

SECTION 00512 - DRILLED SHAFTS

(Follow all instructions. If there are no instructions above a subsection, paragraph, sentence, or bullet, then include them in the project but make necessary modifications to only include project specific specifications. Delete specifications that do not apply to the project.)

Comply with Section 00512 of the Standard Specifications modified as follows:

00512.13 Steel Casing - Delete the sentence that begins "Use casing with an outside diameter...".

00512.18 Grout - Replace this subsection with the following subsection:

00512.18 CSL Cement Grout - Furnish a pumpable CSL cement grout consisting of neat cement and water that has a water cement ratio between 0.38 and 0.45. The portland cement for the CSL cement grout shall meet the requirements of Section 02010.

(Use the following subsection .43(a) when the contract requires a minimum shaft penetration into a bearing layer (as opposed to a specified tip elevation) and the bearing layer elevation at each shaft cannot be accurately determined. Obtain the information as from the Geotechnical Engineer. Include subsections .45, .80(d), and .80(e).)

00512.43(a) Drilled Shaft Excavation, General - Add the following paragraph after the last paragraph:

Variations in the bearing layer elevation from that shown are anticipated. Provide equipment on-site capable of excavating an additional _____ feet of depth below that shown.

(Use the following lead-in paragraph and subsection .44 when permanent casing is required. Include the outside diameter and the wall thickness under the "Casing Size" column.)

Add the following subsection:

00512.44 Permanent Casing - Furnish and install permanent casing as follows:

Bridge Number	Bent Number	Casing Size	Elevation for Top of Casing (Feet)	Elevation for Bottom of Casing (Feet)
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Perform welding of all permanent casing according to AWS D1.1. Test all full penetration welds using nondestructive methods by either radiograph or ultrasonic methods. Base nondestructive testing acceptance criteria on cyclic tension loading.

After concrete placement, fill all void space between the casing and the shaft excavation with a material that approximates the geotechnical properties of the in-situ materials.

(Use the following subsection .45 when the contract requires a minimum shaft penetration into a bearing layer (as opposed to a specified tip elevation) and the bearing layer elevation at each shaft cannot be accurately determined. Obtain the information from the Geotechnical Engineer. Include subsections .43(a), .80(d), and .80(e).)

00512.45 Reinforcing Steel - Add the following paragraph to the end of this subsection:

At locations requiring minimum shaft penetrations into specific bearing layers, furnish steel reinforcing bar cages, including CSL access tubes if specified, ___ feet longer than the lengths shown. Add the increased length to the bottom of the cage. Trim the shaft steel reinforcing bar cage to the proper length prior to placing it in the excavation. Shift or trim CSL access tubes (if present) to the revised cage length. If CSL tubes are cut, adapt the ends of the tubes to receive the watertight caps as specified.

(Use the following .48(a) when non-contact splices are required in shaft construction. Describe, as necessary, all drilled shafts subsequent to the first shaft constructed that require CSL testing.)

00512.48(a) Crosshole Sonic Log Testing - Add the following to the end of this subsection:

For drilled shafts constructed using non-contact splice methods, perform CSL testing after the initial pour to the bottom of the splice region and prior to placement of the column reinforcement and pouring of the splice region.

(Use the following subsection .80(d) to list the estimated amount of required concrete.)

00512.80(d) Drilled Shaft Concrete - Add the following at the end of the paragraph:

The estimated quantity of drilled shaft concrete is:

Structure	Class	Quantity (Cubic Yard)
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(Use the following paragraph when additional concrete is required to extend the minimum shaft penetrations. Include subsections .43(a), .45, and .80(e).)

The estimated quantity of drilled shaft concrete includes the concrete required to extend the shafts according to 00512.43(a).

(Use the following subsection .80(e) to list the estimated amount of required reinforcement. Remove the coated column if coated steel is not required.)

00512.80(e) Drilled Shaft Reinforcement - Add the following at the end of the paragraph:

The estimated quantity of drilled shaft reinforcement is:

Structure	Uncoated (Pound)	Quantity	Coated (Pound)
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(Use the following paragraph when additional reinforcement is required to extend the minimum shaft penetrations. Include subsections .43(a), .45, and .80(d).)

The estimated quantity of drilled shaft reinforcement includes the reinforcement required to extend the shafts according to 00512.45.