



Iowa Department of Transportation

SPECIAL PROVISIONS FOR EXCAVATION FOR STRUCTURES IN LEVEE CRITICAL AREA

Pottawattamie County
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Effective Date
April 15, 2014

THE STANDARD SPECIFICATIONS, SERIES 2012, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

120167.01 DESCRIPTION.

The work under this contract is located adjacent to federally constructed levees along the Mosquito Creek and Missouri 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 construction elements fall within these limits: 16 inch Water Line Removal, Bridge Structure Removal, Drilled Shaft Construction, Class 10 Channel Excavation, Erosion Stone Slope Protection Placement, and Engineering Fabric Placement.

120167.02 WORK ZONE REQUIREMENTS.

Areas within these limits disturbed by excavation, other intrusions or disturbances of the soil shall be restored as described in this special provision. Any excavations within the levee critical area limits that is not directly related to 16 inch Water Line Removal, Bridge Structure Removal, Drilled Shaft Construction, Class 10 Channel Excavation, Erosion Stone Slope Protection Placement, or Engineering Fabric Placement shall not commence without prior approval of the Engineer and the USACE.

120167.03 CONSTRUCTION.

A. 16 inch Water Line Removal.

Water line removal shall be completed 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. Excavations for removal shall be by open excavation as follows:

- Open excavation shall consist of 2 Horizontal:1 Vertical side slopes within the levee critical area.

- Excavated soils shall be sorted by soil type, classified and stockpiled.
- The sand backfill shall be placed in the excavation as they were encountered in the initial excavation.
- The clay backfill shall be placed in the excavation as they were encountered in the initial excavation.

B. Bridge Structure Removal.

Bridge structure removal shall be completed 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. Excavations for removal shall be by open excavation as follows:

- Open excavation shall consist of 3 Horizontal:1 Vertical side slopes within the levee section and 2 Horizontal:1 Vertical side slopes within the levee critical area.
- Excavated soils shall be sorted by soil type, classified and stockpiled.
- The sand backfill shall be placed in the excavation as they were encountered in the initial excavation.
- The clay backfill shall be placed in the excavation as they were encountered in the initial excavation.
- All backfill within the levee section shall consist of lean clay, as defined below.

C. Drilled Shaft Construction.

Drilled shaft construction shall be completed within the levee critical area as per the contract documents. Areas around the drilled shafts that become disturbed by the installation shall be restored, as directed by the Engineer. Excavations for restoration shall be by open excavation as follows:

- Open excavation shall consist of 3 Horizontal:1 Vertical side slopes within the levee section and 2 Horizontal:1 Vertical side slopes within the levee critical area.
- Disturbed soils shall be excavated, sorted by soil type, classified and stockpiled.
- Backfill shall be placed in the excavation as it was encountered in the initial excavation.
- All backfill within the levee section shall consist of lean clay, as defined below.

D. Class 10 Channel Excavation.

Class 10 Channel Excavation shall be completed within the levee critical area as per the contract documents. Excavations shall be by open excavation as follows:

- Disturbed soils shall be excavated, sorted by soil type, classified and stockpiled.
- Backfill shall be placed in the excavation as it was encountered in the initial excavation.
- All backfill within the levee section shall consist of lean clay, as defined below.

E. Erosion Stone Slope Protection Placement.

Erosion Stone Slope Protection placement shall be completed within the levee critical area as per the contract documents. Excavations for erosion stone placement shall be by open excavation as follows:

- Disturbed soils shall be excavated, sorted by soil type, classified and stockpiled.
- Backfill shall be placed in the excavation as it was encountered in the initial excavation.
- All backfill within the levee section shall consist of lean clay, as defined below.

F. Engineering Fabric Placement.

Engineering Fabric Placement shall be completed within the levee critical area as per the contract documents. Excavations for placement of engineering fabric shall be as follows:

- Disturbed soils shall be excavated, sorted by soil type, classified and stockpiled.
- Backfill shall be placed in the excavation as it was encountered in the initial excavation.
- All backfill within the levee section shall consist of lean clay, as defined below.

G. Materials.

1. If borrow is needed to complete the backfill, it shall be comprised of lean clay (CL). Lean 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 3 in ASTM D 2487 – Standard Tests for Classifications of Soils for Engineering Purposes, and a Liquid Limit less than 50.
2. 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.

H. 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.

120167.04 METHOD OF MEASUREMENT.

Compliance with this special provision will not be measured for payment, but will be considered incidental to the bid item associated with the work.

120167.05 BASIS OF PAYMENT.

- A. All costs associated with the excavation and backfilling with moisture and density control in levee critical areas, 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.