

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND - REGION 1
5 POST OFFICE SQUARE, SUITE 100
BOSTON, MASSACHUSETTS 02109-3912**

FACT SHEET

**NATIONAL POLLUTANT DISCHARGE ELIMINATION
SYSTEM (NPDES)
GENERAL PERMIT FOR PRIVATE COMMERCIAL, INDUSTRIAL, AND INSTITUTIONAL
STORMWATER DISCHARGES IN THE CHARLES, MYSTIC, and NEPONSET RIVER WATERSHEDS
IN MASSACHUSETTS**

NPDES PERMIT NUMBERS: MAG860000

TABLE OF CONTENTS:

Section 1. Applicability and Coverage.....	1
1.1. Proposed Action.....	2
1.2. Background Information.....	3
1.3. Geographic Coverage.....	5
1.4. Definitions.....	6
1.5. Eligible Dischargers.....	7
1.6. Prohibited Discharges.....	10
1.7. Sites with additional NPDES permit obligations.....	11
1.8. Notice of Intent Requirements.....	12
1.8.1. Obtaining Coverage.....	13
1.8.2. NOI Timing.....	13
1.9. EPA Determination of Coverage.....	15
1.9.1. Requiring Coverage under an Individual Permit or Other General Permit.....	16
Section 2. Permit Basis: Legal Authority.....	17
2.1. Legal Requirements.....	17
2.2. Technology-Based Requirements.....	18
2.3. Water Quality-Based Requirements.....	21
2.3.1. Consideration of Standards in Massachusetts.....	22
2.4. Anti-Backsliding.....	23
2.5. Anti-Degradation.....	23
2.6. Section 401 Certification.....	23
Section 3. Description of the Receiving Waters.....	24
3.1. Charles River Watershed.....	24
3.2. Mystic River Watershed.....	25
3.3. Neponset River Watershed.....	25

**EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional
Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in
Massachusetts – 2024 Fact Sheet**

Section 4. Description of Stormwater, Regional Stormwater Loading Rates, and Selection of Indicator Parameter	26
4.1. Description of Stormwater	26
4.1.1. Phosphorus	27
4.1.2. Nitrogen	28
4.1.3. Bacteria/Pathogens.....	28
4.1.4. Other Stormwater Pollutants (Chloride, Total Suspended Solids, Metals, Oil and Grease (Hydrocarbons)).....	29
4.2. Stormwater Loading Rates and Hydrologic Response Units	31
4.3. Indicator Parameter	32
Section 5. Explanation of Discharge Limitations and Permit Requirements	35
5.1. Water Quality-Based Limitations for Stormwater	35
5.1.1. Compliance Schedule.....	37
5.1.2. Stormwater Pollution Control Plan.....	40
5.1.3. Requirements for Discharges to Water Quality Limited Waterbodies.....	54
5.2. Requirements to Reduce Pollutants using Best Management Practices	55
5.2.1. Onsite Chemical Application Management	55
5.2.2. Stormwater Training	56
Section 6. Record-Keeping and Reporting Requirements	57
6.1. Record-Keeping Requirements	57
6.2. Reporting Requirements.....	58
Section 7. Administrative Requirements	58
7.1. Changes in Coverage.....	58
7.1.1. Change NOI (CNOI).....	59
7.1.2. Notice of Termination.....	59
7.2. Continuation of the Expired General Permit	60
Section 8. Standard Permit Conditions.....	61
Section 9. Federal Permitting Requirements.....	61
9.1. Endangered Species Act.....	61
9.2. Essential Fish Habitat	64
9.2.1. Essential Fish Habitat Analysis of Effects.....	66
9.2.2. EPA’s Identification of Potential Impacts to EFH Species and Proposed Mitigation	67
9.2.3. EPA’s Finding.....	68
9.3. Historic Preservation.....	69
9.4. Coastal Zone Management Act.....	70
9.4.1. Protection of Coastal Resources	71
9.4.2. Recreation and Public Access	71
9.4.3. Managing Coastal Development.....	71
9.4.4. Coastal Dependent Uses	72
9.4.5. Preservation of Historic and Cultural Resources	72
9.4.6. Marine and Estuarine Research and Education.....	72

**EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional
Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in
Massachusetts – 2024 Fact Sheet**

Section 10. Public Comments, Hearing Requests and Permit Appeals 72
Section 11. Administrative Record 74
Section 12. Massachusetts-Specific Limitations and Conditions..... 74
 12.1. State § 401 Certification 74
Section 13. References..... 75

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

Section 1. Applicability and Coverage

Stormwater¹ is mostly rainwater that runs off streets, lawns, and buildings. When stormwater soaks into grass and soil, it is naturally filtered. It then slowly flows into streams, rivers, and the ocean. However, stormwater runoff from hard surfaces like roads, parking lots, roofs, roads cannot soak into the ground. Instead, it flows directly into waterbodies and carries many pollutants with it, including nutrients, trash, dirt, leaves, road salt, chemicals, and animal feces. Unlike sanitary wastewater, which travels to sewage plants to be treated, currently the majority of stormwater is not treated. In urban and suburban areas, like the Greater Boston area, there is a high concentration of “hard” or “impervious” surfaces; this means that more pollutants will not be naturally filtered and will instead flow into storm drains and be carried to rivers and oceans. Many of these pollutants can be harmful to people and animals that live in or near the water.

The Clean Water Act (“CWA”) allows the U.S. Environmental Protection Agency (EPA) and authorizes states to require discharge permits for wastewater and certain categories of stormwater. EPA Region 1 issues CWA National Pollutant Discharge Elimination System (“NPDES”) permits in Massachusetts. EPA already regulates and issues NPDES permits for stormwater discharges associated with construction and industrial activities and stormwater from municipal properties and roads. The CWA also gives EPA authority to identify and regulate other kinds of stormwater discharges where EPA can demonstrate that the pollutants in that stormwater are harming water quality.

This Fact Sheet will explain how EPA is proposing to use this CWA “residual designation authority” to require NPDES permits for currently unregulated stormwater discharges from certain commercial, industrial, and institutional properties with one or more acres of impervious cover in three of the major Greater Boston watersheds: the Charles, Mystic, and Neponset River watersheds. As this Fact Sheet, EPA’s September 2022 “Clean Water Act Residual Designation Determination for Certain Stormwater Discharges in the Charles, Mystic, and Neponset River Watershed in Massachusetts,” and EPA’s record demonstrate, this is a category of stormwater that is not currently subject to NPDES permits but is nonetheless contributing to serious water quality problems like algal blooms and beach closures.

This Fact Sheet will describe how the proposed “General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts” (CII GP) will put the Residual Designation into action. It describes the legal, policy, and scientific basis for the proposed permit’s pollutant limitations, stormwater control measures, best management practices, and other permit conditions.

¹ Stormwater is defined as stormwater runoff, snow melt runoff, and surface runoff and drainage.

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

1.1. Proposed Action

EPA Region 1 is issuing a draft NPDES General Permit for discharges of pollutants in stormwater. Specifically, this “Draft General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts” (“CII GP”) covers stormwater discharges from certain commercial, industrial, and institutional properties (referred to throughout as “CII properties,” “properties,” “Permittees,” “CII sites” and/or “sites”) to the Charles, Mystic, and Neponset River Watersheds in the Commonwealth of Massachusetts. Stormwater is defined as stormwater runoff, snow melt runoff, and surface runoff and drainage.² 40 CFR § 122.26(b)(13).

Discharges EPA covered under this CII GP consist of stormwater originating from private properties with one acre or more of impervious surface in the Charles, Mystic, and Neponset River Watersheds that are designated as “commercial,” “industrial,” or “institutional” land uses, as classified in the Massachusetts Tax Codes. See Appendix H of the permit.³ This permit covers stormwater discharges that discharge through private separate storm sewer systems, or through a Municipal Separate Storm Sewer Systems (“MS4”) (40 CFR § 122.26(b)(8)) into the Charles River, Mystic River, and/or the Neponset River Watersheds or directly into the rivers, their streams and/or tributaries in the Commonwealth of Massachusetts. As defined in the draft CII GP, “impervious surface” is “any surface that prevents or significantly impedes the infiltration of water into the underlying soil. This can include but is not limited to: roads, driveways, parking areas, other areas created using nonporous material, buildings, rooftops, structures, artificial turf and compacted gravel or soil.”

The Clean Water Act (“CWA”) prohibits the discharge of pollutants to waters of the United States without a NPDES permit unless such a discharge is otherwise authorized by the CWA § 301(a), 33 USC § 1311(a). EPA is proposing to issue a general permit to address the categories of stormwater discharges described herein. See 40 CFR § 122.28(a)(2)(i). Violations of a condition of a general permit constitute a violation of the Act and subject the discharger to the penalties in CWA § 309.

In this action, EPA is employing an adaptive management approach. EPA views adaptive management as an approach to natural resource management that emphasizes learning through management where knowledge is incomplete, and when, despite inherent uncertainty, managers and policymakers must act. Unlike a traditional trial and error approach, adaptive management has explicit structure, including a careful elucidation of goals, identification of alternative management objectives, and procedures for the collection of data followed by evaluation and reiteration. The process is iterative, and serves to reduce uncertainty, build knowledge, and improve management over time in a goal-oriented and

² See 40 CFR § 122.26(b)(13). See also 40 CFR § 120.2(a) which sets forth the definition of “waters of the United States.”

³ The draft CII GP does not apply to municipal, state or federally owned properties.

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

structured process. Consistent with this approach, EPA has chosen the requirements outlined in this fact sheet and Draft Permit to be a reasonable next step to reach the goal of achieving water quality standards, in the Charles, Mystic, and Neponset River Watersheds.

Once authorized to discharge under this draft general permit, the Permittee must meet the stormwater treatment requirements included in Part 2 of the Draft CII GP, which will lead to compliance with applicable Federal and State water quality standards (WQSs). All Permittees are also subject to the reporting requirements included in Part 3 of the CII GP. To terminate coverage under the CII GP, Permittees must submit a complete Notice of Termination (NOT) in accordance with the requirements of Part 4 of the CII GP. Failure to comply with the limitations and conditions of the CII GP could result in penalties generally described in Attachment B, Standard Conditions, of the draft permit. The CII GP may be modified or revoked and reissued in accordance with 40 CFR § 122.62.

1.2. Background Information

On May 9, 2019, the Conservation Law Foundation (“CLF”) and the Charles River Watershed Association (“CRWA”) submitted to the Regional Administrator of EPA Region 1 a “Petition for a Determination that Certain Commercial, Industrial, Institutional and Multi-Family Residential Property Dischargers contribute to Water Quality Standards Violations in the Charles River watershed, Massachusetts, and the NPDES Permitting of Such Properties is Required.” On August 24, 2020, CLF submitted two additional petitions requesting the same residual designations for the Mystic River and Neponset River Watersheds in Massachusetts.⁴ The three petitions called for a determination, under CWA § 402(p)(2)(E), 33 U.S.C. § 1342 (p)(2)(E), and 40 CFR § 122.26(f)(2), that currently-unpermitted discharges of stormwater from privately-owned commercial, industrial, institutional, and multi-family residential properties of one acre or greater contribute to violations of water quality standards and, therefore, should be permitted under EPA’s residual designation authority.

In all three petitions, the petitioners emphasized how polluted stormwater harms the water quality of the Charles, Mystic, and Neponset Rivers. The petitions highlighted how nutrients and pathogens are

“the major threat to the health of our rivers, lakes, and streams. Some of our most treasured waters used by millions for recreation, fishing, and other tourism

⁴ The three petitions can be found on EPA’s website at: <https://www.epa.gov/npdes-permits/watershed-based-residual-designation-actions-new-england#Petitions> and are referred to in this document as; the “Charles River Petition,” the “Mystic River Petition” and the “Neponset River Petition”. Additional information about this RDA permitting matter, including more information about EPA’s RDA authority, the technical basis for this CII GP, municipal-specific fact sheets, and additional outreach information (including fact sheets that have been translated into various languages spoken in some communities throughout the three watersheds) can be found at EPA’s website: <https://www.epa.gov/npdes-permits/watershed-based-residual-designation-actions-new-england> or by clicking [here](#).

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

are suffering from toxic algae blooms and poor water quality due to nutrient-laden stormwater runoff flowing off parking lots and other paved areas.” See Charles River Petition, at pgs 2-3; Mystic River Petition, at pg 2, Neponset River, at pg 2. The petitioner argued that RDA permits should require pollutant reductions by CII sites consistent with existing TMDL waste load allocations and water quality standards. The petitioner also contended that the detrimental impacts to water quality in the watersheds will continue due to trends showing ongoing increases in the amount of stormwater, temperature, and precipitation. (Mystic River Petition, at pg. 3; Neponset River Petition, at pgs. 12-13).

On September 9, 2022, EPA issued a preliminary “Clean Water Act Residual Designation Determination for Certain Stormwater Discharges in the Charles, Mystic, and Neponset River Watershed, in Massachusetts” (“Preliminary Determination”).⁵ EPA based its Preliminary Designation on a technical analysis undertaken in 2020-2021 with data from the Charles River Watershed⁶ that indicated that CII sites are a significant contributor of Phosphorus pollution. Based on these findings, EPA found that stormwater discharges from the CII sources contributed to violations of water quality standards, are significant contributors of pollutants to waters of the United States, and require stormwater controls based on wasteload allocations that are part of TMDLs addressing Phosphorus, nitrogen, and/or bacteria.⁷

In the Preliminary Designation, EPA included contiguous commercial, industrial, or institutional properties⁸ with one acre or more of impervious surface in the Charles, Mystic, and Neponset River watersheds.⁹ The Preliminary Designation includes contiguous properties with the same owner or operator where the combined land area contains one acre or greater of impervious surface.

EPA followed the initial 2020-2021 Charles River Watershed analysis with a technical analysis in the Mystic and Neponset River Watersheds in 2023. EPA conducted Hydrologic Response Unit modeling to determine regional pollutant loading based on land use and land cover characteristics (for more information, see Section 4.2 of this fact sheet) and a parcel-level

⁵ EPA’s Preliminary Designation can be found at: <https://www.epa.gov/system/files/documents/2022-09/epa-r1-rda-determination-charles-mystic-neponset-2022-combine-signed.pdf> or [here](#). EPA is simultaneously seeking comments on the Preliminary Designation.

⁶ The technical analysis from 2020-2021 for the parcels in the Charles River can be found at: Charles: <https://www.epa.gov/system/files/documents/2024-01/charles-parcel-analysis-from-2022-determination.pdf>. After it issued its Preliminary Designation EPA, working with its contractor, Paradigm Environmental, conducted a technical analysis for parcels in the Mystic and Neponset. Mystic: <https://www.epa.gov/system/files/documents/2024-01/20231211-draft-mystic-task-3c-parcel-analysis-report.pdf>; Neponset: <https://www.epa.gov/system/files/documents/2024-01/20231211-draft-neponset-task-4c-parcel-analysis-report.pdf>

⁷ See Section 3, below, which discusses this analysis in greater detail.

⁸ Properties are identified using Massachusetts Department of Revenue property type classification codes. See Preliminary Designation.

⁹ For a listing of the communities included in the Preliminary Designation, see Table 1 in the draft CII GP.

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

analysis that estimated the amount of pollutant load that CII sites designated for permitting contribute to the watersheds. In 2024, EPA conducted a follow-up parcel level analysis of the Charles River Watershed to ensure data source and data processing consistency with the Mystic and Neponset River Watershed analyses. This proposed CII GP and fact sheet rely on the findings of the 2023 analysis of the Mystic and Neponset River Watersheds and the 2024 analysis of the Charles River Watershed. The findings are summarized below:

- In the Charles River Watershed, CII sites with one or more acres of impervious cover, as designated under EPA’s Preliminary Designation, are estimated to contribute 15.6% of the watershed-wide Phosphorus load while they make up 17% of the total impervious cover in the watershed. This results in an estimated 2,295 CII parcels designated for permitting.
- In the Mystic River Watershed, CII sites with one or more acres of impervious cover, as designated under EPA’s Preliminary Designation, are estimated to contribute 21.5% of the watershed-wide Phosphorus load while they make up 21.7% of the total impervious cover in the watershed. This results in an estimated 993 CII parcels designated for permitting.
- In the Neponset River Watershed, CII sites with one or more acres of impervious cover, as designated under EPA’s Preliminary Designation, are estimated to contribute 19% of the watershed-wide Phosphorus load while they make up 18.8% of the total impervious cover in the watershed. This results in an estimated 827 CII parcels designated for permitting.

This Preliminary Designation and Draft CII GP do not apply to any stormwater discharges from a parcel subject to the 2016 MA MS4 permit that is owned or operated by a current Permittee under the 2016 MA MS4 permit (e.g., municipally-owned parcels or those owned by non-Traditional MS4s); any parcel owned or operated by the City of Boston or Boston Water and Sewer Commission (BWSC) that is subject to NPDES permit MAS010001; or any parcel owned or operated by MassDOT that is subject to NPDES permit MA043025. These permits address stormwater pollutant load reductions for other kinds of properties in the watersheds.

EPA is seeking comment on its Preliminary Designation along with the draft CII GP during the same public comment period. Consistent with 40 C.F.R. § 124.52(c), “the question whether the initial designation was proper will remain open for consideration during the [NPDES permit] public comment period under 40 C.F.R. § 124.11 and in any subsequent hearing.” The dischargers or categories of dischargers that the draft designation identifies will not be required to obtain NPDES permit coverage until EPA issues the general permit for such discharges, under which owners or operators may seek coverage within defined deadlines in the draft CII GP.

1.3. Geographic Coverage

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

This CII GP applies stormwater discharges from certain CII sites with 1 acre or more of impervious cover that discharge through private separate storm sewer systems, or through a Municipal Separate Storm Sewer Systems (“MS4”)(40 CFR § 122.26(b)(8)) into the Charles River, Mystic River, and/or the Neponset River Watersheds or directly into their streams and tributaries in the Commonwealth of Massachusetts. Those stormwater discharges may occur through a private separate storm sewer system, or through an MS4, and then into a receiving water. The CII sites eligible for coverage are identified in Section 1.5 of this fact sheet.

1.4. Definitions

The definition of the “Permittee,” and other terms that clarify who is subject to this CII GP include:

“Permittee”: the owner of a site, of one or more contiguous sites, with one (1) acre or more of impervious cover is considered to be the Permittee. If there is a written agreement which provides another single entity with authority to make decisions with respect to operational control of one or more sites, the entity with such authority (the “operator”) will be considered the Permittee. When a site is leased to multiple lessees, the owner shall be the Permittee.

“Site”: the land or water area where any “facility or activity” is physically located or conducted, including adjacent land used in connection with the facility or activity (40 CFR § 122.2). For purposes of this draft permit, “site” shall include “contiguous” properties or parcels when such properties or parcels are owned by the same entity.

“Contiguous” parcels or properties: those parcels or properties of land that are adjacent and owned by the same entity. For purposes of this draft permit, “adjacent” properties or parcels may include those that are separated by an area such as: an alley, roadway, sidewalk, path, driveway, garden(s), or other structure that interrupts the continuous flow or use of the land and/or an easement, if the land on either side of such an area(s) is owned by the same entity.

These definitions reflect EPA’s recognition of the complexities associated with ownership of some of the CII parcels regulated under this CII GP, and EPA’s corresponding interest in consolidating, to the greatest extent possible, responsibility for permit compliance. This approach is consistent with how EPA issues other NPDES permits pursuant to 40 C.F.R. Part 122. For purposes of this CII GP the total impervious cover acreage should be the sum of the size of adjacent parcels that have a common owner, even if those parcels are separated by sidewalks, or other structures mentioned above.

EPA is seeking comment from the public on these definitions including specifically:

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

- Whether EPA should regulate the operator with control over a site instead of the owner, including sites where multiple operators may be tenants of a site (*e.g.*, a shopping plaza with one owner and multiple tenants)?
- How should the permitting process work for owners with multiple properties that are non-contiguous? (As discussed more fully below in Section 1.9, the process starts with Permittees submitting a Notice of Intent for permit coverage to EPA and EPA “authorizing” owners or operators of sites for coverage under the General Permit.) Different scenarios might include:

Option 1: Require a separate NOI from the Permittee and authorization from EPA for each non-contiguous site owned or operated by the same entity. Each site would then have a permit number and receive authorization from EPA. If the Permittee elected to do offsite Phosphorus reductions, as allowed by Part 2.1.1.C.b of the draft CII GP, offsite Phosphorus reduction would be allowed to be completed on other MS4 or CII sites, including other sites owned or operated by the same entity.

Option 2: Require only one NOI from the Permittee and authorization from EPA for non-contiguous properties owned or operated by the same entity. There would be only one authorization number for multiple sites owned by the same permittee. The Permittee would calculate a total Phosphorus reduction required per watershed for all of the authorized sites and would be allowed to complete the phosphorous reductions on any of the sites covered under the authorization. Additionally, the Permittee would still be able to elect to complete offsite reductions on other MS4 or CII sites, as outlined in Part 2.1.1.C.b of the draft CII GP.

1.5. Eligible Dischargers

Under the proposed CII GP, owners and operators (40 CFR § 122.2) of certain CII sites (or contiguous CII sites) with a total of one acre or more of impervious cover discharging stormwater to the Charles, Mystic, and Neponset River Watersheds will need to seek coverage under this Draft CII GP. For the list of specific eligibility requirements, see the Draft CII GP, Part 1.4. To easily identify CII properties, the Preliminary Determination utilizes Massachusetts Department of Revenue Division of Local Services Property Type Classification Codes. The tax codes applicable to CII sites are identified in Appendix H of the permit “Massachusetts Tax Assessor’s Use Code for CII Land Uses.”¹⁰

Consistent with the land use categories identified in the original petitions (commercial, industrial, institutional, and large multi-family residential), EPA conducted a technical analysis

¹⁰ When tax codes for entities in Boston did not match with those listed in the Massachusetts Tax Assessor’s Guidance EPA referenced the City of Boston’s Tax Assessor’s Code guidance to assign land use-specific pollutant loading rates.

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

to identify the conditions applicable to determining Permittee coverage under the CII GP. As part of this technical analysis, EPA reviewed the Massachusetts Tax Assessor’s Code¹¹ to assess which land uses, as identified under the tax code, fall within the proposed land uses for permitting as identified in the petitions (commercial, industrial, institutional, large multi-family residential).

EPA analyzed the Massachusetts tax codes to match with land use categories for which EPA has developed pollutant loading rates. A site can only have one land use categorization (e.g., commercial vs. residential or agricultural). The eight pollutant loading rates associated with different land uses that EPA uses in this CII GP were developed based on Region 1 stormwater pollutant concentrations and regional climate conditions.¹² These land uses include:

- Commercial (Com) and Industrial (Ind);¹³
- Multi-Family (MFR) and High-Density Residential (HDR);
- Medium -Density Residential (MDR);
- Low Density Residential (LDR) - Rural";
- Highway (HWY);
- Forest (For);
- Open Land (Open); and
- Agriculture (Ag).

In its technical analysis, EPA included mixed-use properties including three types of properties that represent mixed land use designations which both include multi-residential land uses. Those codes include: Tax Code 031 defined as “Multiple-Use, Primarily Commercial”, Tax Code 013 defined as “Multiple-Use, Primarily Residential,” and Tax Code 037 defined as “037 Multiple-Use, primarily Commercial with part of land designated under Chapter 61A use.” EPA included these classifications to be uniform in the permitting of land uses that included any commercial, industrial, and institutional parcels and thus, ultimately classified these mixed-use codes as commercial entities, even though some portion of the properties included within these codes includes some residential land use. Appendix H of the permit illustrates which MA Property Type Classification Codes are eligible for permitting based on the analysis EPA carried out.

As discussed in more detail below, EPA is not including “Multi-Family Residential Properties” properties in the current proposed draft CII GP – specifically, those land use categories that include privately-owned housing with five or more housing units - even though this was requested in the original petitions. As EPA stated in its Preliminary Determination:

¹¹ <https://www.mass.gov/doc/property-type-classification-codes-non-arms-length-codes-and-sales-report-spreadsheet/download>

¹² Note, that EPA has also used these eight (8) land use codes in the MS4 permit.

¹³ For the purposes of this permit, the land use category “Commercial and Industrial” includes Institutional properties.

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

While residential land use represents the dominant land use in all three watersheds, EPA's data analysis for the Charles River watershed indicates that the average multi-family and single-family parcel discharges approximately six times less Phosphorus in stormwater than the average commercial, industrial, or institutional parcel.

EPA's data analysis for the Charles River watershed in 2020-2021, for the Mystic and Neponset River Watersheds in 2023, and the re-analysis of the Charles River Watershed in 2024, also indicate that, generally, residential parcels have a smaller water quality impact from stormwater discharges on a per-parcel basis compared to commercial, industrial, and institutional parcels. This is because residential parcels, especially single-family residential parcels, are, on average, significantly smaller and have a smaller portion of their site covered by impervious surface compared to CII sites. So, even though single family residential land uses dominate the watersheds' land use, those homes produce a relatively lower per-parcel stormwater pollutant load. In contrast, CII sites are, on average larger and have a greater percentage of impervious cover covering their site with parking lots and/or large roofs, which results in an average higher per-parcel stormwater pollutant load.

Preliminary Determination at 25. EPA went on to note, however, that while:

EPA is choosing to focus this designation on commercial, industrial, and institutional parcels and focus on permitting such stormwater discharges given their greater pollutant loading impact on a per parcel basis, as opposed to residential parcels...the question of whether to designate certain residential properties is integral to EPA's ongoing evaluation of the RDA implementation using an adaptive management model. Depending in part on the progress that occurs as a result of this designation and ensuing permit action(s), and on an evaluation of data and other analysis resulting from those actions, EPA may designate multi-family parcels in the future.

Preliminary Determination at 25.

The issue of whether to include Multi-Family Residential Properties is one that generates a variety of positions; indeed, EPA has heard from some stakeholders that EPA should consider including Multi-Family Residential Properties since, among other things, they may be significant contributors of pollutants carried in stormwater.¹⁴

EPA is seeking comment on whether to include large Multi-Family Residential Properties¹⁵ in the final designation and in the final CII GP. Below, EPA summarizes the estimated current

¹⁴ <https://www.epa.gov/system/files/documents/2024-08/final-rda-report-2024-08-02.pdf>

¹⁵ For the purposes of this permit, Large Multi-Family Residential Properties are those that have with more than eight units as reflected in Tax Code 112 of the Massachusetts Tax Code (<https://www.mass.gov/doc/property->

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

impact of including large Multi-Family Residential Properties on the overall load reductions that could be achieved as part of this RDA permitting framework in the Charles, Mystic, and Neponset River Watersheds. If large Multi-Family Residential Properties are included in the permitting framework, permit requirements for these properties would be the same as for CII Properties.¹⁶ Multi-Family Residential Properties in the three watersheds would also be on the same compliance schedule as CII Properties, as set forth in Part 2.1.1.A. of the Draft CII GP.

- For the Charles River Watershed: If EPA decides to include Multi-Family Residential Properties that would meet permit eligibility requirements, EPA estimates that there are currently 101 properties that cover an estimated total of 239 acres of impervious cover. Including these large Multi-Family Residential Properties would result in an approximate additional 435 lbs/yr of Phosphorus reduction in the Charles River Watershed.
- For the Mystic River Watershed: If EPA decides to include Multi-Family Residential Properties that would meet permit eligibility requirements, EPA estimates that there are 68 current properties that cover an estimated 195 acres of impervious cover. Including these large Multi-Family Residential Properties would result in an approximate additional 270 lbs/yr of Phosphorus reduction in the Mystic River Watershed.
- For the Neponset River Watershed: If EPA decides to include Multi-Family Residential Properties that would meet eligibility requirements under this permit, EPA estimates that there are currently 21 properties that cover an estimated total of 66.5 acres of impervious cover. Including these large Multi-Family Residential Properties would result in an approximate additional 95 lbs/yr of Phosphorus reduction in the Neponset River Watershed.

1.6. Prohibited Discharges

This permit prohibits certain discharges that are not comprised of stormwater or allowable non-stormwater discharges as outlined in Part 1.5 of the Draft CII GP and in 40 CFR § 122.34(b)(3)(iii). Certain prohibited discharges can enter the storm system directly, such as incorrectly connected wastewater discharge lines, while others may enter indirectly, such as through infiltration from cracked sanitary lines or spills collected by drain outlets. Both types of discharges can contribute pollutants to the system that in turn affect water quality. This CII GP permit prohibits the following:

type-classification-codes-non-arms-length-codes-and-sales-report-spreadsheet/download) and as reflected in Tax Code 112 (Apartments with 7-30 units), 113 (Apartments with 31-99 units), and 114 (Apartments with more than 100 units) of the Massachusetts Property Classification System of the Boston Assessing Department (www.cityofboston.gov/images_documents/ma_occodes_tcm3-16189.pdf).

¹⁶ With the exception that multi-use residential properties would use a Phosphorus loading export rate of 2.38lbs/ac yr-1 instead of 1.80 lbs/ac yr-1 in Phosphorus loading calculations.

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

1. Discharges that are likely to adversely affect any species listed as endangered or threatened under the Endangered Species Act (“ESA”) or result in the adverse modification or destruction of habitat that is designated as critical under ESA. See Appendix C of the draft CII GP for ESA requirements and Section 9.1, below, for additional information.
2. Discharges whose direct or indirect impacts do not prevent or minimize adverse effects on any designated Essential Fish Habitat (“EFH”).
3. Discharges which adversely affect properties listed or eligible for listing in the National Registry of Historic Places under the National Historic Preservation Act of 1966 (NHPA), 16 USC §470 *et seq.* This exclusion aligns with the special eligibility determinations pertaining to the NHPA. See Appendix D of the draft CII GP for NHPA requirements and Section 9.3, below, for additional information.
4. Stormwater discharges prohibited under 40 CFR § 122.4.
5. Discharges that are mixed with sources of non-stormwater (i.e. industrial wastewater and sanitary wastewater) unless such non-stormwater discharges are authorized under a separate NPDES permit, or are listed in Part 1.5. of the draft permit. Discharges that are mixed with non-stormwater remain unlawful until the source of non-stormwater is eliminated.
6. Drainback water. Standing water in a catch basin sump removed during cleaning via vacuum truck or other means shall be discharged to the sanitary sewer or other facility designed for the treatment and disposal of drainback water. No drainback water shall be discharged to the MS4, directly to the receiving water, or via a private separate storm sewer system.
7. Under the Safe Drinking Water Act certain subsurface stormwater controls are subject to the State’s Underground Injection Control (“UIC”) regulations. Authorization for such discharges shall be obtained from Massachusetts Department of Environmental Protection, Bureau of Resource Protection, Drinking Water Program, Underground Injection Control, 100 Cambridge Street, Suite 900, Boston, MA 02114. All stormwater discharge structures meeting the definition of a “well” in MassDEP’s UIC regulations, 310 CMR 27.00, require the submittal of a UIC registration applications. Therefore, the following actions require UIC registration:
 - a. infiltration trenches or seepage pits (if stormwater is directed to any trench or pit that has been backfilled with greater than 18 inches of permeable fill material or that is deeper than its widest surface dimension)
 - b. any subsurface infiltration structure receiving stormwater, regardless of depth vs. horizontal dimensions (e.g. drywell, leaching chambers, perforated pipe drainfield, etc.)
8. Discharges for which the Director makes a determination that an individual permit is required. See Section 1.9.1, below, for more information.

1.7. Sites with additional NPDES permit obligations

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

Some applicants requesting coverage under this general permit may already be authorized to discharge pursuant to another NPDES permit, including but not limited to EPA’s Multi-Sector General Permit (“MSGP”) (authorizing discharges of stormwater associated with certain categories of industrial activities), and/or individual stormwater or individual wastewater permits. This CII GP does not affect the coverage of those permits. This CII GP does, however, apply to any *unpermitted* portions of those sites, including for example impervious non-industrial portions of sites such as roofs, parking lots, and sidewalks, as long as the total impervious cover of the site is 1 acre or more in size. Relatedly, discharges from CII sites to a combined sewer system (“CSS”)¹⁷ that are already authorized under another NPDES permit are not included for coverage under the CII GP.¹⁸ Therefore, a site discharging to a CSS that is covered under a POTW NPDES permit should, for the purposes of this CII GP, subtract from its calculation of total acres of impervious cover the portion of the impervious cover that discharges to the CSS.

Some applicants requesting coverage under this general permit may already be authorized to discharge industrial stormwater pursuant to another NPDES permit, such as EPA’s MSGP. The MSGP only authorizes discharges of stormwater associated with certain categories of industrial activities. However, the MSGP is not intended to cover discharges of stormwater that are *not* associated with industrial activities. For example, many MSGP-covered properties have impervious cover such as roofs, parking lots, and sidewalks. Furthermore, MSGP sites that have a No Exposure Certification (“NEC”) are also requested to seek coverage under this CII GP if the entire site meets the acreage requirements of the CII GP.¹⁹ Allowable Non-Stormwater Discharges Part 1.6 of the Draft Permit lists certain non-stormwater discharges that are allowed under this permit. However, if the receiving MS4 or EPA identifies the non-stormwater discharge as a significant source of pollutants to waters of the United States (see 40 C.F.R. § 122.34(b)(3)(ii)), the discharge must be eliminated as a condition of authorization to discharge under this permit.

1.8. Notice of Intent Requirements

To obtain authorization to discharge under the CII GP, an applicant must:

- Be a discharge type listed in Part 1.4 of the CII GP;

¹⁷ Municipalities that have CSS in parts of their municipal jurisdiction are Boston, Cambridge, Chelsea, and Somerville.

¹⁸ Many municipalities are working to eliminate combined sewer discharges and therefore, it is important to note that sites that discharge to combined sewer areas where a municipality undergoes sewer separation, must be prepared to make adjustments to their SPCP to account for treating the discharges going to the newly separated storm sewer.

¹⁹ The preliminary designation also explicitly identified rooftops as impervious surfaces. Rooftops and sealed storage containers are common methods of obtaining No Exposure Certifications through the MSGP. Both methods currently fall under this draft permit’s definition of impervious surfaces. In this Draft CII GP, EPA explicitly identifies currently permitted sites with NECs as CII Permittees.

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

- Be located in the areas listed in Part 1.2 of the CII GP;
- Submit a complete and accurate Notice of Intent (“NOI”) in accordance with the requirements of Part 1.9 and 1.10 of the CII GP; and
- Receive a written authorization to discharge from EPA.²⁰

Once authorized to discharge under this general permit, the discharge must meet the limitations and requirements included in the CII GP. All operators are also subject to the record keeping and reporting requirements included in Part 3 of the CII GP. To terminate coverage under the CII GP, operators must submit a complete Notice of Termination (“NOT”) in accordance with the requirements of Part 4.2 of the CII GP. Failure to comply with the limitations and conditions of the CII GP could result in penalties generally described in Appendix B Standard Conditions of the draft CII GP.

1.8.1. Obtaining Coverage

Existing CII Sites: Eligible existing CII sites at the time of general permit issuance must submit a NOI to EPA electronically within the timeframes presented in Section 1.8.2.A. below. 40 CFR § 122.28(b)(2)(ii)-(vi) specify minimum NOI requirements and also provides that NOIs may require the submittal of information necessary for adequate program implementation. Unless EPA specifically notifies the discharger that an individual permit application must be submitted, submission of a complete and accurate NOI eliminates the need to apply for an individual permit for a regulated discharge eligible under this general permit. For the purposes of this general permit, the NOI consists of the electronic submission through EPA’s NeT-Multiform. The NOI submittal details are outlined in Appendix G of the draft CII GP.

Newly Developed CII Sites: To obtain coverage under the proposed CII GP, owners or operators with new discharges from newly developed sites eligible for coverage must submit a NOI to EPA electronically (e-NOI) at least 30 days prior to the occupancy of the site or termination of any NPDES permit, as outlined in Section 1.8.2.B of this fact sheet, including the Construction General Permit or Dewatering and Remediation General Permit.²¹

1.8.2. NOI Timing

1.8.2.A. Existing Discharges

For any sites that have 1 acre or more of impervious cover at the time of the permit effective date and that are eligible to submit an NOI under the permit, Permittees must submit an NOI

²⁰ Where the CII GP or this fact sheet refer to correspondence in writing from EPA, such correspondence may be by mail or email and may or may not be auto generated.

²¹ If a site that is already permitted under the CII GP is adding a new discharge on the permitted site, a new NOI submittal is not necessary. Instead, the SPCP should be updated to reflect this new discharge and the next annual report should reflect those updates.

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

to EPA for coverage under the CII GP based on the following impervious cover acreage categories:

- For sites with 5 or more acres of impervious cover, no later than 6 months after the effective date of the CII GP.
- For sites with greater than or equal to 2 and less than 5 acres of impervious cover, no later than 12 months after the effective date of the CII GP.
- For sites with greater than or equal to 1 and less than 2 acres of impervious cover, no later than 24 months after the effective date of the CII GP.

In the case of change of site ownership or operator the new Permittee must submit an NOI to EPA for coverage under the CII GP no later than 30 days after property transfer or change in operator. If an existing site subsequently increases its impervious cover into a higher impervious cover acreage category after the NOI submittal timeframes outlined in Part 1.10 of the draft permit have passed, the compliance schedule in Part 2.1.1.A of the CII GP still applies. *See also* Section 5.1.1. of this Fact Sheet.

During the period beginning on the effective date of permit and lasting through the expiration date, EPA will authorize discharges under the CII GP under the terms and conditions specified in this permit.

For enforcement purposes, an owner or operator of an existing CII site that fails to submit the required NOI in the timeframe above (or apply for coverage under an individual permit) will be considered to be discharging without a permit. Anyone who fails to submit an NOI within the timeframes above will be subject to the existing compliance schedule laid out in Draft Permit Part 2.1.1.A and Section 5.1.1 of this fact sheet,²² which begins with the original authorization dates for each permitting threshold based on acreage outlined in Draft Permit Part 1.13.

EPA has developed this staggered schedule because it has determined that larger sites are more likely to be knowledgeable about federal environmental permitting compared to smaller entities who require time to familiarize themselves with federal permitting requirements. Because EPA is also expecting a large number of Permittees under this permit, it wants to ensure that an adequate number of technical resources are available for Permittees during permit application and implementation. By staggering the implementation EPA can better assist permittees as they enter the permitting program in stages.

However, EPA has also taken into consideration that all permittees, once authorized to discharge, should not be treated differently with regard to compliance deadlines. For that

²² Permittees authorized at a later date due to a late submission of an NOI do not receive an extension on the compliance schedule. Once authorized, these permittees will be subject to the same compliance schedule as other Permittees within the same permitting group based on amount of impervious cover.

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

reason, the compliance schedule described in Section 5.1.1 of this fact sheet provides the same timeframes for completion for permit requirements for all permittees.

EPA is seeking comment on whether this proposed schedule for NOI submission and authorization is appropriate given the large universe of applicants.

1.8.2.B. New Discharges

Sites that have new or increased impervious cover discharges must submit an NOI to EPA at least 30 days prior to the site occupancy or the termination of any other NPDES permit if the site meets one or more of the following two conditions:

- any newly developed site; or
- any site that is not yet permitted under the CII GP that increases its impervious cover to one acre or more.

1.9. EPA Determination of Coverage

During the period beginning on the date of permit authorization and lasting through the expiration date, EPA will authorize discharges under the CII GP under the terms and conditions specified in this permit.

Any eligible owner or operator of CII sites that meet the criteria of Part 1.4 of the CII GP may request to be covered under the CII GP but the final authority rests with EPA. Coverage under the CII GP will be effective when EPA, in its discretion, has reviewed the NOI, authorizes coverage under the CII GP, and has notified the owner or operator in writing of its determination within the timeframes outlined below. If an NOI is found to be deficient, EPA will not approve the NOI as submitted and will notify the applicant to correct the NOI. EPA expects to provide applicants with an authorization determination on the following timeframes:

- Existing sites with 5 acres or more of impervious cover: 6 months following the deadline for submittal of NOI to EPA;
- Existing sites with greater than or equal to 2 and less than 5 acres of impervious cover: 12 months following the deadline for submittal of NOI to EPA;
- Existing sites with greater than or equal to 1 and less than 2 acres of impervious cover: 12 months following the deadline for submittal of NOI to EPA; or
- New Developments or increased discharges: 6 months following the deadline for submittal of NOI to EPA.

Any owner or operator authorized to discharge under the CII GP will receive written notification from EPA. Failure to submit an NOI to EPA to be covered and/or failure to receive

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

written notification of permit coverage from EPA means that the owner or operator is not authorized to discharge under the CII GP. An owner or operator that is denied permit coverage by EPA is not authorized under the CII GP to discharge to a receiving water.

Once issued, the written authorization to discharge will remain unchanged, unless EPA makes a determination that change to the existing limitations and conditions is warranted. The effective date of coverage will be the date indicated in the authorization to discharge provided to the operator by EPA.

Failure to submit an NOI to EPA and/or failure to receive from EPA written notification of permit coverage means that an owner or operator is not authorized to discharge under this general permit. When EPA denies permit coverage for a site, an owner or operator is not authorized to discharge under this general permit from that site to waters of the United States.

1.9.1. Requiring Coverage under an Individual Permit or Other General Permit

The proposed CII GP provides that EPA may require an individual permit or recommend coverage under a separate general permit in accordance with 40 CFR § 122.28(b)(3). These regulations also provide that any interested party may petition EPA to take such an action. The issuance of the individual permit or other general permit would be in accordance with 40 CFR Part 124 and would provide for public comment and appeal of any final permit decision.

The Director may require any person authorized by this permit to apply for and obtain an individual NPDES permit. Circumstances under which the Director may require an individual permit are described in 40 CFR § 122.28(b)(3)(i)(A-G), and provided below.

A determination under 40 CFR § 122.28(b)(3), including:

- A change has occurred in the availability of the demonstrated technology of practices for the control or abatement of pollutants applicable to the point source(s);
- Effluent limitation guidelines are promulgated for the point source(s) covered by this permit;
- A Water Quality Management Plan or Total Maximum Daily Load containing requirements applicable to such point source(s) is approved and inconsistent with this permit;
- Circumstances have changed since the time of the request to be covered so that the discharger is no longer appropriately controlled under the general permit, or either a temporary or permanent reduction or elimination of the authorized discharge is necessary; or
- The discharge(s) is a significant contributor of pollutants.
- The discharger is not in compliance with the conditions of this general permit.

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

- Actual or imminent harm to aquatic organisms, including ESA or human health is identified.
- The discharge adversely impacts any federally managed species for which EFH has been designated.
- In the opinion of the Director, is more appropriately controlled under an individual or alternate general permit.
- The point source(s) covered by this permit no longer:
- Involves the same or substantially similar types of operations;
- Discharges the same types of wastes; or
- Requires the same effluent limitations or operating conditions.

If the Director requires an individual permit, EPA will notify the applicant in writing that an individual permit is required and will provide a brief explanation of the reasons for this decision. When EPA issues an individual NPDES permit that covers the same discharges as the ones covered in this Draft CII GP to a Permittee otherwise subject to this general permit, the applicability of this general permit to that Permittee is automatically terminated on the effective date of the individual permit.

Section 2. Permit Basis: Legal Authority

2.1. Legal Requirements

The Clean Water Act (CWA) prohibits the discharge of pollutants to waters of the United States without a NPDES permit unless such a discharge is otherwise authorized by the CWA. See § 301(a); 33 USC § 1311(a). This NPDES general permit is issued to implement technology and water quality-based effluent limitations and other requirements, including reporting, pursuant to the CWA. See § 402; 33 USC § 1342. The CWA gives EPA “residual designation authority” over a category of stormwater discharges that are subject to NPDES permit requirements only if EPA “determines that the stormwater discharge contributes to a violation of a water quality standard or is a significant contributor of pollutants to the waters of the United States.” CWA § 402(p)(2)(E). The CWA also authorizes EPA to take action to designate additional stormwater discharges “to protect water quality.” CWA § 402(p)(6).

In 1987, Congress amended the CWA to establish categories of industrial and municipal stormwater point source discharges that require NPDES permits. See CWA § 402(p)(2)(B-E). Congress instructed EPA to develop stormwater regulations in two phases. In the first phase, Congress required EPA to develop regulations and NPDES permits for stormwater discharges associated with industrial activity and discharges from municipal separate storm sewer systems (MS4s) serving populations larger than 100,000 persons (i.e., large and medium MS4s). CWA § 402(p)(4)(A). In the second phase, Congress instructed EPA to study stormwater discharges from small MS4s and other sources not covered by § 402(p)(4)(A) and report back to Congress on how such stormwater discharges should be regulated. EPA proceeded with two

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

stormwater rulemaking phases. In the 1990 Phase I Rule, EPA promulgated NPDES permit application regulations for large and medium MS4s and certain industrial stormwater discharges (including large construction sites disturbing equal to or greater than five acres). See 55 Fed. Reg. 47990 (Nov. 16, 1990). The 1999 Phase II Rule set forth NPDES permitting requirements for discharges from certain small MS4s and from small construction sites (disturbing equal to or greater than one acre and less than five acres) and required NPDES permits for these discharges. 21 See 64 Fed. Reg. 68722 (December 8, 1999).

CWA sections 402(p)(2)(E) and 402(p)(6) and the applicable implementing regulations, 40 CFR § 122.26, provide that in states where there is no approved state program, the EPA Regional Administrator may designate a stormwater discharge as requiring an NPDES permit where he/she determines that: “(C) storm water controls are needed for the discharge based on wasteload allocations that are part of total maximum daily loads (TMDLs) that address the pollutants of concern, or (D) the discharge, or category of discharges within a geographic area, contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States.” 40 C.F.R. §§ 122.26(a)(1)(v) & 122.26(a)(9)(i)(C), (D).

On September 14, 2022, EPA exercised its authority under § 402(p)(2)(E) and (p)(6) and implementing regulations and issued a Preliminary Residual Designation Determination, which designated for NPDES permitting certain stormwater discharges from CII properties with one or more acre of impervious surface in the Charles, Mystic, and Neponset River watersheds.²³ This designation flowed from EPA’s finding that the designated stormwater discharges contribute to violations of water quality standards; are significant contributors to pollutants to waters of the United States; or require stormwater controls based on wasteload allocations that are part of TMDLs that address Phosphorus, nitrogen, and/or bacteria.

CWA and applicable State and Federal regulations provide the basis for the effluent limitations and other conditions in this NPDES general permit. See 33 USC § 1251 *et seq.*; 40 CFR §§ 122 and 125; and 314 CMR 3.00 and 4.00 *et seq.*

The regulations governing the EPA NPDES permit program are generally found at 40 CFR Parts 122, 124, 125, and 136. The standard conditions of the proposed CII GP are based on 40 CFR § 122.41 and consist primarily of management requirements common to all permits.

2.2. Technology-Based Requirements

40 CFR § 125.3 establishes criteria and standards for the imposition of technology-based treatment requirements in NPDES permits under § 301(b) of the CWA, including the application of EPA-promulgated effluent limitations guidelines and standards (ELGs) and case-by-case determinations of effluent limitations under § 402(a)(1) of the CWA.

²³ See RDA Determination

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

Technology-based effluent limitations (TBELs) represent the minimum level of control that must be imposed under §§ 301(b) and 402 of the CWA to meet best practicable control technology currently available (BPT) for conventional pollutants and some metals, best conventional control technology (BCT) for conventional pollutants, and best available technology economically achievable (BAT) for toxic and non-conventional pollutants. 40 CFR § 125 Subpart A. This permit includes provisions aimed at reducing phosphorus, nitrogen, and bacteria. This CII GP regulates phosphorus, a non-conventional pollutant, as an indicator parameter for all regulated pollutants. See Section 4.3.

EPA has not promulgated ELGs for those discharges authorized by this CII GP. Therefore, as provided in § 402(a)(1) of the CWA, EPA established TBELs in this CII GP utilizing Best Professional Judgment (BPJ) to meet the above stated criteria for BAT described in § 304(b) of the CWA. This draft permit's TBELs take the form of best management practices ("BMPs").²⁴

40 CFR § 122.44(k) provides that permits may include BMPs to control or abate the discharge of pollutants when "[a]uthorized under § 402(p) of the CWA for the control of stormwater discharges," 40 CFR § 122.44(k)(2), when "[n]umeric effluent limitations are infeasible," 40 CFR § 122.44(k)(3), or when "[t]he practices are reasonable to achieve effluent limitations and standards or to carry out the purpose of the CWA," 40 CFR § 122.44(k)(4). This CII GP regulates stormwater discharges, as it is authorized to do under §§ 402(p)(2)(E) and (p)(6), by requiring the implementation of BMPs. Due to the variability associated with stormwater discharges, EPA has determined the use of BMPs is the most appropriate technology to regulate the discharges of stormwater from CII sites. EPA has determined that the BMPs in this CII GP permit are reasonably necessary to carry out the purposes and intent of the CWA, to protect water quality, and to ensure permitted stormwater discharges meet WQS. The BMPs in this CII GP are stormwater training and onsite chemical application management. See Sections 2.2.1 and 2.2.2 in the draft CII GP.

To determine BAT pursuant to BPJ, EPA considers the following factors: the age of equipment and facilities involved; the process employed; the engineering aspects of the application of various types of control techniques; process changes; the cost of achieving such effluent reduction; and non-water quality environmental impact (including energy requirements). CWA § 304(b); 40 CFR § 125.3(d). EPA has "considerable discretion" in weighing these factors. *Tex. Oil & Gas Ass'n v. EPA*, 161 F.3d 923, 928 (5th Cir. 1998); *NRDC v. EPA*, 863 F.2d 1420, 1426 (9th Cir. 1988). Ultimately, when setting BAT, EPA's consideration of the required factors is governed by a reasonableness standard. *BP Exploration & Oil, Inc. v. EPA*, 66 F.3d 784, 796 (6th Cir. 1995), citing *Am. Iron & Steel Inst. v. EPA*, 526 F.2d 1027, 1051 (3d Cir. 1975), *modified in other part*, 560 F.2d 589 (3d Cir. 1977).

²⁴ EPA uses BMPs to capture any and all relevant best practices to manage stormwater when it refers to the regulations. EPA may also refer to certain BMPs as stormwater control measures ("SCM") in this Draft Permit or fact sheet. See 40 C.F.R. § 122.2.

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

To determine BCT pursuant to BPJ, EPA considers the following factors: the reasonableness of the relationship between the costs of attaining a reduction in effluent and the effluent reduction benefits derived; the comparison of the cost and level of reduction of such pollutants from the discharge from publicly owned treatment works to the cost and level of reduction of such pollutants from a class or category of industrial sources; the age of equipment and facilities involved; the process employed; the engineering aspects of the application of various types of control techniques; process changes; and non-water quality environmental impact (including energy requirements). CWA § 304(b); 40 CFR § 125.3(d).

To determine BPT pursuant to BPJ, EPA considers the following factors: the total cost of application of technology in relation to the effluent reduction benefits to be achieved from such application; the age of equipment and facilities involved; the process employed; the engineering aspects of the application of various types of control techniques; process changes; and non-water quality environmental impact (including energy requirements). CWA § 304(b); 40 CFR § 125.3(d).

In establishing a BAT or BCT TBEL for phosphorus, EPA must determine limits based on use of the most effective pollution control technologies that are technologically and economically achievable, and that will result in reasonable progress toward eliminating discharges of toxic and non-conventional pollutants. EPA also considers the “appropriate technology for the category or class of point sources of which the applicant is a member, based upon all available information,” and also “any unique factors relating to the applicant.” 40 CFR § 125.3(c)(2). EPA’s consideration of each of the factors in 40 CFR § 125.3(d) supports its decision to mandate BMPs as the appropriate BAT/BCT/BPT for controlling stormwater pollution from designated CII sites. In particular, in EPA’s view, the costs of attending stormwater training and onsite chemical application management are economically achievable and can reasonably be borne by owners and operators of CII sites with designated stormwater discharges. EPA believes that, under a BCT analysis, the cost of effluent reduction through the TBELs is reasonable in light of the benefits. Cleaner water has many benefits beyond the ecological, including to human health, recreation, and property values. EPA has also considered, under a BPT analysis, the total cost of the application of these technologies, stormwater training and onsite chemical application management, in relation to the effluent reduction achieved.

EPA believes that it is not appropriate at this time to require a single design or operational standard for all CII facilities which discharge stormwater; this permit instead establishes a framework for each Permittee to develop and implement of a site-specific SPCP. This framework provides the necessary flexibility to address the stormwater pollution associated with the impervious cover that is addressed by this permit, while ensuring procedures to prevent stormwater pollution on a given CII site are appropriate given the age of equipment and facilities involved, processes employed, engineering aspects, functions, costs of controls, and non-water quality environmental impacts (as discussed in 40 CFR 125.3). This approach

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

allows flexibility to establish controls which can appropriately address different sources of pollutants on different CII parcels.

TBELs in this CII GP are expressed as requirements for implementation of effective BMPs. 40 CFR § 122.44(k). Section 2.2 of the CII Draft Permit requires all Permittees to develop and implement minimum BMPs, such as stormwater training and onsite chemical application management. These requirements, together, ensure that the BAT/BCT/BPT standard is met.

The minimum BMPs specified in this CII GP represent common practices that can be implemented by most CII facilities. Dischargers have flexibility in designing BMPs in accordance with Section 2.2 of the CII GP.

2.3. Water Quality-Based Requirements

CWA Section 301(b)(1)(C) and its implementing regulations require development of water quality-based limitations (“WQBELs”) when TBELs alone will not achieve applicable water quality standards. 40 CFR § 122.44(d) provides a framework for determining where additional limitations are needed to protect water quality and a framework for setting appropriate WQBELs in the permit. Commensurate with the approach for developing WQBELs in 40 CFR § 122.44(d)(1) Accordingly, this permit includes requirements “necessary to achieve water quality standards established under § 303 of the CWA, including State narrative criteria for water quality.” 40 CFR 122.44(d)(1). Specifically, this permit includes limitations that “control all pollutants or pollutant parameters which ... are or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.” *See* 40 CFR § 122.44(d)(1)(i).

As stated in EPA’s Preliminary Residual Designation Determination, “In EPA’s technical and scientific judgment, based on careful consideration of record information, controlling nutrients and bacteria in stormwater discharges from developed lands in all three watersheds is necessary to meet water quality standards and TMDL WLAs.” This CII GP includes requirements to ensure that the permitted discharges are controlled as necessary to protect water quality and meet water quality standards. As discussed below, EPA has determined that, if they were not subject to these water quality-based limitations (WQBLs) in the CII GP permit, the specified discharges would not meet standards, i.e., they would contribute to exceedances of water quality standards and not sufficiently protect water quality. *See* CWA 402(p)(2)(E) and (p)(6); 40 CFR 122.26(a)(9)(i)(D).

Based on its scientific and technical judgment, EPA has determined that the following reductions of Phosphorus, as an indicator pollutant, from CII sites are necessary to meet water quality standards:

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

- Charles River Watershed: 65% reduction of Phosphorus;
- Mystic River Watershed: 62% reduction of Phosphorus; and
- Neponset River Watershed: 60% reduction of Phosphorus.

Part 2.1.1. of the CII GP requires dischargers subject to the permit to implement a Stormwater Pollution Control Plan (SPCP), which includes the implementation of SCMs, among other requirements. A Permittee's compliance with Part 2.1.1. constitutes compliance with the WQBLs contained in this CII GP, including the aforementioned reductions of Phosphorus. EPA believes that Permittees' compliance with the requirements of Part 2.1.1. will reasonably ensure that covered discharges are controlled as necessary to meet water quality standards and protect water quality.

2.3.1. Consideration of Standards in Massachusetts

The Massachusetts Surface WQs and implementation policy refer to published *NRWQC* and other sources for the majority of parameters included in the proposed CII GP.²⁵

Massachusetts Surface WQs also contain narrative standards for some parameters included in the proposed CII GP, rather than numeric WQC. For parameters with no current State numeric WQC or *NRWQC*, EPA considered the best available information in establishing water quality-based limitations for this general permit that meet narrative WQs.

Provisions in the Massachusetts Surface WQs developed under § 303(c) of the CWA and 40 CFR § 131, and approved by EPA, provide minimum criteria to ensure designated uses are attained and maintained for uses and classes of waters determined by the States. These water quality criteria are found in 314 CMR 4.00, Massachusetts Surface Water Quality Standards. EPA included certain non-numeric criteria that are directly applicable to the types of discharges covered by the CII GP as additional requirements. EPA Region 1 routinely includes non-numeric water quality requirements in NPDES permits and many are required in State Surface Water Discharge and Federal NPDES in Massachusetts.

Further, the CWA establishes a goal "that the discharge of toxic pollutants in toxic amounts be prohibited" (33 USC §1251(a)(3)). State water quality standards contain narrative requirements for toxics control at 314 CMR 4.05(5)(e) for Massachusetts. EPA has included several non-numeric requirements to ensure that discharges covered by this general permit do not violate State WQs for toxics.

In combination with numeric (i.e., chemical-specific effluent limitations) and non-numeric (i.e., SCMs) limitations and requirements included in this general permit, EPA determines these

²⁵ *Massachusetts Water Quality Standards Implementation Policy for the Control of Toxic Pollutants in Surface Waters*. February 23, 1990. Also, EPA's *National Recommended Water Quality Criteria: 2002* EPA-822-R-02-047 (November 2002) as referenced in 314 CMR 4.05(5)(e)

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

requirements are necessary to ensure discharges covered under this general permit attain and maintain WQSs and protect water quality. EPA has determined that narrative requirements are consistent with State WQSs and are sufficient to ensure that discharges covered by this general permit do not contribute to violations of State WQSs for toxics. However, the State may impose additional requirements as a condition of State certification if necessary to meet State WQSs.

2.4. Anti-Backsliding

A NPDES permit may not be renewed, reissued, or modified with less stringent limitations or conditions than those contained in a previous NPDES permit unless in compliance with the anti-backsliding requirements of the CWA. CWA §§ 402(o) and 303(d)(4) and 40 CFR § 122.44(l)(1 and 2). Effluent limitations based on BPJ, water quality (i.e., WQBELs), and CWA § 401 certification requirements must also meet the anti-backsliding provisions found at §§ 402(o) and 303(d)(4) of the CWA. There are a limited number of defined exceptions to this prohibition under CWA § 402(o)(2). Certain less stringent effluent limitations may also be independently allowed if the relaxation is consistent with the provisions of CWA § 303(d)(4).

The proposed CII GP is the first NPDES permit for the covered discharges and therefore complies with the anti-backsliding requirements of the CWA.

2.5. Anti-Degradation

Federal regulations found at 40 CFR § 131.12 require that all existing uses in the receiving waters, along with the level of water quality necessary to protect those existing uses, are attained and maintained. The conditions of the proposed CII GP reflect the goal of the CWA and EPA to attain and maintain WQSs. The proposed CII GP applies to already-existing discharges and, over time, aims to reduce those discharges as well as restricting discharges from new impervious cover to match predevelopment discharge conditions, see Section 5.1.2(A)(c and d). EPA predicts that the CII GP will improve water quality over time and thus anti-degradation issues will not be implicated. The environmental regulations pertaining to State anti-degradation policies, which protect the State's surface waters from degradation of water quality, are found in Massachusetts Water Quality Standards 314 CMR 4.04 Anti-degradation Provisions.

2.6. Section 401 Certification

EPA may not issue a permit unless the State Water Pollution Control Agency with jurisdiction over the receiving water(s) either certifies that the effluent limitations contained in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate the State WQSs, or the State waives, or is deemed to have waived, its right to certify. See 33

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

U.S.C. § 1341(a)(1). Regulations governing state certification are set forth in 40 CFR § 124.53 and § 124.55. EPA has requested permit certification by the State pursuant to 40 CFR § 124.53.

If the State believes that conditions more stringent than those contained in the Draft Permit are necessary to meet the requirements of either CWA §§ 208(e), 301, 302, 303, 306 and 307, or applicable requirements of State law, the State should include such conditions in its certification and, in each case, cite the CWA or State law provisions upon which that condition is based. Failure to provide such a citation waives the right to certify as to that condition. EPA includes properly supported State certification conditions in the NPDES permit. Reviews and appeals of limitations and conditions attributable to State certification shall be made through the applicable procedures of the State and may not be made through EPA’s permit appeal procedures of 40 CFR Part 124.

In addition, the State should provide a statement of the extent to which any condition of the Draft Permit can be made less stringent without violating the requirements of State law. Since the State’s certification is provided prior to final permit issuance, any failure by the State to provide this statement waives the State’s right to certify or object to any less stringent condition.

It should be noted that under CWA § 401, EPA’s duty to defer to considerations of State law is intended to prevent EPA from relaxing any requirements, limitations or conditions imposed by State law. Therefore, “[a] State may not condition or deny a certification on the grounds that State law allows a less stringent permit condition.” 40 CFR § 124.55(b). EPA regulations pertaining to permit limitations based upon WQSs and State requirements are contained in 40 CFR §§ 122.4(d) and 122.44(d).

Section 3. Description of the Receiving Waters

This draft permit is applicable to the Charles, Mystic, and Neponset River Watersheds, which encompass a total of 506 square miles or 323,840 acres and are situated wholly in Massachusetts. These three watersheds are located in the metropolitan area of Boston and have a total of 70 municipalities within their boundaries. In the sections below, each watershed is described by its land use characteristics, the anticipated estimated number of sites covered by this draft CII GP.²⁶

3.1. Charles River Watershed

The entire Charles River drains a watershed area of 310 square miles and encompasses at least part of 35 communities. The Upper Charles River upstream of the Watertown Dam drains an

²⁶ See the Preliminary Determination for more information on impairments to the watersheds and existing restorations plans, like TMDLs, at pgs 7-17 and Attachments 2, 3 and 4.

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

area of 268 square miles, while the Lower Charles River downstream from the Watertown Dam to Boston Harbor drains an additional 42 square miles.

The watershed as a whole has 21.9% of its area covered with impervious land cover, 26.3% of which is private properties of commercial, industrial, and institutional land use and 10.8% of which are multi-family residential developments. EPA estimates that the number of CII sites that meet the eligibility requirements under this Draft Permit, as described in Section 1.5, will be around 2,295 and cover 7,720 acres of impervious cover. EPA estimates that there are 98 multi-family development sites with eight or more units that meet the eligibility requirements under this Draft Permit, as described in Section 1.5, and cover 591 acres of impervious cover. For both, CII and multifamily sites with more than 8 units, the numbers of sites and associated impervious cover acres expected to be covered under this Draft Permit are estimates and are subject to change.

3.2. Mystic River Watershed

The Mystic River watershed is a 76-square mile watershed that drains into Boston Harbor. It encompasses all or portions of 21 urban and suburban communities. The outlet of Lower Mystic Lake is recognized as the beginning of the Mystic River. The Aberjona River in the upper watershed, Horn Pond Brook in Woburn, Mill Brook in Arlington, and Alewife Brook in Cambridge contribute to the flows of the Mystic River. The river flows southeast and joins the Malden River. In 1966, the Amelia Earhart Dam was built on the Mystic River just downstream from its confluence with the Malden River. This dam separates the estuarine and freshwater river portions.

The watershed as a whole has 43% of its area covered with impervious land cover, 27% of which are private properties of commercial, industrial, and institutional land use and 17% of which are multi-family residential developments. EPA estimates that the number of CII sites that meet the eligibility requirements under this Draft Permit, as described in Section 1.5, will be around 1,035 and cover 4,586 acres of impervious cover. EPA estimates that there are 68 multi-family development sites with eight or more units that meet the eligibility requirements under this Draft Permit, as described in Section 1.5, and cover 195 acres of impervious cover. For both, CII and multifamily sites with more than 8 units, the numbers of sites and associated impervious cover acres expected to be covered under this Draft Permit are estimates and are subject to change.

3.3. Neponset River Watershed

The Neponset River watershed is located in eastern Massachusetts within the metropolitan Boston area and encompasses all or portions of 14 communities. The Neponset River is 29.5 miles long and drains approximately 120 square miles. At its most downstream point, the Neponset River is tidally influenced for three miles from Baker Dam in Milton to its

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

confluence with Dorchester Bay in Boston Harbor (Massachusetts Department of Environmental Protection, 2012).

The watershed as a whole has 21% of its area covered with impervious land cover, 24% of which are private properties of commercial, industrial, and institutional land use and 11% of which are multi-family residential developments. EPA estimates that the number of CII sites that meet the eligibility requirements under this Draft Permit, as described in Section 1.5, will be around 845 and cover 2,916 acres of impervious cover. EPA estimates that there are 21 multi-family development sites with eight or more units that meet the eligibility requirements under this Draft Permit, as described in Section 1.5, and cover 66.5 acres of impervious cover. For both, CII and multifamily sites with more than 8 units, the numbers of sites and associated impervious cover acres expected to be covered under this Draft Permit are estimates and are subject to change.

Section 4. Description of Stormwater, Regional Stormwater Loading Rates, and Selection of Indicator Parameter

4.1. Description of Stormwater

In New England generally, and in Massachusetts especially, stormwater is a substantial contributor to exceedances of water quality standards in many waterbodies. In general, the amount of impervious surface on a property increases the volume of stormwater discharged, which increases the loading of pollutants to waters of the U.S., including Phosphorus, Nitrogen, and bacteria (Shaver, Horner, Skupien, May, & Ridley, 2007) (Center for Watershed Protection, 2003) (Schueler, 2011) (Chen, Theller, Gitau, Engel, & Harbor, 2017). Studies have demonstrated that when impervious cover within a watershed exceeds 10%, water quality is negatively impacted (Booth 2000).

In the Charles, Mystic, and Neponset River watersheds, substantial percentages of land areas are mapped as impervious (22% of the land area in the Charles River watershed; 43% of the land area in the Mystic River watershed; and 21% of the land area in the Neponset River watershed). (MassGIS, 2016). All three watersheds contain impervious surface totals over thresholds (e.g., greater than ten percent impervious surface) that have been linked to water quality impairments due to stormwater discharges (Center for Watershed Protection, 2003) (King, Maker, Kazyak, & Weller, 2011) (Jacobson, 2011) (Roy & Schuster, 2009) (National Research Council, 2008).

The Charles, Mystic, and Neponset River Watersheds are also the most urbanized watersheds in Massachusetts and are wholly encompassed in what is considered to be the Greater Boston Metropolitan Area. Stormwater in urban areas contains a variety of pollutants that negatively impact receiving waters. These discharges, whether entering directly from a site, or through

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

public or private separate storm sewer systems, have been shown to cause or contribute to excursions of water quality standards for decades (see Massachusetts 303(d) lists).

EPA identified common groups of pollutants present or likely present in stormwater runoff as part of its development of the Region 1 MS4 permits and through other studies. The pollutants commonly encountered in stormwater runoff are nutrients (Phosphorus and Nitrogen), Bacteria, and Pathogens. Additional pollutants in stormwater commonly contributing to impairments, including in the Charles, Mystic, and Neponset River Watersheds, are Chloride, Total Suspended Solids, Metals, Oil and Grease (Hydrocarbons). The petitions that EPA received for residual designation in the Charles, Mystic, and Neponset River Watersheds specifically identified nutrient and bacterial pollution in all three watersheds. Accordingly, EPA describes sources and concentrations of nutrients (Phosphorus and Nitrogen) and Bacteria and Pathogens in more detail in the following sections.

4.1.1. Phosphorus

The primary sources of Phosphorus in stormwater are (*See e.g.*, (Carpenter, et al., 1998) (Lin, 2004) (Massachusetts Department of Environmental Protection, 2007b) (Massachusetts Department of Environmental Protection, 2011) (Waschbusch, 2000) (Mattson & Isaac, 1999)):

- Wash-off of Phosphorus-based lawn fertilizers used in residential areas, parks, cemeteries, and golf courses and fertilizers used by agriculture;
- Wash-off of organic matter (such as pollen and leaves) and pet wastes that are deposited on impervious surfaces;
- Atmospheric deposition;
- Soil erosion; and
- Leaching from failed or inadequate septic systems.

The median nutrient concentration of total Phosphorus in stormwater is 0.25 mg/L across the New England region, based on data available in NSQD (USEPA, 2014) (Pitt, Maestre, & Morquecho, 2004). An analysis of data nationwide found the concentration of Phosphorus during storms is very consistent with a mean Event Mean Concentration (EMC) of 0.30 mg/L (Center for Watershed Protection, 2003).

While EMCs of Phosphorus in stormwater are important, it is more useful to define the impacts of stormwater discharges in terms of average annual load given the cumulative impacts of nutrients on downstream waterbody segments. The total Phosphorus load delivered from stormwater sources in any given area is controlled by the precipitation patterns, the amount of impervious surface in that drainage area, and the land use type of that drainage area. A hydrologic response unit analysis carried out by EPA for the Charles, Mystic, and Neponset River Watersheds demonstrated that average annual Phosphorus loading (export coefficient/rate) from impervious cover ranges from between 1.39 to 2.38 pounds per

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

acre per year of total Phosphorus based on land use type (Table 1 on page 31), and 0.03 and 0.43 pounds per acre per year from pervious areas depending on infiltration rate of the pervious area (details in Section 4.2).

4.1.2. Nitrogen

The primary sources of nitrogen in stormwater are (*See, e.g.*, (Carpenter, et al., 1998) (Chen, Theller, Gitau, Engel, & Harbor, 2017) (Jani, Jang, Lusk, & Toor, 2020) (Moore, Johnston, Smith, & Milstead, 2011) (Shaver, Horner, Skupien, May, & Ridley, 2007) (Driscoll, et al., 2003) (National Research Council, 2000)):

- Atmospheric deposition including mobile source deposition (deposition from combustion engines);
- Wash-off of fertilizers;
- Nitrogen attached to eroded soils and stream banks;
- Organic matter (such as pollen and leaves) and pet wastes that are deposited on impervious surfaces; and
- Leaching of nitrate from functioning septic systems.

The median nutrient concentration of total nitrogen seen in stormwater is 2.0 mg/L across the New England region, based on the data available in NSQD (USEPA, 2014) (Pitt, Maestre, & Morquecho, 2004). Similar levels of total nitrogen were seen in stormwater discharges in the Chesapeake region (Schueler, 2011) as well as across the nation, with Lin reporting a national average EMC of 2.42 mg/L for nitrogen (TKN + NO₂ and NO₃) (Lin, 2004). While the concentrations of nitrogen in stormwater may appear low when compared to other nitrogen sources (e.g., sewage overflow), it has been shown that stormwater from impervious surfaces, particularly from roads, is the main source of nitrogen delivered to urban streams due to the large amounts of pollutants transported by the significant stormwater volume that would otherwise be infiltrated. *See, e.g.*, (Wang, Ma, Zhang, & Shen, 2022) (Jacobson, 2011) (Jani, Jang, Lusk, & Toor, 2020).

4.1.3. Bacteria/Pathogens

Stormwater discharged to recreational waters such as beaches and lakes or stormwater that comes into contact with shellfish beds can impair the water's designated uses, which may include swimming, boating, and shellfish propagation. Bacteria in stormwater also poses a public health risk from exposure to pathogen contamination. Several indicator organisms may be used to evaluate the presence of harmful pathogens in stormwater: fecal coliform, E. coli, Streptococci, and Enterococci (US EPA, 1999). Primary sources of pathogens in stormwater runoff are (*See e.g.*, (Massachusetts Department of Environmental Protection, 2018) (Massachusetts Department of Environmental Protection, 2002) (Massachusetts Department of Environmental Protection, 2007a) (Lin, 2004)):

- Leaky sanitary sewer lines;

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

- Sanitary sewer cross-connections;
- Wash-off of wildlife and pet excrement; and
- Failing septic systems.

Bacteria and pathogen concentrations in stormwater vary greatly with total E. coli concentrations ranging from 10 colonies per 100 ml to 35,000 colonies per 100 ml across the New England Region, based on data available in NSQD (USEPA, 2014) (Pitt, Maestre, & Morquecho, 2004). As a point of reference, to meet water quality standards, Massachusetts Class B waters cannot exceed 235 colonies per 100 ml during the bathing season due to the threat to human health.

Generally, bacteria and pathogen concentrations increase with increased impervious surface and increased urbanization (Mallin, Johnson, & Ensign, 2009). Bacteria concentrate on impervious surfaces during dry weather and are readily washed off into receiving waterbodies during storm events, a process that would otherwise not occur if the land was pervious instead of impervious.

4.1.4. Other Stormwater Pollutants (Chloride, Total Suspended Solids, Metals, Oil and Grease (Hydrocarbons))

4.1.4.A. Chloride

Chlorides are salt components found in runoff. The primary sources of chloride in urban stormwater are chloride-based road deicing chemical application during winter months on roadways, parking lots and other impervious surfaces, chloride-based road deicing stockpile runoff, and atmospheric deposition. Chloride concentrations in urban runoff during the deicing season can cause urban streams to violate acute water quality criteria (EPA 1988; Corsi et al. 2010). The 2022 Massachusetts Integrated Report lists chloride as the cause of impairment for segments in the Mystic River watershed. However, research has demonstrated that land uses with impervious cover explain increases in concentrations of salt in surface water. Further, salt application rates also significantly influence observed increases of salt concentrations in rivers and streams (Corsi SR, 2015). Given the high percentages of impervious surfaces in the Charles, Mystic, and Neponset River Watersheds, the risk of elevated chloride concentrations in waters and therefore likelihood of impairments is high. In fact, the 2022 Massachusetts 303(d) has segments in the Mystic and the Charles River Watershed listed as impaired for Chloride. Elevated chloride concentrations in waterbodies can alter the composition and function of phytoplankton, zooplankton, macroinvertebrate, and fish communities. (Jones DK, 2017).

4.1.4.B. Total Suspended Solids, Metals, Oil and Grease (Hydrocarbons)

Sediment, measured as total suspended solids (“TSS”) and/or turbidity, is one of the most common and potentially damaging pollutants found in urban runoff. Sediment provides a

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

pathway for the accumulation, transport, and storage of other pollutants, such as nutrients and metals (US EPA, 1999) (Center for Watershed Protection, 2003). Elevated levels of solids increase turbidity, reduce the penetration of light at depth within the water column, and limit the growth of desirable aquatic plants. Solids that settle out as bottom deposits contribute to sedimentation and can alter and eventually destroy habitat for fish and bottom-dwelling organisms. Turbidity can exert impacts on aquatic biota, such as the ability of submerged aquatic vegetation to receive light and the ability of fish and aquatic insects to use their gills. The primary sources of sediment in stormwater runoff include wash-off of particulate material from impervious surfaces (including driveways, parking lots, and rooftops), wash-off from lawns and landscaped areas, wash-off from construction activities, and stream bank erosion.

Metals are among the most common stormwater pollutant components. While some metals are essential nutrients at low levels for humans, animals, plants, and microorganisms, they become toxic at higher levels that may be present in urban stormwater runoff (Center for Watershed Protection, 2003). Metals like lead, zinc, copper, and cadmium are associated with vehicle wear, tire wear, motor oil, grease, and rust, which are washed off from impervious areas like roadways, driveways and parking lots and enter waterbodies in stormwater runoff. When metals are biologically available at toxic concentrations, they can affect the survival, reproduction, and behavior of an organism. The primary sources of metals in stormwater include wash-off of material deposited on impervious surfaces from corrosion of automobiles and bridges, atmospheric deposition, wash off from industrial areas, and soil erosion.

Oil and Grease is not a single chemical constituent but includes a large range of organic compounds that can be both petroleum-related (e.g., hydrocarbons) and non-petroleum (e.g., vegetable and animal oils and greases, fats, and waxes). These compounds have varying physical, chemical, and toxicological properties. Generally, oils and greases in surface waters either float on the surface, are solubilized or emulsified in the water column, adsorb onto floating or suspended solids and debris, or settle on the bottom or banks. Oil and grease, or certain compounds within an oil and grease mixture, can be lethal to fish, benthic organisms, and water-dwelling wildlife (Center for Watershed Protection, 2003). Oil and grease is used as a surrogate for all hydrocarbons because it is the most often measured hydrocarbon parameter. Sources of high concentrations of oil and grease in stormwater runoff are similar to those that contribute high metals concentrations, including wash-off of particulate material from impervious surfaces, wash-off from vehicle maintenance areas and gas stations, and illicit dumping to storm drains.

According to the 2022 Massachusetts List of Integrated Waters, sediments, metals, and oil and grease/hydrocarbons are the cause of impairments to designated uses in the Charles, Mystic, and Neponset watersheds. Water quality impairments due to sediment, metals or oil and grease (hydrocarbons) can include (but are not limited to) impairments identified as TSS, total solids, clarity, turbidity, any heavy metal, PAHs, toxicity, hydrocarbons, and visible sheen.

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

4.2. Stormwater Loading Rates and Hydrologic Response Units

EPA, states, and the scientific community have effective tools for characterizing the mass load of nutrients in stormwater. Nutrient loading to waterbodies is often characterized not only through EMCs but also through export coefficients (i.e., export rates) from land uses with similar characteristics in areas with similar rainfall patterns which represents the total amount (expressed in pounds) of either nitrogen or Phosphorus delivered annually to a system from a defined area (expressed in acres). Annual export coefficients for nutrients are particularly useful at characterizing stormwater because of the cumulative effects nutrients have on receiving water bodies, including effects on downstream receiving waters. Receiving waters respond to the overall annual load of nutrients they receive, not just a snapshot in time of the stormwater nutrient concentration. The results of this can be seen in the impairments in each watershed, with downstream reaches exhibiting the higher levels of degradation due to excess nutrients which accumulate as the tributaries in each watershed and deliver nutrient loads to the main stem of each river (Massachusetts Department of Environmental Protection, 2021 and Section 3).

A set of unique Hydrologic Response Units (“HRUs”) was developed based on the three Watersheds’ land use, land cover, and soil characteristics. Each HRU represents unique landscape units based on common soils, land cover, and slope characteristics.

In order to characterize stormwater quality from the Charles, Mystic, and Neponset River Watersheds, HRUs were used to develop pollutant load export rates for: i) Total Phosphorus (TP), ii) Total Nitrogen (TN), iii) Total Suspended Solids (TSS), iv) Zinc (Zn) and v) E. coli (most probable number [mpn]). For the Neponset and Charles River Watersheds these pollutant loading rates are generated for the time period (1992-2022). For the Mystic River Watershed these pollutant loading rates are generated for the Mystic Alternative Restoration Plan, which reflects a modeling time period between 2007 and 2016. The final pollutant loading rates in this draft CII GP the pollutant loading rates developed for the Neponset and the Charles River Watershed (Table 1), as these take into consideration the longer time period for continuous simulation of precipitation and runoff dynamics. EPA assigned a land use-specific Pollutant Load Export Rate (“PLER”) for each property type based on the land use activities as described in the tax code descriptions.

Table 1 demonstrates that impervious surfaces can deliver up to ten times the annual load of Phosphorus via stormwater as opposed to pervious areas.

Table 1. Annual average (1992-2022) unit area stormwater loading rates with loading rates relevant for this permitting effort for Commercial Industrial, and Institutional land uses in **bold**.

HRU Description	FLOW (MG/ac/yr)	TP (lb/ac/year)	TN (lb/ac/year)	E. coli (mpn/ac/year)
Paved Agriculture	1.09	1.50	11.44	1.14E+11

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

Paved Commercial-Industrial-Institutional	1.09	1.80	15.25	9.59E+09
Paved Forest	1.09	1.50	11.44	2.88E+11
Paved High Density Residential	1.09	2.38	14.26	1.95E+12
Paved Medium Density Residential	1.09	1.97	14.26	1.95E+12
Paved Open Land	1.09	1.50	11.44	2.88E+12
Paved Transportation	1.09	1.39	10.26	2.28E+07
Agriculture-A	0.01	0.10	0.59	3.08E+09
Agriculture-B	0.07	0.43	2.49	1.18E+10
Agriculture-C	0.15	0.79	5.20	2.52E+10
Agriculture-D	0.28	1.38	7.97	4.43E+10
Developed OpenSpace-A	0.01	0.03	0.26	7.76E+10
Developed OpenSpace-B	0.07	0.11	1.11	2.97E+11
Developed OpenSpace-C	0.15	0.21	2.33	6.35E+11
Developed OpenSpace-D	0.28	0.37	3.64	1.12E+12
Forest-A	0.01	0.03	0.12	7.76E+09
Forest-B	0.07	0.11	0.54	2.97E+10
Forest-C	0.15	0.21	1.16	6.35E+10
Forest-D	0.28	0.37	1.88	1.12E+11
OpenSpace-A	0.01	0.03	0.26	7.76E+10
OpenSpace-B	0.07	0.11	1.11	2.97E+11
OpenSpace-C	0.15	0.21	2.33	6.35E+11
OpenSpace-D	0.28	0.37	3.64	1.12E+12
Water	-	-	-	-

4.3. Indicator Parameter

Due to the nature of stormwater and the pollutants it commonly contains, EPA determined that in this case it would be both impractical and unnecessary to attempt to evaluate and limit every possible individual pollutant among these common groups of pollutants. As a result, EPA determined that limiting “indicator parameters” in accordance with 40 CFR § 122.44(d)(1)(vi)(C) is reasonable and sufficiently stringent to carry out the provisions of the CWA and ensure compliance with applicable WQs as required by CWA § 401(a)(2) and 40 CFR § 122.4(d).

Accordingly, this general permit identifies Phosphorus as an indicator parameter and identifies Phosphorus, nitrogen, bacteria, and pathogens as the pollutants which are intended to be controlled using the indicator parameter effluent limitations. This fact sheet sets forth the basis for the Phosphorus effluent limitations and finds that compliance with the Phosphorus effluent limitations will result in controls on the other pollutants of concern which are

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

sufficient to attain and maintain applicable WQSs. EPA has determined that no effluent and ambient monitoring is necessary to evaluate whether the limitations on the indicator parameters meet applicable WQSs, because EPA has carried out extensive modeling on the cumulative performance of the SCMs in Appendix F of the draft CII GP. The general permit also contains a reopener clause allowing EPA to modify or revoke and reissue the permit if the limitations on the Phosphorus as an indicator parameter no longer attain and maintain applicable WQSs.

EPA selected an indicator parameter that: 1) is more common (i.e., more frequently detected in stormwater from CII sites and other municipal stormwater); 2) exhibits limiting physical and/or chemical characteristics with respect to susceptibility to treatment by the proposed stormwater control measures in this draft CII GP; 3) exhibits physical and/or chemical characteristics strongly representative of other pollutants, which ensures that other pollutants with similar characteristics would also be removed by stormwater control measures; and is already represented in other permitting frameworks, including the MS4 permitting framework. Therefore, effluent limitations established to control the indicator parameter also control the pollutants the indicator parameter represents.

In many other instances for discharges covered by other permits, EPA has identified an applicable subset of parameters as both common and indicative of the type(s) of treatment technology needed to ensure discharges comply with the limitations and conditions of these permits, or identified these parameters as gaps in information necessary to carry out the provisions of the CWA.

EPA has selected Phosphorus as the indicator parameter for stormwater for this draft CII GP regardless of whether this parameter is known present at a given site.

EPA can reasonably assume that bacteria and nitrogen would show similar patterns of increasing impact with increasing proportion of impervious surface because of New England's consistent stormwater pollutant loading patterns described above. Where there are impairments due to excess nitrogen in the tidal portions of all three watersheds, stormwater that reaches surface waters from parcels with a large amount of impervious surface is contributing a large amount of nitrogen to the receiving waterbodies and all downstream waterbodies, thus contributing to the impairments, i.e., WQS violations. Similarly, where there are impairments due to excess Phosphorus in freshwater portions of all three watersheds, stormwater that reaches surface waters from parcels with a large amount of impervious surface is contributing a large amount of Phosphorus to the receiving waterbody and all downstream waterbodies, contributing to the impairments, i.e., WQS violations. Bacteria impairments are ubiquitous throughout the Charles, Mystic, and Neponset watersheds, and stormwater that reaches an impaired surface water from parcels with a large amount of impervious surface contributes a large amount of bacteria to the receiving waterbody, thus contributing to the impairments, i.e., WQS violations.

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

Massachusetts WQSs have established narrative but not numeric criteria for Phosphorus and nitrogen. Massachusetts does, however, have numeric criteria for pH and dissolved oxygen (DO). Excess Phosphorus and nitrogen can cause a violation of these numeric criteria and cause nonattainment of the narrative criteria. In both marine and freshwater systems, excess nutrients result in degraded water quality, adverse impacts to ecosystems, and limits on the use of water resources (Center for Watershed Protection, 2003) (Shaver, Horner, Skupien, May, & Ridley, 2007) (Howarth & Marino, 2006) (USEPA, 2000) (USEPA, 2001). The most common forms of nutrient pollution are nitrogen and Phosphorus.

“When excessive levels of these chemical nutrients are introduced into a water system, algae populations rapidly multiply to nuisance levels. As populations “bloom” and die-off in quick succession, dead algae accumulate and decompose—their nutrient-laden remains further enriching the immediate environment, thereby perpetuating the eutrophication cycle. Increased rates of respiration and decomposition deplete the available dissolved oxygen in the water, threatening other plant and animal life in the system. When oxygen saturation levels drop below what is needed by fish and invertebrates to breathe, the waters become host to fish kills, red tides, and shellfish poisonings, events which can pose threats to human health as well.”

Upper Blackstone Water Pollution Abatement Dist. v. U.S. E.P.A., 690 F.3d 9, 11–12 (1st Cir. 2012).

As indicated above for the Charles River and the Mystic River, the causal relationship between excessive Phosphorus and nitrogen loads and water quality impairments is well understood. (See Section 13 References). Excess Phosphorus in the Neponset River system in the inland freshwater portions of the Neponset River and excess nitrogen in the marine portions of the Neponset River lead to increased algal and aquatic plant growth, which can lower dissolved oxygen in the water column, affect the pH of the water, increase the turbidity in the water column, and decrease the clarity of the water (Massachusetts Department of Environmental Protection, 2010b) (Massachusetts Department of Environmental Protection, 2004). The current 2018/2020 Section 303(d) list indicates 26 waterbody segments in the Neponset River watershed are impaired due to excess nutrients in the waterbody.

A MassDEP 2004 assessment report found widespread impairments in the Neponset River watershed due to excess nutrients with only one segment sampled between 2001 and 2003 found to have no nutrient related problems (Massachusetts Department of Environmental

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

Protection, 2004). Nutrient related issues throughout the Neponset River watershed have been linked to stormwater sources since 1994.²⁷

Therefore, EPA finds that regulation of total Phosphorus is appropriate for this CII GP due to the prevalence in stormwater sources and impact on the receiving waters, but also its value as an indicator parameter for other pollutants.

Section 5. Explanation of Discharge Limitations and Permit Requirements

The proposed CII GP would authorize discharges to waters of the United States within Massachusetts subject to limitations and requirements imposed pursuant to CWA §§ 301, 304, 306, 401 and 403, 33 USC §§ 1311, 1314, 1316, 1341 and 1343. The following sections describe the effluent limitations and requirements included in the proposed CII GP. The following sections address the following limitations:

Stormwater Pollution Control Plan

- Site and Contact Information
- Stormwater Pollution Prevention Responsibility
- Site Specific Pollutant Reduction Responsibility
- Storm Sewer System Map
- Stormwater Control Measures
- Pathways to Comply
- Reporting Requirements

Best Management Practices

- Onsite Chemical Application Management Plan
- Stormwater Training

5.1. Water Quality-Based Limitations for Stormwater

TMDLs and state narrative water quality criteria (WQC) are the primary bases for the WQBELs for existing sites in the proposed CII GP. Where applicable, EPA proposes to apply the TMDL-established requirements as WQBELs. In the absence of a TMDL, the narrative water quality criteria are interpreted to establish the limits.

The proposed CII GP's pollutant load limits are based on the watershed the site discharges to and the load coming off of the impervious cover on each existing CII site. EPA determined that setting load limits was an appropriate approach and in line with TMDL requirements. To

²⁷ The Neponset River Watershed 1994 Resource Assessment Report (Massachusetts Department of Environmental Protection, 1995) pp 8-1 through 8-10; Neponset River Watershed 2004 Water Quality Assessment Report (Massachusetts Department of Environmental Protection, 2010b) p 10; Neponset River Estuary ACEC Water Quality and Restoration Action Plan (Neponset River Watershed Association, 2014) pp 40-41.

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

calculate the load limit for each existing site, EPA first needed to determine the appropriate Phosphorus load reduction required for each watershed.

For the Charles River Watershed, the TMDLs state that the more developed lands (commercial, industrial, and high and medium density residential) are required to reduce total Phosphorus loads in stormwater by 65%. Therefore, this General Permit is setting a 65% reduction requirement for CII sites in the Charles River Watershed.

An alternative Restoration Plan was established for the Mystic River Watershed in 2020. The alternative Restoration Plan “estimated that to meet the selected chlorophyll-a water quality target for attaining water quality standards in the most impacted segment, the lower Mystic River will require a 67 percent reduction of stormwater Phosphorus loadings from the watershed. However, this estimate assumes all reduction would be achieved through stormwater control measures.”²⁸

Assuming that more point- and nonpoint source pollution control work would be achieved throughout the watershed, the alternate TMDL also established a load reduction that would be required under future conditions. “The stormwater load reductions required to meet water quality targets under future conditions (which account for baseline stormwater management, combined sewer overflows/sanitary sewer overflows controls and an estimate of associated reductions in internal loads) were between 59 and 62 % (USEPA 2020.)” EPA has chosen to adopt the maximum percent reduction necessary under future conditions as the threshold to achieve water quality standards, assuming that additional controls in the watershed expected under “future conditions” will be achieved. Therefore, this General Permit is proposing a 62% reduction requirement for CII sites in the Mystic River Watershed.

A pathogen TMDL for the Neponset River watershed was approved in 2002, and the river has several segments that are impacted for nutrient and nutrient-related impairments. While no nutrient or pathogen numeric limit exists in the watershed, EPA is interpreting the narrative water quality criteria to set the clear, specific, and measurable goal of reducing Phosphorus loads to the Neponset River Watershed by 60% from CII sites. This percent load reduction for existing CII sites in the Neponset River Watershed is consistent with the MS4 requirement of TP reductions from new development. The TP removal efficiency for the MS4 permit was chosen at 60% reflecting the fact that Phosphorus treatment-only BMPs are not as efficient at removing Phosphorus as they are at removing sediment (Tetra Tech Inc., 2010). For example, a biofiltration system designed with a capacity just over 0.5 inches of runoff (0.52 inches) would remove 60% of the Phosphorus load while 95% of the sediment load would be reduced through the same BMP installation. Gravel wetlands display approximately the same ratios, where 90% TSS removal requires a system designed with a capacity equal to 0.57 inches of runoff from impervious surfaces, which would result in a TP removal efficiency of over 60%.

²⁸ USEPA. (2020). Mystic River Watershed Alternative TMDL Development for Phosphorus Management - Final Report. EPA Contract No. EP-C-16-003 at pg. 5

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

Based on extensive modeling of infiltration-type SCMs, EPA has determined that a 60% load reduction represents the most effective stormwater treatment for a site undergoing retrofits. Based on the SCM modeling and associated SCM performance curves described in Appendix F of the Draft CII GP, EPA Region 1 has determined that for ten out of the 14 modeled structural SCMs, the point of inflection or “knee of the curve” for effective stormwater management occurs at 60% Phosphorus reduction. Furthermore, infiltration is among the most effective stormwater BMPs for controlling Phosphorus and bacteria in stormwater runoff. For this reason, EPA is proposing the numeric limit of 60% Phosphorus reduction from existing CII sites in the Neponset River Watershed. Even though the Neponset River does not currently have a TMDL for Phosphorus in place, the watershed does have a Bacteria and Pathogen TMDL. EPA believes that setting a 60% Phosphorus reduction target for CII sites in the watershed will result in an improved environmental outcome that addresses Phosphorus and Bacteria/Pathogen loads, as outlined in Section 4.3.

The Draft CII GP requires reductions in average annual Phosphorus load. The reduction efficiencies provided in the permit (Appendix F of the draft CII GP) are for long-term cumulative average annual Phosphorus loads and are not based on a storm-by-storm pollution reduction.²⁹

5.1.1. Compliance Schedule

According to 40 CFR § 122.47, a NPDES permit may, when appropriate, specify a schedule leading to compliance with the CWA and regulations. Massachusetts regulations for schedules of compliance can be found at 314 CMR 3.11(10).

EPA implements its NPDES permit compliance schedule regulations at 40 C.F.R. § 122.47 with guidance from a policy memorandum, [“Compliance Schedules for Water Quality-Based Effluent Limitations in NPDES Permits.” \(Hanlon 2007\)](#). Any NPDES permit compliance schedule must include an enforceable final effluent limitation and a date for its achievement that is within the timeframe allowed by the applicable State or federal law provision authorizing compliance schedules as required by CWA sections 301(b)(1)(C); 502(17); the Administrator’s decision in *Star-Kist Caribe, Inc.* 3 E.A.D. 172, 175, 177-178 (1990); and EPA regulations at 40 C.F.R. §§ 122.2, 122.44(d) and 122.44(d)(1)(vii)(A). Schedules must lead to compliance “as soon as possible.” 40 CFR § 122.47(a)(1). EPA must develop a record demonstrating that the actions in the compliance schedule are technically appropriate and have a reasonable certainty that if the Permittee completes all such steps and actions, the Permittee will eventually meet the permit’s WQBELs. That is, the compliance schedule steps should include all projects and

²⁹ Cumulative percent reductions in average annual Phosphorus loads, as required in this draft CII GP, account for the Phosphorus load reduced for each storm event that occurs throughout the year, while BMP performance databases provide data and statistical summaries of data for EMC reductions for a limited number of storm events and based on limited variation in design capacities.

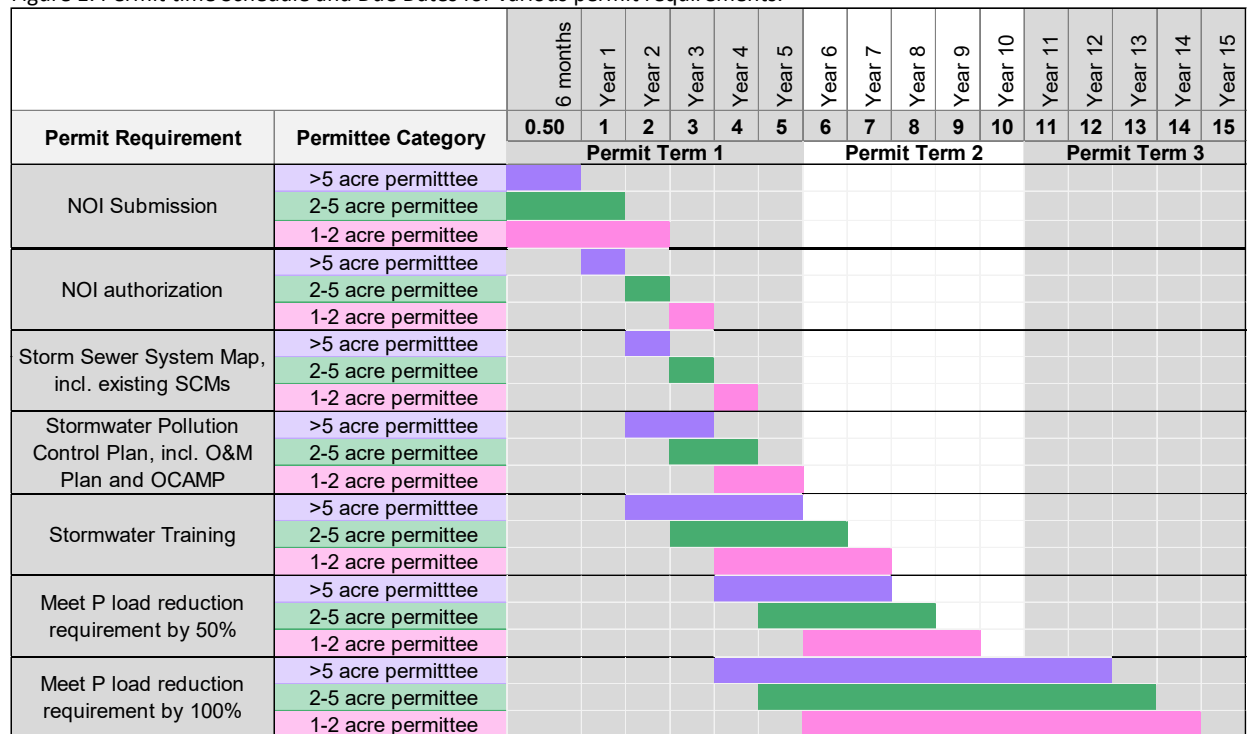
EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

actions necessary to lead to final WQBEL compliance. Compliance schedules that are longer than one year in duration must set forth interim requirements and dates for their achievement. 40 C.F.R. § 122.47(a)(3). “Factors relevant to a conclusion that a particular compliance schedule requires compliance with the WQBEL ‘as soon as possible,’ as required by 40 C.F.R. § 122.47(a)(1) include consideration of the steps needed to modify or install treatment facilities, operations or other measures and the time those steps would take.” (Hanlon 2007).

EPA is proposing a compliance schedule in the CII GP to allow Permittees up to 12 years to meet the newly established water quality-based Phosphorus reduction requirements if they are unable to do so at the time of authorization. Under this compliance schedule, the Permittee must develop and implement a Stormwater Pollution Control Plan (“SPCP”), with components as outlined in Part 2.1.1.B of the CII GP, to reduce stormwater discharges by the timeframes described in the CII GP.

After analyzing numerous successful stormwater management control implementation factors, it is EPA’s view that the proposed 12-year compliance schedule represents the time it will take for Permittees to develop and implement SPCPs and comply with the permit’s Phosphorus reduction requirements “as soon as possible.” 40 C.F.R. § 122.47(a)(1). EPA proposes to divide the SPCP work into interim enforceable deadlines as shown below in Figure 1 and as detailed in CII GP Draft Part 2.1.1.B:

Figure 1. Permit time Schedule and Due Dates for various permit requirements.



EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

In EPA's view, if Permittees meet the interim deadlines and milestones outlined in Draft CII GP Part 2.1.1.B, Permittees will make substantial progress reducing Phosphorus and will meet the WQBELs (i.e., the Phosphorus percent reductions). EPA is aware that the reduction of stormwater pollutants from existing impervious cover is a comprehensive and challenging undertaking for Permittees, and that meeting the WQBELs immediately may be challenging. This process will likely include establishing funding, analyzing site suitability for structural and non-structural SCMs, and/or potentially coordinating regionalized work on MS4 or other private CII properties if offsite Phosphorus reduction is being considered as a treatment option. EPA does not anticipate that the installation of structural SCMs and nonstructural SCMs alone will take the amount of time allocated in the proposed schedule, but instead is cognizant of other factors that may affect how soon permittees meet the WQBELs.

EPA anticipates that Permittees will take advantage of the suite of structural and nonstructural creditable SCMs that EPA has included in Appendix F of the draft CII GP to reduce pollutants in stormwater. By setting a 50% interim goal of meeting site specific Phosphorus load reductions within 6 years of the permit authorization, EPA anticipates that Permittees will first implement nonstructural controls such as street and parking lot sweeping or catch basin cleaning to achieve pollution load reductions, while gathering resources necessary to implement structural SCMs within 11 years of permit authorization. This timeline also allows Permittees and other entities to develop optional watershed-based groups to manage stormwater regionally.

For many CII Permittees, meeting newly required stormwater pollutant load reductions on existing, already-developed CII sites will require a shift from using minimal non-structural controls and installing structural controls primarily during new or redevelopment to a more expansive and innovative approach of retrofitting existing development. To expand non-structural controls and establish structural controls for existing impervious cover, Permittees will benefit from time to gather baseline information about their property(ies) and to plan how to sufficiently and sustainably fund stormwater control operation and maintenance. The proposed compliance schedule accounts for new Permittees' range of impervious cover property sizes, existing stormwater management expertise and installations, and financial resources. EPA is also proposing to allow Permittees 11 years to comply with the WQBELs in order to allow Permittees to develop and implement optimized, cost-effective SPCPs that accelerate the rate of achieving Phosphorus reductions because of lower unit cost factors (i.e., more Phosphorus removed per dollar spent). EPA expects that Permittees will likely benefit from additional time to develop comprehensive and effective SPCPs.

EPA developed this timeline to give Permittees the first two years of the permit term to investigate their site, identify existing SCMs, and retrofit such SCMs, if applicable, and develop plans to address site-specific pollution reduction goals as required under this permit. EPA is aware that some CII sites may have existing SCMs in place that may or may not be maintained to function as designed. Since those sites with existing SCMs have already invested in

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

stormwater controls, EPA encourages Permittees of those sites to retrofit their existing SCMs during that time to be able to claim pollution reduction credit.

It is EPA's view that the proposed schedule allows adequate and reasonable time for Permittees to complete all planning and engineering steps but does not allow unreasonably excessive time. EPA solicits comments on the appropriateness of the proposed compliance schedule.

5.1.2. Stormwater Pollution Control Plan

Pursuant to CWA § 402(a)(1), development and implementation of a Stormwater Pollution Control Plan ("SPCP") may be included as a special condition in NPDES permits. The SPCP requirement has been incorporated into this general permit in accordance with elements of pollution prevention as set forth in the Pollution Prevention Act of 1990 (42 USC § 13101) and EPA BMP guidance, as detailed in EPA's Guidance Manual for Developing Best Management Practices (BMPs). The minimum suggested components of the SPCP include:

- Site and Contact Information
- Stormwater Pollution Prevention Responsibility
- Site Specific Pollutant Reduction Responsibility
- Storm Sewer System Map
- Stormwater Control Measures
- Pathways to Comply
- Reporting Requirements

The proposed CII GP requires all Permittees authorized to discharge under the proposed CII GP to develop, implement, and maintain a SPCP. An applicant seeking authorization to discharge under the proposed CII GP must certify in the NOI submitted to EPA for their site that the SPCP will be developed and will be implemented in accordance with the compliance schedule set forth in Section 5.1.1. Permittees authorized to discharge under the proposed CII GP must select, design, install, implement, and maintain stormwater control measures. The SPCP shall provide a plan for compliance with the terms of this general permit and must include methods to:

- Minimize the potential for violations of the terms of this general permit, taking corrective actions, when necessary;
- Minimize the number and quantity of pollutants generated, discharged, or potentially discharged at the site;
- Use pollution control technologies and properly operate and maintain all treatment systems, including implementation of preventative maintenance.

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

The SPCP for this general permit must be a written document. The SPCP may either be a stand-alone document or the SPCP requirements for this general permit may be incorporated into any other Best Management Practices Plan (“BMPP”), Stormwater Pollution Prevention Plan (“SWPPP”), or Spill Control and Countermeasures (“SPCC”) plan required under other permits or programs.

The SPCP must also document the selection, design, installation, and implementation of any control measures, including SCMs used to meet the limitations and requirements included in the proposed CII GP. The SPCP must be updated whenever there is change in site conditions or approach to stormwater treatment which could result in an increase in the discharge of pollutants to the receiving water(s). Permittees must maintain an up-to-date SPCP (hardcopy or electronic) on-site and/or with the Permittee to be made available upon inspection and/or request by EPA, the State, and/or the municipality in which the discharge occurs.

Development and implementation of the SPCP and its various components is an enforceable condition of this general permit. Failure to develop and implement the SPCP and its components is a violation of this general permit.

In the sections below, the components of the SPCP are outlined in more detail.

5.1.2.A. Site and Permittee Information

The Permittee must ensure that all persons or the person responsible for Stormwater Pollution Control, as outlined in Part 2.1.1.B.a.ii(1) of the Draft Permit understand the requirements of this permit and their specific responsibilities with respect to those requirements, including the permit requirements and deadlines associated with installation and maintenance of SCMs and all other permit requirements.

5.1.2.B. Site Specific Pollutant Load Reduction Responsibility

Phosphorus is the indicator pollutant applicable to all CII sites based on the stormwater pollutant export rates developed in the 2023 hydrologic loading analysis carried out as part of the parcel analysis as described in Section 4.2.

a. Existing CII sites with 1 acre or more of impervious cover

The site-specific load reduction responsibility (“Site-Specific Reduction”) is determined by calculating the average annual Phosphorus load of the CII site's total existing impervious cover extent at the time of the permit effective date and applying the relevant pollution reduction requirements by watershed, as outlined in Section 5.1. The Permittee has two options in the permit to determine the impervious cover acreage of their site prior to multiplying it by the average annual phosphorus load and applying the watershed-specific reduction requirements.

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

To determine the site-specific pollution reduction requirements, the Permittee may follow the very generic example immediately below. More examples for special circumstances are included in Appendix J of the draft CII GP “Methodology for Determining Site-Specific Pollutant Calculation”.

i. Example for generic Site-Specific Pollutant Load Reduction Calculation

Specific steps to calculate the site-specific pollutant load of a generic CII site is outlined below:

Step 1: The Permittee must multiply the CII site’s impervious area by the average annual Phosphorus loading rate of 1.80 lbs*(acre year)⁻¹. This average annual Phosphorus loading rate is applicable to all CII sites in all three watersheds. Should one Permittee be responsible for multiple sites, this calculation must be made for each site for which the Permittee submitted a NOI for.

Step 2: To determine the final Site-Specific Pollutant Load Reduction Responsibility the Permittee must multiply the average annual pollutant loading rate from the CII site(s) by the watershed-specific pollution reduction requirement.

$\text{Site-Specific Reduction} = (\text{Acres}_{\text{IC}} * 1.80 \text{ lbs} * (\text{acre yr})^{-1}) * R_{\text{WS}}\%$
--

Where R_{WS} is the watershed-specific pollution reduction requirement is:

- Charles River Watershed: 65% reduction
- Mystic River Watershed: 62% reduction
- Neponset River Watershed: 60% reduction

Generic Example Calculation: The Site-Specific Reduction for a CII site with 7.5 acres of impervious cover in the Mystic River Watershed is described below:

$\text{Site-Specific Reduction} = (7.5 \text{ acres} * 1.80 \text{ lbs} * (\text{acre yr})^{-1}) * 62\%$ $\underline{\text{Site-Specific Reduction} = 8.37 \text{ lbs yr}^{-1}}$
--

ii. Examples for Calculating Site-Specific Pollutant Load Reduction under special circumstances

EPA presents additional examples in Appendix J of the draft CII GP on how to calculate the site-specific pollutant load reduction under special circumstances in more detail. Appendix J of the draft CII GP covers the following examples:

- (1) Sites that are located in more than one municipality;

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

- (2) Sites that are located in more than one watershed; and
- (3) Sites already covered by another NPDES permit.

For pollution tracking and reporting purposes, if a site or site(s) fall(s) into one of the categories above, the Permittee must report the site-specific pollution requirements to EPA that reflects the conditions of the site, as outlined in Appendix J of the draft CII GP.

- b. Increased Discharges from New Development and/ or Redevelopment on existing CII sites and Discharges from Newly Developed CII sites

As described in Section 3, all three watersheds are impaired for phosphorous and other pollutants. To prevent further degradation of these critical natural resources (see Section 2.5), the CII GP restricts the discharge of new phosphorous loads from CII sites.

Stormwater runoff from impervious areas may cause two types of impacts. One is an increase in the type, the quantity, and concentration or load of pollutants. The alteration of the land by development can increase the discharge amount and concentration of pollutants such as oil and grease (hydrocarbons), heavy metals, solids, and nutrients. Another impact occurs with an increase in the quantity of stormwater volume that is delivered to water bodies via drainage networks during storm events without infiltration at the point where the precipitation falls. Increases in impervious area decrease the amount of precipitation that naturally infiltrates into the ground, which provides for natural filtration of many pollutants found in stormwater. The lack of natural infiltration increases the volume of stormwater runoff into water bodies which causes increases in sediment loadings in the stream and increases in flows that can cause stream bank scouring, impacts to aquatic habitat, and flooding. The increased pollutant loading associated with increased impervious area will further degrade the receiving waterbodies if new and redevelopment is allowed to continue unmitigated.³⁰

The long-term objective of this measure outlined in the Draft CII GP is to reduce the concentration and pollutant loadings found in stormwater prior to discharge of stormwater from new and redevelopment projects on existing CII sites and from newly developed CII sites within the regulated area.

³⁰ In the Preamble to the NPDES Permit Application Regulations for Storm Water Discharges, found in 55 FR 48054 (November 16, 1990), EPA describes that of equal importance to the pollutants washed into receiving waters from residential and commercial areas is "...the volume of storm water runoff leaving urban areas during storm events. Large intermittent volumes of runoff can destroy aquatic habitat. As the percentage of paved surfaces increases, the volume and rate of runoff and the corresponding pollutant loads also increase. Thus, the amount of storm water runoff from commercial and residential areas and the pollutant loadings associated with storm water runoff increases as development progresses; and they remain at an elevated level for the lifetime of the development."

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

The draft CII GP requires CII sites for new and redevelopment of existing CII sites and newly developed CII sites to meet the new development standards required in Part 2.1.1.B.b.ii-iii of the Draft CII GP. These proposed requirements are more stringent than the minimum town ordinances or bylaws required under the MS4 permit as they require the permittee to match the pollutant load from the newly added impervious cover to that of the existing pervious area, so as not to increase the load coming off the CII site. EPA has proposed these requirements under this Draft CII GP to prevent future increased stormwater pollutant loads from CII sites from entering these waterbodies.

Further, EPA is cognizant of the MS4 permit's effluent limitations for discharges to water quality limited waters. Some municipalities have obligations under the MS4 permit to limit their phosphorus load contributions to receiving waters as a result of TMDLs and other water quality impairments. For this reason, the proposed CII GP includes these requirements for new and redevelopment of existing CII sites and newly developed CII sites to cap phosphorus loads and prevent any setback of progress made on municipal stormwater management.

EPA proposes that under this draft CII GP, CII sites that meet eligibility requirements of this permit would continue to be subject to the local bylaw or ordinance and follow the municipality's process for site development. The more stringent pollution reduction requirements would apply to such sites. By definition, if a CII site meets the CII GP pollution load management requirements as outlined in this draft CII GP, the site complies with minimum requirements of the MS4 municipality's pollution load responsibilities under the pollution reduction requirements of MCM5 "Post-Construction Stormwater Management" of the MA MS4.

Therefore, any net increase in impervious cover on an existing CII site and any impervious cover from a newly developed CII site must meet the following requirements:

- i. No additional Phosphorus load may be added from runoff generated by the addition of new impervious cover. The allowable load from the added impervious cover must not exceed the predevelopment pervious area load.
 - (1) The predevelopment pervious load per acre is dependent on the hydrologic soil group ("HSG") and can be referenced in the permit.
 - (2) If the HSG is not known, the Permittee may conduct soil testing to determine the HSG or assume HSG C conditions for the Phosphorus load export rate.
- ii. For existing CII sites undergoing redevelopment or additions of impervious cover, the existing impervious cover portion of the site must meet pollution reduction requirements as outlined in Part 2.1.1.B.b of the Draft CII GP.

**EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional
Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in
Massachusetts – 2024 Fact Sheet**

Existing CII sites undergoing redevelopment that do not change the total net area of impervious cover must meet the established site-specific pollution requirements as outlined in Part 2.1.1.B.b of the Draft CII GP.

Appendix J of the draft CII GP includes three examples of how changes in impervious cover impact the site-specific reduction responsibility.

5.1.2.C. Storm sewer system site map

The Storm sewer system site map requirement in Part 2.1.1.B.c of the Draft CII GP is intended to ensure that permittees are able to confirm their impervious cover acreage as part of their site-specific pollution reduction requirement and develop a plan for implementing SCMs on site, whether they are structural or nonstructural. The plan also allows Permittees to identify areas where structural SCMs can be installed, if applicable.

5.1.2.D. Stormwater Control Measures

The purpose of the following requirements included in the proposed CII GP is to prevent, eliminate or minimize the discharge of biological, chemical, and physical pollutants to waters of the United States. These requirements are intended to facilitate a systematic approach for operators to properly operate and maintain all sites and systems of treatment and control, and related appurtenances, which are installed or used to achieve compliance with the conditions of this Draft CII GP. Permittees authorized to discharge under the proposed CII GP must select, design, install, implement, and maintain stormwater control measures (“SCM”). In general, SCMs are actions or procedures to prevent or reduce the discharge of pollution to waters of the United States.

The Draft CII GP does not mandate the use of any particular SCM to treat stormwater to the specified reduction percentages, but instead provides maximum flexibility for Permittees to use the array of options to meet the standard in the most economical way possible. Permittees can select from a menu of structural and nonstructural stormwater controls, as outlined in Appendix F of the Draft CII GP to meet the pollution reduction requirements. However, if a Permittee determines their site may be exposed to, or has previously experienced major storm and flood events, or contributes to localized flooding, the permittee should prioritize green infrastructure and/or SCMs that reduce such flooding or enhance evapotranspiration where appropriate.

The remainder of the requirements related to SCM designs are modeled after the Massachusetts Stormwater Standards to provide SCM design standards and treatment requirements that protect water quality and are familiar to Permittees and engineers in Massachusetts. This provides flexibility in the design of the stormwater management systems while providing a consistent minimum level of performance for all stormwater management.

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

EPA is aware that retention of stormwater on site through infiltration is not always preferable. This is especially true in areas with high pollutant load potential (industrial sites) and sites with documented soil contamination where infiltration could contaminate groundwater and potentially harm public water supplies.

Each Permittee must plan SCM implementation scenarios to meet the Phosphorus reduction requirements specific to their site. EPA has developed a framework in Appendix F of the draft permit for quantifying stormwater Phosphorus load reduction credits for several non-structural and structural SCMs. This approach allows stormwater Phosphorus load reduction amounts to be quantified by all Permittees. Using a consistent approach with creditable SCM performance information representative of long-term cumulative reduction rates will allow EPA and Permittees to track Phosphorus load reduction progress as part of this permit. This approach has two benefits. First, it allows EPA to apply its adaptive management model and quantify the water quality improvements made as part of this permitting action. Second, this approach also eliminates the need for Permittees to develop their own pollution reduction models and estimates using potentially disparate sources of information and assumptions and thus, allows Permittees to move forward in the relatively near future with the needed information to develop the SPCP.

In order for Permittees to determine compliance with the treatment standard proposed in the CII GP, Permittees can reference Appendix F of the Draft Permit to calculate pollution reduction. This document describes the types of structural and nonstructural stormwater controls for which EPA currently has quantifiable pollutant removal performance curves and how to determine the resulting load reductions. While EPA is proposing that permittees would use these SCM performance curves to track Phosphorus load reductions, the SCM Performance Curves were developed for a variety of pollutants. Therefore, EPA believes that when stormwater management systems are designed to provide the pollutant removal efficiencies estimated for Phosphorus the removal of bacteria will be significant as their removal is closely associated with Phosphorus removal.

If the Permittee chooses to use non-structural and structural SCMs to receive Phosphorus reduction credits they must include supporting computations for the proposed Phosphorus reduction credits as part of their SPCP. The Permittee will also need to report pollution reduction achieved in a CNOI and certify in its annual report that the pollution prevention and non-structural SCMs continue to be maintained in order to continue to receive any Phosphorus reduction credit from them.

a. Structural SCMs

The Permittee may satisfy its Phosphorus Reduction Requirement in whole or in part by installing and maintaining structural SCMs onsite or offsite. The CII GP is proposing to allow Permittees to employ the same structural SCMs the Massachusetts Small MS4 permit uses.

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

The CII GP and the 2016 MA MS4 permit set reduction credits for 14 enhanced structural control practices: 1) Infiltration Trench; 2) Infiltration Basin or other Surface Infiltration; 3) Biofiltration Practice; 4) Gravel Wetland; 5) Enhanced Biofiltration Practice; 6) Sand Filter; 7) Porous Pavement; 8) Wet Pond or wet detention basin; 9) Dry Pond or extended dry detention basin; 10) Water Quality Swale with Detention; 11) Impervious Area Disconnection through Storage (e.g., rain barrels, cisterns, etc); 12) Impervious Area Disconnection; 13) Conversion of Impervious Surface to Pervious Surface; and 14) Soil Amendments to Enhance Permeability of Pervious Areas.

EPA is aware that retention of stormwater on site through infiltration is not always preferable. This is especially true in areas with high pollutant load potential (industrial sites) and sites with documented soil contamination where infiltration could contaminate groundwater and potentially harm public water supplies. In such cases, permittees should select and implement other structural SCMs.

For structural SCM Phosphorus load reduction credits, Appendix F of the draft permit³¹ provides SCM performance curves and tables that the Permittee may use to calculate the annual Phosphorus load reduction for each structural SCM identified in its SPCP. In Appendix F of the draft CII GP EPA provides information on the SCM performance information of the various SCMs mentioned above.

EPA believes providing and refining Phosphorus reduction credits from structural controls to be an on-going process and plans to update reduction credits as scientifically valid long-term studies of stormwater control efficiencies or performance are completed and the results are reviewed by EPA staff for applicability. EPA remains committed to expanding and refining the available credits for stormwater pollution reduction gained through the implementation of structural stormwater controls and will update available credits in future permit iterations or future permit modifications.

b. Nonstructural SCMs

Permittees may satisfy part of their Site-Specific Pollution Reduction Requirement by implementing non-structural SCMs. The CII GP is proposing to allow Permittees to employ the same nonstructural SCMs the Massachusetts Small MS4 permit uses. The 2016 MA MS4 permit

³¹ All nonstructural and structural control credits found in Appendix F of the MS4-2016 permit have been carried over to the Draft CII GP including the updated performance calculations for the biofilter, sand filter, and dry extended detention from the 2020 Massachusetts MS4 permit modification. Currently, the pollutant reduction estimates contained in Appendix F of the draft CII GP represent the most up-to-date information available on structural stormwater control pollutant removal performance.

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

set reduction credits for three enhanced non-structural control practices: 1) enhanced street sweeping, 2) catch basin cleaning, and 3) organic waste and leaf litter collection programs.³²

Regular sweeping, catch basin cleaning, and leaf litter management are non-structural controls that Permittees can implement to receive credit for pollution reduction under this Draft CII GP. Appendix F of the draft CII GP provides removal credit factors and methodologies for calculating removal credits for these controls when implemented as non-structural SCMs.

Enhanced sweeping program of impervious roadways, driveways, and parking areas

The Permittee is eligible to earn Phosphorus reduction credit for roadway, drives, and parking lot sweeping. To do so, the Permittee must sweep parking lots and/or drives at least semi-annually. In order to earn credit for semi-annual sweeping the sweeping must occur in the spring following snow-melt and road sand applications to impervious surfaces and in the fall after leaf-fall and prior to the onset to the snow season. With respect to enhanced sweeping, the amount of credit will depend on the frequency of sweeping and the type of sweeping technology used. The methodology for calculating the credit and the default removal factors to calculate the credit are provided in Appendix F of the draft CII GP.

Enhanced sweeping generates a Phosphorus reduction credit because more frequent sweeping of impervious surfaces will remove a portion of particulate matter and associated contaminants, such as Phosphorus, from impervious surfaces before they can be mobilized by the next rain event. The Phosphorus removal credit for enhanced sweeping is a function of the sweeper technology used and the frequency at which the sweeping is performed.

EPA proposes to adopt the “modeled approach” crediting scheme developed as part of the 2022 University of New Hampshire (UNH) Stormwater Center and Piscataqua Region Estuaries Partnership (PREP) Technical Memorandum³³ that summarizes a panel process completed to develop consensus-based recommendations to modify currently used pollutant load reductions for street cleaning SCMs. For the purposes of the CII GP, Permittees would assume the PLER associated with the sweeping area is that developed for Commercial/Industrial impervious cover with a $1.80 \text{ lbs}/(\text{ac yr})^{-1}$ loading rate. CII GP Permittees can report their area swept in acres or lane miles. To convert between lane miles swept (the reporting metric used in the 2016 MS4 Permit), and area swept. EPA is proposing that permittees apply the following conversion factor:

³² All structural control credits found in Appendix F of the MS4-2016 permit have been carried over to the Draft CII GP including the updated performance calculations for the biofilter, sand filter, and dry extended detention from the 2020 Massachusetts MS4 permit modification. Currently, the pollutant reduction estimates contained in Appendix F of the draft CII GP represent the most up-to-date information available on structural stormwater control pollutant removal performance.

³³ Clean Sweep: Recommendations for New and Updated Credits for Street Cleaning in New Hampshire. Technical Memorandum. September 1, 2022. Piscataqua Region Estuaries Partnership and UNH Stormwater Center. <https://scholars.unh.edu/cgi/viewcontent.cgi?article=1459&context=prep>

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

$$\text{Area Swept [ac]} = \frac{\text{Distance Swept [mi]} * \text{Sweeper Width [8 ft]} * 5280\text{ft} * 1 \text{ ac}}{43560 \text{ ft}^2 * 1 \text{ mi}}$$

This conversion assumes that a street sweeper is able to cover an 8-foot lane width in one pass.

More detail on how to calculate street and parking lot sweeping credit is in Appendix F of the draft CII GP.

Catch basin cleaning

The Permittee may earn a Phosphorus reduction credit for cleaning their catch basins such that a minimum sump storage capacity of 50% is maintained throughout the year. Catch basin cleaning must include the removal and proper disposal of recovered materials consistent with local and state requirements. Drainback water resulting from catch basin cleaning shall be discharged to the sanitary sewer or other facility designed for the treatment and disposal of drainback water. No drainback water shall be discharged to the Permittee’s storm sewer system, another private separate storm sewer system, the MS4, or directly into the receiving water unless discharge to a sanitary sewer or treatment facility is infeasible.

The methodology for calculating the credit and the default removal factors to calculate the credit are provided in Appendix F of the Draft Permit.

Organic waste and leaf litter collection program

The Permittee may earn a Phosphorus reduction credit by performing proper management and disposal of landscaping wastes, organic debris, and leaf litter at an increased frequency. In order to earn the credit, the Permittee must, on a weekly basis between September 1 and December 1 of each year, assure that impervious drives, driveways and parking lots are free of landscaping wastes, organic debris, and leaf litter. For small sites, the Permittee may use hand tools to carry out this program. The Permittee must assure that the disposal of these materials will not contribute pollutants to any surface water. The Permittee may use an enhanced sweeping program (e.g., weekly frequency) as a component of the enhanced organic waste/leaf litter collection program, provided that the sweeping targets organic materials. Appendix F of the draft CII GP provides the methodology and default removal factor for calculating the credit.

c. Maintaining Stormwater Pollution Reduction Credits

Under this proposal, the permittee would undertake appropriate operations and maintenance practices for each selected SCM that they install (or for which they are responsible through offsite Phosphorus reduction agreements (see Section 5.1.2.E)). In the SPCP, the Permittee would outline how structural SCMs are being maintained and how often nonstructural SCMs are being implemented. This section of the SPCP would include two subsections that describe how the Permittee claims Phosphorus reduction credits and related operations and

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

maintenance activities. Details on how to calculate phosphorus reduction credits for structural and nonstructural controls are outlined in Appendix F of the draft CII GP, whereas details on what, at a minimum, to include in the operations and maintenance section of the SPCP is outlined in Appendix I of the draft CII GP.

i. Section 1 – Structural SCMs

Structural SCMs require regular inspections and maintenance to ensure that SCMs are operating as designed and achieving the full stormwater Phosphorus load reduction credits estimated and being claimed by the Permittee. Structural stormwater SCMs are susceptible to falling into disrepair if debris and accumulated sediments are delivered by incoming stormwater runoff. Regular inspection of all SCMs is needed to identify potential operational problems that may arise and to trigger immediate remediation corrective actions to resolve operational problems and maintain the SCMs' optimal functional capacities and performance. Reduced SCM capacity due to accumulation of sediments and debris, clogging, short-circuiting and other operational problems will reduce SCM pollutant removal efficiency and potentially create local hazards to the public. Additionally, an O&M program is essential for protecting the significant financial investment made in implementing the SCMs and maintaining their maximum beneficial return for the Permittee.

Therefore, EPA is proposing that Permittees engage in maintenance to ensure all stormwater control measures, including all treatment system components and related appurtenances used to achieve the CII GP's limitations, remain in effective operating condition, and do not result in leaks, spills, and other releases of pollutants. To demonstrate compliance with this requirement, the Permittee shall document procedures and protocols, develop a maintenance schedule for all treatment system components and related appurtenances used to meet the limitations of this general permit, and keep records of the completion of regular maintenance activities. This requirement aligns with the general definition pertaining to schedule of activities, and maintenance procedures.

Because performance of the SCM is directly tied to functionality and maintenance, pollution reduction credits can only be achieved if permittees are maintaining SCMs on a regular basis. In other words, if the Permittee does not regularly maintain the structural SCM installed on their site, the Permittee will lose the pollution reduction credit that the SCM is meant to achieve and is out of compliance with the permit. Procedures to ensure maintenance may include using dedicated funds or escrow accounts for development project(s).

Routine inspections must be conducted by site personnel who have direct knowledge of the stormwater management activity (Stormwater Management Team, as outlined in the SPCP).³⁴

³⁴ This person shall have the skills to assess the effectiveness of any stormwater control measure(s) in use at the site in order to meet the requirements of this general permit to: assess the stormwater treatment system and site areas, and discharge, including the outfall where practicable; identify any uncontrolled leaks, spills or discharges;

**EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional
Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in
Massachusetts – 2024 Fact Sheet**

This activity should occur on a regular basis but no less than once per year, and more frequently if the SCM that the Permittee has installed requires more frequent maintenance. Situations that may require more frequent inspections and maintenance include but are not limited to: sites with higher potential pollutant loads, sites that have soils that are not yet stabilized or where construction is occurring nearby, or sites that have SCMs located at the bottom of a slope.

Corrective action must be initiated within 72 hours of the time of discovery of a violation of a permit condition or requirement and completed within a reasonable timeframe to: evaluate, and revise (i.e., repair, modify, or replace), if necessary, any SCM used at the site if the stormwater control measure is identified as installed incorrectly or operating ineffectively. In all circumstances, the cause of the permit violation must be identified and documented, and the Permittee must immediately take all reasonable steps to minimize or prevent the discharge of pollutants until a permanent solution is achieved.

ii. Section 2 – Nonstructural SCMs

Nonstructural SCMs such as street and parking lot sweeping, catch basin cleaning, and leaf litter management are effective methods that reduce pollutant loading to waterways. Regular implementation of these nonstructural controls ensures that these nonstructural SCMs are effective and achieving the full stormwater Phosphorus load reduction credits estimated and being claimed by the Permittee. Nonstructural stormwater SCMs act as pollution prevention measures by removing debris and accumulated sediments that are delivered to impervious surfaces by incoming stormwater runoff. Regular removal of this debris ensures that runoff not only does not accumulate and flush these pollutants into the nearby structural controls, but also prevents pollutants from being flushed into the stormwater drainage system, allowing the systems to operate and maintain the optimal functional capacities and performances they were designed for. As mentioned above, reduced SCM capacity due to accumulation of sediments and debris, clogging, short-circuiting and other operational problems will reduce SCM pollutant removal efficiency and potentially create local hazards to the public. An O&M program is essential for protecting the significant financial investment made in implementing SCMs and drainage infrastructure and maintaining their maximum beneficial return for the Permittee.

Therefore, the CII GP would allow Permittees engaging in preventative maintenance to remove debris from impervious surfaces and catch basins to receive credit for this work. To demonstrate compliance with this requirement, the Permittee shall document procedures and protocols, develop a maintenance schedule for all treatment system components and related appurtenances used to meet the limitations of this general permit, and keep records of the completion of regular maintenance activities. This requirement aligns with the general definition pertaining to schedule of activities, and maintenance procedures.

and conduct visual inspection for indicators of pollution, including, but not limited to, objectionable aesthetic properties such as color, odor, clarity, floating solids, settled solids, suspended solids, foam, and oil sheen.

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

Because pollution reduction of nonstructural SCMs is directly tied to frequency of implementation of the practice, credits dependent on the frequency of nonstructural SCM application. In other words, if the Permittee conducts street and parking lot sweeping more frequently, the Permittee may be able to achieve higher pollution reductions, based on the calculations in Appendix F of the draft CII GP.

Permittees should conduct any nonstructural control activities on a regular basis, with the minimum frequency for creditable activity outlined in Appendix F of the draft CII GP. Situations that may require more frequent implementation of nonstructural controls include, but are not limited to: sites with higher potential pollutant loads, sites that have soils that are not yet stabilized or where construction is occurring nearby, sites that have SCMs located at the bottom of a slope.

d. Transfer of Credits from Pollution Load Reductions as required under TMDLs

For municipalities in the Charles and Mystic River Watersheds that have a municipality-specific Phosphorus load reduction responsibility under their TMDL or Alternative Restoration Plan, the reductions required under this draft CII GP may ultimately be used to lower that load reduction responsibility. EPA has determined it is appropriate to wait to lower the municipal load reduction responsibilities for MS4 Permittees until after a Permittee under the CII GP has completed their Stormwater Pollution Control Plan (“SPCP”) that summarizes the reductions each CII site will achieve. After the load reductions to be achieved under the CII GP are established in the SPCP, which must be completed within two years after permit authorization, the MS4 may subtract the CII load reduction to be achieved from its CII sites from the municipal load responsibilities.

To aid municipalities in planning, EPA intends to annually update a public facing dashboard that will provide information from the newly developed reporting structure, NeT-Multiform. NeT-Multiform will show the pollution reductions achieved by CII sites, as well as the planned and credited CII pollutant load reductions and related operation and maintenance achieved based on information submitted in NOIs and annual reports. The NeT-Multiform dashboard will allow the public to follow the progress and proposed progress made under the CII GP. EPA proposes this framework because, in EPA’s view, this approach will best allow municipalities to account for the actual pollution load reductions expected to be implemented by the CII properties (as set forth in their SPCP which will document estimates of anticipated pollution removal using their selected structural and non-structural SCMs).

5.1.2.E. Pathways to Compliance

The Permittee can elect whether they want to meet the pollution reduction requirements of the permit onsite or offsite. Onsite stormwater management for Phosphorus reductions refers to pollutant removal practices that are implemented at the location that is the permitted site.

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

Offsite Phosphorus reduction refers to pollutant removal practices that are implemented at another location that is not the permitted site.

The sections below describe pathways for Permittees to meet pollution reduction requirements as outlined in this Draft CII GP.

Under this proposal, offsite pollutant load reductions would be optional but allowed under certain conditions as described in the draft General Permit Part 2.1.1.C. These draft General Permit conditions provide Permittees the flexibility to meet their load reduction requirements offsite but within the watershed. EPA has determined it is appropriate to limit the sites where offsite reductions may be achieved to sites permitted under this CII GP and those permitted under the MA MS4 permit to control stormwater Phosphorus in each watershed (i.e. CII sites and MS4 properties). For example, offsite reductions would not be allowed on residential properties or CII sites not eligible for coverage under this permit (i.e. CII sites under one acre of impervious cover) as they are not currently part of this permitting program.

EPA also encourages permittees to conduct any offsite Phosphorus reduction upstream of the permitted site, since offsite Phosphorus reduction upstream results in greater water quality and runoff attenuation benefits to the watershed compared to Phosphorus reduction further downstream.

There are three options for offsite Phosphorus reductions in the draft General Permit. One option allows Permittees to enter into a legally binding agreement with a local Watershed Management Group (“WMG”)³⁵, or similar entity, to achieve offsite Phosphorus load reductions at a regionalized scale. The second option allows for Permittee-to-Permittee credit trading³⁶ through purchasing of credits on new and/or existing stormwater control measures. The third option allows for Permittees to co-fund stormwater control projects. For the second and third option, Permittees may enter into an agreement directly with other CII and/or MS4 Permittee(s) to achieve offsite Phosphorus load reductions.

All offsite Phosphorus reduction options require the Permittee to enter into a legally binding agreement with another party (WMG, other CII site or MS4 permittee(s)), in which the Permittee agrees to contribute funding for a new or existing project in the same watershed that the CII site discharges to. This agreement must account for both installation of the SCM, if applicable, and ongoing operation and maintenance. The funding may include costs for initial construction, maintenance and operation, project revision and enhancement, and administrative and other

³⁵ EPA has included this condition to allow a Watershed Management Group, or similar entity, to participate in implementation of stormwater controls should such an entity be established in the future.

³⁶ Odefey, J., J. Clements, J. Henderson, K. Rousseau, S. Viars, and R. Arvin-Colon. 2019. “Establishing a stormwater volume credit trading program—A practical guide for stormwater practitioners.” 2019. <https://www.americanrivers.org/resource/establishing-a-stormwater-volume-credit-trading-program/>

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

supplemental work. The entity receiving credits for the SCM will be required to certify annually that O&M is ongoing.

Similar to the requirements of 40 CFR § 122.35, the Draft CII GP allows a Permittee to rely on another entity for implementation of all or part of a permit condition or stormwater control measure as part of the offsite compliance option. However, in all instances, the Permittee remains the responsible party that is required to ensure compliance with all conditions and requirements of the CII GP.

Credits may be purchased via a legally binding agreement from other Permittees who have already retrofitted or are planning to retrofit their properties and have designed their stormwater control measures to exceed their site-specific pollution reduction requirement. Alternatively, Permittees can provide funds via a legally binding agreement for installation of new stormwater treatment on another CII or MS4 site as part of the WMG or co-funding of projects, and receive partial or full credit for the reductions achieved depending on the agreement. The other entity must agree to and must in fact implement the stormwater control measure. This agreement must be included as part of the SPCP. If the other party fails to implement the stormwater control measure, the Permittee remains the liable entity for complying with all terms of the CII GP.

5.1.3. Requirements for Discharges to Water Quality Limited Waterbodies

“Water quality limited water(s)” are defined to include any waterbody that does not meet applicable water quality standards, including but not limited to, waters listed in categories 5 or 4b on the Massachusetts Integrated Report of waters listed pursuant to Clean Water Act section 303(d) and 305(b). The General Permit uses the term “water quality limited waters” to encompass both waters listed as impaired under Categories 5 and 4b pursuant to Section 303(d) for particular pollutants, and waters not listed as impaired for particular pollutants but that are experiencing excursions above water quality standards.³⁷

EPA has determined that if stormwater is being treated through the implementation of structural and nonstructural SCMs on CII sites as outlined in the Draft CII GP Section 2.1.1.B.b-c. and the basis of Phosphorus being an indicator pollutant, this draft CII GP will substantially reduce Nitrogen, Bacteria/Pathogens, Total Suspended Solids, Metals, Oil and Grease (Hydrocarbons) in stormwater discharges. Illicit discharges are a likely contributor of bacteria/pathogens to receiving waters. By receiving the authorization to discharge under this permit, the permittee is complying with the requirement to remove any illicit connections into their storm sewer system upon discovery of the connection. Since Chloride is not easily treated by the structural and non-structural SCMs in this Draft permit, EPA believes that the Winter Maintenance Plan, as part of the Onsite Chemical Application Management Plan, as outlined in Section 2.2.1.B. of the Draft CII GP will substantially reduce the Chloride in stormwater discharges.

³⁸ EPA-833-K-10-001; September, 2010: Section 9.1.2

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

Future assessments of the water quality limited waterbodies or other information may indicate further reductions are needed in future permit terms, but given the information presently known, EPA believes these provisions are appropriate and protective of water quality.

5.2. Requirements to Reduce Pollutants using Best Management Practices

Best Management Practices (or “BMPs”) may be expressly incorporated into a permit on a case-by-case basis where it is determined they are necessary to carry out the provision of the CWA under § 402(a)(1) and (2). 40 CFR § 122.44(k) further provides that permits must contain BMPs, when applicable, to control or abate the discharge of pollutants when any of the following are true:

- (1) They are authorized under CWA 304(e);
- (2) They are authorized under CWA 402(p) (stormwater discharges);
- (3) Numeric effluent limitations are infeasible;
- (4) The practices are necessary to achieve effluent limitations and standards to carry out the purpose and intent of the CWA.³⁸

For this permit, EPA is relying on 40 CFR § 122.44(k)(2) – (4) to incorporate the BMPs outlined in the following sections as requirements.

5.2.1. Onsite Chemical Application Management

The permit requires Permittees to develop and implement an Onsite Chemical Application Management Plan (“OCAMP”; Part 2.2.1 of the Draft Permit) for Lawn Maintenance and Landscaping Activities, and Winter Maintenance to reduce pollutant inputs to the receiving water. This OCAMP will outline, what activities are being undertaken to eliminate Phosphorus containing fertilizer and optimizing salt application to impervious areas in cold months. EPA has determined that, if implemented in concert, this OCAMP will contribute to effective pollutant reductions in stormwater runoff. The plan is split into two sections (Lawn Maintenance and Landscaping Activities, and Winter Maintenance). Details on what to include in the OCAMP are outlined are summarized below and are described in more detail in the permit.

5.2.1.A. Section 1 – Lawn Maintenance and Landscaping Activities

EPA recognizes the potential water quality benefit of eliminating the use of Phosphorus-containing fertilizer and is including the elimination of Phosphorus containing fertilizers by Permittees in the Draft Permit. This condition is consistent with Massachusetts State Law MG.L. c. 128, § 65(A) associated regulations at 330 C.M.R. 31.00

³⁸ EPA-833-K-10-001; September, 2010: Section 9.1.2

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

Phosphorus in lawn fertilizers is a potential source of Phosphorus to receiving waters in urban/suburban areas. There are a number of factors that determine the Phosphorus load in stormwater from fertilized lawn areas, including the timing of fertilizer applications relative to rain events, application techniques, and the amount of Phosphorus in soils relative to plant growth needs. Many lawn areas in New England watersheds do not need Phosphorus from fertilizer because soil Phosphorus levels typically exceed levels needed to support healthy growth of lawns. Applications of Phosphorus-containing fertilizers to such lawns result in the build-up of excessive Phosphorus levels in surface soils and, consequently, increased Phosphorus transport during runoff events.

For the water quality implications mentioned above and to be consistent with Massachusetts law, EPA is proposing that Permittees eliminate the use of Phosphorus containing fertilizers on their properties.

5.2.1.B. Section 2 – Winter Maintenance

EPA recognizes that the use of deicing chemicals during the winter season is often necessary. For this reason, the Draft CII GP does not prohibit the use of salts as the preferred deicing agent but focuses instead on reducing the amount of chloride applied to various sources (driveways, parking lots, storage, etc.) through the use of calibration, low salt zones, application rate standards, and other SCMs designed to control the amount of road salt applied without compromising public safety.

As part of the OCAMP, all Permittees must develop a Winter Maintenance Plan aimed at reducing the total amount of chloride applied to the site. The Winter Maintenance Plan can be optimized to meet the needs of the Permittee as long as the total amount of chloride applied is reduced on site.

5.2.2. Stormwater Training

The staff training requirements in Section 2.2.2 of the draft CII GP are intended to ensure that each member of the stormwater team or the person responsible for implementing the SPCP and OCAMP is knowledgeable about stormwater and its impacts to water quality.

The Permittee is not required to provide or document formal training for subcontractors or other outside service providers, but the Permittee must ensure that such personnel understand any requirements of this permit that may be affected by the work they are subcontracted to perform.

EPA plans to maintain a list of existing state and third-party stormwater courses that may cover the minimum topics identified in the draft CII GP. This information will be available on the EPA Watershed Based Residual Designation Website (<https://www.epa.gov/npdes->

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

[permits/watershed-based-residual-designation-actions-new-england](#)). EPA notes that any reference to non-EPA provided courses does not constitute an Agency endorsement of any individual product or vendor. EPA may update the webpage list from time to time as it learns of additional training programs that may meet the minimum requirements. If the public is aware of any training programs not listed on EPA's webpage that they believe satisfy the minimum requirements, they may contact EPA to provide information for the Agency's consideration.

Section 6. Record-Keeping and Reporting Requirements

Record-keeping and reporting requirements allow EPA to collect data about stormwater management activities. CWA § 308(a); 40 CFR § 122.41(j).

6.1. Record-Keeping Requirements

40 CFR §122.41(j) requires EPA to include records retention requirements in the permit. General record-keeping requirements are included in the draft permit's Appendix 2, Standard Conditions. The proposed CII GP also identifies certain records (hard copy or electronic) that a Permittee must retain. These include:

- Data used to complete the Notice of Intent (NOI) for this general permit;
- Documentation for the development, implementation and maintenance of the SPCP, including certifications;
- All records of operation and maintenance; and
- All records of site inspections and employee training.

The proposed CII GP also specifies which records must be maintained (hard copy or electronic) on site or with the Permittee. These include:

- A complete copy of the CII GP;
- A copy of EPA's authorization to discharge and any subsequent modifications, if applicable;
- Copies of any information submitted to EPA, the State, and the municipality in which the site is located;
- Copies of any correspondence received from EPA, the State, and the municipality in which the site is located regarding permit coverage;
- A copy of the Stormwater Pollution Control Plan; and
- A copy of the Operations and Maintenance Plan
- A copy of the Onsite Chemical Applications Management Plan

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

EPA finds that these uniform requirements will enable an EPA and/or State inspector to obtain and review the information relevant to this general permit upon request and/or site inspection, in a consistent and comparable manner.

6.2. Reporting Requirements

The proposed reporting requirements are in accordance with regulations at 40 CFR 122.29(d)(4).

Permittees must begin submitting annual reports 2 months after the completion of the first reporting year, which begins at the date of authorization for each Permittee. In most cases, CII GP Permittees can submit required reports to EPA as an electronic attachment through NeT-Multiform. Appendix K of the draft permit outlines the reporting structure for the draft Permit. The permit provides certain exceptions, are such as for providing written notifications required under the Standard Conditions and in relation to the submission of a NOI, CNOI or NOT.

NeT-Multiform is a national web-based tool enabling regulated CWA Permittees to submit reports electronically via a secure internet application to EPA through the Environmental Information Exchange Network. NeT-Multiform has eliminated the need for participants to mail in paper forms to EPA under 40 CFR §§ 122.41 and 403.12. NeT-Multiform is accessible through EPA's Central Data Exchange at <https://cdx.epa.gov/>. Further information about NeT-Multiform can be found on EPA's NeT-Multiform support portal webpage.

The reporting requirements included in the proposed CII GP are within EPA's discretion under CWA §402(a) and §308(a). §402(a) provides that: "[t]he Administrator shall prescribe conditions for permits to assure compliance...including conditions on data and information collection, reporting, and such other requirements as he deems appropriate." §308(a) authorizes the Agency to require owners/operators to "make such reports" and "provide such other information as [the Administrator] may reasonably require." Reporting requirements under the NPDES permitting program are designed to be "self-implementing" and "self-reporting." This means that the Permittee is accountable for all aspects of the work to ensure compliance, including contractor selection, paying for the work that is performed, and ensuring that such work is conducted and properly reported to the appropriate permitting authority. Permitting authorities in turn load reporting data into NeT-Multiform which is then uploaded into EPA's website, becoming public record. Interested persons can access compliance data submitted by the sites through ECHO. EPA Region 1 also maintains a dedicated website for CII GP information.

Section 7. Administrative Requirements

7.1. Changes in Coverage

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

7.1.1. Change NOI (CNOI)

If after submitting an NOI a Permittee needs to correct or update any fields, certain changes may be made by submitting a “Change NOI” form (CNOI) using NeT-Multiform. Waivers from electronic reporting may be granted as specified above. If EPA Region 1 has granted approval to submit a paper CNOI, any NOI changes may be indicated using the same information as in Appendix G of the draft CII GP.

7.1.1.A. The following allowable modifications are effective upon receipt of notification from EPA:

a. Notification of change to administrative information

Notification may be provided for a change in certain administrative information. This includes, but is not limited to, a change in the address for a Permittee or a change in contact information for a Permittee. **For a change in Permittee, a new NOI is required**, as authorization under a general permit is not transferrable.

b. Notification of change to site information

Notification may be provided for a change in certain site information to update annual reporting forms. This includes, but is not limited to, a change in impervious cover on site (increases or decreases of impervious cover) or implementation of nonstructural or structural stormwater controls onsite or offsite. **For a change in Permittee, a new NOI is required**, as authorization under a general permit is not transferrable.

7.1.2. Notice of Termination

Permittees must submit a signed and certified NOT when one or more of the following conditions have been met:

7.1.2.A. Coverage under an individual or other general NPDES permit that authorizes the same stormwater discharges as this CII GP has been obtained.

7.1.2.B. There is a change in the owner or operator of the property subject to this permit. In this case the seller must ensure that all installed structural SCMs are maintained and functioning as designed at the time of sale and certify this in the NOT.

a. In this situation, the new operator must file an NOI if they wish to continue coverage under this general permit no later than thirty (30) calendar days of the property transfer. The previous owner or operator must submit a Notice of Termination

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

(“NOT”) no later than thirty (30) calendar days after CII GP coverage becomes active for the new operator.

- 7.1.2.C. There is a change in the parcel use code following land cover use changes as reflected in the local tax codes and it is no longer eligible for permit coverage based on the eligible parcel use codes in Appendix H of the draft CII GP.
- 7.1.2.D. There is a reduction in impervious cover on site that results in the CII site to have a total of less than 1 acre of impervious cover.
- a. In this situation, the Permittee must certify that they have reduced their total impervious cover to less than 1 acre when they file the next annual report that is due, which must include the map or impervious cover summary submitted as part of the NOI along with a new map delineating the remaining impervious cover and a summary of the change in impervious cover on site.
 - b. Note that contiguous properties where one or more of the properties has less than 1 acre of impervious cover but together exceed the 1 acre threshold, the Permittee must reduce the total amount of impervious cover of the contiguous parcels to below the 1 acre threshold. For example, 2 contiguous properties, each with 0.9 impervious cover totaling 1.8 acres of impervious cover, would have to reduce the total amount of impervious cover by over 0.8 in order to be eligible to file for an NOT.

A Permittee is responsible for complying with all permit conditions until their NOT has been approved by EPA.

7.2. Continuation of the Expired General Permit

If this general permit is not reissued prior to the expiration date, it will be administratively continued in accordance with the Administrative Procedures Act and remain in force and in effect as to any particular operator. Any Permittee granted coverage prior to the general permit’s expiration date will automatically remain covered by the continued permit until the earliest of:

- Reissuance of this general permit, at which time the operator must comply with the NOI conditions of the new permit;
- The Permittee terminates coverage by submitting a NOT;
- Issuance of an individual permit for the Permittee’s discharges; or

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

- A formal decision by EPA not to reissue the general permit, at which time the Permittee must seek coverage under an alternative general permit or an individual permit.

However, should the permit expire prior to a replacement permit being issued, the existing permit will only cover those Permittees that submitted a complete and accurate NOI and met all the eligibility requirements prior to the permit's expiration date. CII sites requiring permit coverage after the expiration date of this permit are not eligible for coverage until a replacement permit is issued. Applicants should consult with the EPA Region 1 to determine potential NPDES coverage options.

Section 8. Standard Permit Conditions

Operators must meet the standard permit requirements of 40 CFR §122.41 and 122.42, as applicable to their discharge activities. These requirements are provided in Appendix B, Standard Conditions of the proposed CII GP.

Section 9. Federal Permitting Requirements

When EPA undertakes an action, such as the issuance of an NPDES general permit, that action must be consistent with other federal laws and regulations and executive orders. Regulations at 40 CFR § 122.49 contain a listing of Federal laws that may apply to the issuance of NPDES permits. This section discusses four federal Acts that apply to the reissuance of this general permit: the Endangered Species Act ("ESA"), the National Historic Preservation Act ("NHPA"), the Magnuson-Stevens Fishery Conservation and Management Act ("MSA"), which addresses Essential Fish Habitat ("EFH") and the Coastal Zone Management Act ("CZMA") that apply to the issuance of this general permit: The following sections summarize the requirements of these Acts and EPA's obligations with regard to them. The proposed CII GP contains certain disclosures for ESA and NHPA, also discussed in the following sections.

EPA expects to complete all ESA consultation with USFWS and NOAA Fisheries (the Services) by the time the CII General Permit is finalized. However, as is sometimes the case with general permits, the Services may require that the permittee submit further analysis to ensure that actions covered by the CII still meet the permittee's ESA consultation responsibilities for their specific action area. This additional step may be included as part of the Notice of Intent submission. Refer to Appendix C of the draft CII GP for an example of what the permittee's requirements may be. The final permit will reflect the results of EPA's ESA consultation.

9.1. Endangered Species Act

Section 7(a) of the Endangered Species Act of 1973, as amended ("ESA"), grants authority and imposes requirements on Federal agencies regarding species of fish, wildlife, or plants that

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

have been federally listed as endangered or threatened (listed species) and regarding habitat of such species that has been designated as critical (critical habitat).

Section 7(a)(2) of the ESA requires every federal agency, in consultation with and with the assistance of the Secretary of Interior and/or the Secretary of Commerce, as appropriate, to ensure that any action it authorizes, funds, or carries out, in the United States or upon the high seas, is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat. The United States Fish and Wildlife Service (“USFWS”) within the Department of Interior administers Section 7 consultations for terrestrial and freshwater organisms, while the National Oceanic and Atmospheric Administration’s National Marine Fisheries Service within the Department of Commerce (“NOAA Fisheries”) administers Section 7 consultations for listed species of marine organisms (including marine mammals and marine reptiles), as well as for anadromous fish.

The federal action being considered in this case is EPA’s proposed issuance of an NPDES General Permit designed to regulate certain private commercial, industrial, and institutional stormwater discharges from sites with 1 acre or more of impervious cover in the Charles, Mystic, and Neponset River Watersheds in Massachusetts” (“CII GP”). As the federal agency charged with authorizing and regulating the CII GP related discharges, EPA assesses potential impacts to federally listed species and critical habitat and initiates consultation to the extent required under Section 7(a)(2) of the ESA.

EPA has researched whether federal endangered or threatened species of fish, wildlife, and plants are expected to overlap with the three combined watershed action area, along with a portion of Boston Inner Harbor. If there is documented overlap, EPA’s proposed NPDES General Permit may potentially affect ESA listed species in this area of the Charles, Mystic, and Neponset River Watersheds, along with parts of Boston Inner Harbor, in Massachusetts.

*To evaluate protected species under the jurisdiction of the USFWS, EPA generated a USFWS ESA Official Species List³⁹ for the Charles, Mystic, and Neponset River Watershed action area, using the USFWS IPaC Website. Four protected species were identified on the list, including the northern long-eared (NLE) bat (*Myotis septentrionalis*), noted as endangered, the roseate tern (*Sterna dougallii dougallii*), also designated as endangered, the piping plover (*Charadrius melodus*), designated as threatened, and the tricolored bat (*Perimyotis subflavus*) under the status of proposed endangered. The monarch butterfly (*Danaus plexippus*) appeared on the list as a candidate species. No analysis of candidate species is required by USFWS at this time.*

Using the USFWS IPaC System Northern Long-eared (“NLE”) Bat Determination Key, EPA confirmed that actions regulated by the CII GP would have “no effect” on the endangered NLE bat.⁴⁰ No further ESA coordination is required for the NLE bat.

³⁹ USFWS Official Species List, Project Code: 2024-0130453; August 14, 2024.

⁴⁰ USFWS NLE Bat Determination Letter, Project Code: 2024-0130453; August 14, 2024

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

EPA also used the USFWS IPaC System Northeast Species Determination Key to confirm that actions regulated by the CII GP would have “no effect” on the endangered roseate tern and the threatened piping plover.⁴¹ No further ESA coordination is required for the roseate tern and the piping plover.

At the time of the CII Draft General Permit development, there was no USFWS Determination Key that addressed activities involving the proposed endangered tricolored bat. Because the habitat of the tricolored bat is generally similar to the NLE bat (overwintering - caves or mines; spring/summer/fall – deciduous live or dead hardwood trees), EPA has made the determination that activities proposed to be covered under this General Permit will also have “no effect” on the proposed endangered tricolored bat. No further ESA coordination with USFWS is required for the tricolored bat.

Since the four ESA protected species under the jurisdiction of the USFWS have all been documented to experience no effect from the regulated stormwater discharge covered by the proposed CII GP, no further ESA Section 7 coordination with USFWS is required.

For protected species under the jurisdiction of NOAA Fisheries, a number of anadromous and marine species and life stages are present in Massachusetts coastal waters and bays. Various life stages of protected fish, sea turtles and whales have been documented in Massachusetts coastal and inland waters, either seasonally or year-round. According to the NOAA Fisheries ESA Section 7 Mapper Website⁴², a number of ESA protected species overlap with the Charles, Mystic, and Neponset River combined watershed, along with a portion of Boston Inner Harbor action area. The species are as follows: Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*; adult and subadult life stages, migrating and foraging year-round), shortnose sturgeon (*Acipenser brevirostrum*; adult life stage, migrating and foraging, April 1 through November 30), the green sea turtle (*Chelonia mydas*), Kemp’s ridley sea turtle (*Lepidochelys kempii*), leatherback sea turtle (*Dermochelys coriacea*) and loggerhead sea turtle (*Caretta caretta*; adult and juvenile life stages, migrating and foraging, June 1 through November 30) and the North Atlantic right whales (*Eubalaena glacialis*) and fin whales (*Balaenoptera physalus*; adult and juvenile life stages foraging year-round).

Because these species may be affected by the stormwater discharges regulated by the proposed General Permit, EPA has thoroughly evaluated the potential impacts of the permit action on these anadromous and marine species. On the basis of the evaluation, EPA’s preliminary determination is that this action may affect, but is not likely to adversely affect, the life stages of Atlantic sturgeon, shortnose sturgeon, green, Kemp’s ridley, leatherback and loggerhead sea turtles, and the North Atlantic right whale and fin whale that are expected in the vicinity of the Boston Inner Harbor section of the action area of the discharge. Therefore,

⁴¹ USFWS Roseate Tern and Piping Plover Determination Letter, Project Code: 2024-0130453; August 14, 2024.

⁴² <https://www.fisheries.noaa.gov/resource/map/greater-atlantic-region-esa-section-7-mapper>

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

EPA has judged that a formal consultation pursuant to Section 7 of the ESA is not required. EPA is seeking concurrence from NOAA Fisheries regarding this determination through the information in the Draft General Permit, this Fact Sheet, as well as a detailed biological assessment (BA) that will be sent to NOAA Fisheries Protected Resources Division during the Draft Permit's public comment period.

EPA expects to complete all ESA consultation with USFWS and NOAA Fisheries (the Services) by the time the CII General Permit is finalized. However, as is sometimes the case with general permits, the Services may require that the permittee submit further analysis to ensure that actions covered by the CII still meet the permittee's ESA consultation responsibilities for their specific action area. This additional step may be included as part of the Notice of Intent submission. Refer to Appendix C of the draft CII GP for an example of what the permittee's requirements may be.

At the beginning of the public comment period, EPA notified NOAA Fisheries and USFWS that the Draft General Permit and Fact Sheet were available for review and provided a link to the EPA NPDES Permit website to allow direct access to the documents. Reinitiation of consultation will not need to take place unless: (a) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered in the consultation; (b) the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the consultation; or (c) a new species is listed or critical habitat is designated that may be affected by the identified action.

9.2. Essential Fish Habitat

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. §1801 et seq. (1998)), EPA is required to consult with the National Oceanic and Atmospheric Administration Fisheries Services (NOAA Fisheries) if EPA's action or proposed action that it funds, permits, or undertakes, may adversely impact any essential fish habitat ("EFH"). Adversely impact means any impact which reduces the quality and/or quantity of EFH (50 CFR § 600.910 (a)). Adverse impacts may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site-specific or habitat wide impacts, including individual, cumulative, or synergistic consequences of actions.

The Amendments broadly define EFH as: "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity". See 16 U.S.C. § 1802(10). The EFH regulations clarify that "waters" includes aquatic areas and their associated physical, chemical, and biological properties that are used by the managed fish species, and those areas historically used by those species, where appropriate.

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

Essential fish habitat is only designated for species for which federal fisheries management plans exist (16 U.S.C. § 1855(b) (1) (A)). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999. A New England Fishery Management Council’s Omnibus Essential Fish Habitat Amendment in 2017 updated the descriptions. The information is included on the NOAA Fisheries website at:

<https://www.fisheries.noaa.gov/action/omnibus-essential-fish-habitat-amendment-2>.

In some cases, a narrative identifies rivers and other waterways that should be considered EFH due to present or historic use by federally managed species.

The federal action being considered in this case is EPA’s proposed CII GP, which would permit discharges via the watersheds into a portion of Boston Inner Harbor, which is covered by an EFH designation for any marine systems at Latitude 42.370, Longitude -71.048 (Charles and Mystic Rivers) and Latitude 42.306, Longitude -71.037 (Neponset River) as determined by the NOAA EFH Mapper.⁴³

Based on available EFH information, EPA has determined that the Charles and Mystic Rivers, Boston Inner Harbor, the Neponset River, and Dorchester Inner Bay in the vicinity of the treated stormwater discharge from the three watersheds is designated as EFH for 26 marine species and two Habitat Areas of Particular Concern (HAPCs). See Table 2. Therefore, consultation with NOAA Fisheries under the Magnuson-Stevens Fishery Conservation and Management Act is required. EPA has determined that the treated stormwater discharge, as governed by this general permit action, may adversely affect the EFH of these designated species and HAPCs in the three rivers and Boston Inner Harbor and Dorchester Inner Bay. The Draft General Permit has been conditioned in several ways to minimize any impacts that reduce the quality and/or quantity of EFH. Detailed information is included below.

Table 2. Designated EFH species, lifestages and Habitat Areas of Particular Concern (HAPCs) in the vicinity of the treated stormwater discharge from three watersheds (Charles and Mystic Rivers, Boston Inner Harbor, the Neponset River, and Dorchester Inner Bay).

Species/Management Unit	Lifestage(s) Found at Location
American Plaice	Adult, Eggs, Juvenile, Larvae
Atlantic Butterfish	Adult, Eggs, Larvae
Atlantic Cod	Adult, Eggs, Juvenile, Larvae
Atlantic Herring	Adult, Juvenile, Larvae
Atlantic Mackerel	Adult, Eggs, Juvenile, Larvae
Atlantic Surfclam	Adult, Juvenile
Atlantic Wolffish	ALL

⁴³ NOAA Fisheries EFH Mapper at https://www.habitat.noaa.gov/apps/efhmapper/?page=page_3

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

Species/Management Unit	Lifestage(s) Found at Location
Black Sea Bass	Adult
Bluefin Tuna	Adult
Bluefish	Adult, Juvenile
Little Skate	Adult, Juvenile
Longfin Inshore Squid	Adult, Juvenile
Northern Shortfin Squid	Adult
Ocean Pout	Adult, Juvenile
Pollock	Eggs, Juvenile, Larvae
Red Hake	Adult, Eggs/Larvae/Juvenile
Scup	Juvenile
Silver Hake	Adult, Eggs/Larvae
Spiny Dogfish	Adult Female, Adult Male, Sub-Adult Female
Summer Flounder	Adult
Thorny Skate	Juvenile
White Hake	Adult, Eggs, Juvenile, Larvae
Windowpane Flounder	Adult, Eggs, Juvenile, Larvae
Winter Flounder	Eggs, Juvenile, Larvae/Adult
Winter Skate	Adult, Juvenile
Yellowtail Flounder	Adult, Eggs, Juvenile, Larvae
Habitat Areas of Particular Concern Name	
	Inshore 20m Juvenile Cod
	Summer Flounder SAV

9.2.1. Essential Fish Habitat Analysis of Effects

EPA has identified the main source of impact to aquatic species associated with the discharge of stormwater effluent as effluent toxicity.

Stormwater discharges eligible under this general permit can potentially contain low concentrations of a variety of constituents of concern (Parameters) such as nutrients, sediments, and pathogens. As a result, the proposed CII GP contains water quality-based effluent limitations and requirements designed to protect human health and the environment, including EFH-listed species and essential habitat. Further, EPA included effluent limitations in

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

the proposed CII GP necessary to ensure discharges covered under this general permit will meet Massachusetts WQSs. The proposed CII GP contains stringent effluent limitations, which will typically require an operator to apply a high degree of treatment for the Parameters present and likely present at a site. EPA derived the effluent limitations and other permit requirements in the proposed CII GP to protect the most sensitive species in the potential receiving waters and to attain or maintain the designated uses of the potential receiving waters. The water quality based effluent limitations are appropriate to meet WQC and to protect the wide range of designated uses of potential receiving waters.

The proposed CII GP prohibits the addition of toxic pollutants or materials to a discharge, prohibits the discharge of pollutants in amounts that would be toxic to aquatic life, and prohibits any discharge that violates State or Federal WQSs. In certain situations, specific to EFH, EPA may also require that a site obtain NPDES coverage under an individual permit, including an instance where actual or imminent harm to aquatic organisms is identified, or a discharge has the potential to adversely impact any federally managed species for which EFH has been designated.

As described in Part 1 of the proposed CII GP and Section 1.3 of this Fact Sheet, EPA is proposing to cover stormwater discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts. Geographic locations of discharges, beyond being within the Charles, Mystic, and Neponset River Watersheds, are not impacted by this federal action. Given the variety of potential pollutants and geographic coverage of the proposed CII GP, all federally managed species with designated EFH in the coastal and inland waters draining to the Boston Inner Harbor could be affected by the proposed CII GP.

9.2.2. EPA's Identification of Potential Impacts to EFH Species and Proposed Mitigation

EPA has determined that the requirements proposed in the general permit from discharges eligible under this general permit have been conditioned to minimize any impacts that reduce the quality and/or quantity of EFH for several detailed, specific reasons.

First, the proposed effluent limits will be sufficiently protective of EFH habitat because the discharges must meet the stringent requirements specified in the proposed CII GP. The proposed CII GP contains effluent limitations based on the indicator parameter, Phosphorus (see Section 4.3) and other limitations and requirements. These effluent limitations are appropriate to meet WQC for the protection of aquatic life.

Second, although the proposed CII GP does not require the use of specific treatment technologies, treatment technologies must be employed at these sites if necessary to meet effluent limitations. See Part 2.1 of the proposed CII GP for stormwater control measures and Section 5.1.2.C of this fact sheet for more information. The types of treatment technology employed on average produce high quality effluent. Further, the proposed CII GP requires

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

operators to implement BMPs, including the basic requirements listed in Part 2.1 of the proposed CII GP, to minimize the impacts of the activities and discharges on the environment.

Third, the proposed CII GP allows the Commonwealth of Massachusetts to add additional requirements for CWA § 401 certification. EPA can revoke coverage under this General Permit at any time if any adverse impacts to federally managed or protected species or their habitats occur, either because of non-compliance or from unanticipated effects from a discharge. Similarly, EPA may require an individual permit where expected impacts have or could be unacceptably increased.

In conclusion, discharges eligible for coverage under the proposed CII GP will adequately protect all aquatic life, as well as minimize any impacts that reduce the quality and/or quantity of EFH for the following reasons:

- The effluent limitations proposed in the proposed CII GP ensure protection of aquatic life and maintenance of the receiving waters as aquatic habitat;
- Discharges eligible for coverage under this general permit are primarily a result of stormwater discharges from impervious surfaces ;
- Discharges eligible for coverage under this general permit are generally expected to occur with low frequency (intermittent), small magnitude (small volume), and short duration (following precipitation events); therefore, any potential effects of the discharges on receiving waters are expected to be proportionately small;
- The proposed effluent limitations in the CII GP are sufficiently stringent to ensure that State and Federal WQSs will be met;
- The Facility withdraws no water from the receiving waterbodies, so no life stages of EFH species are vulnerable to impingement or entrainment; and
- The proposed Draft Permit requirements minimize any reduction in quality and/or quantity of EFH, either directly or indirectly.

9.2.3.EPA's Finding

EPA has made the determination that the effluent limitations and special conditions contained in the proposed CII GP Draft Permit adequately protect all aquatic life, as well as the essential fish habitat designated by MSA. Further mitigation is not warranted. Should adverse impacts to EFH be detected as a result of this permit action, or if new information is received that changes the basis for EPA's conclusions, NOAA Fisheries Habitat and Ecosystem Services Division will be contacted and an EFH consultation will be reinitiated.

At the beginning of the public comment period, EPA notified NOAA Fisheries Habitat and Ecosystem Services Division that the CII Draft General Permit and Fact Sheet were available for review and provided a link to the EPA NPDES Permit website to allow direct access to the documents. In addition to this Fact Sheet and the Draft General Permit, information to support

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

EPA's finding was included in a letter under separate cover and sent to the NOAA Fisheries Habitat and Ecosystem Services Division during the public comment period.

9.3. Historic Preservation

Section 106 of the NHPA requires federal agencies to take into account the effects of federal "undertakings" on historic properties listed in, or eligible for listing in the National Register of Historic Places. The term federal "undertaking" as defined in the NHPA regulations, includes a project, activity, or program of a federal agency, including those carried out by or on behalf of a federal agency, those carried out with federal financial assistance, and those requiring a federal permit, license, or approval. 36 CFR § 800.16(y). Historic properties as defined in the NHPA regulations include prehistoric or historic districts, sites, buildings, structures, or objects listed in, or are eligible for listing in, the National Register of Historic Places. This term includes artifacts, records, and remains related to and located within such properties. 36 CFR § 800.16(1).

EPA's issuance of this General Permit is a federal undertaking within the meaning of the NHPA regulations. Therefore, EPA has included eligibility requirements that pertain to the NHPA and apply to all applicants seeking coverage under the proposed CII GP. Specifically, applicants must certify that potential effects of their discharges and discharge-related activities on properties listed in or eligible for listing in the National Register of Historic Places have been appropriately considered and addressed. Although individual NOIs for authorization under the proposed CII GP do not constitute separate federal undertakings, the screening criteria and certifications provide an appropriate site-specific means of addressing historic property issues in connection with EPA's issuance of this general permit.

EPA will consult with the Massachusetts State Historic Preservation Officer ("SHPO") and interested Tribal Historic Preservation Officers ("THPOs") on this proposed permit. The final permit will reflect the results of such consultation. [EPA also solicits comments on the CII GP's potential impact on historic properties.](#)

Appendix D of the proposed CII GP includes the eligibility criteria regarding historic preservation. An applicant must evaluate their property and indicate how they will meet one or more of the following three criteria (A-C) to be eligible for authorization under the proposed CII GP:

- Criterion A: No historic properties are present. The discharges and discharge-related activities (e.g., stormwater control measure implementation) do not have the potential to affect historic properties.
- Criterion B: Historic properties are present. Discharges and discharge related activities do not have the potential to affect historic properties.

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

- Criterion C: Historic properties are present. The discharges and discharge-related activities have the potential to affect or will have an adverse effect on historic properties. The applicant has obtained and is in compliance with a written agreement with the SHPO, TPHO, or other tribal representative that outlines measures the applicant will carry out to mitigate or prevent any adverse effects on historic properties.

To determine whether historic properties are present at a site, an applicant must review all reasonably ascertainable information and, if necessary, conduct a historic survey. Where historic properties are present, an applicant must include documentation of the determination with the NOI for submitted to EPA so EPA can confirm that discharges and discharge-related activities do not have the potential to cause effects or will have an adverse effect on historic properties. Where the applicant believes or EPA determines that discharges or discharge-related activities have the potential to cause effects or will have an adverse effect on historic properties, an applicant must complete consultation with the SHPO and/or TPHO before EPA can issue authorization to discharge under the proposed CII GP. The NOI must include any terms and conditions that the applicant must follow to mitigate or prevent adverse effects due to the activities regulated by this general permit resulting from evaluation and interaction with a SHPO and/or TPHO. These terms and conditions will be included in an applicant's authorization to discharge. Authorization to discharge under this general permit will be available only if the applicant certifies and documents permit eligibility using one of the eligibility criteria listed above by following the steps in Appendix D of the proposed CII GP.

Applicants are reminded that they must comply with applicable State, Tribal, and local laws concerning protection of historic properties and include documentation supporting the determination of permit eligibility in the SPCP for their sites. For electronic listings of National and State Registers of Historic Places, see the National Park Service (<http://www.nps.gov/nr>), the Massachusetts Historical Commission (www.state.ma.us/sec/mhc).

9.4. Coastal Zone Management Act

The Coastal Zone Management ("CZM") Act ("CZMA"), 16 USC §1451 et seq., and its implementing regulations (15 CFR Part 930) require that any federally licensed activity affecting a State's coastal zone be consistent with the enforceable policies of approved State management programs. In the case of general permits, EPA has the responsibility for making the consistency certification and submitting it to the States for concurrence. EPA must certify that the activities authorized by this general permit comply with the enforceable policies of the States' approved programs and that the activities authorized by this general permit will be conducted in a manner consistent with the programs.

The Massachusetts CZM program has established enforceable policies that address natural, cultural, social, and economic resources. Mass CZM has eight categories of enforceable

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

policies: 1) water quality; 2) habitat; 3) protected area; 4) coastal hazard; 5) port and harbor infrastructure; 6) public access; 7) energy; and 8) ocean resources. A complete description of the enforceable policies is available at <http://www.mass.gov/czm>. EPA finds that the conditions in the proposed CII GP are consistent with the enforceable policies because sites are required to develop and implement control measures, including SCMs, which treat the discharge of pollutants to the receiving water and meet additional water quality requirements. The proposed CII GP contains water quality based (Part 2.1) and technology based (Part 2.2) effluent limitations. EPA has requested State concurrence with this determination for this general permit from the Executive Office of Environmental Affairs, Massachusetts CZM.

9.4.1. Protection of Coastal Resources

- Protect and preserve and, where appropriate, restore the water and related land resources of the coastal and estuarine environments. The resources of primary concern are coastal and estuarine waters, tidal and freshwater, wetlands, beaches, sand dunes, and rocky shores.

The proposed CII GP is consistent to the maximum extent practicable with this enforceable policy by prohibiting any discharge that EPA determines will cause, have the reasonable potential to cause, or contribute to an excursion above WQSs such that discharges will not interfere with the attainment and maintenance of water quality. The proposed CII GP primarily authorizes discharges related to stormwater discharges. Discharges authorized under the proposed CII GP must meet water quality-based effluent limitations for the protection of water quality which positively impacts aquatic life. Additionally, discharges authorized under the proposed CII GP must comply with additional non-numeric limitations and conditions, including those necessary to protect aquatic habitat. Part 2.1 of the proposed CII GP includes the water quality-based effluent limitations applicable to all discharges.

9.4.2. Recreation and Public Access

- Provide a wide range of outdoor recreational opportunities including public access in the seacoast through the maintenance and improvement of the existing public facilities and the acquisition and development of new recreational areas and public access. – **Not applicable to this proposal.**

9.4.3. Managing Coastal Development

The proposed CII GP is consistent with this enforceable policy by prohibiting any discharge that EPA determines will cause, have the reasonable potential to cause, or contribute to an excursion above WQSs such that discharges will not interfere with the attainment and maintenance of water quality (i.e., the chemical, physical, and biological integrity of water resources). Discharges authorized under the proposed CII GP must meet chemical-specific

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

water-quality based effluent limitations established to protect the coastal and estuarine environment and meet WQSs for the designated uses of coastal water resources. Additionally, discharges authorized under the proposed CII GP must comply with non-numeric limitations and conditions that will protect the chemical, physical, and biological integrity of the receiving waters. Part 2.1 of the proposed CII GP includes the effluent limitations applicable to all discharges. Part 2.2 of the proposed CII GP includes the requirements pertaining to BMPs.

- Ensure that the siting of any proposed energy facility in the coast will consider the national interest and will not unduly interfere with the orderly development of the region and will not have an unreasonable adverse impact on aesthetics, historic sites, coastal and estuarine waters, air and water quality, the natural environment and the public health and safety. – **Not applicable to this proposal.**
-

9.4.4. Coastal Dependent Uses

- Preserve and protect coastal and tidal waters and fish and wildlife resources from adverse effects of dredging and dredge disposal, while ensuring the availability of navigable waters to coastal-dependent uses. Encourage beach re-nourishment and wildlife habitat restoration as a means of dredge disposal whenever compatible. - **Not applicable to this proposal.**

9.4.5. Preservation of Historic and Cultural Resources

- Support the preservation, management, and interpretation of historic and culturally significant structures, sites, and districts along the Atlantic coast.

The proposed CII GP is consistent with this enforceable policy by requiring that prior to submitting a NOI, an applicant certifies eligibility with regard to protection of historic properties listed in or eligible for listing in the National Registry of Historic Places. See Appendix D of the proposed CII GP for NHPA requirements and Section 9.4 of this fact sheet, above, for more information.

9.4.6. Marine and Estuarine Research and Education

- Promote and support marine and estuarine research and education that will directly benefit coastal resource management. – **Not applicable to this proposal.**

Section 10. Public Comments, Hearing Requests and Permit Appeals

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

All persons, including applicants, who believe any condition of the Draft CII GP is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period on January 29, 2025.

Interested parties may send comments on the Preliminary Designation and/or the Draft CII GP, identified by Docket ID No. EPA-R01-OW-2024-0492, by January 29, 2025 by any of the following methods:

- Federal eRulemaking Portal: <https://www.regulations.gov/> (our preferred method). Follow the online instructions for submitting comments.
- Email: R1.RDA@epa.gov, and include “Comments on the Preliminary Designation and/or Draft CII GP” in the subject line.
- Mail: U.S. EPA Region 1, Water Division, Attn: Laura Schifman, 5 Post Office Square, Suite 100, Mail Code 06-4, Boston, Massachusetts 02109-3912. If comments are submitted in hard copy form, please also email a copy to R1.RDA@epa.gov.

EPA is holding two public meetings and two public hearings. Interested parties can register in advance to participate in these meetings. After registering, you will receive a confirmation email containing information about joining the meeting.

Public meeting registration links are:

When: Jan 7, 2025 07:00 PM Eastern Time (US and Canada)
<https://usepa.zoomgov.com/meeting/register/vJltc--qqzgiG0txPn60r6D0ZIHCEc1So>

When: Jan 9, 2025 07:00 PM Eastern Time (US and Canada)
<https://usepa.zoomgov.com/meeting/register/vJltc-2ppz0jH1qw3pWgCLnincyOthfh77o>

Public hearings registration links are:

When: Jan 22, 2025 07:00 PM Eastern Time (US and Canada)
<https://usepa.zoomgov.com/meeting/register/vJlfsuCsqj8jHUHAEG9FUqtGaWjWZ0SJU-o>

When: Jan 23, 2025 07:00 PM Eastern Time (US and Canada)
https://usepa.zoomgov.com/meeting/register/vJlscGopj8qGFxtlMFPCuBSa_Viuh8oZg0

In reaching a final decision on the Draft General Permit, EPA will respond to all significant comments in a Response to Comments document attached to the Final General Permit and make these responses available to the public on EPA’s website.

Following the close of the comment period, and after any public hearings, EPA will issue a Final Permit decision and publish the notice of availability of the Final Permit decision in the Federal

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

Register, and provide a copy or notice of availability of the final decision to each person who submitted written comments or requested notice.

General permits may not be appealed to the Environmental Appeals Board. Procedures governing actions by persons affected by a general NPDES permit, including petitions and applications for individual permits, as well as judicial appeals, are set forth in 40 CFR § 124.19(o) and 40 CFR § 122.28.

If for any reason, comments on the Draft General Permit cannot be emailed as described above, please contact EPA at telephone number: (617) 918-1015.

Section 11. Administrative Record

The administrative record on which this Draft General Permit is based may be accessed at <https://www.epa.gov/npdes-permits/notice-preliminary-designation-certain-stormwater-discharges-commonwealth> or by contacting EPA at 617-918-1015 or via email to R1.RDA@epa.gov.

Section 12. Massachusetts-Specific Limitations and Conditions

In addition to the Discharge Limitations included in Part 2 of the proposed CII GP, certain limitations and conditions apply to discharges in Massachusetts. These requirements will be provided to EPA in the Massachusetts § 401 certification.

12.1. State § 401 Certification

Section 401 of the CWA provides that no federal license or permit (including NPDES permits) to conduct any activity that may result in any discharge into navigable waters shall be granted until the State in which the discharge originates either certifies that the discharge will comply with the applicable provisions of §§ 301, 302, 303, 306, and 307 of the CWA or it is deemed that the State has waived its right to such certification. Upon public notice of the draft proposed CII GP, EPA will request that the Commonwealth of Massachusetts conduct a CWA § 401 review and provide a certification decision, which will then be available to the public and included in the record for the final permit. The §401 certifications should include the specific conditions necessary to assure compliance with applicable provisions of CWA §§ 208(e), 301, 302, 303, 306 and 307 and with appropriate requirements of State law.

**Ken Moraff, Director
Water Division
U.S. Environmental Protection Agency**

**EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional
Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in
Massachusetts – 2024 Fact Sheet**

Section 13. References

Booth, D.B., Forest cover, impervious surface area, and the mitigation of urbanization impacts in King County, 18 pp., 2000 (University of Washington, Department of Civil and Environmental Engineering internal paper: Washington)

Carpenter, S. R., Caraco, N. F., Sharpley, A. N., Smith, V. H., Howarth, R. W., & Correll, D. L. (1998). Nonpoint pollution of surface waters with Phosphorus and nitrogen. *Ecological Applications*, 559-568.

Center For Watershed Protection. (2003). *Impacts of Impervious Cover on Aquatic Systems*. Ellicott City, MD: Center For Watershed Protection.

CH2M Hill. (2016). *Stormwater Best Management Practices Recommendations Report*. Prepared For Boston Water and Sewer Commission.

Charles River Watershed Association. (2015). *Cyanobacteria in the Charles River Lower Basin 2006-2014 Monitoring Report*.

Charles River Watershed Association. (2021). *2020 Annual Water Quality Report*.

Chen, J., Theller, L., Gitau, M. W., Engel, B. A., & Harbor, J. M. (2017). Urbanization Impacts on Surface Runoff of the Contiguous United States. *Journal of Environmental Management*, 187, 470-481.

CRWA, MyRWA, NepRWA. (2022). *Three Rivers Report Card*.

Driscoll, C. T., Whitall, D., Aber, J., Boyer, E., Castro, M., Cronan, C., Ollinger, S. (2003). Nitrogen Pollution in the Northeastern United States: Sources, Effects, and Management Options. *BioScience*, 357-374.

Howarth, R., & Marino, R. (2006). Nitrogen as the limiting nutrient for eutrophication in coastal marine ecosystems: Evolving views over three decades. *Limnology and Oceanography*, 364-376.

Jacobson, C. R. (2011). Identification and quantification of the hydrological impacts of imperviousness in urban catchments: a review. *Journal of Environmental Management*, 1438-1448.

Jani, J., Jang, Y.-Y., Lusk, M., & Toor, G. (2020). Composition of nitrogen in urban residential stormwater runoff: Concentrations, loads, and source characterization of nitrate and organic nitrogen. *PLoS ONE*, e0229715.

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

King, B. S., Maker, M. E., Kazyak, P. F., & Weller, D. E. (2011). How Novel is Too Novel? Stream Community Thresholds at Exceptionally Low Levels of Catchment Urbanization. *Ecological Applications*, 21, 1659-1678.

Law, N., DiBlasi, K., Ghosh, U. 2008. Deriving Reliable Pollutant Removal Rates for Municipal Street Sweeping and Storm Drain Cleanout Programs in the Chesapeake Bay Basin. Center for Watershed Protection, Ellicott City, MD. Pages 1-73.

Lin, J. P. (2004). Review of Published Export Coefficient and Event Mean Concentration (EMC) Data. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

Mallin, M. A., Johnson, V. L., & Ensign, S. H. (2009). Comparative impacts of Stormwater Runoff on Water Quality of an Urban, a Suburban, and a Rural Stream. *Environ Monit Assess*, 159, 475-491.

Massachusetts Department of Environmental Protection. (1995). The Neponset River Watershed 1994 Resource Assessment Report.

Massachusetts Department of Environmental Protection. (2000). Charles River Watershed 1997/1998 Water Quality Assessment Report. Retrieved January 18, 2022, from <https://www.mass.gov/doc/charles-river-basin-watershed-19971998-water-quality-assessment-report-section-iii/download>

Massachusetts Department of Environmental Protection. (2002). Total Maximum Daily Loads of Bacteria for Neponset River Basin.

Massachusetts Department of Environmental Protection. (2004). Boston Harbor South Watersheds 2004 Assessment Report.

Massachusetts Department of Environmental Protection. (2006). Mystic River Watershed Assessment and Action Plan.

Massachusetts Department of Environmental Protection. (2007a). Final Pathogen TMDL for the Charles River Watershed.

Massachusetts Department of Environmental Protection. (2007b). Final TMDL for Nutrients in the Lower Charles River Basin.

Massachusetts Department of Environmental Protection. (2009). Northeast Region Bacteria Source Tracking 2008 Results.

Massachusetts Department of Environmental Protection. (2010a). Mystic River Watershed and Coastal Drainage Area 2004 -2008 Water Quality Assessment Report.

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

Massachusetts Department of Environmental Protection. (2010b). Neponset River Watershed 2004 Water Quality Assessment Report.

Massachusetts Department of Environmental Protection. (2011). Total Maximum Daily Load for Nutrients in the Upper/Middle Charles River Basin, Massachusetts.

Massachusetts Department of Environmental Protection. (2012). Addendum: Final Total Maximum Daily Loads of Bacteria for Neponset River Basin.

Massachusetts Department of Environmental Protection. (2018). Final Pathogen TMDL for the Boston Harbor, Weymouth-Weir, and Mystic Watersheds.

Massachusetts Department of Environmental Protection. (2021). Final Massachusetts Integrated List of Waters for the Clean Water Act 2018/2020 Reporting Cycle.

Massachusetts Department of Revenue/Division of Local Services. (June 2016). Property Type Classification Codes, Non-Arm's Length Codes and Sales Report Spreadsheet Specifications.

Massachusetts Water Resources Authority. (2022). Combined Sewer Overflows (CSOs). Retrieved from <https://www.mwra.com/03sewer/html/sewcso.htm>

MassDOT. (2022, August). MassDOT Highway Impaired Waters Program. Retrieved from <https://www.mass.gov/lists/massdot-highway-impaired-waters-program>

MassGIS. (2016). 2016 Land Use/Land Cover Data. Retrieved August 10, 2022, from <https://www.mass.gov/info-details/massgis-data-2016-land-coverland-use>

MassGIS. (2022). MassGIS Data: Property Tax Parcels. Retrieved January 2022, from <https://www.mass.gov/info-details/massgis-data-property-tax-parcels>

Mattson, M. D., & Isaac, R. A. (1999). Calibration of Phosphorus Export Coefficients for Total Maximum Daily Loads in Massachusetts Lakes. *Lake and Reservoir Management*, 15:3, 209-219.

Moore, R. B., Johnston, C. M., Smith, R. A., & Milstead, B. (2011). Source and delivery of nutrients to receiving waters in the Northeastern and Mid-Atlantic Regions of the United States. *JAWRA Journal of the American Water Resources Association*, 965-990.

National Research Council. (2000). *Clean Coastal Waters: Understanding and Reducing the Effects of Nutrient Pollution*. Washington, D.C.: National Academies Press.

National Research Council. (2008). *Urban Stormwater Management in the United States*. Washington, D.C.: National Academies Press.

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

Neponset River Watershed Association. (2014). Neponset River Estuary ACEC Water Quality and Restoration Action Plan.

Neponset River Watershed Association. (2017). Hotspot Monitoring 2017 Report.

Pitt, R., Maestre, A., & Morquecho, R. (2004). The National Stormwater Quality Database (NSQD, Version 1.1).

Roy, A. H., & Shuster, W. D. (2009). Assessing Impervious Surface Connectivity and Applications for Watershed Management. *Journal of the American Water Resource Association*, 45(1).

Schueler, T. (2011). Technical Bulletin No. 9: Nutrient Accounting Methods to Document Local Stormwater Load Reduction in the Chesapeake Bay Watershed. Chesapeake Stormwater Network.

Shaver, E., Horner, R., Skupien, J., May, C., & Ridley, G. (2007). *Fundamentals of Urban Runoff Management: Technical and Institutional Issues*. Madison, WI: North American Lake Management Society.

US EPA. (1999). *Results of the Nationwide Urban Runoff Program*. Washington D.C.: US EPA.

US EPA. (2016a). 2016 Massachusetts Municipal Separate Storm Sewer General Permit (as amended). Retrieved August 10, 2022, from <https://www.epa.gov/npdes-permits/massachusetts-small-ms4-general-permit>

USEPA. (2000). *Nutrient Criteria Technical Guidance Manual - Rivers and Streams*.

USEPA. (2001). *Nutrient Criteria Technical Guidance Manual - Estuarine and Coastal Marine Waters*.

USEPA. (2005). *A Hydrodynamic and Water Quality Model for the Lower Charles River Basin, Massachusetts*.

USEPA. (2013). *A Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act Section 303(d) Program*.

USEPA. (2014). *Fact Sheet to the 2014 Draft MA Small MS4 Permit*.

USEPA. (2016b). *MEMORANDUM - Annual Average Phosphorus Load Export Rates (PLERs) for Use in Fulfilling Phosphorus Load Reduction Requirements in EPA Region 1 Stormwater Permits*.

USEPA. (2020). *Mystic River Watershed Alternative Restoration Plan Development for Phosphorus Management - Final Report*. EPA Contract No. EP-C-16-003.

EPA Region 1 General Permit for Private Commercial, Industrial, and Institutional Stormwater Discharges in the Charles, Mystic, and Neponset River Watersheds in Massachusetts – 2024 Fact Sheet

USEPA. (2022a, August). Environmental Challenges for the Mystic River Watershed. Retrieved from <https://www.epa.gov/mysticriver/environmental-challenges-mystic-river-watershed>

USEPA. (2022b, August). Live Water Quality Data for the Mystic River. Retrieved from <https://www.epa.gov/mysticriver/live-water-quality-data-mystic-river>

USEPA. (2022c, August). Live Water Quality Data Lower Charles River. Retrieved from <https://www.epa.gov/charlesriver/live-water-quality-data-lower-charles-river>

USEPA. (2022d, August). Mystic River Watershed Report Cards. Retrieved from <https://www.epa.gov/mysticriver/mystic-river-watershed-report-cards>

USEPA. (2022e, August). Urban Waters - Neponset River. Retrieved from <https://www.epa.gov/neponsetriver>

USEPA. (2022f, August). The Charles River Initiative. Retrieved from <https://www.epa.gov/charlesriver/charles-river-initiative>

Wang, S., Ma, Y., Zhang, X., & Shen, Z. (2022). Transport and sources of nitrogen in stormwater runoff at the urban catchment scale. *Science of the Total Environment*, 150281.

Waschbusch, R. J. (2000). Sources of Phosphorus in Stormwater and Street Dirt from two Urban Residential Basins in Madison, Wisconsin, 1994-1995. National conference on Tools for Urban Water Resource Management and Protection (pp. 15-55). US EPA.