

## **DIVISION 2**

### **SECTION 02221 – TRENCHING, BACKFILLING, AND COMPACTION**

#### **PART 1 - GENERAL**

##### **1.01 Scope**

Furnish all labor, materials, and equipment, and perform all operations to complete trenching, including excavation, subgrade preparation, drainage, filter fabric installation, bedding, backfilling, compacting, and finish grading for underground pipelines, service lines, sleeving, and appurtenances as shown on the drawings and as specified herein.

##### **1.02 Related Work**

- A. Section 02200 – Earthwork and Grading.
- B. Section 02520 – Portland Cement Concrete Paving.
- C. Section 02600 – Domestic Water Supply.
- D. Section 02700 – Sanitary Sewerage Systems.
- E. Section 02810 – Irrigation.
- F. Section 16000 – General Electrical.

##### **1.03 Protection**

- A. Obtain utility locations before commencing work. Protect all existing underground utilities, above ground structures or plantings, or repair to original condition.

#### **PART 2 - MATERIALS:**

##### **2.01 Trench Backfill Material**

- A. Trench excavation or imported material free from frozen material, stumps, roots, brush, other organic matter, cinders or other corrosive material, debris, and rocks or stones greater than 2 inches in any dimension.

##### **2.02 Other**

- A. Bedding, piping, filter fabric, and other materials specified on the drawings and in related sections.

#### **PART 3 - EXECUTION**

##### **3.01 Preparation**

- A. Remove and stockpile topsoil from areas to be disturbed by construction. Keep topsoil segregated from non-organic trench excavation materials and debris.

##### **3.02 Trenching**

- A. Excavate trenches by open cut methods. Segregate suitable backfill. Rough trench excavation will leave trench with uniform width and vertical sidewalls from an elevation one foot above the top of installed pipe to the bottom of pipe.
- B. Minimum trench width will provide 6 inch space between pipe wall and side of trench. Maximum trench width will be shown on the drawings or in the appropriate pipeline section. If not specified elsewhere the maximum trench width is the pipe O.D. plus 20 inches.

- C. Grade trench bottom to provide uniform clearance for bedding material. De-water trench. Remove loose material and foreign objects. When required, install filter fabric per manufacturer's specifications.
- D. Unstable subgrade is not expected. If unstable subgrade material is encountered, report the condition to the Owner. Remedy and payment for subgrade stabilization will be based on the actual conditions encountered.

### **3.03 Bedding**

- A. Pipe will be bedded in accordance with the detailed drawings or the appropriate pipeline specification.

### **3.04 Backfilling and Compaction**

- A. Backfill trench promptly after completion of pipe bedding.
- B. Deposit material in uniform layers with thickness commensurate with the soil encountered and the compaction equipment used.
- C. Compaction requirements will be made at the moisture content and will meet the densities, by zone, specified in Section 02200 – Earthwork and Grading.
- D. Coordinate and schedule compaction tests with City Representative.

### **3.05 Surface Restoration**

- A. Restore pavements according to City of Fort Collins Standards.
- B. Restore landscaped areas according to Section 02900 – Landscaping.

**END OF SECTION**