Section 208. SOIL EROSION AND SEDIMENTATION CONTROL

208.01 Description. Install and maintain erosion and sedimentation controls to minimize soil erosion and to control sedimentation from affecting water resources of the State of Michigan and adjacent properties.

Conduct all work in a manner that minimizes soil erosion. Confine all soil, fuels, oils, asphaltic materials, chemicals, sanitary sewage, debris, and other unsuitable materials, resulting from the construction of the project, within the right-of-way and project limits. Dispose of these materials to prevent them from entering water resources (surface and ground) of the State of Michigan and adjacent properties.

The Michigan Department of Environmental Quality (MDEQ), has designated the MDOT an Authorized Public Agency (APA) under authority of Act 451 of 1994, Natural Resources and Environmental Protection Act, Part 91 as amended, Michigan Soil Erosion and Sedimentation Control (formally PA 347 of 1972, as amended). The APA designation allows the MDOT to undertake earth change activities without obtaining an individual soil erosion permit. Failure by the Contractor to install and maintain adequate soil erosion controls may result in project shut-down and/or fines from the MDEQ. Obtain all applicable federal, state, and local permits when working outside MDOT right-of-way or outside MDOT acquired easement areas. These permits include, but are not limited to Act 451 and National Pollutant Discharge Elimination System (NPDES), Section 404 of Federal Clean Water Act. Secure a soil erosion permit when the work disturbs more than one acre of land or is within 500 feet of a lake or stream. Local Agency Act 451, Part 91 requirements may be more restrictive.

On projects requiring stream crossing, culvert extensions at streams or drains, or wetland permits from the MDEQ, the Engineer will notify the regional MDEQ office of the anticipated construction start date. At project completion, the completion notification card attached to the permit must be submitted to the MDEQ. For projects requiring U.S. Army Corps of Engineers or U.S. Coast Guard permits, the Engineer will follow the notification procedures listed on these permits.

208.02 Materials. Use materials meeting the following.

- Coarse Aggregate, 6A .................................................. 902
- Granular Material Class II .......................................... 902
- Dense-Graded Aggregate, 21AA, 22A .......................... 902

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208.03 Construction.

A. General Requirements. Prevent or reduce erosion and control sedimentation associated with the project. Keep sedimentation within MDOT right-of-way and out of surface waters of the State of Michigan. Construct and maintain temporary or permanent erosion and sedimentation controls specified on the plans and detailed in the Soil Erosion and Sedimentation Control Manual before beginning earth disturbances that may result in a sediment loss. Perform grading as soon as possible after clearing. Install temporary erosion and sedimentation controls, as directed by the Engineer, to reduce potential problems, to correct conditions that develop during construction, and to stabilize inactive construction areas.

B. Time Limitations. Bring grading sections to final grade as soon as possible. Complete permanent soil erosion controls for slopes, channels, ditches, and other disturbed areas within five calendar days after final grading or final earth change. Permanently restore slopes and ditches within 150 feet of a lake, stream, or wetland within 24 hours after final grading or final earth change. Use temporary erosion and sedimentation controls where stabilizing a disturbed area is not possible. Maintain temporary soil erosion and sedimentation controls until permanent controls are in place and functional.

C. Area Limitations. Limit the surface area of erodible earth material exposed anytime to 50 stations of dual roadways (100 stations of single roadway) for clearing and grading. The Engineer may reduce or increase the limits of exposed surface area depending on the Contractor’s ability to keep the finish grading, topsoiling, seeding, mulching, and other temporary or permanent erosion and sedimentation control current.

The Engineer will approve the completed slope when the Contractor has completed the permanent restoration on a cut slope or embank-
ment slope, or portions thereof. Each cut or embankment slope, or portions thereof, on each side of the roadway will be considered for approval separately.

Do not disturb lands and waters outside the grading limits without prior approval of the Engineer. Restoration of areas disturbed beyond the plan or approved limits, will be at the Contractor’s expense.

Obtain and give the Engineer copies of all local, state, or federally required permits before disturbing sites outside the right-of-way, such as borrow, waste or disposal areas, haul roads, or storage sites. Include permits required under Act 451, Part 91, as amended (Soil Erosion and Sedimentation Control), Part 303 (Wetland Protection, formerly Act 203), Part 301 (Inland Lakes and Streams, formerly Act 346), Part 31, (Water Resources Protection, Floodplain Regulatory Authority, formerly Act 245 as amended by Act 167), and Part 31 (Water Resources Protection), National Pollutant Discharge Elimination System (NPDES). Secure Federal Section 404, Clean Water Act of 1972, permits, if required. Provide temporary and permanent erosion and sedimentation controls according to the permits.

D. Construction of Erosion and Sedimentation Controls. Construct temporary or permanent erosion and sedimentation controls according to the Soil Erosion and Sedimentation Control Manual, details shown on the plans, or as directed by the Engineer.

If approved by the Engineer, and not prohibited by permit, broken concrete may be used for erosion and sedimentation controls provided all the reinforcing steel has been removed or cut flush. Do not use asphaltic material and or broken brick for checkdams or riprap.

1. Check Dams. Install and maintain a check dam across a ditch or watercourse.

2. Sediment Traps and Basins. Excavate, maintain, and fill if directed, a sediment trap (5 cubic yards or less) or sediment basin (greater than 5 cubic yards) as shown on the plans or where directed.

Prevent the excavated material from eroding into a lake, watercourse, or wetland. Install required check dams downstream from a trap or basin before excavation of the trap or basin.
3. **Filter Bag.** Furnish, place, and dispose of a minimum 250 square foot filter bag constructed of geotextile blanket. Pump water from the construction area into the filter bag so that it is filtered before entering a watercourse. Install a separate silt fence or gravel filter berm around the filter bag for additional protection in sensitive areas or where the filter bag is not effectively removing the sediment. Water may be discharged directly into the watercourse provided it remains silt free. Place the filter bag on level ground above and no closer than 20 feet from the banks of the stream channel. The location of the filter bag must be approved by the Engineer. Dispose of the filter bag and its contents when no longer needed.

4. **Sand and Stone Bags.** Furnish, place, maintain, remove and dispose of the sand or stone bags. Use non-contaminated sediment-free materials in the device approved by the Engineer.

5. **Silt Fence.** Furnish, erect, maintain, remove, and dispose of a silt fence, consisting of geotextile stapled to and supported by posts. Place all material removed for trenching in the silt fence on the upstream side of the silt fence. In areas where water ponds behind the silt fence, provide a stone filter to outlet the water and prevent failure.

6. **Gravel Filter Berm.** Furnish, place, maintain, remove and dispose of coarse aggregate 6A or 34R berm. Do not use this device in lieu of a check dam in a ditch.

7. **Inlet Protection, Fabric Drop.** Furnish, place, maintain, remove and dispose of sediments, silt fence, stone check dam and/or filter berm as directed by the Engineer.

8. **Inlet Protection, Geotextile and Stone.** Furnish, place, maintain, remove and dispose of geotextile filter fabric and/or 34R or 6A aggregate. Cover all parts of the structure in which water or sediments may enter. Wrap the fabric on all sides of the structure.

9. **Inlet Protection, Sediment Trap.** Excavate, furnish, maintain, remove and dispose of geotextile fabric, and 34R or 6A aggregate.

10. **Temporary Plastic Sheets or Geotextile Cover.** Furnish, place, maintain, remove and dispose of plastic sheets or geotextile cover. Secure it as approved by the Engineer.

11. **Sand Fence.** Furnish, maintain, remove and dispose of a fence to prevent sand from blowing onto roads.
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12. **Aggregate Cover.** Furnish, place, maintain, remove and dispose of geotextile fabric and dense-graded 21AA, coarse aggregate 3x1 or coarse aggregate 6A.

13. **Gravel Access Approach.** Furnish, place, maintain, remove, and dispose of geotextile fabric and dense-graded aggregate, 22A or coarse aggregate, 3x1.

E. **Maintenance of Erosion and Sedimentation Controls.** Maintain all temporary erosion and sedimentation controls during the period that the temporary controls are required and all permanent erosion controls until the contract has been completed and accepted. Repair all damaged areas, replace lost devices, and periodically remove sediment. Clean sediment traps and basins when they are half full or as directed. Remove sediment or debris from in front of the silt fence when it has accumulated to half the fence height. Dispose of removed sediment according to subsection 205.03.P.

F. **Removal of Erosion and Sedimentation Control Facilities.** Remove or obliterate temporary erosion and sedimentation controls when the permanent controls are in place and approved, unless ordered to be left in place by the Engineer. Leave temporary controls next to lakes, watercourses, or wetlands in place until the adjacent slopes have established turf. Incorporate mulch placed for temporary erosion control into the slope, or remove, before placing topsoil, permanent seed, and fertilizer. Reduce erosion or sedimentation into watercourses during removal of erosion controls. Repair all damage caused during the removal at the Contractor’s expense.

Dispose of sand filled bags at an upland site or as approved by the Engineer. If approved, place stone from stone filled bags in the bottom of the watercourse if they do not change the stream hydraulics.

208.04 Measurement and Payment.

<table>
<thead>
<tr>
<th>Contract Item (Pay Item)</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erosion Control, Check Dam, Stone</td>
<td>Foot</td>
</tr>
<tr>
<td>Erosion Control, Sediment Trap</td>
<td>Each</td>
</tr>
<tr>
<td>Erosion Control, Sediment Basin</td>
<td>Cubic Yard</td>
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<tr>
<td>Erosion Control, Maintenance, Sediment Removal</td>
<td>Cubic Yard</td>
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<tr>
<td>Erosion Control, Filter Bag</td>
<td>Each</td>
</tr>
<tr>
<td>Erosion Control, Sand Bag</td>
<td>Each</td>
</tr>
<tr>
<td>Erosion Control, Stone Bag</td>
<td>Each</td>
</tr>
<tr>
<td>Erosion Control, Silt Fence</td>
<td>Foot</td>
</tr>
</tbody>
</table>
Erosion Control, Gravel Filter Berm .................... Foot
Erosion Control, Inlet Protection, Fabric Drop. ............ Each
Erosion Control, Inlet Protection, Geotextile and Stone ...... Each
Erosion Control, Inlet Protection, Sediment Trap .......... Each
Erosion Control, Temp Plastic Sheet/Geotextile Cover ..Square Yard
Erosion Control, Sand Fence ................................ Foot
Erosion Control, Aggregate Cover ......................... Square Yard
Erosion Control, Gravel Access Approach .................... Each

A. **Erosion Control, Check Dam, Stone** will be measured in place by length and includes furnishing, placing, and maintaining the check dam. No allowances will be made for repairs or replacements due to damage caused by the contractor's operation or negligence. **Erosion Control, Check Dam, Stone** replacement due to reasons other than the Contractor's operations or negligence will be measured and paid for separately. Removal and disposal of **Erosion Control, Check Dam, Stone**, if required, will be paid for as **Erosion Control, Maintenance, Sediment Removal**.

B. **Erosion Control, Sediment Trap or Basin.**

1. **Erosion Control, Sediment Trap** will include all equipment, materials, and labor required for the excavation, construction, maintenance, and removal of the Erosion Control, Sediment Trap. Removal and disposal of accumulated sediment or debris will be measured and paid for as **Erosion Control, Maintenance, Sediment Removal**.

2. **Erosion Control, Sediment Basin** will be measured by volume, loose measure and will include all equipment, materials, and labor required for the excavation, construction, maintenance, and removal of the sediment basin. Removal and disposal of the accumulated sediment or debris will be measured and paid for as **Erosion Control, Maintenance, Sediment Removal**.

C. **Erosion Control, Maintenance, Sediment Removal** will be measured by volume, loose measure, and will include cleaning sediment from traps, basins, from the high side of the silt fence, and any other erosion control device listed in the soil erosion control manual needing sediment cleaning as required. All material removed from cleaning will be disposed of at an upland site approved by the Engineer.

D. **Erosion Control, Filter Bag** includes furnishing, placing, maintaining, and disposing of the bag and its contents, and restoration of the filter bag site.
E. Erosion Control, Sand Bag and Erosion Control, Stone Bag will be measured in place by each and includes furnishing, placing, maintaining, removing and disposing of the sand or stone bags. The stone from the Erosion Control, Stone Bag, may be left in place only if the bags are cut open and properly disposed of, and the stone spread evenly as directed by the engineer. No allowances will be made for repairs or replacement due to damage caused by the Contractor’s operations or negligence.

F. Erosion Control, Silt Fence will be measured in place by length and includes furnishing, erecting, maintaining, removing, and disposing of the fence and posts. Erosion Control, Silt Fence may be left in place if directed by the Engineer. No allowance will be made for overlaps, repairs or replacement due to damage caused by the Contractor’s operation or negligence. Erosion Control, Silt Fence, replaced due to reasons other than the Contractor’s operations or negligence will be measured and paid for separately. Removal and disposal of accumulated sediment or debris will be measured and paid for as Erosion Control, Maintenance, Sediment Removal.

G. Erosion Control, Gravel Filter Berm, will be measured in place by length and includes furnishing, placing, maintaining, removing, and disposing of the Gravel Filter Berm. No allowances will be made for repairs or replacements due to damage caused by the Contractor’s operation or negligence. Erosion Control, Gravel Filter Berms, replacement due to reasons other than the Contractor’s operations or negligence will be measured and paid for separately.

H. Erosion Control, Inlet Protection.

1. Erosion Control, Inlet Protection, Fabric Drop will include all equipment, materials, and labor required for construction, maintenance, and removal of the Erosion Control, Inlet Protection Fabric Drop.

2. Erosion Control, Inlet Protection, Geotextile and Stone will include all equipment, materials, and labor required for construction, maintenance, and removal of the Erosion Control, Inlet Protection Geotextile and Stone.

3. Erosion Control, Inlet Protection, Sediment Trap will include all equipment, materials, and labor required for the excavation, construction, maintenance, and removal of the Erosion Control, Inlet Protection, Sediment Trap. Removal and disposal of accumulated
sediment or debris will be measured and paid for as Erosion Control, Maintenance, Sediment Removal.

I. Erosion Control, Temporary Plastic Sheet/Geotextile Cover will include all equipment, materials, and labor required for the construction, maintenance, and removal of the Erosion Control, Temporary Plastic Sheet/Geotextile Cover.

J. Erosion Control, Sand Fence will be measured in place by length and will include all equipment, materials, and labor required for construction, maintenance, and removal of the Erosion Control, Sand Fence.

K. Erosion Control, Aggregate Cover will be paid for by area and will include all equipment, labor, and material required for construction, maintenance, and removal of the Erosion Control, Aggregate Cover.

L. Erosion Control, Gravel Access Approach, will be paid for by each and will include all equipment, labor, and material required for construction, maintenance, and removal of the Erosion Control, Gravel Access Approach. Temporary culverts and/or ditching required to maintain any existing drainage courses will not be paid for separately, but is included with the pay item Erosion Control, Gravel Access Approach.