Illinois Department of Transportation
Memorandum

To:	ALL BRIDGE DESIGNERS	12.5
From:	D. Carl Puzey	D. Carl Puzey
Subject:	Revised Riprap Treatment Standards & Guidelines	
Date:	December 10, 2012	

This memorandum revises standard riprap treatments shown in the Bridge Manual to better reflect direction from the FHWA Hydraulic Engineering Circular, *HEC-23, Bridge Scour and Stream Instability Countermeasures Experience, Selection and Design Guidance, 3rd Edition-Vol. 1* and Chapter 11 of the *IDOT Drainage Manual*. The riprap applications affected by these revisions include standalone riprap installations around bridge piers, streambed or channel bank revetment, and rock utilized for slopewalls that protect bridge abutments and embankment cones. These revisions should enhance the performance of the installations and improve constructability by limiting the filter fabric coverage.

Included is new Figure 2.3.6.3.3-1a. This detail shall be shown on the plans when a standalone riprap treatment is used at a pier. Research has shown that extending the filter fabric to the edge of the riprap is undesirable. Per HEC-23, the filter fabric should terminate 2/3 of the distance from the pier face to the edge of riprap. Per IDOT Drainage Manual Chapter 11 Scour Countermeasures, riprap shall extend 10 feet from the pier face for most routine piers. It follows that in this case, the filter fabric would extend 7 feet from the pier face. This new detail will improve the scour resistance of the riprap installation.

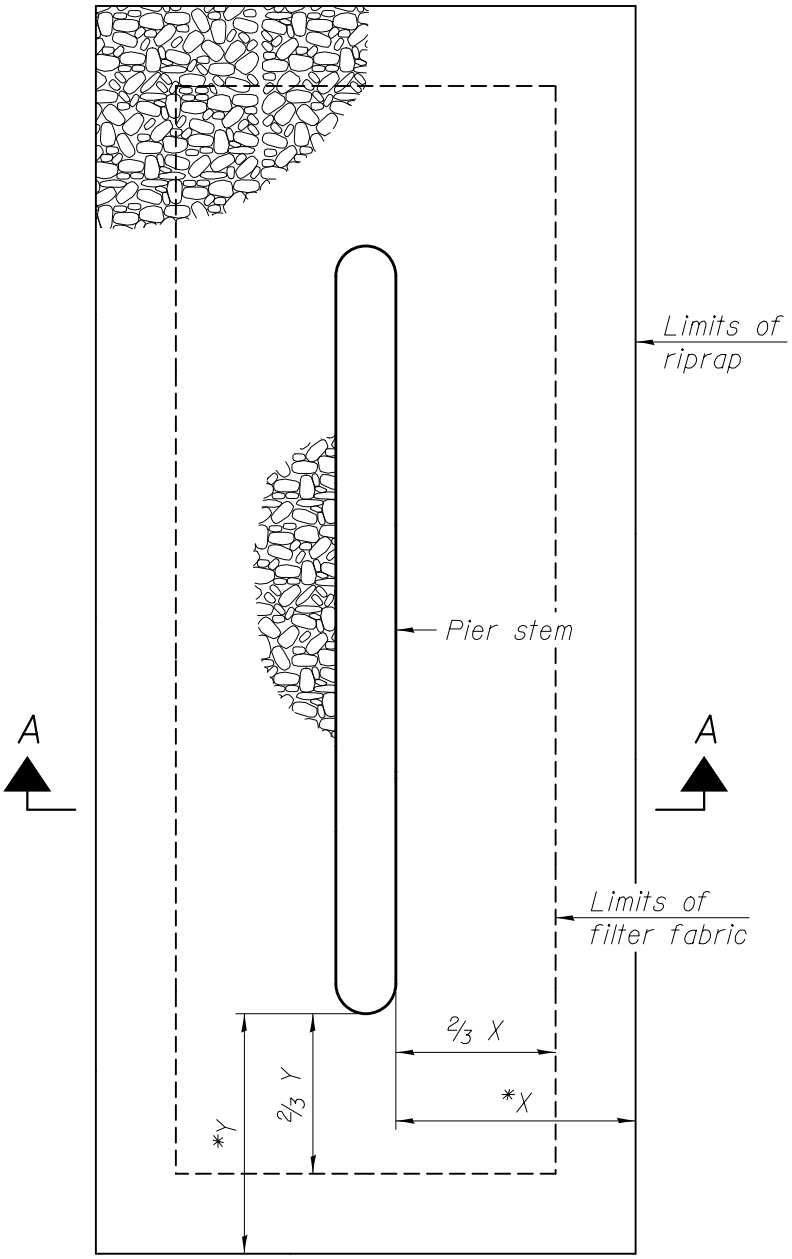
Also included are revised details that shall be used in lieu of the details shown in the Bridge Manual. Figure 2.3.6.3.3-2 on page 2-100 of the Bridge Manual has been revised to eliminate the wrap of filter fabric within the toe. The filter fabric now only extends to the lowest point in the toe. This revision allows the toe to fail when undermined and provide a level of self protection that can easily be repaired. Figure 2.3.6.3.3-3 on page 2-101 of the Bridge Manual has also been revised for the same reason.

The new details have been placed in the Planning Library on the Department's web site for inclusion on applicable TS&L's; however, the sample TS&L's of Bridge Manual 2.3.14 have not been updated. These are scheduled to be updated in the near future.

This policy shall be implemented for all applicable projects beginning with the March 8, 2013 letting. Please direct questions or comments to Matt O'Connor at 217-785-2917 Matthew.OConnor@illinois.gov

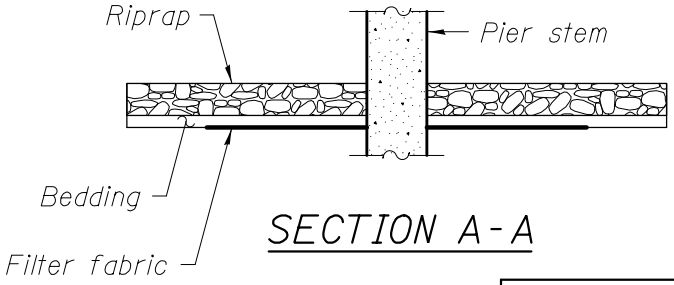
Attachments

DLG/kktABD12.5revisedripraptreatment-20121210



PLAN

* See Chapter 11 of Drainage Manual for procedure to calculate this dimension.



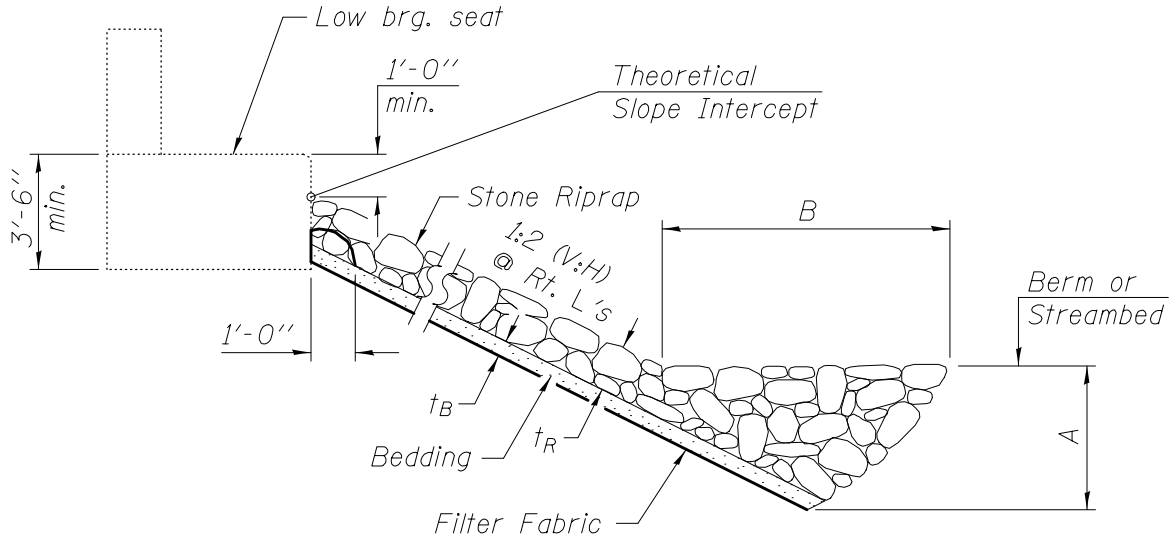
SECTION A-A

STANDALONE RIPRAP PROTECTION OF PIERS

Figure 2.3.6.3.3-1a

Riprap Class	t_R	t_B	A	B
A4	16''	6''	4'	8'
A5	22''*	8''	5'	10'
A6	26''*	10''	6'	12'
A7	30''*	12''	7'	14'

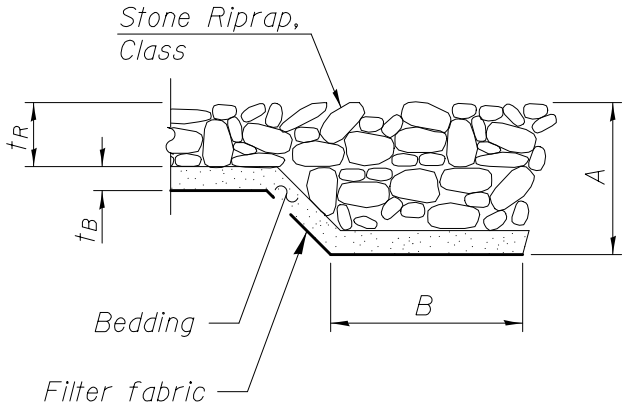
* Check abutment depth and increase as necessary to match depth of riprap and bedding



TOE STONE RIPRAP TREATMENT
STREAM CROSSINGS

Figure 2.3.6.3.3-2

Riprap Class	t_R	t_B	A	B
A4	16''	6''	2'-8''	4'-0''
A5	22''	8''	3'-8''	5'-6''
A6	26''	10''	4'-4''	6'-6''
A7	30''	12''	5'-0''	7'-6''



FLANK STONE RIPRAP TREATMENT FOR STREAM CROSSINGS

Figure 2.3.6.3.3-3