Memorandum

To: DCR Stormwater Section
10 Park Plaza
Boston, MA 02116

Date: 05/08/26

Project #: 15722.00

From: Olivia Ting, Sarah Molla, Sarah Nalven & Kelly Siry, PE

Re: Nutrient Source Identification Report Implementation Update – Permit Year 8

Introduction

The purpose of this memo is to provide the Permit Year (PY) 8 status of best management practice (BMP) crediting and implementation in watersheds for which DCR has developed Nutrient Source Identification Reports (NSIRs). Per the National Pollutant Discharge Elimination System General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems in Massachusetts (MS4 Permit), DCR must complete a Nitrogen or Phosphorus Source Identification Report for discharges to water quality limited waterbodies and their tributaries where nitrogen or phosphorus, respectively, is the cause of the impairment.[1] DCR has developed these reports, collectively referred to as NSIRs, for the following watersheds:

- Mystic River
- Merrimack River
- Mount Hope Bay
- Outer New Bedford Harbor
- Blackstone River
- Mother Brook
- Ten Mile River
- Proctor Brook
- Long Island Sound

NSIR requirements for tributaries to the waterbodies listed above are met within one of the above watershed-wide NSIRs. DCR's NSIRs can be found at DCR's Stormwater Management webpage.

BMP Crediting

The MS4 Permit requires that permittees track existing, MS4-regulated structural BMPs within NSIR watersheds and estimate pollutant removal provided by these BMPs using methodology in the MS4 Permit's Attachment 3 to Appendix F.[1] DCR fulfilled this requirement in PY5 as part of the development of NSIRs and must continue this tracking and accounting annually, according to the MS4 Permit. In PY6, VHB found that no new creditable BMPs had been mapped within DCR's NSIR watersheds. In PY7, VHB credited eight newly mapped creditable BMPs across four NSIR watersheds. In PY8 (i.e. this year), VHB reviewed BMPs that had been mapped in NSIR watersheds between April 1, 2025, and November 14, 2025 and credited five BMPs across three NSIR watersheds (Table 1). BMPs mapped after November 14, 2025 will be reviewed in PY9.

[1] The MS4 Permit's Appendix H Sections I.1.b and II.1.b include this requirement; nitrogen is discussed in Section I and phosphorus in Section II.

Table 1. BMPs newly credited in PY8

Watershed	Facility	BMP ID	BMP Type
Blackstone River	Honorable Charles J. Buffone Skating Rink	20890	Leaching Galley
	Quinsigamond State Park - Regatta Point	19945	Sand Filter
Mystic River	John W. Flynn Memorial Ice Skating Rink	20876	Leaching Chamber
		19944	Infiltration Basin
Long Island Sound	Sarah Jane Sherman Swimming Pool	20872	Leaching Catch Basin

Additionally in PY8, VHB re-credited five BMPs in the Blackstone River watershed using individual design storage volume (DSV) estimates instead of assuming 0.5 inch of runoff depth for all BMPs, as had been done in previous permit years. The re-crediting effort was performed because these BMPs are also within Phosphorus Control Plan (PCP) watersheds (Lake Quinsigamond & Flint Pond Watershed; Leesville/Auburn Pond Watershed), and in PY8 DCR had to demonstrate compliance with PCP PY8 targets using individually estimated (versus assumed) DSVs. More on this effort can be found in the PY8 PCP Performance Evaluation memorandum.

Table 2 summarizes each NSIR watershed's total number of credited BMPs and total pollutant reduction. Note that two historically credited BMPs were removed in PY8 based on new information. These BMPs were surface BMP 19506 and surface BMP 19532. Surface BMP 19506 in the Mystic River watershed was removed as it discharged to combined sewer; therefore this BMP was not a part of the MS4. Surface BMP 19532 in the Long Island Sound watershed was removed because it was determined this BMP was upstream of a credited BMP and DCR currently does not credit more than one BMP in a series. (Note that although these BMPs are no longer credited under DCR's NSIR, the BMPs remain in DCR's database and are included in their maintenance program.) Due to the removed BMP in the Long Island Sound Watershed, load reduction credit in this watershed is now lower than previously reported. Although one BMP was removed from the Mystic River watershed's credited BMPs, load reduction credit increased in this watershed in PY8 due to the two additional BMPs credited (Table 1).

Table 2. Creditable BMPs and Estimated Nutrient Load Reduction in NSIR Watersheds

Watershed	Impairment	Number of BMPs	Phosphorus Reduction (lb/yr)	Nitrogen Reduction (lb/yr)
Blackstone River[1, 2] (MA51-06)	Phosphorus	19	11.0	-
Merrimack River (MA84A-04)	Phosphorus	6	4.2	-
Mother Brook (MA73-28)	Phosphorus	8	4.0	-
Mystic River[1] (MA71-02)	Phosphorus	12	18.5	-
Ten Mile River (MA52-03)	Phosphorus	1	0.5	-
Proctor Brook (MA93-39)	Phosphorus, Nitrogen	1	0.4	4.9
Mount Hope Bay (MA61-06/ MA61-07)[3]	Phosphorus, Nitrogen	2	0.5	4.3
Long Island Sound Watershed[1] (LISOUND)	Phosphorus, Nitrogen	7	6.2	53.6
Outer New Bedford Harbor (MA95-63)	Phosphorus, Nitrogen	1	0.6	4.8
Total	-	57	45.9	67.6

[1] Indicates BMPs were newly credited in PY8

[2] Indicates BMPs were re-credited in PY8

[3] Two waterbody IDs are listed because Mount Hope Bay is divided into western and eastern portions.

Memorandum

BMP Implementation

The MS4 Permit requires DCR to install a minimum of one structural BMP as a demonstration project within six years of the permit effective date.[2] As of PY7, demonstration BMPs have been installed in all nine NSIR watersheds. As this requirement is complete, no additional work for this requirement was performed during PY8.

In addition to installing a demonstration BMP, the MS4 Permit requires that DCR provide a list of planned structural BMPs for each NSIR watershed and a schedule for implementation. The MS4 Permit then requires that BMPs are installed according to this implementation plan and schedule. For most[3] NSIR watersheds, DCR's implementation plan consists of incorporating BMPs into capital projects wherever possible (per the DCR Stormwater Handbook) and installing at least one BMP per watershed per MS4 Permit term. DCR has met this plan for the current permit term through installation of demonstration BMPs. A new permit term will commence when the current draft MS4 Permit (released in late 2024) is finalized, at which point DCR may have to reevaluate the implementation plan, depending on NSIR requirements in the new MS4 Permit.

NSIR Updates

In PY8, VHB issued new NSIR reports for all nine watersheds to meet Section 508[4] accessibility requirements and to create an addendum for each report. Initially, VHB set out to create addenda for just two NSIRs to address newly listed and de-listed waterbodies on the 2018/2020 Integrated List of Waters (Table 3), as described in a 2024 memo to DCR.[5] However, while reviewing the two NSIRs that needed updates, VHB recognized the opportunity to recalculate catchment loads and reprioritize catchments for all nine NSIRs to enhance usefulness of catchment prioritization. Consequently, in October 2025, VHB produced an addendum for each NSIR to document these updates. Several addenda also reflect additional minor changes, such as the change of name from NSIR to NSIR-PSIR. The new 508-compliant reports and their respective addenda have replaced the PY5 versions on DCR's Stormwater Management webpage.

Table 3. NSIR Updates Based on 303(d) List Updates

Report	PY8 Update	Relevant Waterbody Segments
NSIR for Mount Hope Bay (MA61-06) and Tributaries	Added 3 waterbody segments	Taunton River (MA62-02) Taunton River (MA62-03) Taunton River (MA62-04)
NSIR for the Merrimack River (MA84A-04) and Tributaries	Removed 2 waterbody segments	Nashua River (MA81-07) Nashua River (MA81-09)

[2] The MS4 Permit's Appendix H Sections I.1.c and II.1.c include this requirement; nitrogen is discussed in Section I and phosphorus in Section II.

3 Mother Brook is the exception. This watershed has extremely limited opportunity for effective retrofits, so DCR's implementation plan is to construct BMPs if opportunities arise as part of planned capital projects. There is no commitment to install at least one BMP per watershed per MS4 Permit term as in the other watersheds.

[4] Section 508 of the Rehabilitation Act and Digital Accessibility, US EPA

[5] VHB Memorandum to DCR. "New Impaired Waters Requirements due to MassDEP 2018/2020 and 2022 303(d) List Updates." April 5, 2024.

Memorandum

Summary

This memo summarizes DCR's PY8 BMP crediting and implementation status in DCR's nine NSIR watersheds. In PY8, VHB credited five newly mapped structural BMPs across the Blackstone River, Mystic River, and Long Island Sound watersheds. VHB also re-credited five Blackstone River BMPs using individual versus assumed DSV estimates because these BMPs also fell in PCP watersheds and this was a PCP requirement. Two BMPs were also removed from the Mystic River and Long Island Sound tallies based on new information. With these updates complete, 57 BMPs are now credited across DCR's nine NSIR watersheds.

In PY8, VHB also updated all nine NSIRs to be 508-compliant, recalculated and reprioritized catchment loads, and issued addenda documenting these updates and others, such as NSIR coverage changes driven by 303(d) list updates. Once finalized, these updated NSIRs replaced the PY5 versions on DCR's Stormwater Management webpage.