

**(ES-14) CITY OF SACO
CULVERT OUTLET APRON**

N.T.S.

Short Form Specifications:

Material:	RIPRAP, FILTER FABRIC, MDOT TYPE D SUBBASE GRAVEL	QA/QC:	INSPECT FOR DEBRIS AND EXCESS SEDIMENTATION.
Submittal:	RIPRAP GRADATION, GRAVEL GRADATION, FILTER FABRIC MATERIAL	Completion:	N/A
Installation:	CONSTRUCT TO LINE AND GRADE SHOWN ON PLANS UPON INSTALLATION OF CULVERT OUTLET AND PRIOR TO DIRECTING FLOWS TO CULVERT.		

Design Checklist:

Use: **INSTALL OUTLET APRONS AT ALL CULVERT OUTLET LOCATIONS.**

Computations: **DETERMINE APRON DIMENSIONS AND RIPRAP SIZE/THICKNESS FROM CHART ON DETAIL.**

Water Quality Provisions:

REDUCES EROSION AND MOVEMENT OF SEDIMENT.

Cross Reference:

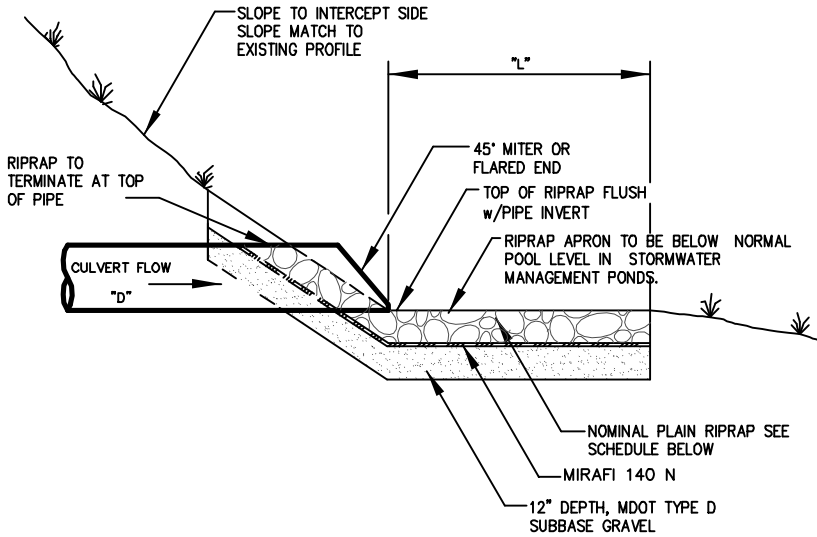
Zoning/Site Plan Review: **ARTICLE 8 – GOOD NEIGHBOR PERFORMANCE STANDARDS, SECTION 806 – EROSION CONTROL**

Subdivision Review: **ARTICLE 5 – PRELIMINARY PLAN, PARAGRAPH 5.2.2(17)**

Erosion Control BMP: **SECTION 32.0 – PIPE OUTLET PROTECTION; SECTION 70.0 – RIPRAP**

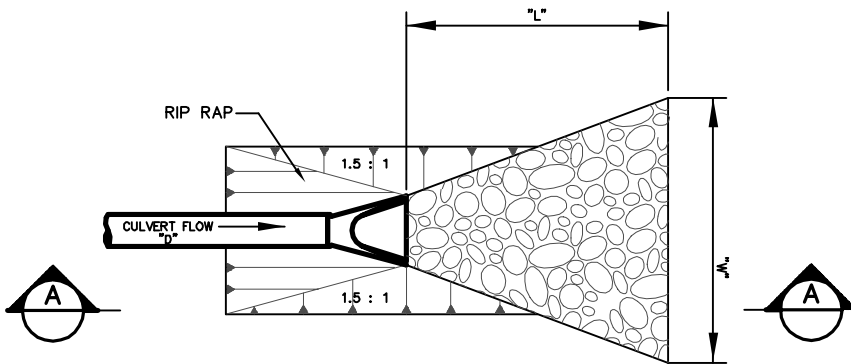
ASCE MREP No. 77: **CHAPTER 9, P.351**

MEDEP STORMWATER BMP: **N/A**



SECTION VIEW A

SCHEDULE				
CULVERT DIAMETER (D)	LENGTH (L)	WIDTH (W)	STONE d_{50}	RIPRAP THICKNESS
12"	8'	12'	6"	14"
15"	8'	12'	6"	14"
18"	10'	12'	6"	14"
24"	12'	14'	6"	14"
36"	20'	23'	12"	27"
42"	24'	28'	12"	27"
48"	28'	32'	12"	27"



PLAN VIEW

NOTE:
 RIPRAP GRADATION AND PLACEMENT - THE RIPRAP GRADATION SHALL BE A WELL-GRADED MIX FROM ABOUT 1.5 TIMES THE D SIZE TO ABOUT 25 PERCENT OF THE D SIZE. THE RIPRAP STONES SHALL BE CAREFULLY PLACED WORKING FROM THE TOE OF THE SLOPE UPWARD. THE STONES SHOULD BE LOWERED TO THE SLOPE AND NOT BE ALLOWED TO DROP MORE THAN 12 INCHES ONTO THE GEOTEXTILE. THE FINISHED SURFACE SHALL BE A RELATIVELY SMOOTH UNIFORMLY SLOPED SURFACE.

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