CONTRACT DATA SHEET

Monroe County Division of Purchasing
200 County Office Building, Rochester NY 14614

TITLE: INSTALLATION OF UNDERGROUND CONDUIT, PULLBOXES, PEDESTALS & APPURTENANCES

CONTRACT #: 0311-10 (4700006674)

CONTRACT DATES: 04/07/10 – 08/31/15

BUYER: Sharon A. Berndt
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VENDOR(S): M. L. CACCAMISE ELECTRIC CORP.
721 PORTLAND AVENUE
ROCHESTER, NY 14621

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TERMS AND CONDITIONS

BID ITEM: ***INSTALLATION OF UNDERGROUND CONDUIT, PULLBOXES, PEDESTALS & APPURTENANCES***

FOR: Department of Transportation

DEPARTMENT CONTACT: Al Jensen, (585) 753-7749

DUPLICATE COPIES: **PLEASE SUBMIT YOUR BID IN DUPLICATE; THE ORIGINAL AND ONE (1) COPY.**

BID INFORMATION: At the time of bid, the bidder shall supply detailed specifications covering the item(s) contained herein and shall clearly indicate any areas in which item or items offered do not fully comply with the specifications contained herein.

SUBMITTAL OF FORMAL PROPOSAL: Bid proposal must be legible and submitted in the original form, bearing an original signature. **EMAILS AND FACSIMILES ARE NOT ACCEPTABLE.**

All bidders must submit proof that they have obtained the required **Workers' Compensation** and **disability benefits** coverage or proof that they are exempt.

SPECIFICATION ALTERATIONS: Specifications will be construed to be complete and be considered the entire description of the goods or services upon which Monroe County is now seeking bids. **Only formal written addenda can materially alter this set of specifications**. No verbal statement made by a Monroe County employee or anyone else is binding nor shall such statement be considered an official part of this public bid proposal.

WAGE RATES: Contractor agrees to comply with the provisions of the New York State Labor Law relating to the payment of prevailing wage rates to the extent that such rules may be applicable to the Contractor. Wage rates may be obtained at www.labor.state.ny.us.

QUANTITIES: The quantities listed are the estimated annual requirements and should not be construed to represent either maximum or minimum quantities to be ordered during the contract term. **Estimates are based upon actual annual usage by County departments only.**

BRAND REFERENCE: References to a manufacturer's product by brand name or number are done solely to establish the minimum quality and performance characteristics required. Bidders may submit bids on alternates, but must attach two (2) copies of manufacturer specifications for any alternate at the time of the bid. Further, the bidder must demonstrate that the alternate proposed has a sufficient operating track record to show the equipment will perform per the specified brand. The acceptance of a bidder's alternate rests solely with Monroe County.

QUALIFIED BIDDER: Each bidder must be prepared to present satisfactory proof of his capacity and ability to perform this contract. Such proof may include, but is not limited to, an inspection of the bidder's facilities and equipment, financial statements, references and performance of similar contracts. **The Purchasing Manager reserves the right to reject any bid where the bidder cannot satisfy the County as to their ability to perform.** Monroe County reserves the right to reject any and all bids if the Monroe County Purchasing Manager deems said action to be in the best interests of Monroe County.

METHOD OF AWARD: Monroe County intends to award the bid to the lowest responsive and responsible bidder, based on the **TOTAL**. **Bidder must bid on all items in order to be considered. The County reserves the right to reject any and all bids** if the Purchasing Manager deems said action to be in the best interest of the County.

PURCHASE ORDER ISSUANCE: Delivery of services may be directed by the receipt of a Purchase Order only. **Items that are not part of this bid will not be paid for by Monroe County**. As to all purchase orders issued by Monroe County, exceptions may only be authorized, in writing, by the Purchasing Manager or her authorized agent prior to delivery.

CONTRACT TERM: Contract will start with the date of the contract award and run through **March 31, 2011**, with the option to renew the contract up to four (4) additional twelve (12) month periods with the mutual consent of both parties.

PRICE CHANGES: Price changes may be proposed by either party no later than forty-five (45) days prior to contract extension, based upon manufacturer price changes which must be supported with documentation. Should price changes not be acceptable to both parties, the contract will not be extended. Prices may change only at the time of extension.

MINIMUM ORDER: No minimum order is specified for this contract. Agencies must be able to order as needed. **Political subdivisions and others authorized by law may participate in this contract**.

DELIVERY:

All deliveries to be F.O.B. Monroe County to agency as specified by a Purchase Order. Delivery costs must be built into the unit prices bid. Deliveries must be made within **two (2) weeks** after receipt of purchase order number. The County reserves the right to terminate the contract in the event the specified delivery time is not met.

BILLING PROCEDURE:

All invoices for items sold any authorized agency as a result of this contract must be billed in the following manner: Purchase Order #, Quantity, Description of Item Purchased, BP#, Item #, Extension and Total. **ALL INVOICES MUST BE MARKED WITH THE PURCHASE ORDER NUMBER. INVOICES WITHOUT THIS INFORMATION WILL NOT BE PROCESSED FOR PAYMENT.**

WARRANTY/ **GUARANTEE:**

All warranties by manufacturer shall apply. Bidder shall, as part of its proposal, furnish its warranty/guarantee for all goods/services to be furnished hereunder. As a minimum, Bidder shall warrant all goods for a period of one (1) year from date of acceptance. Bidder shall be obligated to repair or replace all defects in material or workmanship, which are discovered or exist during said period. All labor, parts and transportation shall be at Bidder's expense.

PERFORMANCE **BOND:**

The successful bidder shall procure, execute and deliver to the Owner and maintain at his own cost and expense a Performance Bond in the amount of the contract, of surety company approved by the Owner and authorized to do business in the State of New York as a surety. The security can be in the form of a Certified Check, Bank Draft, Standard Form of Irrevocable Letter of Credit or Performance Bond.

SECURITIES AND INSURANCE:

Any Certificate of Insurance, Bonds, or other forms of security required by this bid are to be submitted to the Purchasing Manager no later than ten (10) normal business days following the date of notification of award. Documents must be received by the close of business, 5:00 PM, on that day.

UNCONTEMPLATED PURCHASES:

Monroe County reserves the right to request separate bids for such quantities of items on this contract that may be best procured via separate public bid offering and to otherwise act in furthering its own best interests.

COMPLIANCE WITH THE LAW:

The Contractor agrees to procure all necessary licenses and permits. The Contractor shall comply with all laws, rules and regulations pertaining to the payment of wages and all other matters applicable to the work performed under this contract.

SUBCONTRACT:

The Contractor shall not subcontract any work without first obtaining the written consent of the Monroe County Purchasing Manager.

RELATED ITEMS: The County reserves the right to add miscellaneous related items to this contract during the contract term upon agreement by both parties as to the price. Approval must be given in writing by the Purchasing Manager or her Designee.

REPORT OF PURCHASE: The Contractor must, upon request, provide the County Purchasing Manager with detailed information showing how much of each item was delivered to any and all agencies under this contract. This includes deliveries to not only the County but any other municipality or agency which orders from this contract.

OTHER AGENCIES: The Contractor(s) **must** honor the prices, terms and conditions of this contract with political subdivisions or districts located in whole or in part within Monroe County. In addition, the contractor **may**, but is not required to, extend the prices, terms and conditions of this contract to any political subdivision or district located in New York State. Usage of this contract by any of these other political subdivisions or districts will have to be coordinated between that subdivision or district and the contractor. Orders placed against this contract between any subdivision or district will be contracts solely between the Contractor(s) and those entities. Monroe County will not be responsible for, nor will it have any liability or other obligation for, such contract between the Contractor(s) and any third party.

INDEMNIFICATION: The Contractor agrees to defend, indemnify and save harmless the County, its officers, agents, servants and employees from and against any and all liability, damages, costs or expenses, causes of action, suits, judgments, losses and claims of every name not described, including attorneys' fees and disbursements, brought against the County which may arise, be sustained or occasioned directly or indirectly by any person, firm or corporation arising out of or resulting from the performance of the services by the Contractor, arising from any act, omission or negligence of the Contractor, its agents and employees or arising from any breach or default by the Contractor under this Agreement. Nothing herein is intended to relieve the County from its own negligence or misfeasance or to assume any such liability for the County by the Contractor.

SECTION 203 - EXCAVATION AND EMBANKMENT

203-1 DESCRIPTION. This work shall consist of excavation, disposal, placement and compaction of all materials that are not provided for under another section of these Specifications, and shall be executed in conformance with payment lines, grades, thicknesses and typical sections specified in the contract documents.

203-1.01 Unclassified Excavation. Unclassified excavation shall consist of the excavation and disposal of all materials, of any description, encountered in the course of construction, unless otherwise specified in the contract. Estimated limits and descriptions of subsurface deposits and formations which may be shown on the plans, are supplied in accordance with §102-05, Subsurface Information.

203-1.02 Embankment. The embankment is the portion of a fill section situated between the embankment foundation and the subgrade surface, excluding any material placed under another section of these specifications.

203-1.03 Embankment Foundation. The embankment foundation is the surface upon which an embankment is constructed after all work required under §203-3.09 has been completed.

203-1.04 Subgrade Surface. The subgrade surface is the surface of the road section upon which the select materials and/or subbase are placed.

203-1.05 Subgrade Area. The subgrade area is that portion of an embankment situated above either of the following, but excluding any material placed under another section of these specifications.

A. A line located 0.6 m below the subgrade surface and extended to the intersection with the embankment side slopes, or

B. The embankment foundation, whichever is higher.

The material and compaction requirements for the subgrade area in embankments are found in §203-2.02 and §203-3.12, respectively.

In cut sections, the subgrade area is not defined except where undercut and backfill with a select material item is specified or ordered: in such cases, the payment lines for undercut work shall define the subgrade area.

203-1.06 Embankment Side Slope Area. The embankment side slope areas are those cross-sectional areas of an embankment situated outside of lines projected downward and outward on a one on one slope from the edges of the subgrade surface to their intersection with the embankment foundation, but excluding any portion lying within a subgrade area.

203-1.07 Topsoil. See Section 613, Topsoil.

203-1.08 Suitable Material. A material whose composition is satisfactory for use in embankment construction is a suitable material. The moisture content of the material has no bearing upon such designation. In general, any mineral (inorganic) soil, blasted or broken rock and similar materials of natural or man made (i.e. recycled) origin, including mixtures thereof, are considered suitable materials. Determinations of whether a specific natural material is a suitable material shall be made by the Engineer on the above basis.

SECTION 206 - TRENCH, CULVERT AND STRUCTURE EXCAVATION

206-1 DESCRIPTION

206-1.01 General. This work shall consist of the excavation of all materials and backfill or disposal of excavated material required for trenches, culverts, structures, conduit and direct burial cable not otherwise provided for in other sections of these specifications. All such excavation shall be unclassified excavation as defined in §203-1.01. The work shall also consist of all required protection necessary to ensure the safety of the workers and the public.

206-1.02 Trench and Culvert Excavation and Trench and Culvert Excavation - Original Grade (O.G.) The work specified under these items shall include the excavation for and backfill of all culverts, pipe lines, and other minor structures including but not limited to leaching basins, catch basins, field inlets, manholes and drop inlets.

206-1.03 Structure Excavation. The work specified under this item shall include the excavation for all bridge foundations, walls and other major structures and backfill of suitable excavated material if another item is not specified.

206-1.04 Conduit Excavation and Backfill including Surface Restoration. The work specified under this item shall include the excavation, necessary backfill and surface restoration required for conduits and direct burial cables.

206-1.05 Test Pits. The work specified under this item shall include the excavation and backfill of test pits at locations shown in the contract documents, or as directed by the Engineer. Excavation and backfill methods, limits and equipment used shall be approved by the Engineer. This work will not relieve the contractor of the responsibility to locate underground facilities as required under 16 NYCRR 753.

206-2 MATERIALS. (Not Specified).

206-3 CONSTRUCTION DETAILS

206-3.01 General. The appropriate construction details specified for "Excavation and Embankment" in §203-3.01 through and including §203-3.12, §203-3.15, and the requirements of "Legal Relations and Responsibility to Public" in Section107 shall apply to the work specified in this section.

The excavation shall be dewatered and kept free from water, snow and ice when necessary.

Special care shall be taken not to disturb the bottom of the excavation, and not to remove the material at final grade until just before the structure is placed.

The Contractor shall be responsible at all times for carrying out of all excavation operations in a safe and prudent manner so that the workers, the public, and adjacent public and private property will be protected from unreasonable hazard. Details and requirements of this protection shall conform to Title 29 Code of Federal Regulations, Part 1926, Safety and Health Regulations for Construction (OSHA) and §107-05 Safety and Health Requirements Paragraph F and §107-08 Preservation of Property. All applicable local, State and/or Federal requirements shall be observed and necessary permits acquired by the Contractor.

If no support or protective system is shown in the plans or proposal, the Contractor may open the excavation with the sides sloped to a stable slope not steeper than that allowed by the Title 29 Code of Federal Regulations, Part 1926, Safety and Health Regulations for Construction (OSHA). Taking this option, however, does not relieve the Contractor of responsibilities as stated in this subsection. When the Contractor chooses this option, the materials used and method of construction outside the payment lines shall be in accordance with the requirements of this Section.

When excavation is required for the installation of conduit or direct burial cable, the Contractor shall notify the Engineer upon completion of the excavation. No conduit or cable shall be placed in the excavation until the Engineer has approved the depth and cross-section.

206-3.02 Replacement of Pavement Structure Courses. When the Contractor, in placing conduits, direct burial cable or utilities, excavates into the pavement, subgrade, subbase, or shoulder courses, such courses must be replaced in kind, character and condition, to maintain a uniform road section.

206-3.03 Disposal of Excavated Material. The provisions of §203-3.06 and/or §203-3.07 shall apply to all material excavated under this section which is not used as backfill.

206-3.04 Test Pits. The Contractor shall excavate and backfill test pits in order to determine existing underground utility type, size and/or condition where new utility connections to existing facilities are proposed. The Contractor shall excavate and backfill test pits in a manner approved by the Engineer that prevents damage to wrappings, coatings or other protective coverings, such as by hand digging, vacuum excavation or similar non-destructive locating equipment. The limits of the excavation shall be those sufficient to determine existing utility type, size and/or condition.

206-4 METHOD OF MEASUREMENT

206-4.01 General. The quantity of excavation shall be the number of cubic meters of material computed from payment lines shown on the plans or the appropriate standard sheets, except where revised payment lines are established by the Engineer prior to performing the work. Work performed beyond any designated payment line will not be included in the computation of quantities for the item involved.

206-4.02 Trench and Culvert Excavation. Unless otherwise shown or indicated on the contract plans, payment lines for excavation of pipe and culvert lines, and minor structures will be determined as follows:

A. Bottom Payment Line. The elevation of the bottom payment line shall be the invert elevation of the pipe, conduit, or culvert. For pipes, conduits, or culverts of nominal horizontal dimensions of 300 to 3700 mm, the width of the excavations at the bottom payment line shall be the nominal inside horizontal dimension of the pipe, conduit, or culvert plus 1.2 m, or three (3) times the nominal inside horizontal dimension, whichever is less; for pipes with a nominal horizontal dimension greater than 3700 mm the width will be as shown on the appropriate standard sheets or in the contract documents. For concrete pipe, twice the minimum wall thickness shall be added to the preceding.

B. Top Payment Line. Except when otherwise provided in the contract, the payment line in a cut section shall be the surface at the centerline of the pipe, culvert or conduit after completion of the general excavation and prior to excavation to place material paid for under another item of the contract; except that, when an undercut is made for unstable conditions, the payment line will be at the top of the undercut backfill. The payment line in a fill section shall be the ground surface prior to commencing work on the contract.

C. Side Payment Lines. The side payment lines of the excavation shall be vertical to the bottom of payment line, regardless of whether sheeting is or is not required or used.

For utility lines, exclusive of conduit and cable lines, of less than 300 mm diameter, the excavation width shall be the actual bottom width necessary, as determined by the Engineer, to properly perform the installation work required, or 1 m, whichever is less.

D. Payment Lines for Minor Structures. Payment lines for minor structures shall be vertical from the bottom of the footing and shall extend out 0.6 m from the perimeter of the structure footing. The top payment

line shall be the same as for (B) above.

206-4.03 Conduit Excavation and Backfill including Surface Restoration. The quantity of conduit and/or cable excavation and backfill including surface restoration for payment shall be the number of linear meters measured along the center of the conduit and/or cable placed, in accordance with the methods stated below.

Wherever a pair or group of conduits and/or cables are physically connected together, they shall be considered as a single conduit and/or cable.

A. Wherever conduit and/or cable in the same trench are physically separated laterally by 150 mm or more between centerlines, as shown on the plans or as directed by the Engineer, the linear meter measurement shall be made along the center of each conduit and/or cable.

B. Wherever a pair or group of conduits and/or cable in the same trench are physically separated laterally by less than 150 mm between centerlines of adjacent conduit and/or cable, as shown on the plans or as directed by the Engineer, the linear meter measurement for those conduits and/or cable shall be made along the center of that pair or group of conduit and/or cables.

206-4.04 Trench and Culvert Excavation - O.G. The provisions of §206-4.02 Trench and Culvert Excavation shall apply, except the top payment line shall be the existing ground surface at the centerline of the pipe, culvert or conduit prior to commencing work on the contract.

206-4.05 Test Pits. The quantity to be measured for payment will be the number of test holes excavated and backfilled in accordance with the contract documents.

206-5 BASIS OF PAYMENT

206-5.01 Trench, Culvert and Structure Excavation. The unit price bid for this work shall include the cost of labor, materials and equipment required to satisfactorily complete the work, including the costs of excavation, backfill (except select backfill paid for separately), disposal of excavated material, presplitting rock excavations where required, and keeping the site dewatered and free from earth, water, ice and snow when necessary.

The cost for necessary guarding and protection required to protect the public from open trenches and, that required for the protection to ensure the safety of the workers shall be included in the bid price for Trench, Culvert and Structure Excavation. Progress payments will be made after the excavation has been completed, and prior to the completion of other work included under this item, including but not limited to pumping, fencing and backfilling. Payment will be made, at the unit price bid, for 75% of the quantity excavated within the prescribed payment lines. The balance of the quantity excavated will be paid for upon proper completion of backfill placement.

If the Contractor chooses the slope layback option to satisfy OSHA, no extra payment will be made for the cost of any labor, equipment or material necessary to restore the area outside the payment lines shown on the plans.

206-5.02 Sheeting, Cofferdams or Temporary Water Diversion Structures. Payment for Sheeting, Cofferdams or Temporary Water Diversion Structures required by the plans, specifications, or ordered by the Engineer in writing will be made in accordance with the appropriate item.

Where cofferdams are specified for structure excavation, the work required to keep the site free from earth, water, ice and snow shall be included in the item for cofferdams when necessary.

206-5.03 Replacement of Pavement Structure Courses. With exception of the Conduit Excavation and Backfill including Surface Restoration item, the work of replacing pavement, subcourses and shoulder courses shall be paid for and performed under the provisions of their respective items and subsections.

206-5.04 Conduit Excavation and Backfill including Surface Restoration. The unit price bid per linear meter for this work shall include the cost of furnishing all labor, materials and equipment necessary to excavate and backfill the trench and to replace any pavement, shoulder, and sidewalk courses, subcourses, curbs, drives, lawns and other top surfaces as required to complete the work.

206-5.05 Test Pits. The unit price bid for this work shall include the cost of furnishing all labor, materials and equipment necessary to excavate and backfill the test pit and replace any pavement, shoulder and sidewalk courses, subcourses, curbs, drives, lawns and other top surfaces required to complete the work.

Payment will be made under:

Item No.	**Item**	**Pay Unit**
206.01 M	Structure Excavation	Cubic Meter
206.02 M	Trench and Culvert Excavation	Cubic Meter
206.03 M	Conduit Excavation and Backfill including Surface Restoration	Meter
206.04 M	Trench and Culvert Excavation - O.G.	Cubic Meter
206.05 M	Test Pit Excavation	Each

ITEM 206.10XXM TRAFFIC SIGNAL CONDUIT EXCAVATION AND RESTORATION

DESCRIPTION

This work shall consist of the excavation and necessary backfill and restoration required for traffic signal conduits.

MATERIALS

Materials for the restoration of top surfaces shall be as indicated on the plans and as approved by the ENGINEER.

CONSTRUCTION DETAILS

The requirements of subsection 206-3 of the NYSDOT Standard Specifications, latest revision, shall apply with the following additions:

When the CONTRACTOR is required to excavate through pavement or sidewalk, he shall saw cut along neat lines as shown on the plans or as ordered by the ENGINEER. An approved power saw, as approved by the ENGINEER prior to actual use, shall be used to saw cut to the depth specified on the plans or as directed by the ENGINEER.

The conduit excavation and backfill and the restoration of top surface courses shall also conform to the applicable notes and details shown on the plans.

METHOD OF MEASUREMENT

Subsection 206-4.03 of the NYSDOT Standard Specifications, latest revision, shall apply. Measurement shall be made in meters.

BASIS OF PAYMENT

The unit price bid per linear meter shall include the cost of furnishing all labor, materials and equipment necessary to complete the work including excavation, backfill, saw cutting and restoring as shown on the plans.

Any damage to existing pavement, sidewalk, curb or other facilities caused by the CONTRACTOR's operations shall be repaired by the CONTRACTOR to the satisfaction of the ENGINEER at no additional cost to the COUNTY.

Payment will be made under:

Item No.	**Item**	**Pay Unit**
206.1015M	Traffic Signal Conduit Excavation and Restoration in Asphalt Concrete	M
206.1016M	Traffic Signal Conduit Excavation and Restoration in Portland Cement Concrete	M
206.1017M	Traffic Signal Conduit Excavation and Restoration in Composite Pavement	M
206.1018M	Traffic Signal Conduit Excavation and Restoration in Concrete Sidewalk and Driveways	M
206.1019M	Traffic Signal Conduit Excavation and Restoration in Asphalt Sidewalk and Driveways	M
206.1020M	Traffic Signal Conduit Excavation and Restoration in Grass and Unpaved Areas	M

Section 500
PORTLAND CEMENT CONCRETE

SECTION 501 - PORTLAND CEMENT CONCRETE - GENERAL

501-1 DESCRIPTION. These general requirements apply to concrete furnished for pavement, structures and incidental construction. Additional requirements may be specified in the contract item. All testing will be done in accordance with Department procedures.

501-2 MATERIALS

501-2.01 Composition of Mixtures. The Contractor shall inform the Regional Director, in writing, of the materials sources prior to mixing concrete. Proportion and mix portland cement, fine aggregate, coarse aggregate, water, admixtures, pozzolan and /or microsilica to create a homogeneous portland cement concrete mixture.

Produce the class of concrete indicated in the contract documents. However, substitutions may be made according to Table 501-1, Concrete Class Options.

TABLE 501-1 CONCRETE CLASS OPTIONS

Concrete Class Specified	Allowable Class Options
A	C, E, F[1], H or HP
C	F[1]
D	DP
DP	None
E	F[1] or H or HP
H	HP
F, G, GG, or HP	None
I	J
J	None

NOTES:

1. Regional Director approval required for pavement applications, including approach slabs. D.C.E.S. approval required for structural or deck applications, excluding approach slabs. Class F may not be used in mass placements, or as a substitute for Class A in Sign Structure, Signal Pole, and Luminary foundations.

501-2.02 Material Requirements

Portland Cement	701-01	Fly Ash	711-10
Blended Portland Cement	701-03	Microsilica	711-11
Coarse Aggregates	703-02	GGBFS *	711-12
Concrete Sand	703-07	Water	712-01
Admixtures	711-08		

* Ground Granulated Blast Furnace Slag

A. Cementitious Materials. Use only cementitious materials meeting §701-01 whose brand name and type appears on the Department's Approved List. Cementitious materials stored over the winter at concrete producing facilities will be retested for specification compliance. All contaminated, or hardened cementitious material will be rejected and not used in Department work.

The Department will consider requests to evaluate alternate cements, pozzolan or microsilica. The use of alternatives is subject to approval by the Director, Materials Bureau.

1. Portland Cement. Use Type I, Type II or Type I/II cement, except as indicated below or in the contract documents.

Type I cement is restricted to fresh water and low sulfate soil areas. Use Type II or Type I/II cement in high sulfate, and salt water areas. Salt water areas are defined as; The Hudson River south of the Newburg-Beacon Bridge, and all other tidal / sea water spray areas of New York State. Type I/II cement is defined as a cement that meets the requirements of both Type I and Type II cements. High alkali cement is defined as any portland cement having an alkali content in excess of 0.70% as denoted on the Approved List. High alkali cement use is restricted, unless otherwise approved by the Regional Director, to mixtures that do not contain reactive aggregates (as denoted in the Department's List of Approved Sources of Aggregates).

2. Blended Portland Cement. Blended cements meeting the requirements of 701-03, may be used as follows:

a. Type IP or SM. Blended Portland Cement (Type IP or Type SM), may be used in all classes of concrete listed in Table 501-03, Concrete Mixtures, except Class F. Type IP or SM blended cement replaces the portland cement/pozzolan portion of the designed mix in Class DP, G, GG, or HP concrete. When using Type IP or SM blended cement in Class DP and HP concrete, an addition of Microsilica §711-11 is required.

b. Type SF. Blended Portland Cement (Type SF), may be used in Class DP or HP concrete. Type SF blended cement replaces the portland cement/microsilica portion of the designed mix in Class DP or HP concrete. When using Type SF blended cement in Class DP or HP concrete, an addition of Fly Ash, §711-10, or Ground Granulated Blast Furnace Slag (GGBFS), §711-12, is required.

c. Ternary Blend. Blended Portland Cement (Ternary Blend), may be used in Class DP or HP concrete. Ternary blend cement in Class DP or HP concrete replaces the entire portland cement/pozzolan/microsilica portion of the designed mix. No subsequent addition of cementitious material is required or allowed.

3. Pozzolan. Pozzolan is defined as Fly Ash, §711-10, or Ground Granulated Blast-Furnace Slag (GGBFS), §711-12. All classes of concrete, except Class F, allow or require a pozzolan as a partial replacement for portland cement. Classes DP, G, GG, and HP concrete require the use of a pozzolan.

4. Microsilica. Class DP and HP concrete require Microsilica, §711-11, as a partial replacement for

SECTION 608 - SIDEWALKS, DRIVEWAYS AND BICYCLE PATHS

608-1 DESCRIPTION. This work shall consist of the construction of either a Portland Cement concrete sidewalk, an asphalt concrete sidewalk, an asphalt concrete driveway, bicycle paths, or furnishing and placing precast concrete paving, brick paving or grouted stone block paving. All work shall be in accordance with these specifications and in reasonably close conformity with the lines and grades shown on the plans or established by the Engineer.

608-2 MATERIALS. Materials shall meet the requirements specified in the following subsections of section 700--Materials:

Portland Cement	701-01
Bituminous Materials (As specified)	702-00
Asphalt Cement for Paving	702-02 or 702-03
Fine Aggregates	703-01
Coarse Aggregates	703-02
Mortar Sand	703-03
Cushion Sand	703-06
Concrete Sand	703-07
Mineral Filler	703-08
Brick Pavers	704-08
Stone Blocks	704-09
Precast Concrete Pavers	704-13
Premoulded Resilient Joint Filler	705-07
Masonry Mortar	705-21
Wire Fabric For Concrete Reinforcement	709-02
Water	712-01

608-2.01 Portland Cement Concrete Sidewalk and Driveways. The material requirements and composition shall comply with the specifications for Class A concrete in §501-2 under "Portland Cement Concrete--General". Concrete shall be proportioned in accordance with the aggregate weights specified for Class A concrete in Table 501-3, Concrete Proportions.

608-2.02 Asphalt Concrete Sidewalks, Driveways, and Bicycle Paths. The mixture requirements for these items shall either be 9.5 mm or 19.0 mm mixtures. These mixtures shall be designed for <0.3 million ESALs and produced in accordance to Section 401 using coarse aggregate Type F9. The number of courses and course thicknesses shall be as given in Table 608 - 1, Hot Mix Asphalt Composition.

TABLE 608-1
HOT MIX ASPHALT COMPOSITION

Total Paved Thickness	9.5 mm Mix	19.0 mm Mix	Number of Courses
40 mm	40 mm		1
50 mm	50 mm		1
80+ mm	40 mm	40+ mm	2+

Notes:
1. For the 19.0 mm mixture, the maximum thickness that can be placed in one pass is 75 mm.
2. A course shall consist of one or more separate lifts of hot mix asphalt, as directed by the Engineer, to attain the indicated thickness.

SECTION 655 - FRAMES, GRATES AND COVERS

655-1 DESCRIPTION. This work shall consist of furnishing and placing **Error! Bookmark not defined.**frames, grates, covers and curb boxes for drainage structures as shown on the plans or as directed by the Engineer.

655-2 MATERIALS

655-2.01 Castings. All cast gratings, covers, frames and curb boxes manufactured in conformance to the Standard Sheets "Cast Manhole Frames, Grates and Covers", or "Cast Frames and Curb Boxes and Welded Frames", or "Telescoping Manhole Casting & Ring" shall meet the requirements of §715-05 Iron Castings, Class No. 30B or Class No. 35B. All other gratings, covers, frames and curb boxes shall meet the requirements of §715-02, Steel Castings, Grade N-1; or §715-07, Proof Loaded Iron Castings, Class No. 30B or Class No. 35B; or §715-09, Malleable Iron Castings, Grade 22010, at the Contractor's option. No substitutions will be allowed.

655-2.02 Fabricated Articles. All frames, grates and appurtenant parts shall be fabricated from steel conforming to ASTM A36M, AISI Grade 1020 Steel, AISI Grade 1025 Steel, or ASTM A529M Gr. 345, except that the longitudinal bars for grates G1, G2, G3, 10 PCB, 11 PCB and 12 PCB shall meet the requirements of ASTM A529M, Gr. 345. The Contractor shall submit mill certifications, to the Engineer, for ASTM A529M, Gr.345. Welding or splicing by welding of any member of the frame or grate, other than the welds shown on the standard sheets, plans, approved shop drawings, approved Materials Details, or in the proposal will not be permitted. Galvanizing shall be in accordance with §719-01 Type I, unless indicated otherwise.

Welding shall comply with the requirements specified in the New York State Steel Construction Manual, except that radiographic inspection will not be required.

655-3 CONSTRUCTION DETAILS

655-3.01 Frames and Grates. Frames, covers and grates shall be placed true to line and grade. Covers, grates and frames shall make firm, full and even bearing on their respective underlying surfaces and shall be non-rocking under the influence of traffic or other loads. On all frames, the Contractor shall have the option of drilling and tapping holes or drilling holes in and welding nuts to the bottom of the frame to facilitate the stud bolts used to hold down the grate.

Unless otherwise specified, the hole shall be drilled and tapped or the nut welded to the frame before galvanizing. The threads shall be tapped sufficiently oversize to conform to ANSI B1.13M Class 6h after galvanizing.

655-3.02 Field Repairs for Improperly Fitting Systems. The Contractor may propose to the Engineer reasonable field repair procedures for improperly fitting castings. No field repairs of improperly fitting fabricated frames and grates shall be allowed. Field repairs may include grinding and/or proper welding techniques for the materials involved. Repairs that involve welding shall be allowed only on steel castings, and not on iron, and only with prior approval of the DCES. Implemented repairs must result in systems whose constituent parts have full, uniform and even bearing contact on their respective underlying surfaces and that do not rock or move under the influence of traffic and other loads. All such repairs must be completely satisfactory to the Engineer or the work shall be rejected and replaced with satisfactory systems. All repairs shall be done at no cost to the State.

655-4 METHOD OF MEASUREMENT

655-4.01 Frames and Grates. The quantity to be measured under this work will be the number of square meters measured inside the frame containing the grate and computed to the nearest $^{1}/_{100}$ square meter. The payment areas shown on the standard sheets need not be computed.

655-5 BASIS OF PAYMENT

655-5.01 Frames and Grates. The unit price bid per square meter for cast or prefabricated frames and grates shall included the cost of furnishing all labor, materials and equipment necessary to satisfactorily complete the work, including the cost of any field repair work for improperly fitting castings or to render the frame and grate non-rocking.

Payment will be made under:

Item No.	Item	Pay Unit
655.0101 M	Frames and Grates (Castings)	Square Meter
655.0201 M	Frames and Grates (Fabricated)	Square Meter
655.0301 M	Frames and Grates (Parallel Bar Type)	Square Meter
655.0401 M	Frames and Grates (Parallel Bar Type with Cast Frames)	Square Meter
655.0501 M	Steel Fabricated Grates In Cast Iron Fabricated Frames	Square Meter

680-2.02 Concrete. All cast-in-place pullboxes, signal pole foundations and controller cabinet bases shall meet the requirements of Class A concrete in section 501, Portland Cement Concrete General, except that the requirements for inspection facilities, automated batching controls and recordation do not apply. The batching, mixing and curing methods and the inspection facilities shall meet the approval of the Department or its representative. The Contractor may submit, for approval by Director, Materials Bureau, a mix at least equivalent to the specified Class A Concrete.

All precast concrete pullboxes, signal pole foundations and controller cabinet bases shall meet the requirements of §723-45 Precast Reinforced Concrete Pullboxes.

680-2.03 Messenger Wire. Messenger wire shall meet the requirements of §724-02 Span Wire.

680-2.04 Guy Wire. Guy wire shall meet the requirements of §724-02 Span Wire.

680-2.05 Pullbox Frames and Covers. Frames and covers shall meet the requirements of §715-05 Iron Castings.

680-3 CONSTRUCTION DETAILS

680-3.01 Equipment List and Drawings. Unless otherwise waived, the Contractor shall submit to the Regional Director within 30 days following the award of contract, detailed specifications, catalog cuts, parts list, instruction sheets, and shop drawings of equipment and materials which he proposes to install.

680-3.02 (Vacant).

680-3.03 Negotiations with Utility Company. The Contractor shall be responsible for all negotiations involving utility companies.

The Contractor shall comply with utility company regulations.

When a entry into a service manhole or attachment to any utility company pole is required, the Contractor shall notify the utility company sufficiently in advance. Entry into a service manhole or attachment to any pole shall not be made without the presence of a utility company representative if the utility company so requires. The service points shown on the plans are approximate only and the Contractor shall determine the exact location from the serving utility company.

The Contractor shall make arrangements with the local utility company to complete the service connection.

680-3.04 Underground Facilities. The Contractor shall locate all existing underground facilities in accordance with the provisions of Industrial Code Rule 753. It shall be the Contractors responsibility to satisfy himself as to existing conditions and to protect and support in a suitable manner all underground facilities encountered during the trenching and excavating operations. The Contractor shall repair any damage to these lines caused by his operations, and if the nature of the damage is such as to endanger the operations of these services and utilities and the necessary repairs are not immediately made by the Contractor, the work may be performed by the State or other Contractor and the cost thereof charged against the Contractor.

680-3.06 Work Sites. The Contractor shall perform all work within the work site in a workmanlike manner and in accordance with U.S. Department of Labor's Occupational Safety and Health Standards.

The sites of the work and adjacent premises shall be kept as free from material, debris and rubbish as is practicable. All such material or debris that accumulates during the work shall be removed by the Contractor as the work progresses.

Neither the materials excavated, nor the materials used, shall be placed so as to prevent access to any fire hydrants, water valves, manholes, police call boxes or fire alarm boxes.

680-3.07 Schedule of Work. The Contractor shall notify the local power company at least 72 hours (or as required by the company) in advance of the time that the individual installation is complete and ready for operation in order that taps may be made by the power company to distribution lines.

Upon completion of a signal installation the signal may be placed in service prior to the completion of other installations or the signal head may be covered. The Contractor shall place the signal in operation or cover the head as directed by the Engineer.

When the traffic signal is placed in operation, it shall be operated in accordance with timing schedules to be supplied by the Department.

680-3.08 Contractor Responsibility with Utilities. All attachments to utility company poles shall be made in accordance with the specifications and subject to the inspection of the utility companies owning the poles. The height of all proposed attachments above the ground and their locations on the poles shall be in accordance with the plans, standard sheets or as directed by the Engineer and shall meet the approval of the utility companies owning the poles.

The Contractor shall protect all property and materials of the utility companies and shall be responsible for the repair or replacement of any damaged material or property. In the event that the point of attachment or location of the risers is such that the risers interfere with or do not provide proper clearance with existing utility company attachments, the Engineer, in consultation with the utility companies owning the poles, shall make the necessary adjustments in heights and location to eliminate such interference.

680-3.09 Excavation. All excavation shall conform to Section 206 Trench, Culvert and Structure Excavation. Included shall be the protection of workers and the public. Details of this protection shall conform to the requirements of 29CFR1926, Safety and Health Regulations for Construction (OSHA) and §107-05 Safety and Health Requirements Paragraph F.

Excavation shall not be performed until immediately before installation of the conduit, direct burial cable, footings, pullboxes or any other appurtenances. The excavated material shall be placed in a location or locations approved by the Engineer. These locations shall be selected by the Contractor so as to cause the least inconvenience to vehicular and pedestrian traffic and to cause the minimum interference with the surface drainage. All surplus excavated material shall be removed and disposed of by the Contractor as specified in §203-3.08 Disposal of Surplus Excavated Materials.

Excavation shall be backfilled as specified in §203-3.15, Fill and Backfill at Structures, Culverts, Pipes, Conduits and Direct Burial Cables. After backfilling, the excavation shall be kept well filled and maintained in a smooth and well drained condition until permanent repairs are made.

The outline of all areas to be removed in sidewalks, driveways, and pavement shall be saw cut to a depth of at least 75 mm prior to removing the sidewalk, driveway or pavement. Cuts shall be neat and true along score lines with no shatter outside the removal area. Damaged saw cut areas shall be recut.

Pavement, shoulder, sidewalks, curbs, driveways, lawns, plants and other such features shall be replaced in kind with material of equal quality or as shown on the plans, standard sheets or as directed by the Engineer.

Whenever a part of a square or slab of existing concrete sidewalk, curb, gutter or driveway is broken or damaged, the entire square, section or slab shall be removed and replaced with the same kind and quality

of material.

For transverse sidewalk, curb or gutter cuts in concrete the entire square or section shall be removed and replaced with the same kind and quality of material. For longitudinal cuts in concrete sidewalks only the area removed between sawcuts shall be replaced unless specified otherwise on the plans.

680-3.10 Pole Excavation and Concrete Foundation. Foundations shall be constructed as shown in the contract documents or as directed by the Engineer. However, the Contractor has the option to use either Cast-in-Place or Precast Concrete foundations for the signal poles.

If the Contractor elects to install a cast-in-place foundation, the signal pole may be installed on the foundation three (3) days after concrete placement. However, the span wire and signal heads may not be installed until the concrete cylinder strength reaches at least 15 MPa. Therefore, the Contractor shall assist the Engineer in making a sufficient number of test cylinders of the foundation concrete, store these cylinders at the location directed by the Engineer, and transport these cylinders to the State testing facility in order to install the traffic signal as soon as possible.

If the Engineer requests the submittal of design computations for one or more signal poles, the Contractor shall not start construction of the foundations for those signal poles until the Engineer's review of the submittal is completed. The Engineer will have twenty (20) working days to review the design computation for one signal pole, and an additional two (2) working days for each additional signal pole.

For those poles on which a traffic signal cabinet will be mounted, the Contractor shall orient the pole foundation to align the signal cabinet and cabinet wiring access hole as specified on the plans. If no orientation is specified on the plans, the Contractor shall orient the signal cabinet and cabinet wiring access hole 180° from the span wire or load attachment to the pole, unless otherwise directed by the Engineer. The Contractor shall notify the Engineer three (3) working days in advance of doing any pole foundation work and provide the intended pole orientation.

680-3.11 Poles. Poles shall be erected as specified on the plans, standard sheets and as directed by the Engineer.

Pole and signal locations shown on the contract plans shall be field checked for any condition that may affect their placement, where changes are necessary the exact location will be determined by the Engineer.

When field conditions require a change in pole position from that shown in the contract plans, the pole length requirements may vary. It shall be the Contractor’s responsibility to verify pole length before ordering poles.

Pole erection shall include installation of mast arms and lighting arms and attachment of fittings as specified on the plans and standard sheets as follows:

1. Anchor bolt covers if specified.
2. Weatherheads and couplings as required.
3. Service bracket.
4. Pole cap and mast arm end caps.
5. Cabinet mounting fittings, plates, brackets as needed for the cabinet being installed.
6. Reinforced couplings for wire entrances to cabinets.
7. Galvanized eyebolt, nuts and washers for attaching span wire assembly.
8. Galvanized pole clamps with eyes for attaching tether wires.

In addition, the Engineer may require the contractor to submit, at any time, design computations for any or all of the traffic signal poles in the contract. The design computations must be approved, stamped and signed by a professional engineer licensed in New York State. The Engineer shall have twenty (20) working days to review the design computations for one traffic signal pole, and an additional two (2) days for each additional signal pole.

If the Engineer's review of a pole's design indicates a problem(s) exists, the Contractor will be notified within the time allotted for the review. In these cases a meeting will be held between the Engineer and the Contractor to resolve the Engineer's concerns.

680-3.12 Grounding. A copper clad ground rod, ground wire and fittings shall be installed as shown on the plans, standard sheets or as directed by the Engineer. The ground system shall be electrically connected to the grounding terminal on the pole or controller cabinet.

The ground system when completed shall be tested in accordance with §680-3.32. If the requirements of this test are not met, additional ground rods, ground rod extensions, electrical bonding of metallic conduit or other grounding measures may be required as directed by the Engineer.

680-3.13 Conduit and Direct Burial Cable. Conduit and direct burial cable shall be installed as specified on the plans, standard sheets or as directed by the Engineer. Underground conduit and direct burial cable installations shall have a minimum cover of 0.45 m except under roadways, where the minimum cover shall be 0.6 m unless specified otherwise on the plans, or standard sheets. The conduit shall be laid on a uniform grade to allow any condensation to drain to pull boxes or "T" drains. Conduit shall be backfilled in accordance with §203-3.15 Fill and Backfill at Structures, Culverts, Pipes, Conduits and Direct Burial Cables. In rock excavations a bedding of select backfill must be placed and tamped before laying the conduit.

Conduit may be placed under pavement by jacking or boring methods approved by the Engineer. Pavement may not be disturbed without permission of the Engineer. In the event obstructions are encountered, small test holes may be cut in the pavement upon approval of the Engineer. Jacking or boring pits shall be kept 0.6 m clear of the edge of pavement and shoulder whenever possible. Excavation for jacking or boring pits shall be in accordance with §680-3.09 Excavation.

Conduit or direct burial cable may be placed by machine methods approved by the Engineer.

All bends in conduit shall be made without kinking, flattening or appreciably reducing the internal diameter of the conduit. A hydraulic or power pipe bender shall be employed for all bends in steel conduit. Any evidence of destruction of the protective coating will be cause for rejection. All connections in metallic conduit shall be tight. Ends of conduit shall be reamed to remove burrs and rough edges.

Conduit ends in pullboxes, junction boxes, cabinet, etc. shall be equipped with insulating bushings.

All conduits installed shall be tested for clear bore and correct installation by the Contractor in the presence of the Engineer.

All empty conduit after testing shall be immediately sealed by the Contractor.

After a conduit is properly installed, the Contractor shall furnish and install in each conduit run a No. 10AWG galvanized steel drag wire or nylon or polypropylene rope with a tensile strength of at least 2.2 kN. At least one meter of extra wire or rope shall be left at each end.

680-3.14 Pullboxes. Pullboxes shall be constructed and installed in accordance with the details specified on the standard sheets or as directed by the Engineer.

Cast iron frames and covers shall be furnished and placed on each pullbox. They shall be set in mortar and placed true to line and grade and make full and even bearing on the underlying construction surface. The frame and cover shall be as shown on the standard sheet. Frames and covers which do not fit together properly, will be rejected by the Engineer and shall be removed from the site.

680-3.15 Signal Control Cable and Shielded Communication Cable. Cable shall be installed to form a continuous circuit between the proper equipment terminals. All terminal connections shall be made with approved solderless lugs of the proper size using a crimping tool that is self-releasing when proper compression has been applied. Only connectors that provide continuity and physical contact around the circumference of the connector and conductor shall be used.

During installation of the cable, the Contractor shall take care not to damage conductors, insulation, or outer covering. The length of cable installed shall not cause excessive stress on the conductors or any part of the cable.

An insert lubricant approved by the Engineer shall be used in placing cable in conduit. Cable shall be pulled into conduit by hand and the use of winches or other power actuated pulling equipment will not be permitted.

At least one meter but not more than one and one half meter of slack shall be left for each cable at each pullbox or junction box. Short bends of cable shall be avoided inside pullboxes. Cable in pullboxes or junction boxes shall not cross over any other cables already in place nor block any conduit. All cable shall be identified as to function in each pullbox, junction box or cabinet by the use of aluminum or brass cable markers. If a wire numbering system is used for identification, the key to the system shall be placed along with the wiring diagram in the controller cabinet.

Conductors in controller cabinets shall be dressed neatly with tie wraps. Spare conductors shall be taped and coiled neatly in the bottom of the cabinet. Ends of spare conductors shall be taped. Field wiring entering controller cabinets shall be identified as to function.

Splices in shielded communication cable will not be allowed between equipment terminals. Where cable is installed on span wire, or messengers, it shall be supported at intervals not greater than 380 mm by messenger rings, stainless steel cable straps or other non-corrosive metal lashing approved by the Engineer. Taping and plastic cable ties will not be permitted.

Integral messenger cable shall be installed in accordance with the details specified on the standard sheets or as directed by the Engineer.

When integral messenger cable is installed on utility company poles, the Contractor shall make all arrangements with the utility company for the installation. The Contractor shall observe all utility company requirements for attachments to poles and clearances with utility wires. The Contractor shall notify the utility company prior to start of the work and observe the utility company requirements for accomplishment of the work.

All necessary hardware used with integral messenger cable shall develop the full breaking strength of the integral messenger wire. Poles at each end and at each change of direction shall be guyed as specified on the plans or directed by the Engineer. When installed on utility company poles, guys shall be installed as directed by the utility company.

680-3.16 Cable Splices. Unless otherwise specified, cable splices will be permitted only in pullboxes, junction boxes, utility manholes, and at traffic signal heads. All cable runs between units of equipment shall be without splices unless shown on the plans or authorized by the Engineer. Conductors in controller cabinets shall not be spliced. Splices in overhead cable, when necessary, shall be made with the approval of, and as specified by the Engineer.

The bared conductor ends shall be either twisted and soldered or joined using an uninsulated, size coded solderless type connector of the correct size using an appropriate crimping tool. The splice shall be reinsulated in accordance with §680-3.16 Cable Splices, Method No. I except that heat shrinkage polyolefin tubing may be used as an alternate to the rubber tape; also, the first layer of PVC tape and sealing agent shall be extended as needed to cover a minimum of 25 mm of the inductance loop wire tube. The polyolefin tubing shall be at least as thick as the original insulation. Upon completion of the reinsulating, a final waterproof coating shall be applied over the entire splice.

The loop wires (twisted pair) and the splice to the shielded lead-in cable with the pullbox shall be held by wire hangers as near as possible to the top of the box in order to prevent their immersion in water. The shielded lead-in cable shall be continuous (no splices) from the splice to the loop wires to the controller cabinet terminals. The drain or ground wire in the shielded cable shall be grounded at the controller cabinet terminals only.

The completed loop installation including the shielded lead-in to the controller cabinet shall have a minimum of 50 megohms leakage resistance to ground. This resistance shall be tested before the loop is sealed in the pavement and after the splice is made between the loop wires (twisted pair) and shielded lead-in. Resistance to ground shall be tested in accordance with the Insulation Resistance Test in §680-3.32.

When it is determined that the resistance to ground requirements are met, the slot shall be filled with Roadway Loop Embedding Sealer. The pavement temperature shall be at least 4.4□C and rising before the sealer is placed. All work involving the sealer shall be done in compliance with the manufacturer's specifications. When the loop embedding sealer has set sufficiently to open the loop to traffic, but the surface remains tacky, the loop may be dusted with cement dust to facilitate opening the loop to traffic.

680-3.27 Concrete Base for Controller Cabinet. Bases shall be installed and constructed in accordance with the details specified on the standard sheets. Bases shall be either pre-cast or cast-in-place. Anchor bolts shall be placed in the footing at the proper location. Conduits shall be installed in the footing as required by the plans.

Where the base is installed in unpaved areas a work pad shall be constructed in front of the cabinet door.

Excavation shall be in accordance with §680-3.09, Excavation.

680-3.28 Power Meter Base. At each power source, the Contractor shall provide two meters of slack in the traffic signal cable used for power supply and neatly coil this slack within the controller cabinet.

The Contractor shall install a meter base as shown on the standard sheets or as ordered by the Engineer. The meter base will be furnished by the utility company. The additional length of power cable in the controller cabinet shall be extended through the cabinet wall into the meter base and back to the controller circuit breaker. All meter base fittings shall be weather tight.

680-3.29 Overhead Traffic Signs. Sign and mounting brackets shall be installed as shown on the plans and standard sheets. Signs shall be aligned to the satisfaction of the Engineer.

Sign Panels shall be aluminum and constructed in accordance with the appropriate subsections of section 645--Guide Signs, Traffic Signs and Specs.

680-5.03 Pedestrian Signal Bracket Assembly. The unit price bid for each bracket assembly shall include the bracket, fittings, wiring of the head assembly and installation.

680-5.04 Pole Excavation and Concrete Foundation. The unit price bid per cubic meter shall include the excavation, any protective system(s) required to ensure the safety of the workers and the public, backfill (select granular backfill or concrete), form work, concrete, bar reinforcement for concrete, excavation and backfilling of test holes, conduit bends and fittings, restoration of surfaces in kind, and sawcutting.

Progress payments will be made at the unit price bid for 80 percent of the quantity for each foundation properly installed except for the mortar cap and restoration. The remaining 20 percent will be paid for upon satisfactory completion of each footing.

680-5.05 Pullbox. The unit price bid for each pullbox shall include all concrete, reinforcing steel, crushed stone or gravel, extensions, sawcutting, excavation, backfill, frames, covers, restoration of surfaces and incidentals as required.

680-5.06 Conduit. The unit price bid shall include all handling, cutting, bending, fitting, capping, painting, testing, furnishing and placing pull lines, condulets and concrete inserts, expansion and incidental fittings as required. Conduit bends and fittings in concrete footings will be paid for under the respective footing item. Conduit excavation and backfill and jacking or boring will be paid for under their respective items.

680-5.07 Inductance Loop Installation. The unit price bid per linear meter shall include the cost of all pavement sawing and drilling, loop embedding sealer, and pavement cut-outs. Inductance Loop Wire, pullboxes, Shielded lead-in Cable, Vehicle Detector Inductance Loop, Conduit, and Conduit Excavation and Backfill shall be paid under their respective items.

680-5.08 Controller Assembly. The unit price bid for each component of the Controller Assembly shall include all labor, material and equipment necessary to complete the work. The cost of the necessary grounding system shall be included in the unit price bid for the controller assembly components.

Progress payments will be made in the following manner:

Sixty-five percent of the bid price of each component will be paid after it is installed and ready for testing.

Twenty-five percent of the bid price will be paid after satisfactory completion of all tests required by these specifications, including the function test for ten days of continuous satisfactory operation of the traffic signal system at each signalized location.

The remaining ten percent will be paid when all the traffic signals in the contract are functioning to the satisfaction of the Engineer.

680-5.09 Fire Pre-Emption Tell Tale Light. The unit price bid shall include the light fixture, bulb, nipple, guard, and all attachments and fittings as required.

680-5.10 Concrete Base for Controller Cabinet. The unit price bid for each base shall include the cost of all sawcutting, excavation, backfill, form work, restoration of surfaces, concrete, test holes, conduit bends and fittings, and concrete work pad.

680-5.11 Pedestrian Push Button and Sign. The unit price bid shall include the push button, sign, mounting hardware, pole drilling, and necessary fittings as required. Where the push button and sign is installed on its own post the unit price shall also include the cost of the post, sawcutting, excavation, backfill, concrete, restoration of surfaces, and conduit bend and fittings.

ITEM 686.61M ADJUST FRAMES AND COVERS (PULL BOXES)

DESCRIPTION

Under this item the CONTRACTOR shall adjust existing pullbox frames to match new grades as ordered by the ENGINEER.

MATERIAL AND METHODS

The CONTRACTOR shall adjust existing pullbox to new grades. The CONTRACTOR shall repair and perform whatever work related to the pullbox as necessary in order to establish an acceptable repair and adjustment.

MEASUREMENT AND PAYMENT

Payment will be per unit bid price and shall include the cost of excavation, the adjustment, any repairs and all the material, equipment and labor necessary to complete the work.

Payment will be made under:

Item No.	Item	Pay Unit
686.61M	Adjust Frames and Covers (Pull Boxes)	EA

ITEM 686.62M REMOVE TRAFFIC SIGNAL PULLBOXES

DESCRIPTION

Under this item the CONTRACTOR shall remove pullboxes as ordered by the ENGINEER.

MATERIALS

None specified.

CONSTRUCTION DETAILS

The CONTRACTOR shall remove pull boxes in accordance with the specifications, plans and as ordered by the ENGINEER. The pullboxes shall become the property of the CONTRACTOR and be removed from the site.

The CONTRACTOR shall remove the pullboxes located in the roadway area by sawcutting the pavement 600mm from the edge of the existing frame. The entire pullbox shall be removed.

The CONTRACTOR shall backfill the excavation in accordance with NYSDOT Standard Specifications Section 680-3.09, latest revision, to the top of the subgrade. Final restoration shall be in accordance with the plans and performed under other items in the contract.

The CONTRACTOR shall remove pullboxes located in the sidewalk by sawcutting the sidewalk 600mm away from the pullbox frame or by breaking the sidewalk at score lines and removing entire sidewalk flags. The CONTRACTOR shall backfill the excavation in accordance with NYSDOT Standard Specifications, Section 680-3.09, latest revision. Final restoration shall be in accordance with the plans.

METHOD OF MEASUREMENT

The quantity shall be measured as the number of pullboxes removed in accordance with the plans, specifications and orders of the ENGINEER.

BASIS OF PAYMENT

The unit price bid for each pullbox removed shall cover the cost of disposal, all labor, backfill and excavation material and equipment necessary. Payment for sawcutting, backfilling with subbase material and restoration shall be included under other items.

Payment will be made under:

Item No.	Item	Pay Unit
686.62M	Remove Traffic Signal Pullboxes	EA

ITEM 686.5099M CONCRETE BASE REMOVAL (POLE AND CONTROLLER)

DESCRIPTION

Under this item the CONTRACTOR shall remove existing anchor bolt type pole bases and controller bases that are no longer required, and restore the area disturbed by the base removal.

MATERIALS

All materials used for restoration shall conform to the appropriate section of the NYSDOT Standard Construction and Material Specifications, latest revision, and as ordered by the ENGINEER.

CONSTRUCTION DETAILS

The CONTRACTOR shall remove the entire concrete base, or remove the top 550 mm to 600 mm of the concrete and anchor bolts. The CONTRACTOR shall backfill and restore the entire area disturbed by the base removal to an elevation level with existing ground. The restored surface area shall be replaced with material that matches existing adjacent surfaces. Sub-base course backfill material shall be consistent with the type of material used to restore the surface area.

METHOD OF MEASUREMENT

This item will be measured for payment as the number of each concrete base removed in accordance with the contract documents and as directed by the ENGINEER.

BASIS OF PAYMENT

The unit price bid for this item shall include the furnishing of all labor, materials, tools, equipment, and incidentals as necessary to complete the work, including excavation, removal and disposal of bases, and all materials for backfill, and to match adjacent surface area.

Payment will be made under:

Item No.	Item	Pay Unit
686.5099M	Concrete Base Removal (Pole and Controller)	EA

ITEM 686.520603 CONDUIT PVC SCHEDULE 80 – 25 mm DIA.
ITEM 686.520606 CONDUIT PVC SCHEDULE 80 – 50 mm DIA.
ITEM 686.520608 CONDUIT PVC SCHEDULE 80 – 75 mm DIA.
ITEM 686.520610 CONDUIT PVC SCHEDULE 80 – 100 mm DIA.

DESCRIPTION

Work under this item shall include furnishing and installing new PVC Schedule 80 conduit as shown on the plans, or as directed by the ENGINEER.

MATERIALS

Conduit and fittings are to be Schedule 80, rigid, extra-heavy wall polyvinyl chloride (PVC) conduit as specified by Underwriter Laboratories Standard UL-651. The conduit is to meet the specifications included in the NEMA Standard Specification TC-2 for electrical plastic conduit EPC-80.

CONSTRUCTION DETAILS

In the case of conflicting test requirements, the more stringent of the test requirements is to be met.

The conduit shall be placed within the trench and shall have a minimum cover of at least 450 mm, except under roadways where the minimum cover shall be 600 mm, unless specified otherwise on the plans. Conduit installed under roadways shall extend at least 1 foot behind the face of the curb, or as approved by the ENGINEER. The conduit shall be laid on a uniform grade to allow any condensation to drain to pull boxes.

The conduit fittings shall be assembled in the trench in accordance with the manufacturer's latest instructions and as approved by the ENGINEER. The joints shall be cemented in accordance with Federal Specification W-C-1094A and Underwriter Laboratories Standard UL-514. The joint cement solvent shall meet the requirements of ASTM D2564, or alternately be of the type recommended by the conduit manufacturer. Warning tape shall be placed in the open cut trenches approximately 150 mm above the conduit.

All bends in the conduit shall be made without kinking, flattening, or appreciably reducing the internal diameter of the conduit.

All conduit connected to pullboxes and handholes shall be installed flush with the inside wall and a minimum of 75 mm above the bottom of the floor.

All conduit shall be tested for clear bore and correct installation, using a mandrel, brush and snake, before the installation will be accepted. The mandrel shall be turned approximately 85 percent of the internal diameter of the conduit to be tested. Two short wire brushes shall be included in the mandrel assembly. Snaking of conduits shall be done in the presence of the ENGINEER. All conduit which rejects the mandrel shall be cleared. After providing a 1,102 kg nylon pull cord in the conduit, all empty conduit and duct openings shall be plugged with a tapered hard rubber plug. At least 1 meter of extra rope shall be left at each end.

BASIS OF ACCEPTANCE

The conduit shall be accepted upon the basis of the manufacturer's certification that it meets the requirements of this specification, as well as being Underwriters Laboratory Listed. Fittings, couplings, and solvent cement shall be accepted upon the manufacturer's certification that they meet the requirements of this specification.

METHOD OF MEASUREMENT

The quantity to be measured for payment shall be the number of lineal meters of conduit installed in accordance with the contract documents and as directed by the ENGINEER.

BASIS OF PAYMENT

The unit bid price for this item shall include the cost of furnishing and installing new conduit, fittings, warning tape, pull cord, couplings and insulating bushings; cementing of the joints and fittings; testing for clear bore and correct installation; connecting conduit to handholes, pullboxes, existing conduit, traffic signal pole foundations, and other electrical equipment. Payment for trenching, boring, and surface restoration shall be included under other items.

Payment will be made under:

Item No.	Item	Pay Unit
686.520603M	Conduit PVC Schedule 80 – 25 mm Dia.	M
686.520606M	Conduit PVC Schedule 80 – 50 mm Dia.	M
686.520608M	Conduit PVC Schedule 80 – 75 mm Dia.	M
686.520610M	Conduit PVC Schedule 80 – 100 mm Dia.	M

ITEM 686.9956M ROD AND CLEAN CONDUIT

DESCRIPTION

Under this item, the CONTRACTOR shall rod and clean existing conduit that has been designated to house the communication cable, to make certain that the conduit is clean and satisfactory for the installation of cable. The locations of the designated conduit is to be furnished by the ENGINEER.

CONSTRUCTION REQUIREMENTS

A steel mandrel no less than 51 millimeters long and having a diameter no less than 70 percent of the inside diameter of the conduit shall be passed through the entire run of conduit from one end to the other between manholes and/or pullboxes, without binding.

The CONTRACTOR will be required under this item to attempt to clear any obstruction that will not allow this passage of the rod or mandrel. Only those methods, approved by the owning agency or utility company, shall be employed to clear such obstruction. If it is not possible to clear an obstruction by the methods approved above, the conduit will be repaired under other pay items.

After the conduit has been rodded and cleaned, the CONTRACTOR shall furnish and install a No. 10AWG galvanized steel or nylon fish in the conduit from one end to the other, leaving no less than 305 mm of extra wire in each manhole or pullbox. The galvanized wire shall be grounded to a suitable grounding device at each end of the conduit.

The CONTRACTOR will be required to conform to the provisions of General Conditions and Special Conditions - Location of Existing Utilities of the contract proposal, while performing work on this item.

METHOD OF MEASUREMENT

This item will be measured for payment as the number of linear meters of conduit actually rodded and cleaned in accordance with the Contract Documents and to the satisfaction of the ENGINEER.

BASIS OF PAYMENT

Payment for the amount of conduit rodded and cleaned will be made upon approval of the ENGINEER, for the measured quantity at the contract price per linear meter; which price shall be full compensation for furnishing, transporting, installing and adjusting all materials; pumping water from manholes and pullboxes; and for all labor, tools, materials, equipment and incidentals necessary to complete the work in accordance with the plans and specifications.

Payment shall also include maintaining the cleaned and rodded conduit in such condition until after the installation of cable.

Payment will be made under:

Item No.	Item	Pay Unit
686.9956M	Rod and Clean Conduit	M

723-19 RIGID PLASTIC CONDUIT

SCOPE. This specification covers the material requirements for rigid plastic conduits (PVC and high-density PE) for use as raceway for wires or cables of an electrical system. Rigid plastic conduit is acceptable for up to 75□C wiring service. Rigid PVC (polyvinyl chloride) conduit is suitable for installation above or below ground and with or without concrete encasement; high-density PE (polyethylene) conduit is intended for below ground installations only, and with or without concrete encasement.

GENERAL. Under these requirements either Class 1, Heavy Wall PVC or Class 2, High Density PE conduit may be supplied for underground installation. For above ground use, only Class 1 conduit shall be allowed.

MATERIAL REQUIREMENTS. Rigid plastic conduit shall conform to the requirements of UL 651A.

All fittings, couplings and expansion fittings shall conform to the applicable requirements of UL514A. Solvent cement for joining Class 1 conduit and conduit fittings shall meet the requirements of ASTM D2564, or alternately be of the type recommended by the conduit manufacturer. Unless otherwise recommended by the manufacturer, fittings for Class 2 conduit shall be of a drive-on type and solvent cement will not be needed for "jointing."

BASIS OF ACCEPTANCE. Rigid plastic conduit shall be accepted upon the basis of the manufacturer's certification that it meets the requirements of this specification, as well as being Underwriters Laboratory Listed. Fittings, couplings and solvent cement shall be accepted upon the manufacturer's certification that they meet the requirements of this specification.

723-20 METAL STEEL CONDUIT, ZINC COATED

SCOPE. This specification covers the material requirements for zinc coated rigid metal steel and intermediate metal steel conduits, used as raceways for wires or cable of an electrical system. Steel conduit may be embedded in concrete or earth; or may be used under all atmospheric conditions, including those locations classified as hazardous; and may be used in high voltage (over 600 volts) installations.

GENERAL. Under these requirements, either Class 1, Rigid Metal Steel Conduit or Class 2, Intermediate Metal Steel Conduit may be supplied. In addition, Class 1 and Class 2 conduits may be interchanged in the same run, providing the ends of both of the conduits are reamed, so as to create beveled edges and a smooth area over which the wires and cables will pass. Where conduit is to be jacked or exposed to the atmosphere, only Class I, Rigid Metal Steel Conduit, is permitted.

Additionally, conduit exposed to the atmosphere shall be PVC coated.

MATERIAL REQUIREMENTS. The zinc coated metal steel conduit shall conform to the requirements of UL 6, Class 1 - Rigid Metal Conduit: or UL 1242, Class 2 - Intermediate Metal Conduit.

All fittings, couplings and expansion fittings shall be zinc coated and shall meet the same specifications as the conduits. Condulets shall be gasketed and shall be furnished with stainless steel or brass screws for the cover. Expansion fittings shall be metallically connected for continuity of grounding on either side.

The zinc coating on the outside surfaces shall be equivalent to a minimum thickness of 0.02 mm.

BASIS OF ACCEPTANCE. Metal steel conduit may be accepted upon the manufacturer's certification that it meets the requirements of this section.

723-21 AND 723-22 (VACANT)

723-23 P.V.C. COATED GALVANIZED STEEL CONDUIT

SCOPE. This specification covers the material and quality requirements for P.V.C. coated galvanized steel conduit.

GENERAL. P.V.C. Coated Galvanized Steel Conduit. The hot-dipped galvanized Rigid Steel Conduit; prior to plastic coating, shall conform to N.E.M.A. Standards Publication No. RN 1, and ANSI C80.1.

Elbows in standard and special radii shall be coated as above except that no coupling will be coated with the elbow. Separate couplings will be furnished as required and ordered.

BASIS OF ACCEPTANCE. P.V.C. coated galvanized steel conduit will be accepted upon manufacturer's certification that it meets the requirements of this section.

723-24 FLEXIBLE LIQUID-TIGHT STEEL CONDUIT

SCOPE. This specification covers the material and quality requirements of flexible liquid-tight steel conduit.

GENERAL. The flexible liquid-tight steel conduit shall be of the size indicated on the plans. It shall conform to the requirements of Underwriters' Laboratory specification UL 360 and shall be listed with Underwriters' Laboratory Inc. Connectors furnished under this specification shall be standard liquid-tight connectors.

BASIS OF ACCEPTANCE. Flexible liquid-tight steel conduit will be accepted upon manufacturer's certification that it meets the requirements of this section.

BP#0311-10
Installation of Underground Conduit, Pullboxes, Pedestals and Appurtenances

UNIT PRICE SHEET

Item #	NYSDOT Spec #	Description	Unit Price
680.5001	680-3.10	Signal Pole Excavation & Concrete Foundation	$525.00/CUBIC YARD
680.5002	680-3.27	Concrete Base for Signal Cabinet	$1,045.00/EACH
680.700603		Steel Riser Assembly 1"	$180.00/EACH
680.700606		Steel Riser Assembly 2"	$275.00/EACH
680.700608		Steel Riser Assembly 3"	$335.00/EACH
680.700610		Steel Riser Assembly 4"	$385.00/EACH
680.01	608-2.01	Concrete Sidewalks & Driveways	$255.00/CUBIC YARD
680.520103	723-20	Conduit Rigid Steel 1"	$4.35/LF
680.520106	723-20	Conduit Rigid Steel 2"	$8.85/LF
680.520108	723-20	Conduit Rigid Steel 3"	$17.10/LF
680.520110	723-20	Conduit Rigid Steel 4"	$26.50/LF
203.01	203-1	Unclassified Excavation & Disposal	$27.50/CUBIC YARD
501.01	501-1	Portland Cement Concrete, Class A	$120.00/CUBIC YARD
680.510301	680.5100	24" circular Pullbox (600 mm)	$865.00/EACH
680.510401	680.5100	30" circular Pullbox (750mm)	$1,015.00/EACH
686.9956		Rod & Clean Duct	$1.50/LF
686.61	655-3.01	Adjust Pullbox Frame & Cover	$695.00/EACH
686.62		Remove Traffic Signal Pullboxes	$325.00/EACH
686.5099	580-1	Concrete Base Removal	$375.00/EACH
206.1015	206-1	Conduit Excavation & Restoration in Asphalt or Concrete	$44.85/LF
206.1016	206-1	Conduit Excavation & Restoration in Portland Cement Concrete	$36.00/LF
206.1017	206-1	Conduit Excavation & Restoration in Composite Pavement	$48.00/LF
206.1018	206-1	Conduit Excavation & Restoration in Concrete Sidewalk and Driveways	$39.35/LF

BP#0311-10
Installation of Underground Conduit, Pullboxes, Pedestals and Appurtenances

UNIT PRICE SHEET
(Continued)

Item #	NYSDOT Spec #	Description	Unit Price
206.1019	206-1	Conduit Excavation & Restoration in Asphalt Sidewalks and Driveways	$23.00/LF
206.1020	206-1	Conduit Excavation & Restoration in Grass and Unpaved Areas	$7.75/LF
686.520603	723-19	Conduit PVC Schedule 80 - 1"	3.10/LF
686.520606	723-19	Conduit PVC Schedule 80 - 2"	$4.00/LF
686.520608	723-19	Conduit PVC Schedule 80 – 3"	$4.50/LF
686.520610	723-19	Conduit PVC Schedule 80 – 4”	$5.45/LF

MONROE COUNTY PURCHASING
Vendor Performance Survey

Contract Title: _____

Contract Number: _____

Vendor: _____

Please rank the vendor performing the contract specified on a scale from “1" to “10" with “1' being poor, “5" average and “10" excellent. Please include any additional comments or suggestions in the space provided below. Monroe County Purchasing appreciates your input.

	Poor				Average					Excellent
	1	2	3	4	5	6	7	8	9	10
Item(s) supplied met specifications										
Product provided value (taking into account price, quality, etc.)										
Timeliness of delivery										
Completeness and accuracy of order										
Ability to contact representatives of vendor when needed? (If unavailable was call back prompt?)										
Invoices received promptly and accurately										
Recommendations received from the vendor (i.e. product information, cost saving strategies, ideas for better use of resources, etc.)										

Survey Completed by:

Name: _____

Title: _____

Agency: _____

Telephone: _____ Fax: _____

E-mail: _____

Please submit this survey to Monroe County Purchasing.