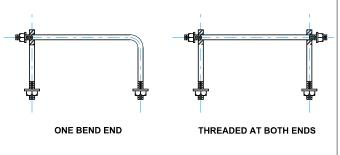
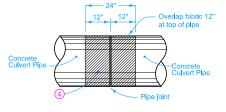


SECTION OF PIPE CONNECTOR (Concrete Pipe to Concrete Pipe)



OPTIONAL BOLTS/CONNECTORS

Top



PIPE JOINT WRAPPING

PIPE SIZE (In)	CONNECTOR AND BOLT SIZE (in.)	HOLE FOR CONNECTOR (In.)
12 to 27	<u>5</u>	<u>7</u> 8
30 to 60	3 4	1.0
66 to 132	1.0	1 ½

Wrap all joints on concrete roadway pipe culverts.

Use Type 3 Connections on all culvert pipes, unless otherwise specified. Refer to Materials I.M. 445.01 for Connector requirements.

Minimum 2 threads showing at all threaded ends.

Connections not required on pipe sections installed by trenchless methods.

TYPE 1

One connector at the top of the pipe section.

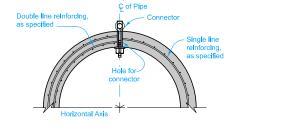
TYPE 2 (Sealed Joint)

Two connectors near the top of the pipe section. For details of reinforcement, refer to AASHTO M 170 for the class of pipe required. Refer to Materials I.M. 491.09 for seal requirements.

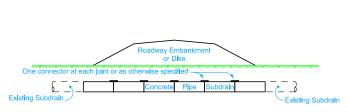
TYPE 3 (Non - Sealed Joint)

Two connectors near the top of the pipe section. For details of reinforcement, refer to AASHTO M 170 for the class of pipe required.

- If holes are field drilled, place a ribbon of butyl sealant around bolts before placing 3 in. x 3 in. x $\frac{1}{4}$ in. plate on bolts through corrugated metal pipe and tightening nuts.
- 2 $1\frac{3}{4}$ inch round x $\frac{9}{64}$ inch thick washer or 3 in. x 3 in. x $\frac{1}{4}$ in. square plate (shaped to pipe radius).
- 3 Connectors with One Bend End and Bell End spacers allowed per Materials I.M. 451. Refer to Optional Bolts detail
- (4) Engineering fabric for embankment erosion control.



TYPICAL SECTION (Non-Sealed Joint)

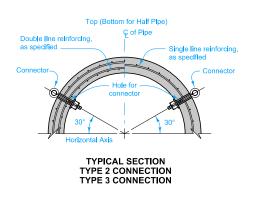


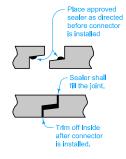
TYPICAL INSTALLATION

TYPE 1 CONNECTION

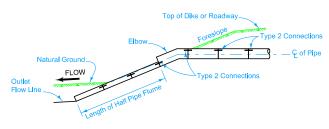
Possible Tabulation: 104-3



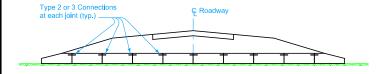


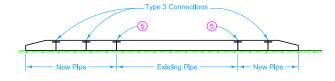


SEALED JOINT TYPE 2 CONNECTION



TYPICAL INSTALLATION TYPE 2 CONNECTION





TYPICAL INSTALLATION
NEW CONSTRUCTION - TYPE 2 or 3 CONNECTION

TYPICAL INSTALLATION
PIPE EXTENSION - TYPE 3 CONNECTION

TYPE 2 AND TYPE 3 CONNECTIONS

the joint between the old and new culvert pipe. Holes may need to be drilled into existing pipes.

6 On culvert extensions, connect all new joints including

