



**SPECIAL PROVISIONS  
FOR  
EXCAVATION FOR STRUCTURES IN LEVEE CRITICAL AREA**

**Woodbury County  
STP-U-7057(701)--70-97  
BHM-7057(692)--8K-97**

**Effective Date  
November 20, 2018**

**THE STANDARD SPECIFICATIONS, SERIES 2015, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.**

**153007.01 DESCRIPTION.**

- A.** The work under this contract is located adjacent to federally constructed levees along the Big Sioux River. As such, no improvement shall be passed over, under, or through the levees, improved channels or floodways, nor shall any excavation or construction be permitted within the limits of the levees other than the construction under this contract and these special provisions without prior approval of the U.S. Army Corps of Engineers (USACE). The limits of the levee critical area are 300 feet riverward and 500 feet landward of the levee. The following structures fall within these limits:
- West Abutment
  - East Abutment
  - Storm Sewer Outlet/Gate Structure
  - Storm Sewer
  - Sanitary Sewer
  - Water Main
  - Electrical Conduit
  - Sign Removal
- B.** Areas within these limits disturbed by excavation, sheet piles, other intrusions or disturbances of the soil shall be restored as described in these special provisions. Any construction within the levee critical area limits that is not directly related to the construction of the structures noted above shall not commence without prior approval of the Engineer and the USACE.

**153007.02 MATERIALS.**

- A. If borrow is needed to complete the backfill, it shall be comprised of lean fat clay (CL or CH). Lean or fat clay shall consist of cohesive materials having at least 50% passing the U.S. Standard 200 mesh sieve size, a Plasticity Index of 10 or greater, and falling between the "U" line and the "A" line on Figure 4 in ASTM D 2487 – Standard Tests for Classifications of Soils for Engineering Purposes.
- B. Moisture and density control of the backfill shall be based on the standard Proctor compaction test (Materials I.M. 309). Cohesive materials shall be compacted to a density of at least 95% of the maximum dry density and be within -1% to +4% of the optimum moisture content at the time compactive effort is applied, which may require the addition of water or aeration of materials. Non-cohesive materials shall be placed in a moist condition and compacted with approved equipment to a density of at least 95% of the maximum dry density. Sampling and testing of backfill shall be in accordance with Materials I.M. 204 for roadway and borrow excavation and embankments and Materials I.M. 312.

**153007.03 CONSTRUCTION.**

- A. Excavations for structures shall be constructed within the levee critical area as per the contract documents. As such, no excavation or penetration of the existing ground beyond the limits as per the contract documents will be permitted. Backfill above bedding material shall be placed in the excavation as it was encountered in the initial excavation. Separate stockpiles shall be made for each soil type encountered in the excavation.

**1. Open Excavation and Trench Box Shored Excavation.**

- a. At a minimum, the top 3 feet of the excavation shall consist of 2 Horizontal:1 Vertical side slope or flatter.
- b. Excavated soils shall be sorted by soil type, classified and stockpiled, separately.
- c. The sand backfill shall be placed in the excavation as it was encountered in the initial excavation.
- d. The clay backfill shall be placed in the excavation as it was encountered in the initial excavation.

**2. Sheet Pile Shored Excavation**

- a. No sheet pile installation shall be performed until a method of excavation and excavation support, restoration, dewatering, and identification and classification of the soils has been submitted and approved by the Engineer. Allow 9 weeks each for review of the submittal and any resubmittals.
- b. Excavated soils shall be sorted by soil type, classified and stockpiled, separately.
- c. The sand backfill shall be placed in the excavation as it was encountered in the initial excavation.
- d. The clay backfill shall be placed in the excavation as it was encountered in the initial excavation.
- e. The sheet piles shall be completely removed following the construction of the structure and backfilling. Following the removal of the sheet piles, material outside the sheet piles shall be excavated using 2:1 side slopes to the depth directed by the Engineer. A depth of 3 feet can be assumed for estimating purposes.

**B. Quality Control Program.**

- 1. Provide and maintain a Quality Control Program for construction of backfill. This is defined as process control sampling, testing, and inspection as described in Materials I.M. 540 for construction of embankments with moisture and density control.

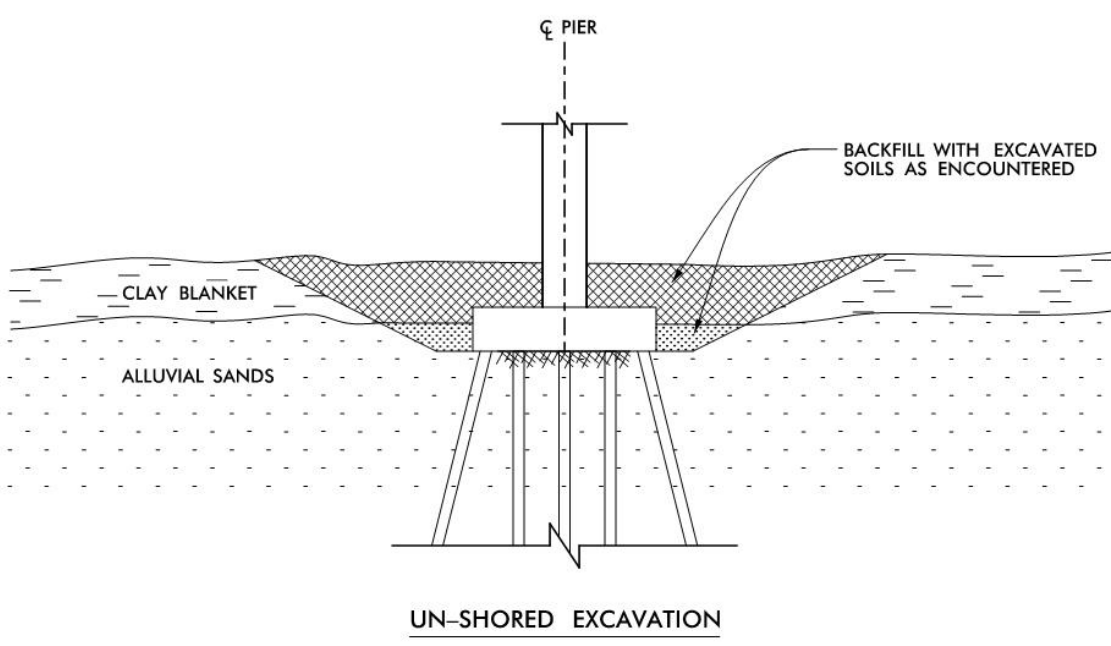
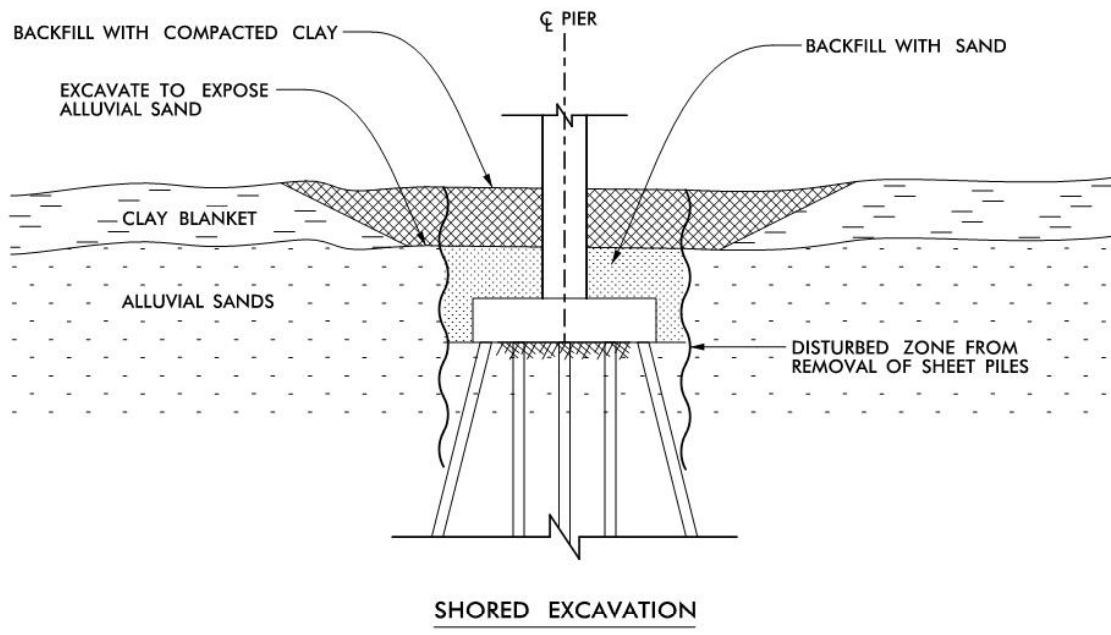
2. Provide a Quality Control Technician who is responsible for all process control sampling, testing, and inspection. The Quality Control Technician shall obtain Soils Technician certification through the Iowa DOT Technical Training and Certification Program (TTCP).
3. Provide a laboratory facility and necessary calibrated equipment to perform required tests.
4. Notify the Engineer when a moisture content falls outside specified control limits or density falls below required minimum. If a moisture content falls outside control limits, fill material in this area will be considered unacceptable for compaction. Perform corrective action(s) to bring uncompacted fill material within control limits. If material has been compacted, disk it, bring to within control limits, and re-compact. When project has a density requirement, if an in-place density does not meet the requirements, compacted fill material in this area will be considered unacceptable. Perform corrective action(s) to material to meet density requirements. Compensation will not be allowed for delays resulting from moistening, disking, or re-compacting.
5. Provide a summary report containing all laboratory test results, field moisture and density control test results, and statement regarding conformance with test results with these special provisions for all structures located within the levee critical area. The summary report shall be submitted no later than

**153007.04 METHOD OF MEASUREMENT.**

Compliance with these special provisions will not be measured for payment but will be considered incidental to the bid item associated with the work.

**153007.05 BASIS OF PAYMENT.**

- A. All costs associated with the excavation and backfilling with moisture and density control in levee critical area, will be considered incidental to the bid item associated with the work.
- B. Payment is full compensation for furnishing a Quality Control Technician, sampling and testing, process control inspection, drying material, furnishing and applying water, controlling moisture content of the materials, and compacting the materials, as specified.



**Figure 1: Pier Nos. 1 and 2 Excavation and Backfill Detail**