

Matrix Riprap – Summary Sheet



Matrix Riprap close-up during installation, and just after completion

Background Information

Matrix Riprap (partially grouted riprap) is primarily used at MnDOT as a cost-effective alternative to more traditional armoring treatments to protect bridge abutments from scour during flood events. It consists of angular riprap that is “glued” together at rock contact points using a Portland cement based grout. MnDOT has developed a specification for installation of matrix riprap (available upon request). Matrix riprap is used where riprap rock sources are of poor quality or in place of much larger standard riprap sizes. We have installed this countermeasure at over 6 sites across this state. Bid prices have ranged between \$65-125/cyd.

Research

Below is a list of matrix riprap research projects MnDOT has sponsored.

- Matrix Riprap Implementation Study, completed by Ayres Associates in August 2013
- Matrix Riprap Lab Flume Study, completed by SAFL-UMN in April 2015
<http://www.cts.umn.edu/Research/Projectdetail.html?id=2012004>

Video Links

- Matrix Riprap Installation Guidance: <https://www.youtube.com/watch?v=r9X9Y6wWI2c>
- Matrix Riprap Grout Installation: https://youtu.be/26U5r_iALU
- Grout Flow Table Test: <https://www.youtube.com/watch?v=WlIKU2Yim5U>
- Standard Slump Test for Matrix Riprap: https://www.youtube.com/watch?v=2d1_fgPrwqk

For More Information

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Last updated: July 19, 2016

