COMMONWEALTH OF KENTUCKY
TRANSPORTATION CABINET
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TO: Rachel Mills, P.E.
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FROM: Tracy Lovell, P.E.
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DATE: October 12, 2017

SUBJECT: McCracken County
KY 1954 Special Embankment - Levee

The subject project involves the modification of an existing levee. Under the agreed permit with the U.S. Army Corps of Engineers, special methods and materials are required during construction. Approximately 21,000 cubic yards of Special Embankment are estimated for the levee modification. It is our intent to provide additional notice to potential bidders on these requirements to allow for adequate time to source required material. We expect this project to be posted for a December 2017 or January 2018 letting.

Attached are the notes and specifications for the methods and materials related to the levee modification. Please post this information to the appropriate location to allow for the additional notification.

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SPECIAL NOTE FOR SPECIAL EMBANKMENT

I. DESCRIPTION

Except as provided herein, perform all work in accordance with the Current edition of the Department's Standard Specifications, interim Supplemental Specifications, Standard and Sepia Drawings, and Special Notes and Special Provisions, current editions. Article references are to the Standard Specifications. This project shall consist of furnishing all labor, equipment, materials, and incidentals for the following:

(1) Maintaining and Controlling Traffic; (2) Special Embankment; (3) Erosion Control; and any other work as specified by this contract.

II. MATERIALS

Provide for sampling and testing of all materials in accordance with the Department's Sampling Manual unless otherwise specified in these notes. Make materials available for sampling a sufficient time in advance of the use of the materials to allow for the necessary time for testing unless otherwise specified in these notes.

A. Maintain and Control Traffic. See Traffic Control Plan.

B. Special Embankment. Special embankment shall be completed using compacted earth as specified in the US Army Corps of Engineers Standard Operating Procedure for Benching and Compaction for Levee and Floodwall Modification. All potential Borrow sites must comply with section 205 of the specifications concerning all permits and approvals. Soil samples are to be taken at a rate of 1 per 3000 CUYD per site. 4 weeks will be allowed for all required testing to be conducted for borrow site approval.

C. Erosion Control. See Special Note for Erosion Control.

III. CONSTRUCTION METHODS

A. Maintain and Control Traffic. See Traffic Control Plan.

B. Site Preparation. Be responsible for all site preparation, including but not limited to saw cutting and removing pavement; clearing and grubbing, and incidental excavation and backfilling; removal of existing pipe, headwalls and any obstructions or items; restoration of pavements, slopes, and all disturbed areas; final dressing and cleanup; and disposal of materials. Perform all site preparation only as approved or directed by the Engineer.

Provide positive drainage of pavement, shoulders, slopes, and ditches at all times during and upon completion of construction

C. **Special Embankment.** See US Army Corps of Engineers Standard Operating Procedure for Benching and Compaction for Levee and Floodwall Modification. Density and moisture content reading/testing will be taken every 8 inch lift for every 500 feet of roadway centerline length or fraction thereof. Contrary to section 206, moisture requirements will be -1% to +3% and loose lift thickness will be 8 inches.

D. **Erosion Control.** See Special Note for Erosion Control Plan. Contractor shall immediately correct any disturbance to all drainage features and structures caused by Contractor's work.

E. **Final Dressing, Clean Up, Seeding and Protection, and Restoration.** After all work is completed, remove all waste and debris from the job site. Grade all disturbed areas to blend with the adjacent roadway features and to provide a suitable seed bed. Perform Class A Final dressing on all disturbed areas. Seed and protect all disturbed earthen areas within 15 feet of the toe of the levee according to US Army Corps of Engineers Standard Operating Procedure for Benching and Compaction for Levee and Floodwall Modification. Seed and protect all other earthen areas according to the Special Notes for Erosion Control Plan.

F. **Property Damage.** Be responsible for all damage to public and/or private property resulting from the work. Repair or replace damaged roadway features in like kind materials and design as directed by the Engineer at no additional cost to the Department. Repair or replace damaged private property in like kind materials and design to the satisfaction of the owner and the Engineer at no additional cost to the Department.

G. **Disposal of Waste.** Dispose of all removed concrete, pipe, pavement, debris, excess and unsuitable excavation, and all other waste at approved sites off the right of way obtained by the Contractor at no additional cost to the Department (see Special Note for Waste and Borrow).

IV. METHOD OF MEASUREMENT

A. **Maintain and Control Traffic.** See Traffic Control Plan.

B. **Site Preparation.** Other than the bid items listed, site preparation will not be measured for payment, but shall be incidental to the project bid items.

C. **Special Embankment.** The Department will measure the quantity in cubic yards as the design quantity shown within the neat lines of the cross sections on the Plans, increased or decreased by authorized adjustments as specified in Subsections 204.04.01 and 204.04.02.

The Department will NOT measure overhaul of material and will consider it incidental to Special Embankment.

D. Erosion Control. See Special Note for Erosion Control.

V. BASIS OF PAYMENT

A. Maintain and Control Traffic. The Department will pay the quantity as Lump Sum.

B. Site Preparation. Other than the bid items listed, the Department will NOT measure Site Preparation for payment, but shall be incidental to the project bid items.

C. Special Embankment. Payment at the Contract unit price per cubic yard shall be full compensation for furnishing all labor, materials, equipment and incidentals for furnishing and installing Special Embankment under the bid item "Special Embankment."

D. Erosion Control. See Special Note for Erosion Control.

Standard Operating Procedure
for
Benching and Compaction for Levee and Floodwall Modifications

30 November 2010

1. Placing backfill *within the levee embankment* will require the following:

a) The surface of the levee shall be stripped of organics and topsoil to a depth of approximately 6 inches prior to benching the levee sideslope.
b) The existing levee embankment shall be over-excavated in all directions by benching 1 ft vertical and 3 ft horizontal into stiff undisturbed soil. A level bottom surface day-lighting toward the levee toe shall be provided from which the upward benching on the sides shall initiate. Benching may have to be performed by hand methods or using small-scale excavation equipment.
c) The levee soil on which the backfill is to be placed should not be excavated until immediately before backfilling, and shall not be allowed to become overly wet or dry while exposed. The surface area of the benches shall be scarified as necessary to ensure a good bond between the existing soil and the backfill material.
d) Backfill material must be low permeability soils - impermeable soils (e.g. SC, CL or CL-ML with an estimated hydraulic conductivity less than 1 x10^{-5} cm/sec) in accordance with ASTM 2488 - USCS classification system.
e) Backfill material shall be placed in loose lifts with thicknesses not to exceed 8-inches and compacted in the holes to a minimum 95 percent Standard Proctor density determined at optimum moisture content according to ASTM D-698. Moisture control limits are to be within -1% to +3% of optimum.
f) The finished riverside or landside slope of the levee shall be graded to match the existing levee slopes upstream and downstream. A site-specific grading plan must be approved for projects where the final grade differs from the original grade.
g) The disturbed areas shall be seeded and covered with a bio-degradable geotextile when final grading is complete.

2. Placing backfill materials *outside the projected levee slopes but within a minimum of 15 feet of the toe of the Levee or face of the Floodwall* requires the following:

a) Backfill material must be low permeability soils - impermeable soils (e.g. SC, CL or CL-ML with an estimated hydraulic conductivity less than 1 x10-5 cm/sec) in accordance with ASTM 2488 - USCS classification system.
b) Backfill shall be placed in loose lifts with thicknesses not to exceed 8-inches and compacted in the holes to a minimum 95 percent Standard Proctor density determined at optimum moisture content according to ASTM D-698, unless otherwise directed. Moisture control limits are to be within -1% to +3% of optimum.
c) The disturbed areas shall be seeded and covered with a bio-degradable geotextile when final grading is complete.