STATE OF VERMONT
AGENCY OF NATURAL RESOURCES
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
VERMONT POLLUTANT DISCHARGE ELIMINATION SYSTEM (VPDES)
GENERAL PERMIT 3-9040
FOR STORMWATER DISCHARGES FROM MUNICIPAL ROADS

DRAFT

Effective Month, Day, 2017
PART 1: BACKGROUND AND AUTHORITY

1.1 Purpose

This general permit, also referred to as the MRGP, is issued pursuant to 10 V.S.A. § 1264, which requires the Secretary to issue a general permit for discharges of regulated stormwater from municipal roads. This permit is intended to achieve significant reductions in stormwater-related erosion from municipal roads, both paved and unpaved. Under this permit, municipalities shall implement a customized, multi-year stormwater management plan to stabilize their road drainage system and prevent erosion and the transport of sediment. Plans shall include the required steps for road drainage systems to meet maintenance standards, and identify additional corrective measure to reduce erosion as necessary.

1.2 Authority

This general permit is issued in accordance with the following state and federal laws and rules: the Vermont Water Pollution Control statute, 10 V.S.A. Chapter 47, including §§ 1258, 1259, and 1264; the federal Clean Water Act (CWA), as amended, 33 U.S.C.A. § 1251 et seq., including 33 U.S.C.A. § 1342(p); and regulations of the United States Environmental Protection Agency (EPA) including but not limited to 40 CFR Part 122.

PART 2: COVERAGE UNDER THIS PERMIT

2.1 Duty to Apply

Any incorporated city, town, or village with operational control over municipal roads is subject to the requirements of this permit. The exception to this is municipalities that are authorized under the Municipal Separate Storm Sewer System (MS4) General Permit. The MS4 General Permit will include the road stormwater management standards listed in Part 7 of this general permit, and those municipalities authorized under the MS4 will address discharges of regulated stormwater from municipal roads pursuant to the terms of their MS4 authorizations.

This permit is issued by the State of Vermont as the delegated authority to administer the federal National Pollutant Discharge Elimination System (NPDES), and complies with all state-specific permitting requirements under 10 V.S.A. § 1264.

2.2 Permit Coverage

This general permit covers discharges of regulated stormwater from municipal roads, which include:

A. Town highways, class 1-4, and their rights-of-way.

B. Municipal stormwater infrastructure associated with town highways, within and outside of the municipal right-of-way.
For the purposes of this permit, “municipal stormwater infrastructure” refers to all stormwater conveyances and treatment and control systems, controlled by the municipality, that receive stormwater discharges from municipal roads.

### 2.3 Limitations on Coverage.

Any discharges not expressly authorized in this permit cannot become authorized or shielded from liability under CWA section 402(k) by disclosure to EPA, state, or local authorities after issuance of this permit via any means, including the Notice of Intent (NOI) to be covered by the permit, the Road Stormwater Management Plan (RSWMP), or during an inspection.

Coverage under this general permit does not obviate the need to seek authorization under a general or individual stormwater permit for the discharge of regulated stormwater associated with the construction, expansion, and redevelopment of impervious surface.

### PART 3: APPLICATION REQUIREMENTS

To apply for authorization under this general permit, a NOI and Road Stormwater Management Plan (RSWMP) must be submitted in accordance with the deadlines in Subpart 3.2 of this permit. After the Secretary has determined that an NOI is administratively complete, the Secretary shall provide public notice of the NOI on the Environmental Notice Bulletin (ENB) in accordance with Part 3.4 of this permit.

#### 3.1 Submittal of Initial Notice of Intent and Application Fee

A. An application for coverage under this general permit shall consist of a completed NOI form. The NOI forms required to apply for coverage under this general permit are available on the Stormwater Program’s website, at: [http://dec.vermont.gov/watershed/stormwater/permit-information-applications-fees/municipal-roads-program](http://dec.vermont.gov/watershed/stormwater/permit-information-applications-fees/municipal-roads-program). If an electronic NOI submittal system is available, the municipality shall submit all application materials, including applicable fees, through the electronic NOI system.

B. The municipality shall pay the applicable administrative processing and application review fee at the time that it submits its NOI. The applicable fees are included under 3 V.S.A. § 2822 and a fee schedule is available on the Stormwater Program’s website.

#### 3.2 Deadlines

A. Initial application – The NOI form must be filed with the Agency by July 31, 2018.

B. The Initial RSWMP must be filed with the Agency by December 1, 2020.

#### 3.3 Determination of Complete Application and Request for Additional Information

The Secretary reserves the right to return an application that is incomplete or inaccurate or does not meet the requirements of this permit. The Secretary may require the municipality to submit...
additional information that the Secretary considers necessary to make a decision on the eligibility for, or the issuance or denial of, an authorization to discharge pursuant to this permit. The Secretary may deny an authorization to discharge pursuant to this permit if the additional information requested is not provided to the Secretary within 60 days of the Secretary’s request or if any additional information submitted is inadequate for the Secretary to make a decision on the eligibility for, or the issuance or denial of, an authorization to discharge pursuant to this permit.

3.4 Public Notice and Public Comments

A. For the initial permit application, as well as for major amendments, as defined in Section 3.7, the Secretary shall provide public notice of the administratively complete NOI on the ENB. The Secretary shall provide notice of the draft authorization through the ENB, and shall post the draft authorization to the bulletin. The Secretary shall provide a public comment period of at least 14 days on the draft authorization. The Secretary shall provide an opportunity for written comments regarding the NOI’s compliance with the terms and conditions of this permit.

B. Any interested person may file comments with the Secretary during the 14-day notice period. Should the Secretary extend or reopen the public comment period, the Secretary will notify those persons who filed comments or a letter of interest.

C. The period for public comment may be extended at the sole discretion of the Secretary.

D. Interested Persons List – The Secretary shall maintain an interested persons list for those individuals or groups that wish to receive copies of notices of all general permit applications within the State or within a certain geographic area. Interested persons will provide an email address to the Secretary to receive a copy of any requested public notices.

3.5 Notice of Agency Decision

The Secretary shall provide notice of the final decision through the ENB and shall post the decision to the bulletin. The Secretary shall provide a response to comments.

3.6 Authorization to Discharge

A. A municipality shall only be authorized to discharge under the terms and conditions of this permit upon receipt of a written authorization to discharge from the Secretary.

B. The complete NOI, including all attachments, shall be incorporated by reference and included in the terms of an authorization under this general permit, and the municipality shall comply with all terms and conditions of this general permit and its authorization issued hereunder. Failure to comply with the NOI and all attachments shall be deemed a violation of this permit and may be subject to enforcement action.
3.7 Amendments

A request for an amendment of authorization under this general permit shall consist of a completed NOI, and if applicable, the RSWMP.

A. Requests for amendments of coverage shall be subject to the following processes:

1. Any major amendment to an authorization that necessitates technical review, including the submittal of the RSWMP, shall be subject to the public notice procedure listed in Subpart 3.4.

2. For any minor amendment to an authorization that requires a change in permit condition or requirement but does not require technical review, the Secretary shall provide notice of the amendment through the ENB and shall post the draft amended authorization to the bulletin. The Secretary shall provide a public comment period of at least 14 days on the draft amendment. The Secretary shall provide notice of the final decision through the ENB and shall post the final authorization and a response to comments to the bulletin.

3. An administrative amendment that corrects typographical errors, changes the name or mailing address of a permittee, or makes other similar changes to a permit that do not require technical review or the changing of conditions or requirements, shall not be subject to public notice and comment.

B. The municipality shall pay the administrative processing fee at the time that it submits an NOI for an amendment.

PART 4: ROAD STORMWATER MANAGEMENT PLAN

4.1 Comprehensive Plan for All Stormwater Discharges

A. A municipality shall complete and submit for Agency approval a Road Stormwater Management Plan (RSWMP) for all municipal roads, which include municipally-owned and controlled town highways, rights-of-ways, and municipal stormwater infrastructure associated with town highways. Municipalities shall complete the RSWMP by completing the following items:

1. Road Erosion Inventory for all municipal hydrologically-connected road segments. Each municipality shall complete a Road Erosion Inventory (REI) of all hydrologically-connected road segments. The REI is intended to verify which municipal road segments are hydrologically connected, and identify which of those segments meet the operational standards required under this permit. The REI shall include all hydrologically-connected municipal road segments that appear on the ANR Atlas at the time that the REI is conducted. All hydrologically-connected road segments depicted on the ANR Atlas shall be field visited and evaluated using the
DEC Road Erosion Inventory Template. Additionally, the applicant may propose to add or remove road segments from its REI based on an evaluation of the following criteria:

a. For paved roads with catch basins: the catch basin outfall pipe is within 500 feet of a water of the state or wetland.

b. For all other municipal roads:
   1. The municipal road is within 100 feet of a water of the state or wetland;
   2. The municipal road bisects any water of the state or wetland, or a defined channel;
   3. The municipal road segment is uphill from, and drains to, a municipal road that bisects a water of the state or wetland, and should be included in the REI to accurately capture the extent of the stormwater watershed.

If a road segment appears on the ANR Atlas and none of the above conditions are observed in the field, persons conducting inventories may propose to re-classify a segment as not connected. Alternately, if none of the above conditions are observed in the field, but the segment is likely to discharge to waters or wetlands, a permittee shall propose to add this segment to the inventory following a field evaluation.

The addition or removal of any road segments not appearing on the ANR Atlas must be documented as part of the REI, and justification for the removal or addition shall be included in the MRGP Implementation Table.

The Secretary may determine at any time that a road segment not identified on the ANR Atlas is hydrologically connected, based on the criteria listed above, as well as other site-specific factors that indicate the likelihood of a discharge, including slope, soil type, proximity to receiving waters, etc. When the Secretary determines that an unmapped road segment is hydrologically connected and informs the municipality of its determination, the permittee shall include the segment in its Implementation Table as part of the next annual report.

The REI will include a road erosion “score” for each hydrologically-connected road segment. All road segments will be scored as “Fully Meets,” “Partially Meets,” or “Does Not Meet” the standards listed in Part 6 of this permit. A detailed procedure for scoring road segments is provided in the Inventory. Road segments that score “Partially Meets” or “Does Not Meet” shall be upgraded to meet standards according to the municipality’s implementation schedule. Road segments that score “Fully Meets” do not require upgrades, but shall be maintained to ensure that they continue to meet standards. The Inventory scores and explanation of those scores shall be entered into the RSWMP Implementation Table.

Municipalities shall complete their first REI by December 1, 2020, and complete a new REI every five years thereafter. The Inventory template is available on the Stormwater Program’s website: http://dec.vermont.gov/watershed/stormwater/permit-information-applications-fees/municipal-roads-program
2. **Implementation Table.** Municipalities shall use the REI scoring information and RSWMP Implementation Table to prioritize road segments for upgrades to meet the MRGP standards listed in Part 6 of this general permit. The Implementation Table shall be the municipality’s working document to track planned road stormwater improvements and implementation. Municipalities shall complete the table for each road segment prioritized for improvements and upgrades within the upcoming calendar year, including the specific steps for achieving compliance. Road segments identified for upgrades during future years shall be included in the list but do not need to include specific steps for achieving compliance.

3. **Very High Priority Road Segments.** Hydrologically connected road segments scoring “Does Not Meet” on the REI, on slopes greater than 10 %, are considered Very High Priority Road Segments. Very high priority segments shall be upgraded to meet the MRGP standards listed in Part 6 of this General Permit by December 31, 2025.

B. Upon approval by the Secretary, the RSWMP shall be a part of the municipality’s authorization. Any failure of the municipality to comply with the plan shall constitute a violation of this permit.

C. **Schedule of Compliance.** The municipality shall bring all hydrologically-connected road segments up to the MRGP standards as soon as possible but no later than January 1, 2037. The municipality shall include in its RSWMP Implementation Table the number of non-compliant road segments the municipality will bring up to standards each year, in order to achieve compliance by January 1, 2037. The minimum number of road segments that must be brought up to MRGP standards annually until compliance is achieved shall be determined by dividing the total number of non-compliant segments by the years remaining in the MRGP implementation schedule.

D. **Planning Report.** Prior to submitting the Road Stormwater Management Plan (RSWMP), the municipality shall complete and submit a planning report, on a form provided by the Secretary, that details the progress the municipality has made on completing the Road Erosion Inventory and development of the Implementation Table.

The following development and implementation schedule shall apply.

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 31, 2018</td>
<td>Applications (NOI) due</td>
</tr>
<tr>
<td>February 1, 2019</td>
<td>1st MRGP planning report due</td>
</tr>
<tr>
<td>February 1, 2020</td>
<td>2nd MRGP planning report due</td>
</tr>
<tr>
<td>December 1, 2020</td>
<td>Road Stormwater Management Plan (RSWMP) due; includes REI results and Implementation Table</td>
</tr>
<tr>
<td>February 1, 2022 and every February 1 thereafter</td>
<td>RSWMP status update due (see Part 4.2, below)</td>
</tr>
</tbody>
</table>
4.2 Reviewing and Updating Road Stormwater Management Plans

A. Municipalities shall update the Implementation Table on an annual basis. Elements of the Implementation Table to be updated include:

1. Planned road segments to be upgraded in the upcoming year.
2. Changes to MRGP compliance status (Fully, Partially, and Does Not Meet) for completed road segments, and the dates upgrades were completed.
3. Re-prioritization schedule of segments to be upgraded.
4. Identification of any new hydrologically-connected road segments.

B. Municipalities shall complete a new Road Erosion Inventory once every five years.

PART 5: RECORDKEEPING AND REPORTING

5.1 Recordkeeping

A. Municipalities must retain records of all inventory information, copies of all reports required by this permit, a copy of this general permit, and records of all data used to complete the application (NOI) for this permit, for a period of at least three years from the date of the report or application, or for the term of this permit, whichever is longer. This period may be extended by request of the Secretary at any time.

B. A municipality must submit its records to the Secretary only when specifically asked to do so. It must retain a copy of the RSWMP required by this permit at a location accessible to the Secretary. A municipality must make its records, including the notice of intent (NOI), the Road Erosion Inventory and the copy of the RSWMP, available to the public if requested to do so in writing.

5.2 Reporting

Municipalities shall submit annual reports to the Department of Environmental Conservation, Watershed Management Division, Stormwater Management Program by February 1st each year, and upon receipt, the Department shall post each annual report on its website.

A. For reports due February 1, 2019 and February 1, 2020, municipalities shall complete the MRGP Planning Report found on the Stormwater Program’s website, at: http://dec.vermont.gov/watershed/stormwater/permit-information-applications-fees/municipal-roads-program

B. For reports due February 1, 2022 and after, municipalities shall submit the updated Implementation Table, in accordance with Part 4.2.
PART 6: ROAD STORMWATER MANAGEMENT STANDARDS

The following standards are required to be met for all “hydrologically-connected” municipal road segments within the road ROW, and municipal stormwater infrastructure associated with town highways. The standards listed below constitute the Best Management Practices (BMPs) that must be implemented pursuant to this permit. Road segments not meeting these standards must implement the BMPs listed below in order to meet the required standards.

Municipalities shall implement these standards to the greatest extent feasible. The implementation of a standard is considered feasible to the extent that it does not require the acquisition of additional state or federal permits, the condemnation of private property, adverse impacts to historic stone walls, historic structures, or historic trees, impacts to buried utilities, excessive blasting of ledge, or adverse impacts to other significant or sensitive cultural and environmental resources. Municipalities shall document in the RSWMP, for approval by the Secretary, each instance where these feasibility affects implementation of the standards.

6.1 General Standards

The following standards shall apply to all hydrologically connected municipal road segments. These standards are considered the minimum required BMPs, and apply to all construction projects and repair and maintenance activities, unless there exists an applicable stabilization schedule otherwise specified in a stormwater construction permit issued pursuant to 10 V.S.A. § 1264. It is the municipality’s responsibility to maintain all practices after installation.

6.2 Required Standards for Gravel and Paved Roads with Ditches

The following are the required standards for all hydrologically-connected gravel and paved municipal road segments with drainage ditches, whether or not erosion is present. These standards also apply to all new road construction and significant road upgrades. For new construction or upgrades, all bare or unvegetated areas shall be re-vegetated and/or stone lined within five days of disturbance of soils, or sooner if precipitation is forecast. There are separate standards for paved roads with catch basins (see Part 6.4) and for Class 4 roads (see Part 6.5).

A. Roadway/Travel Lane Standards

1. Roadway Crown

   a. Gravel roads shall be crowned, in or out-sloped:
      Minimum: ¼” per foot
      Recommended: ¼” – ½” per foot or 2% - 4%.

   b. Paved/ditched roads shall be crowned during new construction, redevelopment, or repaving where repaving involves removal of the existing paving.
      Minimum: 1/8” per foot or 1%
      Recommended: 1% - 2%.
2. Grader Berm/Windrows

Grader berms shall be removed to allow precipitation to shed from the travel lane into the road drainage system. Roadway runoff shall flow in a distributed manner to the drainage ditch or filter area and there shall be no grader berms or evidence of a “secondary ditch”.

B. Road Drainage Standards

Roadway runoff shall flow in a distributed manner to grass or a forested area by lowering road shoulders. Road shoulders shall be lower than travel lane elevation. If distributed flow is not possible, roadway runoff may enter a drainage ditch, stabilized as follows:

1. For roads with slopes between 0% and 5%: At minimum, grass-lined ditch, no bare soil. Alternatively, ditches may be stabilized using any of the practices identified in subparagraph 2(a)-(c) when possible.
   
   Recommended shape: trapezoidal or parabolic cross section with mild side slopes; two foot horizontal per one foot vertical or flatter.

2. For roads with slopes 5% or greater but less than 8%:
   
   a. Stone-lined ditch: minimum 6”-8” minus stone or the equivalent for new construction,
   
   b. Grass-lined ditch with stone check dams, or
   
   c. Grass-lined ditch if installed with disconnection practices such as cross culverts and/or turnouts to reduce road stormwater runoff volume. There shall be at least two cross culverts or turnouts per segment disconnecting road stormwater out of the road drainage network into vegetated areas, or spaced every 164’.

   See Appendix B for check dam installation specifications.

3. For roads with slopes of 8% or greater: Stone-lined ditch.
   
   a. For slopes greater than 8% but less than 10%: minimum 6”-8” minus stone or the equivalent for new construction.
   
   b. For slopes greater than 10%: minimum 12” minus stone or the equivalent.

4. If appropriate, bioretention areas, level spreaders, armored shoulders, and sub-surface drainage practices may be substituted for the Above Road Drainage Standards.

C. Stable Conveyances – Drainage Outlets to Waters & Turnouts

Roadway drainage shall be disconnected from waterbodies whenever possible and shall flow in a distributed manner to a grass or forested filter area. If this is not possible, drainage outlets and conveyance areas must be stabilized as follows:

1. Turn-outs - all drainage ditches shall be turned out to avoid direct outlet to surface waters, whenever possible.

2. There must be adequate outlet protection at the end of the turnout, based upon slope ranges below:
a. For conveyances with slopes of 0% or greater but less than 5%: stabilize with grass at minimum. Alternatively, stabilize using the practices identified in subparts (b)-(c) when possible.

b. For conveyances with slopes 5% or greater: stabilize with stone.

c. For slopes greater than 5% but less than 10%: Minimum 6”-8” minus stone or the equivalent for new construction.

d. For slopes greater than 10%: Minimum: 12” minus stone or the equivalent for new construction.

6.3 Standards if Rill or Gully Erosion is Present on Gravel and Paved Roads with Ditches

Required standards if rill or gully erosion is present. These standards also apply to new construction. There are separate standards for paved roads with catch basins (see Part 6.3) and for Class 4 roads (see Part 6.4).

A. Municipal Drainage Culverts/Cross Culverts/Conveyance Culverts

1. Culvert end treatment or headwall required for areas with slopes 5% or greater, if erosion is due to absence of these structures. End treatment or headwall is required for new construction.

2. Stabilize outlet such that there will be no scour erosion, if erosion is due to absence or inadequacy of outlet stabilization. Stone aprons or plunge pools required for new construction.

3. Upgrade to 18” culvert (minimum), if erosion is due to inadequate size or absence of structure. In some instances, intermittent streams enter the municipal road drainage network. In these cases, the Secretary recommends culvert sizing based on in-field and mapping techniques described in the Intermittent Stream Crossing Sizing Guidance, found on the Stormwater Program’s website, at: http://dec.vermont.gov/watershed/stormwater/permit-information-applications-fees/municipal-roads-program.

4. Drainage culverts conveying perennial waters are subject to coverage under the DEC Stream Alteration General Permit.

5. A French Drain or French Mattress sub-surface drainage practice may be substituted for a cross culvert.

B. Driveway Culverts within the municipal ROW

1. Culvert end treatment or headwall required for areas with slopes of 5% or greater, if erosion is due to absence of these structures. End treatment or headwall is required for new construction.

2. Stabilize outlet such that there will be no scour erosion, if erosion is due to absence or inadequacy of outlet stabilization. Stone aprons or plunge pools required for new construction.
3. Upgrade to minimum 15” culvert, 18” recommended, if erosion is due to inadequate size or absence of structure. In some instances, intermittent streams may enter the municipal road drainage network. In these cases, the Secretary recommends culvert sizing based on in-field and mapping techniques described on the Stormwater Program’s website: http://dec.vermont.gov/watershed/stormwater/permit-information-applications-fees/municipal-roads-program.

4. Driveway culverts conveying perennial waters are subject to coverage under the DEC Stream Alteration General Permit.

**6.4 Standards for Paved Roads with Catch Basins**

A. For catch basin outlets from paved roads, complete the Catch Basin Inventory and Outlet Erosion Evaluation to identify areas of rill and gully erosion. The Catch Basin Inventory and Outlet Erosion Evaluation can be found on the Stormwater Program’s website, at: http://dec.vermont.gov/watershed/stormwater/permit-information-applications-fees/municipal-roads-program

B. Catch Basin Outlet Stabilization

All catch basin outlets shall be stabilized to eliminate all rill and gully erosion. Municipalities shall stabilize all catch basin outlets per the following schedule:

1. Category 1 Municipalities (see Appendix A):

   Implement catch basin outlet stabilization on at least the minimum number of eroded outlets per year, each year from 2021-2036. The minimum number of outlets requiring upgrades annually, until compliance is achieved, will be determined by dividing the total number of eroded outlets by the years remaining in the MRGP implementation schedule.

2. Category 2 Municipalities (see Appendix A):

   Implement catch basin outlet stabilization on at lease the minimum number of eroded outlets per year, each year from 2024-2036. The minimum number of outlets requiring upgrades annually, until compliance is achieved, will be determined by dividing the total number of eroded outlets by the years remaining in the MRGP implementation schedule.

**6.5 Standards for Connected Class 4 Roads**

Stabilize any areas of gully erosion identified in the Road Erosion Inventory with the practices described above or equivalent practices. Disconnection practices such as broad-based dips and water bars may replace cross culverts and turnouts.
PART 7: DISCHARGES UNDER THIS PERMIT

Discharges to High Quality Waters; Anti-degradation

This permit is adopted in conformance with the Anti-Degradation Policy of the Vermont Water Quality Standards and the Department of Environmental Conservation’s Interim Anti-Degradation Implementation Procedure (October 2010).

The BMPs required under this permit are established consistent with 40 C.F.R. 122.44(k) of the Code of Federal Regulations and 10 V.S.A. § 1264(c)(6), were developed based on a review of leading national stormwater standards, and were informed by best available information regarding the effectiveness of the BMPs. Additionally, the BMPs required under this permit were informed by stakeholder input and subject to public review and comment regarding their effectiveness.

The BMPs required under this permit will be reviewed in cycles not to exceed five years, in conformance with the Department’s established plan, to ensure that the required practices provide the highest level of stormwater treatment. Where warranted based on this review, the Department will revise this permit to add, remove, or modify practices to ensure ongoing compliance with the anti-degradation requirements of the Vermont Water Quality Standards.

In the vast majority of cases, application of the BMPs required under this permit will maintain and protect the higher quality of the State’s high quality waters, will prevent limited reductions in the existing higher quality of those waters, and will minimize risk to the existing and designated uses of those waters.

Therefore, compliance with this permit affords a rebuttable presumption of compliance with the Anti-Degradation Policy. The overall presumption of compliance with anti-degradation requirements for projects and sites in conformance with this permit may be rebutted on a case-by-case basis if warranted by credible and relevant project- or site-specific information available to the Agency during the review of an application for a proposed discharge.

PART 8: STANDARD PERMIT CONDITIONS

8.1 Operation and Maintenance

The permittee shall at all times properly operate, inspect, and maintain all stormwater collection, treatment, and control systems and BMPs which are used to achieve compliance with this permit. Any stormwater system deficiencies noted during inspections shall be corrected. Solids, sediments, and other pollutants collected and removed in the course of treatment or control of stormwater runoff shall be disposed of in a manner to prevent any pollutant from entering waters or wetlands.

8.2 Duty to Comply

The permittee shall comply with all terms and conditions of this permit and the permittee’s authorization to discharge issued hereunder. Any permit noncompliance shall constitute a
violation of 10 V.S.A. Chapter 47, the CWA, to the full extent it applies, and related rules and regulations and may be cause for an enforcement action; revocation and reissuance, modification, or termination of the permittee’s authorization to discharge under this permit; or denial of a permit renewal application. Violations of the terms and conditions of this permit are subject to civil and criminal penalties pursuant to 10 V.S.A. §§ 1274 and 1275 and administrative enforcement pursuant to 10 V.S.A. § 1272 and Chapters 201 and 211.

8.3 Duty to Reapply

Within 90 days of reissuance of this general permit, all permittees shall submit complete NOIs and updated RSWMPs in order to obtain authorization to discharge. If the discharge does not meet the eligibility requirements for coverage under this permit, then the permittee shall apply for coverage under an individual permit within 90 days of the reissuance of this general permit.

When the permittee has made timely and sufficient application for the renewal of its authorization or a new permit with reference to any activity of a continuing nature, the existing authorization shall not expire until the application has been finally determined by the Secretary, and, in case the application is denied or the terms of the new permit limited, until the last day for seeking review of the Secretary’s decision or a later date fixed by order of the reviewing court.

8.4 Continuation of the Expired General Permit

If this permit is not reissued or replaced prior to its expiration date, it will be administratively continued and remain in full force and effect until the permit is reissued or replaced or until the Secretary makes a formal decision not to reissue this permit.

8.5 Requiring an Individual Permit

The Secretary may require any municipality that files an application for coverage or who is already covered under this permit to apply for an individual permit. Any municipality may petition the Secretary to take action under this paragraph. Cases in which an individual permit may be required include:

A. The permittee is not in compliance with the terms and conditions of this permit;

B. The discharge is a significant contributor of pollution, as determined by the following factors:
   1. The location of the discharge;
   2. The size of the discharge;
   3. The impact of the discharge on the receiving water;
   4. Whether an individual permit is necessary to implement an applicable TMDL or Water Quality Remediation Plan; or
   5. Other relevant factors
8.6 Right of Entry

The permittee shall allow the Secretary or his/her authorized representatives, at reasonable times and upon presentation of credentials, to:

A. Enter upon and inspect the permittee’s property where discharges, and the stormwater collection, treatment, and control system, and BMPs are located, or where records must be kept under the conditions of this permit;

B. Have access to and copy, at reasonable times, any records required to be kept pursuant to this permit;

C. Inspect at reasonable time any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

D. Sample or monitor at reasonable times, for the purposes of ensuring permit compliance or as otherwise authorized by the CWA or state law, any substances or parameters, including BMP performance, at any location.

8.7 Duty to Provide Information

The permittee shall furnish to the Secretary, within a reasonable time, any information which the Secretary may request to determine whether cause exists for modifying, revoking and reissuing, or termination of this permit or to determine compliance with this permit, including information regarding any change to the permittee’s approved RSWMP. The permittee shall also furnish to the Secretary, upon request, copies of records required to be kept pursuant to this permit.

If the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Secretary, it shall promptly submit such facts or information.

8.8 Operating Fees

Pursuant to 3 V.S.A. § 2822, stormwater discharges authorized by this permit are subject to operating fees. A municipality shall submit all operating fees in accordance with procedures provided by the Secretary. Failure to pay operating fees shall constitute a violation of this permit.

8.9 Rights & Privileges

This permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations. This permit does not obviate the necessity of obtaining such federal, state, or local permits or approvals as may be required by law.
8.10 Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

8.11 Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

8.12 Anticipated Noncompliance

The permittee shall give advance notice to the Secretary of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

8.13 Compliance With Other Laws

Nothing in this general permit shall be construed to preclude the institution of legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject to under other laws. This permit does not obviate the necessity to comply with other federal, state, and local laws and regulations nor does it obviate the necessity of obtaining other applicable federal, state, and local permits and approvals as may be required by law.

8.14 Permit Actions & Revocation

The Secretary may, after notice and opportunity for public hearing under 3 V.S.A. § 814, revoke or suspend, in whole or in part, authorization to discharge under this permit for cause, including:

A. Violation of any terms or conditions of the permit;

B. Obtaining authorization under the permit by misrepresentation or failure to disclose fully all relevant facts;

C. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge;

D. Correction of violations of the Vermont Water Quality Standards.

The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

8.15 Enforcement

The permittee shall comply with all terms and conditions of this permit. Any violation of this permit or relevant state law may result in the institution of legal proceedings pursuant to 10 V.S.A. §§ 1274 and 1275 and 10 V.S.A. Chapters 201 and 211. Such legal proceedings may
include the issuance of orders, the levying of penalties, and imprisonment. Legal proceedings may also be instituted if a person knowingly makes any false statement, representation, or certification in any application, record, report, plan, or other document, or who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method, in connection with this permit and any authorization to discharge issued under this permit. In addition, the Secretary may issue orders pursuant to 10 V.S.A. § 1272 and may take any and all other enforcement actions, without limitation, provided by law.

8.16 Signatory Requirements

A. All permit applications, including NOI, shall be signed as follows:

For a municipality: By either a principal executive officer or ranking elected official.

B. All reports required by this permit, and other information requested by the Secretary shall be signed by a person described in paragraph (A) of this section, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

1. The authorization is made in writing by a person described in paragraph (A) of this section and submitted to the Secretary; and
2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, or an individual or position having overall responsibility for environmental matters for the municipality.

Any person signing a document under paragraph (1) or (2) of this section shall make the following certification:

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

8.17 Severability

Invalidation of a portion of this permit does not necessarily render the whole permit invalid. The Secretary’s intent is that the permit is to remain in effect to the extent possible; in the event that any part of this permit is invalidated, the Secretary will advise as to the effect of such invalidation.

8.18 Effect of Permit

Authorizations issued pursuant to this permit shall be valid for a period of time not to exceed five years from the date of the authorization being signed.
PART 9: APPEALS

Pursuant to 10 V.S.A. Chapter 220, any appeal of this decision must be filed with the clerk of the Environmental Division of the Superior Court within 30 days of the date of the decision. The Notice of Appeal must specify the parties taking the appeal and the statutory provision under which each party claims party status; must designate the act or decision appealed from; must name the Environmental Division; and must be signed by the appellant or the appellant’s attorney. In addition, the appeal must give the address or location and description of the property, project, or facility with which the appeal is concerned and the name of the applicant or any permit involved in the appeal. The appellant must also serve a copy of the Notice of Appeal in accordance with Rule 5(b)(4)(B) of the Vermont Rules for Environmental Court Proceedings. For further information, see the Vermont Rules for Environmental Court Proceedings, available online at www.vermontjudiciary.org. The address for the Environmental Division is: 32 Cherry St.; 2nd Floor, Suite 303; Burlington, VT 05401 (Tel. # 802-828-1660).

PART 10: DEFINITIONS

1. **Agency**: the Vermont Agency of Natural Resources

2. **Armored Shoulder**: a structure that reinforces existing road shoulder integrity and embankment area stability by reducing Stormwater-related overbank erosion. To construct an armored shoulder, road surface material and base material are excavated and removed and replaced with 12” minus stone 1-3’ in depth and top-dressed with processed road surface material.

3. **Best Management Practices (BMPs)**: a schedule of activities, prohibitions or practices, maintenance procedures, green infrastructure, and other management practices to prevent or reduce water pollution.

4. **Bioretention Area**: a vegetated surface depression, often referred to as a “rain garden,” with amended soils used to capture, slow, infiltrate, and treat runoff from impervious surfaces, including rooftops, roads, parking lots and driveways. The goal of this practice is to infiltrate stormwater runoff. Properly designed and installed bioretention area provide volume control, and groundwater recharge.

5. **Broad-based Dip**: a drainage structure, similar to but wider than a waterbar, used on Class 4 roads where grades are less than or equal to 8 percent. These structures divert the surface water runoff into a filter area.


7. **Conveyance culvert**: a municipal culvert with a defined channel at the outlet. Conveyance culverts generally drain a larger watershed area than municipal drainage
culverts and have the ability to convey road stormwater to adjacent waters. Conveyance culverts conveying perennial waters are subject to the DEC Stream Alteration Permit.

8. **Culvert Headwall:** stone structures that protect culverts from damage during grading, plowing and ditch cleaning, increase hydraulic efficiency, and prevent erosion around the culvert inlet and outlet. These structures may also be referred to as “headers” or “end treatments.”

9. **Discharge:** the placing, depositing or emission of any wastes, directly or indirectly, into an injection well or into the waters of the State.

10. **Driveway culvert:** a culvert under a driveway within municipal right-of-way.

11. **EPA:** the United States Environmental Protection Agency.

12. **French Drain / Under Drain:** a drainage practice installed under a road or road ditch to collect and transport subsurface waters. These buried perforated conduits are wrapped in geotextile fabric, which allows water to enter the conduit while keeping sediment out.

13. **French Mattress:** a structure under a road consisting of clean coarse rock wrapped in geotextile fabric through which water can pass freely. These structures are used in extremely wet areas, to support the road bed while allowing unrestricted water movement.

14. **Gully erosion:** a severe level of erosion. Gully erosion is equal to or greater than 12” in depth. (figure below)

15. **Hydrologically-connected road segments:** a road segment, equal to 100 meters in length, where the Secretary has determined that road and drainage characteristics indicate a likelihood of discharges to surface waters or wetlands. This definition includes those road segments identified as hydrologically connected on the ANR Atlas. The Secretary has developed a hydrologically-connected road segment layer using GIS analysis of roadway distance to receiving waters.

16. **Impervious surface:** those man-made surfaces, including paved and unpaved roads, parking areas, roofs, driveways and walkways, from which precipitation runs off rather than infiltrates.

17. **Level Spreader:** a parallel or oval-shaped infiltration structure used to intercept and discharge water flow over a wide linear area. The construction of a level spreader involves the excavation and removal of soil and backfilling excavated area to the original grade with 3”-6” stone.

18. **Municipality:** a city, town, or village. See 10 V.S.A. § 1264(g)(D).
19. **Municipal drainage/cross culvert:** culverts that convey road stormwater from one side of the road to another with no defined channel acting as a conveyance at the outlet. Outlets fan or sheet flow into grassed or forested areas and are not direct conveyances to waters.

20. **Municipal roads:** all town highways, classes 1-4, as defined under 19 V.S.A. Chapter 3, and their rights-of-way, as well as municipal stormwater infrastructure associated with town highways.

21. **NOI:** An acronym meaning Notice of Intent to be authorized by this permit. The NOI is the mechanism used to register for coverage under a general permit.

22. **Pollutant:** dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. This term does not mean (A) "sewage from vessels" within the meaning of section 1322 of the CWA; or (B) water, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil or gas production and disposed of in a well, if the well used either to facilitate production or for disposal purposes is approved by authority of the State in which the well is located, and if such State determines that such injection or disposal will not result in the degradation of ground or surface water resources.

23. **Rill erosion:** a moderate level of erosion. Rill erosion is erosion rivulets greater than 1” but less than 12” in depth.

24. **Secretary:** the Secretary of the Vermont Agency of Natural Resources or the Secretary’s duly authorized representative.

25. **Sedimentation:** the deposition or accumulation of sediment. Sedimentation is often a symptom of erosion, and while rill and gully erosion are often concave in cross section, sedimentation is convex.

26. **Stone/Rock Apron:** a fan-shaped culvert outlet stabilization structure, designed to reduce water velocity, constructed of 12” minus stone. This structure should not be installed at perennial stream culvert outlets.

27. **Stormwater or stormwater runoff:** precipitation and snowmelt that does not infiltrate into the soil, including material dissolved or suspended in it, but does not include discharges from undisturbed natural terrain or wastes from combined sewer overflows.

28. **Turn-out:** the extension of a drainage ditch that redirects or ‘turns away’ water into a vegetated buffer and disperses runoff before entering a water resource.
29. **Total Maximum Daily Loads (TMDLs):** the calculations and plan for meeting water quality standards approved by EPA and prepared pursuant to 33 U.S.C. § 1313(d) and federal regulations adopted under that law.

30. **Water Quality Standards:** the Vermont Water Quality Standards define the water quality goals of a water body, or portion thereof, by designating the use or uses of the water, by setting criteria necessary to protect the designated uses, and by establishing anti-degradation requirements to protect existing uses and high quality waters. Vermont has adopted water quality standards to protect public health or welfare, enhance the quality of water and serve the purposes of the CWA (See CWA sections 101(a)2 and 303(c)).

31. **Waters:** includes all rivers, stream, creek, brooks, reservoirs, ponds, lakes, springs, and all bodies of surface waters, artificial or natural, which are contained within, flow through or border upon the State or any portion of it.

32. **Waterbar:** a type of berm or open culvert drainage structure constructed across the width of a Class 4 road that diverts the surface water runoff from ditches and road into a filter area.

33. **Wetlands:** those areas of the State that are inundated by surface or groundwater with a frequency sufficient to support significant vegetation or aquatic life that depend on saturated or seasonally saturated soil conditions for growth and reproduction. Such areas include marshes, swamps, sloughs, potholes, fens, river and lake overflows, mud flats, bogs, and ponds, but excluding such areas as grow food or crops in connection with farming activities.

**PART 11: EFFECTIVE DATE AND TERM OF GENERAL PERMIT**

This permit shall become effective upon signing and shall expire five years from the date of signing.

Signed at Montpelier, Vermont his ___ day of Month, 2017.

Emily Boedecker, Commissioner
Department of Environmental Conservation

By ______________________________________
Peter LaFlamme, Director
Watershed Management Division
Appendix A – Category 1 & 2 Municipalities, and Municipalities authorized under the MS4

**Category 1 municipalities**

Municipalities with more than 8.5 miles of paved roads with catch basins

Barre City  
Barre Town  
Bennington  
Brattleboro  
Hartford  
Middlebury  
Montpelier  
Newport City  
Rockingham  
Rutland City  
Springfield  
St Johnsbury

**Category 2 municipalities**

Municipalities with less than 8.5 miles of paved roads with catch basins

All other municipalities

**Municipalities Authorized Under the MS4**

City of Burlington  
Town of Colchester  
Town of Essex  
Village of Essex Junction  
Town of Milton  
Town of Rutland  
City of St. Albans  
Town of St. Albans  
Town of Shelburne  
City of South Burlington  
Town of Williston  
City of Winooski
Appendix B – Stone Check Dam Specification

- Height: No greater than 2 feet. Center of dam should be 9 inches lower than the side elevation
- Side slopes: 2:1 or flatter
- Stone size: Use a mixture of 2 to 9 inch stone
- Width: Dams should span the width of the channel and extend up the sides of the banks
- Spacing: Space the dams so that the bottom (toe) of the upstream dam is at the elevation of the top (crest) of the downstream dam. This spacing is equal to the height of the check dam divided by the channel slope.

\[
\text{Spacing (in feet)} = \frac{\text{Height of check dam (in feet)}}{\text{Slope in channel (ft/ft)}}
\]

- Maintenance: Remove sediment accumulated behind the dam as needed to allow channel to drain through the stone check dam and prevent large flows from carrying sediment over the dam. If significant erosion occurs between check dams, a liner of stone should be installed.
ROAD STORMWATER MANAGEMENT STANDARDS

The following standards are required for all “hydrologically-connected” municipal road segments within the road ROW and municipal stormwater infrastructure. If the implementation of one of the following standards will trigger the need for an additional state permit for a specific location, the Secretary may waive the requirement at that location. Additionally, extremely challenging sites and conditions may preclude the implementation of the MRGP Standards in certain situations. Some examples include: historic stone walls, historic trees, excessive ledge, buried utilities, and other significant and sensitive areas, and/or unique cultural and environmental resources. Municipalities shall document the reasons why an MRGP standard cannot be met for each location where a waiver is requested. Waivers will not be granted until review and approval by the Secretary. Fiscal reasons are not a basis for non-compliance or basis for a request of a waiver.

When planning for and implementing road stormwater management practices, follow the three primary principles: 1st disconnection; 2nd infiltration; and 3rd stable conveyances.

Required Standards for Gravel and Paved Roads with Ditches

This part includes the required standards for all hydrologically-connected gravel and paved municipal roads with drainage ditches, whether or not erosion is present. These standards also apply to all new road construction and significant road upgrades. For new construction or upgrades, all bare or unvegetated areas shall be re-vegetated and/or stone lined within five days of disturbance of soils, or sooner if precipitation is forecast. There are separate standards for paved roads with catch basins (see Part 6.3) and for Class 4 roads (see Part 6.4).

A. Roadway/Travel Lane Standards

1. Roadway Crown
   a. Gravel roads shall be crowned, in or out-sloped;
      Minimum: ¼”/foot
      Recommended: ¼” – ½”/foot or 2% - 4%.
   b. Paved/ditched roads shall be crowned during new construction, removal of old pavement or addition of new pavement;
      Minimum: 1/8”/foot or 1%
      Recommended: 1% - 2%.

2. Grader Berm/windrows
   Grader berms shall be removed to allow precipitation to shed from the travel lane into the road drainage. Roadway runoff shall flow in a distributed manner to the drainage ditch or filter area and there shall be no grader berms or evidence of a “secondary ditch”.

DRAFT Vermont DEC Municipal Road General Permit Standards
B. Road Drainage Standards

Roadway runoff shall flow in a distributed manner to grass or a forested area by lowering road shoulders. Road shoulder shall be lower than travel lane elevation. If distributed flow is not possible, roadway runoff may enter a drainage ditch, stabilized as follows:

1. For roads with slopes of 0% - <5% - At a minimum, grass-lined ditch, no bare soil. Alternatively, ditches may be stabilized using any of the practices identified in sub-paragraph 2(a)-(c) when possible.

   Recommended shape: trapezoidal or parabolic cross section with mild side slopes; 2H:1V or flatter.

2. For roads with slopes of 5% - <8%:
   a. Stone-lined ditch; Minimum: 6-8” minus stone or the equivalent for new construction, or
   b. Grass-lined ditch with stone check dams, or
   c. Grass-lined ditch if installed with disconnection practices such as cross culverts and/or turnouts to reduce road stormwater runoff volume, at least two cross culverts or turnouts per segment disconnecting road stormwater out of the road drainage network into vegetated areas, or spaced every 164’

   See Appendix B for check dam installation specifications.

3. For roads with slopes ≥ 8%; Stone-lined ditch.

   For slopes ≥8% - 10%, Minimum: 6-8” minus stone or the equivalent for new construction.

   For slopes >10%, Minimum: 12” minus stone or the equivalent for new construction.

4. If appropriate, bioretention areas, level spreaders, armored shoulders, and sub-surface drainage practices may be substituted for the above Road Drainage Standards.

C. Stable Conveyances – Drainage Outlets to Waters & Turnouts

Roadway drainage shall be disconnected from waterbodies whenever possible and shall flow in a distributed manner to a grass or forested filter area. If this is not possible, drainage outlets and conveyance areas must be stabilized as follows:

1. Turn-outs - all drainage ditches shall be turned out to avoid direct outlet to surface waters, whenever possible.

2. There must be adequate outlet protection at the end of the turnout, based upon slope ranges below:

   a. For conveyances with slopes of 0% - <5%, stabilize with grass. Alternatively, turnouts may be stabilized using any of the practices identified in sub-paragraph 2(a)-(c) of the Road Drainage Standards when possible.

   b. For conveyances with slopes ≥5%, stabilize with stone.

   For slopes ≥5% - 10%, Minimum: 6-8” minus stone or the equivalent for new construction.
For slopes of >10%, Minimum: 12” minus stone or the equivalent for new construction.

Standards if Rill or Gully Erosion is Present on Gravel and Paved Roads with Ditches

Required standards if rill or gully erosion or sedimentation is present. These standards also apply to new construction.

D. Municipal Drainage Culverts/Cross Culverts/Conveyance Culverts

1. Culvert end treatment and/or headwall required for areas with slopes ≥ 5%, if erosion is due to absence of these structures. End treatment and/or headwall is required for new construction.

2. Stabilize outlet such that there will be no scour erosion, if erosion is due to absence or inadequacy of outlet stabilization. Stone aprons or plunge pools required for new construction.

3. Upgrade to 18” culvert (minimum), if erosion is due to inadequate size or absence of structure. In some instances, intermittent streams may become part of the municipal road drainage network. In these cases, the Secretary recommends culvert sizing based on in-field and mapping techniques described in:

   http://dec.vermont.gov/watershed/stormwater/permit-information-applications-fees/municipal-roads-program

4. A French Drain or French Mattress sub-surface drainage practice may be substituted for a cross culvert.

E. Driveway Culverts within the municipal ROW

1. Culvert end treatment and/or headwall required for areas with slopes ≥ 5%, if erosion is due to absence of these structures. End treatment and/or headwall is required for new construction.

2. Stabilize outlet such that there will be no scour erosion, if erosion is due to absence or inadequacy of outlet stabilization. Stone aprons or plunge pools required for new construction.

3. Upgrade to 15” culvert (minimum), 18” recommended, if erosion is due to inadequate size or absence of structure. In some instances, intermittent streams may become part of the municipal road drainage network. In these cases, the Secretary recommends culvert sizing based on in-field and mapping techniques described in:

   http://dec.vermont.gov/watershed/stormwater/permit-information-applications-fees/municipal-roads-program
Standards for Paved Roads with Catch Basins

A. For catch basin outlets from paved roads, complete the Catch Basin Inventory and Outlet Erosion Evaluation to identify areas of rill and gully erosion. The Catch Basin Inventory and Outlet Erosion Evaluation can be found on the Stormwater Program’s website, at: http://dec.vermont.gov/watershed/stormwater/permit-information-applications-fees/municipal-roads-program

B. Catch Basin Outlet Stabilization

All catch basin outlets shall be stabilized to eliminate all rill and gully erosion. Municipalities shall stabilize all catch basin outlets per the following schedule:

1. Category 1 Towns (see Appendix A)

   Implement catch basin outlet stabilization on at least the minimum number of eroded outlets per year, each year from 2021-2036. The minimum number of outlets requiring upgrades annually, until compliance is achieved, will be determined by dividing the total number of eroded outlets by the years remaining in the MRGP implementation schedule.

2. Category 2 Towns (see Appendix A)

   Implement catch basin outlet stabilization on at least the minimum number of eroded outlets per year, each year from 2024-2036. The minimum number of outlets requiring upgrades annually, until compliance is achieved, will be determined by dividing the total number of eroded outlets by the years remaining in the MRGP implementation schedule.

6.4 Standards for Connected Class 4 Roads

Stabilize any areas of gully erosion identified in the Road Erosion Inventory on hydrologically-connected road segments with the practices described above or equivalent. Disconnection practices such as broad-based dips and water bars may replace cross culverts and turnouts.
Appendix A. Category 1 and 2 towns for the MRGP Paved Roads with catch basins standards

**Category 1 municipalities**

Municipalities with more than 8.5 miles of paved roads with catch basins

- Barre City
- Barre Town
- Bennington
- Brattleboro
- Hartford
- Middlebury
- Montpelier
- Newport City
- Rockingham
- Rutland City
- Springfield
- St Johnsbury

**Category 2 municipalities**

Municipalities with less than 8.5 miles of paved roads with catch basins

- All other municipalities
Municipal Road Inventory and Evaluation Interim Guidance
2017 Field Season

Introduction: The following Road Erosion Inventory and Evaluation Interim Guidance Form was developed to assist municipalities with the forthcoming Vermont Department of Environmental Conservation’s Municipal Roads General Permit (MRGP). The form is based on the draft practice standards that are being developed as part of the MRGP. Vermont municipalities will have to adhere to the MRGP requirements starting in July 2018. These requirements include conducting road erosion inventories of all hydrologically-connected roads. The primary goal of the road erosion inventory is to establish baseline conditions of road segments and evaluate progress of implementation efforts. Inventories will be used to determine if connected road segments meet MRGP standards. For those road segments not meeting MRGP standards, towns will be required to develop Implementation Plans and Schedules and implement those plan practices.

Steps for completing the Municipal Road Inventory:

1. Review GIS road segment connectivity maps, made available for each municipality by DEC at anr.vermont.gov/maps/nr-atlas. The GIS road segment connectivity is determined by road segment proximity to waters of the state (wetlands, lakes, ponds, perennial and intermittent streams), both bisecting and lateral distance.

2. Record each Road Segment Identification Number and segment slope from the Hydrologically-Connected Road layer, road name, and Town Highway Number. Additional road segments not included in the GIS road segment connectivity map may be found to be connected in the field and evaluated with this form.

3. For each hydrologically-connected road segment complete the corresponding Road Inventory and Evaluation Form or corresponding App. Apps must answer all the questions included in these forms.
   a. Paved Roads with Open Ditches and Gravel/Open (Ditched) Non-Class 4 Roads: Form A
   b. Class 4 Roads: Form B
   c. Paved Roads with Curbing Drainage and Catch Basins: Use a separate evaluation and reporting mechanism. Catch basin outlet erosion inventories and other considerations will be included.

MRGP Overall Segment Scoring:

- Any standards that score Does Not Meet individual practice scores= Does Not Meet segment score (except for crown)
- One or two Partially Meets* individual scores= Partially Meets segment score
- Three or more Partially Meets individual practice scores= Does Not Meet segment score
- Fully Meet for all individual practice scores= Fully Meets segment score

*Note: both Partially Meet and Does Not Meet scores indicate road segment does not meet MRGP standards and will require the implementation of road best management practices (BMPs) in order to meet MRGP standards.

<table>
<thead>
<tr>
<th>Segment Slope</th>
<th>Fully Meets</th>
<th>Partially Meets</th>
<th>Does Not Meet</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Crown</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Berm/windrow</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Drainage ditch/shoulder</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Conveyance area/turn out</td>
<td></td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>5. Drive culvert</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Drainage culvert</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Segment Score</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Road Inventory and Evaluation Form A

**PAVED ROADS WITH OPEN DITCHES**

**GRAVEL/OPEN (DITCHED) NON-CLASS 4 ROADS**

<table>
<thead>
<tr>
<th>Name:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Road Segment Name, Town Highway Number &amp; Segment ID Number:</strong></td>
<td>ANR Atlas Slope:</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 1. ROADWAY CROWN/TRAVEL LANE: (N/A for Paved) What percentage of the segment is properly crowned (1/4" to 1/2" per foot), in-sloped, or out-sloped? Note if erosion is present due to poor road surface material.

- □ 0-49% (0' - 163') Does Not Meet
- □ 50-89% (164' - 294') Partially Meets
- □ 90-100% (295' - 328') Fully Meets

#### 2. GRADER BERM/WINDROW: What percentage of the segment (both sides of road, 200m, 656') is the grader berm/window removed? (N/A for paved roads)

- □ 0-49% (0' - 327') Does Not Meet
- □ 50-89% (328' - 589') Partially Meets
- □ 90-100% (590' - 656') Fully Meets

#### 3. ROAD DRAINAGE: What percentage of the segment (both sides of road, 200m, 656') is the allowed to shed in a distributed manner to a vegetated or forested filter area (shoulder lower than travel lane) or drainage ditch stabilized appropriately for the slope range below?

- □ <5% slope: stabilized with vegetation, stone-lined, or check dams
- □ >5% to <8% slope: stabilized with stone-lined ditch or combination of grass lined ditch with check dams or grass-lined ditch if installed with disconnection practices such as turnouts and cross culverts
- □ >8% slope: stone-lined ditch required

- □ 0-49% (0' - 327') Does Not Meet
- □ 50-89% (328' - 589') Partially Meets
- □ 90-100% (590' - 656') Fully Meets

#### 4. CONVEYANCE AREA/TURNOUT: Do drainage outlets/conveyance areas meet the standard of being turned out, shed in a distributed manner down the bank (shedding water), and/or stabilized with vegetation (<5% slope) or stone (>5% slope)?

- □ One or more areas does not meet standard.
- □ All areas meet standard.

#### 5 & 6. DRIVEWAY & DRAINAGE CULVERTS

<table>
<thead>
<tr>
<th>A. Type of culvert?</th>
<th>B. Is erosion present?</th>
<th>C. Where in the culvert cross section is erosion present and is it rill or gully erosion?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driveway</td>
<td>No (Fully Meets)</td>
<td>Rill (Partially Meets)</td>
</tr>
<tr>
<td>Driveway</td>
<td>Yes (complete C)</td>
<td>Gully (Does Not Meet)</td>
</tr>
<tr>
<td>Driveway</td>
<td>No (Fully Meets)</td>
<td>Rill (Partially Meets)</td>
</tr>
<tr>
<td>Driveway</td>
<td>Yes (complete C)</td>
<td>Gully (Does Not Meet)</td>
</tr>
<tr>
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<td>No (Fully Meets)</td>
<td>Rill (Partially Meets)</td>
</tr>
<tr>
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<td>No (Fully Meets)</td>
<td>Rill (Partially Meets)</td>
</tr>
<tr>
<td>Driveway</td>
<td>Yes (complete C)</td>
<td>Gully (Does Not Meet)</td>
</tr>
</tbody>
</table>

#### 7. IS OTHER RILL OR GULLY EROSION PRESENT?

- □ River-road embankment erosion
- □ Outside the Right of Way: i.e. agriculture, logging erosion, or private road/drive erosion
- □ Other:

#### Notes:

- □ Historic stone walls, LF: __________
- □ Historic large trees, LF: __________
- □ Buried utilities, LF: __________
- □ Wetland, LF: __________

### Overall Segment Score

- □ Fully Meets
- □ Partially Meets
- □ Does Not Meet

*Updated June 2017*
### Road Inventory and Evaluation Form B
#### CLASS 4 ROADS

**Name:**  

**Date:**

<table>
<thead>
<tr>
<th>ROAD SEGMENT NAME, Town Highway Number &amp; Segment ID number:</th>
<th>SLOPE:</th>
</tr>
</thead>
<tbody>
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</table>

<table>
<thead>
<tr>
<th>Linear feet (L)</th>
<th>Width (W)</th>
<th>Depth (D)</th>
<th>Total Cubic Yards (LWD/27)</th>
<th>Location of erosion within road cross section</th>
<th>Notes and likely cause of erosion</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Travel lane</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Embankment/shoulder</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Drainage ditch</td>
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<td></td>
<td></td>
<td></td>
<td>Ditch outlet/conveyance zone/turnout</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Drainage culvert or water bar (presence/absence or size/quantity)</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Drainage culvert outlet</td>
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<td>Drainage culvert headwall</td>
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<td>Stream and road conflict</td>
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<td>Other area:</td>
<td></td>
</tr>
</tbody>
</table>

**Total Segment Score**  

- □ Any Gully Erosion = Does Not Meet  
- □ No Gully Erosion = Fully Meets

---

1 road segment = 100 meters = 328 feet  
Both sides of road = 200 meters = 656 feet  
Sheet Flow <1” erosion depth  
Rill 1”-11” erosion depth  
Gully 12”+ erosion depth

Updated June 2017
Municipal Roads General Permit- Road Erosion Inventory (REI) Supplement
(see MRGP website for additional info: http://dec.vermont.gov/watershed/stormwater/permit-information-applications-fees/municipal-roads-program)

Use: for the assessment of Vermont DEC Municipal Roads General Permit standards for paved and gravel roads with drainage ditches (Not Class 4). For paved roads with catch basins, use the Paved Roads with Catch Basins inventory template (link above). For hybrid paved roads, such as paved with ditches and catch basins, use this inventory template.

MRGP REI Coverage: The MRGP standards and REI evaluation areas include:

A. Town highways, class 1-4, and their rights-of-way.

B. Municipal stormwater infrastructure associated with town highways, within and outside of the municipal right-of-way.

“Municipal stormwater infrastructure” refers to all stormwater conveyances and treatment and control systems, controlled by the municipality, that receive stormwater discharges from municipal roads.

Inventory Timing: Avoid conducting field inventory assessments during snow covered conditions through the end of mud season, as these conditions may skew assessment results.

Field determination of road hydrologic connectivity:

Evaluate all hydrologically-connected road segments that appear on the ANR Natural Resources Atlas at the time of that the REI is conducted. All hydrologically-connected municipal road segments depicted on the ANR Atlas shall be field visited and evaluated using the DEC REI template. Additionally, the applicant may propose to add or remove road segments from its REI based on an evaluation of the following criteria:

- Municipal road within 100’ to a water of the state or wetland;

- Municipal road that bisects a water of the state or wetland or a defined channel;

- The municipal road segment is uphill from, and drains to, a municipal road that bisects a water of the state or wetland, or defined channel and should be included in the REI to accurately capture the extent of the stormwater watershed.

- If a road segment appears on the ANR Atlas and none of the above conditions are observed in the field, persons conducting inventories may propose to re-classify a segment as not connected. Alternately, if none of the above conditions are observed in the field, but the segment is likely to discharge to waters or wetlands, a permittee shall propose to add this segment to the inventory following a field evaluation.

- The addition or removal of any road segments not appearing on the ANR Atlas must be documented as part of the REI, and justification for the removal or addition shall be included in the MRGP Implementation Table.
The Secretary may determine at any time that a road segment not identified on the ANR Atlas is hydrologically connected, based on the criteria listed above, as well as other site-specific factors that indicate the likelihood of a discharge, including slope, soil type, proximity to receiving waters, etc. When the Secretary determines that an unmapped road segment is hydrologically connected and informs the municipality of its determination, the permittee shall include the segment in its Implementation Table as part of the next annual report.

Erosion Types:

**Rill Erosion** = depth of 1” to <12”

**Gully erosion** = depth of 12” +
Road Erosion Inventory Parameters

1. Roadway Crown

<table>
<thead>
<tr>
<th>Applicability</th>
<th>Standard</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gravel Roads</td>
<td>Crowned, in-sloped or out-sloped</td>
<td>Minimum: 1/4”/ft. Recommended: ¼”-1/2”/ft. or 2-4% and steeper for steep road grades</td>
</tr>
<tr>
<td>Paved/Ditched Roads</td>
<td>Crowned, in-sloped or out-sloped; Only applies during new construction or new pavement and removal of old pavement</td>
<td>Minimum: 1/8”/ft. or 1% slope Recommended: 1-2% slope</td>
</tr>
</tbody>
</table>

Out-sloped, in-sloped, and crowned diagram:

![Diagram of road erosion inventory parameters](image)

Measuring road crown (can also use digital level)

![Measuring tool on road surface](image)
2. Grader Berm and plow berm
Grader and plow berms shall be removed to allow precipitation to shed from the travel lane into the road drainage. Roadway runoff shall flow in a distributed manner to the drainage ditch or filter area and there shall be no grader berms or evidence of a “secondary ditch”.

Grader berm

Secondary ditch

3. Road Drainage Standards- Measure road segment slopes in the field with clinometer/inclinometer, digital level, or equivalent (cell phone slope app is not appropriate).

Distributed flow- roadway runoff shall flow in a distributed manner to grass or a forested area by lowering road shoulders (examples below). Road shoulder shall be lower than travel lane elevation from edge of travel lane to end of right-of-way. No back slope exists or toe of back slope is outside right-of-way.

Drainage ditch standards- if distributed flow is not possible, roadway runoff may enter a drainage ditch, stabilized as follows:
   a. For roads with slopes of 0% - <5% - Grass-lined ditch
   b. For roads with slopes of 5% - <8%:
      a. Stone-lined ditch, or
b. Grass-lined ditch with stone check dams, or

c. Grass-lined ditch if installed with disconnection practices such as cross culverts and/or turnouts to reduce road stormwater runoff volume, at least two cross culverts or turnouts per segment disconnecting road Stormwater out of the road drainage network into vegetated areas, or spaced every 164’.

c. For roads with slopes ≥ 8%; Stone-lined ditch required. If there is a road slope within the segment 8% or greater, longer than 65’ in length, stone is required for that length 8% or greater to Fully Meet this MRGP standard, even if the average road segment slope is less than 8%.

d. If appropriate, bioretention areas, level spreaders, armored shoulders, and sub-surface drainage practices may be substituted for the above Road Drainage Standards.

4. Conveyance Areas- Turn-outs and outlets of drainage ditches to water resources

Roadway drainage shall be disconnected from waterbodies whenever possible and shall flow in a distributed manner to a grass or forested filter area (see Distributed Flow above), and turned out to avoid direct outlet to surface waters whenever possible. If this is not possible, drainage outlets and conveyance areas must be stabilized as follows:

a. For conveyances with slopes of 0% - <5%, stabilize with grass.

b. For conveyances with slopes ≥5%, stabilize with stone.
5. and 6. **Driveway and Drainage/Intermittent stream culverts** - Driveway culverts located within the municipal right-of-way and drainage culverts and all other non-perennial stream crossings within the right-of-way.

Intermittent streams are streams that do not flow for portions of the year. Intermittent streams and their related infrastructure associated with municipal roads are covered under this permit. Examples of MRGP standards to address culvert erosion include: culvert size upgrading, culvert headwalls, and culvert outlet stabilization. Perennial streams and related BMPs are not covered by this permit. The differences between perennial and intermittent streams are described below.*

If rill or gully present near or around a drive, drainage, or intermittent stream culvert, document what type of erosion and where the erosion is located (see diagram). Erosion may also be present because the structure is needed but currently lacking. If culvert is completely plugged/blocked score as **Does Not Meet.** Score partially plugged (greater than 50% plugged but not fully plugged) culverts as **Partially Meets.**

**Driveway culvert erosion example**  **Drainage culvert erosion example**
*Perennial versus intermittent streams*

A perennial stream may be characterized by any of the following:

1. Direct observation or compelling evidence obtained that surface flow is uninterrupted (or flowing 10 months of the year flow or more, except during drought periods).

2. Presence of one or more geomorphic characteristics typically associated with perennial streams including:
   a. Bed forms; i.e. riffles, pools, runs, gravel bars, other depositional features, bed armor layer
   b. Bank erosion and/or bed scour
   c. Indications of waterborne debris and sediment transport
   d. Defined bed and banks in a valley setting

3. Watershed size greater than 0.25 square miles, although some perennial streams may be located in smaller watersheds. (See DEC map layers)

4. Presence of aquatic organisms (fish and macroinvertebrates) requiring uninterrupted flow for survival
5. Base flows are primarily supported by groundwater recharge as indicated by bank seeps, springs or other indicators

6. Disconnected surface flow within a singular channel; e.g. limited sub-surface flow

Any work to replace, retrofit or otherwise alter the streambank or bed of a perennial stream may require a DEC Stream Alteration Permit. Please contact the DEC Stream Alteration Engineer before undertaking any such project.

Road Erosion Inventory- Segment Scoring

(Note: Partially Meets score for individual practice or segment score still does not meet MRGP standards, same with Does Not Meet score. BMP implementation will be required for both of these scored segments. For a road segment to meet MRGP standards, individual and segment score = Fully Meets).

Baseline Practices- Individual Practice Scores- Scores from MRGP Road Erosion Inventory Template numbers 1-3 based on % of practice in place

Fully Meets (FM) = 90-100% of practice in place within segment
Partially Meets (PM) = 50-89% of practice in place within segment
Does Not Meet (DNM) = 0-49% of practice in place within segment

1. Crown: DNM/PM/FM
2. Grader Berm: DNM/PM/FM
3. Drainage ditch/distributed flow: DNM/PM/FM
4. Conveyance area/turn out (not based on %): DNM/FM (no Partially Meets option)

Erosion Triggered Practices- Individual Practice Scores

Fully Meets (FM) = No erosion observed
Partially Meets (PM) = rill erosion observed
Does Not Meet (DNM) = gully erosion observed

5. Drive culvert- size/lacking and/or end treatment MRGP standard: DNM/PM/FM
6. Drainage/Intermittent stream culvert- size/lacking and/or end treatment and/or outlet stability: DNM/PM/FM

MRGP Overall Segment Scoring:
- Any standards that score Does Not Meet individual practice scores= Does Not Meet segment score (except for crown category)
- One or two Partially Meets individual scores= Partially Meets segment score
- Three or more Partially Meets individual practice scores= Does Not Meet segment score
• *Fully Meet* for all individual practice scores = *Fully Meets* segment score

**Segment Scoring examples below**

**MRGP Segment Scoring Table, Example score 1:**

<table>
<thead>
<tr>
<th>Segment slope:</th>
<th>Fully meets</th>
<th>Partially Meets</th>
<th>Does Not Meet</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Crown</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Grader berm</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Road drainage</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Conveyance area/turn out</td>
<td>✓</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>5. Drive culvert</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Drainage culvert</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Overall Segment Score</strong></td>
<td>✓</td>
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</table>

**MRGP Segment Scoring Table, Example score 2:**

<table>
<thead>
<tr>
<th>Segment slope:</th>
<th>Fully meets</th>
<th>Partially Meets</th>
<th>Does Not Meet</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Crown</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Grader berm</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Road drainage</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Conveyance area/turn out</td>
<td>✓</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>5. Drive culvert</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Drainage culvert</td>
<td>✓</td>
<td></td>
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<tr>
<td><strong>Overall Segment Score</strong></td>
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**MRGP Segment Scoring Table, Example score 3:**

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<th>Fully meets</th>
<th>Partially Meets</th>
<th>Does Not Meet</th>
</tr>
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<tbody>
<tr>
<td>1. Crown</td>
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<tr>
<td>2. Grader berm</td>
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<tr>
<td>3. Road drainage</td>
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<td></td>
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</tr>
<tr>
<td>4. Conveyance area/turn out</td>
<td>✓</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>5. Drive culvert</td>
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<td>6. Drainage culvert</td>
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<tr>
<td><strong>Overall Segment Score</strong></td>
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**MRGP Scoring Table, Example score 4:**

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<th>Partially Meets</th>
<th>Does Not Meet</th>
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<tbody>
<tr>
<td>1. Crown</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>2. Grader berm</td>
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</tr>
<tr>
<td>3. Road drainage</td>
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</tr>
<tr>
<td>4. Conveyance area/turn out</td>
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<td>5. Drive culvert</td>
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<tr>
<td>6. Drainage culvert</td>
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</tr>
<tr>
<td><strong>Overall Segment Score</strong></td>
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<td></td>
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</table>
Municipal Roads General Permit – Catch Basin Inventory and Outlet Erosion Evaluation

- All towns will be required to verify paved roads with catchbasins (CB) connections by fall of 2020 as part of their road erosion inventory.
- All towns will be required to evaluate connected CB outlets for erosion by fall of 2020 as part of their road erosion inventory.
- Category 1 towns (Towns >8.5 miles of catchbasin collection system roads) shall implement catch basin outlet stabilization on at least the minimum number of eroded outlets per year, each year from 2021-2036. The minimum number of outlets requiring upgrades annually, until compliance is achieved, will be determined by dividing the total number of eroded outlets by the years remaining in the MRGP implementation schedule.
- Category 2 towns (all other towns) shall implement catch basin outlet stabilization on at lease the minimum number of eroded outlets per year, each year from 2024-2036. The minimum number of outlets requiring upgrades annually, until compliance is achieved, will be determined by dividing the total number of eroded outlets by the years remaining in the MRGP implementation schedule.

All Towns must complete the assessment tasks A & B (1) for their collected road segments. Maps of these segments will be provided to each Town.

(A) Assessment of directly connected road segments

All towns shall take the state maps of existing collected-road system segment outfalls and verify that these segments have catch basins and/or manholes and the final outfall pipe is 500 feet or less from a water of the state. These criteria would define the collection system subject to these standards. The Agency would need to concur on adjustments to the original list or map of town road segments. A log book of these outfalls must be kept by the Town.

(B) Stormwater Outfall Inventory and Repair Plan

(1) All Towns are required to use the available state maps of existing collected road segments, locate and visit the mapped outfalls for these segments, and assess the soil erosion between the outfall and waters of the state if the outfall is less than 500 feet from the waters. All Towns will develop a written inventory with the below information collected. Note an i-phone application has been developed that is available for use by anyone for the purpose of collecting this data. A paper form is attached.

A. Outfall ID (automatically generated for each town from the ANR outfall data)
B. Culvert diameter (inches)
C. Is outfall perched? (Y/N)
D. Is outfall directly into waters of the state? (Y/N)
E. Erosion Rank
   i. Less than 1” depth is sheet erosion, meets standard
   ii. 1 to 11” erosion depth is rill erosion, partially meets standard
   iii. > 11” + is gully erosion, does not meet standard
F. Slope of Bank where outfall is located (Note: this is not the channel slope but the embankment slope)
G. Average depth (D) of eroded gully below outfall (Note: value can be measured or estimated but method must be stated)
H. Length (L) of Eroded gully below outfall (Note: value can be measured or estimated but method must be stated)

I. Average width (W) of eroded gully below outfall (Note: value can be measured or estimated but method must be stated)

J. Cubic yards of mass of eroded material = (D x L x W)/27

K. Recommended acceptable best management practice:

i. Stone lining of eroded swale
   a.) Recommended 12-24” outfall diameter minimum 12” minus, 24-48” – minimum 24” minus

ii. Stone apron at outfall
   a.) Recommended 12-24” outfall diameter minimum 12” minus, 24-48” – minimum 24” minus. For 12-24” diameter apron should be 10’ long, for 24-48” diameter apron should be 14’ long

iii. Stone header to protect pipe in embankment
   a.) Recommended 12-24” outfall diameter minimum 12” minus, 24-48” – minimum 24” minus

L. Digital photo of erosion

M. Date of repair

N. Digital photo of repair

(2) From 2021-2025 Category 1 Towns, and from 2024-2028 Category 2 Towns, shall have stabilized the calculated required minimum number of noncompliant outfalls. Alternatively, the Town can eliminate the outfall and/or divert it to a stable conveyance. Towns will report on their Implementation Plans in the Annual MRGP reports. Annual reports will include a list of outfalls to be corrected in the coming year and a list of the outfalls previously noncompliant that are now compliant due to repairs in the previous year. Outfall assessments and outfall stabilization shall not just be within the standard highway ROW but also where the town has a deed of easement or otherwise recorded formal easement.

(3) All Category 1 Towns will first prioritize all eroded outfall gullies with >10% embankment slopes which don’t meet the standard partially or completely. Stabilization of all 10% gullies will be completed by 12/1/2025. All Category 2 Towns will first prioritize all eroded outfall gullies with >10% embankment slopes which don’t meet the standard partially or completely. Stabilization of all 10% gullies will be completed by 12/1/2028.

Foot Notes

1 If maps don’t exist use the best available information.

2 In many cases there are formal easements in place at outfalls (or are supposed to be), or there are prescriptive rights where the discharge has been in place more than 15 yrs. Towns have legal authority to stabilize drainage related erosion or add new drainage ways if needed to support the road needs but then once the work is done the town has some obligation to maintain it. Erosion caused by a pipe to another’s land without an easement is a civil issue as well (considered a nuisance and trespass). The condition of the drainage system (DIs, CBs and pipes) should be assessed visually for failures and separations that contribute to erosion. Towns are not required to complete repairs outside of their ROW but many of them will get stabilized outside the ROW while the towns are there doing the work and the landowners will be typically very glad to see it happen.

3 If stone size is hand placed and fitted stone size a 9” minus stone is recommended.
### Table

<table>
<thead>
<tr>
<th>OUTFALL ID#</th>
<th>CULVERT DIAMETER (inches)</th>
<th>Outfall Perched? (Y/N)</th>
<th>Outfall discharges directly into waters of the state? (Y/N)</th>
<th>EROSION RANK</th>
<th>SLOPE of Bank adjacent to channel (% slope)</th>
<th>AVERAGE DEPTH ((D)) OF EROSION AS MEASURED FROM OUTFALL PIPE INVERT (FT)</th>
<th>LENGTH ((L)) OF EROSION (FT)</th>
<th>AVERAGE WIDTH ((W)) OF EROSION (FT)</th>
<th>RECOMMENDED TREATMENT:</th>
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<td></td>
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<td>3-STONE HEADER</td>
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</tbody>
</table>

**Note:** Additional data required but not included in field sheet are cubic yards of material eroded \(= (D \times L \times W)/27\), date of repair, digital photo of repair.