

## **SECTION 02400**

### **UTILITY JACKING AND BORING**

#### **PART 1 – GENERAL**

##### **1.01 DESCRIPTION**

- A. Section includes specifications for jack and bore installation of pipe, casing, or conduit.

##### **1.02 SUBMITTALS**

- A. Obtain Engineer's approval of the following submittals:
  - 1. Submit working drawings describing the proposed jack and bore. Include arrangement of equipment; location and size of jacking and receiving pits including their relative location to tracks; method of dewatering; method of monitoring for possible settlement; method to prevent loss of the excavation face; method of removing spoils material; and carrier pipe size, method of fusing pipe segments, and carrier pipe end seals. Include sufficient information to show compliance with the Contract Documents.
  - 2. Support of excavation for pits: Submit the proposed methods of construction, design, and details for pit excavation shoring systems. Refer to Section 02200, Support of Excavation, for related submittals for support of pit excavation.
  - 3. Emergency remediation plan:
    - a. Identify methods to cut and remove rock, concrete, or timber encountered at the boring face and methods to temporarily bulkhead the face.
    - b. Identify remedial measures for limiting damage to existing facilities, impact to tracks, and railroad operations due to ground settlement.
    - c. The Contractor must have the resources to execute this plan immediately available.
  - 4. Submit product data including catalog cuts and other descriptive data.
  - 5. Experience: Submit list of references substantiating jack and bore installer's experience.

##### **1.03 DELIVERABLES**

- A. Submit copies of test reports for material properties and compaction as required in this Section.
- B. Incorporate the following data in Record (As-Built) Drawings: As-built survey drawing of completed jack and bore installation including horizontal and profile drawings.
- C. Support of excavation for pits: Refer to Section 02200, Support of Excavation, for

related deliverables for support of pit excavation.

#### **1.04 QUALITY ASSURANCE**

- A. Jack and bore installer shall have documented experience in successfully completing similar installations within the past five years.
- B. Support of excavation for pits: Refer to Section 02200, Support of Excavation, for related quality assurance requirements for support of pit excavation.

### **PART 2 - PRODUCTS**

#### **2.01 MATERIALS**

- A. Materials shall be as indicated in the Contract Documents and the approved submittals.
- B. Cement Slurry, As Applicable: As specified in approved submittals.

### **PART 3 - EXECUTION**

#### **3.01 GENERAL**

- A. Verify the actual locations (horizontal and vertical) of all utilities prior to beginning work.
- B. If utilities are to remain in place, provide protection from damage during construction operations.
- C. Excavation and Support of Excavation for jacking and receiving pits shall be in accordance with Section 02300, Earthwork, and Section 02200, Support of Excavation.

#### **3.02 HANDLING OF MATERIAL**

- A. Handle pipes, conduits, casing, and ancillary items in such a manner as not to damage the material. Damage to the material, including linings or coatings, shall be repaired to the satisfaction of the Engineer or replaced.
- B. Do not drop or drag pipes, conduits. Handle with rolling slings on skids or with cranes.
- C. Do not use bent or otherwise damaged material shall not be used.

#### **3.03 JACK AND BORE**

- A. Perform jack and bore operations in accordance with approved submittals and the following requirements:
  - 1. The front of the pipe shall be provided with mechanical arrangements or devices that prevent the auger from leading the casing so that no unsupported excavation is ahead of the casing.
  - 2. The use of water or slurry under pressure (jetting) or puddling shall not be

permitted to facilitate boring, pushing, or jacking operations. Water or slurry used to lubricate the cutter and pipe is acceptable.

3. Unless otherwise indicated in the Contract Documents, or accepted by the Engineer in the approved submittals, pipe, conduit, and casing installation under tracks shall be progressed on a continuous basis without stoppage, except for adding sections, until the leading edge has reached the receiving pit.
  - B. Stop operations stop for the passage of trains. Employ methods to prevent loss of the excavation face in accordance with approved submittals.
  - C. Stop operations if ground settlement is detected and employ the emergency remediation plan in accordance with the approved submittals. Repair any damages to the tracks, including track displacement resulting from the construction's operations. The corrective action shall be approved by the Engineer.
  - D. With the use of spacers, place the carrier pipe in the casing pipe such that there is equal space between the casing pipe and carrier pipe, and fill the space with cement slurry, unless otherwise indicated in the Contract Documents.

#### **3.04 FIELD QUALITY CONTROL**

- A. Refer to Section 01400, Quality Control and Assurance. Testing shall be performed by an Engineer-approved Inspection and Testing Agency retained by the Contractor.

**END OF SECTION**