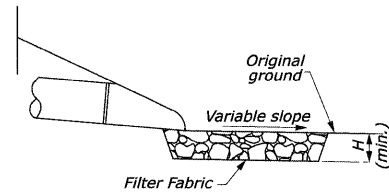


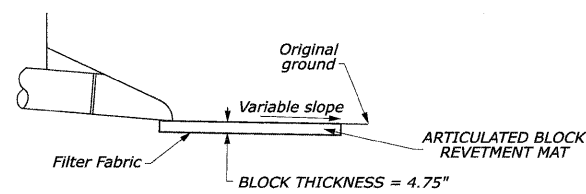
CULVERT WITH STANDARD END SECTION AND RIPRAP  
CULVERT WITH STANDARD END SECTION AND ARTICULATED BLOCK REVETMENT MAT

**OUTLET WITHOUT DITCH  
PROTECTIVE APRON DIMENSIONS AND ESTIMATED QUANTITIES**

	CULVERT SIZE D (inches)	RIPRAP CLASS	LENGTH OF APRON L (feet)	DEPTH OF RIPRAP APRON H (feet)	ESTIMATED RIPRAP QUANTITY (SY)	ESTIMATED GEOTEXTILE QUANTITY (SY)
WITH END SECTION	18	RR4	7	1.33	6	6
	24	RR4	9	1.33	9	9
	30	RR5	13.5	1.83	18	18
	36	RR5	16	1.83	26	26
	42	RR6	22	2.17	44	44
	48	RR6	25	2.17	57	57



SECTION A-A

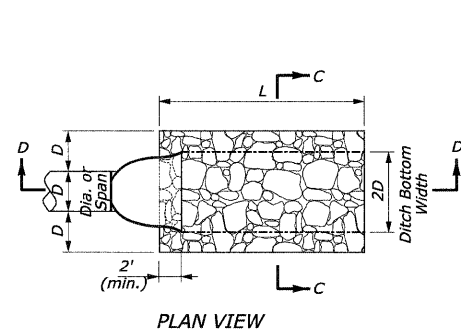


SECTION B-B

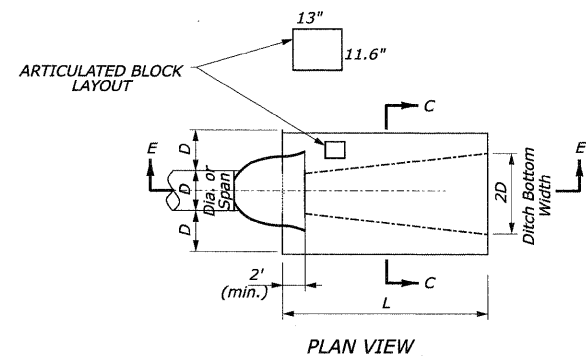
**PROTECTIVE APRON AT CULVERT OUTLET  
WITHOUT DITCH**

**RIPRAP NOTES:**

1. Use for aprons serving culverts with slopes of less than 10%.
2. Furnish Filter Fabric per section 282 of the standard specifications. 2' Turn downs not shown.
3. Provide bedding stone (not shown) per section 281 of the standard specifications.
4. Excavation for placement of riprap will not be measured for payment.



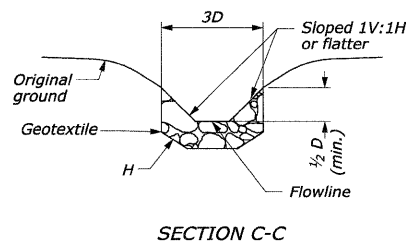
CULVERT WITH STANDARD END SECTION AND RIPRAP



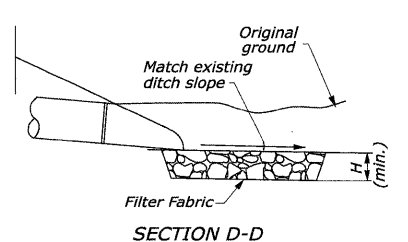
CULVERT WITH STANDARD END SECTION AND ARTICULATED BLOCK REVETMENT MAT

**OUTLET WITH DITCH  
PROTECTIVE APRON DIMENSIONS AND ESTIMATED QUANTITIES**

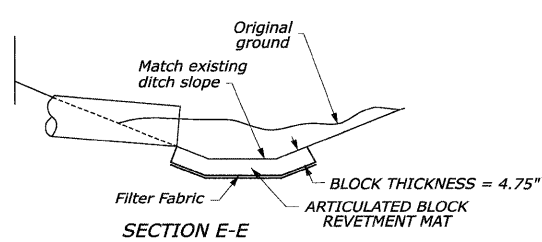
	CULVERT SIZE D (inches)	RIPRAP CLASS	LENGTH OF APRON L (feet)	DEPTH OF RIPRAP APRON H (feet)	ESTIMATED RIPRAP QUANTITY (SY)	ESTIMATED GEOTEXTILE QUANTITY (SY)
WITH END SECTION	18	RR4	7	1.5	4	4
	24	RR4	9	1.5	6	6
	30	RR5	13.5	2	12	12
	36	RR5	16	2	16	16
	42	RR6	22	2.5	26	26
	48	RR6	25	2.5	34	34



SECTION C-C



SECTION D-D



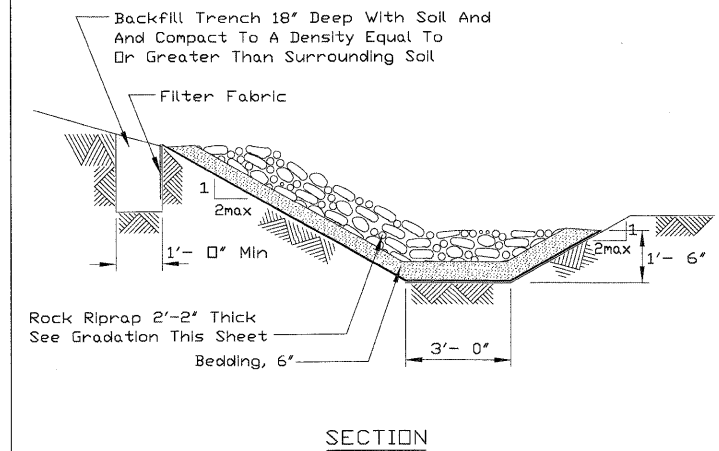
SECTION E-E

**PROTECTIVE APRON AT CULVERT OUTLET  
WITH DITCH**

**ARTICULATED BLOCK REVETMENT MAT NOTES:**

1. Articulated Block Revetment Mat to Conform to Ditch Bottom and Side Slopes.
2. Furnish Filter Fabric per section 282 of the standard specifications. 2' Turn downs not shown.
3. Block dimensions shown are nominal.
4. Blocks to be closed-cell with a nominal weight of 40 to 45 lbs/sq. ft.
5. Excavation for placement of Articulated Block Revetment Mat will not be measured for payment.
6. For Gutter Sag Outlets, use 34 sq yd mat, 25 ft long.
7. For Gutter Turnouts, use 4 sq yd mat 7 ft long.

**STRUCTURAL STREAMBANK STABILIZATION - RIPRAP**



**NOTES:**

1. The filter fabric shall meet the requirements in material specification 282 Filter Fabric.
2. The rock riprap shall meet the IDOT requirement for the following gradation: RR 6, Quality A.
3. Place bedding per Section 281 of the Standard Specifications.