

SECTION 02221

TRENCHING

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Excavate trenches for utilities as detailed on the plans.
- B. Compacted bed and compacted fill over utilities.
- C. Compaction requirements

1.02 RELATED WORK

- A. Section 02215 - Excavation
- B. Section 02220 - Backfilling

1.03 PROTECTION

- A. Protect excavations by shoring, bracing, sheet piling, underpinning, or other methods required to prevent cave-in or loose soil from falling into excavation.
- B. Underpin adjacent structures which may be damaged by excavation work.
- C. Notify Architect/Engineer of unexpected subsurface conditions and discontinue work in affected area until notification to resume work.

PART 2 PRODUCTS

2.01 SELECT FILL MATERIALS

- A. Type A, B and C - As detailed in Backfilling Section 02220.

2.02 COMMON BACKFILL MATERIALS

- A. As detailed in Backfilling, Section 02220

PART 3 EXECUTION

3.01 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Maintain and protect existing utilities remaining which pass through work area.
- C. Upon discovery of unknown utility or concealed conditions, discontinue affected work; notify Engineer.

3.02 TRENCH EXCAVATION

- A. The trench shall be dug so that the pipe can be laid to the alignment and depth required, and it shall be excavated only so far in advance of pipe laying to prevent unusual lengths of trench standing open over nights and weekends. The width of the trench shall be ample to permit the pipe to be laid and joined properly and the backfill to be placed and compacted. Trenches shall be of such extra width, when required, as will permit the convenient placing of timber supports, sheeting and bracing, and handling of valves and fittings.
- B. In the course of excavation, the Contractor may encounter stones or boulders. These large stones or boulders shall be stockpiled and disposed of in an acceptable manner. Boulders and large stones shall be removed to provide a clearance of at least 6 inches below and on each side of all pipe, valves and fittings.
- C. The specified minimum clearances are the minimum clear distances that will be permitted between any part of the pipe and appurtenances being laid and any part, projection, or point of such rock, boulder or stone.
- D. Where the bottom of the trench at subgrade is found to be unstable or to include ashes, cinders, refuse, vegetable or other organic material, or large pieces of fragments of inorganic material that in the judgment of the Engineer should be removed, the Contractor shall excavate and remove such unsuitable material to the width and depth ordered by the Engineer. Before the pipe is laid, the subgrade shall be relaid with thoroughly compacted Common Backfill containing no stones or rock larger than 75% of the trench width in its largest dimension.
- E. The Contractor shall proceed with caution in the excavation and preparation of the trench so that the exact location of underground structures or utilities both known and unknown, may be determined and he shall be held responsible for the repair of such structures if broken or otherwise damaged. Whenever it is necessary to excavate to determine the location of existing underground structures, the Contractor shall make exploration and excavation for such purposes.
- F. When rock is encountered and the Contractor determines that blasting will be required, he shall contact the Owner and the Engineer prior to any blasting. A conference will be held to discuss the blasting operation which will include a review of safety and other procedures. All blasting will be conducted in strictest conformance to any and all Municipal, State or Federal laws and regulations covering these operations. If blasting is not conducted in an expert manner at all times, the Engineer reserves the right to suspend blasting and require the work to proceed without it.
- G. When rock is encountered and the Contractor determines that specialized equipment will be required to remove it, he shall contact the Owner and the Engineer prior to any removal. A conference call will be held to discuss the operation and the proposed removal procedures and depth of rock to be removed. The Engineer and Owner will determine if the rock method proposed qualifies for payment under rock removal and disposal. Small rocks and shelf rock removable by standard excavation equipment do not qualify for reimbursement. All excavation removed by standard excavation equipment will not qualify as rock.
- H. As the trench is excavated, the contractor shall:
 - 1. Separate the topsoil and lay aside for placing back on top of trench
 - 2. Separate, remove, and dispose of "unsuitable backfill"
 - 3. Remove and dispose of rock

SOUTHWEST REGIONAL WATER DISTRICT

4. Provide Select Fill or Common Backfill bedding and backfill as required
5. Provide replacement fill as required

END OF SECTION