SP- 159002
(New)

SPECIAL PROVISIONS
FOR
COFFERCELL

Allamakee County
STP-009-9(84)--2C-03

Effective Date
August 1, 2023

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.

159002.01 DESCRIPTION.

This work shall consist of furnishing materials, services, labor, tools, equipment and incidentals necessary to design, fabricate, test and install the coffercell for waterline footing construction. A coffercell shall be defined as a temporary or permanent structure, consisting of engineered components, designed to isolate a waterline footing work area from water to enable construction of the permanent footing under dry conditions.

159002.02 CONSTRUCTION.

A. Submittals.

1. All documents are to be submitted and reviewed electronically in accordance with project requirements. Hardcopies of documents will not be processed.

2. The Contractor shall submit a coffercell plan for each coffercell to the Engineer for review and acceptance a minimum of 75 days prior to the start of construction. The Engineer shall have 45 days for the first review of a drawing and any subsequent submittal review times of the same drawing shall be in accordance with the Article 1105.03 of the Standard Specifications.

3. The coffercell plan shall include detailed drawings and design calculations prepared, signed, and sealed by a Professional Engineer licensed in the State of Iowa.

B. Requirements.

1. Coffercells shall not be installed without the Engineer's acceptance. Any construction/fabrication of the coffercell prior to acceptance is at the Contractor’s risk.

2. Work shall not be performed in flowing water except for the installation of the coffercell.

3. The top of any permanent coffercell elevation shall be a minimum of 1 foot below the top of footing elevation as detailed in the plans. The top of footing shall be extended, including rebar, subject to acceptance of the Engineer to horizontally extend over any permanent coffercell top elevation to eliminate a vertical construction joint at top of footing between the permanent coffercell and the footing.

4. For coffercells, it is anticipated the design will be based on a water elevation at the top of coffercell. The Contractor shall assume all liability, financial or otherwise, for a coffercell designed for a water elevation lower than the top of coffercell.

5. Any permanent elements of a coffercell shall be primarily composed of concrete elements that may be precast as a whole and floated into place or cast in modules and assembled in place. All structural material for the permanent elements of a coffercell shall conform to Iowa DOT Standard Specifications. Minimum reinforcing steel clearances shall be in accordance with the latest AASHTO LRFD Bridge Design Specifications. The coffercell shall be supported on the drilled shafts and designed to carry the weight of the wet concrete footing pour and any construction live loads until the footing is cured.

6. No component of the permanent coffercell other than steel reinforcing bars of the same type as the permanent footing reinforcement shall extend into the footing concrete without written acceptance of the Engineer. Reinforcing steel extending into the footing from the permanent coffercell components shall not interfere with the footing reinforcement detailed in the plans.

7. The permanent coffercell is limited to a maximum width of 2 feet on any side of the footing. The exposed exterior faces of any permanent coffercell components shall be concrete. The exterior face of the coffercell on all sides shall be smooth, follow the shape of the footing, and not vary in width. The thickness and surface of the bottom of the coffercell may vary and shall be within justifiable engineering limits subject to acceptance by the Engineer.

8. The Contractor takes on all risk of impact to the coffercell from debris or other natural events prior to completion of the footing and removal of any temporary forms.

C. Coffercell Plan.

The coffercell plan shall address the following:

1. The Contractor shall submit a coffercell plan for acceptance which addresses the proposed methods of construction; proposed materials for construction; the construction sequence including staging; installation methods; methods for adjustments in the field, dewatering methods; a quality control plan; inspection methods; effluent water control measures; and the best management practices to prevent introduction of foreign material into the aquatic environment.

2. The coffercell plan shall detail the methods of casting, transporting, lifting, picking, floating and placing of coffercell components in the field as well as designate any staging and precasting locations.

3. The coffercell plan shall detail the methods of sealing around the drilled shaft casings or between formwork to ensure a sealed dry coffercell for installation and placement of the footing reinforcement and concrete in the dry.

4. The coffercell plan shall detail positive connectivity of any permanent coffercell components to the proposed footing through reinforcing and/or multiple shear keys with appropriate calculations to justify connectivity such that the permanent coffercell components will remain a permanent part of the footing for the life of the structure.

5. The Coffercell plan shall detail the limits of the coffercell.

6. The Coffercell plan shall detail the methods of ensuring proper concrete placement and consolidation around rebar in the permanent footing especially near exposed footing faces.

7. The Coffercell plan shall detail any inspection methods and repair procedures for any underwater surface defects on the permanent footing if exposed such as honeycombing. Inspection and repair procedures shall address:
   - **a.** Who is going to perform the underwater inspection.
   - **b.** How is the underwater inspection going to be performed.
   - **c.** Past experience and qualifications of the underwater inspectors, including a minimum of three successfully completed reference projects of similar scope.
   - **d.** How the Engineer will be able to verify that the inspection and inspection of any repairs is accurate and complete. Examples include video or photographs.
   - **e.** What material will be used to patch surface defects.
   - **f.** Who will be performing the repair work.
   - **g.** What experience and successfully completed projects has the specialty contractor had in doing similar underwater repair work including a minimum of three examples.

D. Quality Assurance / Inspection.

Provisions shall be made for the inspection and repair of any exposed exterior surfaces of the permanent cast-in-place footing after removal of formwork, including those surfaces underwater.

159002.03 METHOD OF MEASUREMENT.

Lump Sum.

159002.04 BASIS OF PAYMENT.

All work associated with engineering, furnishing, installing and removal of a coffercell when specified will be paid for at the contract unit price lump sum for COFFERCELL.