Bracketed section numbers refer to the 2006 *Standard Specifications*.

Section 62 Alternative Culverts

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4-6201 General

4-6201 General

Section 62, “Alternative Culverts,” of the *Standard Specifications* provides general specifications for constructing alternative culverts, alternative slotted pipe, and temporary culverts; and for placing concrete backfill for pipe trenches. Section 62-1, "General," of the *Standard Specifications* provides the contractor the opportunity to choose between several different kinds of culverts to be installed or constructed. Alternative culverts may include the following:

- High density polyethylene or polyvinyl chloride pipe compliant with Section 64, "Plastic Pipe," of the *Standard Specifications*.
- Reinforced concrete pipe and pipe arches compliant with Section 65, "Concrete Pipe," of the *Standard Specifications*.
- Reinforced concrete box culverts and arch culverts compliant with Section 51, "Concrete Structures," of the *Standard Specifications*.
- Corrugated steel or corrugated aluminum pipe and pipe arches compliant with Section 66, "Corrugated Metal Pipe," of the *Standard Specifications*.
- Structural steel or structural aluminum plate pipe, arches, and pipe arches compliant with Section 67, "Structural Plate Culverts," of the *Standard Specifications*.

The contract plans show the locations and alternative types of culverts. When alternative culverts are specified, the Bid Item List will designate contract items as alternative culverts for each size and type of culvert.

Section 62-2, "Alternative Slotted Pipe," of the *Standard Specifications* includes specifications for constructing alternative slotted pipe. Slotted pipes may include the following:

- Slotted plastic pipe compliant with Section 64-2, "Slotted Plastic Pipe," of the *Standard Specifications*.
- Slotted corrugated steel pipe compliant with Section 66-2, "Slotted Corrugated Steel Pipe," of the *Standard Specifications*.

Section 62-3, "Temporary Culverts," of the *Standard Specifications* includes specifications for constructing temporary culverts.

Section 62-4, "Concrete Backfill for Pipe Trenches," of the *Standard Specifications* includes specifications for placing concrete backfill in pipe trenches.

4-6202 Before Work Begins

Before work begins, do the following:

- Review the special provisions and contract plans to determine the different types of culvert that may be used and the locations where alternative culverts may be installed.
- Review the special provisions and contract plans to determine the different types of slotted pipe that may be used and the locations where alternative slotted pipe may be installed.
- Verify that Form CEM-3101, "Notice of Materials to Be Used," includes the materials the contractor chose for alternative culverts or alternative slotted pipe. Refer to Section 6-202, "Responsibilities for Acceptance of Manufactured or Fabricated Materials and Products," of this manual for additional information.

Also note the following:

- The contractor must obtain the engineer's authorization for the strength and capacity of temporary culverts before installation.
- Concrete backfill for pipe trenches must comply with specifications for minor concrete, except the concrete must contain at least 380 pounds of cementitious material per cubic yard. Rapid strength concrete (RSC) may be used instead of minor concrete for concrete backfill. When RSC is to be used as concrete backfill, a submittal including the concrete mix design and test data from an authorized laboratory must be submitted at least 10 days prior to excavation of the pipe trench. Refer to specifications for RSC material requirements. The laboratory must specify the cure time required for the concrete mix to attain 500 psi compressive strength when tested under California Test 521.

4-6203 During the Course of Work

For guidelines for inspecting each chosen type of culvert and slotted pipe, refer to the appropriate section in Chapter 4, "Construction Details," of this manual.

Temporary culvert is to be removed and disposed of when it is no longer required for the work. A removed, undamaged, temporary culvert may be installed in the permanent work if it complies with specifications for the permanent culvert and it is new when installed as a temporary culvert on the project.

Refer to Section 62-4.03, "Construction," of the *Standard Specifications*, for concrete backfill items to review during the course of the work.

4-6204 Measurement and Payment

Once a type of culvert has been selected, apply the specifications for pipe and pipe arches, including measurement and payment provisions, specific to that type of culvert. To measure the various types of pipe selected, follow the guidelines in this manual. For reinforced concrete box and arch culverts paid for as alternative culvert, Section 62, "Alternative Culverts," of the *Standard Specifications* specifies the measurement method.

Once a slotted pipe type has been selected, apply the payment provisions specific to that kind of pipe.

Refer to Section 62-3.04, "Payment," of the *Standard Specifications* for payment of temporary culverts and pipe reducers.

Concrete backfill payment for pipe trenches is made under Section 62-4.04, "Payment," of the *Standard Specifications*.