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Design & Construction Standards:
TECHNICAL GUIDELINES

Division 33
33 00 00 Utilities

FACILITY MANAGEMENT

April 2016

SECTION 33 00 00

UTILITIES

PART 1 GENERAL

1.01 PERMITS

- A. DPS will pay system development and Utility extension charges. These are the “tap fees,” “use permits” and “system development” charges that are assessed by the Utility based upon the size of the “tap,” “fixture units,” “load” or other related utility impact or demand.
- B. Contractor shall pay “construction inspection” and “construction” charges. These are charges levied by the Utility provider for actual work (or inspection of work) performed (or observed) by the Utility at, or adjacent to, the project site for the purpose of tapping an existing utility for service to the project.

1.02 RECORD DOCUMENTATION/DRAWINGS BY CONTRACTOR

- A. Refer to Contract Requirements in Division 1.
- B. The Contractor shall furnish a certified as-built survey of the sanitary and storm drainage systems in a format acceptable to Denver Wastewater and Denver Water/Water District.
- C. Acceptance of underground utilities is based upon the Contractor furnishing a complete as-built plan showing exact location of utility mainlines, valves, manholes, bends, fittings, buried manholes or cleanouts, pedestals, etc., that is acceptable to Denver Wastewater and Denver Water/Water District.
- D. Dimension system elements from two permanent reference points.
- E. Submit record drawing information, prepared by a qualified computer operator, in a format acceptable to Denver Wastewater.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Provide pipe materials of sufficient strength as specified in the Contract Documents.
- B. For sleeving applications, buried sleeve piping shall be a minimum of Schedule 40 PVC.
- C. Underground utility warning tape shall be utility specific, solid color coded plastic, magnetically detectable, 6 inches wide by 4 mils thick (minimum), with the caption “Caution – [Utility Name] Line Buried Below”.
- D. Signal wire for Denver Water/Water District water mains.
- E. Drain gratings: As specified in Contract Documents and drawings with pedestrian safe grates in all playgrounds, plaza areas and walks.

PART 3 EXECUTION

3.01 PREPARATION

- A. Contractor shall be responsible for ensuring that existing buried utilities are located prior to construction.
- B. Notify A/E and DPS Project Manager of any discrepancies from existing utilities shown on plans.
- C. Refer to Division 3 Sections and related CDOT construction standards for cast-in-place concrete structure requirements.

3.02 UNDERGROUND UTILITY WARNING TAPE

- A. When backfilling over utilities, warning tape shall be placed continuously above the buried utility. Confirm depths with appropriate utility company. The following is provided as a guide:
 - 1. Natural gas: Place tape 1’ above gas line and another tape 1’ below finish grade elevation.

2. Water: Place tape 1' below finish grade elevation.
3. Storm sewer (main lines only): Place tape 1' below finish grade elevation.
4. Sanitary sewer (including service laterals and grease lines): Place tape 1' below finish grade elevation.
5. Electrical service (transformer to building): Place tape 1' above conduit and another tape 1' below finish grade elevation.

3.03 FIELD QUALITY CONTROL

- A. Specify tests and inspections required prior to utility burial.
- B. Notifications:
 1. Prior to backfilling, Contractor shall work with DPS to schedule DPS's inspections and testing.
 2. The DPS Project Manager will coordinate inspections by DPS Maintenance. In general, DPS must be given the opportunity to inspect every underground utility before burial.
- C. Require testing and certification of buried utilities before covering. Include pressure testing.
- D. Contractor shall verify and certify that electrical signal continuity exists the along the length of underground electrical utilities.
- E. Contractor shall verify and certify that signal tape continuity exists along the full length of signal tape.
- F. Denver Wastewater requires full-time observation and certification of underground sanitary and storm sewer work. DPS will provide this service through either the A/E or DPS's Testing Agency, according to terms of the A/E's contract.
- G. Backfill and compaction shall be coordinated with DPS's Testing Agency and the DPS Project Manager as indicated in Section 31 23 00.

END OF SECTION 33 00 00