

### Section 66 Corrugated Metal Pipe

#### 4-6601 General

Corrugated metal pipe, designated by metal thickness and pipe diameter, includes both steel and aluminum pipe. The *Standard Plans* specify the requirements and other details for coupling bands.

#### 4-6602 Before Work Begins

The resident engineer should take the following preliminary steps:

- Review plans and specifications.
- Inspect the job site for the locations of all proposed installations.
- Modify plans when necessary to fit field conditions. Prepare contract change orders for major changes from approved plans, for example, additions, deletions, or changes in type or size of pipe. When structures are staked, adjustments may be made in location or length of cross drains or side drains, as necessary without requiring a contract change order.
- After determining final locations and lengths, give the contractor a revised pipe list, including those pipes added or altered by contract change order.
- Verify the receipt and proper distribution of Form CEM-3101, “Notice of Materials to Be Used,” which lists all fabricated materials.

#### 4-6603 During the Course of Work

During the work, do the following:

- Upon delivery of the pipe, note whether it is identified by marks or inspection tags. (Form TL-0624, “Inspection Release Tag.”) Check the pipe for any possible damage sustained after inspection at the source. Require the repair of minor damage to coatings or galvanizing. If satisfactory repair cannot be achieved, require the contractor to remove this unacceptable pipe from the project. If the pipe is properly identified as inspected, project personnel normally do not need certificates of compliance or mill test reports. An inspector from the Office of Materials Engineering and Testing Services (METS) will have already obtained these documents.
- Before excavating pipe, require that embankments be constructed as specified. Refer to Sheet A-62F of the *Standard Plans* for excavation and backfill requirements.
- For instructions about inspecting backfill, see Section 4-19, “Earthwork,” of the *Construction Manual* (manual). Corrugated metal pipe can be displaced or damaged during backfill. Therefore, insist on precautions to prevent damage.

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#### 4-6601 General

#### 4-6602 Before Work Begins

#### 4-6603 During the Course of Work

- For information about concrete backfill and slurry cement backfill, see Section 4-65, “Reinforced Concrete Pipe,” of this manual. The contractor must not use slurry cement backfill with aluminum metal pipe or corrugated metal pipe coated with aluminum.
- Be particularly alert to ensure the required type and thickness of pipe at each location. To avoid galvanic corrosion, prohibit the combination of steel and aluminum in any installation.
- Note whether the ends of pipe have been reinforced where required. Where pipe terminates at a structure, require the end of the pipe to be flush with the face or interior surface.
- Ensure circumferential joints and side seams are positioned as required. Especially note whether spaces between lengths of pipe permit a correct fit by couplers. For helically corrugated pipe, corrugations must be matched across field joints with proper space maintained between lengths of pipe. Angles, lugs, or other projections on couplers must be positioned about halfway between the crown and the side of the pipe. Before permitting backfill, couplers must be snug and tight.
- Before joint materials for culvert and drainage pipe arrive at the site, a METS inspector will inspect and test the material as necessary.
- When siphons or watertight joints are installed, witness the required hydrostatic tests.
- When pipes are installed by jacking, note whether methods and equipment damage the pipe. Heavier pipe may be necessary to withstand jacking pressure. The contractor must bear any extra cost that exceeds the cost for the original pipe of specified thickness.
- During and after jacking, ensure that both line and grade comply with specified tolerances. If the void between the pipe and the periphery of the excavation exceeds the permitted amount, require the contractor to fill the void with sand or mortar. This filling may be accomplished by using special fittings placed through the pipe wall or by using holes drilled from the surface to the void.
- As shown on Sheet D88 in the *Standard Plans*, ensure minimum fill conditions are met for construction loads on culverts.
- Throughout the progress of the work, inspect installed pipes periodically. If you discover any structural deficiencies, ensure the deficiencies are corrected before the start of the base or surfacing operations, where pipes underlie pavements. Before accepting the contract, or recommending a granting of relief from maintenance, all pipes must be inspected and, if necessary, cleaned. The contractor is responsible for cleaning pipes placed under contract.

<b>4-6604</b>	<b>4-6604 Measurement and Payment</b>
<b>Measurement and Payment</b>	See Section 4-65, “Reinforced Concrete Pipe,” of this manual for information on measuring pipe.