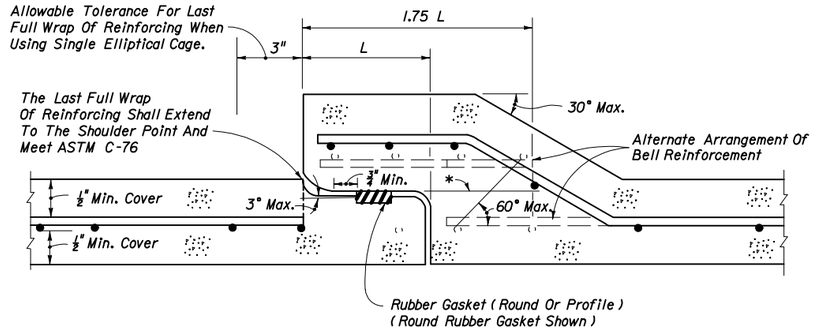
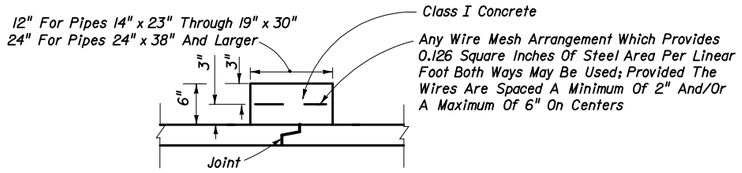
SCHEDULE OF BELL REINFORCEMENT Classes II, III, IV, V; Wall A, B, C		
Nominal Pipe Diameter	Design Bell Reinforcement	Maximum Reinforcement Under Tolerance
	SQ. IN. PER FOOT	SQ. IN. PER FOOT
15"	0.07	0.010
18"	0.07	0.010
24"	0.09	0.010
30"	0.12	0.010
36"	0.14	0.010
42"	0.16	0.010
48"	0.19	0.011
54"	0.21	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



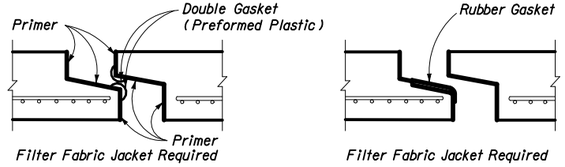
*All circumferential steel located above this line within 1.75 L is defined as bell reinforcement.

ROUND RUBBER GASKET SHOWN

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



CONCRETE JACKET

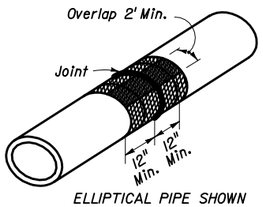


PREFORMED PLASTIC JOINT (BEFORE PULL-UP)

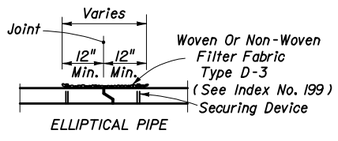
PROFILE RUBBER GASKET (BEFORE PULL-UP)

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

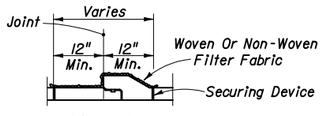
ELLIPTICAL CONCRETE PIPE JOINTS



ELLIPTICAL PIPE SHOWN
ISOMETRIC VIEW



ELLIPTICAL PIPE

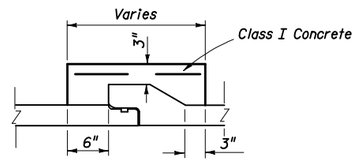


ROUND PIPE
PIPE SECTIONS

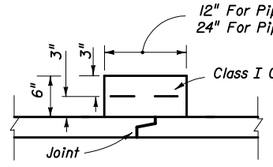
Cost of filter fabric jacket to be included in cost of pipe culverts.

FOR ALL PIPE TYPES - CONCRETE PIPE SHOWN

FILTER FABRIC JACKET



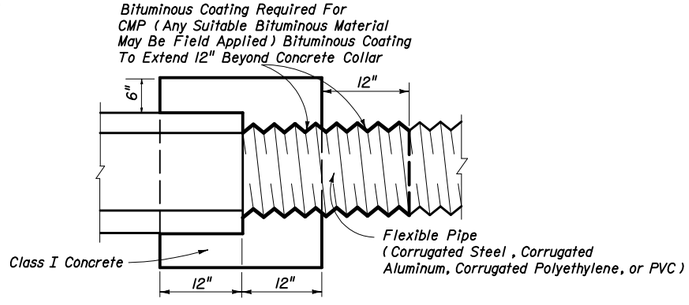
BELL AND SPIGOT



TONGUE & GROOVE

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

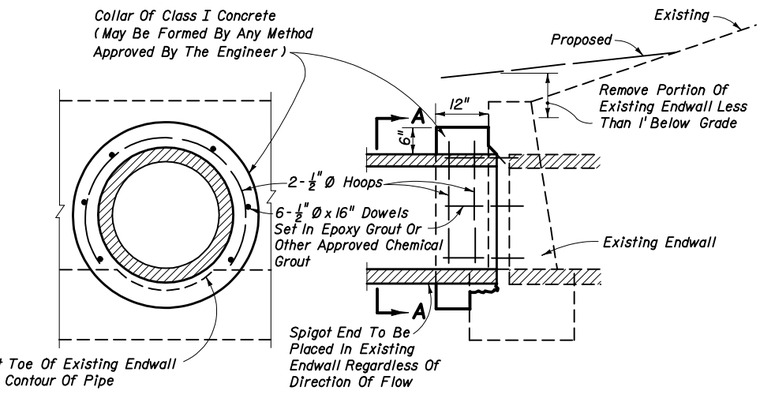
DISSIMILAR JOINTS



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

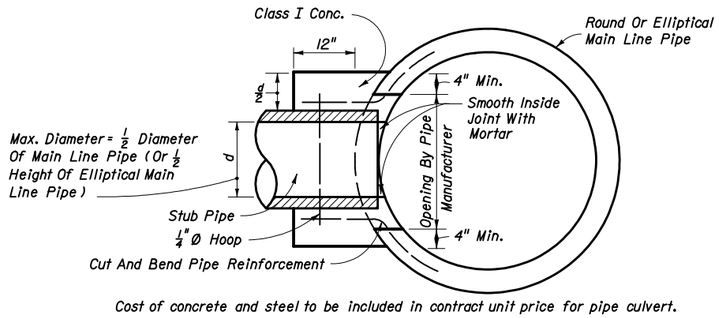


SECTION AA

LONGITUDINAL SECTION

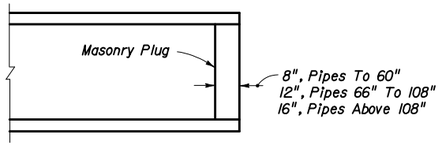
Note: Cost for removal and disposal of portions of top and toe of existing endwall and cost of concrete, reinforcing steel and construction of collar to be included in the contract unit price for pipe culvert.

CONCRETE COLLAR FOR EXTENSION OF EXISTING PIPE CULVERTS



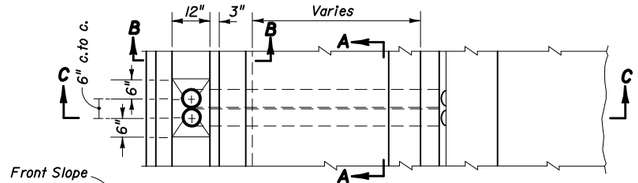
Cost of concrete and steel to be included in contract unit price for pipe culvert.

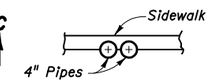
CONCRETE COLLAR FOR JOINING MAINLINE PIPE AND STUB PIPE

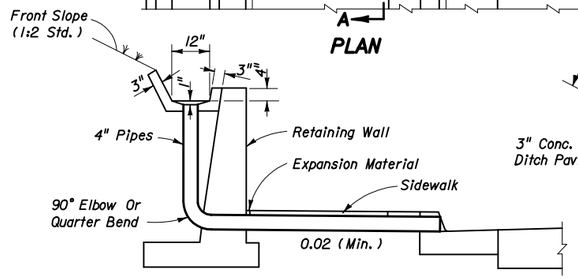


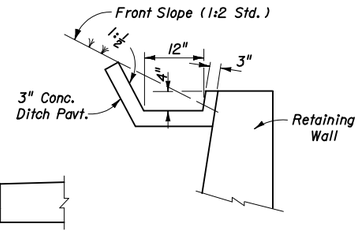
Note: Unless otherwise called for in the plans, the cost of plugging pipes to be included in contract unit price for new pipe.

PIPE PLUG



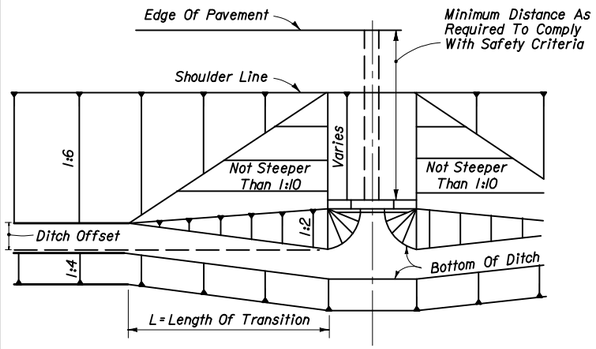


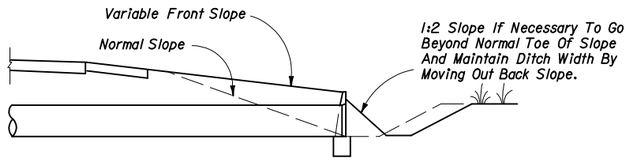


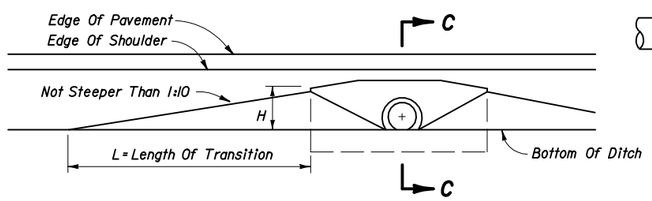


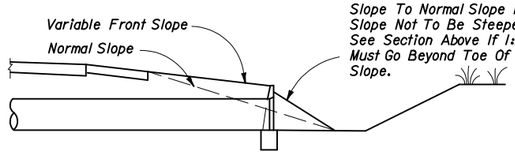
Note: PVC pipe, Schedule 40, to be paid for under the contract unit price for Polyvinyl Chloride Pipe Culvert (4"), LF.

CONCRETE GUTTER AND DRAINS AT RETAINING WALLS







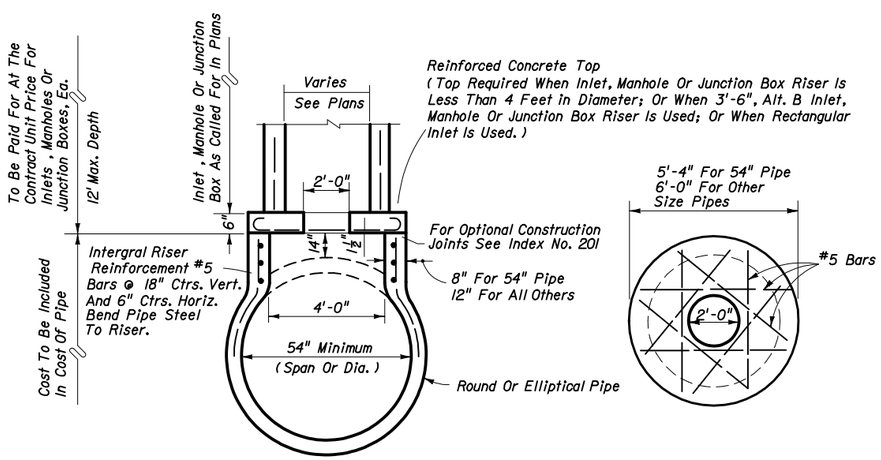


NOTE: Filling or excavation of variable slopes to be done during normal grading operations.

SECTION CC

Use Larger Value Of Either:
1. L = 10 x H (No Maximum)
2. L = 10 x Ditch Offset (Maximum L = 100')

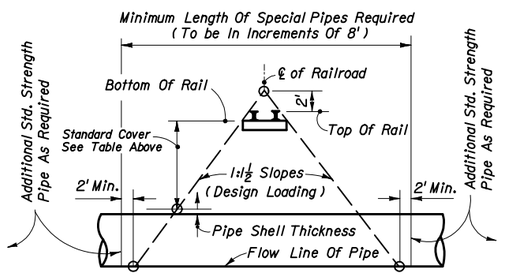
METHOD FOR SETTING LIMITS OF VARIABLE FRONT SLOPES AT DRAINAGE STRUCTURES



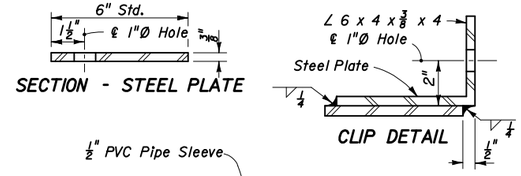
INLETS, MANHOLES OR JUNCTION BOXES ON INTEGRAL PRECAST CONCRETE RISER FOR CONCRETE PIPE

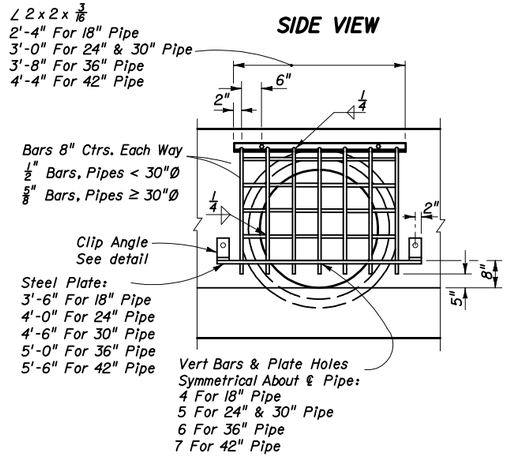
RAILROAD COMPANY	CLEARANCE BELOW BOTTOM OF RAIL (FEET)	STRENGTH ASTM (C76) CLASS
Apalachicola Northern	4.0	IV
Atlanta And St. Andrews Bay	4.0	IV
Florida East Coast	5.5*	IV
Burlington Northern Railroad	S-TRK M/L	
	4.5 5.5	IV
CSX Transportation, Inc.	5.5	IV
Southern Railway System		
Georgia Southern And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



METHOD FOR DETERMINING THE LENGTH OF SPECIAL PIPE REQUIRED UNDER RAILROADS



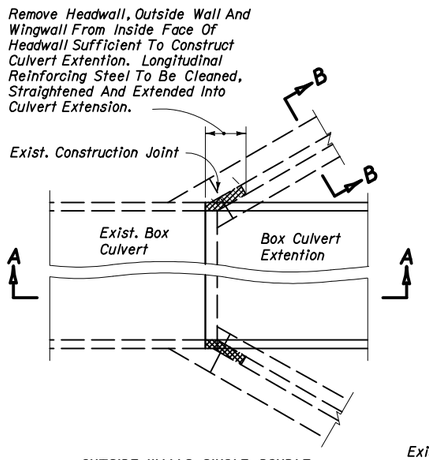


Pipe Dia.	18"	24"	30"	36"	42"
Grate (Lbs.)	48	58	74	90	111

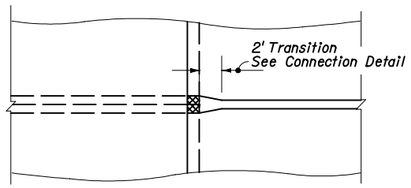
FRONT VIEW

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).

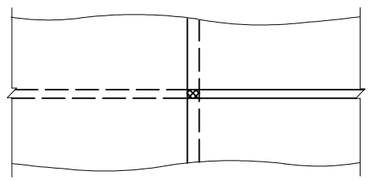
GUARD AT PIPE ENDS



OUTSIDE WALLS-SINGLE, DOUBLE, TRIPLES, & QUADRUPLE BOXES



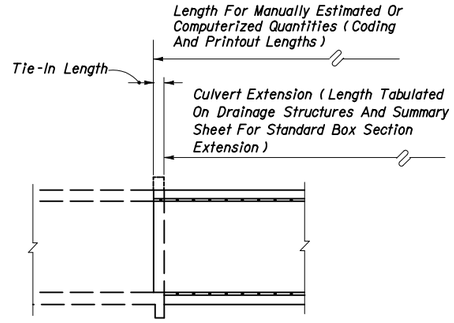
CENTER WALL-QUADRUPLE BOXES



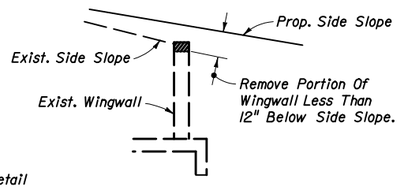
INTERIOR WALLS-DOUBLE & TRIPLE BOXES
INTERMEDIATE WALLS-QUADRUPLE BOXES

PLAN VIEWS

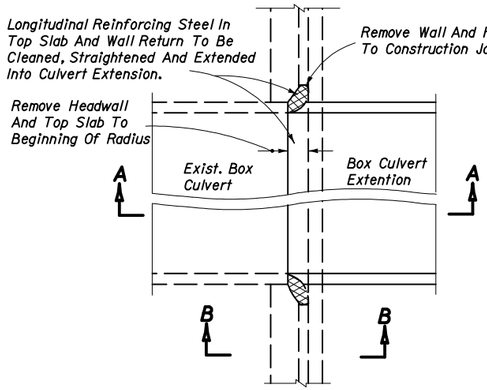
FLARED ENDWALL



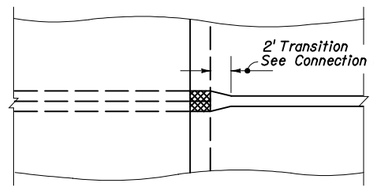
SECTION AA



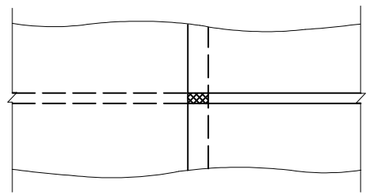
SECTION BB



OUTSIDE WALLS-SINGLE, DOUBLE, TRIPLES, & QUADRUPLE BOXES

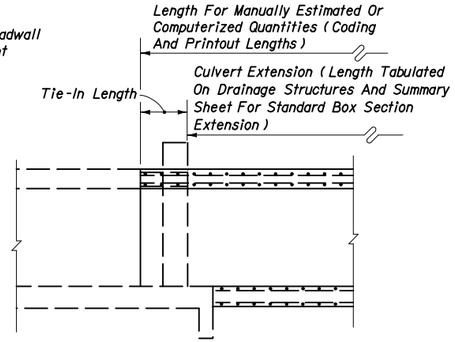


CENTER WALL-QUADRUPLE BOXES

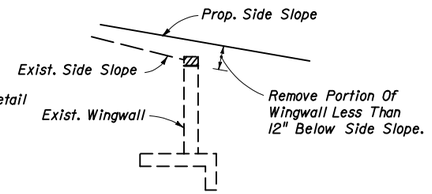


INTERIOR WALLS-DOUBLE & TRIPLE BOXES
INTERMEDIATE WALLS-QUADRUPLE BOXES

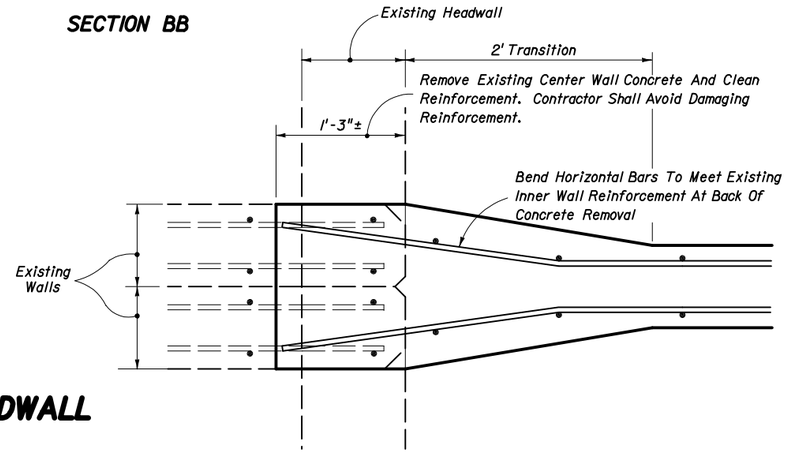
PLAN VIEWS



SECTION AA



SECTION BB



STRAIGHT ENDWALL

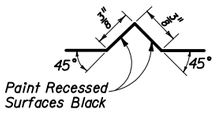
CONNECTION AT CENTER WALL OF QUADRUPLE CULVERTS

NOTE: The computerized printout for reinforcing steel does not include the additional lengths needed for extension and overlaps or connections to the horizontal reinforcement in the interior walls of double, triple and quadruple existing concrete box culverts; the cost for additional reinforcement and the thickened concrete wall in the transitional area shall be included in the costs for constructing the tie-in.

Cost for removal and disposal of material from existing headwalls, wingwalls and the top slab, and cost of cleaning, straightening and extending longitudinal reinforcing steel shall be included in the cost for concrete and steel of the culvert extension.

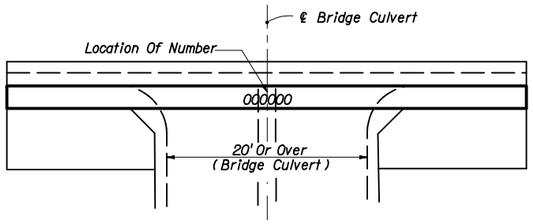
For concrete box culvert details, see Index No. 290.

CONNECTION DETAILS FOR CONCRETE BOX CULVERT EXTENSIONS



Black Plastic Figures 3" in height as approved by the Engineer may be used in lieu of numbers formed by $\frac{3}{8}$" "V" Grooves. "V" Grooves shall be formed by preformed figures.

SECTION THRU RECESSED "V" GROOVE TO FORM INSCRIBED FIGURES

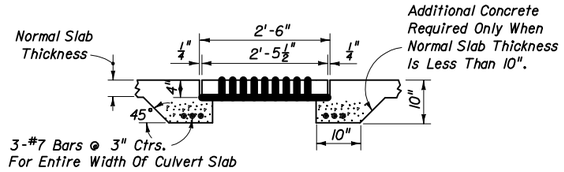


The number is to be placed in the center of the top surface of all bridge culvert headwalls.

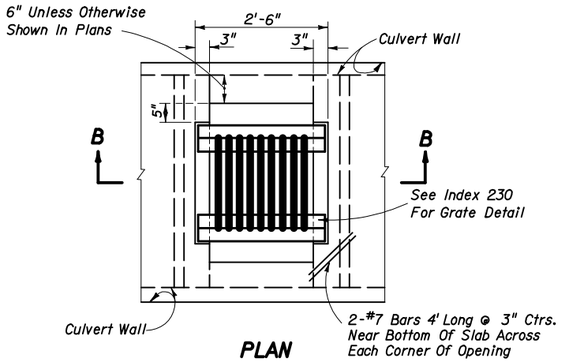
For Bridge Number See Plan-Profile Sheet(s).

TOP VIEW OF HEADWALL

BRIDGE CULVERT NUMBER LOCATION

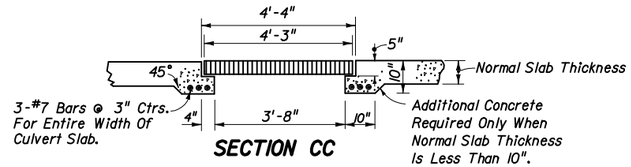


SECTION BB

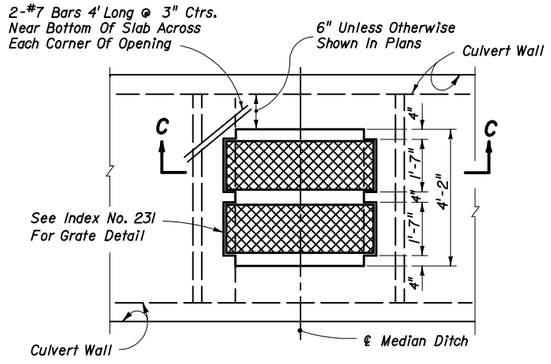


PLAN

INLET TYPE A GRATE



SECTION CC

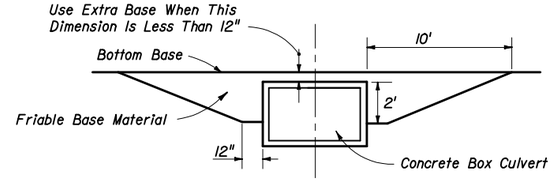


PLAN

INLET TYPE B GRATE

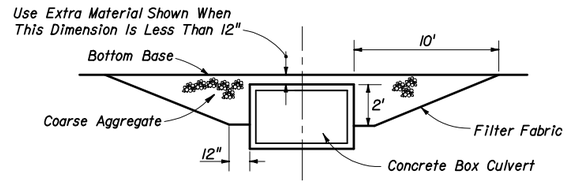
NOTE: 1. Cost of Steel Grating to be included in cost of Box Culvert.
2. All steel shall be $1\frac{1}{4}$" clear.

INLET IN TOP OF BOX CULVERT



The cost of furnishing and installing extra friable base material shall be included in the cost of the Box Culvert.

FRIABLE BASE



The coarse aggregate shall be placed in 6 inch lifts and compacted sufficiently as to be firm and unyielding. The coarse aggregate shall be gravel or stone meeting the requirements of Section 901-2 or 901-3 respectively. The gradation shall meet Section 901-6, Grades 4, 467, 5, 56, or 57 unless restricted in the plans. The filter fabric shall be Type D-3 (See Index No. 199). The cost of furnishing and installing the course aggregate and filter fabric shall be included in the cost of the Box Culvert.

ASPHALTIC CONCRETE BASE

NOTE: Extra base is required when cross box culverts are located on facilities subject to high speed traffic (>45 mph) or high traffic volumes (>1600 ADT) and the cover is within the range specified in the notation above.

EXTRA BASE FOR CROSS BOX CULVERTS UNDER FLEXIBLE PAVEMENT