

Comprehensive Stormwater and Illicit Discharge Regulations

Section 1: Authority

These Stormwater and Illicit Discharge Regulations (the “Regulations”) have been adopted by the Town of Harwich Board of Selectmen acting in their capacity as the Sewer Governance Board which shall hereafter also act as the Town of Harwich Stormwater Authority. These regulations are enacted pursuant to G.L. c. 83, §10 and Chapter 295 of the Code of the Town of Harwich. Nothing in these Regulations is intended to replace or be in derogation of the requirements of the Town of Harwich Zoning Bylaw, Wetlands Protection Bylaw, Subdivision of Land and Site Plan Special Permits Regulation, or any other Regulations adopted thereunder.

Section 2: Purpose

The purpose of these Regulations is to protect, maintain and enhance the public health, safety, environment, and general welfare by establishing minimum requirements and procedures to control the adverse effects of increased runoff, decreased ground water recharge, erosion and sedimentations, nonpoint source pollution associated with new development and redevelopment of land.

These Regulations have been established to provide reasonable guidance for the regulation of design, construction and post-development stormwater runoff for the purpose of protecting local water resources from degradation. It is in the public interest to regulate construction and post-development stormwater runoff discharges in order to control and minimize increases in stormwater runoff rates and volumes, soil erosion and sedimentation, stream channel erosion, and nonpoint source pollution associated with construction site and post-development stormwater runoff.

These Regulations are also intended to eliminate non-stormwater discharges to the Town of Harwich’s Municipal Separate Storm Sewer System (MS4). Regulation of illicit connections and discharges to the storm drain system is necessary for the protection of the Town of Harwich’s natural resources, municipal facilities, general health, safety, welfare and the environment.

Section 3: Definitions

Abutter - The owner(s) of land abutting the activity.

Agriculture - The normal maintenance or improvement of land in agricultural or aquaculture use, as defined by the Massachusetts Wetlands Protection Act and its implementing regulations.

Alteration of Drainage Characteristics - Any activity on an area of land that changes the water quality, force, direction, timing or location of runoff flowing from the area. Such changes include: change from distributed runoff to confined, discrete discharge, change in the volume of

runoff from the area; change in the peak rate of runoff from the area; and change in the recharge to groundwater on the area.

Applicant - Any person, individual, partnership, association, firm, company, corporation, trust, authority, agency, department, or political subdivision, of the Commonwealth or the Federal government to the extent permitted by law requesting a soil erosion and sediment control permit for proposed land-disturbance activity.

Best Management Practice (BMP) - An activity, procedure, restraint, or structural improvement that helps to reduce the quantity or improve the quality of stormwater runoff.

Certificate of Completion (COC) - A document issued by the Storm Water Authority after all construction activities have been completed, which states that all conditions of an issued Local Stormwater Management Permit have been met and that a project has been completed in compliance with the conditions set forth in the Stormwater Regulations.

Certified Professional in Erosion and Sediment Control (CPESC) - A certified specialist in soil erosion and sediment control. This certification program, sponsored by the Soil and Water Conservation Society in cooperation with the American Society of Agronomy, provides the public with evidence of professional qualifications.

Construction and Waste Materials - Excess or discarded building or site materials, including but not limited to concrete truck washout, chemicals, litter and sanitary waste at a construction site that may adversely impact water quality.

Clean Water Act - The Federal Water Pollution Control Act (33 U.S.C. § 1251 et seq.) as hereafter amended.

Clearing - Any activity that removes the vegetative surface cover.

Development - The modification of land to accommodate a new use or expansion of use, usually involving construction.

Discharge of Pollutants - The addition from any source of any pollutant or combination of pollutants into the municipal storm drain system or into the waters of the United States or Commonwealth from any source.

Disturbance of Land - Any action that causes a change in the position, location, or arrangement of soil, sand rock, gravel or similar earth material; results in an increased amount of runoff or pollutants; measurably changes the ability of a ground surface to absorb waters, involves clearing and grading, or results in an alteration of drainage characteristics.

Drainage Easement - A legal right granted by a landowner to a grantee allowing the use of private land for stormwater management purposes.

Erosion - The wearing away of the land surface by natural or artificial forces such as wind, water, ice, gravity, or vehicle traffic and the subsequent detachment and transportation of soil particles.

Erosion and Sedimentation Control Plan - A document containing narrative, drawings and details developed by a qualified professional engineer (PE) or a Certified Professional in Erosion and Sedimentation Control (CPESC), which includes best management practices, or equivalent measures designed to control surface runoff, erosion and sedimentation during pre-construction and construction related land disturbance activities.

Erosion Control - The prevention or reduction of the movement of soil particles or rock fragments due to stormwater runoff.

Estimated Habitat of Rare Wildlife and Certified Vernal Pools - Habitats delineated for state-protected rare wildlife and certified vernal pools for use with the Wetlands Protection Act Regulations (310 CMR 10.00) and the Forest Cutting Practices Act Regulations (304 CMR 11.00).

Flooding - A local and temporary inundation or rise in the surface of a body of water, such that covers land not usually under water.

Grading - Changing the level or shape of the ground surface.

Groundwater - Water beneath the surface of the ground in the cracks and spaces in soil, sand, and rock.

Illicit Connection - A surface or subsurface drain or conveyance which allows an illicit discharge into the municipal storm drain system, including without limitation sewage, process wastewater, or wash water, and any connections from indoor drains, sinks, or toilets, regardless of whether said connection was previously allowed, permitted, or approved before the effective date of these Regulations.

Illicit Discharge - Direct or indirect discharge to the municipal storm drain system or into a watercourse or the waters of the Commonwealth that is not composed entirely of stormwater. The term does not include a discharge in compliance with an NPDES stormwater discharge permit or resulting from fire-fighting activities.

Impervious Surface - Any material or structure on or above the ground that prevents water infiltrating the underlying soil. "Impervious surface" includes without limitation roads, paved parking lots, sidewalks, and rooftops.

Impoundment - A stormwater pond created by either constructing an embankment or excavating a pit which retains a permanent pool of water.

Infiltration - The act of conveying surface water into the ground to permit groundwater recharge and the reduction of stormwater runoff from a project site.

Land Disturbing Activity - Any activity that causes a change in the position or location of soil, sand, rock, gravel, or similar earth material; results in an increased amount of runoff or pollutants; measurably changes the ability of a ground surface to absorb waters, involves clearing and grading, or results in an alteration of drainage characteristics.

Land Use of Higher Potential Pollutant Load (LUHPPL) - Land uses or activities with higher potential pollutant loadings, such as auto salvage yards, auto fueling facilities, exterior fleet storage yards, vehicle service and equipment cleaning areas, commercial parking lots with high intensity use, road salt storage areas, outdoor storage and loading areas of hazardous substances, confined disposal facilities and disposal sites, and marinas or boat yards, as defined under Massachusetts Stormwater Standards Section 5.

Massachusetts Endangered Species Act - G.L. c. 131A and its implementing regulations at (321 CMR 10.00) which prohibit the “taking” of any rare plant or animal species listed as Endangered, Threatened, or of Special Concern.

Massachusetts Stormwater Management Standards - The Standards as further defined by the Massachusetts Stormwater Handbook, issued by the Department of Environmental Protection, and as amended, that coordinates the requirements prescribed by state regulations promulgated under the authority of the Massachusetts Wetlands Protection Act G.L. c. 131 §. 40 and Massachusetts Clean Waters Act G.L. c. 21, §. 23-56. The Standards address stormwater impacts through implementation of performance standards to reduce or prevent pollutants from reaching water bodies and control the quantity of runoff from a site.

Municipal Separate Storm Sewer System (MS4) - The system of conveyances designed or used for collecting or conveying stormwater, including any road with a drainage system, street, gutter, curb, inlet, piped storm drain, pumping facility, retention or detention basin, natural or man-made or altered drainage channel, reservoir, and other drainage structure that together comprise the storm drainage system owned or operated by the Town of Harwich.

National Pollutant Discharge elimination System (NPDES) Stormwater Discharge Permit - A permit issued by United States Environmental Protection Agency or jointly with the Commonwealth of Massachusetts that authorizes the discharge of pollutants to waters of the United States.

Non-Stormwater Discharge - Discharge to the municipal storm drain system not composed entirely of stormwater.

Operation and Maintenance Plan - A plan setting up the functional, financial and organizational mechanisms for the ongoing operation and maintenance of a stormwater

management system to insure that it continues to function as designed.

Outfall - The point at which stormwater flows out from a point source discernible, confined and discrete conveyance into waters of the Commonwealth.

Outstanding Resource Waters (ORWs) - Waters designated by Massachusetts Department of Environmental Protection as ORWs. These waters have exceptional sociologic, recreational, ecological and/or aesthetic values and are subject to more stringent requirements under both the Massachusetts Water Quality Standards (314 CMR 4.00) and the Massachusetts Stormwater Management Standards. ORWs include vernal pools certified by the Natural Heritage Program of the Massachusetts Department of Fisheries and Wildlife and Environmental Law Enforcement, all Class A designated public water supplies with their bordering vegetated wetlands, and other waters specifically designated.

Owner - A person with a legal or equitable interest in property.

Person - An individual, partnership, association, firm, company, trust, corporation, agency, authority, department or political subdivision of the commonwealth or the federal government, to the extent permitted by law, and any officer, employee, or agent of such person.

Point Source - Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, or container from which pollutants are or may be discharged.

Pre-Construction - All activity in preparation for construction.

Pollutant - Any element or property of sewage, agricultural, industrial or commercial waste, runoff, leachate, heated effluent, or other matter, whether originating at a point or nonpoint source, that is or may be introduced into any sewage treatment works or waters of the commonwealth. Pollutants shall include without limitation:

- A. Paints, varnishes, and solvents;
- B. Oil and other automotive fluids;
- C. Nonhazardous liquid and solid wastes and yard wastes;
- D. Refuse, rubbish, garbage, litter, or other discarded or abandoned objects, ordnance, accumulations and floatables;
- E. Pesticides, herbicides, and fertilizers;
- F. Hazardous materials and wastes; sewage, fecal coliform and pathogens;
- G. Dissolved and particulate metals;
- H. Animal wastes;
- I. Rock; sand; salt; soils;
- J. Construction wastes and residues; and
- K. Noxious or offensive matter of any kind.

Priority Habitat of Rare Species - Habitats delineated for rare plant and animal populations

protected pursuant to the Massachusetts Endangered Species Act and its regulations.

Process Wastewater - Water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any material, intermediate product, finished product, or waste product.

Recharge - The process by which groundwater is replenished by precipitation through the percolation of runoff and surface water through the soil.

Redevelopment - Development, rehabilitation, expansion, demolition or phased projects that disturb the ground surface, including impervious surfaces, on previously developed sites. The creation of new areas of impervious surface or new areas of land disturbance on a site constitutes development, not redevelopment, even where such activities are part of a common plan which also involves redevelopment. Redevelopment includes maintenance and improvement of existing roadways including widening less than a single lane, adding shoulders, correcting substandard intersections, improving existing drainage systems and repaving; and remedial projects specifically designed to provide improved stormwater management such as projects to separate storm drains and sanitary sewers and stormwater retrofit projects.

Runoff - Rainfall, snowmelt, or irrigation water flowing over the ground surface.

Sediment - Mineral or organic soil material that is transported by wind or water, from its origin to another location; the product of erosion processes.

Sedimentation - The process or act of deposition of sediment.

Site - Any lot or parcel of land or area of property where land-disturbing activities are, were, or will be performed.

Slope - The incline of a ground surface expressed as a ratio of horizontal distance to vertical distance.

Soil - Any earth, sand, rock, gravel, or similar material.

Stabilization - The use, singly or in combination, of mechanical, structural, or vegetative methods, to prevent or retard erosion.

Stormwater Authority – The Town of Harwich Board of Selectmen or its authorized agent(s) shall act as the Town's Stormwater Authority.

Stormwater - Runoff from precipitation or snow melt and surface water runoff and drainage.

Stormwater Management Plan - A plan required as part of the application for a Stormwater Management Permit.

Strip - Any activity which removes the vegetative ground surface cover, including tree removal, clearing, grubbing or removing roots or stumps, and storage or removal of topsoil.

Toxic or Hazardous Material or Waste - Any material which, because of its quantity, concentration, chemical, corrosive, flammable, reactive, toxic, infectious or radioactive characteristics, either separately or in combination with any substance or substances, constitutes a present or potential threat to human health, safety, welfare, or to the environment. Toxic or hazardous materials include any synthetic organic chemical, petroleum product, heavy metal, radioactive or infectious waste, acid and alkali, and any substance defined as "toxic" or "hazardous" under MGL c. 21C and c. 21E, and the regulations at 310 CMR 30.000 and 310 CMR 40.0000.

TSS - Total Suspended Solids.

Vernal Pools - Temporary bodies of freshwater which provide critical habitat for a number of vertebrate and invertebrate wildlife species.

Watercourse - A natural or man-made channel through which water flows or a stream of water, including a river, brook, or underground stream.

Wastewater - Any sanitary waste, sludge, or septic tank or cesspool overflow, and water that during manufacturing, cleaning or processing comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, by-product or waste product.

Watercourse - A natural or man-made channel through which water flows or a stream of water, including a river, brook or underground stream.

Waters of the Commonwealth - All waters within the jurisdiction of the commonwealth, including, without limitation, rivers, streams, lakes, ponds, springs, impoundments, estuaries, wetlands, coastal waters, and groundwater.

Wetland Resource Area - Areas specified in the Massachusetts Wetlands Protection Act G.L. c. 131, § 40 and in the Town of Harwich Wetlands Protection Bylaw.

Wetlands - Tidal and non-tidal areas characterized by saturated or nearly saturated soils most of the year that are located between terrestrial (land-based) and aquatic (water-based) environments, including freshwater marshes around ponds and channels (rivers and streams), brackish and salt marshes; common names include marshes, swamps and bogs.

Section 4: Administration

A. The Town of Harwich and its Stormwater Authority shall administer,

implement, and enforce these Regulations. Any powers granted to or duties imposed upon the Stormwater Authority may be delegated in writing by the Stormwater Authority to its employees or agents.

- B. Prior to the issuance of any Special Permit, Site Plan Approval, or Building Permit for any proposed development listed below, a Local Stormwater Permit must be approved by the Stormwater Authority. No person shall, on or after the effective date of the by-law, initiate any vegetation clearing, land grading, earth moving or development activities without first complying with these Regulations.
- C. Waiver. Following a public hearing on a waiver request, the Stormwater Authority may waive strict compliance with any requirement of these Regulations promulgated hereunder:
 - 1. Where such action is:
 - a. Allowed by federal, state and local statutes and/or regulations;
 - b. In the public interest; and
 - c. Not inconsistent with the purpose and intent of these Regulations.
 - 2. Any applicant must submit a written request to be granted such a waiver. Such a request shall be accompanied by an explanation or documentation supporting the waiver request and demonstrating that strict application of these Regulations does not further the purposes or objectives of these Regulations.
 - 3. All waiver requests shall be discussed and voted on at the public hearing for the project.
- D. If in the Stormwater Authority's opinion, additional time or information is required for review of a waiver request, the Stormwater Authority may continue a hearing to a certain date announced at the meeting. In the event the applicant objects to a continuance, or fails to provide requested information, the waiver request shall be denied.
- E. Stormwater Authority may amend rules and regulations after holding a public hearing. Notice of the time, place and subject matter shall be published in a newspaper of general circulation in Harwich once, not less than 14 days before the day of such a hearing.
- F. Approval by the Stormwater Authority under these Regulations does not exempt the applicant from meeting the requirements of the federal National Pollutant Discharge Elimination System (NPDES) program, which requires a Notice of Intent be filed with the EPA and a Stormwater Pollution Prevention Plan (SWPPP) be prepared and maintained on site, and compliance with the Massachusetts Stormwater Standards, nor does it supersede compliance with the requirements of the Harwich Conservation Commission and the Massachusetts Department of Environmental Protection

Section 5: Applicability

- A. These Regulations shall apply to land disturbances that drain to the municipal storm drain system or, directly or indirectly, into a watercourse or water of the Commonwealth. Except as authorized by the Stormwater Authority in a Local Stormwater Permit, no person shall perform any activity that results in a land disturbance above the threshold contained in this subsection, below.
- B. The following uses and activities shall be regulated under this by-law:
1. Subdivisions and construction activities of any kind disturbing an area equal to or greater than one (1) acre (43,560 square feet); and
 2. Development or redevelopment involving multiple separate activities in discontinuous locations or on different schedules if the activities are part of a larger common plan of development or sale that would disturb area equal to or greater than one (1) acre (43,560 square feet).
- C. These regulations do not apply to single family residential uses that are not part of a larger subdivision of one (1) acre (43,560 square feet) or greater.
- D. The following activities are exempt from the provisions of Section 5(B) above.
1. Any agricultural activity which is consistent with an approved soil conservation plan prepared or approved by the NRCS;
 2. Any logging which is consistent with a timber management plan already approved under the Forest Cutting Practices Act by the Massachusetts Department of Conservation and Recreation;
 3. Maintenance of existing landscaping, gardens or lawn areas associated with a single family dwelling conducted in such a way as not to cause a nuisance;
 4. Any emergency activity that is immediately necessary for the protection of life, property or the environment, as determined by the Stormwater Authority; and
 5. Construction of utilities other than drainage (gas, water, electric, telephone, etc.) which will not alter terrain or drainage patterns or result in discharge of sediment to the municipal storm drain.
 6. Disturbance of land, or redevelopment, subject to jurisdiction under the Wetlands Protection Act so long as the project has demonstrated compliance with the Massachusetts Stormwater Management Standards as further defined by the

Massachusetts Stormwater Handbook, and with the requirements of these Regulations as reflected in a valid Order of Conditions issued by the Conservation Commission.

Section 6: Local Stormwater Permit Procedures

- A. A complete application for a Local Stormwater Permit shall be filed with the Stormwater Authority. The application package shall include:
1. A completed application form with original signatures of all owners.
 2. A list of abutters within 300 feet of the property, certified by the Assessor's Office.
 3. ## copies of the:
 - a. Stormwater Management Plan that complies with Section 7 and 8;
 - b. Erosion and Sediment Control Plan that complies with Sections 9 and 10; and
 - c. Operation and Maintenance Plan (Section 11)
 4. Payment of the application and review fees.
 5. One (1) copy of each of the application form and the list of abutters filed with the Town Clerk.
 6. One (1) copy of the NPDES Notice of Intent (NOI) and the SWPPP.
 - a. The SWPPP shall include sufficient information to evaluate the environmental characteristics of the affected areas, the potential impacts of the proposed development on water resources, and the effectiveness and acceptability of measures proposed for managing stormwater runoff. The SWPPP shall be designed to meet the Massachusetts Stormwater Management Standards as set forth in the DEP/CZM Stormwater Management Handbook Volumes I and II. The applicant shall certify on the drawings that all clearing, grading, drainage, construction, and development shall be conducted in accordance with the SWPPP.
 - b. The Stormwater Authority may require additional information or data deemed appropriate and may impose such conditions as may be deemed necessary to ensure compliance with the provisions of this by-law, or to protect public health and safety
- B. Information requests. The applicant shall submit all additional information requested by

Stormwater Authority to issue a decision on the application.

- C. Determination of Completeness. The Stormwater Authority shall make a determination as to the completeness of the application and adequacy of the materials submitted. No review shall take place until the application has been found to be complete.
- D. Fee Structure. The fee for review of any Local Stormwater Management Permit application shall be based on the amount of land to be disturbed at the site and the fee structure established by the Stormwater Authority. Stormwater Authority is authorized to retain a Registered Professional Engineer or other professional consultant to advise Stormwater Authority on any or all aspects of the Application.
- E. Entry. Filing an application for a permit grants the Stormwater Authority, or its agent, permission to enter the site to verify the information in the application and to inspect for compliance with permit conditions.
- F. Other Boards. The Stormwater Authority shall notify the Town Clerk of receipt of the application, and shall give one copy of the application package to the Planning Board, the Engineering Department, the Conservation Commission, and the Department of Public Works.
- G. Public Hearing. Stormwater Authority shall hold a public hearing within twenty-one (21) days of the receipt of a complete application and shall take final action within twenty-one (21) days from the time of the close of the hearing, unless such time is extended by agreement between the applicant and Stormwater Authority. Notice of the public hearing shall be given by publication and posting and by first-class mailings to abutters at least seven (7) days prior to the hearing. Stormwater Authority shall make the application available for inspection by the public during business hours at the Harwich Town Hall.
- H. The Stormwater Authority may take the following actions:
 - 1. Approve the Local Stormwater Permit Application and issue a permit if it finds that the proposed plan will protect water resources and meets the objectives and requirements of this by-law.
 - 2. Approve the Local Stormwater Permit Application and issue a permit with conditions, modifications or restrictions that Stormwater Authority determines are required to ensure that the project will protect water resources and meets the objectives and requirements of this by-law.
 - 3. Disapprove the Local Stormwater Permit Application and deny the permit if it finds that the proposed plan will not protect water resources or fails to meet the objectives and requirements of this by-law.

4. Disapprove the Local Stormwater Permit Application “without prejudice” where an applicant fails to provide requested additional information or review fees that in the Stormwater Authority’s opinion are needed to adequately describe or review the proposed project.
- I. Final Approval. Final approval, if granted, shall be endorsed on the Stormwater Management Permit by the signature of the majority of the Stormwater Authority (or by the signature of the person officially authorized by the Stormwater Authority).
- J. Project Changes. The permittee, or their agent, must notify Stormwater Authority in writing of any change or alteration of a land-disturbing activity authorized in a Local Stormwater Permit before any change or alteration occurs. If Stormwater Authority determines that the change or alteration is significant, based on the design requirements and accepted construction practices, Stormwater Authority may require that an amended Local Stormwater Permit application be filed and a public hearing held. If any change or alteration from the Local Stormwater Permit occurs during any land disturbing activities, Stormwater Authority may require the installation of interim erosion and sedimentation control measures before approving the change or alteration.

Section 7: Stormwater Management Plan Submission Requirements

- A. A Stormwater Management Plan containing sufficient information to evaluate the environmental impact, effectiveness, and acceptability of the site planning process and measures proposed by the applicant to reduce adverse impacts from construction and on a long-term basis shall be submitted as part of the application for a Local Stormwater Management Permit.
- B. The Stormwater Management Plan shall fully comply with the Standards in Section 9.
- C. The Stormwater Management Plan shall fully describe the project in narrative, drawings, and calculations. It shall include at a minimum:
 1. Contact Information. The name, address, and telephone number of all persons having a legal interest in the property and the Assessor’s map and parcel numbers of the property or properties affected.
 2. Narrative describing the following elements:
 - a. Purpose
 - b. Methodologies and assumptions
 - c. Existing and proposed uses and conditions
 - d. Project impacts and mitigation techniques including:
 - i. Summary of proposed land area to be cleared, proposed impervious area, work within proximity of regulated wetland resources, aquifer

protection zones, earthwork within four (4) feet of seasonal high groundwater elevations, and other sensitive environmental areas.

- ii. Low impact development (LID) techniques considered for this project and an explanation as to why they were included or excluded from the project.
- iii. Best management practices proposed for this project.
- iv. Identifying the immediate down gradient waterbody(s) that stormwater runoff from the project site discharges to, the LIDs and BMPs included in the project to address the pollutant(s) of concern, and EPA's waterbody assessment and TMDL status of the waterbody(s)
<http://www.epa.gov/region1/npdes/stormwater/ma.html>.
- e. Summary of pre- and post-development peak rates and volumes of stormwater runoff to show no adverse impacts to down-gradient properties, stormwater management systems and wetland resources.
- f. Conclusions

3. Plans

- a. Portion of the USGS Map indicating the site locus and properties within a minimum of 500 feet of project property line.
- b. Existing conditions and proposed design plans showing:
 - i. Buildings and/or structures including materials and approximate height
 - ii. Utilities including size, material, and invert data
 - iii. Regulated wetland resource areas within proximity of the site
- c. Stormwater management design plan(s) and details showing:
 - i. Location, size, material, inverts data and details for all existing and proposed stormwater management system components including structures, pipes, swales, detention, retention, and infiltration systems and any other LID techniques or BMPs.
 - ii. Profiles of drainage trunk lines
 - iii. Drainage easements
- d. Separate Pre- and Post-Condition Watershed Plans indicating:
 - i. Structures, pavements, surface vegetation and other ground cover materials
 - ii. Topography sufficient to delineate watershed areas
 - iii. Point(s) of analysis
 - iv. Watershed areas, including upgradient areas that contribute stormwater flow onto the project site, labeled to be easily identified in calculations – total pre and post watershed areas should be equivalent.
 - v. Breakdown summary of various surface conditions by soil hydrologic group rating
 - vi. Flow path for time of concentration (T_c) calculation

4. Calculations

- a. Hydrologic calculation to determine pre and post peak rates and volumes of stormwater runoff for 2, 10, 25, and 100 year, 24-hour storm events
 - b. Groundwater recharge calculations and BMP drawdown
 - c. Water quality calculations including (if applicable):
 - vii. TSS removal calculation for each watershed
 - viii. Specified BMPs utilized in critical areas
 - ix. Specific Treatment for pollutant causing impairment of down-gradient waterbody identified by EPA and MassDEP
 - d. Hydraulic calculations to size drainage pipes, swales and culverts
 - e. Supplemental calculations for sizing LID and BMPs and addressing impairments to water bodies
5. Soil mapping and test data.
6. MassDEP Checklist for Stormwater Report completed, stamped and signed by a Professional Engineer (PE) licensed in the Commonwealth of Massachusetts to certify that the Stormwater Management Plan is in accordance with the criteria established in the MassDEP Stormwater Management Standards, Harwich Stormwater Management By-law and these Regulations.
7. Any other information requested by the Stormwater Authority.

Section 8: Stormwater Management Plan Standards

- A. The Plan shall be designed to meet the Massachusetts Stormwater Management Standards as further defined in the Massachusetts Stormwater Handbook and any additional standards required by these Regulations.
- B. To the extent that any project within the jurisdiction of these Regulations is located in an area subject to one or more pollutant-specific Total Maximum Daily Loads (TMDLs), such project is required to implement structural and non-structural stormwater best management practices (BMPs) that are consistent with each such TMDL and its associated Waste Load Allocation (for point sources) and Load Allocation (for nonpoint sources). The Stormwater Authority may develop, publish and periodically revise one or more pollutant-specific guidance documents describing the geographic applicability of each TMDL and identifying BMPs that individually or in combination are considered to be consistent with the TMDL(s).
- C. Low Impact Development (LID) site planning and design strategies must be used to the maximum extent feasible.
- D. The Plan shall be designed to meet the requirements contained in the latest version of EPA's MS4 General Permit for Massachusetts section on Post-Construction Stormwater management:

1. The following standards apply to new development:
 - a. Stormwater management systems shall fully comply with the standards of the Massachusetts Stormwater Management Standards listed in Section 9(D)(3) below, and as updated or amended.
 - b. Stormwater management systems shall:
 - i. Retain the volume of runoff equivalent to, or greater than, one (1.0) inch multiplied by the total post-construction impervious surface area on the site, and/or
 - ii. Remove 90% of the average annual load of Total Suspended Solids (TSS) generated from the total post-construction impervious surface area on the site (average removal over a year) and 50% of the average annual load of Total Phosphorus (TP) generated from the total post-construction impervious surface area on the site. Pollutant removal shall be calculated consistent with EPA Region 1 BMP Performance Extrapolation Tool or other BMP performance evaluation tool provided by EPA Region 1. If EPA Region 1 tools do not address the planned or installed BMP performance, any federally or State approved BMP design guidance or performance standards may be used to calculated BMP performance.
2. The following standards apply to redevelopment:
 - a. Stormwater management systems shall comply to the maximum extent feasible with the standards listed in the Massachusetts Stormwater Management Standards listed in Section 9(D)(3) below, and as updated or amended.
 - b. Stormwater management systems shall
 - i. Retain the volume of runoff equivalent to, or greater than, eight-tenths (0.8) inch multiplied by the total post-construction impervious surface area on the site and/or
 - ii. Remove 80% of the average annual load of Total Suspended Solids (TSS) generated from the total post-construction impervious surface area on the site (average removal over a year) and 50% of the average annual load of Total Phosphorus (TP) generated from the total post-construction impervious surface area on the site. Pollutant removal shall be calculated consistent with EPA Region 1 BMP Performance Extrapolation Tool or other BMP performance evaluation tool provided by EPA Region 1. If EPA Region 1 tools do not address the planned or installed BMP

performance, any federally or State approved BMP design guidance or performance standards may be used to calculate BMP performance.

- c. Stormwater management systems on redevelopment sites may utilize offsite mitigation within the same USGS Hydrologic Unit Code (HUC) 10 watershed as the redevelopment site to meet the equivalent retention or pollutant removal requirements in Section 9(D)(2).
3. Requirements of the Massachusetts Stormwater Management Standards:
- a. Conveyances. No new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to, or cause erosion in, wetlands or waters of the Commonwealth.
 - b. Peak Runoff. Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates. This Standard may be waived for discharges to land subject to coastal storm flowage as defined in 310 CMR 10.04.
 - c. Groundwater Recharge. Loss of annual recharge to groundwater shall be eliminated or minimized through the use of infiltration measures including environmentally sensitive site design, low impact development techniques, stormwater best management practices, and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil type. This Standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.
 - d. Discharge of Pollutants. For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If through source control and/or pollution prevention all land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow melt, and stormwater runoff, the proponent shall use the specific structural stormwater BMPs determined by the Department to be suitable for such uses as provided in the Massachusetts Stormwater Handbook. Stormwater discharges from land uses with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53 and the regulations promulgated thereunder at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.
 - e. Protection of Zone II or Interim Wellhead Protection Areas. Stormwater

discharges within the Zone II or Interim Wellhead Protection Area of a public water supply, and stormwater discharges near or to any other critical area, require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas, as provided in the Massachusetts Stormwater Handbook. A discharge is near a critical area if there is a strong likelihood of a significant impact occurring to said area, taking into account site-specific factors. Stormwater discharges to Outstanding Resource Waters and Special Resource Waters shall be removed and set back from the receiving water or wetland and receive the highest and best practical method of treatment. A “storm water discharge” as defined in 314 CMR 3.04(2)(a)1 or (b) to an Outstanding Resource Water or Special Resource Water shall comply with 314 CMR 3.00 and 314 CMR 4.00. Stormwater discharges to a Zone I or Zone A are prohibited unless essential to the operation of a public water supply.

- f. Long Term Maintenance. A long-term operation and maintenance plan shall be developed and implemented to ensure that stormwater management systems function as designed

Section 9: Erosion and Sediment Control Plan Submission Requirements

- A. An Erosion and Sediment Plan containing sufficient information to evaluate compliance with these Regulations and, if applicable, the NPDES General Permit for Stormwater Discharges from Construction Activities, shall be submitted as part of the application for a Local Stormwater Management Permit.
- B. The Erosion and Sediment Control Plan shall fully comply with the standards in Section 11.
- C. If the project requires a SWPPP, the permittee is required to submit a complete copy of the SWPPP, including the signed Notice of Intent (NOI) and approval letter. If the SWPPP meets the requirements of the General Permit, it will be considered equivalent to the Erosion and Sediment Control Plan described in this section.
- D. The Erosion and Sediment Control Plan shall contain the following information:
 - 1. Names, addresses, and telephone numbers of the owner, applicant, and person(s) or firm(s) preparing the plan;
 - 2. Title, date, north arrow, names of abutters, scale, legend, and locus map;
 - 3. Location and description of natural features including:
 - a. Watercourses and water bodies, wetland resource areas and all floodplain information, including the 100-year flood elevation based upon the most recent

- Flood Insurance Rate Map, or as calculated by a professional engineer for areas not assessed on these maps;
- b. Existing vegetation including tree lines, canopy layer, shrub layer, and ground cover, and trees with a caliper twelve (12) inches or larger, noting specimen trees and forest communities; and
 - c. Habitats mapped by the Massachusetts Natural Heritage & Endangered Species Program as Endangered, Threatened or of Special Concern, Estimated Habitats of Rare Wildlife and Certified Vernal Pools, and Priority Habitats of Rare Species within five hundred (500) feet of any construction activity.
4. Lines of existing abutting streets showing drainage and driveway locations and curb cuts;
 5. Existing soils, volume and nature of imported soil materials;
 6. Topographical features including existing and proposed contours at intervals no greater than two (2) feet with spot elevations provided when needed;
 7. Surveyed property lines showing distances and monument locations, all existing and proposed easements, rights-of-way, and other encumbrances, the size of the entire parcel, and the delineation and number of square feet of the land area to be disturbed;
 8. Drainage patterns and approximate slopes anticipated after major grading activities (Construction Phase Grading Plans);
 9. Location and details of erosion and sediment control measures with a narrative of the construction sequence/phasing of the project, including both operation and maintenance for structural and non-structural measures, interim grading, and material stockpiling areas;
 10. Path and mechanism to divert uncontaminated water around disturbed areas, to the maximum extent practicable;
 11. Location and description of industrial discharges, including stormwater discharges from dedicated asphalt plants and dedicated concrete plants, which are covered by this permit;
 12. Stormwater runoff calculations in accordance with the Department of Environmental Protection's Stormwater Management Standards;
 13. Location and description of and implementation schedule for temporary and permanent seeding, vegetative controls, and other stabilization measures;
 14. A description of construction and waste materials expected to be stored on-site. The Plan shall include a description of controls to reduce pollutants from these materials, including storage practices to minimize exposure of the materials to stormwater, and spill prevention and response;
 15. A description of provisions for phasing the project where one acre of area or greater is to be altered or disturbed;
 16. Plans must be stamped and certified by a qualified Professional Engineer registered in Massachusetts or a Certified Professional in Erosion and Sediment Control; and
 17. Such other information as is required by the Stormwater Authority.

E. The Erosion and Sediment Control Plan shall remain on file with the Stormwater

Authority.

Section 10: Erosion Control Performance Standards

- A. The Erosion and Sediment Control Plan shall contain sufficient information to describe the nature and purpose of the proposed development, pertinent conditions of the site and the adjacent areas, and proposed erosion and sedimentation controls which include BMPs appropriate to site conditions, including efforts to minimize the areas of land disturbance. The plan shall also describe measures to control construction wastes including but not limited to construction materials, concrete truck wash out chemicals, litter, and sanitary waste.
- B. Stormwater systems shall be designed to avoid disturbances of areas susceptible to erosion and sediment loss. This means avoiding to the greatest extent practicable: the damaging of large forest stands; building on steep slopes (15% or greater); and disturbing land in wetland buffer zones and floodplains.

Section 11: Operation, Maintenance, and Inspection Plan

- A. An Operation and Maintenance Plan shall be submitted as part of the application for a Local Stormwater Management Permit for all projects with constructed stormwater BMPs and stormwater management practices.
- B. The Operation and Maintenance Plan shall be designed to ensure compliance with the Local Stormwater Management Permit and these Regulations in all season and throughout the life of the system.
- C. The Operation and Maintenance Plan shall remain on file with the Stormwater Authority.
- D. The Applicant shall provide copies of the Operations and Maintenance Plan to all persons responsible for maintenance and repairs.
- E. The Operations and Maintenance Plan shall include:
 - 1. The name(s) of the owner(s) for all components of the system;
 - 2. A map showing the location of the systems and facilities including all structural and nonstructural stormwater best management practices (BMPs), catch basins, manholes/access lids, pipes, and other stormwater devices. The plan showing such systems and facilities to be privately maintained, including associated easements shall be recorded with the Registry of Deeds prior to issuance of a Certificate of Compliance by the Conservation Commission.
 - 3. Maintenance Agreement with the Stormwater Authority that specifies:
 - a. The names and addresses of the person(s) responsible for operation and

- maintenance.
 - b. The person(s) financially responsible for maintenance and emergency repairs.
 - c. An Inspection and Maintenance Schedule for all stormwater management facilities including routine and non-routine maintenance tasks to be performed. Where applicable, this schedule shall refer to the Maintenance Criteria provided in the Stormwater Handbook or the EPA National Menu of Stormwater Best Management Practices or equivalent.
 - d. Instructions for routine and long-term operation and maintenance shall have sufficient detail for responsible parties to perform necessary maintenance activities and prevent actions that may adversely affect the performance of each structural and/or nonstructural stormwater BMP.
 - e. A list of easements with the purpose and location of each.
 - f. The signature(s) of the owner(s) and all persons responsible for operation and maintenance, financing, and emergency repairs, as defined in the Maintenance Agreement, if maintenance is to be performed by an entity other than the owner.
4. Stormwater Management Easement(s)
- g. Stormwater Management easements shall be provided by the property owner(s) as necessary for:
 - i. Access for facility inspections and maintenance;
 - ii. Preservation of stormwater runoff conveyance, infiltration, and detention areas and facilities, including flood routes for the 100-year storm event; and
 - iii. Direct maintenance access by heavy equipment to structures requiring maintenance.
 - h. The purpose of each easement shall be specified in the Maintenance Agreement signed by the property owner.
 - i. Stormwater Management easements are required for all areas used for permanent stormwater control, unless a waiver is granted by the Board of Health.
 - j. Easements shall be recorded with the Registry of Deeds prior to issuance of a Certificate of Compliance by the Board of Health.
4. Changes to Operation and Maintenance Plans
- a. The owner(s) of record of the Stormwater Management system must notify the Stormwater Authority of changes in ownership, assignment of Operation and Maintenance responsibilities, or assignment of financial responsibility within 30 days of the change in ownership. The owner of record shall be responsible for Operation and Maintenance activities until a copy of the updated Operation and Maintenance Plan has been furnished to the Stormwater Authority signed by the new owner or any new responsible person.
 - b. The maintenance schedule in the Maintenance Agreement may be

amended to achieve the purposes of the Stormwater Management By-law by mutual agreement of the Stormwater Authority and the Responsible Parties. Amendments must be in writing and signed by all Responsible Parties. Responsible Parties shall include owner(s), persons with financial responsibility, and persons with operational and/or maintenance responsibility.

Section 12: Inspection and Site Supervision

- A. Pre-construction Meeting. Prior to starting the clearing, excavation, construction, redevelopment or land disturbing activity, the applicant, the applicant's technical representative, the general contractor or any other person with authority to make changes to the project, may be required to meet with the Stormwater Authority, to review the approved plans and their implementation. The need for a pre-construction meeting shall be determined by the Stormwater Authority based on the project scope.
- B. Stormwater Authority Inspection. The Stormwater Authority or its designated agent shall make inspections as hereinafter required and shall either approve that portion of the work completed or shall notify the applicant wherein the work fails to comply with the Erosion and Sedimentation Control Plan or the Stormwater Management Plan as approved. The approved Erosion and Sediment Control Plan and associated plans for grading, stripping, excavating, and filling work, bearing the signature of approval of the Stormwater Authority, shall be maintained at the site during the progress of the work. In order to obtain inspections, the applicant shall notify the Stormwater Authority at least two (2) working days before each of the following events:
1. Erosion and sedimentation control measures are in place and stabilized;
 2. Site Clearing has been substantially completed;
 3. Rough Grading has been substantially completed;
 4. Final Grading has been substantially completed;
 5. Close of the Construction Season; and,
 6. Final Landscaping (permanent stabilization) and project final completion.
- C. Applicant Inspections. The applicant or his/her agent shall conduct and document inspections of all control measures no less than weekly or as specified in the permit, and prior to and following anticipated storm events. The purpose of such inspections will be to determine the overall effectiveness of the Erosion and Sediment Control Plan, and the need for maintenance or additional control measures as well as verifying compliance with the Stormwater Management Plan. The applicant or his/her agent shall submit monthly reports to the Stormwater Authority or designated agent in a format approved by the Stormwater Authority.

Section 13: As-Built Plans

Permittees shall submit as-built plans prepared and certified by a Professional Land Surveyor (P.L.S) no later than one (1) year after completion of construction projects. The as-built plans must depict all on site structural and non-structural controls design to manage stormwater associated with the completed site. The plan set must include design specifications of all stormwater management controls prepared and certified by a Professional Engineer (P.E.). The Stormwater Authority shall issue a Certificate of Completion once all requirements have been met.

Section 14: Performance Bond

- A. The Town or its agents may require from the developer a surety or cash bond or other means of security acceptable to the Town prior to the issuance of any building permit for the construction of a development requiring a stormwater management facility. The bond so required in this section shall include provisions relative to forfeiture for failure to complete work specified in the approved stormwater management plan, compliance with all the provisions of this By-law and other applicable laws and regulations, and any time limitations. The company providing the performance bond to the developer shall submit a bond of the highest grade as rated by Moody's or Standard and Poor's.
- B. A Certificate of Completion signed by the town, submission of "As-built" plans, and the Town's final inspection are required prior to full release of the bond.

Section 15: Illicit Discharges to the Municipal Storm Drain System and to Watercourses or Waters of the Commonwealth

A. Prohibited Activities

1. Illicit Discharges - No person shall dump, discharge, spill, cause or allow to be discharged any pollutant or non-stormwater discharge into the municipal storm drain, onto an impervious surface directly connected to the municipal storm drain or directly or indirectly, into a watercourse or waters of the Commonwealth.
2. Illicit Connections - No person shall construct, use, allow, maintain or continue any illicit connection to the municipal storm drain system, regardless of whether the connection was permissible under applicable law, regulation or custom at the time of connection.
3. Obstruction of the Municipal Storm Drain System - No person shall obstruct or interfere with the normal flow of stormwater into or out of the municipal storm drain system without prior approval from the Stormwater Authority.

B. Exemptions

1. Discharge or flow resulting from fire-fighting activities.
2. The following non-stormwater discharges or flows are considered exempt from the prohibitions of Section 15 provided that the source is not a significant contributor of pollution to the municipal storm drain system or, directly or indirectly, to a watercourse or waters of the Commonwealth:
 - a. Waterline flushing;
 - b. Flow from potable water sources;
 - c. Springs;
 - d. Natural flow from riparian habitats and wetlands;
 - e. Diverted stream flow;
 - f. Rising groundwater;
 - g. Uncontaminated groundwater infiltrating as defined in 40 CFR 35.2005(20), or uncontaminated pumped groundwater
 - h. Water from exterior foundation drains, footing drains (not including active groundwater dewatering systems), crawl space pumps, or air conditioning condensation;
 - i. Discharge from landscape irrigation or lawn watering;
 - j. Water from individual residential car washing;
 - k. Discharge from dechlorinated swimming pool water (less than one ppm chlorine) provided the water is allowed to stand for one week prior to draining and the pool is drained in such a way as not to cause a nuisance;
 - l. Discharge from street sweeping;
 - m. Dye testing, provided verbal notification is given to the Stormwater Authority prior to the time of the test;
 - n. Non-stormwater discharge permitted under an NPDES permit, waiver, or waste discharge order administered under the authority of the US Environmental Protection Agency, provided that the discharge is in full compliance with the requirements of the permit, waiver, or order and applicable laws and regulations; and
 - o. Discharge for which advanced written approval is received from the Engineering Department as necessary to protect public health, safety, welfare, and the environment.

C. Additional Prohibited Pollutants

1. Pet Waste: Waterbodies in the Town of Harwich are subject to a Bacterial TMDL. Because dog feces are a major component of stormwater pollution, it shall be the duty of each person who owns, possesses, or controls a dog to remove and properly dispose of any feces left by the dog on any public or private property neither owned nor occupied by said person. This provision is not applicable to a person using a helping dog or other helping animal registered as such (Refer to Harwich Code Part I General Bylaws Chapter 26).

2. Pavement Sealers: Coal tar based driveway and pavement sealers have been identified as a primary source of poly-aromatic hydrocarbons affecting streams in developed areas. Poly-aromatic hydrocarbons are classified by the US Environmental Protection Agency as a probable human carcinogen and are highly toxic to aquatic life. Asphalt-based driveway and pavement sealers contain low concentrations of poly-aromatic hydrocarbons. Therefore, application of coal tar based driveway and pavement sealers is prohibited for all paved areas directly connected to the storm drain.

D. Emergency Suspension of Storm Drain System Access

The Stormwater Authority may suspend municipal storm drain system access to any person or property without prior written notice when such suspension is necessary to stop an actual or threatened discharge of pollutants that presents imminent risk of harm to public health, safety, welfare or the environment. In the event any person fails to comply with an emergency suspension order, the Authorized Enforcement Agency may take all reasonable steps to prevent or minimize harm to the public health, safety, welfare, or the environment.

E. Notification of Spills

1. Notwithstanding other requirements of local, state or federal law, as soon as a person responsible for a facility or operation, or responsible for emergency response for a facility or operation, has information of or suspects a release of materials at that facility or operation resulting in or which may result in discharge of pollutants to the municipal drainage system or waters of the Commonwealth, the person shall take all necessary steps to ensure containment and cleanup of the release.
2. In the event of a release of oil or hazardous materials, the person shall immediately notify the [Municipal Fire and Police Departments] and MassDEP's Emergency Response.
3. In the event of a release of nonhazardous material, the reporting person shall notify the [authorized enforcement agency] no later than the next business day. The reporting person shall provide to the Stormwater Authority written confirmation of all telephone, facsimile or in-person notifications within three business days thereafter.
4. If the discharge of prohibited materials is from a commercial or industrial facility, the facility owner or operator of the facility shall retain on site a written record of the discharge and the actions taken to prevent its recurrence. Such records shall be retained for at least three years.

F. Transitional Provisions

Residential property owners shall have 60 days from the effective date [Date] of these Regulations to comply with its provisions provided good cause is shown for the failure to comply with these Regulations during that period.

G. Enforcement of Prohibitions on Illicit Discharges and Connections

The Stormwater Authority may order anyone responsible for an illicit connection or discharge to an MS4 to:

1. Eliminate it;
2. Take measure to minimize the discharge of pollutants until such time as the illicit connection or discharge shall be eliminated; and
3. Remediate the contamination.

Section 16: Violations and Penalties

In addition to the \$5,000 per day civil penalties set forth in G.L. c. 83, §10, any violation of these Regulations may be enforced by noncriminal disposition pursuant to Chapter 1, Article I, Violations and Penalties, of the Code of the Town of Harwich. When enforced through the noncriminal disposition procedures set forth in §1-2 of said Code, the penalty for each violation of these Regulations shall be \$300 per violation.

Section 17: Severability

If any provision, paragraph, sentence, or clause, of these Regulations shall be held invalid for any reason, all other provisions shall continue in full force and effect.