Department of Public Works
Nassau County, New York
Bid Sheets for Contract H63029-17G

Item No.	Engineer's Estimate	Item Description			
201.06	1 LS	CLEARING AND GRUBBING	For:		
202.2202	36,200 SF	REMOVAL OF STEEL SUPPORTED STRUCTURAL SLABS (WITH SHEAR CONNECTORS) - TYPE B	For:		
203.02	1,450 CY	UNCLASSIFIED EXCAVATION AND DISPOSAL	For:		
203.20	20 CY	SELECT GRANULAR SUBGRADE	For:		
203.21	4 CY	SELECT STRUCTURE FILL	For:		
207.20	15 SY	GEOTEXTILE BEDDING	For:		
209.13	1,900 LF	SILT FENCE - TEMPORARY	For:		
209.1702	15 CY	DRAINAGE STRUCTURE INLET PROTECTION, GRAVEL BAG - TEMPORARY	For:		
209.22	850 SY	CONSTRUCTION ENTRANCE	For:		
210.3011	900 LF	REMOVAL AND DISPOSAL OF CONCRETE - ENCASED PIPE ACM (BV14)	For:		
210.481101	725 LF	REMOVAL AND DISPOSAL OF MISCELLANEOUS ACM (BV14)	For:		
210.481201	1,000 SF	REMOVAL AND DISPOSAL OF MISCELLANEOUS ACM (BV14)	For:		
304.10119917	230 CY	SUBBASE COURSE, TYPE 1011-2	For:		

Item No.	Engineer's Estimate	Item Description			
404.096101	36 TON	9.5 F1 TOP COURSE ASPHALT, 60 SERIES COMPACTION	For:		
404.258901	230 TON	25 F9 BINDER COURSE ASPHALT, 80 SERIES COMPACTION	For:		
407.0102	200 GAL	DILUTED TACK COAT	For:		
490.30	250 SY	MISCELLANEOUS COLD MILLING OF BITUMINOUS CONCRETE	For:		
502.1110	325 CY	PCC PAVEMENT, CLASS C, TYPE 1, EPOXY COATED	For:		
502.32010010	1,500 EA	DRILL HOLES AND ANCHOR DOWELS FOR FULL-DEPTH PORTLAND CEMENT CONCRETE PAVEMENT REPAIRS	For:		
502.36130018	75 CY	PORTLAND CEMENT CONCRETE (PCC) PLACEMENT FOR FULL-DEPTH PAVEMENT REPAIRS	For:		
502.37010018	400 LF	TRANSVERSE JOINTS	For:		
502.9110	1,400 LF	LONGITUDINAL JOINTS	For:		
502.9210	400 LF	SEALING TRANSVERSE JOINTS - HIGHWAY JOINT SEALANT	For:		
502.9310	1,400 LF	SEALING LONGITUDINAL JOINTS - HIGHWAY JOINT SEALANT	For:		
520.05000010	3,200 LF	SAW CUTTING PCC AND COMPOSITE PAVEMENT	For:		
520.09000010	100 LF	SAW CUTTING ASPHALT CONCRETE	For:		

Item No.	Engineer's Estimate	Item Description			
555.0105	33 CY	CONCRETE FOR STRUCTURES, CLASS A	For:		
556.0102	25 SY	EPOXY-COATED STEEL FABRIC REINFORCEMENT	For:		
556.0201	6,000 LB	UNCOATED BAR REINFORCEMENT FOR CONCRETE STRUCTURES	For:		
556.0202	16,000 LB	EPOXY-COATED BAR REINFORCEMENT FOR STRUCTURES	For:		
556.03	16,900 EA	STUD SHEAR CONNECTORS FOR BRIDGES	For:		
557.2001	650 SY	STRUCTURAL APPROACH SLAB WITH INTEGRAL WEARING SURFACE - TYPE 1 FRICTION	For:		
557.29	4,650 SY	WINTER SURFACE TREATMENT-SUPERSTRUCTURE SLABS AND STRUCTURAL APPROACH SLABS	For:		
557.30	690 SY	SIDEWALKS AND SAFETY WALKS	For:		
557.4101	4,100 SY	SUPERSTRUCTURE SLAB WITH INTEGRAL WEARING SURFACE - HPIC BOTTOM FORMWORK REQUIRED, TYPE 1 FRICTION	For:		
558.02	3,900 SY	LONGITUDINAL SAWCUT GROOVING OF STRUCTURAL SLAB SURFACE	For:		
559.01	35,100 SF	PROTECTIVE SEALING OF STRUCTURAL CONCRETE ON NEW BRIDGE DECKS AND BRIDGE DECK OVERLAYS	For:		
559.02	7,150 SF	PROTECTIVE SEALING OF NEW STRUCTURAL CONCRETE	For:		

Item No.	Engineer's Estimate	Item Description			
559.04	3,700 SF	PROTECTIVE SEALING OF CONCRETE WITH COATING TYPE PROTECTIVE SEALER	For:		
560.18100011	100 SF	REMOVE AND RESET STONE MASONRY	For:		
564.510001	7,000 LB	STRUCTURAL STEEL	For:		
565.2024	12 EA	TYPE E.B. FIXED BEARINGS (169 to 225 Kips)	For:		
565.2033	24 EA	TYPE E.B. EXPANSION BEARINGS (112 to 168 Kips)	For:		
565.2034	36 EA	TYPE E.B. EXPANSION BEARINGS (169 to 225 Kips)	For:		
567.60	154 LF	ARMORLESS BRIDGE JOINT SYSTEM	For:		
568.51	910 LF	STEEL BRIDGE RAILING (FOUR RAIL)	For:		
569.04	810 LF	SINGLE SLOPE (HALF SECTION) CONCRETE BRIDGE BARRIER	For:		
571.04	100 LB	DISPOSAL OF NON-HAZARDOUS INDUSTRIAL SOLID PAINT WASTE	For:		
576.02	8 EA	SCUPPERS (TYPE B)	For:		
576.22000016	120 LF	BRIDGE DOWNSPOUT SYSTEM (FIBERGLASS)	For:		
576.22900011	80 LF	REMOVAL OF DOWNSPOUT SYSTEM	For:		

Item No.	Engineer's Estimate	Item Description			
580.01	25 CY	REMOVAL OF STRUCTURAL CONCRETE	For:		
580.04	4,300 SF	REMOVAL OF CONCRETE APPROACH SLAB	For:		
582.05	10 CY	REMOVAL OF STRUCTURAL CONCRETE - REPLACEMENT WITH CLASS A CONCRETE	For:		
582.06	250 SF	REMOVAL OF STRUCTURAL CONCRETE - REPLACEMENT WITH CLASS D CONCRETE	For:		
582.07	25 SF	REMOVAL OF STRUCTURAL CONCRETE - REPLACEMENT WITH VERTICAL AND	For:		
585.01	24 EA	STRUCTURAL LIFTING OPERATIONS - TYPE A	For:		
585.02	48 EA	STRUCTURAL LIFTING OPERATIONS - TYPE B	For:		
586.0201	1,150 EA	DRILLING AND GROUTING BOLTS OR REINFORCING BARS	For:		
587.01	910 LF	BRIDGE RAILING REMOVAL AND DISPOSAL	For:		
589.520001	72 EA	REMOVAL OF EXISTING STEEL - BEARING REMOVAL	For:		
589.520002	3 EA	REMOVAL OF EXISTING STEEL - DIAPHRAGM REMOVAL	For:		
589.520003	2 EA	REMOVAL OF EXISTING STEEL - STIFFENER REPAIR	For:		
604.07200110	5 EA	SETTING NEW DRAINAGE FRAMES ON EXISTING DRAINAGE STRUCTURES	For:		

Item No.	Engineer's Estimate	Item Description			
606.110002	340 LF	BOX BEAM MEDIAN BARRIER (SHOP BENT)	For:		
606.3043	105 LF	SINGLE SLOPE CONCRETE MEDIAN BARRIER CAST-IN-PLACE	For:	+	
606.74	1,040 LF	REMOVING AND DISPOSING BOX BEAM MEDIAN BARRIER	For:		
606.7930	1 EA	REMOVING AND DISPOSING BOX BEAM MEDIAN BARRIER END ASSEMBLY, TYPE A	For:		
606.8805	1 EA	TRANSITION BTWN BOX BEAM MEDIAN BARRIER & SINGLE SLOPE CONC MEDIAN BARRIER	For:		
606.9002	8 EA	TRANSITION BTWN WIDE & NORMAL SINGLE SLOPE CONCRETE MEDIAN BARRIER	For:		
607.0513	910 LF	VINYL COATED STEEL CHAIN-LINK FENCE ON PLASTIC COATED FRAME WITH TOP RAIL 8 FEET HIGH	For:		
607.96000008	910 LF	REMOVE AND DISPOSE OF EXISTING FENCE	For:		
608.0101	11 CY	CONCRETE SIDEWALKS AND DRIVEWAYS	For:		
608.020102	25 TON	HOT MIX ASPHALT (HMA) SIDEWALKS, DRIVEWAYS AND BICYCLE PATHS, AND VEGETATION CONTROL STRIPS	For:		
609.0401	725 LF	CAST-IN-PLACE CONCRETE CURB, TYPE VF6	For:		
609.26520011	900 LF	STEEL FACING FOR CURB ON STRUCTURES (NYC), TYPE D	For:		

Item No.	Engineer's Estimate	Item Description			
610.1402	20 CY	TOPSOIL - ROADSIDE	For:		
610.1601	180 SY	TURF ESTABLISHMENT - ROADSIDE	For:		
614.060402	2 EA	TREE REMOVAL OVER 18” TO 24” AT BREAST HEIGHT - STUMPS CUT FLUSH	For:		
619.01	1 LS	BASIC WORK ZONE TRAFFIC CONTROL	For:		
619.02970101	4 EA	CONSTRUCTION SIGNS (EACH)	For:		
619.04	10 EA	TYPE III CONSTRUCTION BARRICADE	For:		
619.100101	7,700 LF	INTERIM PAVEMENT MARKINGS, STRIPES (TRAFFIC PAINT)	For:		
619.100201	25 EA	INTERIM PAVEMENT MARKINGS, SYMBOLS (TRAFFIC PAINT)	For:		
619.110513	4 EA	(PVMS) STANDARD SIZE - FULL MATRIX (LED) NO OPTIONAL EQUIPMENT SPECIFIED, CELLULAR COMMUNICATIONS WITH NTCIP COMPLIANCE	For:		
619.1711	1,600 SY	TEMPORARY POSITIVE BARRIER - CATEGORY 1 (PINNING PROHIBITED)	For:		
619.24	1 LS	NIGHTTIME OPERATIONS	For:		
619.70040011	25,300 SF	PROTECTIVE SAFETY SHIELDING OVER HIGHWAY	For:		
620.02	1 CY	STONE FILLING (FINE)	For:		

Item No.	Engineer's Estimate	Item Description			
621.03	740 LF	CLEANING CLOSED DRAINAGE SYSTEMS	For:		
625.01	1 LS	SURVEY OPERATIONS	For:		
633.12	1 LS	CLEANING, SEALING, AND/OR FILLING CRACKS	For:		
637.11	24 MNTH	ENGINEER'S FIELD OFFICE - TYPE 1	For:		
639.2X00NC	1 LS	CPM (CRITICAL PATH METHOD) SCHEDULE WITH MONTHLY UPDATE (min per unit is $100,000.00)	For:		
645.65000011	130 SF	REPLACE OVERHEAD OR SECONDARY SIGN PANELS	For:		
654.5020	1 EA	EXPENDABLE IMPACT ATTENUATOR, TL2, ≤ 2FT OBSTRUCTION WIDTH	For:		
655.05170010	5 EA	REPLACEMENT OF EXISITNG DRAINAGE GRATES	For:		
655.16000011	5 EA	REMOVE AND DISPOSE OF FRAMES AND GRATES	For:		
670.0105	3 EA	FOUNDATION FOR LIGHT STANDARDS, 5 FEET LONG	For:		
670.02030004	8 EA	LED HIGHWAY LUMINAIRE (TYPE 03)	For:		
670.15114510	8 EA	TYPE S ALUMINUM LIGHT STANDARD, SINGLE DAVIT ARM	For:		
670.19	8 EA	BREAKAWAY TRANSFORMER BASE (ALUMINUM)	For:		

Item No.	Engineer's Estimate	Item Description			
670.2003	2,200 LF	GALVANIZED STEEL CONDUIT, 2" - STREET LIGHTING	For:		
670.40	8 EA	CAST IRON JUNCTION BOX	For:		
670.7002	12,000 LF	SINGLE CONDUCTOR CABLE #2 AWG THWN600	For:		
670.7004	250 LF	SINGLE CONDUCTOR CABLE, NUMBER 6 GAGE	For:		
670.7501	2,220 LF	GROUND WIRE #6 AWG	For:		
670.81	8 EA	REMOVE AND DISPOSE LAMPPOST ASSEMBLY	For:		
670.82	3 EA	REMOVE LAMPPOST FOUNDATIONS	For:		
670.94110010	1 LS	REMOVE WIRING, CONDUIT AND JUNCTION BOXES	For:		
680.510501	2 EA	PULLBOX, RECTANGULAR, 26 X 18 INCH, REINFORCED CONCRETE	For:		
680.520408	500 LF	TRAFFIC SIGNAL CONDUIT, PVC COATED GALVANIZED STEEL, 3"	For:		
680.54	500 LF	INDUCTANCE LOOP INSTALLATION	For:		
680.72	1,500 LF	INDUCTANCE LOOP WIRE	For:		
680.83200010	1 LS	LOCATE AND MARKOUT INFORM AND STATE LIGHTING FACILITES	For:		

Item No.	Engineer's Estimate	Item Description			
685.11	3,000 LF	WHITE EPOXY REFLECTORIZED PAVEMENT STRIPES - 20 Mils	For:		
685.12	2,000 LF	YELLOW EPOXY REFLECTORIZED PAVEMENT STRIPES - 20 Mils	For:		
685.14	5 EA	WHITE EPOXY REFLECTORIZED PAVEMENT SYMBOLS - 20 Mils	For:		
691.04000020	54,600 DC	TRAINING REQUIREMENTS	For:		
697.03	893,000 DC	FIELD CHANGE PAYMENT	For:		
698.04	10,000 DC	ASPHALT PRICE ADJUSTMENT	For:		
698.05	2,500 DC	FUEL PRICE ADJUSTMENT	For:		
698.06	1,000 DC	STEEL/IRON PRICE ADJUSTMENT	For:		
699.040001	1 LS	MOBILIZATION	For:		

MINORITY, WOMEN'S AND DISADVANTAGED GOALS

The New York State Department of Transportation has established the following utilization goals for this contract in accordance with §§102-12 of the New York State Standard Specifications. The goals are expressed as a percentage of the total bid price.

102-12H. DBE Pre-Award Utilization Package - Revised submission time of complete DBE Pre- Award Utilization Package to 5 calendar days to comply with federal regulations.

102-12I. Bidder's Failure to Comply - Revised submission time of complete DBE Pre-Award Utilization Package and removed corrective active provision to comply with federal regulations.

For Clarification of Utilization Requirements refer to New York State Specification §102-12

MBE Goal – **0 percent**
WBE Goal – **0 percent**

EEO Participation Goals for Minority – **5.8%**
EEO Participation Goals for Women – **6.9%**

Disadvantaged Business Enterprise (DBE) Goal – **9%**

Directories and/or information related to the current certification status of Disadvantage Business Enterprises can be obtained by contacting the:

New York State Department of Economic Development

One Commerce Plaza
Albany, New York 12223
(518) 473-6442

Disadvantaged Business Enterprise Officer

The Bidder shall designate and enter below the name of a Disadvantaged Business Enterprise Officer who will have the responsibility for and must be capable of effectively administering and promoting an active Disadvantaged Business Enterprise Program and who must be assigned adequate authority and responsibility to do so.

Bidder Designated DBE Officer

_____

(Name, Title)

Telephone Number_____

RETURN THIS PAGE WITH BID

MINIMUM BID PRICE ITEMS

CERTAIN PAY ITEMS IN THE ITEMIZED PROPOSAL REQUIRE BIDS AT OR ABOVE THE PUBLISHED MINIMUM PRICE. THESE ITEMS AND RESPECTIVE MINIMUM BID PRICES ALLOWED ARE SHOWN BELOW. IF A BID IS ENTERED BELOW THE PUBLISHED MINIMUM PRICE SHOWN, THE AMOUNT BID FOR SUCH ITEM WILL BE RAISED BY THE DEPARTMENT TO THE PUBLISHED MINIMUM PRICE.

ITEM NUMBER	DESCRIPTION	UNIT	MINIMUM UNIT BID PRICE
639.2X00NC	CPM (CRITICAL PATH METHOD) SCHEDULE WITH MONTHLY UPDATE	LS	$ 100,000.00

NO TEXT ON THIS PAGE

SPECIAL NOTE

SPECIALTY ITEMS

REHABILITATION OF CHARLES LINDBERGH BLVD BRIDGE OVER MEADOWBROOK STATE PARKWAY
BIN 3-05663-9
NASSAU COUNTY, NEW YORK
CONTRACT NO.: H63029-17G
PIN 0761.62
GENERAL CONSTRUCTION PAYMENT ITEMS AND ITEM SPECIFICATIONS:

The General Construction Payment Items and Specifications as per New York State Department of transportation. Office of Engineering Standard Specification-Construction and materials (English units) as amended by the current additions and modifications there to.

304.10119917	SUBBASE COURSE, TYPE 1011-2
502.32010010	DRILL AND ANCHOR DOWELS FOR FULL-DEPTH PORTLAND CEMENT CONCRETE PAVEMENT REPAIRS
502.36130018	PORTLAND CEMENT CONCRETE (PCC) PLACEMENT FOR FULL-DEPTH PAVEMENT REPAIRS
502.37010018	TRANSVERSE JOINTS
520.05000010	SAW CUTTING PORTLAND CEMENT CONCRETE AND COMPOSITE PAVEMENTS
520.09000010	SAW CUTTING ASPHALT CONCRETE
560.18100011	REMOVE AND RESET STONE MASONRY
576.22000016	BRIDGE DOWNSPOUT SYSTEM (FIBERGLASS)
576.22900011	REMOVAL OF DOWNSPOUT SYSTEM
604.07200110	SETTING NEW DRAINAGE FRAMES ON EXISTING DRAINAGE STRUCTURES
607.96000008	REMOVE AND DISPOSE OF EXISTING FENCE
609.26520011	STEEL FACING FOR CURB ON STRUCTURE (NYC), TYPE D
619.02970101	CONSTRUCTION SIGNS (EACH)
619.70040011	PROTECTIVE SAFETY SHIELDING OVER HIGHWAY
639.2X00NC	CPM (CRITICAL PATH METHOD) SCHEDULE WITH MONTHLY UPDATE
645.65000011	REPLACE OVERHEAD OR SECONDARY SIGN PANELS
655.16000011	REMOVE AND DISPOSE OF FRAMES AND GRATES
670.02030004	LED HIGHWAY LUMINAIRE (TYPE NN)
670.15114510	TYPE S ALUMINUM LIGHT STANDARD 29 ½ ft–36 ft POLE 14¾ ft SINGLE DAVIT ARM
670.94110010	REMOVE WIRING, CONDUIT AND JUNCTION BOXES
680.83200010	LOCATE AND MARKOUT INFORM AND STATE LIGHTING FACILITIES
680.95610004	POWER DISTRIBUTION PANEL
691.04000020	TRAINING REQUIREMENTS

NO TEXT ON THIS PAGE

ITEM 304.10119917 - SUBBASE COURSE, TYPE 1011-2

All of the requirements of Section 304 *Subbase Course* shall apply except as herein modified:

MATERIALS

Material shall conform to the requirements of §733-04 *Subbase Course* with the addition of the following requirement:

Natural Material. Natural material obtained from sources located in Richmond, Kings, Queens, Nassau and Suffolk Counties shall conform to the following gradation:

Sieve Size Designation	Percentage Passing by Weight
2 in.	100
1 in.	80-100
¼ in.	50-85
No. 10	30-70
No. 40	15-40
No. 200	6-12

Natural material obtained from sources other than those listed above shall conform to the gradation requirements of Table 733-04A *Subbase Gradation* in §733-04B. *Gradation.*

BASIS OF PAYMENT

Payment will be made under:

Item No.	Item	Pay Unit
304.10119917	Subbase Course, Type 1011-2	Cubic Yard

ITEM 502.32010010 - DRILL AND ANCHOR DOWELS FOR FULL-DEPTH PORTLAND CEMENT CONCRETE PAVEMENT REPAIRS

DESCRIPTION

Drill holes and anchor dowels into full-depth saw cut concrete faces that will become transverse joints.

MATERIALS AND EQUIPMENT

Dowels. Obtain dowels from a supplier appearing on the Approved List for §705-15, Transverse Joint Supports. Use 18 inch long, 1-½ inch diameter, smooth, epoxy-coated, Grade 60 steel dowels coated with a bond breaker. Use an epoxy coating appearing on the Approved List for "Epoxy Coatings for Longitudinal Joint Ties" or "Epoxy Coatings for Steel Reinforcing Bars" that is applied by an applicator appearing on the Approved List for "Applicators for Steel Reinforcing Bars". At least 7 days prior to drilling, provide the Engineer:

- The name and address of the joint support assembly supplier.
- Material certification from the supplier that dowels meet the "Tests" and "Material Requirements " portions of §705-15, except Grade 60 steel is supplied.
- Material certification from the rolling mill as to the type and grade of steel used.
- The brand of epoxy coating and the name and address of the Manufacturer.
- The name and address of the epoxy coating applicator.
- The brand of bond breaker and the name and address of the Manufacturer.
- Material certification from the epoxy coating applicator that the bars have been coated, tested, and meet the requirements of §705-14, Longitudinal Joint Ties.

Epoxy coating field repairs are not permitted. The Department may perform supplementary sampling and testing of the dowels to ensure conformance with §705-14 and §705-15.

Anchoring Material and Dispensing Equipment. Use a pourable, 2 component, 100% solids structural epoxy meeting§ 701-07, Anchoring Materials - Chemically Curing, dispensed:

- From side-by-side cartridges by manual or pneumatically powered injection guns.
- Through a static nozzle that homogeneously mixes the material without any hand mixing.

Drills. Use hydraulic gang drills with a minimum of 2 independently powered and driven drills. Use tungsten carbide drill bits. Control the forward and reverse travel of the drills by mechanically applied pressure. Mount the drill on a suitable piece of equipment such that it is quickly transported and positioned. Rest and reference the drill rig frame on and to the pavement surface such that the drilled holes are cylindrical, perpendicular to the surface being drilled, and repeatable in terms of position and alignment on the surface being drilled. Hand-held drills are not permitted.

Grout Retention Disk. Use plastic grout retention disks, 1/8 inch thick, of sufficient diameter to prevent grout from entering the joint. The hole in the center of the disk must have the same diameter as the dowel.

CONSTRUCTION DETAILS

Drilling Holes. Drill holes 12 inch apart on center across the full width of the repair. Locate end holes 6 -12 inch from the longitudinal repair boundaries.

ITEM 502.32010010 - DRILL AND ANCHOR DOWELS FOR FULL-DEPTH PORTLAND CEMENT CONCRETE PAVEMENT REPAIRS

Determine the location and length of longitudinal joint ties in the concrete to remain in place outside the repair area. Use a pachometer or other device capable of locating steel embedded in concrete. If a longitudinal joint tie is within 12 inch of the surface being drilled, drill the outer holes 3 – 4 inch from the end of the tie.
Drill holes such that:

- The hole diameters are in accordance with the anchoring material Manufacturer's written recommendations. Provide those recommendations to the Engineer before drilling any holes.
- The hole depth is 9 inch (+3/8in- 0 in).
- When the dowels are anchored, the longitudinal axes of the protruding dowels are parallel to the pavement centerline, the pavement surface, and each other, ± 1/8 in, measured at the saw cut face and the dowel end.
- When the dowels are anchored, they protrude 8-21/32 inch – 9 inch from the saw cut face.

Extend the full depth repair boundaries as indicated in the contract documents if drilling cracks or damages pavement to remain in place. Replace worn bits when necessary to ensure the proper hole diameter is drilled.

Cleaning Holes. Follow the anchoring material Manufacturer's written recommendations for cleaning the holes. Provide those recommendations to the Engineer. As a minimum, clean the drilled holes with oil-free and moisture-free compressed air. The Engineer will check the compressed air stream purity with a clean white cloth. Use a compressor that delivers air at a minimum of 120 ft^3 per minute and develops a minimum nozzle pressure of 90psi. Insert the nozzle to the back of the hole to force out all dust and debris.

Dowel Installation. When using new cartridges of anchoring material, ensure that the initial material exiting the nozzle appears uniformly mixed. If it is not uniformly mixed, waste the material until uniformly mixed material extrudes. Place the anchoring material at the back of the hole using a nozzle of sufficient length. Push the dowel into the hole while twisting such that the air pocket within the hole is heard to burst and the anchoring material is evenly distributed around the dowel. Use sufficient amounts of anchoring material such that it slightly extrudes out the hole as the dowel is inserted. Place a grout retention disk over the dowel and tight against the exposed concrete face such that the anchoring material does not enter the joint.

METHOD OF MEASUREMENT

The work will be measured for payment as the number of dowels satisfactorily anchored.

BASIS OF PAYMENT

Include the cost of all labor, material, and equipment necessary to satisfactorily perform the work in the unit price bid for Drill and Anchor Dowels for Full-Depth PCC Pavement Repairs. No additional payment will be made for extra work required to repair damage to the adjacent pavement that occurred during drilling.

ITEM 502.35010018 - PORTLAND CEMENT TREATED PERMEABLE BASE
ITEM 502.36RC0018 - PORTLAND CEMENT CONCRETE (PCC) PLACEMENT FOR FULL-DEPTH PAVEMENT REPAIRS
ITEM 502.37010018 - TRANSVERSE JOINTS
ITEM 502.38010018 - LONGITUDINAL JOINTS

DESCRIPTION. Place Class C, Class F, or High-Early-Strength (HES) PCC as indicated in the contract documents in a previously prepared full-depth repair area.

MATERIALS AND EQUIPMENT.

Portland Cement Concrete (Class C and Class F) 501
High-Early-Strength (HES) Concrete 502-2.02
Portland Cement Treated Permeable Base 502-2.03
Longitudinal Joint Ties 705-14
Transverse Joint Supports 705-15
Wire Fabric for Concrete Reinforcement 709-02
Epoxy-Coated Bar Reinforcement, Grade 60 709-04
Quilted Covers (for Curing) 711-02
Plastic Coated Fiber Blankets (for Curing) 711-03
Polyethylene Curing Covers (White Opaque) 711-04
Membrane Curing Compound 711-05
Form Insulating Materials for Winter Concreting 711-07
Water 712-01

HES concrete mix design and all details related to HES concrete production and discharge must be approved by the Regional Materials Engineer before placement.

Transit Mix HES Concrete. Accelerating admixtures may be batched into the concrete at the plant in accordance with §501-2.03F, Admixture Dispensing Systems, or added at the site depending on the amount of acceleration required and the haul time. When adding accelerating admixtures at the site, equip truck mixers with an air pressurized tank that:

- Contains the correct volume of admixture (for the volume of concrete in the truck) dispensed through the plant's Admixture Dispensing System.
- Discharges the required admixture quantity into the truck mixer drum in less than 1 minute.
- Has a clear plastic tank output hose that leads into the truck mixer drum.
- Has a properly working relief valve.

Twice daily, or more frequently if weather conditions change significantly as determined by the Engineer, determine the fine and coarse aggregate moisture contents. Compute the corresponding water added to the concrete in the truck from aggregate moisture. Subtract that quantity, as well as the water portion of the admixture in the tank and water added at the plant, from the design water for the truck. Submit these calculations to the NYSDOT plant inspector for approval. Upon approval, write the maximum volume of water to be added to the truck at the site on the delivery ticket. Upon arrival at the site, provide the delivery ticket to the Engineer.

Discharge the accelerating admixture into the truck mixer drum during or after any water additions at the site. Do not add more water than the maximum volume indicated on the delivery ticket. Add all of the

accelerating admixture in 1 uninterrupted operation in 1 minute or less. Apply a maximum of 200 total mixing revolutions before discharge.

Truck Mix HES Concrete. Add the accelerating admixture and water at the site. Equip trucks with an air pressurized tank for accelerating admixtures as described above in Transit Mix HES Concrete and an in-line water flow meter that:

- Resets easily to "0".
- Is mounted to allow easy reading.
- Withstands water temperatures up to 200°F.
- Is equipped with air strainers capable of removing entrapped air within the system.
- Has a batching delivery tolerance of 1% by weight or volume.
- Has a manufacturer's certified flow rate capacity of 70 gpm.
- Has a minimum actual flow rate of 50 gpm.

The Regional Materials Engineer will measure the actual flow rate and inspect the flow meter prior to use. Do not place any concrete without the Regional Materials Engineer's approval.

Twice daily, or more frequently if weather conditions change significantly as determined by the Engineer, determine the fine and coarse aggregate moisture contents. Compute the corresponding water added to the concrete in the truck from aggregate moisture. Subtract that quantity, as well as the water portion of the admixture in the tank, from the design water for the truck. Submit these calculations to the NYSDOT plant inspector for approval. Upon approval, write the exact volume of water to be added to the truck at the site on the delivery ticket. Upon arrival at the site, provide the delivery ticket to the Engineer.

Before adding water into the truck mixer, execute twenty dry revolutions at 12 to 18 rpm and reset the flow meter to 0. Add water in 1 uninterrupted operation. No water is to be removed from the truck mixer for any purpose while water is being added to the drum. After the required water designated on the delivery ticket has been added to the concrete in the truck, add all the accelerating admixture in 1 uninterrupted operation in 1 minute or less. Apply a maximum of 200 mixing revolutions before discharge.

Use equipment meeting:

Forms ..... §502-2.04B1
Paving Irregular Areas .. .. §502-2.04B3
Vibrators ..... §502-2.04C
Permeable Base Paving Equipment ..... §502-2.04D
Saw Cutting Equipment ..... §502-2.04E
Curing Compound Applicators .. .. §502-2.04F

CONSTRUCTION DETAILS. Apply the following from Section 502, Portland Cement Concrete Pavement, as modified herein:

ITEM 502.35010018 - PORTLAND CEMENT TREATED PERMEABLE BASE
ITEM 502.36RC0018 - PORTLAND CEMENT CONCRETE (PCC) PLACEMENT FOR FULL-DEPTH PAVEMENT REPAIRS
ITEM 502.37010018 - TRANSVERSE JOINTS
ITEM 502.38010018 - LONGITUDINAL JOINTS

Weather Limitations..... §502-3.01
Portland Cement Treated Permeable Base..... §502-3.03
Use permeable base if the pavement being repaired was constructed with permeable base or if shown in the contract documents. Place permeable base 4 inches thick. Apply fixed form paving requirements.
Fixed Form Paving..... §502-3.05
Consider full-depth repairs to be irregular areas.
Joint Construction..... §502-3.06
Apply a bond breaker, such as form oil, to untied longitudinal joints immediately before placing concrete.
Finishing..... §502-3.09
Finish short repairs (those less than the length of the finishing equipment) transversely.
Texturing..... §502-3.10
Do not texture the plastic concrete if it will be diamond ground. The Engineer may require longitudinal astroturf drag if that was the original pavement texture.
Curing..... §502-3.11
Pavement Protection..... §502-3.13
Damaged or Defective Concrete..... §502-3.14
Hardened Surface Test..... §502-3.15
If the pavement is to be diamond ground, the maximum deviation is 3/8 inch in 10 feet. If the pavement will not be diamond ground, the maximum deviation is 1/8 inch in 10 feet.
Opening to Traffic..... §502-3.18
When determining concrete strength for opening to traffic, apply the following rather than §502-3.18C, Project Strength Determination:

Project Strength Determination. Provide an ACI Certified Concrete Field Testing Technician, Grade I, or higher, to cast all cylinders. Unless otherwise noted in the contract documents, use an agency accredited by the AASHTO Accreditation Program (AAP) in the field of construction materials testing of portland cement concrete to perform compressive strength testing. Cast and test in the presence of the Engineer, or the Engineer's representative. Provide acceptable proof of ACI Certification and AASHTO Accreditation to the Engineer before placing any concrete. The Engineer, or the Engineer's representative, will complete the Concrete Cylinder Report as cylinders are cast and tested.

Cast a minimum of 3 cylinder pairs (6 total) from each scheduled placement operation in accordance with Materials Method 9.2, Field Inspection of Portland Cement Concrete. Cast each pair from different delivery trucks with 1 of the 3 pairs cast from the last truck of the operation. Develop an Engineer-approved marking system that allows a cylinder to be readily associated with the corresponding placement location and placement time. Mark the cylinders and place them adjacent to the pavement under similar curing conditions. Determine the concrete compressive strength in accordance with ASTM C39, Standard Test Method for Compressive

ITEM 502.35010018 - PORTLAND CEMENT TREATED PERMEABLE BASE
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Strength of Cylindrical Concrete Specimens. Test all cylinder pairs at the same time relative to when they were cast. The testing time must be within the time frame needed to open the last concrete placed in the operation to traffic. The placement may be opened to traffic if all the following apply:

- Average compressive strength of all cylinder pairs exceed 2500 PSI.
- Average compressive strength of each cylinder pair exceeds 2000 PSI.
- Appropriate time frame has elapsed for the entire area to be opened.

If these conditions are not met, test 3 additional cylinder pairs at a later time, provided the appropriate number of additional cylinders were cast and the placement has not been opened to traffic. If the above conditions are not met after additional testing, or, if the required number of additional cylinders were not cast, open the placement to traffic after 5 days, or when directed by the Engineer, provided this time frame is not in conflict with the work zone closure time restrictions stipulated in the contract documents. If the placement is opened to traffic (in accordance with the work zone closure time restrictions stipulated in the contract documents) before it has achieved the required strength, the placement will be considered Damaged or Defective Concrete and will be replaced at no additional cost to the State.

Contract testing for 28 day compressive strength is not required. If subsequent trial batches are required, the Engineer may waive the 28 day compressive strength testing.

METHOD OF MEASUREMENT.

Portland Cement Treated Permeable Base. The work will be measured for payment as the number of cubic yards of permeable base satisfactorily placed, measured to the nearest 0.1 $yard^3$, based on the Engineer-approved repair area marked on the pavement prior to repair and the thickness of permeable base placed.

Portland Cement Concrete, Unreinforced, All Classes. The work will be measured for payment as the number of cubic yards of concrete satisfactorily placed, measured to nearest 0.1 $yard^3$, based on the Engineer-approved repair area marked on the pavement prior to repair and the thickness of concrete placed. Deductions, and separate payment, will be made for catch basins, manholes, or other similar pavement obstructions requiring either mesh reinforced or heavily reinforced placements.

Portland Cement Concrete, Mesh or Heavily Reinforced, All Classes. The work will be measured for payment as the number of cubic yards of concrete satisfactorily placed, measured to the nearest 0.1 $yard^3$, based on the Engineer-approved repair area marked on the pavement prior to repair and the thickness of concrete placed. No deductions will be made for drainage and utility structures or other similar pavement obstructions being isolated from the surrounding pavement.

Transverse Joints. The work will be measured for payment as the number of feet of transverse joints satisfactorily constructed within the repair boundary, measured to the nearest 0.1 foot. Separate

measurement will be made for transverse joints that define the repair boundary and drilling and anchoring dowels into those joints.

Constructing Longitudinal Joints. The work will be measured for payment as the number of feet of longitudinal joints satisfactorily constructed within the repair boundary, measured to the nearest 0.1 foot. Separate measurement will be made for longitudinal joints that define the repair boundary and drilling and anchoring longitudinal joint ties in those joints.

BASIS OF PAYMENT.

Portland Cement Treated Permeable Base. Include the cost of all labor, material, and equipment necessary to satisfactorily perform the work in the unit price bid for Portland Cement Treated Permeable Base. No additional payment will be made for extra work required to repair damage to the adjacent permeable base or pavement that occurred during any operation. Additional payment will be made if the original repair area did not completely extend into sound concrete.

Portland Cement Concrete, Unreinforced, All Classes. Include the cost of all labor, material, and equipment necessary to satisfactorily perform the work in the unit price bid for Portland Cement Concrete, Unreinforced, All Classes. No additional payment will be made for Contractor-requested HES concrete mixes or extra work required to repair damage to the adjacent pavement that occurred during any operation. Additional payment will be made if the original repair area did not completely extend into sound concrete.

Portland Cement Concrete, Mesh or Heavily Reinforced, All Classes. Include the cost of all labor, material, and equipment necessary to satisfactorily perform the work in the unit price bid for Portland Cement Concrete, Mesh or Heavily Reinforced, All Classes. No additional payment will be made for Contractor-requested HES concrete mixes or extra work required to repair damage to the adjacent pavement that occurred during any operation. Additional payment will be made if the original repair area did not completely extend into sound concrete.

Transverse Joints. Include the cost of all labor, material, equipment, and labor necessary to satisfactorily perform the work in the unit price bid for Transverse Joints. Separate payment will be made for constructing transverse joints that define the repair boundary and drilling and anchoring dowels into those joints. Separate payment will be made for joint sealing or joint filling.

Longitudinal Joints. Include the cost of all labor, material, and equipment necessary to satisfactorily perform the work in the unit price bid for Longitudinal Joints. Separate payment will be made for constructing longitudinal joints that define the repair boundary and drilling and anchoring ties into those joints. Separate payment will be made for joint sealing or joint filling.

ITEM 502.35010018 - PORTLAND CEMENT TREATED PERMEABLE BASE
ITEM 502.36RC0018 - PORTLAND CEMENT CONCRETE (PCC) PLACEMENT FOR FULL-DEPTH PAVEMENT REPAIRS
ITEM 502.37010018 - TRANSVERSE JOINTS
ITEM 502.38010018 - LONGITUDINAL JOINTS

Payment Will Be Made Under:

Item No.	Item	Pay Unit
502.35010018	Portland Cement Treated Permeable Base	Cubic Yard
502.36RC0018	Portland Cement Concrete (PCC) Placement for Full-Depth Repair	Cubic Yard
	R - Reinforcement *0 - Unreinforced* *1 - Isolated, Mesh Reinforced* *2 - Isolated, Heavily Reinforced*	*C - Concrete Class* *1 - Class C* *2 - Class F* *3 - HES*
502.37010018	Transverse Joints	Foot
502.38010018	Longitudinal Joints	Foot

ITEM 520.05000010 - SAW CUTTING PORTLAND CEMENT CONCRETE AND COMPOSITE PAVEMENTS

DESCRIPTION. This work shall consist of saw cutting existing reinforced or unreinforced portland cement concrete, including portland cement concrete pavement and sidewalk, and composite pavement (asphalt concrete on reinforced or unreinforced portland cement concrete), at the locations indicated on the plans or where directed by the Engineer.

MATERIALS. All equipment proposed for this work shall be subject to approval by the Engineer prior to actual use. Rotary rock saws shall not be used for cuts under this item.

CONSTRUCTION DETAILS. Saw cutting shall be along a neat line as indicated on the plans or where directed by the Engineer. The cuts shall be neat and true with no shatter. Saw cuts shall be made to the depth (s) indicated on the plans and as stated below.

When removing composite pavement the Contractor shall saw cut the existing pavement for the full depth of the concrete pavement. The total saw cut depth will be more, depending on the thickness of the asphalt. At the Contractor's option, the asphalt concrete may first be saw cut and removed before making a second cut through the portland cement concrete.

Any damage to material not indicated for removal, caused by the Contractor's operations, shall be repaired by the Contractor. All repair shall be done in a manner satisfactory to the Engineer.

METHOD OF MEASUREMENT. This work will be measured by the number of linear feet of saw cutting done. No allowance will be made for saw cuts of different depths.

Saw cutting which is done for the Contractor's convenience will not be measured for payment under this item.

BASIS OF PAYMENT. The unit price bid per linear foot of saw cutting shall include the cost of all labor, materials, and equipment necessary to complete the work.

Only one payment will be made for saw cutting when removing composite pavement regardless of the method chosen. The cost of saw cutting the asphalt concrete in the composite pavement is included in this item. No payment will be made for this saw cutting under the item for saw cutting asphalt concrete.

Any repairs made necessary by the Contractor's operations shall be done to the satisfaction of the Engineer at no additional cost to the State

ITEM 520.09000010 - SAW CUTTING ASPHALT CONCRETE

DESCRIPTION. This work shall consist of saw cutting existing asphalt concrete pavement or sidewalk at the locations indicated on the plans or where directed by the Engineer.

MATERIALS. All equipment proposed for this work shall be approved by the Engineer prior to actual use.

CONSTRUCTION DETAILS. Saw cutting shall be along a neat line as indicated on the plans or where directed by the Engineer. Saw cuts shall be made to the depth(s) indicated on the plans.

Any damage to material not indicated for removal, caused by the Contractor's operations shall be repaired by the Contractor. All repair shall be done in a manner satisfactory to the Engineer.

METHOD OF MEASUREMENT. This work will be measured by the number of linear feet of saw cutting done. No allowances will be made for saw cuts of different depths.

No saw cutting will be measured for payment under this item which the Contractor may choose to do for his own convenience.

BASIS OF PAYMENT. The unit price bid per linear foot of saw cutting shall include the cost of all labor, materials, and equipment necessary to complete the work.

Any repairs made necessary by the Contractor's operations shall be done to the satisfaction of the Engineer at no additional cost to the State.

ITEM 560.18100011 - REMOVE AND RESET STONE MASONRY

DESCRIPTION

The work under this item shall include removing existing stone masonry, removing existing anchoring devices and furnishing and placing new anchoring devices, cleaning mortar, etc. from the stone, cataloguing and tagging each stone including a key drawing indicating location of each stone, storing and protecting the stones on pallets, and replacing the stone masonry including repair if required, as shown on the plans.

MATERIALS

The requirements of Subsections 560-2 and 560-2.06 shall apply.

CONSTRUCTION DETAILS

The requirements of Subsections 560-3.01 and 560-3.02, Sections A through E, shall apply.

METHOD OF MEASUREMENT

The method outlined in Subsection 560-4.04 shall apply with the exception that a sample wall will not be required nor measured.

BASIS OF PAYMENT

The basis of payment outlined in Subsection 560-5.03 shall apply. Progress payments will be made, at the unit price bid, for 40% of the quantity when the masonry is removed, an additional 50% when the masonry is reset, and 10% when all remaining work is complete.

ITEM 576.22000016 - BRIDGE DOWNSPOUT SYSTEM (FIBERGLASS)

DESCRIPTION:

This work will consist of furnishing and installing fiberglass downspout systems for bridge drainage as shown on the plans and in accordance with the specifications.

MATERIALS:

Fiberglass pipe and fittings shall be reinforced thermosetting resin pipe (RTRP) systems meeting the requirements of ASTM Specification D2996. They shall qualify for a 30 ksi minimum short time rupture strength hoops tensile stress.

The exterior of fiberglass pipe and fittings shall have a ultraviolet stabilized resin coating of the color noted in the Contract Documents. If no color is noted, use sage green. Paint will not be accepted.

A. **Downspouts:**

1. **Pipe:** Pipe shall be (reinforced thermosetting resin fiberglass pipe) meeting the requirements of ASTM Standard D2996, D3982, D3840 and NBS PS 15-69.

2. **Pipe Fittings:** Pipe fittings (e.g. elbows, tees, couplings, etc.) shall be reinforced thermosetting resin fiberglass pipe meeting the requirements of ASTM Standard D2996, D3982, D3840 and NBS PS 15-69.

3. **Adhesive:** The adhesive used for joining the fiberglass pipes and pipe fittings shall meet the requirements of ASTM - D5686 and D5677.

B. **Pipe Brackets and Supports:**

Pipe brackets and supports shall conform to the requirements of ASTM A-575, Grade 1015 or 1020.

Anchors shall meet or exceed the requirement of U.S. Government, G.S.A. Specifications No. AA 1922A.

Nuts and bolts shall conform to the requirements of ASTM F568 Class 4.6. Nuts and bolts shall be galvanized in accordance with Subsection 719-01, Type II.

Bolts and cap screws shall conform to the requirements of ASTM F568, Class 4.6.

ITEM 576.22000016 - BRIDGE DOWNSPOUT SYSTEM (FIBERGLASS)

C. **Neoprene Coupler:**

Neoprene couplers shall conform to the requirements of ASTM Specification C564 or equal.

D. **Basis of Acceptance:**

Downspout materials will be accepted at the work site by the Engineer-In-Charge upon certification of the manufacturer that the materials used and fabrication procedure employed conform to the requirements of this specification. The Engineer may reject any downspout system which, in the opinion of the Engineer, exhibits poor quality or workmanship.

CONSTRUCTION DETAILS:

A. **Shop Drawings:**

Shop drawings are not required.

B. **Erection of Downspout Systems:**

Connections for runs of pipe noted on the plans as removable for maintenance shall be made with a bolted gasketed flange system or neoprene couplers. All clean outs shall be made with a female - male threaded plug. Adhesive bonded joints will be permitted for runs of pipe between such connections.

A socket joint made for joining two pieces of pipe or fittings together requires the following steps:

1. The plain end of the Bridge Drainage Pipe (BDP) shall be sanded as to remove the resin glaze from the end of the BDP to be bonded. This can be accomplished with a power disc grinder or belt sander. Grind off enough area to exceed slightly the length of insertion into the socket itself. The strength and adhesion of the joint will be adversely affected by any grease, oil, dirt, moisture, solvents, etc., remaining on the BDP or in the interior of the socket to be bonded After sanding the BDP, dust off the end and socket with a clean, dry cloth since grinding dust will severely weaken the bonding properties. If a sanded joint must be left for an extended period of time, the joint shall be re-sanded just prior to the joining procedure.

2. Check for ease of insertion before mixing the adhesive. If necessary, sand additional material from the plain end to allow for an easy insertion.

3. Mix the adhesive per the instructions supplied by the manufacturer.

4. Apply a thick adhesive mix on the plain end and inside the socket. Be sure the adhesive is totally covering the plain end and the socket surfaces.

5. Insert the plain end into the socket.

6. In the larger diameter BDP it may be necessary to use extra force such as a come-a-long or other device to insert the BDP into the socket. The joint shall remain supported and motionless to the satisfaction of the Engineer, until the adhesive has cured. The curing process can be both accelerated and strengthened by applying a electric heat collar to the joint once the adhesive has reached a gelatin like consistency. Open flame shall not be used for curing. Wipe any excess adhesive from the joint and clean for a good appearance.

Runs of pipe shall be supported at spacing not greater than the lesser of those recommended by the manufacturer of the pipe or as shown on the bridge plans. Supports that have point contact or narrow supporting areas shall be avoided. Standard sling, clamp and clevis hangers for use with steel pipe may be used. Straps shall have 120 degrees of contact with the pipe. Hanger thickness shall be 3/16" (min.).

NPS	Minimum Strap Width (inches)
6	1 ½"
8	1 ½"
10	1 ½"
12	2"

All reinforced fiberglass pipe, fittings and expansion joints shall be handled and installed in accordance with guidelines and procedures recommended by the manufacturer of the material.

1. **Pipe Installation:** The pipe shall be laid true to line and grade as shown on the plans or as directed by the Engineer, with joints close and even, so that a true and even surface of invert will be made over the joints throughout its entire length. Pipe shall be installed so that the minimum slope shall not be less than 8%. Pipe shall be placed in accordance with the requirements of this specification unless special methods are called for on the plans or in the itemized proposal.

2. **Field Testing:** Prior to the acceptance of the structure by the Department, the downspout system shall be flushed out and tested by the Contractor, to insure that it is unobstructed and does not leak. Any obstruction in the downspout system

preventing the free flow of drainage shall be removed to the complete satisfaction of the Engineer.

METHOD OF MEASUREMENT:

Downspout System: The downspouts will be measured as the number of Foot, to the nearest 4", measured along the centerline of pipe between the extreme outer limits of downspouts, including hoppers, furnished and placed in accordance with the Contract Documents.

BASIS OF PAYMENT:

The unit price bid per Foot shall include the cost of furnishing all labor, materials and equipment necessary to erect the pipe, fittings, pipe supports, to provide clean outs if indicated on the plans, straps to cap and plug the pipe (if necessary), and to replace cracked or otherwise defective material necessary to complete the work. The unit price bid per Foot shall also include the cost of furnishing and placing pipe hangers and brackets, couplings, and the cost of furnishing and placing all adaptor fittings required at the juncture of fiberglass pipe and other types of pipe.

Any necessary removal of lead based paint will be paid under a separate item(s).

Payment Will Be Made Under:

Item No.	Item	Pay Unit
576.22000016	Bridge Downspout System (Fiberglass)	LF

ITEM 576.22900011 – REMOVAL OF DOWNSPOUT SYSTEM

DESCRIPTION:

The Contractor shall remove the existing downspouts, hoppers, couplings, pipe brackets and supports from the structure.

MATERIALS:

None specified.

CONSTRUCTION DETAILS:

The Contractor shall remove the pipe brackets and supports so as to leave no protruding edges or points on the remaining structure. The at ground terminus of the downspout pipe shall be sealed with a concrete plug meeting the requirements of Section 501 – Class A Concrete. All removed materials shall become the property of the Contractor and shall be removed from the site within one (1) working day.

METHOD OF MEASUREMENT:

The work will be measured as the number of linear feet of downspout pipe taken down and removed from the job site.

BASIS OF PAYMENT:

The unit price bid per foot shall include all labor, materials (including the necessary concrete for capping) and equipment necessary to complete the work.

ITEM 604.07200110 - SETTING NEW DRAINAGE FRAMES ON EXISTING DRAINAGE STRUCTURES

DESCRIPTION

This work shall consist of setting new drainage frames, complete with grates or covers, to grade on existing drainage structures and shall include removing, storing, and/or disposing of the existing frames, grates, covers, and appurtenances.

This item shall also include the setting of new drainage frames on existing drainage structures modified under the item, "Rebuilding Top of Existing Drainage Structures."

MATERIALS

The new drainage frames, grates, and covers will be furnished under separate items.

Materials shall meet the requirements of the following subsections of Section 700:

Concrete Repair Material	701-04
Concrete Grouting Material	701-05
Precast Concrete Pavers	704-13

Concrete shall be Class A meeting the requirements of Section 501.

CONSTRUCTION DETAILS.

The existing frames, grates, covers, and appurtenances shall be removed and, as indicated in the plans or directed by the Engineer, stored for pick up by others, used elsewhere on the contract, or disposed of off the work site.

The existing masonry adjustment collar, or a portion of it, shall be removed where necessary for setting of the new frame. The new frames shall be set to the line and grade as indicated in the plans or as directed by the Engineer, using precast concrete pavers and concrete grouting material and/or Class A concrete. The frames shall be set in a concrete grouting bed on the existing structure.

Any asphalt pavement and shoulder courses, subcourses, curbs, sidewalks, lawns and other top surfaces removed or damaged during the work of removing the existing frames and setting the new frames, shall be replaced in kind, unless otherwise directed by the Engineer. This shall include all sawcutting necessary for this removal.

Existing concrete/composite pavement shall be removed and restored as per the details given in the plans.

METHOD OF MEASUREMENT

ITEM 604.07200110 - SETTING NEW DRAINAGE FRAMES ON EXISTING DRAINAGE STRUCTURES

This work will be measured by the number of new drainage frames complete with grates or covers, set to grade on existing drainage structures or on existing drainage structures modified under the item, "Rebuilding Top of Existing Drainage Structures."

BASIS OF PAYMENT

The unit price bid for setting each drainage frame shall include the cost of all labor, materials, and equipment necessary to complete the work including any necessary sawcutting, removal and replacement of pavement and shoulder courses, subcourses, curbs, sidewalks, lawns and other top surfaces, unless otherwise indicated in the plans or proposal. Removal and restoration of concrete/composite pavement will be paid for separately.

New drainage frames, grates, and covers will be paid for under the appropriate items. Any frames, grates, covers or appurtenances broken thru carelessness on the part of the Contractor shall be replaced at the Contractor's expense.

ITEM 607.96000008 - REMOVE AND DISPOSE OF EXISTING FENCE

DESCRIPTION:

The contractor shall remove existing fence in accordance with the plans, specifications and directions of the Engineer. All references to "fencing" shall include existing gates, if any to be removed.

MATERIALS:

Materials needed for modifying end sections shall conform to the requirements of Section 710 of the Standard Specifications or shall conform to the material requirements of the existing fence, as directed by the Engineer.

Concrete for footings shall conform to Section 607-2.01 of the Standard Specifications.

CONSTRUCTION DETAILS:

The contractor shall remove and dispose of the existing fence to a point shown on the plans or where directed by the Engineer. If a portion of the existing fence is to remain, the remaining end section shall be modified to adequately secure the fencing. This modified section shall include all hardware necessary to secure the fencing in a manner similar to the existing end section or as directed by the Engineer. Parts salvaged from the removed portion, acceptable to the Engineer, may be reused in the end section.

All work shall be done in a workmanlike manner with care taken not to disturb the surrounding area or existing fence to remain. Any damage to the area or existing fence to remain caused by the contractor's operations shall be repaired to the original condition at no expense to the state. Any concrete post footings shall be either broken up and removed or removed in one piece as determined by the contractor and approved by the Engineer. All post holes shall be filled to meet existing grade. All excavation and backfill shall conform to Section 203 "Excavation and Embankment".

METHOD OF MEASUREMENT:

This work will be measured as the number of feet of fence removed in accordance with the plans or as directed by the Engineer. An additional 10 foot allowance will be paid for each end section modified to secure the remaining fence.

BASIS OF PAYMENT:

The unit price bid shall include the cost of all labor, equipment and materials necessary to complete the work, including the cost of any fill required to fill the post holes.

ITEM 609.26520011 - STEEL FACING FOR CURB ON STRUCTURE (NYC), TYPE D

DESCRIPTION

Under this item, the contractor shall supply and install steel facing for curb on structure at the locations indicated on the plans.

MATERIALS

A. Structural Steel shall conform to the requirements of ASTM Designation A283M, Grade A, and shall meet the requirements of the New York State Steel Construction Manual.

B. Epoxy primer, Epoxy Intermediate Coat and Polyurethane Topcoat shall meet the requirements of Item 572.01 Structural Steel Paint systems: Shop Applied, except shop inspection for painting is not required. The Polyurethane topcoat shall be light gray in color such that a prepared chip shall be a reasonable visual match to Munsell Book Notation 10B 6/1. Viewing shall be done under North Standard Daylight.

C. Concrete grouting material shall meet the requirements of subsection 701-05.

CONSTRUCTION DETAILS

Fabrication details shall comply with the details and note on the New York city Department of Highways Standard Drawing H-1043 ASteel Faced Curb For Structures@ and with the following:

A. Fabrication of the steel facing shall conform to the requirements of the New York State Steel Construction Manual. All surfaces of completed steel facing, including anchors, fastenings, etc., shall be thoroughly cleaned of all rust, oil, grease, scale, or foreign matter in accordance with the requirements of SSPC-SP6 prior to painting.

B. All surfaces of steel facing, which remain exposed after installation shall be painted with three coats of paint as described in Paragraph B, Materials, above. Finish coat color shall be light gray, conforming to Munsell Book Notation 10B 6/1. Viewing shall be done under North Standard Daylight.

C. Concrete Grouting Material, if required shall be placed adjacent to the steel facing in locations shown on the Plans.

ITEM 609.26520011 - STEEL FACING FOR CURB ON STRUCTURE (NYC), TYPE D

METHOD OF MEASUREMENT

The quantity to be paid will be the number of feet of steel facing actually installed.

BASIS OF PAYMENT

The unit price bid per foot shall include the cost of all the materials and labor necessary to install the steel facing and concrete grouting material. The cost of furnishing and placing concrete and forming of the recess, if required, are included in the appropriate concrete items.

ITEM 619.02970101 - CONSTRUCTION SIGNS (EACH)

DESCRIPTION.

The Contractor shall furnish, install, move, cover, uncover and maintain construction signs in excess of the quantity required by Basic Work Zone Traffic Control Lane Closure items and as directed by the Engineer, and in accordance with the Manual of Uniform Traffic Control Devices (MUTCD).

MATERIALS.

All the provisions of §619-2.02H shall apply.

CONSTRUCTION DETAILS.

All the provisions of §619-3.02H shall apply.

A standard sign size provided under this item shall be 3 ft x 3 ft in size. All signs in excess of the quantity required by Basic Work Zone Traffic Control Lane Closure items will be provided under this item.

METHOD OF MEASUREMENT.

The quantity to be measured for payment will be the number of standard sized signs installed in excess of the quantity required by other contract items, rounded up to the nearest whole unit. For sizes other than the standard size, the following payment factor will be used:

Payment Factor = (Total Area of measured sign face(s)/ 9 ft^2)

BASIS OF PAYMENT.

The unit price bid for each shall include all labor, material and equipment necessary to satisfactorily complete the work.

ITEM 619.70030011 - PROTECTIVE SAFETY SHIELDING OVER RAILROAD
ITEM 619.70040011 - PROTECTIVE SAFETY SHIELDING OVER HIGHWAY

DESCRIPTION

This work shall consist of furnishing protective safety shields at the locations specified in the plan.

MATERIALS

Structural:

1) Structural steel shall conform to the requirements of Section 564 *Structural Steel.*

Timber and Lumber:

1) Timber and Lumber shall confirm to the requirements of Section 594 *Timber and Lumber*
2) Stress graded timber and lumber shall confirm to the requirements of §712-14 *Stress Graded Timber and Lumber.*

CONSTRUCTION DETAILS

The Contractor shall be responsible for the shield design. Calculations, drawings, details and installation procedure of the shield shall be prepared by a licensed Professional Engineer. A minimum of 90 work days prior to installation, the contractor shall submit design details to the participating railroad and the Engineer for approval.

The Contractor shall construct shields to the limits shown on the plans, in accordance with the horizontal and vertical clearance and design loads specified in the railroad or highway notes on the plans or in the contract documents.

The Contractor shall remove the protective safety shielding once the shielding is no longer needed.

METHOD OF MEASUREMENT

The quantity of safety shields to be measured for payment will be in square feet measured to the nearest whole square foot, from the limits shown on the plans.

BASIS OF PAYMENT:

The unit price bid per square foot shall include the cost of furnishing all labor, equipment and materials necessary to complete the work. Progress payments will be made as follows: 90% of the unit price bid for initial installation during construction and 10% of the unit price bid for final removal, at each location or construction stage.

ITEM 639.2X00NC – CPM (CRITICAL PATH METHOD) SCHEDULE with Monthly Update

DESCRIPTION

This work shall consist of preparing, maintaining and submitting a Progress Schedule using the Critical Path Method on Oracle-Primavera P6 software which demonstrates complete fulfillment of all work shown in the contract documents. All work to prepare and maintain the CPM Progress Schedule shall be performed using the scheduling software application. The Contractor shall regularly revise and update the Progress Schedule, and use it in planning, coordinating and performing all work. Schedule activities shall accurately depict the entire scope of work to be performed to complete the project including, but not limited to, all work to be performed by the Contractor, subcontractors, fabricators, suppliers, consultants, the Department, and others, contributing to the project. In preparing and maintaining the Progress Schedule, the Contractor shall take into account submittal requirements and proper submittal review times, coordination of submittals by subcontractors for fabricating and delivering materials and equipment, availability and abilities of workers, availability of construction equipment, weather conditions and site specific restrictions in operations.

DEFINITIONS

Activity - A discrete, identifiable task or event that usually has an expected duration, has a definable Start Date and/or Finish Date, and can be used to plan, schedule, and monitor a project.

Activity, Controlling - The first incomplete activity on the critical path.

Activity, Critical - An activity on the critical path.

Actual Start date- At the activity level, the Actual Start date represents the point in time that meaningful work actually started on an activity.

Actual Finish date - At the activity level, the Actual Finish date represents the point in time that work actually ended on an activity (Note: in some applications areas, the activity is considered "finished" when work is "substantially complete.")

Backward Pass – Calculation of the late start and late finish dates for each activity, based on the start or finish dates of successor activities as well as the duration of the activity itself. It is also known as the second pass.

Baseline Progress Schedule - The Progress Schedule submitted by the Contractor and accepted by the Department that shows the plan to complete the construction contract work. The Baseline Progress Schedule represents the Contractor's plan at the time of Contract Award or Notice to Proceed for completing the project.

Bid Date – The date the contract is let and there is an announcement by the Department of an apparent low bidder.

Completion Date, Contract - The date specified in the Notice To Proceed (NTP) letter for completion of the project or a revised date resulting from properly executed time extensions.

Anticipated Completion Date - The date forecasted by the Progress Schedule for the completion of the contract work.

Constraint - A schedule restriction imposed on the Start or Finish date(s) of an activity that modifies or overrides an activity's relationships.

Contemporaneous Period Analysis Method – A technique for evaluating schedule delays or time savings. The analysis period for the purpose of these provisions shall be the period covered in each regular progress update to the schedule, as they coincide with contract payments to the Contractor.

Contractor's First Day of Work - The day of the Contractor's first day of work which is Notice To Proceed (NTP)

Contractor's Last Day of Work - The Contractor's last day of work which is Contract Completion date.

Contractor Work Day - A calendar day scheduled for active prosecution of the work.

County Work days – Monday through Friday, with the exception of Holidays listed below. Days scheduled for the active prosecution of work activities by NC staff or NC's representatives.

Critical Path – In the Progress Schedule the critical activities shall be those activities being on the longest path. In a project network diagram, it is the series of activities which determines the earliest completion of the project.

Critical Delay - An event, action, or other factor that delays the critical path of the Progress Schedule and extends the time needed for completion of the construction project.

Critical Path Method (CPM) – A network analysis technique used to predict project duration by analyzing which sequence of activities (which path) has the least amount of scheduling flexibility (the least amount of float). A scheduling technique utilizing activities, durations, and interrelationships/dependencies (logic), such that all activities are interrelated with logic ties from the beginning of the project to the completion of the project. Early dates are calculated by means of a forward pass using a specified start date. Late dates are calculated by means of a backward pass starting from a specified completion date (usually the forward pass's calculated project early finish date).

Data Date – The date entered in the Project Details, in the Dates tab, which is used as the starting point to calculate the schedule. Everything occurring earlier than the data date is "as-built" and everything on or after the data date is "planned."

Deliverable – Any measurable, tangible, verifiable outcome, result, or item that must be produced to complete a project or part of a project. Often used more narrowly in reference to an external deliverable, which is a deliverable that is subject to approval by the Department.

Draft Baseline Progress Schedule – An optional schedule submission that reflects an outline of the schedule format and content proposed by the Contractor's Project Scheduler to comply with the schedule provisions in the contract to solicit early comments by the Engineer, prior to the submittal of complete Baseline Progress Schedule.

Duration, Original - The original estimated number of working days (not including holidays or other nonworking periods) in which the work task associated with the activity is expected to be performed. (The

number of calendar days may be different based on the calendar assigned to the activity.) For certain activities such as concrete curing, or others approved by the Engineer, the calendar shall reflect no non-working days.

Duration, Remaining - The estimated time, expressed in working days (not including holidays or other nonworking periods), needed to complete an activity that has started but has not finished.

Early Completion Schedule - A progress schedule will be considered an early completion schedule when the schedule submitted by the Contractor indicates a completion date that is earlier than the specified contract completion date, or the Finish date of any interim Milestone work activity is earlier than the date specified in the contract. This includes, but is not limited to, B-Clock activities, activities subject to Incentive/Disincentive provisions, and/or specific Liquidated Damages provisions, and Lane Rental activities.

Final Baseline Progress Schedule - The original plan against which the Contractor's progress is measured. The Final Baseline Progress Schedule represents the original plan at the award of the contract, of what is expected to happen. Once the Final Baseline Progress Schedule is accepted by the Engineer it is saved and used as a basis to compare against Progress Schedules Updates.

Float Suppression - Utilization of zero free float constraints which allows an activity to start as late as possible by using all of its' available free float. This technique allows activities to appear more critical than if the activity's total float was based on early dates. Assigning zero free float prevents true sharing of total float between Department and the Contractor. Utilization of overly generous activity durations and overly restrictive calendar non-working periods are also considered to cause float suppression.

Float, Free - The amount an activity can slip without delaying the immediate successor activities. Free Float is the property of an activity and not the network path.

Float, Total - The amount of time an activity (or chain of activities) can be delayed from its early start without delaying the contract completion date. Float is a mathematical calculation and can change as the project progresses and changes are made to the project plan. Total Float is calculated and reported for each activity in a network, however, Total Float is an attribute of a network path and not associated with any one specific activity along that path.

Fragnet – A subdivision of a project network diagram usually representing some portion of the project.

Global data – Data classified by Oracle-Primavera software as Global, including Project Codes, Global Activity Codes, Global Calendars, Resource Calendars, Global Filters, Resources, Global Reports, User Defined Fields and Unit of Measure.

Key Plans - Key Plans are graphic representations made by the Contractor's Project Scheduler on paper copies of the appropriate contract plan sheets that reflect the Contractor's planned breakdown of the project for scheduling purposes to efficiently communicate the Contractor's activity coding scheme to County scheduling staff. The key plans prepared by the Contractor shall clearly define the boundaries of the work for each designated Area, the operations contained in various Stages of work, and work in the Work Zone Traffic Control (WZTC) Phases. The alphanumeric codes on the key plans shall match the code values for the activity code "Area", "Stage", and "WZTC Phase" in the Progress Schedule.

Longest Path - The sequence of activities through the Progress Schedule network that establishes the Scheduled Completion Date

Look-Ahead Schedule – A three week time segment generated from the accepted Progress Schedule that shows the actual work progressed during the previous one week and forecasts the work planned for next two week

period following the Data Date, and includes any major materials to be delivered and any lane closings or anticipated shifts in WZTC.

Milestone – An activity with zero duration that typically represents a significant event, usually the beginning and end of the project, milestones set forth in the contract proposal, construction stages, a major work package, or the contract interim time-related clauses.

Monthly Status Report – The report generated monthly from the updated Progress Schedule in an electronic Adobe Acrobat PDF format that reflects a Data Date for that Progress Schedule Update period. The report shall be formatted to fit ANSI Size D paper (610 mm x 914 mm) (24 inch x 36 inch), listing all work activities from the data date to contract completion, using the NYSDOT Status Report Layout or as ordered by the Engineer, sorted by Early Start Date, Total Float in increasing order, showing the Activity ID, Activity Description, Original Duration, Remaining Duration, Total Float, Early Start date, Early Finish date, Start date, Finish date and Calendar ID.

Narrative Report - A descriptive report submitted with each Progress Schedule. The required contents of this report are set forth in this specification.

Open End - The condition that exists when an activity has either no predecessor or no successor, or when an activity's only predecessor relationship is a finish-to-finish relationship or only successor relationship is a start-to-start relationship.

Predecessor - An activity that is defined by Schedule logic to precede another activity. A predecessor may control the Start Date or Finish Date of its successor.

Progress Schedule – A general Oracle-Primavera P6 Schedule as defined by this Specification.

Progress Schedule Update – Changes to the Progress Schedule that reflect the status of activities that have commenced or have been completed, including the following items: (a) Actual Start date and or Actual Finish date as appropriate; (b) Remaining Duration for activities commenced and not complete; and (c) Suspend or Resume dates for activities commenced and not complete.

Progress Schedule Revision – Revisions to the Progress Schedule ensure it accurately reflects the current means and methods of how the project is anticipated to progress, including modifications made to any of the following items: (a) changes in logic connections between activities; (b) changes in constraints; (c) changes to activity descriptions; (d) activity additions or deletions; (e) changes in activity code assignments; (f) changes in activity Productivity Rates; and (g) changes in calendar assignments.

Project Scheduler – The person that is responsible for developing and maintaining the Progress Schedule.

Projects Planned Start Date – The date entered in the Project Details, in the Dates tab, that reflects the Contractor's planned start of work (based on contract requirements, and reasonable expectation for a Notice to Proceed) at the time the bid was submitted to the Department.

Projects Must Finish By Date – A date constraint entered in the Project Details, in the Dates tab, that reflects the Contract Completion Date set in the Contract Documents or through a formal contract extension of time.

Recovery Schedule – A schedule depicting the plan for recovery of significant time lost on the project. This separate CPM schedule submission shall provide the resolution and include appropriate changes in network logic, calendar adjustments, or resource assignments.

Relationships - The interdependence among activities. Relationships link an activity to its predecessors and successors. Relationships are defined as:

Finish to Start - The successor activity can start only when the current activity finishes.

Finish to Finish – The finish of the successor activity depends on the finish of the current activity.
Start to Start – The start of the successor activity depends on the start of the current activity.

Start to Finish – The successor activity cannot finish until the current activity starts.

Resources, Contract Pay Item – Contract Pay Item resources shall be identified as a Material resource type. When required, Contract Pay Item resources are developed for each Pay Item in the contract, with the Resource ID matching the contract Pay Item and the Resource Name matching the description of the contract Pay Item.

Resources, Equipment – Equipment resources shall be identified as a Nonlabor resource type. A unique identifier shall be used in the Resource Name or Resource Notes to distinguish this piece of equipment from a similar make and model of equipment used on the project.

Resources, Labor – Labor resources shall be identified as a Labor resource type. Labor Resources shall identify resources that encompass direct labor at the Crew level.

Scheduling/Leveling Report – The report generated by the software application when a user "Schedules" the project. It documents the settings used when scheduling the project, along with project statistics, errors/warnings, scheduling/leveling results, exceptions, etc.

Substantial Completion - the day, determined by the Engineer, when all of the following have occurred:

1. The public (including vehicles and pedestrians) has full and unrestricted use and benefit of the facilities both from the operational and safety standpoint, and
2. All safety features are installed and fully functional, including, but not limited to, illumination, signing, striping, barrier, guard rail, impact attenuators, delineators, and all other safety appurtenances, and
3. Only minor incidental work, replacement of temporary substitute facilities or correction or repair remains for the Physical Completion of the Contract, and
4. The Contractor and Engineer mutually agree that all work remaining will be performed with short term lane closures to minimize delays, disruption, or impediment to the traveling public. No overnight lanes closures will be allowed.

Successor - An activity that is defined by Schedule logic to succeed another activity. The Start Date or Finish Date of a successor may be controlled by its predecessor.

Time Impact Analysis - A technique to demonstrate the comparison of a time impact of a Progress Schedule revision prior to a change in the Contract work, against the current accepted Progress Schedule. It is also known as a "What-If" analysis.

Work Breakdown Structure (WBS) - A deliverable-oriented grouping of project elements, which organizes and defines the total scope of the project. Each descending level represents an increasingly detailed definition of project components or work packages.

Work Days – A calendar day (Monday through Friday) on which NC offices are open to the public for business NC recognized public holidays are not workdays**.** Days scheduled for the active prosecution of work activities by NC staff or the NC's representatives. (NC Workday calendar)

Nassau County Holidays	
New Year's Day	**January 1**
Martin Luther King Day	**3rd Monday in January**
Lincoln's Birthday	**February 12th**
President's Day	**3rd Monday in February**
Memorial Day	**Last Monday in May**

Independence Day	**July 4th**
Labor Day	**1st Monday in September**
Columbus Day	**2nd Monday in October**
Election Day	**1st Tuesday in November**
Veteran's Day	**November 11th**
Thanksgiving Day	**4th Thursday in November & Following Friday**
Christmas Day	**December 25th**

If the holiday occurs on a Saturday, it may be observed the Friday before. If the holiday occurs on a Sunday, it may be observed the Monday after.

Work Package - A deliverable at the lowest level of the work breakdown structure. A work package contains activities.

MATERIALS

Oracle-Primavera P6 software (as accepted by the Engineer)

CONSTRUCTION DETAILS

A. General. In addition to the attributes of the Progress Schedule provisions as set forth in NYSDOT Specification §108-01, the Contractor shall prepare, furnish, and maintain a computer-generated Progress Schedule using the Critical Path Method (CPM) utilizing Oracle-Primavera scheduling software. The CPM Progress Schedule shall be prepared based on the principles defined by the latest issue of the Construction Planning & Scheduling Manual published by the Associated General Contractors of America, except where superseded by the contract documents such as the CPM Special Notes and this specification.

The Contractor and the Department shall use the Progress Schedule to manage the work, including but not limited to the activities of subcontractors, fabricators, the Department, other involved agencies and authorities, other entities such as utilities and municipalities, and all other relevant parties involved with the project.

No work other than installation of the Engineer's Field Office, mobilization, procurement and administrative activities, installation of construction signs, installation of erosion and pollution protection, clearing and grubbing, field measurements, and survey and stakeout will be permitted to start until the Baseline Progress Schedule has been submitted to the Engineer, and the Engineer determines there are no deficiencies consistent with those identified in paragraph I.1 *Immediate Rejection of Progress Schedule Submissions.* .

The purpose of the Progress Schedule, and scheduling provisions in the contract, shall be to:

a) Ensure that the Contractor and the Department have a detailed plan and resources to complete the project in accordance with contract time requirements;
b) Provide a means of monitoring the progress of work;
c) Aid in communication and coordination of activities among all affected parties;
d) Analyze the effect of changed conditions on any milestone dates or on the contract completion date;
e) Analyze the effect of change orders for extra work or deductions, and unanticipated delays, on the contract completion date;
f) Establish a standard methodology for time adjustment analysis based on the principles of the Critical Path Method of scheduling, to analyze delays and resolve construction disputes concerning time;
g) Determine appropriate extensions or reductions of Contract Time.

In scheduling and executing the work, the Contractor shall:

a) Sequence the work commensurate with the Contractor's abilities, resources and the contract documents. The scheduling of activities is the responsibility of the Contractor.

b) Ensure that Progress Schedules prepared by the Project Scheduler for submission to the Department are in compliance with the Contract. The intent should be that Schedule submissions and accompanying Narratives are timely, complete, accurate, and in compliance with the Contract.

c) Communicate all Contract changes, and decisions or actions taken by the Contractor and all subcontractors, fabricators, etc., that effect the Progress Schedule to the Project Scheduler in a timely manner to allow appropriate development, maintenance, and update of the Progress Schedule.

d) Include all work contained in the Contract and all work directed in writing by the Engineer. Work activities directed by the Engineer to be added to the Contract shall be included in the next Monthly Progress Schedule submission.

e) Assure that Progress Schedule Updates reflect the actual dates that work activities started and completed in the field.

f) Break a schedule activity into multiple activities to reflect a discontinuity in the work if a work activity is suspended in the field and restarted at a later date, and the break between when the work was suspended to when it was resumed is significant compared to the original activity duration.

g) Ensure the Progress Schedule contains all work constraints and Milestones defined in the Contract.

h) Schedule the work using such procedures and staging or phasing as required by the Contract. Work designated as part of separate stages may be performed concurrently with other stages where allowed by the Contract or where approved by the Department.

Failure by the Contractor to include any element of work required by the Contract in the accepted progress schedule does not relieve the Contractor from its responsibility to perform such work.

Should the Contractor choose to show activities in the schedule that reflects their plan of work prior to the contract award, the Department does not incur any liability and such work being performed between the letting date and the contract award date shall be considered at risk work.

Errors or omissions on schedules shall not relieve the Contractor from finishing all work within the time limit specified for completion of the contract.

B. Project Scheduler. The Contractor shall designate an individual, entitled the Project Scheduler, who will develop and maintain the construction progress schedule. The Project Scheduler shall be present at the Preconstruction Schedule Meeting, prepared to discuss, in detail, the proposed sequence of work and methods of operation, and how that information will be communicated through the Progress Schedule. The Project Scheduler shall attend all meetings, keep notes which may affect the CPM schedule, including but not limited to those between the Contractor and their Subcontractors and between the Contractor and the Department. The Project Scheduler shall be knowledgeable of the status of all aspects of the work throughout the length of the Contract, including but not limited to original contract work, additional work, new work, and changed conditions of work.

C. Scheduling Software. Oracle-Primavera P6 software and computer system shall be used by the Contractor. The Contractor shall develop, update, and revise the Progress Schedules using Oracle-Primavera P6 software application.

In general, schedules are developed from the Contractor's knowledge of the project, and the means and methods represented in those schedules are based on the Contractor's understanding of the contract documents, and the Contractor's past experience, which are unique to the Contractor. Schedule activity data are therefore the intellectual property of the Contractor and will not be made available to other Contractors. However, all project schedule data are the sole property of the Department.

D. Meetings.

D.1. Preconstruction Schedule Meeting. The Contractor shall contact the Construction Engineer after notification they are the apparent low bidder, but no later than two (2) Work Days following Notification to Proceed (NTP) to schedule a Preconstruction Schedule Meeting. The purpose of this meeting will be to discuss essential matters pertaining to the satisfactory scheduling of project activities, and to resolve any known questions regarding interpretation of the contract requirements for this work.

The Project Scheduler shall be prepared to discuss the following:

a) The proposed hierarchal Work Breakdown Structure (WBS) for the Progress Schedules. The Project Scheduler shall provide a paper copy at the meeting.
b) The proposed project calendars.
c) The proposed project activity codes and various code values for each activity code. The Project Scheduler shall provide a paper copy at the meeting.
d) The specifics of any contract Time-Related Clauses (A+B Bidding, Incentive/Disincentive, Liquidated Damages, Lane Rental, etc.);
e) The Contractor's schedule methodology to be employed, proposed work sequence and any proposed deviations from the contract plans with respect to Staging or Work Zone Traffic Control phasing.
f) The Key Plans shall be provided at the meeting.
g) The factors that the Contractor determines to control the completion of the project and any milestone activity completion dates contained therein.
h) The Project Scheduler shall provide an outline for the content of the Narrative report for future Progress Schedule submissions.
i) Schedule submission protocol for Progress Schedule submissions.

The Contractor shall submit to the Resident Engineer (RE) for review, a minimum of five (5) Work Days prior to the Preconstruction Schedule Meeting, the following: a copy of the Key Plans, a print out of the proposed Work Breakdown Structure, a print out of each of the proposed project Calendars showing the Work Days versus non-work days and hours per day, and a list of the Code Values for each Project Activity Code proposed to be used in the schedules.

The Resident Engineer (RE) will be available to answer questions regarding scheduling, including: the availability of Department supplied electronic file(s) containing sample project schedule information, sample progress schedule narratives, Special Notes for CPM Scheduling, and required standard format for CPM Progress Schedules for contract work.

The Contractor shall schedule meetings as necessary with the Engineer to discuss schedule development and resolve schedule issues, until the Final Baseline Progress Schedule is accepted by the Engineer.

D.2. Progress Meetings. One topic of the regular progress meetings held by the Engineer and attended by the Contractor shall be a review of the monthly Status Report generated from the Progress Schedule. The Contractor shall be represented by the Field Superintendent and Project Scheduler. The Project Scheduler shall bring a copy of the printed plot of the current Status Report to the progress meeting, the report shall show the current anticipated schedule for all remaining work with the critical path activities highlighted.

a) The review of the Status Report serves as the forum to discuss project progress and delays, suggested remedies, necessary Progress Schedule revisions, coordination requirements, change orders, potential Contractor time extension requests, and other relevant issues. If contract work is falling behind the Progress Schedule, the responsible party (i.e. Contractor) shall be ready to discuss what measures it will take in the next thirty (30) days to put the work back on schedule so as to meet the contract Completion Date specified in the contract.
b) Items of discussion will include, but are not limited to: project progress; schedule progress; near term and long-term schedule issues, including RFIs, Shop Drawing submittals, permit

work, utility relocations, mitigation work; project issues and risks; proposed solutions; and any relevant technical issues that are schedule related.

c) At the meeting the Project Scheduler shall compile an action item list that describes who is responsible for existing or pending issues and the date by which the issue needs to be resolved to avoid delays. The Contractor shall forward a copy of the action item list to the Engineer within 2 business days following the meeting.

E. Progress Schedule Submissions:

E.1. Draft Baseline Schedule. The Contractor is encouraged, but not required, to submit a Draft Baseline Progress Schedule that demonstrates a sample of how the Project Scheduler's proposed alphanumeric coding structure and the activity identification system for labeling work activities in the CPM progress schedule will conform to the detailed requirements of this specification.

This submittal may be made anytime following notice to the Contractor that they are the apparent low bidder on the contract.

Critical items for this review should include but are not limited to: the proposed WBS for subsequent progress schedules; the proposed project Calendars; project Planned Start date; project Must Finish By date; major milestone activities (e.g. - Award, Notice to Proceed, Contractor's First Day of Work, Contractor's Last day of Work, Anticipated Completion Date); and between fifty to one hundred summary activities for the major work deliverables of the contract (e.g. - pave EB from STA x to STA y, construct roundabout 1, construct bridge xyz, etc.) that have assigned Activity Ids, Activity Descriptions, Activity Durations, Predecessors, Successors, and Activity Relationships. These summary activities will be broken down into, or supplemented with, individual work activities for the baseline submission.

If any Crew resources are included, the composition of the staffing (the number and titles of the various staff) shall be listed in the Notes tab of the Crew resource, and the composition of the crews shall be included in the narrative. To the extent practicable, the Draft Baseline Progress Schedule should include administrative and procurement activities to be accomplished during the contract; planned submittal, review, and approval dates for shop drawings, working drawings, fabrication drawings, and contractor supplied plans, procedures, and specifications.

Any submission of a Draft Baseline Progress Schedule should be accompanied by a written Narrative that provides details of the Calendar assignments of Working Days versus non-work days, outlines the sequence of planned operations to complete the project work, and provides the proposed Activity Codes and Code values to be assigned to activities in future submissions of project progress schedules.

The review and comment by the Engineer of the sample schedule should assist the Project Scheduler in assuring the first submittal of the Baseline Progress Schedule will be in general conformance with the requirements of the specification and other contract requirements, and that major rework of the Baseline Progress Schedule will not be required. The Engineer will review the logic diagram, coding structure, activity identification system, and Narrative; and provide comments for required changes by the Project Scheduler for implementation in the submission of the Baseline Progress Schedule. The Engineer will provide written comments on major deficiencies within five (5) Workdays of receipt. The Department reviews Draft Baseline Progress Schedules solely for format and will not consider any submission of a Draft Baseline Progress Schedule for approval as an Early Completion Schedule.

E.2. Baseline Progress Schedule– Within ten (10) Work Days of receipt of the contract NTP, the Contractor shall prepare and submit a Baseline Progress Schedule that meets the following requirements:

a) The schedule shall accurately reflect the proposed approach to accomplish the work outlined in the Contract documents and conforms to all requirements of this specification.

b) The schedule shall define a complete logical plan that can realistically be accomplished, to execute the work defined in the Contract.

c) The schedule shall comply with the work constraints and milestones defined in the Contract as well as all other contractual terms and conditions. The schedule shall be consistent in all respects with the

specific interim Time-Related Contract Provisions, and any order of work requirements of the contract documents. The schedule shall meet all interim milestone dates and the contractor's Anticipated Completion Date shall not extend beyond the contract completion date. This submission shall reflect the Contractor's plan at the time of contract award, and prior to the start of any work.

d) **Float.** No negative float is allowed in the Baseline Progress Schedule submission.

e) **Data Date.** The contract Award Date shall be entered as the Data Date. If the Contractor submits a Baseline Progress Schedule @ Bid submission, the Data date shall be the date of the schedule submission to the Engineer and not prior to the bid date. Time shall be the end of the work day.

f) **Activity Codes.** The Progress Schedule shall have assigned, to the maximum extent practicable, the Global Activity Codes Including, but not limited to Responsible Party, Stage and Type of Work. The Contractor shall also use a Project Level activity code named "Subcontractor" with code values identifying each of the approved subcontractors working on relevant activities.

g) **Project Level Layouts & Filters.** Any "Layouts", "Filters" and "Report" formats that the Contractor develops for the various Progress Schedules submissions to the Engineer shall be saved and made available to all other users of the project schedule with a name that includes the contract D#.
The Contractor shall assign appropriate Activity Codes and provide custom Layouts, Filters, and/or report formats necessary to allow the Engineer to generate a report from the each Progress Schedule submission of all submittals required under the contract (i.e., shop drawings, required permits, erection/demolition plans, etc.). The list shall show scheduled submission date, review date, and acceptance date for each submittal and identify the earliest activity affected by each of these submittals. This list shall be generated from each Progress Schedule submission until all such activities are completed.

h) **Schedule Submission**

i) Within the timeframe indicated in Table 1 column 1, the Contractor shall send an email to the Engineer and Construction Supervisor, notifying them the schedule is ready for review. **In the following table, the Construction supervisor may change the time.**

TABLE 1 (in Work Days)		
Timeframe from receipt of Notice to Proceed to Submission of complete Baseline Schedule. (Column 1)	**Timeframe for Engineer's Review (Column 2)**	**Timeframe from Notice to Proceed to acceptance by the Engineer not to exceed (Column 3)**
10	10	40

ii) The Engineer will review the schedule and return it, accept it with comments, or reject it within the timeframes indicated in Table 1 column 2, following the date of receipt of the Contractor's submission.

iii) If the schedule is returned with comments, the Contractor shall address all comments and revise the schedule as necessary. The Contractor shall complete the Final Baseline Progress Schedule and obtain the acceptance of the Engineer within the timeframe required in Table 1 column 3.

iv) If the schedule is accepted without any comments by the Engineer, the Contractor shall copy the schedule and rename it for submission as the Final Baseline Progress Schedule

v) **In no way does the Baseline Progress Schedule modify the contract documents**.

E.3. Final Baseline Progress Schedule

a) If the Baseline Progress Schedule is returned to the Contractor with comments, the Contractor shall make a copy of the schedule and rename it as the Final Baseline Progress Schedule with comments addressed and revisions made as necessary. The Contractor shall complete the Final Baseline Progress Schedule and obtain acceptance of the Engineer within the timeframe required in column 3 of Table1,

or within one week of the Contractor's receipt of the final comments by the Engineer, whichever is sooner.

b) The Engineer shall review the schedule and return it, accepted or with comments, within 5 Work Days following the date of receipt of the Contractor's submission.

c) The Final Baseline Progress Schedule must be "accepted" or "accepted as noted" by the Engineer prior to the Department evaluating any Contractor disputes associated with time impacts. This does not preclude the Contractor from submitting a dispute while the schedule is being reviewed for acceptance.

E.4. Progress Schedule Updates and Monthly Status Reports:

a) The Contractor shall perform a Progress Schedule Update, on a minimum, at the end of each month.

b) The Contractor shall generate a Monthly Status Report at the end each month after performing the Progress Schedule Update and Scheduling the project with a Data Date of day the schedule was updated and submit it to the Engineer by the beginning of business each Monday. The Status Report shall be generated using the activity Layout named Monthly Status Report, with activities grouped by the WBS, sorted by Finish Date. The Gantt Chart shall clearly indicate the project critical (longest) path. Graphical representations shall be shown at a suitable scale to be legible and readable.

c) **During any time periods within the contract that special time-related contract provisions are in effect, including Incentive/Disincentive Periods, the Engineer may require more frequent Progress Schedule Updates and/or Progress Schedule Status Reports.**

E.5. Monthly Progress Schedule Submissions.

a) **First Progress Schedule Submission** – Within three Work Days following acceptance of the Final Baseline Progress Schedule the Contractor shall perform a Progress Schedule Update to reflect the status of all activities where work was performed in the time period between the start of work and acceptance of the Final Baseline Progress Schedule. This shall include actual dates entered in the Actual Start and Actual Finish columns, and percentage of work complete for uncompleted activities, in addition the Contractor shall incorporate any Progress Schedule Revisions that reflect any changes in how future work activities are to be completed.

b) **Subsequent Progress Schedule Submissions** – The Contractor shall prepare and submit subsequent Progress Schedule submissions on a regular basis based on the **Monthly Progress** Schedules.

Schedule Updates and Revisions

The Contractor shall submit a copy of the current Progress Schedule that includes all Progress Schedule Revisions and Progress Schedule Updates to reflect the actual and planned prosecution and progress of the contract work. Progress Schedule Updates shall reflect the status of activities that have commenced or have been completed, including the following items: (a) actual dates in activity Actual Start and Actual Finish columns as appropriate; (b) actual Remaining Duration for activities commenced and not complete; and (c) actual activity Suspend or Resume dates for activities commenced and not complete. Progress Schedule Revisions reflect modifications made to activities in the current project baseline schedule in any of the following items: (a) activity Original Duration; (b) changes in logic connections between activities; (c) changes in Constraints; (d) changes to Activity Descriptions; (e) activity additions or deletions; (f) changes in Activity Code assignments; (g) changes in Calendar assignments, and Work Days; (h) Productivity Rates; (i) a list of Notebook Topic additions and changes . All "Out of Sequence" activities noted in the scheduling log shall be corrected to reflect the current construction operations.

c) As ordered by the Engineer, for any contract time extension requests the Contractor shall include: a Time Impact Analysis (TIA) for any changes to the schedule for future work for such issues as Added Work, VECP, or Changed Conditions; and a Delay Analysis that documents all delays from the Contract Award to the current date that is based on critical path delays that occurred when comparing

subsequent Monthly Progress Schedule submissions and the supporting delay documentation in the Progress Schedule Narratives.

E.6. As-Built Progress Schedule. As ordered by the Engineer, the Contractor shall submit the As-Built Progress Schedule with Actual Start and Actual Finish dates for all activities, within ten (10) Work Days following final acceptance of work by the Commissioner.

E.7. Look-Ahead Schedule. Except during winter shutdown periods the Contractor shall prepare a Look-ahead Schedule as either a plotted report from the current progress schedule, or as a narrative report, and provide it to the EIC on a weekly basis, or if approved by the Engineer on a mutually agreed upon interval The Look-ahead schedule shall include all work activities planned for the next two week period, and include all work activities progressed in the previous one week period, and should also show: anticipated lane closures, road closures and detours, environmental issues, and utility issues. The Engineer will provide the Project Scheduler with guidelines for determining the begin dates and end dates for the one or two week reporting periods, along with the how the plotted schedule report or narrative report shall be formatted.

The Department generally uses this Look-ahead schedule to facilitate communication with other Federal or State agencies, local municipalities, utility companies, railroads, emergency service providers, public news media and other affected parties.

F. Detailed Progress Schedule Requirements.

F.1. Baseline Progress Schedule. As a minimum, the Contractor shall address the following:

a) Defining Project details and defaults – Within the Dates tab, the "Planned Start" shall be the Letting Date, the "Data Date" shall be the date of Contract Award, the "Must Finish By" date shall be the contract Completion Date. Within the Settings tab, define the Critical Activities as the "Longest Path".

b) Sufficient activities shall be included to assure that there is adequate planning for the entire project. The appropriate number of activities will be largely dependent upon the nature, size, and complexity of the project. In addition to all site construction activities, network activities shall include: activities necessary to depict the procurement/submittal process including shop drawings and sample submittals; the fabrication and delivery of key and long-lead procurement elements; testing of materials, plants, and equipment; settlement or surcharge periods activities; sampling and testing period activities; cure periods; activities related to temporary structures or systems; activities assigned to subcontractors, fabricators, or suppliers; erection and removal of falsework and shoring; major traffic stage switches; activities assigned to the Department and other involved State agencies and authorities, including final inspection; activities to perform punch list work; and activities assigned to other entities such as utilities, municipalities, County government/agencies, and other adjacent contractors. The schedule shall indicate intended submittal dates and depict the review and approval periods as defined in the Contract Documents for Department review.

c) The following Activity ID's and Activity Descriptions as shown in Table 2, **subject to changes as approved by the Engineer**, shall be incorporated into all Progress Schedules:

TABLE 2

Activity ID	Activity Description	Duration (Min)	Predecessor	Logic Tie	Responsible Party
C00005	Preconstruction Schedule Meeting	1 Work Day	M00001	SS	NC
C00011	Prepare & Submit DMWBE Goals	Minimum 1 Contractor Work Day	M00001	SS	Contractor

C00015	DMWBE Utilization Approved	15 Work Days	C000011	FS	NYSDOT/NC
C00030	Submit Proof of Insurance	1 Contractor Work Day	M00001	SS	Contractor
M00025	Contract Award Date	0 - Finish Milestone	00020, C00015	FF	NYSDOT/NC
C00010	Preconstruction Meeting	1 Work Day	M00001	SS	NYSDOT/NC
C00035	Notification to Proceed	5 Work Days	M00025, C00030	FS	NYSDOT/NC
C00040	Prepare/Submit Safety & Health Plan	Minimum 1 Work Day	M00001	SS	Contractor
C00045	Approve Safety & Health Plan	20 Work Days	C00040	FS	NYSDOT/NC
M00050	Contractor's First Day of Work	0 - Start Milestone	C00035, C00045	FS	Contractor
C00055	Set Up Engineer's Field Office	20 Contractor Work Days	C00035	FS	Contractor
C00060	Prepare & Submit Baseline Progress Schedule	10 Work Days from NTP	C00005	FS	Contractor
C00065	Review Baseline Progress Schedule	10 Work Days	C00060, M00025	FS	NYSDOT/NC
C00070	Accept Baseline Progress Schedule	1 County Business Days	C00065	FS	NYSDOT/NC
C00075	Mobilization	20 Contractor Work Days	M00050	SS	Contractor

TABLE 2

Activity ID	Activity Description	Duration (Min)	Predecessor	Logic Tie	Responsible Party
M00100	Field Work Begins	0 - Start Milestone	M00050, C00055, C00060		Contractor
M00900	Substantial Completion	0 - Finish Milestone	See definition	FF	Contractor
C09010	Other Agency Inspection	20 Work Days	M00900	FS	Others
C09020	NYSDOT Final Inspection	20 Work Days	M00900	FS	NYSDOT/NC
C09030	Punchlist Work	20 Contractor Work Days	C09020	FS	Contractor
M00950	Contractor's Last Day of Work	0 - Finish Milestone	C09030	FF	Contractor
M00999	Anticipated Completion Date	0 - Finish Milestone	M00950	FF	Contractor
C09040	Demobilization	10 Contractor Work Days	C09020	FS	Contractor

M00925	Recommendation for Final Acceptance	0 - Finish Milestone	C09040	FF	NYSDOT/NC
M09999	Final Acceptance	0 - Finish Milestone	M00925	FF	NYSDOT/NC

The Logic Tie shown shall be used as a relationship to the predecessor activities contained in the column named Follows.

d) **Work Breakdown Structure (WBS)** - A multilevel hierarchal WBS shall be incorporated that provides a deliverable-oriented grouping of activities and defines the total scope of the project. The Contractor shall develop a detailed project specific WBS for the Engineer's review and approval. The Engineer shall make the final determination on the number of levels of the WBS, and how the activities shall be grouped to represent the deliverables of the project.

For all projects the first two levels (nodes) of the WBS shall be labeled as follows:

Level 1 - is the project level; and shall have the project name.

Level 2 - shall have three nodes; "PRECONSTRUCTION", "CONSTRUCTION", and "POST CONSTRUCTION";

Level 3- under "PRE-CONSTRUCTION", shall include at least three nodes "GENERAL SUBMITTALS", "SHOP DRAWINGS"; and "PROCUREMENT/FABRICATION/DELIVERY".

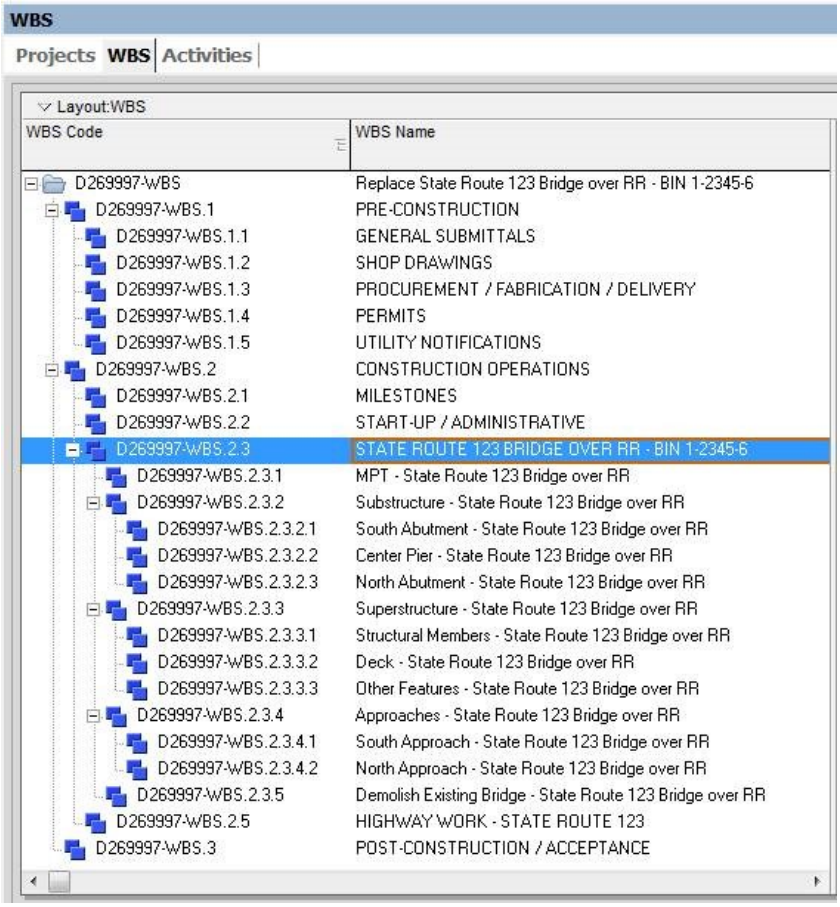
Level 3- under "CONSTRUCTION"; shall have three nodes "PRE-CONSTRUCTION", "CONSTRUCTION OPERATIONS", and "POST CONSTRUCTION/CLOSEOUT";

Under the "CONSTRUCTION OPERATIONS" node, the grouping of activities may vary depending on the scope and nature of the project work. The Contractor shall coordinate with the Engineer to determine the best way to represent (group activities) the project deliverables (i.e. Bridge, Roundabout, Highway segment, Interchange, Intersection, etc.) and the various Stages or Phases of work. The Engineer may require sub nodes for AREA (geographic area within the project limits), STAGE, or for a bridge project SUBSTRUCTURE, SUPERSTRUCTURE, and DECK .

Generally Level 4 would be by geographic area within the project limits, Level 5 would be by highway feature (bridge, highway segment, intersection), Level 6 the highway features should be broken into their components (a bridge into components such as Piles, Substructure, Superstructure), and a highway segment into components such as pavement, drainage, earthwork, lighting, traffic signals, etc.

An example Work Breakdown Structure is shown below in Figure 1

FIGURE 1



e) **Activity ID** - Include a unique identification number for each activity. Activity ID numbers shall not be changed, or reassigned for the duration of the contract. Task type Activity IDs shall be prefixed by a "C". Milestone type activities shall be prefixed by an "M". .

f) **Activity Name** - Clearly and uniquely define each activity name with a description of the work that is readily identifiable to inspection staff and the progress of each activity can be measured. Each Activity shall have a narrative description consisting at a minimum of a verb or work function (i.e. form, pour, excavate, etc.), an object (i.e. slab, footing, wall, etc.), and a location (i.e. STA, bridge or retaining wall number, street, etc.). The work related to each Activity shall be limited to one Area of the contract, one Stage of the contract, one WZTC Phase of the contract, and one Responsible Party of the contract. The Activity Name shall not be changed for the duration of the contract without approval of the Engineer.

g) **Milestone Activities** - Include activities for all contract milestones that define significant contractual events such as Contract Award, Notice to Proceed, Contractor Start Work, Substantial Completion, Physical Completion, Contract Completion, and coordination points with outside entities such as utilities, State agencies, Authorities, municipalities, Time-Related Contract Provisions, etc.

- The Contract Completion milestone shall have a primary constraint of "Finish on or before" and the contract Completion Date.
- The Contractor Start Work" Start milestone activity, that will eventually reflect the actual date the Contractor started work authorized under the contract.

h) **Activity Durations** – Define the Original Duration of each activity in units of whole work days, except for activities of less than one day duration which should be shown in units of tenths of a day. Except submittal/procurement activities, durations shall not exceed 15 work days unless approved by the Engineer. Durations for Department submittal reviews shall meet the requirements set forth in the contract documents. If requested by the Engineer, the Contractor shall justify the reasonableness of planned activity time durations. Task Dependent activities shall not have a zero duration.

i) **Activity Relationships** - Clearly assign predecessors and successors relationships to each activity, and assign appropriate logic ties between activities (Finish to Start, Start to Start, Finish to Finish, etc.). Do not have any open ended activities, with the exception of the first activity and last activity in the schedule. An activity may only appear once as a predecessor or successor to another specific activity, but may be assigned as a predecessor or successor to many different activities. Do not include inappropriate logic ties with Milestone activities (For a finish milestone activity: a predecessor shall only be assigned a Finish to Finish logic tie, a successor shall only be assigned a Finish to Start or Finish to Finish logic tie. For a start milestone: a predecessor shall only be assigned a Finish to Start or Start to Start logic tie, a successor shall only be assigned with a Start to Start logic tie). Lag time may not exceed 10 days. The Contractor shall not use negative Lag times.

j) The Contractor shall assign the 'Submittal' activity as a predecessor to all Review and Approval type activities to be performed by Department staff.

k) **Activity Constraint Dates** – The Contractor shall not have any constrained activities, with the exception of contractual dates, unless the Engineer accepts such constraints in writing. Milestone activities shall be included for the Contract Award which shall have a primary constraint of "Finish On" and the date of contract signature by the State Comptroller, and for the Anticipated Contract Completion which shall have a primary constraint of "Finish on or before" and the contract completion date indicated in the contract documents. Only contractual/owner-designated constraints are allowed unless specifically authorized by this specification or the Engineer. . If used, only Constraints of type, "Finish on or Before", 'Start on or After", or when deemed appropriate by the Engineer "As-Late-As-Possible" are acceptable

l) **Activity Dates** – With the exception of contract Milestone dates, "Actual Start" and "Actual Finish" dates and "Planned Start" and "Planned Finish" dates, activity dates shall be calculated by the project scheduler tool within the Oracle-Primavera software. No Actual Start or Actual Finish dates shall be entered in the Baseline Progress Schedule, with the exception of activities that were completed prior to the Contract Award.

m) **Calendars** - Use clearly defined calendars that account for expected seasonal weather conditions (including winter shutdown periods) and environmental permit requirements, for the planning and scheduling of activities. Do not incorporate an activity with a description of "Winter Shutdown" that requires constraints. Provide the working days per week, non-working holidays. Also provide the number of shifts per day, and the number of hours per shift by using the Calendar feature, called "Time Periods" in the P6 software. Incorporate any seasonal restrictions to the work within calendars assigned to activities.

- Global calendars used in the progress schedule shall be those established by the Department. There are only two Global Calendars developed and maintained by the Department for use by Contractor's, they are the following:
    - NYSDOT/NC Milestone/Curing 365 Day / 8 hour
    - NC Work Days, 5 Day Work Week w/ Holidays (see table on page 5)

  All milestone activities in the schedule shall be assigned the standard Global calendar named 'NYSDOT/NC Milestone/Curing 365 Day / 8 hour", this calendar should also be assigned to any activities for concrete curing. Activities for shop drawing reviews and other approvals by

Department personnel shall be assigned the Department's standard Global – "NC Work Day, 5 Day Work Week w/Holidays, Field" Calendar that reflects all holidays as listed above.

- Changes desired for these calendars shall require prior approval of the Engineer. Calendars related to specific resources (i.e., Crane, Bidwell, Asphalt Paver) shall be established as Project level Calendars (not Resource calendars), with the Calendar name clearly identifying the resource.
- All other calendars developed by a Contractor shall be established as Project Calendars, with the calendar name including the contract ~~D~~# and describing the function All work activities of the Contractor shall be assigned to Project Calendars.
- **The Baseline Progress Schedule cannot include a calendar that reflects any workers working more than 8 hours in any one calendar day or more than 5 days in any one week**. (§102-10 LABOR AND EMPLOYMENT) Following the contract award the Contractor can add additional calendars in their next Monthly Progress Schedule submission based on an approved overtime dispensation.

n) Clearly define significant interaction points between the Contractor, the Department, and other entities including but not limited to: Federal, State and local agencies/authorities; and utilities. All activities of the Department, utility companies, adjacent contracts, and other entities that affect progress and influence any contract required dates including durations shall be shown in the schedule. This includes dates related to all Permits or Agreements. The schedule shall give special consideration to sensitive areas such as road closures and parklands and shall indicate any time frames when work is restricted in these sensitive areas as outlined in the permits issued by the regulatory agencies, and provided in the contract documents.

o) **Activity Resources** – It shall be the Contractor's responsibility to assure the activity logic in the schedule properly reflects their resource limitations. An activity shall not involve multiple crews comprised of the Contractor and a subcontractor, or multiple subcontractors. The level of resource loading of the schedule shall be dependent on the schedule.

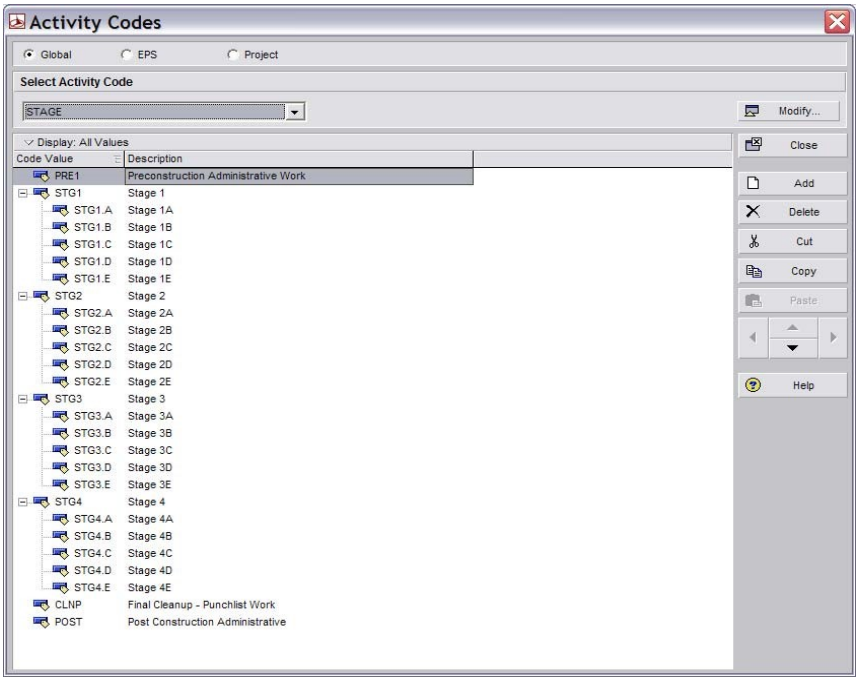
p) **Production Rates** – The Contractor shall enter the quantity of the major item of work for each non administrative activity in the schedule into the field labeled "PR Quantity", the Unit of Measure for that major item in the field labeled "PR Unit", the anticipated production rate of the equipment and labor resources for that activity of work in the field labeled "Production Rate / Day", and the associated duration for that work in the field labeled "PR Duration". These are all Activity level UDF fields, and can be found in the activity Layout named Contractor Production Rates.

q) **Activity Codes** – The Contractor shall include a well-defined activity coding structure that allows project activities to be sorted and filtered. Activity Codes shall include, but not be limited to: Responsible Party; Stage; Area of Work; Type of Work; Subcontractor; and additionally as required by the Engineer to meet the needs of the specific contract work to facilitate the use and analysis of the schedule.

1) Additional Activity Codes developed for specific projects shall be established as Project Activity Codes. As a minimum this shall include the SUBCONTRACTORS.

r) **Activity Code Values** – Each Activity Code shall be broken down into various Activity Code Values that are then assigned to activities, as shown below in the example of Figure 2

FIGURE 2



s) Activity Code Assignments - For each activity, within the activity details the Contractor shall assign Activity Code values to identify the "Responsible Party" (i.e. – Contractor, NYSDOT, Utility Co, Municipality) for the work to be performed (one and only one responsible party shall be assigned to each activity), the "Stage" of the contract for the work that will be performed, the "Area" where the work is to be performed, the "WZTC Phase", and the Type of Work (i.e. - Procurement, Paving, Embankment, Excavation, Electrical, Signing, etc.). For activities included in work governed by time related contract provisions, the appropriate "Time Related" activity code shall be utilized. For activities included in work added and/or changed within an Order-On-Contract, the appropriate "Added/Changed Work" code shall be utilized. For all work activities performed by the Contractor or subcontractors/fabricators/suppliers, "Contactor" shall be designated as the Responsible Party

t) Interim Milestone Dates with Liquidated Damages and Special Time-Related Contract Provisions (i.e. – A+B Bidding, Incentive/Disincentive provisions, Lane Rental) – Each time-related contract provision in the contract shall be represented in the progress schedule by having a start and finish milestone, with appropriate predecessors and successors assigned to all schedule activities considered part of that time-related contract provision work including the start and finish milestone activities. In addition, the Start milestone for the time-related contract work shall have predecessors and/or date constraints assigned that include those defined in the contract documents, and the Finish milestone for the time-related contract work shall have successors and/or date constraints assigned that include those defined in the contract documents. All schedule activities associated with each specific time-related contract provision shall be assigned to a separate node within the project WBS and the WBS node description shall be labeled accordingly, in addition these activities shall be assigned the appropriate Time-Related Clauses activity code value. A Level Of Effort activity shall be used for each time related contract provision (i.e. - "Incentive 1 Duration" or "B Clock 1 Duration"), this activity shall have the Start Milestone as a predecessor with a SS relationship and the Finish Milestone as a successor with a FF relationship and the duration of this activity shall be calculated when the project is scheduled.

u) List of Submittals – The Contractor shall submit with the Progress Schedule a list of all Submittals (i.e. - Shop Drawings, required permits, Erection/Demolition plans, Health and Safety Plan, etc.) generated from the Baseline Progress Schedule for review and approval by the Engineer. The Contractor shall use a Filter to limit the schedule activities shown in the report to only the prepare/submit, and review/approve activities related to submittals. The report shall be in Adobe PDF format and transmitted to the Engineer by email.

F.2. Monthly Progress Schedules. In addition to the detailed schedule requirements for the submission of the Baseline Progress Schedule, the Contractor shall complete the following additional requirements for these regular Progress Schedule submissions: a) Activity Status -

i) Durations – the Original Duration shall not be changed without prior written justification by the Contractor, and written approval by the EIC. The Contractor shall edit the Remaining Duration to reflect progress made on work activities and shall not use Duration percentage. If a proposed change to Original Duration is due to additional or changed work to the contract the Contractor shall instead add an activity to reflect this additional work and assign the appropriate Activity Code. The Contractor shall not use zero durations for Task Dependent activities.

ii) Started and Finished dates – for each activity where work was begun during the Weekly/Biweekly or Monthly reporting period, the Contractor shall check the box adjacent to Started and enter the date the work began. For each activity where work was completed during the Weekly/Bi-weekly or Monthly reporting period, the Contractor shall check the box adjacent to Finished and enter the date the work was completed.

iii) Suspended work – The first time that work has been suspended on a schedule activity, the Contractor shall enter the Suspend and Resume fields within the Project Details under the Status tab. For any subsequent suspensions of work to that activity the Contractor shall break that activity into two or more activities to accurately reflect the suspension and resumption of work dates in the field, and to more accurately reflect the relationship to other work activities.

b) Calendars – To change a project calendar for activities scheduled in the future, the Contractor shall copy the calendar and use a revised name that includes a reference to which Update the change was incorporated (i.e. - D260000 - Concrete Calendar should be revised to D260000 – 2 - Concrete Calendar to reflect the 2nd Monthly Update when the change was made to the calendar). The reason for the change in the calendar shall be documented in the Narrative.

c) Resources –

For each month of the contract the Contractor's Progress Schedule submission shall include labor, equipment and pay item resources for an additional year of anticipated contract work until all activities in the schedule have resources defined. Until such time that all activities are resource loaded, for any activity that resource limitations are affecting the prosecution of work, as determined by the Engineer, labor and equipment resources shall be entered in the schedule by the Contractor. When the resource assignments are complete for all schedule activities, the Engineer will compare pay item quantities in the schedule with pay item quantities in the Engineer's estimate to determine if all contract work is represented in the Contractor's schedule.

d) Notebook Tab –

i) Delays - For any activities on the critical path that are delayed during this monthly reporting period, the Contractor in agreement with the Engineer shall enter the dates the activity was delayed and the reason for such delay in the Notebook tab of that activity. The reviewing scheduler will perform the delay analysis and will inform the Contractor accordingly.

ii) Activity Changes – For any changes to activity logic, calendar assignments, suspended work, added or revised lag periods or constraints the Contractor shall document the change and reason in a

Notebook Topic for that activity by assigning the appropriate "Progress Submission # Revision" and describing the changes.

e) Production Rates – For all non-administrative that have shifted onto the critical path, or now have less than 20 days of Total Float, the Contractor shall enter the Production Rate information required in paragraph F.1.p. For any activities where the work to be performed is similar in nature to work already performed on the same project and that the Production Rate for the work to be performed is different than the actual Production Rate for work already performed the Engineer may require the Contractor to adjust the Duration for the work to be performed to reflect the more appropriate Production Rate.

f) Deleted work – If work has been deleted the corresponding work activities in the schedule shall be deleted. The Contractor shall not just zero the activity duration since the calendar assigned to the zero duration activity shall still affect the logic of future work activities.

g) The Project Scheduler can modify the project's Data Date through the Schedule tool.

h) The Contractor shall complete the following additional requirements:

i) Data Date - the "Data Date" shall be the date the Project Scheduler last edits the schedule prior to submission to the Engineer (generally the last working day of the month).

ii) Submission frequency. The Contractor shall submit the schedule file and Narrative Report to the Engineer **monthly**. The schedule submission to the Engineer shall be made within three (3) Work Days of the last day of the month, whether or not the Engineer has accepted the previous Progress Schedule submission.

G. Detailed Narrative Requirements:

G.1. For the Baseline Progress Schedule. The Contractor shall include a narrative in Microsoft Word and/or Adobe Acrobat format that includes the following topics and attachments:

a) **Contract Identification.** Include the contract D number, project name, project location, and name of Prime Contractor.

b) **Key milestone dates.** Include the actual contract Award Date, original and adjusted contract Completion Date, Substantial Completion Date, and anticipated completion of all project work. Also include any contract Interim Milestone dates (I/D, B-Clock, LD, etc.), and scheduled Start and Finish dates for those Milestone activities.

c) **General approach.** Describe the Contractor's general approach to construct the Work outlined in the baseline schedule. Address the reasons for the sequencing of work and describe any resource limitations, potential conflicts, and other salient items that may affect the schedule and how they may be resolved.

d) **Key Plan**s. If not provided in the contract plans, or if modified by the Contractor, provide copies of the appropriate contract plan sheets marked up to correlate values on the contract plans (for Area of Work, Stage of Work, and WZTC Phase) to the Contractor's planned breakdown of the project (i.e.- Activity Codes, Activity Descriptions) for scheduling purposes.

e) **Logic Justifications.** The justification(s) for each activity with a duration exceeding 15 working days. The justification(s) for Contractor imposed activity constraints proposed in the schedule. The reason for any lags assigned to any activities.

f) **Calendars.** Include a list of calendars which have been incorporated in the schedule, and for each calendar the general reason for it's use in the schedule.

g) **Critical Path issues.** A brief discussion of the critical path shown in Appendix 2, highlighting any potential challenges that are foreseen associated with the critical path work.

h) **Coordination issues.** Outline any anticipated coordination issues related to work activities by other entities that require additional information from, or action by, the Engineer.

i) **APPENDIX 1 – Scheduling/Leveling Report.** This appendix in Adobe Acrobat PDF file format, formatted to fit standard ANSI Size A (Letter) size paper (8.5 inch x 12 inch) (215 mm x 279 mm) paper, printed with portrait orientation, shall be included with the narrative as a separate file.

A complete Scheduling/Leveling Report file generated by Contractor's Oracle-Primavera scheduling software application) which includes the Schedule Settings, Statistics, Errors, Warnings, Scheduling/Leveling Results, Exceptions, Activities with unsatisfied constraints, Activities with unsatisfied relationships, and Activities with external dates. The statistics shall include, # of Activities, # of Activities Not Started, # of Activities In Progress, # of Activities Completed, # of Activity Relationships, and # of Activities with Constraints. Total number of activities on the critical path, percent complete, activities without predecessors, activities without successors, and activities out of sequence.

j) **APPENDIX 2 – Progress Schedule plot.** This appendix in Adobe Acrobat PDF file format, formatted to fit ANSI Size B (Ledger) paper (11 inch x 17 inch) (279 mm x 431 mm) paper, printed with Landscape orientation, shall be included with the narrative as a separate file.

Appendix 2 to the narrative shall be an electronic schedule plot (Adobe Acrobat format), with activities sorted by Start Date in ascending order, Grouping of activities by WBS, and only the "Longest Path" filter applied. This plot shall provide a clear critical path from the Data Date to the last activity in the schedule.

Graphical representations shall be shown at a suitable scale to be legible and readable.

G.2. Monthly Update Progress Schedule. For each Progress Schedule submission, the Contractor shall submit a revised narrative in Microsoft Word or Adobe Acrobat format that includes (but is not limited to) the information from paragraph G.1, and the following **additional** topics:

k) **Project Progress.** Discuss the progress that was made during the current reporting period, and document any Total Float gained or recovered during the period. For major work items describe the differences between the actual work performed and the work planned for the period as represented in the preceding Progress Schedule submission, including explanations for the deviations.

l) **Suspended Work.** For all suspended work activities that could otherwise logically be progressed, identify the responsible party prohibiting the progression of the work, as well as the detailed reasons why.

m) **Project Delays.** Discuss any delays experienced during the current reporting period. Quantify any relative change in Total Float for the project since the last Progress Schedule submission. For each activity on the critical path (include Activity ID's and Activity Descriptions) where work was delayed during the reporting period, provide the following detailed information including:

- the extent in days (negative float) of the delay, and events that caused the delay.
- the party(s) responsible for the delay event(s).
- the other activities in the construction schedule affected by the events.

- the reasonable steps needed to minimize the impact of the delay, and which party needs to take the action(s).

The Contractor is reminded of the requirements of Notice & Recordkeeping as found in NYSDOT §104-06 of the contract specifications and as they relate to Disputed Work. The Contractor shall include a copy of any notice provided to the Engineer for any time-related delay dispute as part of their narrative.

n) **Project Issues**. List any other problems experienced during this Progress Schedule submission period, the party responsible for the problems, and the Contractor's intentions to resolve the issue(s).

o) **Schedule changes.**

i) List of all added or deleted activities included in this Progress Schedule submission, and the reason(s) for and the impact(s) of such changes.

ii) List all changes in activity Original Durations, the justification for such change(s), and the impact(s) of such changes.

iii) List all changes in relationships between activities included in this Progress Schedule submission, and the reason(s) for and the impact(s) of such changes.

iv) List any addition or deletion of activity or project constraints, and the reason(s) for and the impact(s) of such changes.

v) List all changes to the project calendars, and the reason(s) for and the impact(s) of such changes.

p) List all activities for procurement of long lead time materials that are behind schedule and the reason(s) why.

q) Description of any changes to the critical path since the last Progress Schedule submission and the impacts of such changes.

r) The major work elements, as defined in the WBS, to be accomplished during the next monthly work period.

s) Any potential problems that are anticipated for the next monthly work period and the proposed solutions to such problems. Identify potential problems or risks that either the Department or Contractor may be potentially responsible for. Explain what action the responsible party (i.e. - Department or Contractor) needs to take and the date by which time the action needs to taken to avoid the problem.

t) Any planned acceleration of activities that the Contractor anticipates to undertake within the next monthly work period that either the Department directed, or that the Contractor believes is necessary.

u) The following appendix in Adobe Acrobat PDF file format, formatted to fit ANSI Size E paper (34 inch x 44 inch) (863 mm x 1117 mm) paper, printed with Landscape orientation, shall be included with the narrative as a separate file.

- APPENDIX 3 – A listing of all work activities as of the data date, using the Appendix 1 activity layout, sorted by Finish date, Total Float in increasing order, showing the Activity ID, Activity Name, Original Duration, Remaining Duration, Actual Duration, Total Float, Early Start date, Start date, Finish date, Late Finish date, and Calendar ID. The grouping of activities shall be by WBS. The Gantt Chart shall clearly indicate all activities in the schedule. Graphical representations shall be shown at a suitable scale to be legible and readable.
- APPENDIX 4 – A listing of work activities filtered by Notebook Topics assigned as of the data date, sorted by Finish date and Total Float in increasing order, showing the Activity ID, Activity Name, and Notebook Topic. The grouping of activities shall be by WBS.

H. Schedule Submission Methodology. Progress Schedule submissions will only be considered complete when all documents and data have been provided to the Engineer.

H.1. File Naming Convention. The schedule filename shall conform to the requirements of the Department and as defined by the Engineer.

I. Progress Schedule Review and Analysis:

I.1. Immediate Rejection of Progress Schedule Submissions. The following deficiencies in a

Contractor's progress schedule submission shall be grounds for the immediate rejection by the EIC, without further review, analysis and/or comments.

a) Failure of the Project Scheduler to submit "schedule" of the project, as of the data date.
b) Failure to attach a copy of the complete Scheduling/Leveling Report
c) Any activities without predecessors, or activities without successors, appearing in the Scheduling/Leveling Report with the exception of the first and last activity in the schedule.
d) Any activity constraints appearing in the Scheduling/Leveling Report that have not been approved in writing by the EIC, or that are not specifically allowed by this specification.
e) Any Activities with Actual Dates > Data Date appearing in the Scheduling/Leveling Report.
f) Any Milestone Activities with invalid relationships appearing in the Scheduling/Leveling Report.
g) Failure to have a clearly defined Critical Path from the Data Date to the last activity in the schedule, using the Longest Path method. This would reflect logic errors in the project schedule.
h) Failure to attach the schedule Narrative and required appendices.
i) Repeated failure to correct "Out-Of-Sequence" activities.

If any of these deficiencies are found, the Contractor's submission shall be considered deficient, and Engineer will notify the Contractor immediately by return E-mail of the rejection of the schedule submittal.

I.2. Schedule Analysis Method.

Events, actions, and progress that cause delays or gains to the Progress Schedule will be analyzed solely by the "Contemporaneous Period Analysis" method.

I.3. Department Review and Acceptance of Progress Schedules.

The Engineer will review the Monthly Progress Schedule submissions and will prepare a written response (Progress Schedule Review Report) to the Contractor's submission within five (5) Work Days following receipt of the Contractor's complete schedule submission. The Engineer will either "accept" the schedule, "accept as noted", or "reject" the schedule for re-submittal by the Contractor.

If the Progress Schedule submission is not in compliance with contract requirements, the Engineer may reject the submittal and shall forward any comments and requests for schedule revisions to the Project Scheduler by email, with a copy to the Contractor The Project Scheduler shall address all comments in writing and/or make the requested revisions, and resubmit the revised schedule within three (3) State Business days of the Engineer's reply. If the Engineer determines the revised submission still does not meet the contract requirements, any further revisions required thereafter shall also be submitted for acceptance within (3) Work Days of the request for revisions by the Engineer.

For schedules that are "accepted as noted" the Engineer shall forward any comments, or requests for revisions, to the Contractor by email,. The Project Scheduler shall address all comments in writing and/or make the requested revisions as part of the next scheduled Progress Schedule submission.

The Project Scheduler shall make adjustments to the Progress Schedule in accordance with the Engineer's comments and resubmit copies for review consistent with the requirements of this section.

The Engineer, by accepting the progress Schedule, does not agree that the Progress Schedule is reasonable or that by following the Progress Schedule the Contractor can complete the work in a timely manner. If, after a Progress Schedule has been accepted by the Engineer, either the Contractor or the

Engineer discover that any aspect of the Schedule is on error, or something significant has been omitted, the Contractor shall correct the Progress Schedule in the next Progress Schedule submission and describe this revision in the Narrative report.

Acceptance of progress schedules by the Engineer shall not be construed to imply approval of any particular construction methods or sequence of construction or to relieve the Contractor from its responsibility to provide sufficient materials, equipment and labor to guarantee the completion of the contract in accordance with the contract documents.

Acceptance of the progress schedule by the Engineer does not attest to the validity of assumptions, activities, relationships, sequences, resource allocations, or any other aspect of the progress schedule. Within the contractual constraints, the Contractor is solely responsible for the planning and execution of the work.

Acceptance of the progress schedule by the Engineer shall not be construed to modify or amend the contract agreement or the date of completion therein. Completion dates can only be modified or amended by standard contractual means, Request For Extension of Completion Date.

If any resources are included in the Progress Schedule, it is not intended that the Engineer, by accepting the schedule should use the Contractor's resource data for anything other than determining the reasonableness of achieving the Contractor's production rates. Resources included with the accepted CPM schedule shall not be misconstrued as a cost benchmark for the performance of planned or actual work.

Once the progress schedule has been accepted, the Contractor shall not deviate from it without first notifying the Engineer in writing.

Upon receipt from the Contractor of the corrected schedule, a new review period by the Engineer of five (5) Work Days will begin.

J. Changes to Progress Schedule due to Added/Deleted/Changed Work:

J.1. Changes to the contract. In the event a notice of a change to the contract is received, the appropriate changes to the progress schedule shall be made, as necessary, to incorporate the anticipated added/deleted/changed work and the Contractor shall notify the Engineer in writing within 10 (ten) calendar days if there is any effect of such change to the schedule. Change to the contract includes, but is not limited to, Extra Work, Change Orders, Suspensions of Work Directed by the Engineer, Changed Condition, and Value Engineering Change Proposals. Added, deleted and/or extra work associated with Change Orders shall be reflected in the next Monthly Progress Schedule Submission in anticipation of and prior to the date in which the work physically takes place without regard to the dates when the actual Change Order was approved. The effect of the change to the contract on the projects Critical Path shall be stated. Extra work or additional work that does not affect the controlling operation on the critical path will not be considered as the basis for a time extension. All schedule activities effected by added, deleted or changed work that is included in a signed Order-On-Contract, Field Change Order, or Authorization of Extra Work (with the exception of minor quantity changes that do not impact contract milestones), or work activities performed by the Contractor at risk in anticipation of such Department approval, shall be assigned the appropriate Activity Code (Added/Changed Work) and Code Value (sequentially numbered) to denote which "Changed Contract Work" order number correlates to those activities of work.

J.2. Time Impact Analysis.

For each request of an adjustment of contract time due to an anticipated change to future work in the Progress Schedule, when the Contractor or Engineer consider that an anticipated or approved change to the contract may impact the critical path and contract progress by more than a calendar month, the Contractor shall submit a Time Impact Analysis (TIA). The TIA shall be submitted as part of any Order on Contract (Change Order) and/or VECP if the critical path changes by more than a calendar month. The TIA shall be based on a revised Progress Schedule and shall be submitted as an electronic file (using Microsoft Word for the narrative) containing:

a) The TIA shall illustrate the impacts of each change or delay on the current scheduled completion date or internal milestone, as appropriate.
b) The analysis shall use the accepted Monthly Progress Schedule that has a data date closest to and prior to the event as the "Current Baseline", this shall then be compared against the "What-if Project Plan Baseline" for the purpose of the TIA.
c) If the Engineer determines that the accepted schedule used does not appropriately represent the conditions prior to the event, the accepted schedule shall be updated to the day before the event being analyzed.
d) The TIA shall include an impacted schedule ("What-if Project Plan Baseline") developed from incorporating the actual or anticipated event into the accepted schedule by adding or deleting activities, or by changing durations or logic of existing activities.
e) If the impact schedule shows that incorporating the event negatively modifies the critical path and scheduled completion date of the accepted schedule, and the Engineer accepts the impacted schedule, the difference between scheduled completion dates of the two schedules shall be equal to the proposed adjustment of contract time.
f) The Engineer may construct and utilize an appropriate project schedule or use another recognized method to determine adjustments in contract time until the Contractor provides the TIA.
g) The Contractor shall submit a TIA within fifteen (15) ~~State~~ Business Days of receiving a written request for a TIA from the Engineer.
h) The Contractor shall allow the Engineer ten (10) Work Days after receipt to accept or reject the submitted TIA. All accepted TIA schedule changes shall be included in the next Monthly Progress Schedule submission.
i) If a TIA submitted by the Contractor is rejected by the Engineer, the Contractor shall meet with the Engineer to discuss and resolve issues related to the TIA. If agreement is not reached, the Contractor will give notice in conformance with §104-06 Notice & Recordkeeping, and submit in accordance within the provisions in §105-14.E "Required Content of *Dispute Submissions*".
j) The Contractor shall only show actual as-built work, not unapproved changes related to the TIA, in subsequent Monthly Progress Schedules submissions. If agreement is reached at a later date, approved TIA schedule changes shall be included in the next Monthly Progress Schedule submission.
k) Request for a contract time extension will not be processed until the receipt and approval of a Time Impact Analysis. **However, all extension of time will only be considered at the end of the project completion date.**

K. Failure to Submit Progress Schedules and/or Recovery Schedules:

K.1. No progress payment for this item of work shall be made until the progress schedule is "accepted" or "accepted as noted" by the Engineer.

K.2. If the Contractor's Progress Schedule submission is rejected due to any deficiency noted in paragraph I.1(a) through (i), it shall be considered an incomplete submission and therefore substantially deficient.

K.3. If the Contractor's revised Progress Schedule submission does not address the written comments provided by the Engineer and does not include a written explanation with a reasonable rational for not addressing those comments, the submission shall be considered deficient.

K.4. If the Contractor fails to submit a CPM Progress Schedule conforming to the provisions required under this specification, to the degree that such failure is deemed by the Construction Supervisor to adversely affect the management of the project and/or the administration of the construction contract, liquidated damages will be assessed as determined under Basis of Payment.

L. Recovery Schedule

L.1 If the latest completion time for any work on the current Progress Schedule results in an activity being delayed ten percent or more of the time beyond the required Contract duration or any specified Milestone duration, as adjusted if appropriate, the Engineer may require the Contractor to submit a Recovery

Schedule and written description of the plan to recover all lost time and maintain the required Completion Date or specified Interim Milestone Date(s).

L.2. With the Recovery Schedule the Contractor shall submit a narrative that identifies where additional labor and/or equipment resources will be allocated. Alternately, the Contractor may elect to provide the makeup of their Crew resources in the narrative and assign those Crew resources to the appropriate activities in the Progress Schedule. The makeup of the Crew shall include the various Labor classes and equipment that comprise the Crew along with the quantity of each labor class and type of equipment. Equipment resources shall be shown for major or specialty equipment such as tower cranes, piledrivers, barges, asphalt pavers, concrete pavers, dozers, front end loaders, backhoes, rollers, excavators, graders, long line striping truck or other equipment that cannot be rented easily.

The Contractor shall provide a reasonable plan for accomplishing the work of the contract within the current completion date, or to the requested contract extension date. The Engineer will use the Recovery Schedule to evaluate time extensions, with or without charges.

M. Submission of progress schedules with projected Early Completion date(s):

The Contractor may indicate a projected early completion date on any progress schedule submission without compensation

N. Float

During the course of contract execution, Total Float generated due to the efficiencies of either party (Owner or Contractor) will be considered project Float that is not for the sole use of the party generating the float; rather it is a shared commodity to be reasonably used by either party. Any party assigned activity responsibility within the schedule has the full use of the project Float until it is depleted.

METHOD OF MEASUREMENT:

The quantity shall be measured for payment on a Lump Sum basis.

The minimum lump sum bid for this item shall be the unit price shown in the itemized proposal.

Failure of the Contractor to bid at least the minimum amount will result in the Department adjusting the Contractor's bid to include the minimum bid amount for this item.

BASIS OF PAYMENT:

The lump sum price bid for CPM Progress Schedules shall include all labor, material, and equipment necessary to satisfactorily complete the work.

Progress payments will be made at 25 percent of the lump sum price bid upon acceptance of the Final Baseline Progress Schedule and the List of Submittals. 70 percent will be paid in subsequent contract payments, in proportion to the number of months remaining in the original contract duration, less any non-payment for substantial deficiencies. The remaining 5 percent will be paid upon acceptance of the As-built Progress Schedule.

A. Non-Payment. No payment will be made for any Progress Schedule submitted more than twenty-one calendar days late. For each calendar day during which there are substantial deficiencies with the Progress Schedule no payment will be made. The amount of such non-payment will be 1/30th of the Monthly Payment Amount multiplied by the number of days there are substantial deficiencies.

B. Liquidated Damages. Liquidated damages will be assessed for each subsequent calendar day or part thereof that a cited deficiency resulting in non-payment is not corrected or is permitted to recur. **Liquidated damages will be assessed at the rate equal to 1/10th of the Monthly Payment Amount.**

If an extension of time with the assessment of engineering charges and/or liquidated damages is approved, no additional payment **will** be made for CPM Progress Schedules.

C. Payment will be made under

Item No.	Item	Pay Unit
639.210053	Critical Path Method (CPM) Progress Schedule with Monthly Update	LS

To make the item compatible with the existing Computerized Engineers Estimate System the letters will be replaced as per below.

X=1 (monthly)

N=5 (Nassau) C=3 (County)

Disclaimer: Adopted from NYSDOT Specification 639.21010011

ITEM 645.65000011 - REPLACE OVERHEAD OR SECONDARY SIGN PANELS

DESCRIPTION:

Under this work, the Contractor shall remove the existing overhead or secondary sign panels mounted on span structures, cantilever structures or bridge structures, and shall furnish and install overhead sign panels or secondary panels in accordance with the work orders, and as directed by the Engineer.

MATERIALS:

Materials for sign panel shall meet the requirements of Section 645-2 of the Standard Specifications.

CONSTRUCTION DETAILS:

The construction details for this work shall meet the applicable requirements of Section 645-3 of the Standard Specifications.

The existing sign panel shall become the property of the Contractor, and removed from the job site.

METHOD OF MEASUREMENT:

This work will be measured as the number of square feet of replacement sign installed. The area will be calculated as the product of the plan height and width. The area will be computed to the nearest 0.1 square feet, with no reduction for rounded corners.

BASIS OF PAYMENT:

The unit price bid per square feet of sign panel installed shall be compensation in full for removal and disposal of the existing sign panel and for the fabricating, furnishing, erecting, and adjusting the replacement panel complete as shown on the plans, standard sheets, or as directed by the Engineer. The unit price bid shall include the panels, reflectorized background characters, hardware, and all necessary materials, equipment and labor.

ITEM 655.16000011 - REMOVE AND DISPOSE OF FRAMES AND GRATES

DESCRIPTION:

Under this item the Contractor shall remove and dispose of the frames and grates indicated on the plans or as ordered by the Engineer.

MATERIALS:

None specified.

CONSTRUCTION DETAILS:

The Contractor shall remove and dispose of the frames and grates as indicated on the plans or ordered by the Engineer.

METHOD OF MEASUREMENT:

Measurement will be taken as the number of frames and grates removed, and disposed. A frame and grate combination shall be measured as one unit.

BASIS OF PAYMENT:

Payment will be made at the unit price bid which shall include the cost of furnishing all labor, materials, and equipment necessary to complete the work.

Rev. 10/22/02
Rev. 8/11/10

ITEM 670.02XX0004 – LED HIGHWAY LUMINAIRE (TYPE NN)

DESCRIPTION

This work shall consist of furnishing and installing LED lighting fixtures in accordance with the contract documents and as directed by the Lighting Design Engineer.

MATERIALS

The provisions of the NYSDOT Standard Specifications Section 670, latest revision, and the contract documents shall apply.

LED lighting fixture's shape, color and aesthetical features shall be as specified in the contract documents.

LED lighting fixtures shall be supplied with the appropriate mounting equipment to satisfactorily attach to the light standards specified in the contract documents.

Luminaires provided shall have an equivalent wattage to obtain similar photometrics to the design luminaire specified in the contract documents.

Luminaires provided shall have a Correlated Color Temperature (Kelvin) = 3000k.

Luminaires must include 7 pin photocontrol receptacle and dimmable driver that can be controlled remotely with the Phillips CityTouch platform.

LED Luminaires shall be manufactured by:

American Electric Lighting (AEL) - Autobahn series
(TYPE NN – Series/Performance Package/Voltage/Optics/(Options))

TYPE 01 - ATB2 / 60BLEDE70 / MVOLT / R2 / (3K, P7)
TYPE 02 - ATB2 / 40BLEDE70 / MVOLT / R2 / (3K, P7)
TYPE 03 - ATB2 / 40BLEDE70 / MVOLT / R3 / (3K, P7)
TYPE 04 - ATB2 / 40BLEDE10 / MVOLT / R3 / (3K, P7)
TYPE 05 – ATBS / H / MVOLT /R2 / (3K, P7)
TYPE 06 – ATBS / H / MVOLT /R3 / (3K, P7)
TYPE 07 – ATBS / I / MVOLT /R2 / (3K, P7)
TYPE 08 – ATBS / I / MVOLT /R3 / (3K, P7)
TYPE 09 – ATBL / A/ MVOLT /R4 / (3K, P7)

The following manufacturers luminaires are acceptable but must meet the same illuminance and uniformity on the target area as the luminaires listed above:

PHILIPS
GE Lighting
Or approved equal

ITEM 670.02XX0004 – LED HIGHWAY LUMINAIRE (TYPE NN)

The materials used in the construction of lighting systems shall meet the requirements of the following subsections of Section 700- Materials and Manufacturing:

Photoelectric Control	723-50

CONSTRUCTION DETAILS

Luminaires shall be installed per the manufactures recommendations or as shown in the contract documents. All LED highway luminaires shall be installed in accordance with the National Electric Code (NEC), the local utility company regulations, local ordinances and other agency having jurisdiction.

METHOD OF MEASUREMENT

This work will be measured as the number of LED lighting fixtures satisfactorily furnished and installed.

BASIS OF PAYMENT

The unit price bid shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work.

Payment will be made under:

Item No.	Item	Pay Unit
670.02010004	LED HIGHWAY LUMINAIRE (TYPE 01)	EA
670.02020004	LED HIGHWAY LUMINAIRE (TYPE 02)	EA
670.02030004	LED HIGHWAY LUMINAIRE (TYPE 03)	EA
670.02040004	LED HIGHWAY LUMINAIRE (TYPE 04)	EA
670.02050004	LED HIGHWAY LUMINAIRE (TYPE 05)	EA
670.02060004	LED HIGHWAY LUMINAIRE (TYPE 06)	EA
670.02070004	LED HIGHWAY LUMINAIRE (TYPE 07)	EA
670.02080004	LED HIGHWAY LUMINAIRE (TYPE 08)	EA
670.02090004	LED HIGHWAY LUMINAIRE (TYPE 09)	EA

ITEM 670.15091810 - TYPE P6 ALUMINUM LIGHT STANDARD 23 ft – 29 ½ ft POLE 6 ft SINGLE DAVIT ARM
ITEM 670.15094510 - TYPE P ALUMINUM LIGHT STANDARD 23 ft – 29 ½ ft POLE 14 ¾ ft SINGLE DAVIT ARM
ITEM 670.15111810 - TYPE S6 ALUMINUM LIGHT STANDARD 29 ½ ft – 36 ft POLE 6 ft SINGLE DAVIT ARM
ITEM 670.15114510 - TYPE S ALUMINUM LIGHT STANDARD 29 ½ ft–36 ft POLE 14¾ ft SINGLE DAVIT ARM
ITEM 670.15131810 - TYPE R6 ALUMINUM LIGHT STANDARD 36 ft – 42 ½ ft POLE 6 ft SINGLE DAVIT ARM
ITEM 670.15134510 - TYPE R ALUMINUM LIGHT STANDARD 36 ft – 42 ½ ft POLE 14 ¾ ft SINGLE DAVIT ARM
ITEM 670.15151810 - TYPE T6 ALUMINUM LIGHT STANDARD 42 ½ ft – 50 ft POLE 6 ft SINGLE DAVIT ARM
ITEM 670.15154510 - TYPE T ALUMINUM LIGHT STANDARD 42 ½ ft – 50 ft POLE 14 ¾ ft SINGLE DAVIT ARM
ITEM 670.15174510 - TYPE V ALUMINUM LIGHT STANDARD 50 ft – 55 ¾ ft POLE 14 ¾ ft SINGLE DAVIT ARM
ITEM 670.16114510 - TYPE ST ALUMINUM LIGHT STANDARD 29 ½ ft – 36 ft POLE 14 ¾ ft TWIN DAVIT ARM
ITEM 670.16151810 - TYPE J ALUMINUM LIGHT STANDARD 42 ½ ft – 50 ft POLE 6 ft TWIN DAVIT ARM
ITEM 670.16134510 - TYPE RT ALUMINUM LIGHT STANDARD 36 ft – 42 ½ ft POLE 14 ¾ ft TWIN DAVIT ARM
ITEM 670.16154510 - TYPE TT ALUMINUM LIGHT STANDARD 42 ½ ft – 50 ft POLE 14 ¾ ft TWIN DAVIT ARM

DESCRIPTION

Under these items the Contractor shall furnish and install aluminum light standards (lampposts) of the types and at the indicated locations shown on the drawings and in accordance with the plans, specifications and orders of the Engineer.

MATERIALS

1. General - All elements of the light standard shall meet the minimum standards of the American Association of State Highway and Transportation Officials as stated in "Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals" (Referred to herein as AASHTO Spec.)

   Dimensions of the various components shown on the drawings may exceed those required by the AASHTO specifications in order to provide uniform sizes on a given project.

   Unless otherwise detailed in the plans and specifications, all components of the light standard shall be sized to meet the AASHTO specifications for the pole heights, arm length, wind velocity,

wind gust, luminaire weight and luminaire projected area shown on the drawings or herein.

2. Shaft - The shaft of the light standard shall be a one piece seamless round tapered tube of 6063 wrought aluminum alloy as specified by the Aluminum Association. Shaft shall be formed by cold working process. The shaft shall be free of longitudinal welds and be of sufficient diameter and thickness to withstand the design loads listed on the drawings.

   The shaft shall be tapered uniformly except at its extremities where constant uniform diameters are required for joining or overlapping connections.

   The shaft shall be welded to an anchor base which shall conform to subsection 723-10. After welding the shaft shall be heat treated to T-6 temper.

   The top of the shaft shall terminate in a tenon and be equipped with a friction fit outer sleeve to produce a flush joint with the arm.

   The shaft shall be furnished together with other components of the light standard in the same way which shall be hereinafter specified.

3. Breakaway Transformer Base (Aluminum) - Transformer base shall conform to subsection 723-15.01 (except that it shall be finished as hereinafter specified).

   The transformer base supplied shall be shown on the Approved List as required by subsection 723-15.01. In addition, the Contractor shall submit three copies of the Manufacturer's drawings of the transformer base to be used to the Engineer at least 30 calendar days prior to the initial installation of this item. The Engineer will retain one copy and forward two copies to the Materials Bureau for verification of acceptability. The Engineer shall inspect the transformer bases supplied to ensure that they conform to the approved drawings.

4. Davit Arms - Davit arms shall be constructed of materials and methods specified for the shaft and as dimensioned on the drawings. Davits shall be bent to a radius and project upwards at an angle shown on the drawings.

   The davit arm shall be secured to the shaft in a flush connection with two ½ inch stainless steel bolts, nuts and lock washers. Where twin davit arms are required a twin flush connector assembly shall be provided secured with two ½ inch stainless steel bolts.

5. Davit Arm to Luminaire Connecting Tenon - Davit arms shall terminate in a cast or fabricated flush tenon as shown on the drawings or as approved by the Engineer. The flush tenon shall be secured to the davit arm by ½ inch stainless steel bolts.

6. Miscellaneous

   a. Identification Tags and Reflector Strips

      All lettering, numbering and background on the tags shall be of pressure-sensitive

reflective sheeting. Each letter or digit shall be 3 inches high. The tag for each letter or digit shall be 4 inches x 4 inches. The entire tag shall consist of a clear background and white reflective letter. Reflective strips shall be placed on the transformer base prior to installing the transformer base. Reflective materials and their installation shall be as specified in Section 730-05, Materials Designation 730-05.01. Identification tags and reflector strips shall be located as shown on the drawings.

b. Anchor Bolts shall conform to subsection 723-60.

c. Cable from transformer base to luminaire shall be type USE copper.

d. Fused Connector shall be fabricated from a molded rubber receptacle housing, molded rubber plug housing and metal fuse holder fittings. The design shall be such that the assembled connector is waterproof and suitable for direct burial. With the fuse installed, the fuse shall remain in the plug housing (load side) when disconnecting. Fuses shall be the size indicated on the drawings.

e. Grounding - Provide grounding of the transformer base, as provided by subsection 723-15.01.

f. Miscellaneous Hardware - All nuts, bolts and washers used in the fabrication of the pole shall be Grade 18-8 stainless steel, except for anchorage hardware.

g. Welding - All aluminum welding on light standards shall be performed in the shop, using the inert metal-arc welding process. Filler metal shall conform to the A.W.S. specification A5.10

h. Shipping - Shafts and arms shall be tire-wrapped with a heavy water resistant paper, for protection during shipment and installation.

7. Finishes

a. Aluminum light standards shall be finished in a Urethane or Acrylic Urethane Enamel Coating system, in a satin brown or satin non-metallic medium bronze color as approved by the Engineer.

Aluminum light standards, including transformer and shoe bases, shall be coated with a Urethane or Acrylic Urethane Enamel Coating system generally described as the manufacturers premium grade coating system for transportation industry applications, consisting of but not limited to the following coordinated elements all in accordance with the manufacturer's recommendations:

Mechanical Metal Surface Preparation
Solvent Cleaner
Wash Primer

Intermediate Primer
Top Coat of Urethane or Acrylic Urethane Enamel

The intent is to obtain a Urethane or Acrylic Urethane Enamel coating and substrata system conforming to the highest quality available for application in the transportation industry equal to those manufactured by Du Pont, PPG Industries, and Sherwin Williams.

b. Mechanical surface preparation shall meet the requirements of Steel Structures Painting Council Surface Preparation No. 7 (SSPC-SP7).

c. Solvent Cleaning shall be performed in accordance with the requirements of SSPC-SP1.

d. Wash primer shall be specifically as recommended by the paint manufacturers for aluminum metal and shall be chemically formulated to provide maximum bond between the metal and the coating system. Wash primer shall be applied in accordance with the manufacturer's instruction.

e. Intermediate Primer shall be an integral part of the manufacturer's coating system and shall be a two part epoxy enamel intermediate primer sprayed to a dry film thickness of 0.002 inch.

f. Finish Color Coat shall have a dry film thickness of 0.002 inch. It shall be a Urethane or Acrylic Urethane Enamel consisting of a pigmented enamel plus hardener. Accelerators may be added in accordance with the manufacturer's instructions to speed drying time to customary performance as later stated. Levelers may also be added to eliminate fish eyes all in accordance with manufacturer's instructions.

g. Color - Color shall be a satin non-metallic medium bronze or satin brown. Prior to production finishing, the lamp post manufacturer shall submit through the Contractor, for the approval of the EIC, samples of the allowable color and range of the finished material. The color and range samples shall be established from production material specified herein. The EIC shall approve samples of the lightest and darkest shades of the selected color that will be acceptable. Visual comparison of production work shall be made by the EIC. Instruments used for visual comparison shall be agreed upon by the Contractor and EIC.

h. Minor imperfections in the color coat caused by shipping and handling shall be touched up in the field utilizing a sealer primer and top coat as recommended by the manufacturer of the coating system.

i. Painting, except as specified herein, shall conform to Section 740 Painting Procedures.

8. Inspection:

The Contractor shall provide for adequate inspection by the coating manufacturer to insure that the applied coating meets the minimum requirements as required by the coating manufacturer.

Test reports shall be made of all inspections and shall include:

a. Date when tests were performed and date of issue of report.

b. Identification of alloy and finish system tested and manufacturer.

c. Copy of drawings submitted showing exposed surfaces.

d. Test results.

e. Statement indicating that finish system tested passed all tests or failed one or more.

f. In case of failure, which test(s) and description of failure(s).

g. Statement that all tests were conducted in accordance with this specification.

h. A random sample of finished work (3/4 inch cut plug) shall be selected from each lot (no less than one sample in 50 lampposts) and tested by an approved testing laboratory in a manner approved by the coating manufacturer and the EIC in order that the paint manufacturer can certify that the coating system has been applied in accordance with its recommendations.

i. The coating manufacturer shall provide a factory representative who shall furnish the EIC with all factory invoices and also shall examine surface preparation, observe application methods and record wet and dry film thickness of random samples in each batch. Inspection reports shall be in writing as required herein.

j. After an initial instruction period by the representative of the coating manufacturer in the presence of the EIC and representatives of the lighting standard manufacturer, inspections shall be intermittent.

9. Alternate Finish for Aluminum Light Standard:

a. As an alternate to the finish for aluminum light standards specified in paragraph 7 for this item, an architectural grade anodic coating system may be provided. Transformer bases, and shoe bases shall, in addition, be coated with a matching coating system as specified in paragraph 7.

b. Aluminum light standards shall be coated with an architectural grade anodic finish in a medium dark bronze color as approved by the Engineer. The anodic finish shall consist of, but not be limited to, the following coordinated elements all in accordance with the Aluminum Association Incorporated Bulletin 46 "Standard for Anodized Architectural Aluminum":

Mechanical pretreatment

Chemical pretreatment
Anodizing finish
Rinsing
Sealing

c. The mechanical pretreatment shall be a coarse satin, directional textured finish, polished with a wheel or belt with aluminum oxide grit of 80 to 100 size, with a peripheral wheel speed of 100 ft/s. This mechanical pretreatment is designated by the Aluminum Association as "M-33."

d. The chemical pretreatment shall be medium matte etched finish accomplished with a sodium hydroxide solution of 4-6 oz/gal used at 120-150 degree F for 5 to 10 minutes. This chemical pretreatment is designated by the Aluminum Association as "C-22".

e. An anodic coating of 0.0007 inch thickness (designated by the Aluminum association Architectural Class 1) shall be applied to the aluminum lighting standard. The finish process may be either a coating which has an integral color, designated by the Aluminum Association as finish A-42), or the finish process may be a coating whereby the desired color finish is achieved by application of the anodic coating which is followed by an electrolytic deposition of inorganic pigment in the coating (designated by the Aluminum Association as finish A-44). The anodic treatment process shall consist of immersion in an electrolyte consisting of 15∀ sulfuric acid by weight and a temperature of 70∀ F, with a constant direct current density of 1.3 amperes per square 16 inch of surface being anodized. Immersion shall be for 60 minutes in an electrolyte which has been adequately agitated throughout the tank and especially at the work surfaces being anodized. The coating shall be at least 0.0007 inch thick and have a minimum coating weight of 0.001oz/in^2 and a minimum apparent density of (2.32 g/mm^3)1341oz/in^3.

f. The anodic coating shall be rinsed free of electrolyte. Two cold water rinses in clean flowing water shall be applied for at least two minutes, special attention being directed toward pockets or recesses.

g. The finish shall be sealed for at least twenty-five minutes in distilled or deionized water having pH of 5.5-7.0 at temperature of 206-212 F. Deionized water shall be free of traces of organic matter such as residuals form ion exchange resins.

h. The coating shall be uniform in appearance and free from powdery areas based on visual inspection. The EIC, prior to fabrication, will approve samples of the lightest and darkest shades of the selected color, that will be acceptable. Visual comparison of the producing work will be made by the EIC.

i. Particular care shall be exercised during the installation and construction period to protect the anodic finish from handprints, mortar stain, scratches and other imperfections. Imperfections resulting from any source will require refinishing as directed by the EIC.

j. Minor mismatches of color at welds or castings shall be touched up by the finisher.

Special care shall be taken to pretreat welds and castings so that anodic process does not inhibit bonding coating required by coating procedures described in paragraph 7 above.

10. Inspection of Alternate Finish

Provisions of 8. Inspection above shall apply except that 8.h, 8.i and 8.j shall not apply and the following provisions shall govern.

a. The anodic coating shall be tested to conform with minimum requirements for thickness, weight and apparent density. Thickness shall be determined by ASTM method B 137 (stripping of coating in phosphoric acid solution). The apparent density (oz per cubic inch) shall be the weight of the sealed anodic coating expressed in oz per square inch divided by the thickness of the anodic coating expressed in microns measured by metallographic techniques using a microscope (ASTM B487).

b. The manufacturer shall furnish one sample or test coupon from each rack load of anodized components for the dye stain (ASTM B 136) and coating thickness (ASTM B244) tests and at least one sample or coupon from each production shift for coating weight (ASTM B 137) and apparent density determination.

c. The manufacturer shall in accordance with 8.a-8.g submit test results supplied by a testing laboratory approved by the Engineer.

d. The manufacturer shall have all bending or forming procedures to be executed, after the anodized coating is applied, reviewed by the finishing contractor and testing laboratory and secure a certification signed by the manufacturer, finisher and testing laboratory that no post-finishing bending or forming process has breached the integrity of the finish. A random sample of the most stressed bend shall be submitted to the testing laboratory in order to aid in this determination.

e. Lamppost shaft and davit arm shall require the manufacturer's certification that they meet the requirements of this specification.

CONSTRUCTION DETAILS

The installation shall conform to the requirements of subsections 670-3.01, 3.02, 3.06, 3.14, 3.15, 3.16 and 3.17. Identification tags shall be mounted 24 inches above the ground and facing traffic.

METHOD OF MEASUREMENT

Subsection 670-4.02 shall apply.

BASIS OF PAYMENT

The unit price bid for each lamppost shall include the cost of the transformer base, base-shoe, shaft, davit arm, tenons, identification tags, anchor bolts set in the foundation, nuts, washers, cable from transformer base to luminaire, fuse, fused connectors, splicing of wire in the transformer base, inspection, testing, and all labor, equipment and other materials necessary to complete the work.

12/23/08E Oct. 1998M
Rev. Mar. 1999

ITEM 670.94110010 - REMOVE WIRING, CONDUIT & JUNCTION BOXES

DESCRIPTION

Under this item, the Contractor shall remove and dispose of existing conduits, junction boxes and wiring where shown on the plans or where indicated by the Engineer.

MATERIALS

Not specified.

CONSTRUCTION DETAILS

A. Removal

Removal of conduits and junction boxes shall be done in such manner as to protect existing materials which are to remain.

B. Disposal

All removed junction boxes, conduits and associated hardware shall become the property of the Contractor and shall be promptly removed from the site and disposed of in a legal manner.

C. Patching

All openings which are not to be reused shall be sealed in a manner approved by the Engineer.

Prior to the beginning of any work, the Contractor shall submit to the Engineer a detailed schedule of work operation. This schedule shall be complete and include the expected percentage of work to accomplish within specific time frames. The Contractor may be at any time asked to prepare and submit an updated work schedule. Failure by the Contractor to present such a document upon request will cause the progress payment procedure to terminate immediately.

METHOD OF MEASUREMENT

Payment will be made at the lump sum price bid for this work.

BASIS OF PAYMENT

The price bid shall include the cost of all labor, materials and equipment necessary to complete the work.

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

ITEM 680.83200010 - LOCATE AND MARKOUT INFORM AND STATE LIGHTING FACILITIES

DESCRIPTION:
Under this item, the Contractor shall locate, identify and markout all underground Information for Motorists (INFORM) System facilities and State lighting facilities at each work location within the contract limits, in accordance with the contract documents and as directed by the Engineer.

MATERIALS:
All instruments, equipment, stakes, paint and any other material necessary to perform the work satisfactorily shall be provided by the Contractor.

Equipment utilized to locate underground or buried cables and conduit shall be specifically designed for that purpose. This equipment shall be capable of locating energized, non-energized, loaded and unloaded cables. It shall also be designed to generate a discriminating signal on conduits or cables at any accessible point so that they can be individually selected and traced.

CONSTRUCTION DETAILS:
It is the Contractor's responsibility to determine the exact locations of all INFORM underground facilities and State lighting facilities, and to avoid any interference and conflict of any type.

The Contractor is cautioned that abandoned cables may exist within the contract limits which may tend to complicate or mislead tone out operations.

The Contractor shall immediately notify the Engineer if any interferences are encountered. The Contractor shall be responsible for the cost of all damage to INFORM and State lighting underground and above ground facilities caused by his operations. All repairs required for INFORM facilities will be made by others under the direction of the State. All damaged State lighting facilities shall be replaced in kind or repaired A.O.B.E. The Contractor shall be responsible for all costs to make such repairs.

Surface Markout of the underground facilities shall be intelligible painted markings or stakes. The Contractor shall be responsible for maintaining the markings until they are no longer needed. If the markout becomes worn or obliterated in any fashion before completing excavation operations, then the appropriate facilities shall be re-identified and marked out.

Ground rods, power supplies, batteries, connecting cables and any other incidentals, as required and recommended by the specific cable locating equipment manufacturer chosen, shall be furnished and installed by the Contractor.

Approval for access to INFORM equipment cabinets and pullboxes shall be obtained from the Engineer prior to attempting entry to such locations.

ITEM 680.83200010 - LOCATE AND MARKOUT INFORM AND STATE LIGHTING FACILITIES

METHOD OF MEASUREMENT:

The work for this item will be measured for payment on a lump sum basis for the work completed, in accordance with the contract documents, and as directed by the Engineer.

BASIS OF PAYMENT:

The lump sum price bid shall include the cost of furnishing all labor, materials, tools, equipment and incidentals necessary to complete and maintain the work of this item. Monthly progress payment will be made under this item in proportion to the amount of work done, as determined by the Engineer.

ITEM 680.95600004 - ELECTRICAL METER PAN
ITEM 680.95610004 - POWER DISTRIBUTION PANEL

DESCRIPTION:

Under these items, the Contractor shall furnish and install meter pans and power distribution panels at locations as shown on the Plans or as directed by the Engineer. This equipment shall be used to meter and distribute electrical power to the various field devices.

MATERIAL:

All materials furnished, assembled, fabricated or installed shall be new, corrosion resistant and in strict accordance with the details as shown on the Plans and as specified in these Contract documents.

Electrical Meter Pan

The meter pan shall consist of the components and incidentals necessary as required by the utility to complete a totally operational assembly with all cabling and terminations matched to support the selected components.

The meter pan shall be U.L. listed, in accordance with the electrical utility standards and be self-contained, rated 120/240 volts single-phase, 150 amps or 200 amps as directed by the Utility, and rated NEMA 3R, rain tight, without by-pass facilities. The Contractor shall be responsible for furnishing and installing suitable support hardware, channels, struts, rods, nuts and bolts as required for cabinet or pole mounting. In applications where the meter pan is installed directly to a wood pole, the meter pan shall be installed within a hinged door NEMA type 3R rainproof enclosure, equipped with locking hasps and a glass polycarbonate window.

Power Distribution Panel

The Power Distribution Panel shall include a service rated distribution panel housed in a rainproof enclosure, a two pole plug in service rated main breaker, and single and double pole plug in circuit breakers, sized to suit the equipment on the branch circuits as shown on the plans.

The equipment furnished and installed shall be UL listed and shall conform to the following:

A NEMA type 3R rainproof enclosure, suitable for pole or cabinet mounting, shall be provided for each distribution panel. The enclosure supplied shall accommodate all entering conduit sizes, as shown on the plans, and shall have a means of being padlocked in the closed position.

The Power Distribution Panel shall have the capacity to house a minimum of fourteen single pole circuit breakers, and shall be able to accommodate all ground wires and neutrals required.

Plug in main breakers shall be double pole, rated at 240 volts, AC, and 100 amps per pole.

Plug in circuit breakers for branch circuits shall be single or double pole breakers sized to suit the equipment being serviced on each branch. (Circuit breaker size shall be submitted for approval.)

ITEM 680.95600004 - ELECTRICAL METER PAN
ITEM 680.95610004 - POWER DISTRIBUTION PANEL

Power cables required between the Power Distribution Panel and the connection to a utility company power feed shall be of the number of conductors and AWG # gauge shown on the plans, 600 volt, and shall conform to the following:

a. Cable shall bear Underwriters Laboratories label for type USE. It shall consist of copper conductor, and insulation constructed to conform to ICEA (Insulated Cable Engineers Association) Pub. No. S-66-524 and NEMA Pub. No. WC-7, "Thermoplastic - Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy."

b. Cable shall consist of 7 copper strands up to and including #2 AWG and shall be constructed of 19 copper strands in larger sizes.

c. Insulation shall be chemically cross linked (vulcanized) polyethylene insulating compound.

d. Cable shall be factory or shop twisted in a triplex configuration in accordance with the publications listed in (a) above and as indicated by the plans.

Circuit Breakers

Circuit breakers shall be rated for a system voltage of 120/240 VAC and of the ampere rating as required for the equipment being serviced.

Circuit breaker identification labels shall be engraved plastic laminate with the engraved legend in white alphanumeric characters on black face. The characters shall be a minimum of 6mm high. The label shall be a minimum of 645 mm^2 in size and mechanically attached.

Secondary Surge Arresters

Secondary surge arresters shall meet the requirements of NEC Article 280, UL Listed, ANSI/IEEE C62.11-1987. The arrester shall be rated for a discharge current of 10,000 Amperes and discharge voltage of 750V. The arrester shall be hardwired to the secondary and can be mounted externally or internally to the panel board or circuit breaker enclosure.

Ground Rods

Ground rods shall be as shown on the Plans and in accordance with Section 670-3.05 and 680-3.12 of the Standard Specifications.

CONSTRUCTION DETAILS:

All equipment shall be installed in accordance with manufacturer instructions, local utility

company practices and with these Contract documents.
Connections of all cables between the line and load side of the meter socket, main circuit breaker and feeder circuit breakers shall be cut to proper length before terminating. No wire shall be doubled back to take up slack.

The legend for the circuit breaker identifiers shall be the equipment being fed by the circuit. All proposed engraving shall be submitted to the Engineer for approval.

METHOD OF MEASUREMENT:

The Metering Pan and the Power Distribution Panel will each be measured as the number of units furnished, installed and made operational in accordance with the Contract Documents or as directed by the Engineer.

BASIS OF PAYMENT:

The unit price bid for each unit shall include the cost of furnishing all labor, materials, equipment and incidentals as necessary to complete the work. This work shall include but not be limited to terminating service conductors, feeder conductors, conduits, testing and any special requirements of the local utility company.

ITEM 691.04000020 – TRAINING REQUIREMENTS

DESCRIPTION

This work shall consist of the meaningful and effective training of apprentices/trainees leading to their qualification as an entry level trade worker, professional support worker, or journeyworker in trades for the highway construction industry.

MATERIALS

None Specified.

CONSTRUCTION DETAILS

An Apprentice is defined as an individual who is enrolled in an apprenticeship training program that is registered with the NYS Department of Labor (NYSDOL). A Trainee is defined as an individual who is enrolled in an On-the-Job Training (OJT) program that is sponsored by the NYS Department of Transportation (NYSDOT) and approved by the Federal Highway Administration (FHWA).

At minimum, the number of apprentices/trainees identified in Chart A shall be utilized. If the minimum number is not met, good faith efforts (GFEs), to meet the required number consistently throughout the duration of the contract, must be documented.

Chart A	
Contract Bid Amount	**Minimum # of Apprentices/Trainees**
<$5M	No Requirement unless specified in contract documents
$5M to < $10M	2
$10M < $30M	3
$30M < $100M	4
≥ $100M	1 per $25M of Contract Bid Amount (e.g., 9 for a $240M bid amt)

The required minimum number of apprentice/trainees shall be sustained whenever meaningful training opportunities exist throughout the duration of the contract.

The minimum number of apprentices/trainees may be exceeded if there will be sufficient work to provide meaningful training opportunities.

Selection Criteria

Apprentices/Trainees shall be enrolled in either a NYSDOL registered apprenticeship training program or a NYSDOT OJT program approved by FHWA. The program must be for a trade or profession that is in support of the highway construction industry.

- Good faith efforts shall be made to employ the apprentices/trainees across multiple trades while taking into consideration which trades will have maximum opportunity for work.

- Required journeyworker/apprentice ratios outlined in the prevailing wage rate schedule, the Contractor's workforce needs, and availability of candidates within a reasonable area of recruitment.
- Training in the general laborer/construction worker classification may be permitted when such training is significant and meaningful and documented with an approved training plan.
- Training is permissible for direct support professional positions such as office engineers, estimators, timekeepers, etc., where the training is documented in an approved training plan.

Prior to engaging in the recruitment of new apprentices/trainees, good faith efforts shall be made to employ apprentices/trainees who are at a variety of different stages in their training programs (first year, third year, etc.).

- Persons who have successfully completed an apprentice or trainee program providing journeyworker status in the same trade or work classification as will be used for training under this contract are ineligible candidates. Similarly, persons who have been gainfully employed as a journeyworker in the proposed trade by virtue of informal on-the-job training or otherwise are ineligible candidates.

The apprentices/trainees are not required to be directly employed by a prime contractor. (e.g., they can work for a subcontractor).

Documentation shall be maintained that verifies efforts made to ascertain if candidates met traineeship or apprentice criteria, such as proof of criteria-related questions on employee application forms and proof of past work experience verifications. The Contractor shall maintain records of these findings and provide them upon request.

Affirmative Action Targets

Good faith efforts (GFEs) shall be made to recruit and hire affirmative action (AA) targets, which are defined as women or individuals from minority groups who have experienced long term under-representation in the skilled trades as journeyworkers, or disadvantaged individuals. A disadvantaged individual is defined as a person who is either (a) a member of a family that receives public assistance, or (b) a member of a family whose income during the previous six (6) months, on an annualized basis, was such that the family qualified for public assistance, or whose income was at or below either the poverty level or 70% of the Lower Living Standard Income (LLSI) level for the person's county of residence This includes conducting systematic and direct recruitment through public and private sources likely to yield minority, women or disadvantaged apprentices/trainees.

Training Coordinator

For the duration of the contract, a training coordinator shall be designated by the Contractor and act as the contact person for training related communications. The training coordinator should be someone that has regular dealings and familiarity with the actual training direction and guidance being provided.

Training Programs

Apprentice training programs must be approved by the NYSDOL and Trainee training programs

must be approved by NYSDOT. The approval process for new training programs can take time (30+ days), and approval is not guaranteed. Good faith efforts shall be made to have all training programs approved prior to start of construction.

Apprentices/trainees shall be provided a copy of their training program. Upon completion of a training program, the apprentice/trainee shall be provided a certificate of completion which identifies the training elements completed and the number of hours completed.

Training program information is available from NYSDOL Office of Apprenticeship Training Programs (ATCO@labor.state.ny.gov) and NYSDOT Office of Diversity & Opportunity (civilrights@dot.ny.gov)

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Training Plans

Prior to the start of construction, a conceptual plan shall be submitted which outlines how the training requirements will be achieved on the contract. The plan shall identify anticipated contract work suitable for apprentices/trainees, any timeline/scheduling issues, anticipated sources for apprentices/trainees, steps taken to date to comply with the training requirements, and procedures for development of individual training plans for each apprentice/trainee.

Formalized training plans for each apprentice/trainee shall be submitted within fourteen (14) calendar days of the start of construction. All coordination with the Department/Project Sponsor regarding the training plan should be completed at this time. Written requests for submission at a later date will be considered based on provided justifications. The training plans may be adjusted throughout the duration of the contract as necessary.

The approved number of hours of anticipated qualifying training in each training plan is expected to be achieved by contract completion. Adjustments throughout the duration of the contract shall be made as necessary to best achieve the number of planned training hours stated in the training plans.

Individual training plans shall include:

- Name of the apprentice/trainee, trade, starting level (i.e., year of apprenticeship or training program).
- Apprentice/trainee projected start date, projected end date, and the reason for ending the training (e.g., training program completed, no remaining training opportunities, contract completion, etc.).
- An outline of the training program requirements the candidate has already completed and the requirements which the candidate still has left to complete. Provide the associated number of hours for each requirement. List classroom and on-site training requirements separately.
- Total number of on-site (non-classroom) hours left to complete the training program.
- Projection of the hours and elements of the remaining training program requirements which the candidate will be able to accomplish on the contract.
- A cost estimate for compensation which shows how the amount was calculated.
- Any known outside factors that might affect the training plan, such as if the apprentice/trainee will be working on other contracts or there may be time constraints of

the apprentice (ex., planned future reassignment, leaving to attend school, moving/relocating, etc.).

- For each apprentice:
  - NYSDOL Form AT 14 (blue book) or acceptable equivalent.
  - NYSDOL Form AT 401 – *Apprenticeship Agreement/Documentation Form*.

Cost Estimate

A cost estimate for the anticipated training shall be submitted within 90 calendar days of the start of construction regardless of whether any training plans are allowed to be submitted at a later date.

Monthly Training Progress Report

For each apprentice/trainee, Form AAP 26 - *Monthly Training Progress Report* shall be submitted monthly whenever there are apprentices/trainees employed. In addition, for each apprentice/trainee, a summary of hours required to complete the various work elements of the training program, hours completed this period, and hours completed to date shall be submitted monthly. This summary shall be provided in sufficient detail to allow for assessment of whether the reported hours qualify for reimbursement.

Apprentices/trainees shall be reported on Form AAP 35 *Workforce and Training Utilization Schedule.*

Qualifying Training

Only training hours verified and approved of by the Engineer (or Project Sponsor) will be considered as qualifying training. Off-site training or training performed at other work sites does not qualify for compensation. Classroom training hours do not qualify for compensation.

Periodic Reporting / End of Service

Periodically copies of the training program and NYSDOL Form AT 14(blue book) for apprentices/trainees may be required to be provided for auditing purposes and verification of training. It shall be reported whenever an apprentice or trainee ceases to be employed on a contract, and if an apprentice completes a trainee program a copy of their NYSDOL Form AT 14 (blue book) shall be provided.

Waiver Request

A waiver request may be submitted at any point in the process after contract letting. A request for a waiver of all or a portion of the requirements may be submitted.

The waiver request should include a detailed justification for the request, documentation of efforts made to solicit trainees and or apprentices, and contact person information (name, telephone number, E-mail address). Justifications that may warrant consideration include: no meaningful construction training opportunities will exist, lack of available apprentices/trainees, or lack of available work for apprentices or trainees.

If a waiver is granted for elimination of all apprentice/trainee requirements, all associated deliverables (e.g., training plans, cost estimate, monthly reports) are no longer required. If a waiver is granted for a reduction or an alteration to the requirements, any necessary revisions to training plans shall be provided within 3 workdays of the approved waiver.

Notification is required to be given in a timely manner if, during the duration of the contract, the conditions upon which a waiver was granted have changed. Granted waivers are revokable and may be re-evaluated throughout the duration of the contract to assess need for modification.

Training Duration

An apprentice/trainee shall begin training as soon as feasible in trade related work and remain on the contract for at least as long as training opportunities exist in the trade, until completion of the training program, or until completion of the contract.

Maximum opportunity shall be provided to the apprentices/trainees for completion of their training program. Progress towards completion of work elements shall be monitored. When a work element of the training program is completed, apprentices/trainees shall be moved to other work processes or another training element to the extent that training opportunities exist. Should no such training opportunities exist, the apprentices/trainees may continue to be assigned to work related to the completed work element.

Apprentices/trainees who complete their training programs are expected to be retain as a journeyworker provided there is relevant contract work remaining. Continued work as a journeyworker does not qualify for reimbursement under this pay item.

Termination

An apprentice/trainee may be terminated at any time during training for: excessive absenteeism; lack of punctuality; breach of a “zero tolerance” policy for drug and substance use; and continued failure to perform work safely. However, termination shall not occur without:

- Documented counseling by the Training Coordinator about the reason(s) for termination
- Documented efforts by the Training Coordinator to resolve the problem
- Documented notification to the Engineer and Regional Compliance Specialist about the problem
- Written notification of intent to terminate to the Engineer and the Regional Compliance Specialist stating the reason(s) therefore
- An opportunity for confirmation of compliance with these pre-requisites.

METHOD OF MEASUREMENT

This work will be measured on a Dollars-Cents basis. The fixed amount shown in the proposal is not to be altered in any manner by the bidder. Should the bidder alter the amount shown, the altered figure will be disregarded, and the original price will be used to determine the total amount bid.

BASIS OF PAYMENT

Monthly reimbursement will be made based on the following calculation:

= (0.35) x (Base Journeyworker Prevailing Wage Rate) x (Hours of Qualifying Training Accomplished)

No adjustments to the base rate shall be allowed, such as for: fringes/supplemental benefits, premium rates (overtime, holiday, etc.), worker’s compensation insurance, FICA, state or federal

unemployment insurance, commercial general liability (CGL) insurance, etc. When determining compensation, use the prevailing wage rate that was current at the time the training was provided.

Qualified training time will include only verified training properly completed and accounted for, including only those hours the apprentices/trainees received on-site training in the work elements included in their approved apprenticeship/OJT programs.

During any time period that it is deemed that satisfactory good faith efforts were not made to fulfill the training requirements and corresponding equal employment opportunity (EEO) goals in accordance with 102-11 *Equal Employment Opportunity Requirements* no reimbursements under this pay item will be made for any training provided during that time period

Regardless of the amount approved for the pay item, reimbursement will be made only for the number qualifying hours of training accomplished.

Requests for reimbursement beyond the fixed dollar amount for this work must be agreed to in advance.

General Notes

1) Specifications and Standards

All work included in the contract shall be in accordance with the September 1, 2022, Standard Specifications (US Customary) and Drawings, as modified and amended in the Contract Specifications and Drawings.

a. New York State, Department of Transportation Standard Specifications.

b. New York State, Department of Transportation "Special" Specifications.

c. New York State, Department of Transportation "Special" Specifications for the County of Nassau, State of New York.

Contractor is directed to the installation detail sheets included in the plans for specific details regarding installation in accordance with the specification. In addition, notes are made in the "General Notes" section of the plan set to identify minor changes to the NYS Specification in order to comply with Nassau County standards.

2) Scope of Work

a. At all times during the life of this contract, the Contractor shall maintain safe vehicular traffic and access to adjacent private properties located throughout the entire length of the contract.

b. The Contractor will provide a place for concrete test cylinders in proximity to the work so that the cylinders share the same curing conditions as the newly placed concrete. The Contractor will protect these cylinders for the three days they will be left on the job site.

3) Right-of-Way (ROW)

No work outside the Nassau County ROW will be permitted under any circumstances unless property and/or easement rights are obtained and approved by the New York State Department of Transportation (NYSDOT). Minor driveway restoration will only be permitted after a signed release from the property owner has been obtained.

4) Coordination of Work at Intersections of New York State

All coordination requirements necessary due to the following notes are paid for under Item 619.01 "Basic Work Zone Traffic Control" of this contract.

a. The contractor shall be responsible for and shall replace all signal interconnect cable, detector cable, conduit and all underground accessory equipment damaged during construction.

b. Prior to starting any work at this location, the Contractor shall notify the NYSDOT and Nassau County Department of Public Works Traffic Signal Section that a tone- out of signal equipment is needed.

c. All traffic signals shall be maintained in a traffic responsive operation and all interconnect, where existing, shall be maintained. The Contractor shall pay a liquidated damaged charge of $2000.00 per calendar day if actuation and coordination is not maintained.

d. All vehicle detection and signal coordination must be maintained at all times. Splicing of inductance loop wire, shielded lead-in cable, and interconnect cable shall be allowed for temporary repairs during construction only. Temporary loop detectors, if necessary, shall be six feet by six feet, (6'×6') be centered in their respective lane and paid for under Item 619.01. Other types of temporary detection may be used upon approval of the Regional Traffic Signal Section.

e. All detectors shall be centered in their respective lanes and spaced ten feet (10') apart unless otherwise indicated in the plan.

5) The contract drawings provide information with respect to "Work Zone Traffic Control Plans" as required for federal funding. Refer to this site for additional WZTC requirements or information https://www.nysdot.gov/main/business-center/engineering/cadd- info/drawings/standardsheets-us/619

6) It is also intended to replace traffic loops that are destroyed by the Asphalt Removal under Item 680.54 "Inductance Loop Installation" and Item 680.72 "Inductance Loop Wire." The Contractor must coordinate all work with the NYSDOT Traffic Section where appropriate and Nassau County's Engineering Unit's Signal Management Section at (516) 572-0465.

7) The Contractor shall submit for approval for HES Concrete Mix Design that the concrete will achieve 2500 psi in 4 hours.

8) The Contractor will be required to hand out notices to the local homeowners and businesses affected by the asphalt milling and asphalt paving operations 24 hours prior to work startup.

9) The Contractor must set up portable variable message sign three (3) days prior to the start of asphalt milling operations and asphalt paving, giving the dates when work is going to start and work hours before start and end of the job site limits. Payment will be made under Item 619.110511 "Portable Variable Message Sign."

10) On all roads that the asphalt pavement is completely milled off, temporary traffic lines must be placed and paid for under Item No. 619.0901.

On all roads that new asphalt pavement has been placed, temporary reflectorized tape pavement marking 2'×4" white and/or yellow strips shall be placed fifty feet (50'±) on center to denote travel lanes. These temporary tape markings are to be removed at the time the permanent epoxy painted pavement marking are applied. The cost of placing and removing these temporary pavement markings shall be paid under Item No. 619.01

11) Work Hours

The standard working hours for this project are 9:00AM to 4:00PM unless otherwise specified or directed by the engineer. If the contractor does not adhere to the specified time limits, and excessive traffic delays are the result of working beyond the time restrictions, a $5,000 penalty per day for each infraction will be deducted from the traffic related items.

Nightime operations are a possibility depending on how significant the impacts are on the surrounding community during the time of construction. This will be determined by Nassau County and the engineer in charge leading up to construction. Item 619.24 will be included in the contract as a contingency item for this situation.

All costs associated with nighttime operations shall be included in the price bid for Item 619.24.

12) The Contractor shall have a full-time supervisor on the project at all times.

13) On all project roadways epoxy reflectorized pavement markings must be placed within 72 hours of final paving. A $1,000 penalty will be deducted from the various asphalt items per day until the pavement markings are placed. On all other roadways in this Contract, epoxy reflectorized pavement markings must be placed within one week of final paving. A $1,000 penalty will be deducted from the various asphalt items per day after one week until the pavement markings are placed.

NOTE: The county at their option may utilize epoxy reflectorized material in lieu of the materials and items stated on the plans for symbols, characters, stop bars and cross-walks or as ordered by the engineer (A.O.B.E.)

14) The Contractor must submit to the engineer a schedule of operations for when work will be starting and completed for each roadway to be resurfaced within the Contract one week after the Notice to Proceed is issued. The schedule shall be updated monthly until the project is completed. The monthly schedule update shall be submitted and approved as part of the monthly claim requisition.

All work shall be done during a normal eight (8) hour day and/or the hours specified for each roadway.

15) Any existing traffic signal post, pole, mast arm shaft, or strain pole affected by the installation of handicap ramps or changes in grade must be height adjusted to bring the base plate to match new grades, including removing the pole/post and adjusting the anchor nuts, and reinstallation of the pole and equipment. Existing raincap is to be removed and new one installed as per the Nassau County traffic signal foundation item specifications. All signal head heights must be checked before any pole height is adjusted so that they continue to meet signal head height requirements.

All traffic signal pushbuttons need to be adjusted in height to be ADA compliant, if affected by the ramp installation which includes changes in grade from existing and meet the Nassau County traffic signal specifications.

The Contractor must notify Mike Kurpicz of the Nassau County Traffic Signal Management Section before any work begins at 516-572-0465, ext. 20958. A Nassau County inspector must be present during this work.

16) Conformance to the following Special notes with respect to the American with Disabilities Act Curb Ramps is required:

- All curb ramps installed shall be in compliance with the ADA, PROWAG, and NCDPW standards. Where NCDPW Standards are in conflict with the NYSDOT ADA Curb Ramp Standards NYSDOT Standards shall apply.
- Contractor shall verify the placement of all new ramp configurations prior to installation. Contractor must give 48 hours (2 business days) notification for NCDPW approval.
- A NCDPW inspector must be present during the installation of any curb ramp. • It is recommended that a smart level tool (or equivalent) is used to check the slopes on all form work prior to the placement of concrete.
- NCDPW Civil Engineering Design Unit must be notified in writing of all work done to curb ramps to update the transition plan inventory.

NOTE: The contractor will be required to maintain safe pathways for pedestrians during the entire time the contract is in effect, including all periods of work shutdown. This may involve mowing of grass, removal of snow and ice, and any other interruptions interfering with their safe travel through the construction zone. Failure of the contractor to insure safe pedestrian passage as determined by county staff, or from pedestrian complaints in the work zone will result in a fine of $500.00 a day. This fine will be deducted from any funds owed the contractor.

17) Work is not permitted on any holidays unless prior County Approval is obtained.

For construction during the Fall of 2023, this includes Labor Day, Veterans Day, from 12:00 PM on the Wednesday before Thanksgiving Day through the following Sunday, Christmas Eve, Christmas Day, New Year's Eve, New Year's Day, and various Jewish Holidays including Rosh Hashana, Sukkot, Shmini Atzeret, Simchat Torah, Yom Kippur, Chanukah.

18) Schedule: The Contractor shall provide a schedule of operations for when work will be started and completed for each roadway to be resurfaced within the Contract one week after the Notice to Proceed is issued. Typical information to be provided includes, but is not limited to:

- Removal and Replacement of Deteriorated Pavement and Joint;
- Asphalt Removal;
- Asphalt Placement;
- Modifying pedestrian ramps for compliance with ADA requirements:
- Miscellaneous Items, Curb, Sidewalk, Traffic Loops; cleaning catch basins and drainage pipes;
- Traffic Pavement Markings; and
- Punch List
-

No claims will be processed until the County has this updated information on a monthly basis until the completion of the project.

19) Utilities

a. The Contractor is directed to notify all utilities well in advance of his beginning work to allow them time to mark out their facilities.

b. The Contractor is directed to notify all privately owned utilities well in advance of his beginning work to allow them time to adjust their manholes and other castings.

c. The Contractor will see to it that utility valve boxes and manholes are readily accessible at all times. He will not store materials over them and should it become necessary to cover the boxes and manholes with spoil, he will devise a method for finding them quickly and assist the utility company to uncover them. Further, the boxes will be uncovered during non-working hours.

d. Mechanical excavation will not be used within two (2) feet on either side of any utility or house service so marked by the utility company. Hand digging will be required to expose the utility pipe.

e. Prior to backfilling, a gas utility representative will inspect all gas facilities. Damaged pipe will be repaired by the utility company, before backfilling. The County will not be responsible for any of the costs

associated with the repair of damaged utilities. The Contractor's attention is called to existing Long Island Power Authority overhead circuits. The Contractor is warned to keep all equipment and personnel a minimum of ten (10) feet from primary conductors. The Contractor shall fully cooperate with the Long Island Power Authority (LIPA) and comply with its requirements for safe operation.

f. The Contractor's attention is called to the fact that there are utilities, both publicly and privately owned, that are now in place within the contract area. The owners of privately owned utilities may be relocating parts of their existing plants to conform with the new lines and grades of this project. The Contractor shall cooperate with the various agencies carrying out this work, which must be coordinated with the work of this contract.

g. Existing structures, utilities and facilities, either shown or not shown on the plans, above or below the ground, which new items of work shall encounter may not have been located accurately. The Contractor shall determine the locations and elevations or pertinent structures, utilities and facilities, before new installations are started, so that there will be no interference with the progression of the work. Any conflict between existing structures, utilities and facilities and the new items of work shall be ascertained by the Contractor prior to commencing any work under the respective items and called to the attention of the Engineer.

h. Grades and locations of new installations may be changed by the Engineer, if necessary to prevent conflict with existing installations. Therefore, the Contractor shall determine the locations of all existing installations accurately, both as to line and grade, before new items of work are started.

i. If the Contractor does not follow the above procedure and new work has to be removed and replaced, or there is a delay, all cost will be borne by the Contractor, and the County will only pay for the amount of the items in place complete at the completion of the contract. The Contractor shall conduct his operations so that all utility services are maintained at all times.

j. The Contractor shall exercise extreme care in the performance of any operation, in the vicinity of the existing or relocated cable pipelines. No such operations shall take place without the PSEG representatives on hand. All excavation in the immediate vicinity of these lines shall be done by hand, with such application as to ensure that the pipe shall not be punctured or the coating disrupted. In the event that any length of cable pipeline is exposed, it shall be supported and protected to the satisfaction of PSEG inspection personnel. No blind sheeting shall be driven in the

proximity of the existing electric cable pipes before first exposing these cable pipes by hand.

k. The Contractor should inspect the plans of the utility companies plan to ascertain the location of the underground work and locations of crossings of sewer and drainage work. The Contractor shall coordinate his work with the work being done by the utility companies. It is anticipated that job meetings will be held at various times to aid coordination of the work.

20) Clean up

a. The Contractor will be required to backfill and regrade all areas that are disturbed by him during the life of this contract. In all cases disturbed areas shall be cleaned up and restored to the condition existing prior to the commencement of the work.

b. Where the disturbed area was originally earth, it shall be properly graded to meet and match the surrounding terrain and left with a smooth surface. Clean-up shall be as defined herein above, but if in the opinion of the Engineer, the Contractor has exercised carelessness or disregard to private property in the conduct of his work, then restorative measures required thereto shall be included in this procedure.

c. No separate payment will be made for any of this clean up and restoration work, but the cost thereof shall be included in the unit prices bid for the various items.

21) Job Site Safety

The Contractor shall exercise precaution at all times for the protection of all personnel. The safety provisions of applicable laws shall be observed, but job site safety is the sole responsibility of the Contractor and his subcontractors and cannot be assumed by the County or its agents.

22) Rubbish and Debris

The Contractor shall legally dispose of all unsuitable material, rubbish, and debris at some separate location, not in the vicinity of the site.

23) Protection of Facilities

The Contractor shall protect all work done under this contract from possible damage for the duration of the contract. He shall be responsible for the repair or replacement, to the satisfaction of the Engineer, of any material, structure, or property on or adjacent to the site and damaged by him or his employees through the construction openings up to the time of acceptance by the County.

24) Construction Site

The Contractor shall obtain permission from the owner of a property before entering that property for any reason whatsoever. The construction site shall include areas beyond the right of way and working easement lines to allow for grade revisions to driveways and walks on private property.

25) Concrete Breaking

The Contractor is cautioned that the use of a ball operated from a crane or other equipment will not be permitted under any circumstances for the breaking up of any concrete. Any machine or method used must meet the approval of the Engineer.

26) Drainage Installation

The Contractor shall plan his work and progress so that, at all times, either the new or the existing drainage facilities will function to carry off stormwater runoff so that no damage or inconvenience will result.

27) Sales Tax Exemptions

Nassau County is exempt from the payment of New York State Sales Tax and Compensating Use Taxes under Section 1116 of Article 28 of the Tax Law of the State of New York, and is exempt from the payment of Nassau County Sales and Uses Taxes under Section 7, Ordinance 404-C-1968, enacted pursuant to Section 1210 of Article 29 of the Tax Law of the State of New York. However, it is not to be construed by bidders as relieving them from any obligation to pay sales tax on applicable items pursuant to the terms of the present sales tax laws.

28) Cold Patch

No separate payment of cold patch material used in this contract will be made. The cost thereof shall be included in the unit prices bid for the various contract items.

29) Requirements of Other Municipal Departments

The Contractor shall give all necessary notices, obtain all permits, and pay all fees in connection with the work under this contract. He shall comply with all laws, ordinances, rules, and regulations of Nassau County and Municipal Departments having jurisdiction over work of this character. These shall take precedence over any requirements of these specifications where and if a conflict occurs. This however, shall not be interpreted as permitting the use of materials and equipment inferior to these specified.

30) Private Facilities in Public Rights-of-Way

a. The Contractor shall be aware that sprinkler heads, private lamp and sign posts, electric signs, electric lines, water service, oil inlets, oil lines, horticultural planting, landscaping, etc. are owned privately, but exist in the public rights-of-way. The Contractor may be required to remove these appurtenances as ordered by the Engineer.

b. No separate payment for this work will be made. The cost thereof shall be included in the unit prices bid for the various contract items.

31) Special O.S.H.A. Notes

a. The Safety Provisions in the Specification are primarily to protect County property and the public against unsafe acts of the Contractor. The Occupational Safety and Health Act (OSHA) of 1970 requires that "Each Employer (1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or likely to cause death or serious physical harm to his employees; (2) shall comply with the occupational safety and health standards promulgated under this act". All workers on the project site must have successfully passed the OSHA 10 Hour Training Safety Class, and the certificates should be part of the project records subject to review by the FHWA and NYSDOT.

The regulations in the act may be more stringent than are required by the Plans and/or Specifications. The Contractor however must conform to the O.S.H.A. Regulations and such conformance shall not be reason to demand additional payment or claim extra work.

b. Sheeting, if included in the project, shall conform strictly to the Requirements of the O.S.H.A. Regulations for Construction-Subpart P, Excavation, Trenching, and Shoring:

1926.650 – General protection requirements;
1926.651 – Specific excavation requirements;
1926.652 – Specific trenching requirements; and
1926.653 – Definitions applicable to this subpart.

32) The Contractor shall notify the Nassau County Police Department, local fire departments, and local transportation authorities in writing as to the conditions prevailing on the construction site and detours in use. Duplicate copies of such notices shall be filed with the Engineer.