

(B) Rigid Metallic Conduit

The following is added:

The end of the existing conduit at the face of concrete removal shall be cut square and smooth. Enough concrete around the conduit in that portion of the safetywalk to remain shall be carefully hand chiseled to permit the installation of a coupling-adaptor to connect the existing conduit to new steel conduit. During safetywalk and curb surface repairs, the Contractor shall exercise utmost care so as not to damage any existing galvanized steel conduit(s) embedded in concrete. Should any conduits be damaged during the construction or any deteriorated conduits found, as determined by the Engineer, the damaged or deteriorated portion of the conduit(s) shall be replaced as follows:

- (1) Existing lighting cables and ground wire shall be disconnected at both ends, removed and reinstalled for temporary service, as prescribed in Subsection 601.07.
- (2) Temporary cables and ground wire for 24 hours circuits shall be provided and connected as prescribed in Subsection 601.07, where required, to maintain the continuous operation of these circuits.
- (3) Damaged or deteriorated section of the steel conduit shall be removed from coupling points and replaced with new galvanized steel conduit section(s). This work shall be accomplished by providing temporary service, as prescribed in Subsection 601.07.

Conduit (s) damaged by the Contractor's operation during safetywalk and curb surface repair construction shall be repaired by replacement of the damaged section(s) of the conduits to the satisfaction of the Engineer. Upon completion of the conduit repair work, each conduit run shall be rodded throughout its entire length with a mandrel in conformance with Subsection 601.07, and new cables and ground wire shall be installed between the junction boxes connected by the repaired conduit run(s). All costs for the prescribed conduit repairs and new cable and ground wire installation shall be borne by the Contractor at no additional cost to the Authority.

In addition, the Contractor shall connect the new steel conduit (s) to existing expansion couplings at all expansion joints, where required. If the existing expansion coupling(s) are judged to be nonfunctional, in the opinion of the Engineer, then the Contractor shall replace such expansion couplings with new units, equal to O-Z Gedney Type AX with Type BJ bonding jumper.

Installation of the expansion couplings shall be made in accordance with the manufacturer's installation instructions and the Authority's standard

electrical drawings. The Contractor shall insure that the conduit entering the fitting at the expansion-contraction end is completely free of any concrete or other obstruction within the open joint which may otherwise prevent the fittings from performing properly.

[Use the following sections in contracts involving communication duct banks:]

The following is added:

(E) Conduit Duct Bank

Duct banks shall be installed underground at the locations shown on the plans. Duct banks shall be buried a minimum 24" below grade level, and it shall be either encased in concrete or directly buried as shown on the details. Duct banks in concrete shall have at least 3" of concrete cover on top, underneath and on each side of the duct bank-cross section.

(1) Conduit

4" Rigid Nonmetallic Conduit shall meet the requirements of Subsection 918.08(2) and shall be directly buried or encased in concrete.

(2) Spacers

Duct spacers shall be prefabricated. Spacers shall be made out of high impact Polystyrene. Spacers shall be interlocked horizontally only. Spacers shall be staggered at least 6 inches vertically and shall be placed at a lateral interval of 7 feet maximum along the length of the duct run. Spacers shall be of proper size and configurations to fit the conduits.

(3) Concrete

All ducts installed under shoulder or concrete pavement shall be encased in concrete unless otherwise noted. Concrete shall be Class C, meeting the requirements specified under Section 905 and shall be cured for 28 days.

(4) Backfill

Ductbanks shall be backfilled with clean moist sand or soil material per Subsection 206.03(C).

601.06 FOUNDATIONS, BOXES, MANHOLES AND BASES

The following is added:

The junction boxes, located within the proposed area of the safetywalk repairs, shall be reconstructed, and in the area of approach sidewalk replacement, shall be raised to meet the proposed elevation of the new sidewalk, where shown on the plans and in conformance with the details shown on Standard Drawing E-5 and/or as directed by the Engineer. The existing frames and covers shall be salvaged and reused, with the following provisions.

The bolt holes in the frame, which is to be reused, shall be retapped. The existing screws for covers shall be replaced with new matching stainless steel flat head screws. The existing gaskets between the frame and cover shall be replaced with new 1/8" thick neoprene gaskets.

In addition, upon completion of junction box reconstruction and resetting, all debris therein shall be removed to assure that the drain holes or pipes are thoroughly clear and free of any obstruction.

Existing concrete junction boxes, junction box foundations and manholes requiring a greater than 6 inch adjustment to final grade shall be replaced.

Junction Box, Type PS shall be a polymer concrete split junction box with a divider panel to separate power/electrical and communication conduits. Junction box configuration and dimensions are shown on the plans, and they shall be as manufactured by Quazite Part No. PGI3660DC36 with Quazite Junction Box Cover Part No. PA3660HA00 or an approved equal.

Type PS junction box shall be installed with top flush with finished grade elevation or as directed by the engineer.

601.11 MEASUREMENT

The following is added:

Junction Box Reconstruction will be measured by the number actually reconstructed as determined by the Engineer.

Temporary service facilities, as prescribed, will not be measured for payment.

Installation of duct bank will be measured by linear foot along its centerline. Where installed in a duct bank, conduit will not be measured separately.

601.12 PAYMENT

The following is added:

PAY ITEM	PAY UNIT
Junction Box Reconstruction	Each
___-Way Power/Comm Duct Bank, Soil Encased	Linear Foot
<u>___-Way Power/Comm Duct Bank, Concrete Encased</u>	<u>Linear Foot</u>

Furnishing and installation of Rigid Nonmetallic conduit, spacers, concrete and backfill material for direct buried or concrete encased duct banks shall include all labor, material and equipment necessary for the construction of the duct bank as shown on plans and as directed by the Engineer. No separate payment will be made for the spacers or related hardware required for the installation of the duct bank.

602.07 POWER DISTRIBUTION AND CONTROL EQUIPMENT

The following is added:

Load center and Meter cabinet shall consist of furnishing and installing the cabinets and all associated appurtenances as shown on the plans including but not limited to concrete foundation, main circuit breaker, main contactor, control transformer, circuit breaker, panelboard, photocell, thermostat, cables, etc.

Power Equipment for ITSS consist of furnishing and installing the equipment and all associated appurtenances as shown on the plan including but not limited to ITSS disconnect, ITSS panelboard, SCC disconnect, cables, concrete foundation, etc.

602.09 PAYMENT.

The following is added:

PAY ITEM	PAY UNIT
<i>Load Center Cabinet, Type _____, Voltage _____</i>	<i>Each</i>
<i>Meter Cabinet, Type _____, Voltage _____</i>	<i>Each</i>
<i>Power Equipment on ITSS</i>	<i>Each</i>

No separate payment will be made for concrete foundations for Load Center, Meter Cabinet and Power Equipment on ITSS.

918.07 **CABLE AND WIRE**

(A) Multiple Lighting and Power Cable

The following is added:

Replace the color coding requirement for different voltage characteristics with the following table:

<i>Cable or Wire</i>	<i>265/460 V. Or 277/480 V.</i>	<i>120/208V.</i>	<i>120/240 V.</i>
<i>Phase A</i>	<i>Brown</i>	<i>Black</i>	<i>Red</i>
<i>Phase B</i>	<i>Yellow</i>	<i>Red</i>	<i>Black</i>
<i>Phase C</i>	<i>Orange</i>	<i>Blue</i>	<i>--</i>
<i>Neutral</i>	<i>Grey</i>	<i>white</i>	<i>White</i>

918.08 **CONDUIT AND FITTINGS**

The following is added:

(F) Duct Bank Spacers

Spacers shall be prefabricated and made out of high impact Polystyrene. Spacers shall be manufactured by Underground Devices Inc., Model No. 4V30-2, or an approved equal.