

**ITEM 022020**

**Item 0220202 -TRAFFIC CONTROLLER FOUNDATION TYPE IV**

**Item 0220203 -TRAFFIC CONTROLLER FOUNDATION TYPE 170**

**DESCRIPTION**

Work under this item shall consist of furnishing and installing a concrete poured in place, traffic controller foundation of the type specified, at the location and to the dimensions and details shown on the plans. All work shall be as directed by the Engineer and in conformity with the plans and specifications.

**REFERENCED ITEMS**

Items 01021, 01064, and 02210

**REQUIRED SUBMITTALS**

Material Certificate of Compliance:

Submit 5 copies of material certificate of compliance for concrete in accordance with the contract general requirements.

Shop Drawings:

Submit 5 copies of shop drawings for foundation in accordance with the contract general requirements.

**MATERIALS**

1. **CEMENT CONCRETE**

Concrete shall conform to Class A and shall meet the requirements of Article M.03 of the State of Connecticut, Department of Transportation, Standard specifications for Roads, Bridges and Incidental Construction, Form 816, 2004.

2. **REINFORCING**

Reinforcing bars to be furnished and placed under this item shall be "Deformed Bars" of the sizes and lengths indicated on the plans in the Reinforcing Schedule. Steel reinforcement bars shall be placed in the exact positions shown on the plans or as directed by the Engineer. Reinforcement shall conform to the material requirements of Article M.06.01 of Form 816.

3. **TOP SOIL, FERTILIZER, SEEDING AND MULCHING**

These items shall conform to Item 0106401.

4. **ANCHOR BOLTS**

Shall conform to the Article M.15.02 of Form 816.

5. **ROCK ANCHORS**

Shall conform to the Article M.15.03 of Form 816.

6. **ELECTRICAL CONDUIT**

Shall conform to the Article M.15.09 of Form 816.

7. **GROUND ROD**

The ground rod shall conform to Article M.15.15 of Form 816 and shall be 5/8" X 10'.

**CONSTRUCTION METHODS**

Forms shall be built true to lines and grades designated, shall be strong, stable, firm, mortar-tight, and adequately braced or tied, or both. They shall be designed and constructed to withstand all loads and pressures including those imposed by plastic concrete, taking full account of the stresses due to the rate of pour, effect of vibration and conditions brought about by construction methods. Forms shall be filleted at all sharp corners. Form material in contact with concrete shall be of quality to provide the required concrete surface smoothness and shall be oiled with a light, clear paraffin base oil which will not damage or discolor or adhere to the concrete.

Concrete shall be placed in the forms immediately after arrival at the job site and in no case shall concrete be used which does not reach its final position in the forms within 60 minutes after arrival at the job site. The Engineer reserves the right to alter this time by as much as one-half when necessary to achieve the requirements related to set and plasticity.

After initial set of the concrete, the forms shall not be jarred. Concrete shall be compacted by vibrator. Dried mortar chips and dust shall not be puddled into the

unset concrete. The anchor bolts shall be carefully and accurately set to the requirements of the plans. Concrete surface exposed to conditions causing premature drying shall be protected by covering, within 2 hours of placing. The external surface of the hardened concrete shall be finished immediately after the removal of forms. All voids on the surface shall be filled and finished to conform to the surrounding concrete surface. The entire exposed surface shall be thoroughly wet with a brush and rubbed with a No. 16 carborundum stone or an abrasive of equal quality, bringing the surface to a paste. The rubbing shall be continued sufficiently to remove all form marks and projections, producing a smooth, dense surface without pits or irregularities.

The finished elevation of the top of the foundation shall be as shown on the plans. Concrete for foundations shall be placed monolithically against undisturbed soil for poured in place foundations. Necessary electrical conduit, anchor bolts, ground rod sleeves and ground rods shall be placed in proper position and shall be held in place by means of a template. The concrete may be placed against the sides of the excavation, however, the exposed portion of the foundations shall be formed to the neat lines as shown on the plans. When in the judgement of the Engineer, unusual soil conditions prevent excavation to neat lines as shown on the plans, the complete foundation shall be formed.

Backfill to be furnished and placed under this item shall be acceptable granular material. All costs of furnishing and placing backfill are to be included in the unit price bid for Span Pole Foundations. Backfill shall be thoroughly compacted to the satisfaction of the Engineer.

All conduits shall be capped with standard pipe caps before placing the concrete and shall remain capped until the cable is installed. Electrical conduit of the size indicated shall extend two feet outside the foundation. All foundations shall have a minimum of two spare 2" rigid metal conduits that extend 2' outside the foundation. The spare conduits shall be capped. The orientation of the spare conduits shall be set, as directed by the Engineer in the field. All portions of the foundations which will remain exposed to view shall be finished to the satisfaction of the Engineer. Forms shall not be removed until after the concrete has hardened properly and not less than 24 hours after the concrete has been placed. The Contractor shall allow sufficient time for foundation to cure before placing any strain on the foundations. Cabinets shall not be installed until a minimum of ten days after the concrete has been placed.

At each location where the controller foundation is to be installed, a temporary bituminous patch must be placed immediately after backfilling around the foundation. Materials for patch shall be hot bituminous concrete, when available, and shall be maintained by the Contractor until permanent paving is constructed.

When a controller foundation is to be installed in close proximity of an identified utility, the Contractor shall locate the utility by hand excavation. After the utility is located, the Contractor shall coordinate the remainder of the excavation under the supervision of the utility company's representative and the Project Engineer.

When the foundation is to be installed over an existing CL&P service feed, the Contractor shall locate the conduit with service cable and shall contact the utility company representative to de-energize the feed. Once the service feed is de-energized and disconnected at the CL&P handhole or manhole, the Contractor shall cut the conduit beyond the foundation limits and the cable shall be pulled from the handhold or manhole. After the foundation excavation, a connecting rigid metal conduit shall be installed through the foundation form to restore the continuity of the feed. This connecting rigid metal conduit will be paid for under Item 02210.

The areas disturbed by the excavation for the installation of the foundation shall be restored to match the surrounding areas.

When controller foundation is placed in concrete sidewalk areas, the sidewalk shall be sawcut at the nearest joint and the complete slab(s) of sidewalk shall be removed and replaced. The replacement of sidewalk shall conform to the requirements specified under Item 0102101.

When Controller foundation is placed in brick sidewalk areas, the sidewalk shall be restored matching the existing color and pattern.

#### **METHOD OF MEASUREMENT**

Traffic controller foundation of the type specified shall be measured for payment by the number of each unit installed and accepted. This measurement shall include the electrical conduit sweeps which shall extend two feet outside of the foundation. The rock in foundation excavation will be measured from the top of the rock to the bottom of rock excavation.

#### **BASIS OF PAYMENT**

This work will be paid for at the contract unit price each for "TRAFFIC CONTROLLER FOUNDATION" of the type called for, which piece shall include all materials, labor, equipment, tools, forms, excavation, hand excavation of test pit to locate utilities in the proximity of foundation, disposal of surplus material, concrete, electrical conduit sweeps, conduit caps, ground rod, sleeves, ground bushings, anchor bolts, backfill, temporary bituminous patch, top soil, grading, seeding, fertilizing, mulching, riprap, restoration of existing service feed(s) disturbed by

foundation excavation, restoration of sidewalk and surrounding areas and incidental expenses thereto. When rock is encountered within the limits of the excavation, its removal will be paid for at the contract unit price per vertical foot for "Rock in Foundation Excavation."

<u>PAY ITEM</u>	<u>DESCRIPTION</u>	<u>PAY UNIT</u>
0220202	Traffic Control Foundation Type IV	EA
0220203	Traffic Control Foundation Type 170	EA