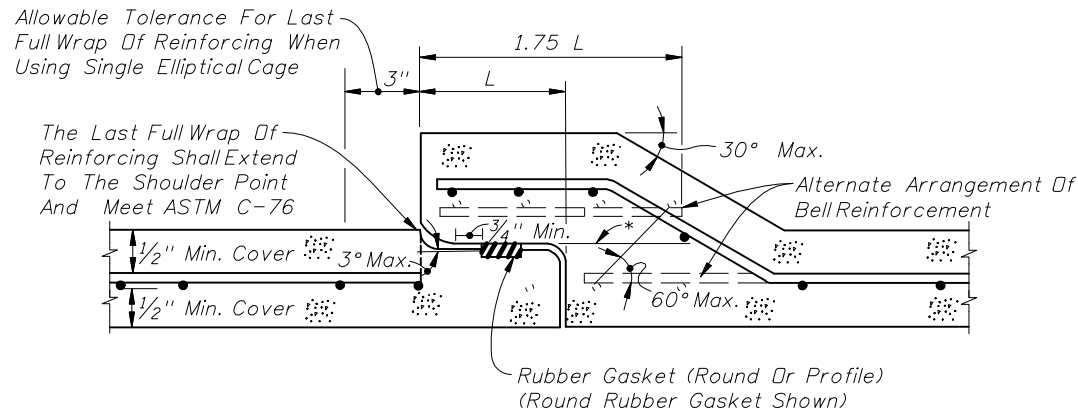


SCHEDULE OF BELL REINFORCEMENT Classes II, III, IV, V; Wall A, B, C		
Nominal Pipe Diameter	Design Bell Reinforcement in <sup>2</sup> per foot	Maximum Reinforcement Under Tolerance in <sup>2</sup> per foot
15"	0.07	0.010
18"	0.07	0.010
24"	0.09	0.010
30"	0.12	0.010
36"	0.14	0.010
42"	0.16	0.010
48"	0.19	0.011
54"	0.21	0.012
60"	0.23	0.0135
66"	0.26	0.015
72"	0.28	0.0165
78"	0.30	0.018
84"	0.33	0.0195
90"	0.35	0.021
96"	0.37	0.0225
102"	0.40	0.024
108"	0.42	0.0255

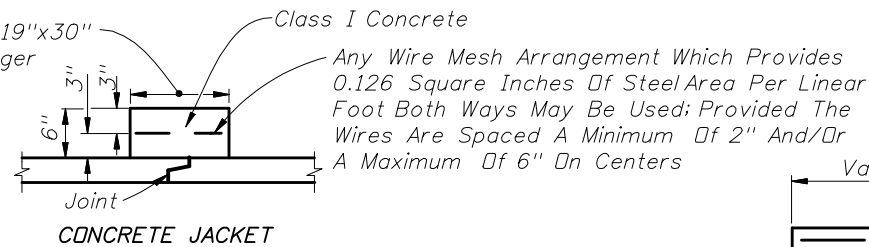


\*All circumferential steel located above this line within 1.75 L is defined as bell reinforcement.

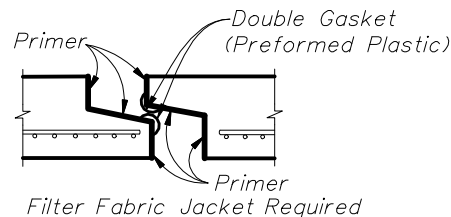
ROUND RUBBER GASKET SHOWN

**DETAIL OF BELL & SPIGOT CONCRETE PIPE JOINT USING ROUND OR PROFILE RUBBER GASKET**

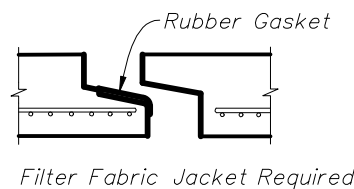
12" For Pipes 14"x23" Through 19"x30"  
24" For Pipes 24"x38" And Larger



CONCRETE JACKET



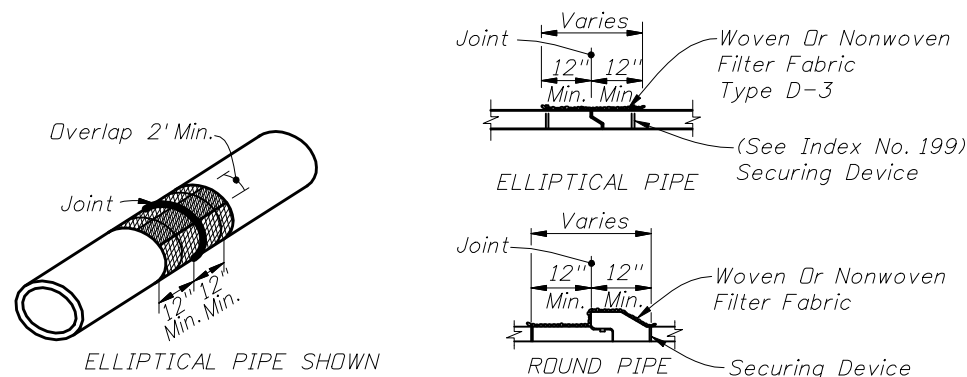
PREFORMED PLASTIC JOINT  
(BEFORE PULL-UP)



PROFILE RUBBER GASKET  
(BEFORE PULL-UP)

Cost of concrete jacket or filter fabric jacket to be included in cost of elliptical concrete pipe culverts.

**ELLIPTICAL CONCRETE PIPE JOINTS**



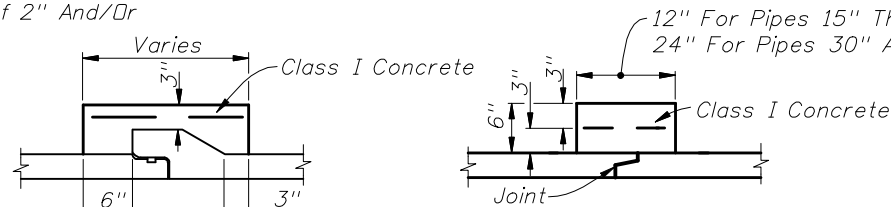
ELLIPTICAL PIPE SHOWN

ISOMETRIC VIEW

Cost of filter fabric jacket to be included in cost of pipe culverts.

FOR ALL PIPE TYPES - CONCRETE PIPE SHOWN

FILTER FABRIC JACKET



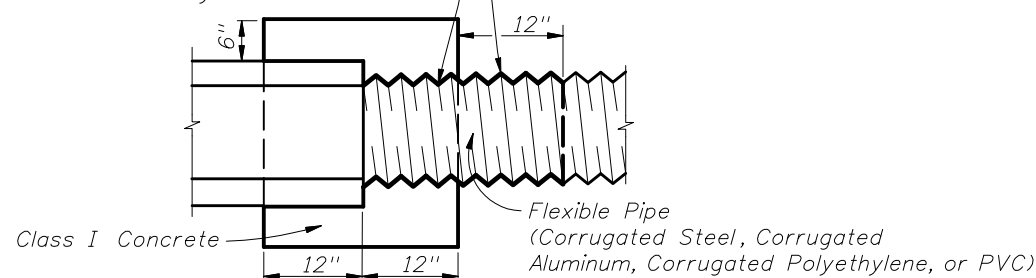
Note: For reinforcement see elliptical pipe concrete jacket. (All Pipe Sizes)

BELL AND SPIGOT

TONGUE & GROOVE

**DISSIMILAR JOINTS**

Bituminous Coating Required For CMP (Any Suitable Bituminous Material May Be Field Applied) Bituminous Coating To Extend 12" Beyond Concrete Collar



Note: Cost of concrete and bituminous coating to be included in contract unit price for either new pipe or Mitered End Section.

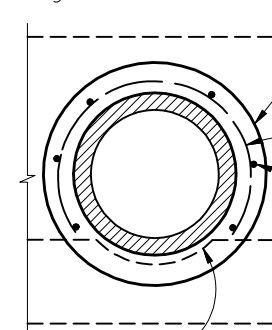
Alternate connection must be approved by the State Drainage Engineer.

A concrete jacket shall not be used to join:  
(a) metal pipe of dissimilar materials  
(b) flexible pipe when the minimum cover required in accordance with Index No. 205 cannot be obtained

**DISSIMILAR TYPES**

CONCRETE JACKET FOR CONNECTING DISSIMILAR TYPES OF PIPE AND CONCRETE PIPES WITH DISSIMILAR JOINTS

Collar Of Class I Concrete (May Be Formed By Any Method Approved By The Engineer)



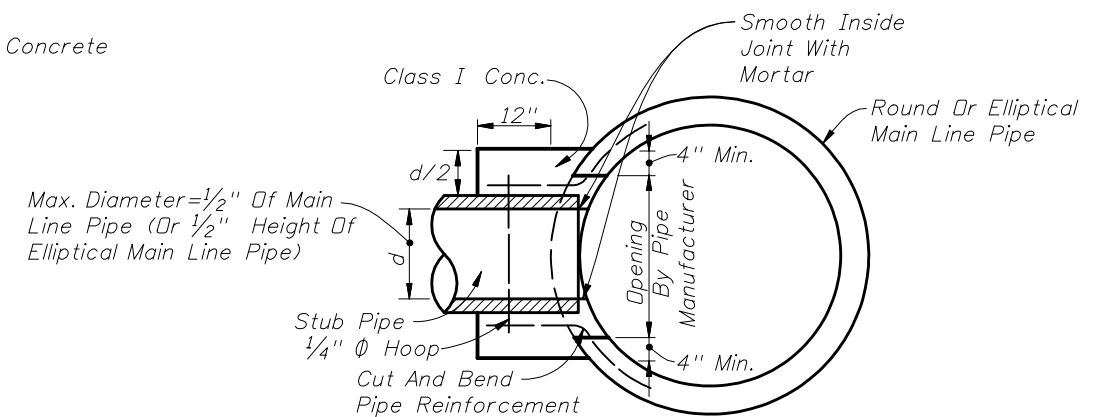
Cut Toe Of Existing Endwall To Contour Of Pipe

SECTION AA

LONGITUDINAL SECTION

Note: Cost for removal and disposal of portions of top and toe of existing endwall and cost of concrete, reinforcing steel and construction of collar to be included in the contract unit price for pipe culvert.

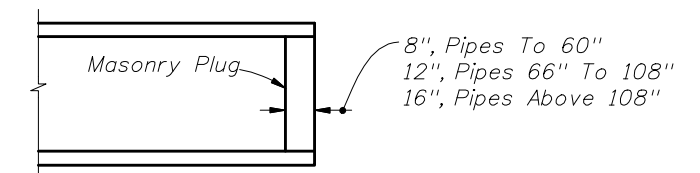
**CONCRETE COLLAR FOR EXTENSION OF EXISTING PIPE CULVERTS**



Max. Diameter = 1/2" Of Main Line Pipe (Or 1/2" Height Of Elliptical Main Line Pipe)

Cost of concrete and steel to be included in contract unit price for pipe culvert.

**CONCRETE COLLAR FOR JOINING MAINLINE PIPE AND STUB PIPE**



Note: Unless otherwise called for in the plans, the cost of plugging pipes to be included in contract unit price for new pipe.

PIPE PLUG

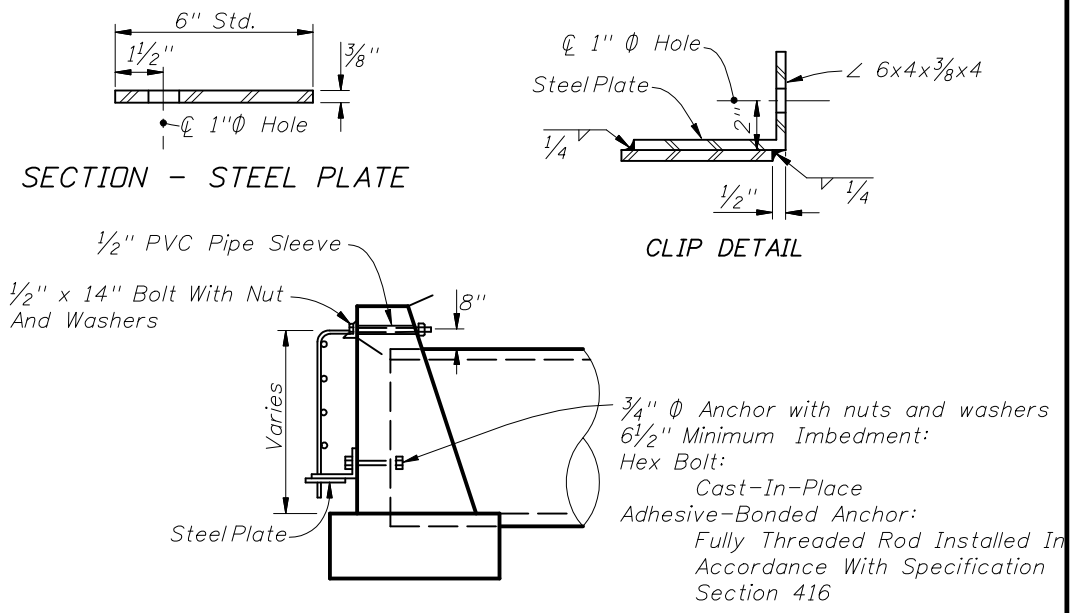
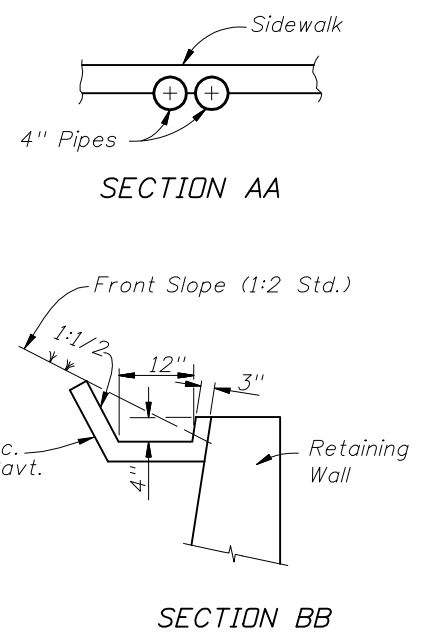
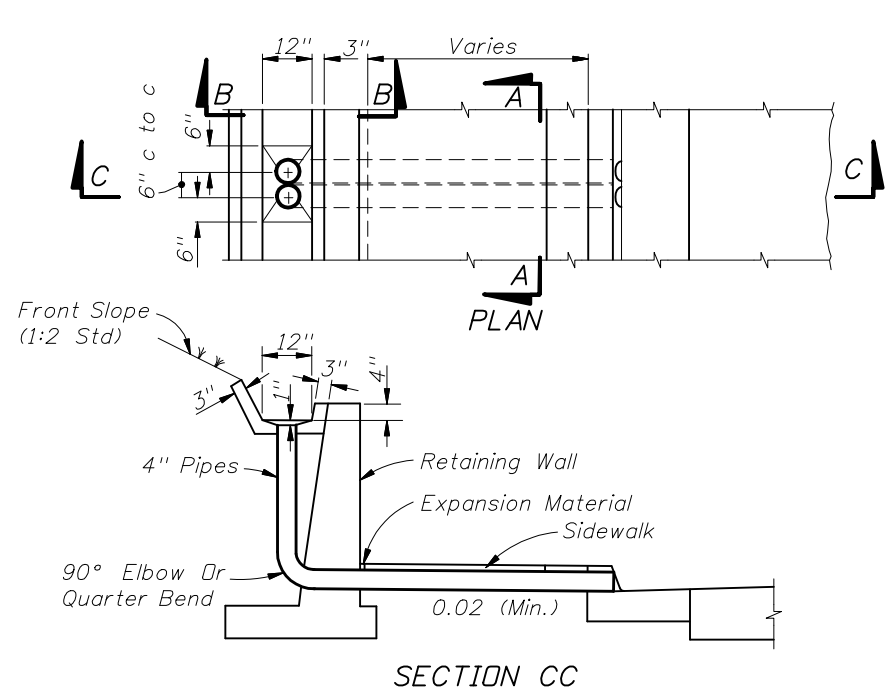


2010 FDOT Design Standards

MISCELLANEOUS DRAINAGE DETAILS

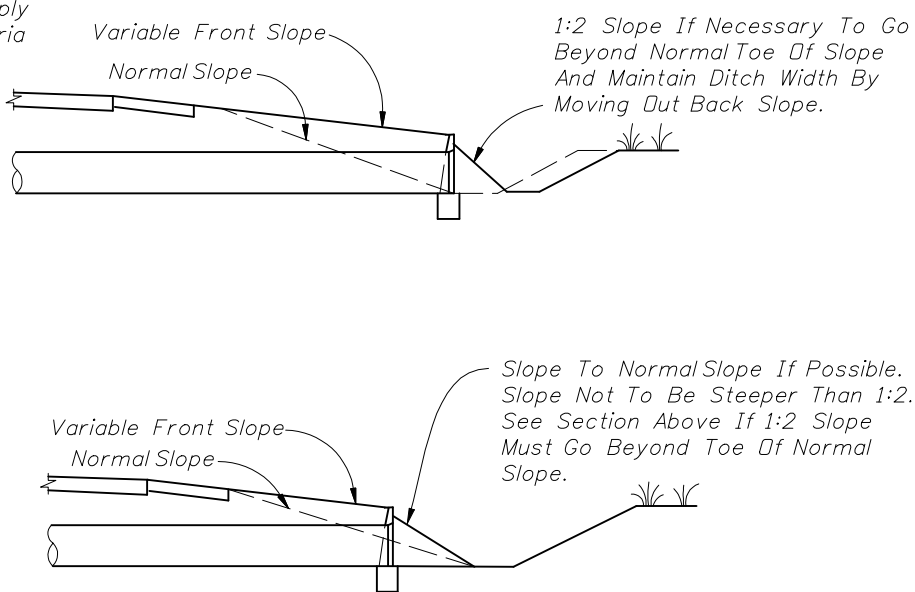
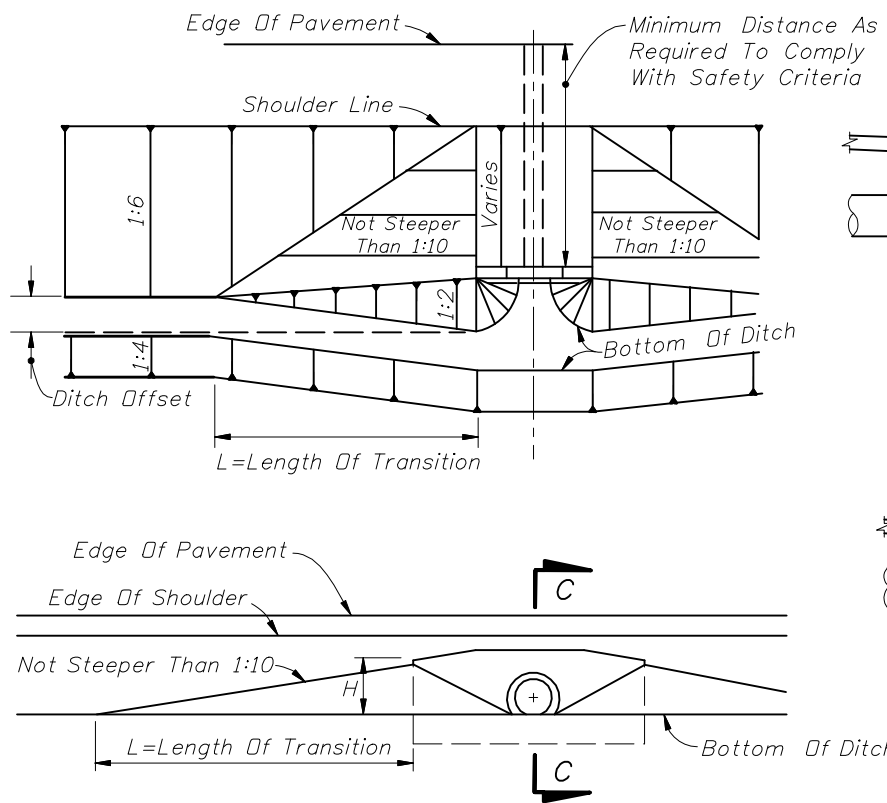
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Note: PVC pipe, Schedule 40, to be paid for under the contract unit price for Polyvinyl Chloride Pipe Culvert (4"), LF.

**CONCRETE GUTTER AND DRAINS AT RETAINING WALLS**

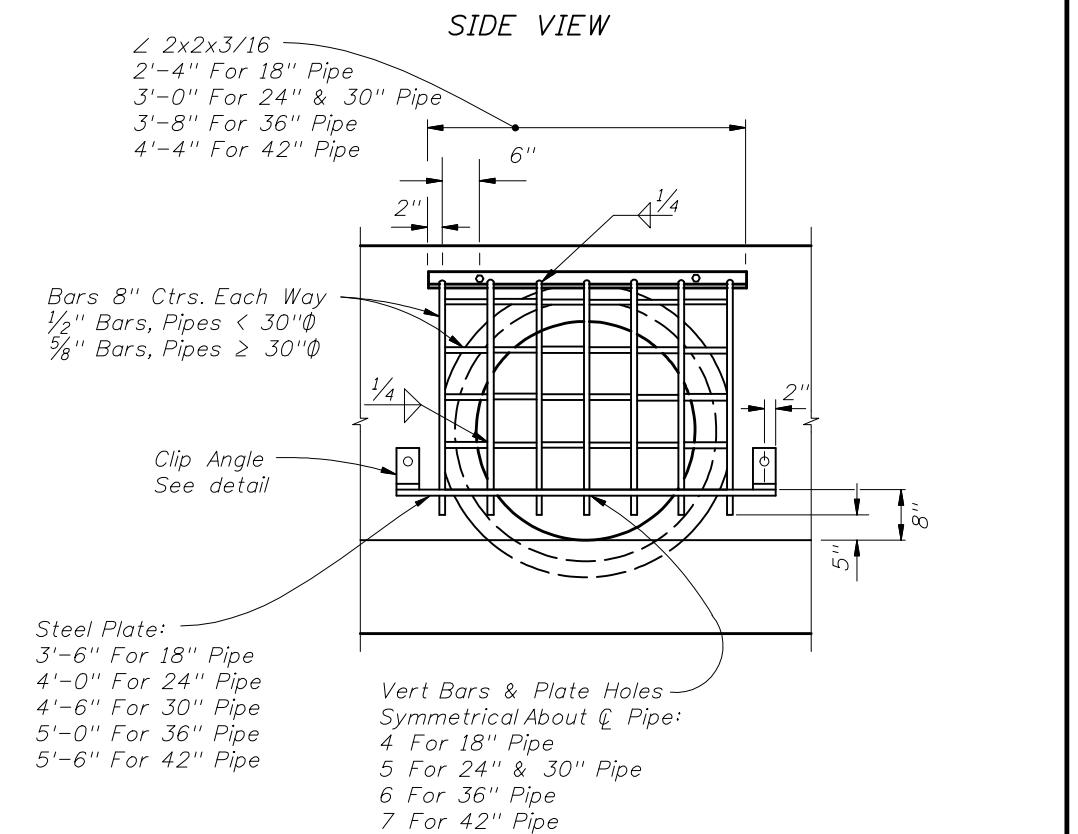


NOTE: Filling or excavation of variable slopes to be done during normal grading operations.

SECTION CC

Use Larger Value Of Either:  
 1.  $L=10 \times H$  (No Maximum)  
 2.  $L=10 \times \text{Ditch Offset}$  (Maximum  $L=100'$ )

**METHOD FOR SETTING LIMITS OF VARIABLE FRONT SLOPES AT DRAINAGE STRUCTURES**



Pipe Dia.	18"	24"	30"	36"	42"
Grate (Lbs.)	48	58	74	90	111

FRONT VIEW  
 Note: Guards to be constructed only at locations specifically called for in plans. Guard, plate & clips, bolts, nuts and sleeves to be included in the contract unit price for Reinforcing Steel (Miscellaneous).

**GUARD AT PIPE ENDS**



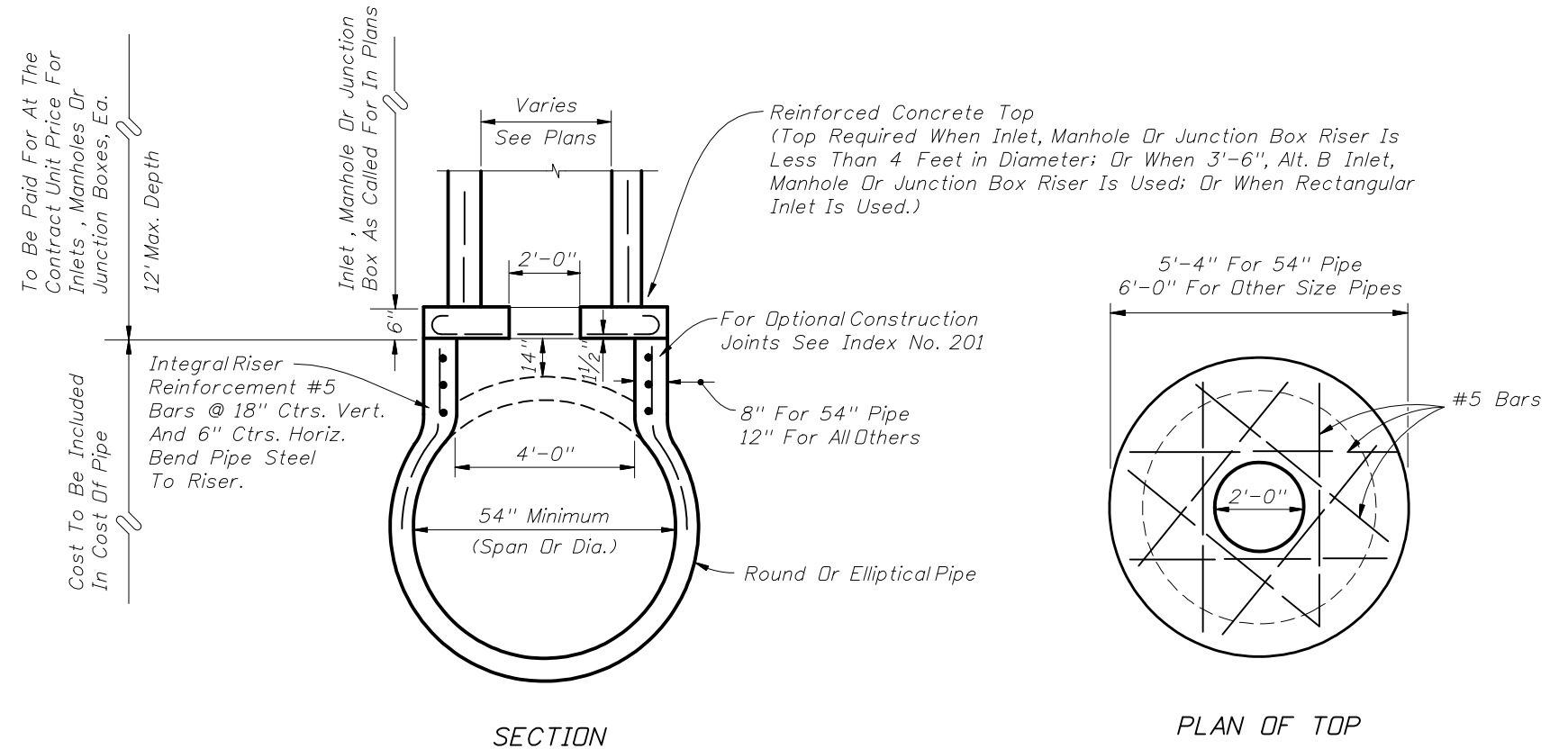
2010 FDOT Design Standards

**MISCELLANEOUS DRAINAGE DETAILS**

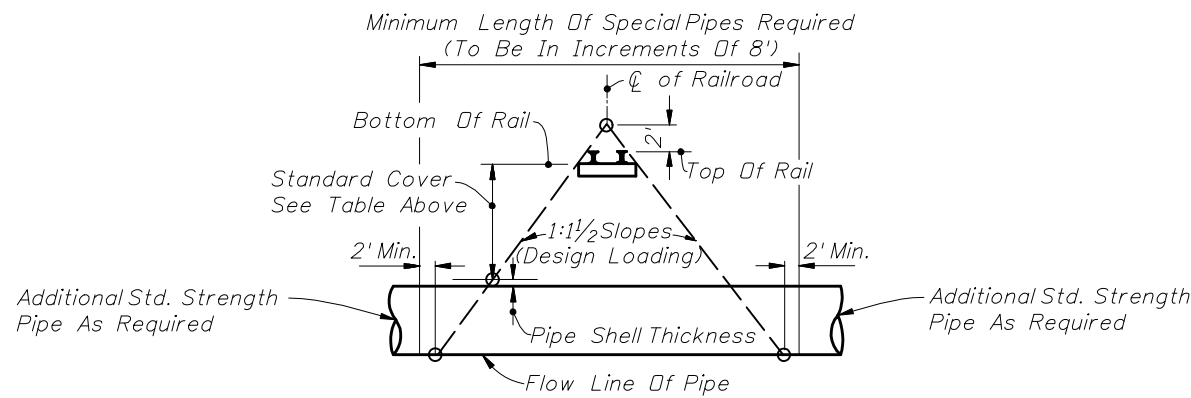
Last Revision: 07/01/07  
 Sheet No.: 2 of 3  
 Index No.: 280

RAILROAD COMPANY	CLEARANCE BELOW BOTTOM OF RAIL (FEET)	STRENGTH
		ASTM (C76) CLASS
Apalachicola Northern	4.0	IV
Atlanta And St. Andrews Bay	4.0	IV
Florida East Coast	5.5*	IV
Burlington Northern Railroad	S-TRK M/L	IV
	4.5 5.5	
CSX Transportation, Inc.	5.5	IV
Southern Railway System		
Georgia Southern And Florida	5.5	V
Live Oak Perry And South Georgia	5.5	V
St. Johns River Terminal	5.5	V

\*Clearance is for casing pipe. All subgrade carrier pipelines and wirelines will be installed within a casing pipe which will extend from Right-of-Way line to Right-of-Way line.



INLETS, MANHOLES OR JUNCTION BOXES  
ON INTEGRAL PRECAST CONCRETE RISER FOR CONCRETE PIPE



METHOD FOR DETERMINING THE LENGTH OF  
SPECIAL PIPE REQUIRED UNDER RAILROADS

