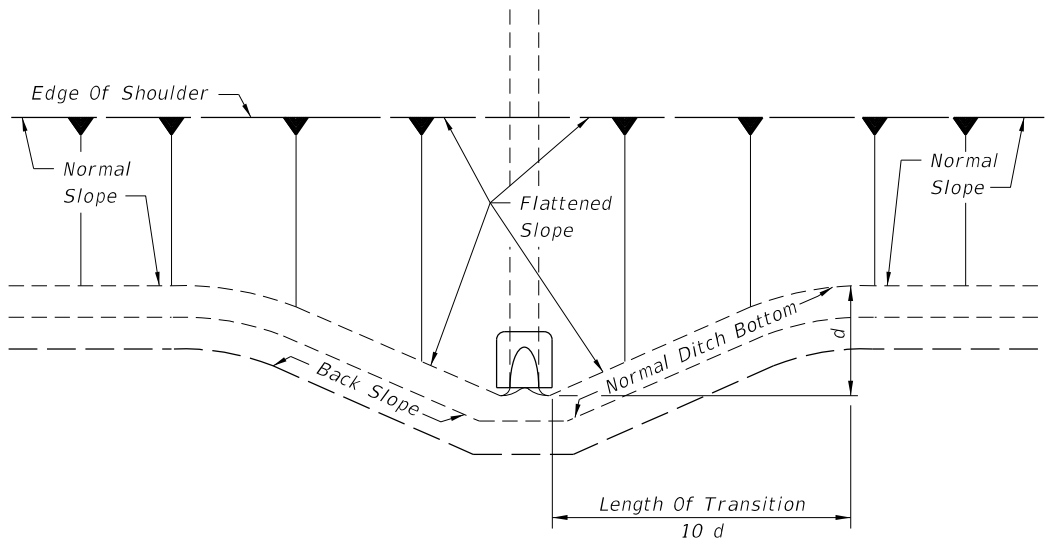


GENERAL NOTES

1. Unless otherwise designated in the plans, concrete pipe mitered end sections may be used with any type of side drain pipe; corrugated steel pipe mitered end sections may be used with any type of side drain pipe except aluminum pipe; and, corrugated aluminum mitered end sections may be used with any type of side drain pipe except steel pipe. When bituminous coated metal pipe is specified for side drain pipe, construct the mitered end sections with like pipe or concrete pipe. When the mitered end section pipe is dissimilar to the side drain pipe, construct a concrete jacket in accordance with Index 280.
2. Use either corrugated metal or concrete mitered end sections for corrugated polyethylene pipe (HDPE), polyvinyl-chloride pipe (PVC) and polypropylene pipe (PPP). When used in conjunction with corrugated mitered end sections, make connection using either a formed metal band specifically designated to join HDPE or PVC pipe, with metal pipe or other coupler approved by the State Drainage Engineer. When used in conjunction with a concrete mitered end sections, concrete jacket constructed in accordance with Index 280.
3. Class NS concrete cast-in-place reinforced slabs are required for all sizes of side drain pipes. Unless 3" thickness called for in plans, construct slabs at 5 1/2" thick.
4. Select lengths of concrete pipe that avoid excessive connections in the assembly of the mitered end section.
5. Repair corrugated metal pipe galvanizing that is damaged during beveling and perforating
6. Prior to placing concrete slab apply a bituminous coating to any portion of corrugated metal pipe in direct contact with concrete. Extend the coating 12" beyond the concrete slab.
7. When existing multiple side drain pipes are spaced other than the dimensions shown in this Index, have nonparallel axes, or non-uniform sections, either construct the mitered end sections separately as single pipe or collectively as multiple pipe end sections as directed by the Engineer.

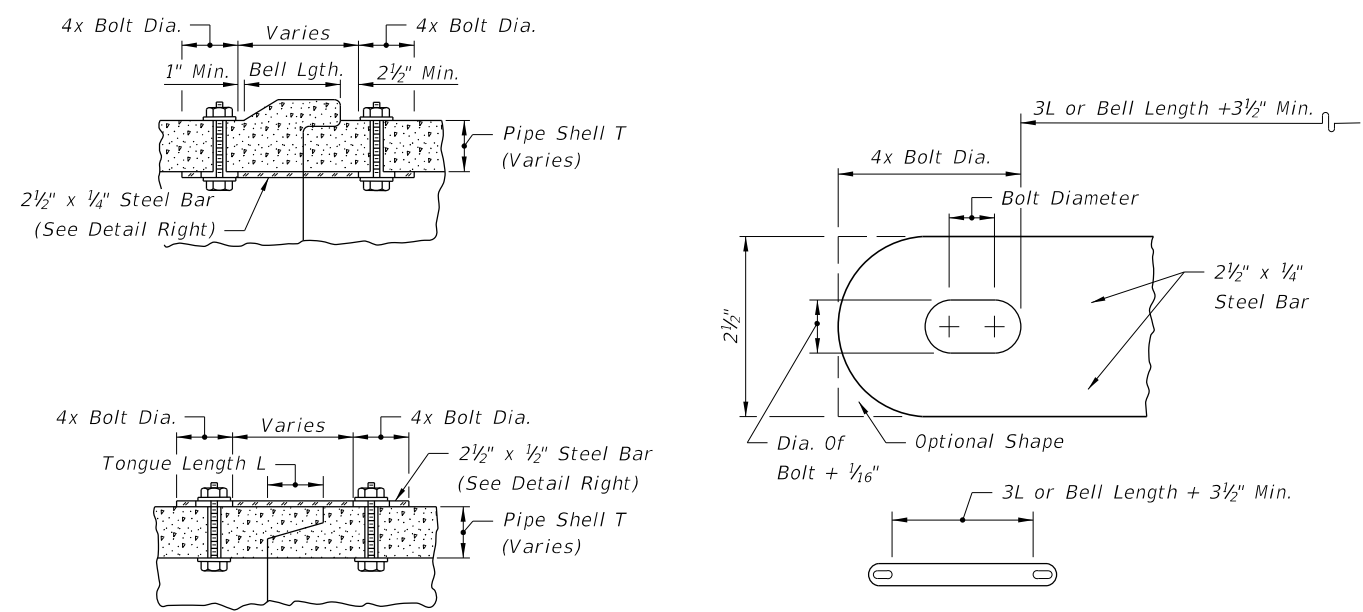
Cross Drain



PLAN
SLOPE AND DITCH TRANSITIONS
NOTE: See General Note 4

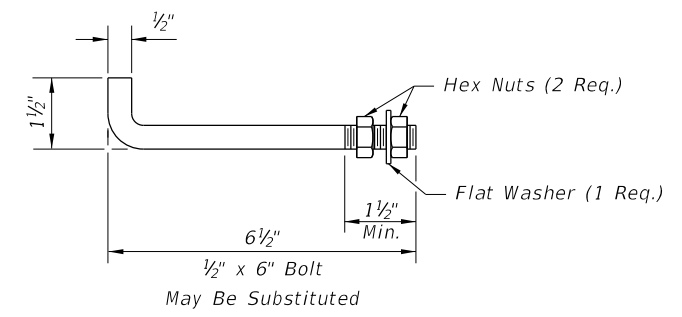
DESIGN NOTES

1. Mitered end sections for pipe sizes 15", 18" and 24" round or equivalent pipe arch or elliptical pipe are permitted within the clear zone. When the slope intersection permits, the mitered end section may be located with the culvert opening as close as 8' beyond the outside edge of the shoulder.
2. Include slope and ditch transitions when the normal roadway slope must be flattened to place end section outside clear zone. See Slope and Ditch Transitions detail.



All bars, bolts, nuts and washers are to be galvanized steel.
Bolt diameters shall be 3/8" for 15" to 36" pipe and 5/8" for 42" to 72" pipe.
Two connectors required per joint, located 60° right and left of bottom center of pipe.
Bolt holes in pipe shell are to be drilled.

CONCRETE PIPE CONNECTOR



Anchors required for CMP only.
Anchor, washer and nuts to be galvanized steel.
Bend anchor where required to center in concrete slab. Damaged surfaces to be repaired after bending. Anchors are to be spaced a distance equal to four (4) corrugations. Place the anchors in the outside crest of corrugation.
Flat washers to be placed on inside wall of pipe.
Holes in the mitered end pipe are to be drilled or punched; burning not permitted.

ANCHOR DETAIL

SPECIAL DETAILS AND NOTES

10/11/2016 10:36:21 AM

LAST REVISION 11/01/16	DESCRIPTION:	<p>FY 2017-18 DESIGN STANDARDS</p>	<p>CROSS DRAIN MITERED END SECTION</p>	<p>INDEX NO. 272</p>	<p>SHEET NO. 6 of 6</p>
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