

SECTION 26 05 43
ELECTRICAL SITE WORK

PART 1 GENERAL

1.1 DESCRIPTION

- A. Scope:
 - 1. Contractor shall provide all labor, materials, equipment, and incidentals as shown, specified, and required to furnish and install underground ductbanks.
 - 2. Provide all labor, materials, equipment, and incidentals as shown, specified, and required to furnish and install manholes and handholes for electrical systems Work.
- B. Coordination:
 - 1. Ductbank routing on the Drawings is diagrammatic. Coordinate installation with piping and other Underground Facilities and locate ductbanks clear of interferences.
 - 2. Review installation procedures under this and other Sections and coordinate installation of items to be installed with or before underground ductbank Work.
 - 3. Coordinate handhole installation with piping, sheeting other excavation supports, and other Underground Facilities, and locate clear of interferences.
 - 4. Review installation procedures under this and other Sections and coordinate installation of items to be installed with or before handhole for electrical systems Work.
- C. Related Sections:
 - 1. Section 31 23 34.01 - Excavation, Trenching, Dewatering and Backfilling.
 - 2. Section 03 05 00 - Concrete.
 - 3. Section 26 05 02 - Basic Electrical Work.

1.2 REFERENCES

- A. Standards referenced in this Section are:
 - 1. ANSI/SCTE 77, Specification for Underground Enclosure Integrity.

1.3 QUALITY ASSURANCE

- A. Component Supply and Compatibility:
 - 1. Obtain all handholes furnished under this Section from a single Supplier, unless otherwise acceptable to Engineer.
 - 2. Handhole Supplier shall review and approve the Shop Drawing submittals for the handholes furnished.

1.4 SUBMITTALS

- A. Action Submittals: Submit the following:
 - 1. Shop Drawings:
 - a. Handholes: Submit schedule of handholes to be furnished and dimensions and pertinent data for each.

2. Product Data:
 - a. Manufacturer's technical information, specifications, and literature for manholes, handholes, castings, and accessories proposed for use.
- B. Closeout Submittals: Submit the following:
 1. Record Drawings:
 - a. Include actual routing of underground ductbank runs on record documents in accordance with Section 01 70 00 - Execution and Closeout Requirements.

PART 2 PRODUCTS

2.1 DUCT BANK MATERIALS

- A. Duct: Provide conduit and fittings in accordance with Section 26 05 02 – Basic Electrical Work. Conduit types shall be as follows:
 1. Schedule 40 PVC conduits for power circuits.
- B. Backfill: Provide backfill, including select backfill, in accordance with Section 31 23 34.01 - Excavation, Trenching, Dewatering and Backfilling.
- C. Reinforcing: Provide Ductbank reinforcing in accordance with Section 03 05 00 - Concrete.
- D. Concrete: Provide ductbank concrete in accordance with Section 03 05 00 - Concrete.
- E. Grounding: Provide ground cable in accordance with Section 26 05 02 - Basic Electrical Work, Grounding and Bonding for Electrical Systems.
- F. Conduit Spacers: Conduit spacers shall be nonmetallic, interlocking type to maintain spacing between conduits. Provide spacers suitable for all conduit types used in multiple sizes.
- G. Duct Sealing Compound:
 1. Products and Manufacturers: Provide one of the following:
 - a. 0-Z/Gedney, Type DUX.
 - b. Or equal.

2.2 SMALL HANDHOLES

- A. Material and Construction:
 1. Manufacturer: Provide products of one of the following:
 - a. Strongwell Quazite.
 - b. Or equal.
 2. Material: Precast polymer concrete.
 3. Duct entrances sized and located to suit ductbanks.
 4. Enclosures and covers shall be UL-listed.
 5. Enclosures, boxes, and covers shall comply with test provisions of ANSI/SCTE 77 for Tier 22 applications.

PART 3 EXECUTION

3.1 DUCTBANK INSPECTION

- A. Examine conditions under which the Work is to be installed and notify Engineer in writing of conditions detrimental to proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions are corrected.

3.2 DUCTBANK INSTALLATION

- A. Excavation and Backfilling:
 - 1. Provide excavation and backfilling for ductbank installation in accordance with Section 31 23 34.01 - Excavation, Trenching, Dewatering and Backfilling.
 - 2. Do not backfill with material containing large rock, paving materials, cinders, large or sharply angular substances, corrosive material, or other materials that can damage or contribute to corrosion of ducts or cables or prevent adequate compaction of backfill.
- B. Ductbank Layout:
 - 1. Top of ductbank concrete shall be a minimum of 2.5 feet below grade, unless shown or indicated otherwise on the Drawings.
- C. Ductbank Assembly:
 - 1. Assemble ductbanks using non-magnetic saddles, spacers, and separators. Position separators to provide minimum three-inch concrete separation between outer surfaces of each conduit. Provide side forms for each ductbank.
 - 2. Make bends with sweeps of not less than four-foot radius or five-degree angle couplings.
- D. Concrete Placing:
 - 1. Provide minimum four-inch concrete covering on each side, top, and bottom of concrete envelopes around conduits. Concrete covering shall be as shown or indicated on the Drawings.
 - 2. Provide red dye in concrete for easy identification during subsequent excavation; all concrete in entire ductbank, including top and bottom, shall be dyed.
 - 3. Firmly fix conduits in place during concrete placing. Carefully place and vibrate concrete to fill spaces between conduits.
- E. Conduit Transitions:
 - 1. Conduit installations shall be watertight throughout entire length of ductbank.
 - 2. Plug and seal empty spare conduits entering structures. Conduits in use entering structures shall be sealed watertight with duct sealing compound.
- F. Detectable Underground Warning Tape:
 - 1. Provide detectable underground warning tapes complying with Section 26 05 02 - Basic Electrical Work, Identification for Electrical Systems, over the full length of each underground ductbank.
 - 2. Install warning tapes approximately 12 inches below grade.

3. Provide multiple tapes across the width of each ductbank. Locate center of a warning tape above each edge of ductbank, and at intervals across top width of ductbank so that clear space between tapes does not exceed six inches.
- G. Reused Existing Ducts:
1. Pull rag swab through duct to remove water and to clean conduits prior to installing new cable.
 2. Repeat swabbing until all foreign material is removed.
 3. Pull mandrel through duct, if necessary, to remove obstructions.

END OF SECTION