

# FOR INFORMATIONAL USE ONLY- DO NOT USE FOR BIDDING

## PROJECT NO. T62801-01 QUAKER MEETING HOUSE ROUNDABOUT ITEMIZED PROPOSAL FEBRUARY 2024

Nassau County DPW

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Contract no. T62801-01G  
Quaker Meeting House Road Roundabout Construction

ITEM No.	APPROXIMATE VALUES						
	QUANTITY	UNIT					
1	1	LS	CLEARING & GRUBBING FOR: _____ DOLLARS CENTS				
1 M/F	1	LS	MOBILIZATION WITH FIELD OFFICE FOR: _____ DOLLARS CENTS				
1S	EA	3	JOB INFORMATION SIGN FOR: _____ DOLLARS CENTS				
2X	3,300	CY	UNCLASSIFIED EXCAVATION FOR: _____ DOLLARS CENTS				
3	1,000	CY	TRENCH CULVERT AND BRIDGE EXCAVATION FOR: _____ DOLLARS CENTS				
4A	100	SY	CEMENT CONCRETE BREAKING (PAVEMENT) FOR: _____ DOLLARS CENTS				
4B	5	CY	CEMENT CONCRETE BREAKING (STRUCTURES) FOR: _____ DOLLARS CENTS				
5C	250	CY	SELECTED FILL FOR: _____ DOLLARS CENTS				

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ITEM No.	APPROXIMATE VALUES						
	QUANTITY	UNIT					
5D	55	CY	SELECTED GRANULAR FILL FOR: _____ DOLLARS CENTS				
7	8,000	SY	PREPARING FINE GRADE FOR: _____ DOLLARS CENTS				
8	1	LS	TRIMMING SHOULDERS AND SLOPES FOR: _____ DOLLARS CENTS				
9	550	CY	TOPSOIL FOR: _____ DOLLARS CENTS				
10A-1	620	SF	EXCAVATION PROTECTION SYSTEM FOR: _____ DOLLARS CENTS				
12G	25	LF	RELAYING PIPE FOR: _____ DOLLARS CENTS				
12H	120	LF	CLEANING EXISTING DRAINAGE SYSTEM FOR: _____ DOLLARS CENTS				
12P-15	1,120	LF	15" DIAMETER SMOOTH INTERIOR CORRUGATED POLYETHYLENE DRAIN PIPE FOR: _____ DOLLARS CENTS				

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ITEM No.	APPROXIMATE VALUES						
	QUANTITY	UNIT					
12P-18	180	LF	18" DIAMETER SMOOTH INTERIOR CORRUGATED POLYETHYLENE DRAIN PIPE FOR: _____ DOLLARS CENTS				
13A	75	CY	CATCH BASIN FOR: _____ DOLLARS CENTS				
13BP-4	6	VF	PRECAST MANHOLE 4' DIAMETER FOR: _____ DOLLARS CENTS				
14	1	EA	CONNECTIONS TO EXISTING DRAINAGE FACILITIES FOR: _____ DOLLARS CENTS				
16B	2	EA	ALTERING BRICK MANHOLES (TOP SLAB) WITH FRAME HEAD FOR: _____ DOLLARS CENTS				
16SS-1	4	EA	CHANGE ELEVATIONS OF SANITARY SEWER MANHOLES (MINOR ADJUSTMENT) FOR: _____ DOLLARS CENTS				
16SS-2	2	EA	CHANGE ELEVATIONS OF SANITARY SEWER MANHOLES (MAJOR ADJUSTMENT) FOR: _____ DOLLARS CENTS				
22C-2	3,450	TONS	BASE COURSE ASPHALT CONCRETE TYPE DENSE BASE FOR: _____ DOLLARS CENTS				

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ITEM No.	APPROXIMATE VALUES						
	QUANTITY	UNIT					
24	20	CY	CEMENT CONCRETE PAVEMENT FOR: _____ DOLLARS CENTS				
26C	2,660	LF	CONCRETE CURB TYPE C FOR: _____ DOLLARS CENTS				
26CG	400	LF	COMBINATION CONCRETE CURB & GUTTER FOR: _____ DOLLARS CENTS				
26D	820	LF	CONCRETE CURB TYPE D MOUNTABLE FOR: _____ DOLLARS CENTS				
26F	360	LF	CONCRETE CURB TYPE F FLUSH FOR: _____ DOLLARS CENTS				
26T	450	LF	CONCRETE CURB TYPE T TRAVERSABLE FOR: _____ DOLLARS CENTS				
27	2,475	SF	CEMENT CONCRETE SIDEWALK FOR: _____ DOLLARS CENTS				
27DW	10	SF	DETECTABLE WARNING SURFACE FOR: _____ DOLLARS CENTS				

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ITEM No.	APPROXIMATE VALUES						
	QUANTITY	UNIT					
28	210	SF	CEMENT CONCRETE DRIVEWAY & DRIVEWAY APRONS FOR: _____ DOLLARS CENTS				
29	950	SF	DRIVEWAY RESTORATION FOR: _____ DOLLARS CENTS				
30	1,400	SY	METAL REINFORCEMENT FOR CONCRETE PAVEMENT FOR: _____ DOLLARS CENTS				
34	28,880	LBS	MISCELLANEOUS METALS FOR: _____ DOLLARS CENTS				
35	200	LF	RESETTING GUIDE RAILING FOR: _____ DOLLARS CENTS				
36D	850	TONS	ASPHALT CONCRETE TYPE 3 BINDER FOR: _____ DOLLARS CENTS				
36DRAN	700	TONS	RUT AVOIDANCE ASPHALT CONCRETE TYPE 1A (TOP RA NEW CONSTRUCTION) FOR: _____ DOLLARS CENTS				
36T	450	TONS	TEMPORARY PAVEMENT FOR: _____ DOLLARS CENTS				

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ITEM No.	APPROXIMATE VALUES						
	QUANTITY	UNIT					
39-4	210	SF	PAVING STONES ON A 4" AGGREGATE BASE FOR: _____ DOLLARS CENTS				
40R	110	SF	RESET EXISTING STONE BLOCK PAVEMENT FOR: _____ DOLLARS CENTS				
58A	70	LF	SAWCUTTING EXISTING NON-ROADWAY ASHPALT FOR: _____ DOLLARS CENTS				
58RPC	250	LF	SAWCUTTING EXISTING ROADWAY PAVEMENT AND CONCRETE FOR: _____ DOLLARS CENTS				
60	1	EA	ALTER WATER SERVICE CONNECTIONS FOR: _____ DOLLARS CENTS				
61H	1	EA	RELOCATIONS OF FIRE HYDRANTS FOR: _____ DOLLARS CENTS				
61S	110	LF	RELOCATIONS OF WATER MAINS COMPLETE FOR: _____ DOLLARS CENTS				
62	1	EA	RELOCATE BURIED ELECTRICAL SERVICE CONNECTION FOR: _____ DOLLARS CENTS				

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ITEM No.	APPROXIMATE VALUES						
	QUANTITY	UNIT					
64	50	LF	RESET EXISTING FENCE FOR: _____ DOLLARS CENTS				
99-10X	20	VF	PRECAST CONCRETE LEACHING BASIN (10' DIAMETER) FOR: _____ DOLLARS CENTS				
100-10	320	VF	PRECAST CONCRETE DIFFUSION WELL (10' DIAMETER) FOR: _____ DOLLARS CENTS				
102	1	LS	WORK ZONE TRAFFIC CONTROL FOR: _____ DOLLARS CENTS				
102D	1,100	DAYS	FLASHING ARROW BOARD FOR: _____ DOLLARS CENTS				
102PVMS	1,230	DAYS	PORTABLE MESSAGE SIGN FOR: _____ DOLLARS CENTS				
104XF	100	LF	REMOVE EXISTING FENCE FOR: _____ DOLLARS CENTS				
110	4	CF	MASONRY PIPE PLUGS FOR: _____ DOLLARS CENTS				

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ITEM No.	APPROXIMATE VALUES						
	QUANTITY	UNIT					
114	12	EA	ADJUSTMENT OF WATER VALVE BOX ELEVATION FOR: _____ DOLLARS CENTS				
117	2,000	LF	TEMPORARY FENCE/TREE GUARDS FOR: _____ DOLLARS CENTS				
120	6	EA	RELOCATION AND REATTACHMENT OF EXISTING LIGHTING UNITS FOR: _____ DOLLARS CENTS				
121	5	CY	DRYBOUND BASE COURSE FOR: _____ DOLLARS CENTS				
122	35	EA	TEST HOLES FOR: _____ DOLLARS CENTS				
126A	60	LF	NEW STONE BLOCK CURB FOR: _____ DOLLARS CENTS				
126B	30	LF	RESET EXISTING STONE BLOCK CURB FOR: _____ DOLLARS CENTS				
126C	60	LF	RESET EXISTING BRICK CURB FOR: _____ DOLLARS CENTS				



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ITEM No.	APPROXIMATE VALUES						
	QUANTITY	UNIT					
127	1	EA	RELOCATING EXISTING HYDRANT FOR: _____ DOLLARS CENTS				
132	1	EA	PLOWABLE RAISED REFLECTORIZED PAVEMENT MARKERS FOR: _____ DOLLARS CENTS				
136	1	LS	SURVEY STAKEOUT FOR: _____ DOLLARS CENTS				
137	6,700	LF	REMOVE EXISTING TRAFFIC MARKINGS FOR: _____ DOLLARS CENTS				
141	2,100	LF	SILT FENCE FOR: _____ DOLLARS CENTS				
178W	4,360	LF	PAVEMENT MARKINGS, PAINTINGS & STRIPING (WHITE) FOR: _____ DOLLARS CENTS				
178Y	6,700	LF	PAVEMENT MARKINGS, PAINTINGS & STRIPING (YELLOW) FOR: _____ DOLLARS CENTS				
185A	160	LF	RELOCATE RESIDENTIAL SPRINKLER SYSTEMS FOR: _____ DOLLARS CENTS				

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ITEM No.	APPROXIMATE VALUES						
	QUANTITY	UNIT					
199	1	LS	INTERIM PAYMENTS - FIXED FOR: _____ DOLLARS CENTS	\$150,000	00	\$150,000	00
199A*	1	LS	ASPHALT PRICE ADJUSTMENT FOR: _____ DOLLARS CENTS	\$10,000	00	\$10,000	00
361A	3	EA	PLANTING TREES AND SHRUBS - A FOR: _____ DOLLARS CENTS				
361B	30	EA	PLANTING TREES AND SHRUBS - B FOR: _____ DOLLARS CENTS				
361C	220	EA	PLANTING TREES AND SHRUBS - C FOR: _____ DOLLARS CENTS				
361D	1	EA	PLANTING TREES AND SHRUBS - D FOR: _____ DOLLARS CENTS				
361E	340	EA	PLANTING TREES AND SHRUBS - E FOR: _____ DOLLARS CENTS				
361F	880	EA	FURNISH AND INSTALL FLOWERING PLUGS FOR: _____ DOLLARS CENTS				

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ITEM No.	APPROXIMATE VALUES						
	QUANTITY	UNIT					
362	130	CY	TRIPLE SHREDDED MULCH FOR: _____ DOLLARS CENTS				
365	3,570	SF	SODDING FOR: _____ DOLLARS CENTS				
367	0.75	AC	HYDROSEEDING FOR: _____ DOLLARS CENTS				
372BX	12	EA	TREE & STUMP REMOVAL 6" < 12" FOR: _____ DOLLARS CENTS				
372CX	30	EA	TREE & STUMP REMOVAL 12" < 24" FOR: _____ DOLLARS CENTS				
372DX	5	EA	TREE & STUMP REMOVAL 24" < 36" FOR: _____ DOLLARS CENTS				
372EX	2	EA	TREE & STUMP REMOVAL 36" < 48" FOR: _____ DOLLARS CENTS				
372FX	3	EA	TREE & STUMP REMOVAL 48" AND UP FOR: _____ DOLLARS CENTS				

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ITEM No.	APPROXIMATE VALUES						
	QUANTITY	UNIT					
442W	5,670	LF	WHITE EPOXY REFLECTORIZED PAVEMENT STRIPES FOR: _____ DOLLARS CENTS				
442A	15	EA	EPOXY REFLECTORIZED PAVEMENT MARKINGS - ARROWS FOR: _____ DOLLARS CENTS				
442C	50	EA	EPOXY REFLECTORIZED PAVEMENT MARKINGS - CHARACTER FOR: _____ DOLLARS CENTS				
442Y	5,470	LF	YELLOW EPOXY REFLECTORIZED PAVEMENT STRIPES FOR: _____ DOLLARS CENTS				
500	1	EA	REMOVAL AND RELOCATION OF STREET LIGHT & POLE FOR: _____ DOLLARS CENTS				
501	10	EA	REMOVE AND RELOCATE EXISTING SIGNS FOR: _____ DOLLARS CENTS				
639.2X00NC	1	LS	CPM (CRITICAL PATH METHOD) SCHEDULE WITH MONTHLY UPDATE FOR: _____ DOLLARS CENTS				
645.5101	45	SF	GROUND-MOUNTED SIGN PANELS WITHOUT Z-BARS FOR: _____ DOLLARS CENTS				

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ITEM No.	APPROXIMATE VALUES						
	QUANTITY	UNIT					
645.5102	325	SF	GROUND-MOUNTED SIGN PANELS LESS THAN OR EQUAL TO 32 SF WITH Z-BARS FOR: _____ DOLLARS CENTS				
645.5103	295	SF	GROUND-MOUNTED SIGN PANELS GREATER THAN 32 SF WITH Z-BARS FOR: _____ DOLLARS CENTS				
645.81	68	EA	TYPE A SIGN POSTS FOR: _____ DOLLARS CENTS				
645.830203	6	EA	TYPE B SIGN POSTS FOR: _____ DOLLARS CENTS				
762 -7	6,500	SF	7 INCH THICK COLOR AND IMPRINTED PORTLAND CEMENT CONCRETE SIDEWALK FOR: _____ DOLLARS CENTS				
762-9	4,850	SF	9 INCH THICK COLOR AND IMPRINTED PORTLAND CEMENT CONCRETE SIDEWALK FOR: _____ DOLLARS CENTS				

\* The unit price shown in the Itemized Proposal will be considered the unit price bid, although actual payment will be calculated based on changes in posted material prices.

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## **Quaker Meeting House Roundabout**

### **Scope of Work**

The proposed project involves the construction of a four-legged, single lane roundabout, with an additional bypass lane for the southbound Round Swamp Road to westbound Quaker Meeting House Road connection. The center island will be a 128-foot diameter circle with landscaping and a 14-foot interior truck apron. Each of the four approach legs are proposed to be separated via raised concrete splitter islands to divert the vehicles to accommodate slower vehicular entry speeds while guiding traffic to flow efficiently around the circular roundabout.

The proposed improvements include the installation of sidewalks, curbing, and drainage structures. Private driveway restorations and extensions at the roundabout will also be included as part of the proposed improvements. The roadway realignment will extend the traffic circle within the County's road right of way along Bethpage Rd. This will require the relocation of an existing dirt/stone bridle path to the northeast (remaining within the County's road right of way).

The realignment of Thomas Powell Boulevard expands the roadway into the existing vegetated shoulder on the west side of the roadway. Additionally, the realignment of Thomas Powell Blvd. to the west will widen the eastern shoulder along the front yards of the first three residences on the east side of Thomas Powell Boulevard. The cemetery's existing two (2) points of access on Quaker Meeting House Road will require driveway restoration.

Currently, there are limited drainage systems within the roadway. The improvements will include the installation of additional stormwater collection systems, including a series of interconnected catch basins and leaching pools, and several deep diffusion wells to penetrate into ratable soils. The system also includes an interconnection to the existing stormwater collection and conveyance system on Thomas Powell Boulevard, which discharges to an existing recharge basin south of the intersection.

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## **ITEM 2X – UNCLASSIFIED EXCAVATION AND DISPOSAL/PLACEMENT**

All of the requirements of Item 2 “Unclassified Excavation and Disposal/Placement” shall apply with the following modifications:

### **4. EMBANKMENT OR FILL**

- f.** Except as otherwise specified, shown on the Plans, or as directed by the Engineer, it is the intent of this specification to direct the Contractor as to dispose of any surplus unsuitable excavated material from the installation of the Precast Diffusion Well 10’ diameter (Item 100). The material shall be utilized for on-site fill and/or embankment and paid for under this Item. All material not required for on-site fills from the diffusion well installation shall be legally disposed of by the Contractor at no additional cost to the County.

The quantity of excavated material needed for on-site fill shall be stockpiled for future use and excess material not used shall be legally disposed of off-site.



#### **ITEM 26C – CONCRETE CURB TYPE C**

All the requirements of Item 26 - Concrete Curb shall apply with the following modifications:

##### **1. DESCRIPTION**

Under this Item the Contractor shall place Type C concrete curb to a depth of three inches (3") below the pavement thickness as shown on the details and where shown on the Plans.

#### **ITEM 26D – CONCRETE CURB TYPE D – MOUNTABLE CURB**

All of the requirements of Item 26 - Concrete Curb shall apply with the following modifications.

##### **1. DESCRIPTION**

Under this Item the Contractor shall place Type D Mountable Curb as shown on the Details and where shown on the Plans.

#### **ITEM 26T – CONCRETE CURB TYPE T – TRUCK MOUNTABLE**

All of the requirements of Item 26 – Concrete Curb shall apply with the following modifications:

##### **1. DESCRIPTION**

Under this Item the Contractor shall place Type T Truck Mountable Curb as shown on the details and where shown on the Plans.

## **ITEM 99-10X – PRECAST CONCRETE LEACHIGN BASIN – 10’ DIAMETER**

All the requirements of Item 99-10 – Precast Concrete Leaching Basin 10’ Diameter shall apply with the following modifications:

### **1. DESCRIPTION**

Under this Item the Contractor shall furnish and install leaching basins of assembled precast reinforced concrete sections for drainage and other purposes in accordance with the details as shown on the Contract drawings at locations and to the lines and grades shown on the Plans and/or as directed by the Engineer.

### **2. MATERIALS**

The Precast Leaching Basins shall be wrapped with filter fabric meeting the requirements of Mirafi 160N and/or approved equal as per Item 158B ‘Soil Stabilization Fabric.’

$\frac{3}{4}$ ” stone and/or washed gravel shall be used as backfill around the leaching basin, it shall be approved material meeting the requirements for Part Two, Section B, M4 Course Aggregates Type A, B or C.

### **3. METHOD**

The Contractor shall wrap and attach filter fabric around each section of leaching basin prior to placing the unit in the ground.

The Contractor shall backfill and construct a one-foot (1’)  $\frac{3}{4}$ ” crushed stone and/or washed gravel collar around the leaching basin. The stone backfill shall come up to two-feet (2’) of finish grade, with filter material placed over the top of the stone.

### **5. BASIS OF PAYMENT**

The unit price bid for this Item shall include the cost of furnishing all labor, materials, tools, equipment and incidentals including all excavation, filter fabric, stone or gravel, backfill, reinforcement and concrete block necessary to satisfactorily complete the required work. Metal frames, grates and/or covers furnished and installed in the work will be paid for under Item 34 ‘Miscellaneous Metals.’

## **ITEM 100X-10 – PRECAST CONCRETE DIFFUSION WELLS, 10' DIAMETER**

The requirements for Item 100-10 'Precast Concrete Diffusion Wells 10' Diameter' shall apply with the following modifications.

### **2. MATERIALS**

Geotextile fabric shall meet the requirements of Mirafi 160N and/or approved equal.

The ¾" gravel and/or ¾" stone shall be approved material meeting the requirements for Part Two, Section B, M4 Course Aggregates Type A, B or C.

### **3. METHOD**

The precast diffusion wells shall be wrapped with geotextile fabric and secured to the diffusion wells prior to installation of the units.

Also, geotextile fabric shall line the excavation prior to the stone and/or gravel backfill material being back-filled to grade.

¾" stone and/or gravel shall be used as backfill material around the diffusion well for one-foot (1') wide up to the top slab.

#### **ITEM 361F – FURNISH AND INSTALL FLOWERING PLUGS**

All of the requirements of Item 361 – Planting Trees and Shrubs shall apply with the following modifications:

#### **4. PLANT MATERIAL – TYPE & DESCRIPTION**

- a.** Shall be a variety of flowering plug and grasses.
- b.** Plugs shall be bare-root plants and shall be properly spread out in a natural position and backfilled; soil shall be carefully worked in among them. All broken and frayed roots shall be cleanly cut off. All plugs shall be nursery grown.

## **ITEM 372X – TREE AND STUMP REMOVAL B, C, D, E, F**

All of the requirements for Item 372, Tree Removal shall apply with the following modifications:

### **1. DESCRIPTION**

- b.** The work under this Item shall include the disposal of all wood and debris and will require topping of trees, stump removal and other work as directed by the Landscape Architect. All trees for removal shall be marked by the Landscape Architect and/or their representative.

### **2. OPERATIONS AND MATERIAL**

- e.** All trees and stumps shall be removed where shown on the Plans and/or as directed by the County and/or their representative.
- h.** Select Fill will be placed in the void left from the removal of the stumps and paid for under Item 5C – Select Fill.

### **3. METHOD OF MEASUREMENT AND BASIS OF PAYMENT**

Payment for tree and stump removal shall be measured by the number of trees and stumps removed under the following tree group sizes for Groups A through F, that have been satisfactorily removed:

- B** 6" < 12" Caliper
- C** 12" < 24" Caliper
- D** 24" < 36" Caliper
- E** 36" < 48" Caliper
- F** 48" and Up Caliper

Tree and stump removal shall be paid for at the unit price bid per tree for each group size as set forth in the Contract Proposal. Payment shall constitute full compensation for all labor, materials, equipment and incidentals including disposal of wood, branches, roots, excavation and backfilling necessary to complete the work. If fill is needed for backfilling, it shall be paid for under Item 5C – Select Fill. Traffic shall be maintained under Item 102 – Work Zone Traffic Control.

***The requirements of Item 442W – Epoxy Reflectorized Pavement Markings (White), shall apply to the following items with the following modifications:***

**ITEM 442A – EPOXY REFLECTORIZED PAVEMENT MARKINGS (ARROWS)**

**4. METHOD OF MEASUREMENT**

The quantity to be paid under this Item will be the actual number of each arrow installed in accordance with the Plans, Specifications, and as ordered by the Engineer. Combination arrows shall be paid by the number of arrow heads in the Combination.

**5. BASIS OF PAYMENT**

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

**ITEM 442C – EPOXY REFLECTORIZED PAVEMENT MARKINGS (CHARACTERS)**

**4. METHOD OF MEASUREMENT**

The quantity to be paid for under this item will be the actual number of each character installed in accordance with the Plans, Specifications, and as ordered by the Engineer.

**5. BASIS OF PAYMENT**

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

## **ITEM 500 – REMOVAL AND RELOCATION OF STREET LIGHT AND POLE**

### **1. DESCRIPTION**

Under this Item the Contractor shall remove and relocate existing street light, pole with foundation, including required new conduit, cable and boxes as shown on the plans and/or to a location designated by the local lighting districts and/or the Engineer.

### **2. MATERIALS**

All materials furnished and all work performed under this Item shall be in strict conformance with the latest edition of the National Electrical Code, standard regulations and requirements of the Utility Company and other agencies or authorities having jurisdiction.

Concrete foundation shall be in-kind in size with 4000 psi concrete.

All conduit shall be PVC matching size of existing conduit.

All cable shall be the size to match existing cable and ground wire.

### **3. CONSTRUCTION DETAIL**

The Contractor shall remove the existing light pole and fixture and attach to a new concrete footing installed at the approved new location.

The existing light pole foundation shall be removed and backfilled with select fill and compacted.

The new conduit shall be attached to existing conduit and installed to the new foundation.

The new cable shall be attached to the existing cables with waterproof attachment and make a connection to light pole at new location.

Grounding rod shall be installed at new pole location and attached with grounding cable.

All work shall be performed by a Licensed Electrician fully qualified and experienced in this particular type of work.

The Contractor shall furnish and incorporate all necessary cable, conduit, boxes, fittings and other appurtenances required to energize the relocated street luminaire.

### **4. METHOD OF MEASUREMENT**

The quantity to be paid for under this Item shall be the number of existing street lights removed and relocated in accordance with the Plans, Specifications and as directed by the Engineer.

## **5. BASIS OF PAYMENT**

The unit price bid for this Item shall include all labor, materials, equipment, tools and incidentals necessary to complete the required work, including excavation, backfilling, compaction, foundation, conduit and cable. Select fill shall be paid for under Item 5C – Select Fill.



## **ITEM 501 – REMOVE AND RELOCATE EXISTING SIGNS**

### **1. DESCRIPTION**

Under this Item the Contractor shall remove and relocate existing signs and posts where shown on the Plans and/or as directed by the Engineer.

### **2. MATERIALS**

- a. If the existing posts are deteriorated they shall be replaced with galvanized steel 'U' type channel post and shall be 3 ½" wide and 2.5 lbs/ft.
- b. All hex head bolts, nuts and lock washers shall be galvanized steel.

### **3. CONSTRUCTION DETAILS**

The Contractor shall remove the existing sign and post and relocate it where shown on the plans and as directed by the Engineer. If the posts are damaged they shall be replaced with new galvanized steel 'U' type channel. All holes due to removal of posts shall be backfilled and compacted up to grade.

Contractor shall not place relocated sign posts directly over any existing underground utility lines.

The relocated sign posts have to be buried a minimum of three feet (3') below ground surface with a minimum ground clearance of seven feet (7') to the bottom edge of the top sign. The post shall be driven plumb and a driving cap or other method shall be used to prevent damage to top of channel post.

If signs are to be mounted they shall be fastened with hex head bolts, nuts and lock washers between the bolts and sign face. All fastening hardware shall be galvanized steel.

### **4. METHOD OF MEASUREMENT**

The quantity to be paid for shall be the number of signs and posts removed and relocated as shown on the Plans and specifications or as directed by the Engineer.

### **5. BASIS OF PAYMENT**

The unit price bid for this item shall include all the costs of furnishing all labor, equipment, material, hardware and incidentals necessary to complete the work as shown on the plans, including supplying new post as needed and backing and filling and compacting of holes caused by removal of existing post.

## ITEM 645 - SIGNS

This is a NYSDOT specification and all references NYSDOT sections can be found on the NYSDOT Website <https://www.dot.ny.gov/main/business-center/engineering/specifications/busi-e-standards-usc>

### 1. DESCRIPTION

This work shall consist of fabricating, installing and covering traffic sign panels, sign support systems, sign posts in accordance with the Contract documents, standard sheets, the MUTCD and as directed by the Engineer.

**1.01 Definitions** – The following definitions shall apply to all work equipment and materials included under this section:

- a. **Sign Face** – The side of a sign panel with reflective sheeting attached.
- b. **Sign Face Layout** – A dimensional representation of the sheeting mounted on the sign panel.
- c. **Sign Panel** – A uniform sheet of aluminum or fiberglass reinforced plastic with reflective sheeting mounted on it. It may be constructed with or without additional sheets of aluminum or fiberglass reinforced plastic attached on the larger sheet. Multiple sheets of aluminum or fiberglass reinforced plastic may be used provided the sheets are of a uniform material and thickness and not separated.
- d. **Sign Panel Assembly** – A group of contiguous sign panels with a maximum separation of 6-inches.
- e. **Sign Support System** – The apparatus a sign panel is mounted.

### 2. MATERIALS

**2.01 General** – Materials shall meet the requirements of the following subsections of Section 700 'Materials and Testing.'

Stress Graded Timber and Lumber	712-14
Stainless Steel Connecting Products	715-16
Rubber Impregnated Woven Cotton-Polyester Fabric	728-01
Rubber Impregnated Random Fiber Pad	728-02
Aluminum Sign Panels	730-01
Retro-Reflective Sign Sheeting	730-05
Stiffeners, Overhead Brackets and Miscellaneous Hardware	730-22
Fiberglass Reinforced Plastic Sign Panels	730-23
Type A Sign Supports	730-24
Type B Sign Posts	730-25
Breakaway Bases and Hinge Assemblies	730-26
U-Bolts	ASTM F1554, Grade 36

## 2.02 Sign Panels

Fabricate sign panels in strict accordance with Department Standard Sheets and the sign sheeting manufacturer's guidelines to ensure uniform appearance and brilliance, under both nighttime and daytime conditions. Fabricate sign panels in a manner to provide an even, clear, uniform surface, free of streaks, drips or other defects which might affect appearance or retro-reflectivity. Details for signs that are not shown on the standard sheets shall be similar to the closest shown sign blank size.

Holes on panels may be punched or drilled. Edges shall be smooth and true and free from burrs or ragged breaks.

Coat and/or edge seal all backgrounds, characters, delineators, etc. in accordance with the sheeting manufacturer's recommendations.

Clearly mark all sign panels in the lower right corner on the back of the sign panel to show the Contract Number and the installation date (month/year). Markings shall be a minimum of 1-inch high and shall be permanently engraved, labels attached with pressure-sensitive adhesives, marked with an indelible ink or paint, or established by another method approved by the Engineer.

Mounting hardware – U-Bolts used to attach sign panels to overhead sign structures shall be Type II galvanized in accordance with §719-01 Galvanized Coatings and Repair Methods.

### a. Ground Mounted Sign Panels

#### 1. Ground-Mounted Sign Panels less than or equal to 32 square feet without Z-bars

Aluminum Sign Panels: 12 gauge (0.0808 inch) minimum in thickness

**OR**

For sign panels 4 ft × 4 ft – Fiberglass Reinforced Plastic Sign Panels: 0.135 inch (minimum) in thickness

#### 2. Ground-Mounted Sign Panels less than or equal to 32 square feet with Z-bars

Aluminum Sign Panels: 12 gauge (0.0808 inch) minimum in thickness

**OR**

For sign panels 4 ft × 4 ft – Fiberglass Reinforced Plastic Sign Panels: 0.135 inch (minimum) in thickness

#### 3. Ground-Mounted Sign Panels Greater than 32 square feet (with Z-Bars)

Aluminum Sign Panels: 8 gauge (0.1285 inch) in thickness

- b. Sign Panels with Multiple Sheeting Types – The panel thickness for sign panels with multiple types of sheeting types shall be determined using the total area of the sign panel and meet the materials requirements above.
- c. Retro-Reflective Sheeting – Use NYSDOT Class A sign sheeting for all sign types. Note: Signs supplied before March 1, 2023 may be fabricated with NYSDOT approved ASTM D4956 Type III/IV and IX retro-reflective sign sheeting based on the sign type and pay item.
- d. Sheeting Sign Characters – Characters include letters, numerals, route shields, symbols, logos and borders. Characters shall be same size, series and color specified in the MUTCD and as specified in the contract documents.
  - 1. Cut-out characters shall be of the same type sign sheeting as the background sheeting. Black cut-out characters shall be non-retro-reflective. Apply cut-out characters directly to clean, dust-free, retro-reflective sheeting background panels and as specified by the sheeting manufacturer. Neatly cut all borders and edges and butt-join at corners and panel joints.
  - 2. When painting, screening, reverse screening and/or other similar methods, use materials, equipment and procedures specified by the sign sheeting manufacturer.
  - 3. To digitally print signs, use the sign sheeting manufacturer's recommended, match component system and materials, including their recommended final top-coat or overlay.

Clear coat, overlay and/or edge seal the entire sign face area after the sign has been completed, as specified by the sheeting manufacturer.
- e. Sign Face Layouts – Sign face shape, color, dimensions and characters shall be in accordance with:
  - 1. Manual on Uniform Traffic Control Devices for Streets and Highways (FHWA).
  - 2. New York State Supplement to the National Manual of Uniform Traffic Control Devices for Streets and Highways.
  - 3. Standard Highway Signs Book (FHWA)

**2.03 Type A and High-Capacity Type A Sign Posts** – Type A sign posts shall be selected from the Department's Approval List of Type A Sign Supports. The standard strength (i.e. moment capacity) of a Type A sign post shall be 2100 ft-lbs, although weaker or stronger posts may be substituted.

- a. Type A Sign Posts with Extra Embedment and Soil Plates – Type A sign posts with extra embedment (more than 39 inches) and with soil plates shall meet the requirements of the Materials Details for Type A sign supports.

- b. High-Capacity Type A Sign Posts – High-Capacity Type A sign posts are those Type A Sign Supports that has a moment capacity between 5,000 ft-lbs and 7,000 ft-lbs per post. The Contractor shall calculate the design moment at the base of the longest posts and select an appropriate High-Capacity Type A sign post system – consisting of two or three High-Capacity Type A sign posts of the same type capable of resisting that moment, subject to the Engineer's approval.

**2.04 Type B Sign Posts** – Type B sign posts shall be fabricated in accordance with the requirements of 730-25 'Type B Sign Posts.'

- a. Rustic Type B Sign Posts – Rustic Type B sign posts shall be ungalvanized weathering steel meeting the requirements of ASTM A588 or A242.
- b. Breakaway Bases and Hinge Assemblies - Breakaway Bases and hinge assemblies shall be fabricated in accordance with the requirements of 730-26 'Breakaway Bases and Hinge Assemblies.'

**2.05 Concrete Foundations** – Cast-in-place concrete for foundations shall meet the requirements of Class A Concrete in Section 501, 'Portland Cement Concrete-General.' Precast concrete foundations shall meet the requirements of 704-06 'Precast Concrete Cribbing.' The batching, mixing and curing methods, and the inspection facilities shall meet the approval of the Department. The Contractor may submit a mix at least equivalent to Class A Concrete for approval by the Engineer.

### **3. CONSTRUCTION DETAILS**

**3.01 General** – Sign panels, overhead panels, overhead vertical brackets, vertical and horizontal Z-bars, sign support systems, sign posts, breakaway bases and hinge assemblies, and foundations for Type B sign posts shall be constructed in accordance with the contract documents, standard sheets, MUTCD and materials details. Sign locations shown in the contract documents are approximate, and the exact location for each sign will be approved by the Engineer in the field.

The Contractor shall erect new signs and remove existing signs in such a manner that the traveling public is provided all necessary regulatory, warning and guidance information at all times. Certain items may be designated to be performed prior to other items of work.

An inspection of installed signs will be made in the daylight for color, reflectivity, location, vertical post alignment, visibility, and appearance. The installed signs will also be inspected at night for color, orientation and reflectivity, traits which will be more conspicuous at night.

- a. Wind Loads – The wind pressures given on the standard sheets have been calculated according to the procedure in AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals (1994). All wind loading shall be adjusted for height, drag and gusting in accordance with AASHTO's Standard Specifications for Structural Support for Highway Signs, Luminaires and Traffic Signals (1994). Allowable sign areas shall be reduced when the sign centroid height is at an

elevated site condition (e.g. overpass) where the influence of the ground on the wind is reduced. For example, a sign centroid between 29 feet and 49 feet above the existing ground would result in a 37.5% increase in wind pressure (refer to the section “Loads” in aforementioned AASHTO Specifications).

TABLE 645 – WIND LOAD CRITERIA				
	Region	Wind Velocity	Wind Pressure at Panel Centroid # 14.0 ft (psf)	Wind Pressure at Panel Centroid >14.0 ft (psf)
Type A Post	10	70	20.4	25.2
Type B Post	10	80	N/A	33.6

**NOTE:** Panel centroid height measured above the surrounding terrain.

**3.02 Sign Panels** – Sign panels shall be installed as shown on the standard sheets or as shown in the contract documents. Layout of sign panels and assemblies shall be as shown in the contract documents. Aluminum Overhead Mounted Sign Panels shall be separated from steel overhead sign structures in order to prevent corrosion by a Type A Sign Structure Bearing Pad or a Type B Sign Structure Bearing Pad as shown in the Contract Documents.

**3.03 Type A and High-Capacity Type A Sign Posts** – The Contractor shall install Type A sign posts individually or in groups to provide the required total moment resistance.

- a. Type A Sign Posts with Extra Embedment and Soil Plates – Type A sign posts with Extra Embedment, and Soil Plates for Type A sign posts, shall be installed where extra embedment depth and/or soil plates are required.
- b. High Capacity Type A Sign Posts – High Capacity Type A sign posts shall be installed where extra moment capacity is required. Number of posts and spacing shall be as per manufacturer’s recommendations and Standard Sheets.

The number of Type A Sign posts indicated in the contract documents is based on the information available during design. The number and strength of Type A sign posts installed shall be based on conditions at the final sign location approved by the Engineer. The Contractor shall determine the required moment resistance for the Type A sign post(s) due to the wind loads indicated in 3.01 Wind Loads, and propose an appropriate number and strength of Type A sign posts for the approval of the Engineer. The Contractor shall submit the approved Material Details, and any computations, to the Engineer, and install the required number of Type A sign posts subject to the following criteria:

- c. For signs with a nominal width greater than 30 inches, at least two posts are required, except that the nominal 30-inch × 30-inch diamond panel and the nominal 36-inch wide “YIELD” panel require only one post.
- d. The maximum number of posts installed with a 7-foot path shall be as described on the approved Materials Details.

- e. For single flanged channel post installations only, the required moment resistance for the post shall be increased by 25% to account for torsional shear. The Materials Details include this adjustment.

**3.04 Type B Sign Posts** – The Contractor shall install Type B sign posts, breakaway bases, hinge assemblies and foundations in accordance with the details shown on the standard sheets or the manufacturer's approved materials details.

The Type B sign post type, size and number shown in the contract documents are based on the information available during design. The sign post type, size and number to be installed by the Contractor shall be based on conditions at the final location approved by the Engineer. The Contractor shall determine the required moment resistance for the Type B sign post(s) based on the wind loads indicated in 3..01 Wind Loads and verify the sign post type, size, number, hinge capacity and 7-foot wheel path criteria for the approval of the Engineer. The Contractor shall submit any computations to the Engineer.

The Contractor may install breakaway type bases under the contract pay item for non-breakaway type posts provided that non-slotted hinge plates are used on both flanges and the installation is outside the clear zone or otherwise protected.

- a. Rustic Type B Sign Posts - Rustic Type B sign posts shall be installed in the same manner as Type B Sign posts.
- b. Breakaway Bases and Hinge Assemblies – Breakaway bases and hinge assemblies shall be installed in accordance with the standard sheets or the manufacturer's approved materials details. When breakaway bases and hinge assemblies are used with rustic Type B sign posts, the breakaway bases and hinge assemblies shall be installed as follows:
  - 1. The front (approach) flange hinge plate of rustic Type B sign posts shall be installed as shown on the contract drawings, except that an additional galvanized steel flat washer shall be installed on all four bolts between each post and the slotted hinge plate to assure proper slippage.
  - 2. All miscellaneous visible galvanized steel hardware, except in the vicinity of the hinge plate slots, shall be painted with Weathered Brown Guide Rail Paint.

**3.05 Concrete Foundations** – Concrete foundations shall be constructed in accordance with the Materials Detail Sheets and contract documents. Upon completion of the sign installation the Contractor shall restore the area to its original state.

#### 4. METHOD OF MEASUREMENT

- 4.01 Sign Panels** – The work will be measured as the number of square feet measured to the nearest 0.1 square feet of sign panel satisfactorily installed.

The area of each panel will be measured as the area shown on the NYSDOT standard sheets. For sign panels not shown on the standard sheets, the area will be measured as the product of length and width, with no reduction for rounded corners. When sign panels are mounted back-to-back, each panel face will be measured separately.

- a. **Panels with Multiple Sheeting Types** – Panels with multiple types of sheeting will be measured as the number of square feet measured to the nearest 0.1 square feet for each type of sheeting applied to the sign panel. The sum of all the areas of the sheeting types measured shall equal the total area of the sign panel measured as the product of length and width.

- 4.02 Type A Sign Posts** – The work will be measured as the number of Type A sign posts required, which is the greater of either:

The number of posts required based on the width of the sign

**OR**

The number of posts of standard strength (2,100 ft-lbs moment capacity) required to resist the moment due to wind load.

- a. Type A Sign Posts with Extra Embedment – The work will be measured as the number of Type A sign posts with extra embedment satisfactorily installed with these modified bases.
- b. Soil Plates for Type A Sign Posts – The work will be measured as the number of soil plates for Type A sign posts satisfactorily installed on either standard Type A sign posts, or on Type A sign posts with extra embedment.
- c. High-Capacity Type A Sign Posts – The work will be measured as the number of high-capacity Type A sign posts satisfactorily installed. Post systems in which two posts are combined to function as a single posts, such as the back-to-back flanged channel or the telescoping square tube, are measured as one post.

- 4.03 Type B Sign Posts and Rustic Type B Sign Posts** – The work will be measured as the number of Type B sign posts or rustic Type B sign posts satisfactorily installed. When the Engineer directs that a different Type B sign post be installed at a location that is called for in the contract documents, and there is no contract pay item in the contract for the directed posts, the original quantity shall be multiplied by the following factor: lb/ft of directed post divided by lb/ft of original post.



- 4.04 Concrete Foundations** – The work will be measured as the number of concrete foundations for Type A Sign Posts, or Breakaway Wooden Sign Posts with steel tube inserts satisfactorily installed.

## **5. BASIS OF PAYMENT**

- 5.01 General** – The unit price bid for all items shall include the cost of furnishing all labor, materials and equipment necessary to complete the work.
- 5.02 Sign Panels** – The unit price bid for sign panels shall include the panels, sheeting, horizontal and vertical stiffeners (Z-Bars), vertical overhead brackets to mount sign panels to overhead structures, and fasteners and miscellaneous hardware necessary to complete the work. The cost of sign panels that are to become part of larger signs (e.g. route shields on large guide signs) shall be included in the unit price bid for the main panel.
- a. Panels with Multiple Sheeting Types** – Panels with multiple types of sheeting will be paid separated under their respective contract pay items.
- 5.03 Type A sign Posts** – The unit price bid for Type A sign posts, Type A sign posts with extra embedment, soil plates for Type A sign posts, and high-capacity Type A sign posts shall include the cost of furnishing all labor, materials and equipment necessary to complete the work.
- 5.04 Type B Sign Posts** – The unit price bid for Type B sign posts shall include the posts, breakaway base and hinge assemblies, and concrete footings. Breakaway bases provided in lieu of non-breakaway posts at the Contractor's option will be paid for at the bid price for non-breakaway posts at the Contractor's option will be paid for at the bid price for non-breakaway bases.
- 5.05 Concrete Foundations** – The unit price bid for Concrete Footing for Type A, or Breakaway Wooden Sign Posts with steel tube inserts shall include the cost of furnishing all labor, materials and equipment necessary to install the footing and hardware.

New or relocated sign panels or sign panel assemblies and any required Z-bar stiffeners will be paid under their respective items.

Payment will be made under:

<b>Item No.</b>	<b>Item</b>	<b>Pay Unit</b>
645.5101	Ground-Mounted Sign Panels without Z-Bars	SF
645.5102	Ground-Mounted Sign Panels less than or equal to 32SF with Z-Bars	SF
645.5103	Ground-Mounted Sign Pales greater than 32SF with Z-Bars	SF
645.81	Type A Sign Posts	EA

<b>Item No.</b>	<b>Item</b>
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645.830203	Type B Sign Posts – Galvanized, W6x9, Omnidirectional Breakway	EA
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**ITEM 762-7 – COLORED AND IMPRINTED PORTLAND CEMENT CONCRETE SIDEWALK (7" THICK)**  
**ITEM 762-9 – COLORED AND IMPRINTED PORTLAND CEMENT CONCRETE SIDEWALK (9" THICK)**

**1. DESCRIPTION**

The work shall consist of furnishing and installing a colored, imprinted and/or colored and imprinted Portland cement concrete sidewalks as shown on the contract documents and as directed by the Engineer.

**2. MATERIALS**

The following work shall be in accordance with Item Nos. 24, 27, 30, 32A, 32X and 7 as described in the standard specification.

The following ASTM Specifications shall apply:

Standard Specification for Pigments for Integrally Colored Concrete C979

Colored Concrete

All coloring agents shall produce a color conforming to the AMS Standard 595A (Standard Colors Used in US Government Procurement). The color shall be as indicated in the contract documents.

Color admixtures for integrally colored concrete will be certified by the manufacturer as meeting the requirements of ASTM C979 Standard Specifications for Pigments for Integrally Colored Concrete and be packaged such that one dose is the proper dosage for one cubic yard of concrete.

Imprinted Concrete

Use imprinting tools capable of imprinting the surface of the concrete with a uniform and aligned pattern and/or texture. Use a clear release agent as specified by the imprinting tool manufacturer. These materials shall be approved by the Engineer prior to their use.

Color Matching Joint Material

When specified for any location, use a color matched caulking compound designed for joint Sealing.

Reinforcement

Welded wire fabric reinforcement shall be made of W2.9 or W3 wire at 6-inch centers transversely and longitudinally. The cost of the reinforcement shall be paid for under Item 30.

**3. CONSTRUCTION DETAILS**

Test Panels

Prior to the start of work, the Contractor shall show evidence of successful completion of similar installations. The Contractor shall construct a job site test panel for each individual color and pattern, or combination of color and pattern specified in the contract documents. The test panel(s) shall be 5 feet x 5 feet, minimum, and constructed at a location selected by the Engineer. As many test panels will be constructed as are necessary to produce sample panels that meet the approval of the Engineer. The permanent work shall be consistent with the appearance of the approved test panel(s) as determined by the Engineer. The test panel(s) shall not be incorporated

into the work and will be removed when ordered by the Engineer.

#### Colored Concrete

Apply color admixtures and dry shake additives at the manufacturers recommended dosage rate. This rate is to remain constant for all batches of concrete produced. Prior to placing concrete, protect adjacent surfaces and structures from spatters. Once a portion of the batch has been placed, no additional water shall be added to the remaining batch.

To integrally color the concrete, introduce the color additive into the mixer drum in a manner recommended by the manufacturer. The quantity of concrete being delivered shall be no less than one-third the capacity of the mixer drum. Batch the concrete in full cubic yard increments.

After the concrete is placed, apply a color matching hardener evenly to the plastic surface by the "dry shake" method as recommended by the manufacturer.

#### Imprinted Concrete

Screed concrete to the finished grade and apply release agent. Using methods as recommended by the manufacturer, apply pre-approved imprinting tools to the surface while the concrete is still plastic. The requirement for a lightly broomed surface is waived.

Unless otherwise specified, score or saw cut the surface to a minimum depth of  $\frac{1}{4}$  the thickness of the slab at intervals of 5 feet. Tool the edges, joints and scored areas in a manner consistent with the imprinting pattern. If the saw cut option is used, the Contractor shall be responsible for performing the saw cut operation at such time as to minimize the possibility of spalling and/or cracking.

Within 24 hours, remove release agent with pressure wash and apply a pre-approved sealer, recommended by the coloring manufacturer, at a rate consistent with manufacturer's specifications.

#### Color Matching Joint Material

Install pre-molded resilient joint filler where the sidewalk line intersects a building, walk, permanent structure or other location designated by the Engineer, to within 1-inch of the top of the slab. Caulk the top 1-inch of the joint with color matching caulking compound. The pre-molded resilient joint filler shall conform to the requirements of ASTM D1751.

### **4. METHOD OF MEASUREMENT**

The work will be measured as the number of square feet, to the nearest 0.1 square feet of colored and imprinted Portland cement concrete sidewalk installed.

### **5. BASIS OF PAYMENT**

The unit bid price of colored and imprinted Portland cement concrete sidewalk furnished and installed shall include the cost of all labor, equipment and materials necessary to satisfactorily complete the work.

The cost of construction and removal of the test panel(s) is to be included in the price bid for the

specified item(s).