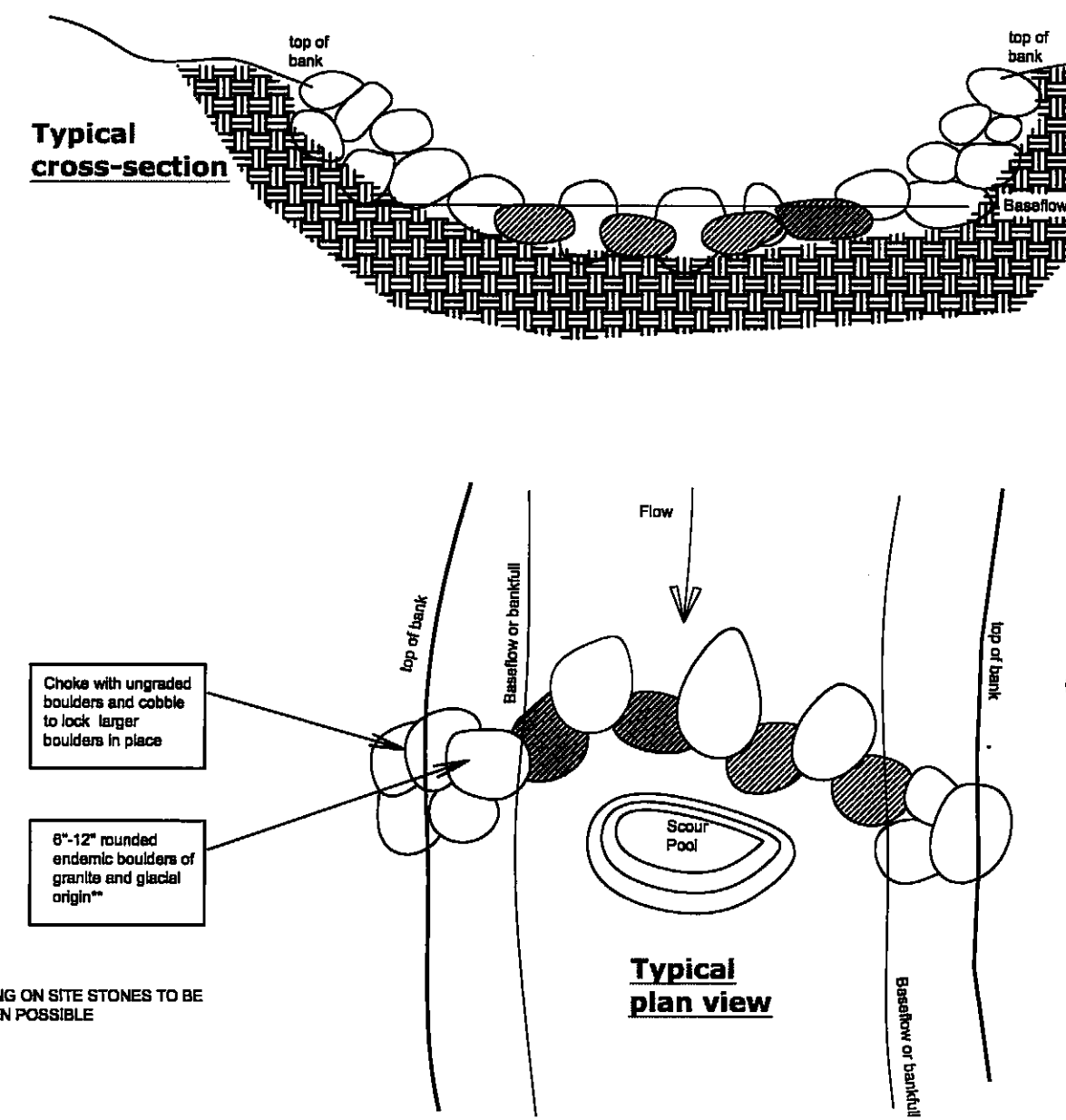
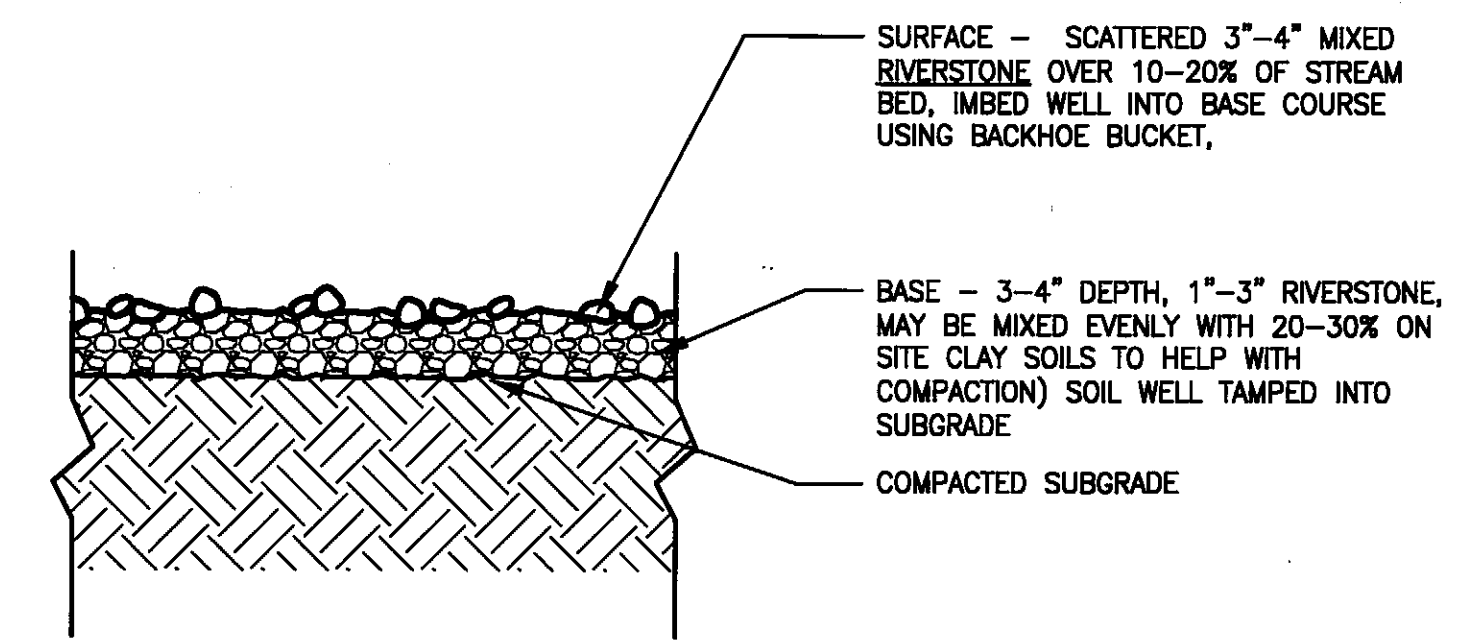
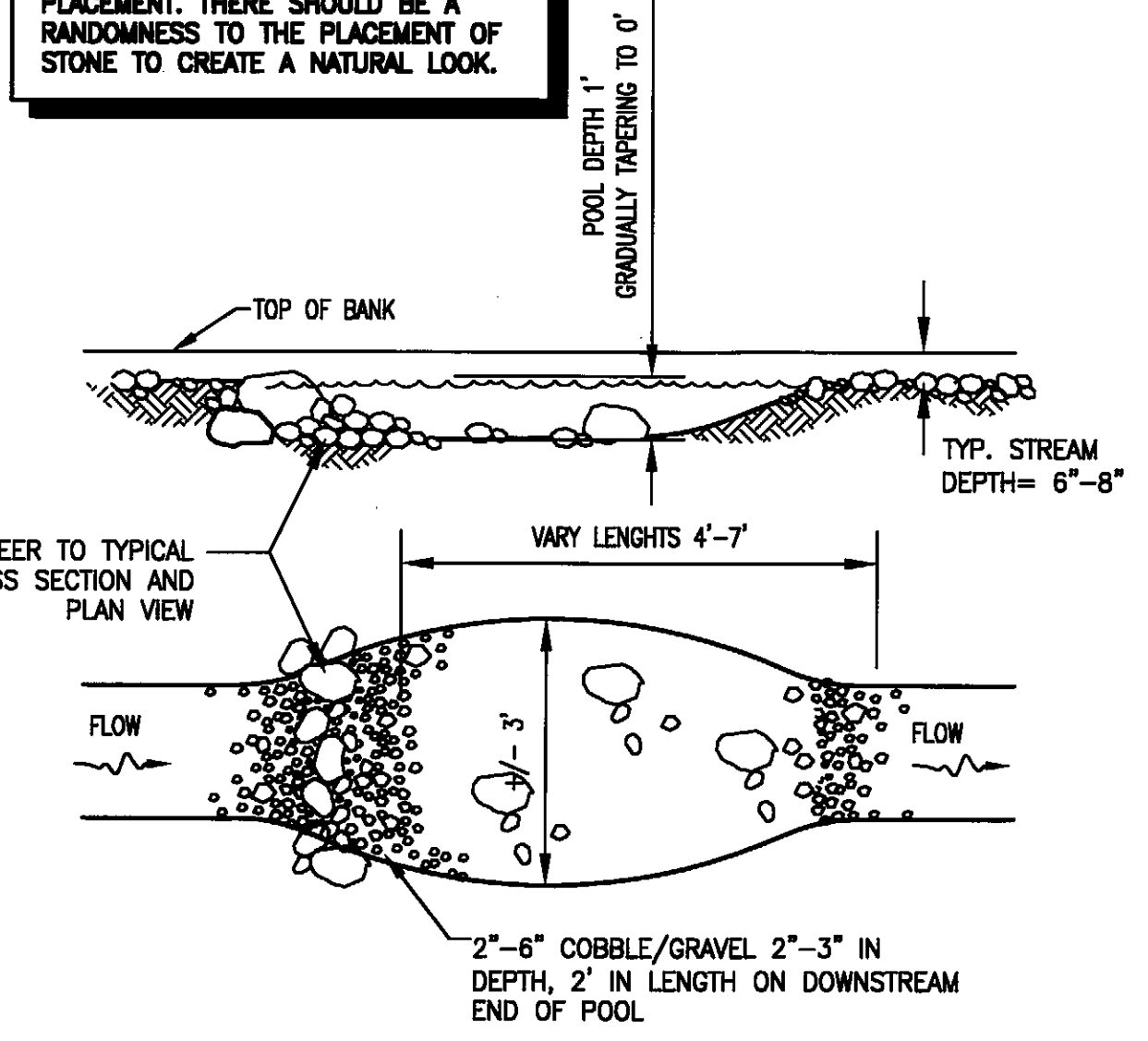


1 TYPICAL STREAM CROSS SECTION  
1" = 1'-0"



NOTE - THIS DETAIL SHOWS A GENERAL REPRESENTATION OF STONE PLACEMENT. THERE SHOULD BE A RANDOMNESS TO THE PLACEMENT OF STONE TO CREATE A NATURAL LOOK.



3 TYPICAL STREAM BOTTOM DETAIL  
N.T.S.

**GENERAL NOTES: Rock Vortex Weirs**  
A rock vortex weir is a structure designed to serve as grade control and create a diversity of flow velocities, while still maintaining the bed load sediment transport regime of the stream. The weir points upstream with the legs angling downstream at anywhere from a 15 to 30 degree angle relative to the stream bank. The legs are carried up the streambank to just above the bankfull elevation. The key component of the rock vortex weir is that the weir stones do not touch each other. Most design details call for a distance of between 1/3 and 1/2 the stone diameter separating each stone. An additional key design feature is that the weir stones do not rise above the channel invert more than 10 to 15% of the bankfull height.

During baseflow conditions water is forced to flow around and between the stones creating a greater diversity of flow velocities and depths. During high flows the water rises over the weir stones creating a scour pool below the structure but allowing bed load sediments to move through. Built in this way, the weir will not cause significant sedimentation upstream or reduce the channel cross section to the point of causing the channel to widen or erode around the structure.

The rock vortex weir is constructed first by placing a foundation of boulders two to three feet (variable) in size in a trench excavated along the stream bottom. Large stones are then placed in the trench behind and against the footer stones so that they extend up to the desired elevation. A distance of 1/3 to 1/2 the stone width should be maintained between each stone. The rocks should extend up no more than 10 to 15% of the bankfull channel depth (*drawings*).

During baseflow, the interaction of the stream and rocks creates differing flow velocities, with higher flows creating a scour pool below the structure. By shifting the apex of the structure toward one bank or the other it can be used to direct flows into or out of a meander bend or away from an eroding bank. This device also works best as a grade control structure. Although, this must be judged against the amount of channel degradation expected. If a large nick point is migrating upstream toward the structure, measures must be taken to insure that the migrating nick point does not undermine the structure. In such cases a different type of structure such as a step pool should be utilized to halt the advance of the nick point. Rock vortex weir structures are more effective at preventing grade adjustments than halting them.

Rock vortex weirs have a moderate potential to enhance stream habitat. Correctly sited and constructed, they tend form scour pools downstream of the structure and increase the diversity of flow velocities above and within the structure.

[http://www.stormwatercenter.net/Associated%20Fact%20Sheets/Restoration/grade\\_control.htm#3](http://www.stormwatercenter.net/Associated%20Fact%20Sheets/Restoration/grade_control.htm#3)

CONTRACTOR SHALL USE THE EXISTING STONES ON SITE IN THE PROPOSED STREAM FEATURES WHERE EVER POSSIBLE.

2 ROCK RIFFLE HABITAT & PLUNGE POOL  
DETAIL PROVIDED BY DAVEY RESOURCE

REV NO	DATE	DESCRIPTION
09/15/14		ORIGINAL SUBMITTAL
DWG NAME	DRAWN BY	CHKD BY
12269C-Mitigation	BMU	CJO
	JOB NO	
	12269F	

HILLSIDE ESTATES/CREEKSIDE ESTATES  
STREAM MITIGATION DETAILS  
TOWNSHIP OF COPLEY, COUNTY OF SUMMIT, STATE OF OHIO

**NEFF**  
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SHEET NO.  
C6.4