Appendix G

Construction Site Runoff Management

1. SESC QA/QC Review Locations (Page G.1-1)
2. Construction Advisories
    a. CA 2007-12, *Hydrodemolition and Concrete Diamond Grinding* (Pages G.2-1 to G.2-2)
    b. CA 2007-13, *Riprap Placement for Storm Water Drainage* (Pages G.2-3 to G.2-4)

2007 Construction Reviews
MDOT Storm Water Program

Region	Projects Reviewed	No. of Inspections
Bay	I-75, Birch Run	3
	M-25 in Huron County	1
Grand	M-20 in Newaygo County	1
Metro	I-96/I-75 at the Ambassador Bridge	3
	M-15 in Oakland County	1
	US-24 over Middle Rouge River	2
	M-53 at 21 and 22 Mile Roads	1
	I-69 from Taylor Road to Range Road	1
	US-12 from Heyward Street to Howe Road	1
	I-94, Masonic to M-29	1
	M-10, Greenfield to Meyers	2
	I-94 Sound Wall from Martin Road to 12 Mile	1
	M-1 from 14 Mile to Beaver Road	1
	M-10, Jefferson to Greenfield	2
	M-10, Greenfield to Lasher Road	1
North	US-131, Klaska to Mancelona	1
Southwest	I-94 in Kalamazoo	1
	I-94 at Tanner Creek	1
	I-196 near South Haven	1
	I-94/US-131 Interchange in Kalamazoo	1
	M-60 in Cass County	1
University	M-59 from I-96 to Crestwood	1
Superior	US-41/M-28 in Ishpeming	1
	US-41 at Kelley Creek	1
	M-69 in Crystal Falls	1
	US-2 at Isabella	1
	US-2 at Harris	1

Construction Advisory

CA 2007-12
June 11, 2007

From Brenda O'Brien, Engineer of Construction and Technology

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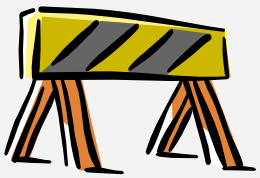
Index: Environment

Questions regarding this Construction Advisory should be directed to:

Judy Ruszkowski, Operations Environmental Stewardship Engineer, at 517-322-5698 or ruszkowskij@michigan.gov



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Hydrodemolition and Concrete Diamond Grinding

This construction advisory serves to clarify the permitting requirements for discharge of process water from hydrodemolition work, and to remind construction staff of the need to ensure both hydrodemolition and diamond grinding operations are completed according to the applicable contract documents.

Hydrodemolition

MDOT received clarification from MDEQ regarding the implementation of the Groundwater Discharge General Permit for hydrodemolition process water, which was negotiated in 2005. Effective immediately, the hydrodemolition contractor is required to obtain a Certificate of Coverage (COC) under the general permit prior to beginning hydrodemolition work. The COC is an annual requirement, regardless of the number and location of hydrodemolition projects a contractor works on. MDOT provided written notification of this requirement to each of the contractors prequalified to perform hydrodemolition work.

The hydrodemolition contractor is responsible for submitting the application and paying the fee when invoiced by the MDEQ. The coverage under the general permit is effective at the time the contractor receives the COC from MDEQ. The COC will indicate the period of coverage. The project engineer should verify that the coverage will be in effect for the entire period of time that hydrodemolition work will take place on a given project. A copy of the COC should be provided by the hydrodemolition contractor and placed in the project file.

Concrete Diamond Grinding

The contractor must follow a pH control plan to ensure the pH of the grinding residue is maintained below 12.5 prior to discharge or disposal. The control plan must specify the actions the contractor will take to meet this requirement. Once the pH is verified to be below 12.5 and the contractor opts for land application of the slurry on MDOT right-of-way, the application rate must conform to the *Special Provision for Managing Diamond Grinding Slurry from Ride Quality Concrete*. This includes not only adhering to the maximum rate of application, but also the site conditions at the time of application.

Application rate must be such that

- there is no ponding, pooling or runoff.
- it does not exceed 5 dry tons per acre.

Application is not permitted

- within 100 feet of any stream or lake.

- within 5 feet of any water filled ditch.
- within 5 feet from the curb.
- in any area in which the groundwater table is less than 30 inches below the surface.
- in any location where it could enter a closed drainage system.

Project staff must be aware of changing conditions on a site that may require a change in the contractor's grinding slurry application operation. One example is a recent or anticipated rain event that may result in the slurry being carried into a surface water body, or into what is now a water filled ditch. This could result in a violation of the department's statewide storm water discharge permit. When approving the area for land application, be aware of the surrounding land features and monitor any changes in surface water flows during the slurry application operation portion of the project.

If the contractor must collect and transport the slurry for land application or disposal, or if the dewatering option is selected, be sure all required documentation is in place and the material is properly manifested.

Construction Advisory

CA 2007-13
August 14, 2007

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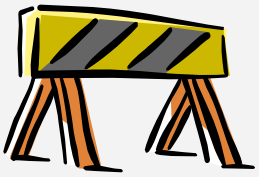
Index: Earthwork

Questions regarding this Construction Advisory should be directed to:

Dave Gauthier, Grading and Drainage Engineer, 517-322-5710 or gauthierd@michigan.gov



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Riprap Placement for Storm Water Drainage

The purpose of this construction advisory is to emphasize construction details for riprap placement at those locations intended to carry storm water and provide protection against soil erosion and subsequent sedimentation. This construction advisory specifically addresses ditches, channels, spillways and storm water outfalls. For these applications, the primary purpose of riprap is to dissipate energy from the storm water runoff to a non-erosive velocity to minimize erosion.

To achieve effective performance of the riprap, the important elements to monitor are geotextile liner installation, stone size, type and placement, and proposed channel configuration, both in cross section and plan view. Perform this work in accordance with Sections 814 and 916 of the *2003 Standard Specifications for Construction*. Riprap may be comprised of natural stone or broken concrete that is free of soil, HMA or protruding reinforcing steel. HMA and brick are not permitted for use as riprap. One of the most common causes of riprap failure is inadequate stone size. The footprint dimensions for plain riprap should range from 8 to 16 inches, with an in-place thickness of at least 8 inches.

Prior to riprap placement, prepare the base to finish grade and place geotextile liner as detailed in Section 814 of the *2003 Standard Specifications for Construction*. Geotextile liner that meets the physical requirements specified in Table 910-1 of the standard specifications shall underlie all areas where riprap will be placed. By specification, geotextile liner is made from non-woven geotextile. Woven geotextile, like that used for silt fence, should never be used for riprap applications. All seams, if not sewn, should overlap a minimum of 2 feet. At outlets, place the geotextile liner prior to the end section and extend it a minimum of 2 feet upslope from the end of the proposed outlet end section. When heavy riprap is specified, the pay item Geotextile Liner, Heavy is required.

Channel configuration is critical for effective performance of the riprap. In accordance with Standard Plan R-46-C, the ditch, channel or spillway should have a concave configuration (not flat) with the center being a minimum of 6 inches below the outer limits of the riprap placement. The steeper the slope angle, the greater the depth of the channel should be to ensure that the runoff is contained. On long steep channels, stone check dams may be constructed to reduce velocity of the flow.

Riprap placement at outfall end sections should be in accordance with E&S-7-A of the *Soil*

Erosion and Sedimentation Control Manual. There are generally two variations for riprap placement at outfall end sections; the pipe will outlet to a defined channel or to a flat area. If the outlet is to a channel, the configuration should be as described above in accordance with R-46-C. If the outlet is to a flat area, place the riprap in a configuration that fans out beyond the limits of the flared portion of the end section. In situations where high volumes of water are anticipated, the stone may be bermed up in a semicircle pattern beyond the end section to create a stilling pool to reduce velocity of the storm water. The area limits of the riprap for this application are situation dependent and will need to be adjusted in the field on a case-by-case basis.

For additional information and details refer to the following MDOT documents:

- *2003 Standard Specifications for Construction*, Sections 813, 814, 910 and 916
- *Soil Erosion and Sedimentation Control Manual* E&S-7-A
- Standard Plan R-46-C
- *Construction Manual*, Section 813
- *Drainage Manual* Chapter 9

Please share this information with consultants and local agencies within your area.