

PLACEMENT OF HOLES

Holes shall be cast or drilled 16" from centerline of joints for box culverts, as shown above, unless forms are set up for 16" spacing from outside of joint.

Pipe Size (Inches)	Thread Dia.	Pipe Size (Inches)	Thread Dia.	Pipe Size (Inches)	Thread Dia.
12-27	5/8"	30-66	3/4"	72-132	1"

Pipe size listed is inside dia. of round pipe or equivalent dia. of pipe arch.

GENERAL NOTES:

For concrete culverts pipe ties shall be required for all joints unless otherwise specified in the plans or in the special provisions.

For concrete sewers tie end three sections (including apron) of a free end (no manhole).

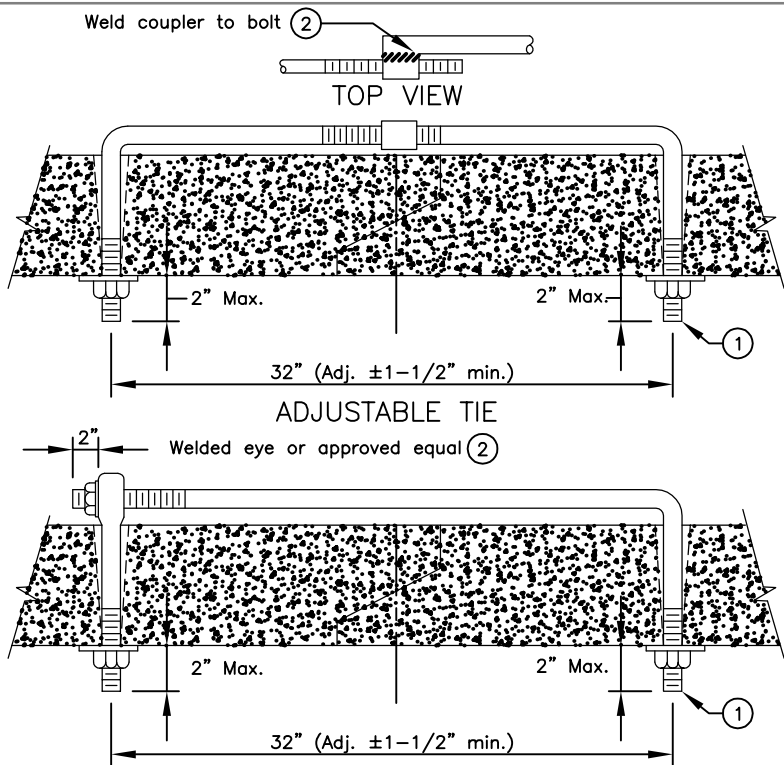
Nuts and washers are not required on inside of 27" dia. pipe or less.

On bell pipe larger than 24" tie may be inserted from inside.

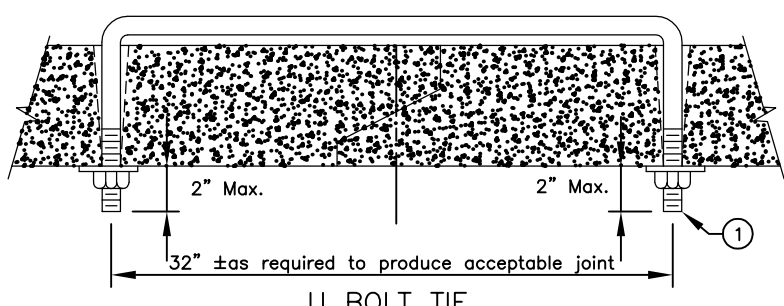
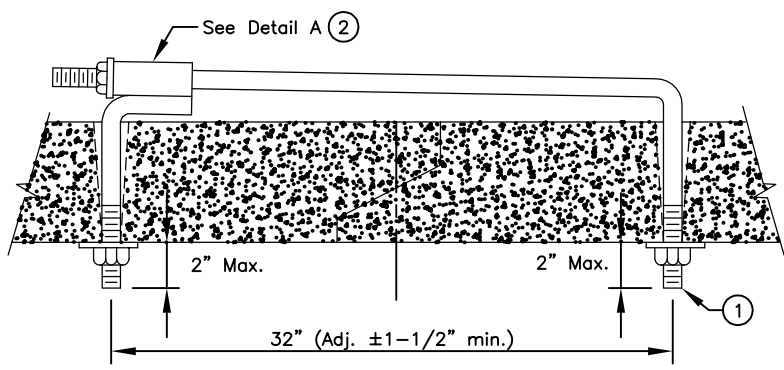
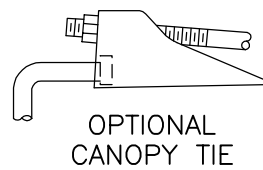
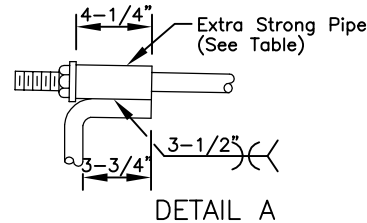
Tie rods shall be painted after fabrication with one coat of Spec. 3506 primer or covered with a coating approved by the Office of Materials-Engineering. Threaded portion of rods do not have to be painted. Steel shall conform to Spec. 3306 or equal.

Ties to be used only to hold pipe sections together, not for pulling sections tight.

- ① Tie rod threads to project outside of pipe on cattle passes or pipe where children or others might enter the pipe.
- ② Connection shall be placed at downstream end when connection is placed inside of structure.



Thread Dia.	E.S. Pipe I.D.
5/8"	3/4"
3/4"	1"
1"	1-1/4"



APPROVED Dec. 9, 1985
R.H. Sullivan
 Assistant Division Director
 Technical Services

STATE OF MINNESOTA
 DEPARTMENT OF TRANSPORTATION
CONCRETE PIPE TIES

SPECIFICATION REFERENCE	STANDARD PLATE NO.
2501	3145E
2503	