be applied to the pole. The coating shall have a minimum dry film thickness of 1.5 mils.
- The pole shall have a smooth, uniform surface.
- The interior of the pole shall be free of all manufacturer processing residue and loose materials prior to shipment.

Anchor Base:

- Cast Aluminum A356-T6.
- Prime for paint adhesion and polyurethane coated to match pole.

Base Cover:

- Base cover shall be one (1) piece fiberglass, shroud type.
- Color to match pole.

Bracket:

- Aluminum Alloy 6061-T6, 6' and/or 2' length, extending horizontally at 90° to pole shaft (no rise).
- A one-inch (1") grommet hole shall be installed six-inches (6") from the mounting plate on the bottom of the bracket.

- Powder coat painted to match pole.

Handhole:

- A 4" x 12" handhole shall be oriented 180° from bracket.

Mounting Plate and Terminal Block:

- The manufacturer shall factory install a fiberglass-reinforced composite, 6" x 14", mounting plate installed inside pole opposite handhole cover.
- The terminal block (Homac #RB6214SL or approved equal) shall be a 12 point (6 over 6) installed on the mounting plate for connection of service wire cable (up to 1/0 AWG) and luminaire service wire (#12 to #2 AWG).

Grounding:

- #4 AWG structure ground wire, lugs and welds.

Pole Strength and Deflection:

Reference ANSI C136.20-1990 Section 10.

- Wind Deflection - Maximum 10% of the pole length based on an 80 mph wind (plus 30% gust) using a 15 EPA.
- Static Deflection - Maximum 1-1/2% static deflection due to weight of arm and luminaire.
- Permanent Set - Maximum 1% permanent deflection after release of test load equivalent to the wind loading calculated for wind deflection.
- Maximum Bending Moment - Calculated using maximum wind loading. Pole shall withstand two times this maximum bending moment.

Wiring:

- 12-2 UF with ground.

TESTING REQUIREMENTS:

- Sample poles shall be tested by manufacturer to determine actual bending and deflection values. The sample size is 5% of total order with a maximum of five (5) poles.
- Testing shall conform to ANSI standards.
- Results shall be submitted to Street Lighting prior to shipment.

CONSTRUCTION METHODS:

- Install fiberglass light pole onto new or existing foundation and secure to anchor bolts. Install all poles plumb.

- Use aluminum shims under no more than three (3) bolts of any base. Check for vertical alignment of the shaft. Adjust to the correct alignment. Tighten anchor nuts, as specified in PDT 408, Section 1105.03.
- Leave all wrapping in place until pole, luminaire and appurtenant material are installed and leveled. All materials are to be stored in accordance with the manufacturer's recommendation.
- Remove post wrapping using zip string. The use of knives or razors is prohibited.
- Bolt mount plate to ground lug. Mount terminal block to mounting plate.
- Wire new luminaire with 12-2 UF with ground wire. Provide sufficient slack in wires to facilitate maintenance.
- Install wiring to connect the terminal block at the bottom of the pole to the photocell at the top of the pole.
- Install in-line fuse holders with 10 Amp fuses to the hot legs of the #12AWG wire going up to the luminaire. Fuses are to be accessible from the poles' hand hole.
- Connect all ground wires to the ground lug and all feeds to terminal block. Ground pole base and grounding lug to existing ground rod.
- Protection and care of the unit during shipment and installation is of utmost importance and it is the Contractor's responsibility to use all precautions and equipment necessary to install the unit in its original factory condition without scratches, abrasions or any deformation of the finish.
- Marred or damaged finish will be cause for rejection any time prior to acceptance by the Engineer.
- Touch-up minor scratches in the field using a method approved by the Engineer.

METHOD OF MEASUREMENT:

- All labor and materials necessary to mount pole is incidental to this item of work.
- Grounding wire is incidental to this item of work.
- The grounding rod is payable under Item 9915-0310 Street Light Foundation, 15" Bolt Circle, or Item 9915-0311 Street Light Foundation, 15" Bolt Circle, Spreadfoot base.
- The 12-2 wiring is paid under Item 9915-0061 Street Light Wiring, #12 AWG, 1 conductor

- Fuses are incidental to this item.

BASIS OF PAYMENT:

Each

ITEM 9915-0310 STREET LIGHT FOUNDATION, 15" BOLT CIRCLE

DESCRIPTION:

This work consists of the construction of a concrete street light foundation with a 15" bolt circle as indicated on the plan or as directed by the Engineer.

MATERIALS:

Class A Concrete:

- As per Section 704, PDT 408.

Anchor Bolts:

- In accordance with Standard Drawing #SL0515.

Anchor Bolt Nuts and Washers:

- In accordance with Standard Drawing #SL0515.

Grounding

- The grounding rod is to be copper clad, 10' in length and $\frac{3}{4}$ " in diameter.
- The resistance of the grounding rod must be tested in accordance with the National Electric Code (NEC) and must be less than 10 ohms in accordance with Streets Department requirements. For grounding rods failing the above-mentioned test, the Contractor is to relocate the grounding rod to a suitable location approved by the Engineer.
- 2" PVC Couplings
- 2" PVC Sweep Elbows

CONSTRUCTION METHODS:

- Construct the foundation in accordance with Standard Drawing #SL0515 and Section 910 of PDT 408.
- The location must be verified and approved by the Engineer prior to construction. If any obstructions are identified during field meeting that would prevent the installation of a foundation per the project plans, coordinate with Engineer to identify a new location.
- The Contractor is responsible for the location of all subsurface structures and utilities in the construction area. Bidders are to investigate all corners and identify all existing building vaults and utility within the project limits. The known locations of existing vaults are listed in 'Vault locations'.
- Excavate the foundation site to the required dimensions, without placement of shoring or forms. If the presence of subsurface utilities prevents the construction of a foundation of the specified size, the Contractor is to suspend work immediately and notify the Engineer.
- Remove the existing concrete footway to the nearest joint. All pavement cuts are incidental to this item.

- Securely cover the excavation after completion and remain covered when no work is in progress. The excavation is to be kept reasonably dry and free of mud until placement of the concrete.
- The concrete foundation is monolithic in construction and brought to a height of 2" above grade.
- Four (4) anchor bolts are set by template to the proper dimensions in accordance with Standard Drawing #SL0515.
- Construct the forms to firmly hold the template and anchor bolts in place while the concrete is poured. Extend each anchor bolt 3" above the finished grade of the foundation.
- Protect anchor bolt assemblies after the construction of foundations, using appropriate methods, prior to the installation of poles.
- If the anchor bolt is damaged prior to the pole installation, an acceptable method of correction must be approved by the Engineer.
- Install a 10' grounding rod in the foundation and extend 6" above the surface of the foundation.
- The concrete foundation is to be monolithic in construction and cure for a minimum of 7 days prior to pole installation.
- Construct a 1/4" thick expansion joint with filler between the foundation and adjacent sidewalk/curb to the full depth of the sidewalk/curb.
- Restore the adjacent sidewalk and curb to its original condition.
- Excessive damage to the existing pavement caused by the Contractor, as determined by the Engineer, is to be corrected at the Contractor's expense.
- Assume responsibility for protecting the foundation and the anchor bolts assembly from any damage prior to pole installation and final acceptance of the pole and mastarm by the City. In case of damage to either the foundation or the anchor bolts assembly that is deemed irreparable by the Engineer, replace the entire foundation at no additional cost to the City.

METHOD OF MEASUREMENT:

- All materials and labor necessary to construct the foundation, including excavation and expansion joint material is incidental to this item of work.
- The grounding rod and anchor bolts is incidental to this item of work.
- Sawcutting and the restoration of adjacent pavement is incidental to this item.
- Couplings and elbows are incidental to this item.
- All work to protect the foundation or the anchor bolts assembly, or satisfactorily repair any damage prior to poles installation and acceptance, up to and including replacing the entire foundation, is incidental to this item.

BASIS OF PAYMENT:

Each

ITEM 9920-0640 – REINSTALL EXISTING TRAFFIC SIGNS

DESCRIPTION:

This item consists of the removal and relocation of traffic signs, as indicated on the plan or as directed by the Engineer.

MATERIALS:

- The banding for traffic signs is 0.75" x 0.020" stainless steel.
- The banding and brackets for traffic signs remain the natural color.

CONSTRUCTION METHODS:

- Care must be exercised during the removal, transport, storage and installation of signs.
- Take responsibility for any damage to the sign or pole during these operations.
- Remove all hardware from the existing pole.
- If the Engineer determines the designated sign is unsalvageable, install a new sign under a separate item and deliver the existing sign to the Traffic Shop.
- Install traffic signs with new hardware.
- Reuse existing sign brackets if possible.

METHOD OF MEASUREMENT:

This work includes all labor and materials necessary to remove and replace an existing sign, including mounting hardware.

BASIS OF PAYMENT:

Each

ITEM 9920-0641 REMOVE AND REINSTALL SPECIAL SIGNS

DESCRIPTION

This work is the removal, tagging, temporary storage, and reinstallation of site specific "Fairmount Dam Fishway" signs, as directed by Engineer.

MATERIAL

Mounting Hardware and Signs: Reuse the existing hardware and signing if approved by the Engineer. Existing hardware or signing which is damaged prior to removal will be replaced by the Center City District at no cost to the Contractor. The Contractor is responsible for providing new hardware or signing which is damaged or lost during the removal, storage or reinstallation. Match all replacement hardware and signing to the existing facilities in kind, to the satisfaction of the Engineer.

CONSTRUCTION METHODS

- a) Notify the Engineer, prior to construction so that the City can photograph each sign to document the pre-construction condition of the signs and hardware.
- b) Carefully remove the signs and hardware prior to construction. Since each sign is site specific, tag each sign with a descriptive location and the station and offset indicating its original site location. Store at an approved secure location. Wrap and package sign hardware while in storage to avoid any damage.
- c) Upon completion of the construction, reinstall the signs at appropriate locations (i.e. new street light poles) near their original locations. The new locations must be approved by the Engineer prior to reinstallation.
- d) Clean signs after installation.

METHOD OF MEASUREMENT

Includes removal, storage, reinstallation and cleaning.

BASIS OF PAYMENT

Each.