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**Instructions for use****Construction Specification 85—Conduit Slip-lining****1. Applicability**

Construction Specification 85 is applicable to installing a carrier pipe in a casing. The casing may be an existing conduit or other casing such as a casing installed by boring and jacking.

When slip-lining a casing that has been installed by boring and jacking through a dam, it is generally necessary to add additional carrier pipe upstream and downstream of the slip-lined pipe. Construction Specification 85 does not address the installation of this additional carrier pipe.

**2. Special contracting considerations**

Proof of contractor cellular concrete grouting experience is required. The work must be conducted by an experienced contractor having completed 10 cellular concrete installations that are similar in nature to that specified. Request the contracting officer require proof of experience that meets these requirements before awarding the construction contract.

**3. Construction specifications**

Construction Specification 41, 42, 44, or 45, as applicable, must be included with Construction Specification 85. Applicability will depend on the type of pipe to be installed.

When the casing is to be installed by boring and jacking as part of the same specification package, Construction Specification 54, Boring and Jacking, must be included with Construction Specification 85.

A high degree of quality control is required when slip-lining and grouting a carrier pipe in casing. Include Construction Specification 94, Contractor Quality Control, with Construction Specification 85. Specify Method 2 for the contractor's quality control system and personnel.

**4. Material specifications**

The following material specifications complement Construction Specification 85:

**Admixtures**—Material Specification 533, Chemical Admixtures for Concrete

**Concrete culvert pipe**—Material Specification 542, Concrete Culvert Pipe, as applicable

**Corrugated polyethylene pipe and fittings**—Material Specification 548, Corrugated Polyethylene Tubing, as applicable

**Fly ash**—Material Specification 532, Supplementary Cementitious Materials

**Plastic pipe, fittings, and gaskets**—Material Specification 547, Plastic Pipe, as applicable

**Portland cement**—Material Specification 531, Portland cement

**Reinforced concrete pressure pipe, fittings, and accessories**—Material Specification 541, Reinforced Concrete Pressure Pipe, as applicable

**5. Included items**

Items to be included in contract specifications and drawings follow:

- a. Complete engineering detail drawings of the casing, carrier pipe, carrier pipe line and grade, and any appurtenant structures or end treatments that will be removed, left in place, modified, or installed. Ensure the work limits are adequate to transport and stockpile materials and install the carrier pipe, including grouting materials and operations to produce and pump the cellular concrete.
- b. In Section 2, Materials, specify the class of fly ash and type of Portland cement to be used or state that the contractor may choose the class of fly ash or type of Portland cement to be used. These are independent of each other so that one may be specified and the other may be selected by the contractor.
- c. In Section 2, Materials, specify the type of carrier pipe to be installed and include the applicable ASTM or AWWA designation. For concrete culvert pipe, specify reinforced pipe and specify the pipe class. For plastic pipe, specify

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the type of plastic pipe and any identifiers or features desired, and specify the type of joint where there are options for joining the pipe.

- d. In section 9, specify pressure restrictions for rigid carrier pipe in terms of pounds per square inch or specify that the contractor limit the maximum pressure at the point of discharge to avoid damage to the casing, carrier pipe, and any ancillary structures, if applicable. If applicable, specify more stringent pressure restrictions for the specified type of nonrigid carrier pipe.
- e. Depending on the pipe grade, it may be necessary to grout in stages to control grouting pressure. Where applicable, include a statement similar to, "Cease grouting before the specified maximum is attained; allow installed grout to set before continuing grout installation."
- f. In section 11, specify any requirements for filling or special treatment of the bore pit.

## **6. Methods**

No methods are outlined in the specification.

## **7. Items of work and construction details**

Starting at the top of page 85–7, prepare and outline job specific "Items of Work and Construction Details" in accordance with these instructions.