



**SPECIAL PROVISIONS
FOR
HYDRAULIC FILL**

**Monona County
ER-175-1(49)--28-67**

**Effective Date
October 5, 2011**

THE STANDARD SPECIFICATIONS, SERIES 2009, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

090162.01 DESCRIPTION.

A. General.

Hydraulic filling in this Special Provision is defined as the placement of fill through standing water by either hydraulic transport of fill material or by mechanical placement of fill material. This work includes furnishing all equipment, materials (except as discussed below), and labor for and accomplishing all work necessary to fill the scour hole in locations as shown in the contract documents. The exact method of obtaining fill material, its transport to the site, and its placement shall be the responsibility of the Contractor. At the Contractor's option, the source location for the material identified in the plans may be used. Alternatively, off-site contractor-furnished material may be supplied, subject to material gradation restrictions indicated in this document.

B. Purpose for Project ER-175-1(49)--28-67.

The purpose of the placement of fill material is to fill the scour hole that developed near the east abutment and around Pier 8 of the Iowa Highway 175 Missouri River bridge during 2011 flooding. Filling the scour hole to Elevation 1031.0 is a necessary first step in preparation for further restorative and preventative repairs to the area around the affected bridge foundations and approach embankment.

C. Method.

1. The site shown in the plans may be used as the source of the fill material. A boring location diagram and the logs of borings drilled within or near the site are included in the plans. If this source site is selected for use, its location and the allowable depth for dredging are shown and/or noted in the plans.
2. The Contractor may also elect to obtain suitable fill material from off-site source(s).
3. For hydraulic transport of fill material, the pumping system configuration shall prevent discharge of pumped water off the project site. For purposes of this provision, the project site is considered to be the bridge area scour hole and the upstream optional material source. This provision assumes that stream flow through the project site has ceased prior to commencement of work.
4. The Contractor may also elect to use mechanical (earth moving equipment), or other techniques approved by the Engineer, to deliver fill material into the scour hole in lieu of hydraulic transport of material. If mechanical techniques are used, the provisions of this Special Provision, except those provisions specific to hydraulic transport, shall apply.

D. Submittals.

1. Work Plan.

The Contractor shall develop and submit a Work Plan prior to the project's anticipated standard Preconstruction Conference. The Work Plan shall, as a minimum, include the following listed items.

- a. A list of at least three hydraulic filling projects completed within the last 7 years, including names and phone numbers of owners.
- b. A signed statement that the Contractor has inspected the project site and all subsurface information available in the project documents.
- c. A list of names and the experience level with hydraulic filling operations of all key personnel assigned to the project, and names of all subcontractors including testing firms, and their associated responsibilities.
- d. A general description of how the scour hole will be filled, followed by details of how all major operations will be accomplished, including bathymetric or equivalent survey measurements.
- e. The source of the fill material, and methods used to confirm material specifications for off-site material.
- f. A listing of all key equipment that will be used, with brief description of intended use of each piece of key equipment.
- g. A description of the equipment, techniques, and procedures used to monitor and evaluate overall progress of scour hole filling, placement of fill at critical locations across the scour hole as may be needed around Pier 8 (as discussed in Article 090162.03, A), and completion of hydraulic filling to the specified elevations.
- h. Details of the circulation (prevention of discharge) of water during hydraulic transport operations discussed in Article 090162.01, C.

2. Verification Program.

A Verification Program consisting of physical survey shots such as tape or rod soundings of the final filled scour hole will be required to supplement bottom depth/elevation information obtained by sonar or other means as discussed in Article 090162.01, F. The physical survey shots shall be on maximum 50 foot spacing (nominally a grid pattern). This physical survey data, along with coordinates of the survey locations shot, shall be submitted to the Engineer as part of satisfactory completion of hydraulic filling.

3. Daily Reports.

During construction, the Contractor shall submit three copies of daily progress reports in writing to the Engineer detailing the following.

- a. An estimate of the quantity of fill placed in the scour hole.
- b. A sketch of areas of fill placement.
- c. Quarry's gradation report/certification for any fill obtained from off-site sources.
- d. When filling around Pier 8, a report of elevations of the fill within the 40 foot radius of the pier (see Article 090162.03, A).

4. Final Report.

At the completion of filling of the scour hole, the Contractor shall submit a report to the Engineer that provides a detailed final bathymetric or equivalent elevation survey of the filled scour hole. This report shall also include a listing of all Verification Program testing performed and its resulting survey data.

E. Pre-Construction Conference.

1. A standard Preconstruction Conference is anticipated prior to the Contractor beginning any work at the site to include discussion of the Work Plan, construction procedures, personnel, verification program, quality control, and equipment to be used. Those attending shall include:
 - a. The superintendent, on-site supervisors, independent testing agency representative if applicable, and all foremen in charge of operations.
 - b. The Engineer, key inspection personnel, and representatives of the Contracting Authority.
2. If the Contractor's key personnel change or if the Contractor proposes a significant revision of the Work Plan, an additional conference may be required before any additional work is performed.

F. Basis of Acceptance.

The basis of acceptance for the fill will be the final bathymetric depth or equivalent elevation measurements obtained by the Contractor together with the Verification Program test results.

090162.02 MATERIALS.

- A. Material for hydraulic fill shall be naturally occurring deposits of sand and/or gravel. Sand and gravel banks deposited on the floodplain as a result of flooding are considered a naturally occurring deposit for the purposes of this work.
- B. Any off-site source material obtained for filling the scour hole to Elevation 1031.0 shall be AASHTO Classification A-1, A-2, or A-3 materials with no more than 25% silt and clay.
- C. If the plan source site is used, gradation requirements with respect to maximum percent of silt and clay of the fill material will be waived (will not apply).

090162.03 CONSTRUCTION.**A. Procedures.**

1. Fill material placed within a circle of 40 foot radius in any direction of Pier 8, centered on the pile group, shall be placed in a manner so that the surface elevation of the fill does not, at any time, vary by more than 3 feet within the circle. This is to assure that lateral loading on the pile is kept at a minimum.
2. The actual construction procedures to achieve the plan and these Special Provision requirements shall be determined by the Contractor.

B. Use of Existing Bridge.

No construction equipment will be allowed on the existing bridge in conformance with the plans, or as approved by the Engineer.

090162.04 METHOD OF MEASUREMENT.

- A. Measurement of Hydraulic Fill shall be in cubic yards and as per the provisions of Article 2102.04, A, 1, d of the Standard Specifications for Embankment-In-Place modified as follows.
- B. The placement limits and quantity shall be measured utilizing the final bathymetric or equivalent elevation survey data of the filled scour hole, submitted in the final report under Article 090162.01, D, 4, compared to the cross sections provided prior to beginning of construction. No adjustment for settlement or subsidence will be allowed.

090162.05 BASIS OF PAYMENT.

Payment for Hydraulic Fill shall be per the provisions of Article 2102.05, A, 1 of the Standard Specifications for Embankment-In-Place.