

SECTION 26 05 43 - UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 DESIGN REQUIREMENTS

- A. Underground Electrical Primary:
1. Service (primary) – Main Campus primary distribution is owned by the university. Assume all systems are ungrounded in cable standards.
 2. Unless otherwise stated during the pre-design conference, the university will provide and underground junction point or switch point within the contract limits (or close by) for termination of primary building feeder. Contractor will provide and install raceway and conductors between said junction point and the building transformer.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Underground Electrical Primary:
1. Duct Bank (primary): Concrete encase underground 13.8 kV raceway. Raceway may be P.V.C. Type 1 or equivalent. Concrete envelope shall be red color and shall be a minimum of 4 inch all around cover. (Example: 4-inch raceway would require 12 inch cross section of concrete).
 2. Primary Cable: 15 kV class cable to be single copper conductor, 220 mil insulated for ungrounded type service, shielded, 90 degree C rated, with copper conductor cable.
 3. Ground: No. 4 AWG with THWN 600 volt insulation copper wire in raceway with primary service to building. Tie said ground wire to common system ground of building.
 4. All conduits entering or exiting buildings shall be hull wall rigid metal conduit to minimize future shearing of conduits. After leaving building excavation, the transaction to other types of conduits can be made.
 5. Warning tape shall be buried 6 inches deep on top of buried electrical and control wiring. The tape shall be inert plastic film highly resistant to alkalis, acids, or other destructive chemical components likely to be encountered in soils. The tape shall be 3 inches wide, colored Red and imprinted with "CAUTION: BURIED ELECTRIC LINE BELOW".

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Underground Electrical Primary:
1. Install duct in accordance with manufacturer's recommendations. Install duct at depth and locations as indicated on drawings. Install duct with a minimum slope of 4 inches per 100 feet. Slope duct away from building. Provide suitable fittings to accommodate expansion and deflection.
 2. Band ducts together before placing concrete. Securely anchor to prevent movement during placing of concrete. Stagger duct joints vertically in concrete encasement. Provide two (2) - #4 steel reinforcing bars in top of bank under paved areas.
 3. Swab duct. Use suitable caps to protect installed duct.
 4. Install cable and accessories in accordance with manufacturer's instructions.
 5. Avoid abrasion and other damage to cable during installation. Use suitable lubricants and pulling equipment. Do not exceed cable pulling tensions and bending radius.
 6. Ground cable shield at each termination and splice.
 7. Install cables in manholes along wall providing longest route. Arrange cable in manholes to avoid interference with duct entrances. Fireproof cables in manholes using fireproofing tape in half-lapped wrapping. Extend fireproofing on inch into duct.

8. Provide PVC coated rigid conduit for all 90 degree elbows.

END OF SECTION 26 05 43