11.1 Service Ducts and Voids - General

Service ducts/conduit are normally detailed for installation in the curb sections.

- Service ducts/conduit are required in bridges to carry services such as telecommunication and electrical power through the bridge.
- Displacement voids are installed in bridges to reduce the dead load/weight.
- When detailed, electrical conduit is installed to provide electrical service to lighting on the bridge.

11.2 Materials

Material for service ducts, voids and electrical conduit are generally supplied by the Contractor. These materials must be approved by the Bridge Project Engineer.

- Service ducts are usually rigid plastics or fiber reinforced plastic and specially made for the purpose, complete with fittings for joints, bends and end caps. The Contractor should have the material approved by the Bridge Project Engineer prior to delivery to the site.
- Voids may be made of plastic, waxed cardboard or metal with suitable capped ends.
- The electrical conduit is usually galvanized steel of the diameter noted on the plans, and is cut and bent as required. Bending conduit must be done in standard conduit benders, which provide the support necessary to prevent buckling and crimping of the conduit walls. Special expansion devices are required at the bridge expansion joints to allow movement while maintaining a weather tight seal. The Contractor is required to provide junction boxes in the conduit to give access for making electrical connections as shown on drawings.

11.3 Installation

The Bridge Inspector shall ensure that the Contractor installs ducts, voids and conduits in a manner such that they are securely tied down and that the joints will be completely leak proof during casting of concrete.

- During placing of concrete the ducts and voids will be buoyant and will tend to “float up” in the concrete. The Contractor shall securely tie them down, with approved methods.
- Any mortar leaking into a joint can negate the benefit of the void or plug the conduit and make it impossible to subsequently pull wires through.

- The Contractor is required to supply and install a pull wire inside the duct or conduit, which will be utilized during service installation.

- Any blockages encountered must be cleared to the satisfaction of the Bridge Project Engineer.

11.4 Checklist

11.4.1 Bridge Inspector's Responsibilities

- Review applicable Specifications, Special Provisions and study drawings.

- Ensure that Contractor's material to be used has been approved by the Bridge Project Engineer.

- Check that electrical conduit is bent in standard benders, expansion joints are provided and that the conduit is continuous.

- Check to be satisfied no mortar will leak into joints.

- Check that voids and ducts are securely tied down to avoid buoyancy.

- Check that lamp standard anchorage assemblies are in correct position and adequately secured.

- Observe the Contractor when installing pull wire to ensure there are no blockages in ducts or conduits.

- Ensure that ducts have specified earth cover at bridge ends.

- Locate the buried ends of all ducts and note the measurements on the "As-Constructed Drawings".

- Initiate payment when work completed.

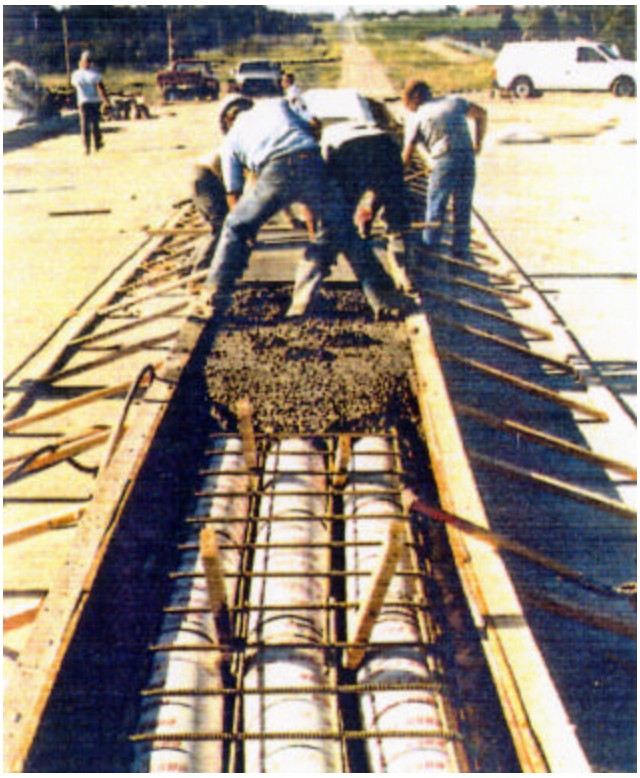
SECTION 11

SERVICE DUCTS AND VOIDS

11-1 Service duct and void located in curb

11-2 Service duct and void at end of curb

11-3 Buried service duct and void section bend clear of guardrail post



11-4 Displacement voids located in median