

UNITED STATES DISTRICT COURT
DISTRICT OF RHODE ISLAND

_____)	
UNITED STATES OF AMERICA,)	
)	
Plaintiff,)	
)	
v.)	CIVIL ACTION NO.
)	
RHODE ISLAND DEPARTMENT OF)	CV-15-433
TRANSPORTATION,)	
)	
Defendant.)	
_____)	

CONSENT DECREE

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WHEREAS, the plaintiff, the United States of America, on behalf of the United States Environmental Protection Agency (“EPA”), has filed a complaint simultaneously with this Consent Decree alleging that the Rhode Island Department of Transportation (“RIDOT”) has violated the Clean Water Act by failing to comply with conditions in the General Permit – Rhode Island Pollutant Discharge Elimination System Storm Water Discharge from Small Municipal Separate Storm Sewer Systems and from Industrial Activity at Eligible Facilities Operated by Regulated Small MS4s (the “Permit”) relating to addressing discharges to impaired waters, illicit discharge detection and elimination, street sweeping pollution prevention, and catch basin and other drainage system component inspection and maintenance;

WHEREAS, the United States and RIDOT (collectively, the “Parties”), agree, without admission of facts or law except as expressly stated herein, that settlement of this matter is in the public interest and that entry of this Consent Decree without further litigation is an appropriate resolution of the dispute, and the Parties consent to the entry of this Consent Decree; and

WHEREAS, settlement and entry of this Consent Decree does not constitute an admission of liability by RIDOT;

NOW, THEREFORE, it is hereby ordered, adjudged, and decreed as follows:

I. STATEMENT OF CLAIM

1. The Complaint states claims upon which relief can be granted against RIDOT pursuant to Section 309 of the CWA, 33 U.S.C. § 1319.

II. JURISDICTION AND VENUE

2. This Court has jurisdiction over the subject matter of this action pursuant to Section 309(b) of the CWA, 33 U.S.C. §1319(b), and 28 U.S.C. §§ 1331, 1345, and 1355. This Court

has personal jurisdiction over the Parties to this Consent Decree. Venue properly lies in this district pursuant to Section 309(b) of the CWA, 33 U.S.C. § 1319(b), 28 U.S.C. §§ 1391(b) and (c), and 28 U.S.C. § 1395. RIDOT waives all objections it might have raised to such jurisdiction or venue.

III. APPLICABILITY

3. The provisions of this Consent Decree shall apply to and be binding upon RIDOT and its officers, directors, agents, employees acting in their official capacities, its successors, and assigns.

4. No transfer of any ownership interest in or any interest in the operation of the RIDOT Municipal Separate Storm Sewer System (“RIDOT MS4”), whether in compliance with this Paragraph or otherwise, shall relieve RIDOT of its obligation to ensure that the terms of this Consent Decree are implemented. Any transfer involving ownership or operation of the RIDOT MS4, or any portion thereof, to any other person or entity must be conditioned upon the transferee's agreement to be added as a party to the Consent Decree and to be jointly and severally liable with RIDOT to undertake the obligations required by all provisions of the Consent Decree relating to the portion transferred. At least thirty (30) Days prior to such transfer, RIDOT shall provide a copy of this Consent Decree to the proposed transferee and shall simultaneously provide written notice of the prospective transfer, together with a copy of the above-referenced proposed written agreement, to EPA, the United States Attorney, and the United States Department of Justice in accordance with Section XIV (Form of Notice). Any noncompliance with this Paragraph constitutes a violation of this Consent Decree.

5. RIDOT shall provide a copy of this Consent Decree to all officers and agents whose

duties might reasonably include compliance with any provisions of this Consent Decree. RIDOT shall also provide a copy of this Consent Decree to all contractors and consultants retained to perform any obligation required by this Consent Decree on behalf of RIDOT, and condition any such contract upon performance of the work in conformity with the terms of this Consent Decree. RIDOT shall require that such contractors and consultants provide a copy of this Consent Decree to their subcontractors to the extent the subcontractors are performing work subject to this Consent Decree. Such contractors, consultants and subcontractors shall be deemed agents of RIDOT for the purposes of this Consent Decree. In an action to enforce this Consent Decree, RIDOT shall not assert as a defense against an action by EPA the failure by any of its officers, directors, employees, agents, servants, consultants, engineering firms, contractors, successors, and assigns to take actions necessary to comply with this Consent Decree.

IV. DEFINITIONS

6. Unless otherwise expressly provided herein, terms used in this Consent Decree which are defined in the CWA or in regulations promulgated under the CWA shall have the meaning ascribed to them in the CWA or in the regulations promulgated thereunder. Whenever the terms listed below are used in this Consent Decree, the following definitions shall apply.

a. “Act” or “CWA” shall mean the Federal Water Pollution Control Act (commonly referred to as the Clean Water Act), as amended, 33 U.S.C. §§ 1251-1387.

b. “Approval by EPA” or “Approved by EPA” shall mean the issuance of a written approval document from EPA approving or approving with conditions a submission in accordance with Section IX (Review and Approval).

c. “Best Management Practices or BMPs” shall mean schedules of activities, practices and prohibition of practices, structures, vegetation, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants to waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site and road runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

d. “Complaint” shall mean the complaint filed by the United States.

e. “Consent Decree” or “Decree” shall mean this Consent Decree and all appendices attached hereto. In the event of conflict between this Decree and any appendix, this Decree shall control.

f. “Date of Lodging” shall mean the Day this Consent Decree is filed for lodging with the Clerk of the Court for the United States District Court for the District of Rhode Island.

g. “Day” shall mean a calendar day. In computing any period of time under this Consent Decree, where the last day would fall on a Saturday, Sunday, or federal or Rhode Island holiday, the period shall run until the close of business of the next business day.

h. “Densely Populated Area or DPA” shall mean a census designated place(s) as defined by the latest Decennial Census that is located outside Urbanized Areas and meets all of the following criteria: (i) the population density within the census designated place is equal to or greater than 1,000 people per square mile; and (ii) the census designated place has or is part of a block of contiguous census designated places with a total population of at least 10,000 people.

i. “Effective Date” shall have the definition provided in Section XVII (Effective Date).

j. “Enhanced Non-Structural BMP” shall mean a non-structural BMP that exceeds the scope of the required six minimum control measures specified in Section IV of the Permit (including source controls, increased street sweeping, fertilizer management, etc., that go beyond the scope of the required six minimum control measures).

k. “EPA” shall mean the United States Environmental Protection Agency and any successor departments or agencies of the United States.

l. “Existing EPA-approved TMDL” shall mean a TMDL approved by EPA as of the Effective Date.

m. “Fiscal Year” or “FY” shall mean the State fiscal year. For instance, FY 2015 means July 1, 2014 through June 30, 2015.

n. “Group SCP” shall mean the group of stormwater control plans for a grouping of Impaired Water Body Segments located near each other and within the whole or a part of the same watershed.

o. “Impaired Sub-Watershed” shall mean a geographic area that drains, directly or indirectly, to an Impaired Water Body Segment, including via man-made conveyances, but shall not include geographic areas that drain to an upstream segment of the same waterbody which has its own RI Integrated List of waterbodies identification number.

p. “Impaired Water Body Segment” shall mean a water body segment that is listed on RIDEM’s CWA Integrated List of waterbodies as Category 4A or 5, or in an EPA-Approved TMDL, by Waterbody ID.

q. “Municipal Separate Storm Sewer System” or “MS4” shall mean a system of conveyances (including roads with drainage systems, streets, catch basins, curbs, gutters, ditches,

man-made channels, or storm drains) designed to collect, convey and discharge stormwater to receiving waters.

r. “Other RIDOT Roadways” shall mean RIDOT owned roadways that are not within the category of roadways that RIDOT refers to as “RIDOT Maintained Roadways.”

s. “Paragraph” shall mean a portion of this Consent Decree identified by an Arabic numeral or an upper or lower case letter.

t. “Parties” shall mean the United States and the Rhode Island Department of Transportation.

u. “Permit” shall mean the General Permit - Rhode Island Pollutant Discharge Elimination System Storm Water Discharge from Small Municipal Separate Storm Sewer Systems and from Industrial Activity at Eligible Facilities Operated by Regulated Small MS4s.

v. “Pollutant(s) of Concern” or “POC(s),” for purposes of this Consent Decree, shall mean pollutant(s) causing a water quality impairment in a particular Impaired Water Body Segment as described in the RIDEM CWA Integrated List of waterbodies, that are related to Roadway Stormwater-Related Impairments.

w. “Re-construction” shall mean any RIDOT construction project that involves: 1) demolition or removal of existing pavement, gravel borrow subbase material, and sidewalks (where applicable), and replacement of said pavement, gravel borrow subbase material, and sidewalks (where applicable); and/or 2) (i) removal and upgrade of existing closed drainage system(s) or (ii) removal and in-kind replacement of a major part of an existing closed drainage system if the drainage system or an associated outfall has been identified in a TMDL as a priority for structural stormwater controls. Upgrade of existing closed drainage system(s) includes

replacement of components at a new line or grade, location or capacity, or other change to the system. RIDOT maintenance and preservation activities such as mill and overlay, level and overlay, thin overlay, in-place recycling, and reclamation projects, and repair of existing drainage system components at the same line and grade, are not considered to be Re-construction.

x. “RIDEM” shall mean the Rhode Island Department of Environmental Management.

y. “RIDOT” shall mean the Rhode Island Department of Transportation.

z. “RIDOT Maintained Roadways” shall mean the roadways maintained by RIDOT that are within the category of roadways that RIDOT refers to as “RIDOT Maintained Roadways.” These roadways are listed on the RIDOT website as the “State-Maintained Roads in Rhode Island” and/or the most recently published “Roads-RIDOT” data file on the Rhode Island Geographic Information Systems (RIGIS) website at: www.edc.uri.edu/rigis/ (click Download Data, then click Transportation).

aa. “RIDOT Roadways” shall mean both “RIDOT Maintained Roadways” and “Other RIDOT Roadways.”

bb. “RIDOT MS4” shall mean the system owned or operated by RIDOT of conveyances (including roads with drainage systems, streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) designed to collect, convey and discharge stormwater to receiving waters. The RIDOT MS4 includes both (a) RIDOT maintained roadways and (b) RIDOT owned roadways that do not fall within the RIDOT maintained roadways category.

cc. “RIDOT MS4 direct discharge” shall mean a discharge from an outfall from the RIDOT owned or operated MS4 that flows to a waterbody (including its banks) or wetlands adjacent to it, without first going through a natural or man-made ditch, swale, pipe, storm drain, or other conveyance mechanism. Flows from an outfall that do not reach a waterbody (including its banks) or wetlands adjacent to it are not discharges to the waterbody.¹ Any determination that flows from an individual outfall do not reach a waterbody would need to be made on a case-by-case basis based on field observations and site-specific factual data, such as data on topography, distance, and type and perviousness of intervening cover. Discharges include, but are not limited to, stormwater runoff.

dd. “RIDOT MS4 Discharge Point(s)” shall mean any location where water is discharged from the RIDOT MS4, including RIDOT MS4 outfalls and RIDOT MS4 interconnection discharges through other municipal MS4s or non-RIDOT outfalls. RIDOT MS4 Discharge Points include locations where water is discharged from RIDOT owned roadways that do not fall within the category of “RIDOT maintained roadways,” in addition to locations where water is discharged from RIDOT maintained roadways.

ee. “RIDOT MS4 indirect discharge” shall mean a discharge from a RIDOT MS4 Discharge Point that flows to a waterbody (including its banks) or wetlands adjacent to it, after first going through a natural or man-made ditch, swale, pipe, storm drain, or other conveyance mechanism.² Flows from an outfall that do not reach a waterbody (including its banks) or

1 One example of flows from an outfall that are not discharges to the waterbody are flows that fully infiltrate into the ground before reaching the waterbody (including its banks) or wetlands adjacent to the waterbody.

2 One example of a RIDOT MS4 indirect discharge to a waterbody via a manmade conveyance would be a discharge from a RIDOT MS4 Discharge Point that flows through a storm drain owned and operated by a municipality or other non-RIDOT entity before entering the waterbody. Another example of a RIDOT MS4 indirect discharge to a waterbody via a manmade conveyance would be a discharge from a RIDOT MS4 Discharge Point

wetlands adjacent to it are not discharges to the waterbody. Any determination that flows from an individual outfall do not reach a waterbody would need to be made on a case-by-case basis based on field observations and site-specific factual data, such as data on topography, distance, and type of cover. Discharges include, but are not limited to, stormwater runoff.

ff. “RIDOT Permit Area” shall mean the Urbanized Areas (“UA”), the Densely Populated Area, and divided highways outside of the Urbanized Areas and the Densely Populated Area in Rhode Island (see map in Appendix J to RIPDES Rule 31). For the purposes of RIPDES Rule 31, any subsequent UA calculated area will be added to any previous UA calculated area as shown in Appendix J of RIPDES Rule 31.

gg. “Roadway Stormwater-Related Impairments” shall mean impairments for metals (*e.g.*, zinc, lead, copper) other than mercury, nutrients (*e.g.*, phosphorus, nitrogen), organic enrichment, bacteria (*e.g.*, fecal coliform, enterococcus), salinity/chloride, impaired biota, turbidity, hydrocarbons, and total suspended solids (TSS). If a waterbody segment is listed as impaired for temperature or flow alteration or another impairment not listed in the first sentence above and roadways are attributed as a contributing source of the impairment, the temperature or flow alteration or other impairment shall also be considered a Roadway Stormwater-Related Impairment for that waterbody segment. For impairments that are described as “observed effects,” *e.g.*, algal growth or taste/color/odor, the impairment will be treated as a Roadway

that flows through a man-made ditch, swale, or channel before entering the waterbody. One example of a RIDOT MS4 indirect discharge to a waterbody via a natural conveyance would be a discharge from a RIDOT MS4 Discharge Point that flows through a natural ditch, swale, or channel before entering the waterbody. Such channels can include small tributary streams that are not individually identified and numbered on the RI Integrated List of waterbodies.

Stormwater-Related Impairment for nutrients (*e.g.*, phosphorus, nitrogen) or, if applicable, another Roadway Stormwater-Related Impairment pollutant listed in the first sentence above.

hh. “Section” shall mean a portion of this Consent Decree identified by a Roman numeral.

ii. “SCP Water Body Grouping” shall mean a group of Impaired Water Body Segments located near each other and within the whole or a part of the same watershed, which will be addressed in a Group SCP.

jj. “Stormwater Control Plan” or “SCP” shall mean the stormwater control plan for an Impaired Water Body Segment.

kk. “Stormwater Treatment Unit” or “STU” shall mean any structural control to treat stormwater, including but not limited to oil/water separators (excluding those discharging to sanitary sewers), sediment removal units (such as Vortechinics), filters, treatment swales, and stormwater basins, and areas of permeable pavement designed to treat stormwater. For the purposes of this Consent Decree, catch basins are not Stormwater Treatment Units.

ll. “Sub-Watershed” or “subwatershed” shall mean a geographic area that drains, directly or indirectly, to a waterbody segment, including via man-made conveyances, but shall not include geographic areas that drain to an upstream segment of the same waterbody which has its own RI Integrated List of waterbodies identification number.

mm. “United States” shall mean the United States of America.

nn. “Urbanized Areas or UA” shall mean those areas that consist of contiguous, densely settled census block groups, and census blocks, that meet minimum population density requirements, along with adjacent densely settled census blocks that together encompass a

population of at least 50,000 people. Minimum population density requirements consists of core census block groups or blocks that have a population density of at least 1,000 people per square mile, and surrounding census blocks that have an overall density of at least 500 people per square mile. The complete criteria are available from the Chief, Geography Division, U.S. Bureau of the Census, Washington, DC 20233. For the purposes of RIPDES Rule 31, any subsequent UA calculated area will be added to any previous UA calculated area as shown in Appendix J of RIPDES Rule 31.

V. PENALTY FOR PAST VIOLATIONS

7. RIDOT shall pay a civil penalty in the amount of three hundred fifteen thousand dollars (\$315,000) (“Civil Penalty”), together with interest accruing from the Date of Entry, at the rate specified in 28 U.S.C. § 1961, to the United States in satisfaction of the claims for civil penalties alleged in the Complaint through the Date of Lodging of the Consent Decree. Payment of the civil penalty shall be made within 30 Days after the Effective Date of the Consent Decree.

8. RIDOT shall make payment of the civil penalty by FedWire Electronic Funds Transfer (“EFT”) to the United States Department of Justice in accordance with written instructions to be provided to RIDOT, following lodging of the Consent Decree, by the United States Attorney's Office for the District of Rhode Island, Financial Litigation Unit, Providence, Rhode Island. The costs of such electronic funds transfer shall be the responsibility of RIDOT. At the time of payment, RIDOT shall send a copy of the EFT authorization form, the EFT transaction record, and a transmittal letter, which shall state that the payment is for the Civil Penalty owed pursuant to the Consent Decree in United States v. Rhode Island Department of Transportation and shall reference the civil action number and DOJ case number 90-5-1-1-10908, to the EPA and the

United States Department of Justice as specified in Section XIV (Form of Notice), by email to acctsreceivable.CINWD@epa.gov, and by mail to:

EPA Cincinnati Finance Office
26 Martin Luther King Drive
Cincinnati, Ohio 45268.

If RIDOT fails to tender payment within 30 Days after the Effective Date of this Consent Decree, then interest shall accrue on the debt to the United States, from the Effective Date of this Consent Decree, at the rate provided for in 28 U.S.C. § 1961.

VI. REMEDIAL MEASURES

A. Requirements for TMDLs and Impaired Waters

9. For RIDOT MS4 direct and indirect discharges of any Pollutant of Concern to an Impaired Water Body Segment with an Existing EPA-approved Total Maximum Daily Load (“TMDL”), RIDOT shall, within the associated Impaired Sub-Watershed, implement:
- a. all recommendations and requirements in such TMDL(s) that apply to RIDOT;
 - b. for non-bacteria Pollutant(s) of Concern, a combination of structural stormwater controls and Enhanced Non-Structural BMPs that collectively satisfy the pollutant load reduction requirements in such TMDLs, including as specified in Appendix 1, applied as expressed in Paragraph 1 of Appendix 4, to the maximum extent practicable, and that are consistent with the assumptions and recommendations of those TMDLs; and
 - c. for bacteria Pollutant(s) of Concern, a combination of structural stormwater controls and Enhanced Non-Structural BMPs that collectively satisfy the Impervious Cover Standard specified in Appendix 2 to the maximum extent

practicable, unless the TMDL has specifically determined that such controls are not required.

10. For RIDOT MS4 direct and indirect discharges of any Pollutant of Concern to an Impaired Water Body Segment with a TMDL approved by EPA after the Effective Date of this Consent Decree, RIDOT shall, within the associated Impaired Sub-Watershed, implement:

- a. all recommendations and requirements in such TMDLs that apply to RIDOT;
- b. for non-bacteria Pollutant(s) of Concern, a combination of structural stormwater controls and Enhanced Non-Structural BMPs that collectively satisfy, to the maximum extent practicable, the following, unless the TMDL expressly provides otherwise:
 1. where they exist, Waste Load Allocations (“WLAs”) or impervious cover treatment provisions applicable to RIDOT;
 2. in the absence of a specific WLA for RIDOT or impervious cover treatment provisions applicable to RIDOT, the pollutant load reduction percentage required for stormwater in the TMDL, or in the absence of such requirement, the overall pollutant load reduction percentage required by the TMDL, after accounting for any specific reductions for other pollutant load sources required by the TMDL, applied as expressed in Paragraph 1 of Appendix 4; and
- c. for bacteria Pollutant(s) of Concern, a combination of structural stormwater controls and Enhanced Non-Structural BMPs that collectively satisfy the Impervious Cover Standard specified in Appendix 2 to the maximum extent

practicable, unless the TMDL has specifically determined that such controls are not required.

11. For RIDOT MS4 direct and indirect discharges of any Pollutant of Concern to an Impaired Water Body Segment that does not have an existing EPA-approved TMDL for that pollutant, RIDOT shall, within the associated Impaired Sub-Watershed, implement a combination of structural stormwater controls and Enhanced Non-Structural BMPs that collectively satisfy the Impervious Cover Standard specified in Appendix 2 to the maximum extent practicable, except with respect to Impaired Water Body Segment(s), if any, for which the sole impairment is chloride. For an Impaired Water Body Segment that is impaired only for chloride, RIDOT shall implement source controls to reduce direct and indirect discharges of chloride from its MS4 to the Impaired Water Body Segment to the maximum extent practicable.

12. RIDOT shall implement a combination of structural stormwater controls and Enhanced Non-Structural BMPs that collectively achieve the most stringent level of control for pollutant load reduction required by Paragraphs 9-11 to the maximum extent practicable, unless EPA, after consultation with RIDEM, approves an alternative level of control.

13. In assessing whether the pollutant load reductions referred to in Paragraphs 9.b and 10.b are achieved and in assessing compliance with the Impervious Cover Standard under Appendix 2 referred to in Paragraphs 9.c., 10.c., and 11, RIDOT may include, in accordance with Paragraph 14, the pollutant removal, runoff volume reduction, and peak flow attenuation achieved by:

- a. structural stormwater controls installed by RIDOT prior to the effective date of this Consent Decree provided that RIDOT demonstrates that the structural control

is performing in accordance with manufacturer design or specifications, including verification of the physical capacity of the structural control;

- b. Enhanced Non-Structural BMPs to the extent that such BMPs go beyond the scope of the required six minimum control measures specified in Section IV of the Permit (*e.g.*, for additional sweeping, pollutant load reduction credit for the difference in pollutant removal between sweeping once per year and the actual proposed sweeping schedule); and
- c. structural stormwater controls that are recommended or required by EPA-approved TMDLs or by this Consent Decree that are installed by RIDOT after the Effective Date of this Consent Decree.

14. For the purposes of Paragraphs 9-11, RIDOT shall use the procedures specified in Appendix 3 to calculate the pollutant removal, runoff volume reduction, and peak flow attenuation achieved by structural stormwater controls and Enhanced Non-Structural BMPs, unless EPA, after consultation with RIDEM, approves an alternative methodology.

15. In accordance with the schedules provided in Paragraph 18 and the Compliance Reporting requirements in Paragraph 60, RIDOT shall submit to EPA for review and Approval, and to RIDEM for review and comment, plans and reports related to the achievement of compliance with Paragraphs 9-11 that include the following:

- a. a Stormwater Control Plan (“SCP”) that is developed to achieve the requirements of Paragraphs 9-11 and complies with the requirements of Appendix 4 for each Impaired Sub-Watershed; and

b. SCP Amendments. If, in the course of design or construction work and associated efforts, RIDOT concludes that a particular structural control proposed in an SCP is infeasible, RIDOT shall explain the reasons for its conclusion and, to the maximum extent practicable, propose alternate structural controls and/or Enhanced Non-Structural BMPs to replace the infeasible structural control. If, in the course of design or construction work and associated efforts, RIDOT concludes that the level of control that a particular structural control will provide is substantially less than was estimated in the current SCP, RIDOT shall explain the reasons for its conclusion and, to the maximum extent practicable, propose additional structural controls and/or Enhanced Non-Structural BMPs to compensate for the decrease. In either case, RIDOT shall submit the documentation of its conclusions and its proposals as to alternate and additional controls in proposed SCP amendment(s). For alternate or additional controls, the proposed SCP amendment(s) shall include the information specified in Paragraphs 6, 8, and 9 of Appendix 4. The proposed SCP amendment(s) shall be submitted as soon as possible but no later than the due date of the next annual Compliance Report following RIDOT's conclusion that a particular proposed SCP structural control is infeasible or will provide substantially less control than was estimated in the SCP.

16. For RIDOT new construction or Re-construction in the RIDOT Permit Area where the newly constructed or re-constructed RIDOT infrastructure will discharge any Pollutants of Concern to an Impaired Water Body Segment directly or indirectly, RIDOT shall implement

structural stormwater controls and may implement Enhanced Non-Structural BMPs that will, to the maximum extent practicable, support the achievement of the pollutant load reduction and other requirements of Paragraphs 9-11. RIDOT will also consider the implementation of structural stormwater controls in connection with pavement management and other infrastructure development projects that are not new construction or Re-construction, including, but not limited to, preservation projects such as mill & overlay, level & overlay, thin overlay, in-place recycling, and reclamation projects, and repair of existing drainage system components at the same line and grade, and, if practical, implement them as part of such projects. For (a) RIDOT new construction or Re-construction projects and (b) other infrastructure development projects where RIDOT has decided after consideration to include structural stormwater controls, RIDOT shall submit information to EPA and RIDEM regarding the nature and location of the project, the type(s) of the planned stormwater controls for the project, and an estimate of the capacity and level of control that will be provided by the controls. RIDOT shall submit this information as soon as possible but no later than the due date of the next annual Compliance Report under Paragraph 60 following completion of the 10% design for the project. When RIDOT develops the SCP for the Impaired Water Body Segment to which the infrastructure discharges, RIDOT shall incorporate the planned stormwater controls for these projects in the SCP. For projects in categories (a) and (b) above that are newly planned after an SCP for the pertinent area has been Approved, the information requested in this Paragraph may be provided through the SCP update referred to in Paragraph 18.f.

17. RIDOT shall amend its SWMPP to incorporate EPA-Approved SCPs (including Operation & Maintenance (O&M Plans)) within 30 days of EPA Approval of each SCP. The

RIDOT SWMPP may be amended by incorporating the SCPs by reference. A list of the SCPs incorporated by reference shall be provided in the annual Compliance Report. RIDOT shall implement the SCPs, including the O&M Plans, in accordance with the schedules included in the Approved SCPs, which schedules may be modified pursuant to Paragraph 18.i. below. The EPA-Approved SCPs shall be recognized as serving as a TMDL implementation plan for RIDOT for EPA-approved TMDLs.

B. TMDL and Impaired Water Timelines

18. RIDOT shall comply with the following schedules for implementation of the requirements associated with TMDLs and impaired waters specified in Paragraphs 9 to 17 above:

Schedules for Group SCPs

a. RIDOT shall develop and submit to EPA for review and Approval, and to RIDEM for review and comment, Group SCPs over a ten-year period commencing in FY 2016. Each Group SCP shall include individual SCPs for the individual Impaired Water Body Segments within the grouping. In developing the SCPs, the geographical area that shall be evaluated includes (a) RIDOT owned or operated property within the RIDOT Permit Area, (b) RIDOT owned or operated property within catchment areas covered by a stormwater-related EPA-approved TMDL which may include areas outside of the RIDOT Permit Area, and (c) areas contributing to direct and indirect discharges within the areas referred to in (a) and (b) above or from RIDOT MS4 Discharge Points. However, in developing the SCPs, RIDOT shall also evaluate other areas within the Impaired Sub-Watershed for the individual Impaired Water Body Segment (i) where necessary to determine whether an area falls within the areas referred to in (a), (b), or (c) above, (ii) where necessary to determine where interconnections with other stormwater drainage systems exist, and (iii) where otherwise appropriate.

b. The groupings of Impaired Water Body Segments for Group SCPs, organized in categories 1 to 4, are specified in Appendix 5. RIDOT may adjust which Impaired Water Body Segment is in which grouping or the category in which the grouping is placed, after explanation for the proposed changes and Approval by EPA, after an opportunity for review and comment by RIDEM. Appendix 5 shall be revised accordingly.

c. By December 31, 2016, RIDOT shall complete and submit to EPA for review and Approval, after opportunity for review and comment by RIDEM, a Group SCP for the Woonasquatucket grouping of impaired water body segments (Group 4050201 (RI Integrated List id. #s RI0002007R-01, RI0002007R-10B, RI0002007R-10C, and RI0002007R-10D)). Structural stormwater controls and Enhanced Non-Structural BMPs implemented under this SCP, in addition to addressing the requirements of Paragraphs 9-11, shall foster RIDOT's public education efforts.

d. In each year between 2017 and approximately 2025, on or before December 31st of that year, RIDOT shall complete and submit to EPA for review and Approval, after opportunity for review and comment by RIDEM, Group SCPs for at least three other groupings of Impaired Water Body Segments on Appendix 5 (until all groupings of Impaired Water Body Segments have been addressed). RIDOT shall first complete the Group SCPs for groupings of Impaired Water Body Segments in category 1, followed by category 2, then category 3, then category 4.

e. Within three months of RIDOT's commencement of the development of each Group SCP, RIDOT shall identify all Other RIDOT Roadways in the geographical areas that are the subject of the Group SCP and shall provide a list of those roadways to EPA and RIDEM.

RIDOT shall provide EPA and RIDEM with mapping, impervious cover, outfall, and catch basin information for those roadways as part of the Group SCP. RIDOT shall include these Other RIDOT Roadways, along with RIDOT Maintained Roadways, in its SCP development and implementation.

f. Following completion of a Group SCP, RIDOT shall update the pertinent portion(s) of the Group SCP when (i) a new EPA-approved TMDL is developed for an Impaired Water Body Segment within the grouping's watershed or (ii) RIDOT new construction or Re-construction is planned for an area draining to an Impaired Water Body Segment in the grouping's watershed where such new construction or Re-construction was not already addressed in the previously completed SCP. Following completion of a Group SCP, RIDOT may also update the pertinent portion(s) of the Group SCP when a specific waterbody segment is removed from Category 4A and 5 of RIDEM's CWA Integrated List of waterbodies or when a specific impairment for a specific waterbody segment is delisted. These updates may be in the form of a supplement to the SCP, tailored to the limited subject matter of the update, and shall be submitted to EPA for review and Approval, after opportunity for review and comment by RIDEM. Where the updates are to address a new EPA-approved TMDL, the updates shall be submitted no later than two (2) years after the EPA approval of the new TMDL. Such updates may be submitted along with the Compliance Reports referred to in Section VIII (Compliance Reporting) of the Consent Decree. Where the updates are to address new construction or Re-construction not already addressed in the previously completed SCP, the update shall be submitted as soon as possible but no later than the due date of the next annual Compliance

Report following the completion of the 10% design for the new construction or Re-construction project.

Schedules for Implementation of Structural and Enhanced Non-Structural Controls

g. RIDOT shall commence implementation of all planned Enhanced Non-Structural BMPs (i) within three (3) months of Approval by EPA, after an opportunity for review and comment by RIDEM, of the planned Enhanced Non-Structural BMPs in the pertinent SCP, for Enhanced Non-Structural BMPs that are not implemented on a seasonal basis, or (ii) by no later than the next implementation season following the Approval, for Enhanced Non-Structural BMPs that are implemented on a seasonal basis, and shall continue implementation of such Enhanced Non-Structural BMPs thereafter.

h. As provided in Appendix 4, RIDOT shall include a proposed schedule for implementation of the proposed structural stormwater controls in the individual SCPs, including interim design milestones and proposed construction start and completion dates. RIDOT may prioritize among the proposed structural stormwater controls in developing the proposed schedule, proposing the design and construction of certain projects at an earlier time and proposing the design and construction of other projects at a later time. In developing the schedule, RIDOT shall target completion of higher priority projects within four (4) years of EPA's Approval of the SCP and all projects within eight (8) years of EPA's Approval of the SCP. RIDOT shall provide an explanation of its proposed schedule, including the prioritization of projects and the rationale for the proposed schedule. RIDOT intends to construct some stormwater control projects as retrofit projects and others as part of infrastructure improvement projects. In developing the proposed schedule for proposed structural stormwater control

projects to be implemented as part of planned infrastructure improvement projects, RIDOT will consider as one factor its schedule for the planned infrastructure improvement projects. In developing its proposed schedules for proposed structural stormwater control projects, RIDOT shall comply with the objective of providing for consistent progress over time in completing construction of proposed structural stormwater controls.

i. RIDOT shall implement the design and construction of the proposed structural controls for the individual SCPs along the schedules included in the SCPs, as Approved by EPA, after opportunity for review and comment by RIDEM. The interim design milestone dates and dates for commencement and completion of construction of individual proposed structural controls may be modified by written agreement of the Parties. If RIDOT requests EPA's agreement to a modification of the milestone dates for an individual proposed structural control, RIDOT shall provide a written explanation of the reasons for the request. RIDOT may also seek an extension of milestone dates under Sections XI (Force Majeure) and XII (Dispute Resolution) of the Consent Decree.

j. Following completion of construction of an individual structural control, RIDOT shall operate and maintain that control in accordance with the Operations and Maintenance Plan addressing that control.

C. Illicit Discharge Detection and Elimination (IDDE) Requirements

19. RIDOT shall inspect and sample its RIDOT MS4 Discharge Points in accordance with the requirements described in Paragraphs 20-31.

20. Dry-weather inspections:

a. High Priority RIDOT MS4 Discharge Points: By November 30, 2016, under dry-weather conditions (less than 0.1 inches of rain in the preceding 48 hours and no significant snowmelt), RIDOT shall inspect the RIDOT MS4 Discharge Points described in Appendix 6, and sample those with sufficient flow to be able to collect a sample.

b. Priority Outfalls: By September 30, 2015, RIDOT shall provide to EPA and RIDEM a list of all non-bituminous ditch outfalls (other than outfalls listed in Appendix 6) where RIDOT has previously identified dry-weather flow during one or more of its site visits. By March 30, 2016, RIDOT shall perform desktop analysis of all non-bituminous ditch outfalls (other than outfalls listed in Appendix 6) where RIDOT previously identified dry-weather flow during one or more of its site visits to evaluate whether the dry-weather flow source can conclusively be determined to have been only stormwater and provide to EPA and RIDEM a summary and the results of the analysis. By December 31, 2016, under dry-weather conditions, RIDOT shall inspect the outfalls for which the previously identified dry-weather flow cannot conclusively be determined to have been only stormwater (Priority Outfalls), and sample those with sufficient flow to be able to collect a sample.

c. Other RIDOT MS4 Discharge Points in areas where Group SCPs are required: For all RIDOT MS4 Discharge Points that (i) are located in areas where SCPs are required, (ii) are not identified as High Priority or Priority discharge points under Paragraph 20.a. or b. above, and (iii) are not exempt from IDDE screening under Paragraph 22 below, RIDOT shall inspect such discharge points under dry-weather conditions on any date between and including September 1 and June 30 during the timeframe in which RIDOT is conducting development of

the SCP for the area and within six months of the submission of the SCP, and sample those with sufficient flow to be able to collect a sample. RIDOT shall conduct this dry-weather screening for MS4 Discharge Points from both RIDOT Maintained Roadways and Other RIDOT Roadways in these areas.

d. For dry-weather sampling under this Paragraph 20, at a minimum, discharge samples shall be analyzed for temperature, conductivity, pH and the parameters described in Paragraph 30. RIDOT shall maintain detailed and accurate records of the date and time that sampling was conducted and the weather conditions both during, and in the 48 hours prior to, each sampling event.

21. Wet-weather inspections:

a. High Priority and Priority RIDOT MS4 Discharge Points: By November 30, 2017, at least once during wet-weather conditions on any date between April 1 and November 30, in addition to the dry-weather inspection of that discharge point, RIDOT shall inspect and sample the RIDOT MS4 Discharge Points described in Appendix 6 and the Priority RIDOT MS4 Discharge Points identified under Paragraph 20.b. where (i) flow was not observed during dry-weather inspections under Paragraph 20.a. or 20.b. or (ii) flow was observed but the results of dry-weather sampling under Paragraph 20.a. or b. did not exceed the IDDE screening thresholds in Paragraph 30.

b. Other RIDOT MS4 Discharge Points in Areas where Group SCPs are required: For all RIDOT MS4 Discharge Points that (i) are located in areas where SCPs are required, (ii) are not identified as High Priority or Priority discharge points under Paragraph 20.a. or b. above, (iii) are not exempt from IDDE screening under Paragraph 22 below, (iv) may fall within one or

more of the system vulnerability factors in Appendix 7, and (v) where flow was not observed during dry-weather inspections under Paragraph 20.c. or where flow was observed but the results of dry-weather sampling under Paragraph 20.c. did not exceed the IDDE screening thresholds in Paragraph 30, RIDOT shall inspect and sample such discharge points under wet weather conditions on any date between April 1 and November 30, in addition to the dry-weather inspection of that discharge point, during the timeframe in which RIDOT is conducting development of the SCP for the area and within 1 year of the submission of the SCP. RIDOT shall conduct this wet-weather screening for MS4 Discharge Points from both RIDOT Maintained Roadways and Other RIDOT Roadways.

c. For the purposes of sampling RIDOT MS4 Discharge Points under this Paragraph 21, “wet-weather conditions” should consist of at least 0.25-inches of rain over the 24 hour period prior to sampling. To facilitate sample planning and execution, however, precipitation events sufficient to produce flow in RIDOT MS4 Discharge Points to be sampled will also be acceptable. At a minimum, wet-weather discharge samples shall be analyzed for temperature, conductivity, pH and the parameters outlined in Paragraph 30. RIDOT shall maintain detailed and accurate records of the date and time that sampling was conducted and the weather conditions both during, and in the 48 hours prior to, each sampling event.

22. For the purposes of Paragraphs 20.c. and 21.b., RIDOT shall submit the following information to EPA for review and Approval, and to RIDEM for review and comment, if RIDOT seeks to demonstrate that RIDOT IDDE screening of particular RIDOT MS4 Discharge Points is not required because there is no likelihood of illicit discharges into and from such RIDOT MS4 Discharge Points:

- a. geographic information system (GIS) mapping layers showing pertinent sections of the RIDOT MS4, RIDOT MS4 Discharge Points, and flow paths for all RIDOT MS4 Discharge Points; and
- b. a narrative description explaining why there is no likelihood of illicit discharges into and from such RIDOT MS4 Discharge Points, including a discussion of aerial photography referenced to confirm the absence of potential sources.

If EPA approves the exemption of particular RIDOT MS4 Discharge Points from illicit discharge screening under Paragraphs 20.c. and 21.b. based on the information submitted under this Paragraph 22, EPA may later require that such screening be performed for a particular RIDOT MS4 Discharge Point based on later information obtained raising a specific concern that there may be an illicit discharge to that particular RIDOT MS4 Discharge Point. In that event, RIDOT shall conduct such screening within the timeframe required by EPA.

23. For any RIDOT MS4 Discharge Points for which RIDOT seeks to make the demonstration referred to in Paragraph 22 above that are located in areas for which an SCP is required, RIDOT shall submit the requested information within six months of RIDOT's commencement of development of the pertinent Group SCP.

24. Periodic IDDE Screening:

- a. By September 1, 2018, RIDOT shall submit to EPA for review and Approval, and to RIDEM for review and comment, a proposal for future on-going dry and wet weather monitoring of the discharge points identified under Paragraph 20.a. and b. The proposal may narrow the list of outfalls from those identified in Paragraph 20.a. and b. based on criteria explained in the proposal. RIDOT shall implement this outfall monitoring program for the

discharge points identified in the proposal upon Approval by EPA, after an opportunity for review and comment by RIDEM, and shall continue implementation of such program thereafter in accordance with the schedule set forth therein.

b. By the end of the second calendar year following completion of the initial dry and wet weather monitoring for the respective discharge points referred to in Paragraph 20.c., RIDOT shall submit to EPA for review and Approval, and to RIDEM for review and comment, a proposal for future on-going dry and wet weather monitoring of the discharge points identified under Paragraph 20.c. The proposal may narrow the list of outfalls from those identified in Paragraph 20.c. based on criteria explained in the proposal. RIDOT shall implement this outfall monitoring program for the discharge points identified in the proposal upon Approval by EPA, after an opportunity for review and comment by RIDEM, and shall continue implementation of such program thereafter in accordance with the schedule set forth therein.

25. a. RIDOT shall conduct IDDE investigation of outfalls during SCP development.

b. For the RIDOT MS4 Discharge Points listed in Appendix 8, RIDOT shall submit to EPA for review and Approval, and to RIDEM for review and comment, by October 31, 2015, a schedule for initiating IDDE investigations for such RIDOT MS4 Discharge Points, except where RIDOT can provide information demonstrating that an IDDE investigation is not warranted. Upon Approval by EPA, RIDOT shall conduct the investigations in accordance with the schedule.

c. For the MS4 outfalls listed in Appendix 9, RIDOT shall determine by September 30, 2016 whether there are any interconnections between the RIDOT MS4 and the associated MS4 through which the RIDOT MS4 indirectly discharges to the associated MS4 outfall. By

November 30, 2016, RIDOT shall submit to EPA for review and Approval, and to RIDEM for review and comment, a schedule for conducting dry and, as applicable, wet-weather screening at any such RIDOT MS4 interconnection with another MS4 as described above in this Paragraph. Upon Approval by EPA, RIDOT shall conduct the screenings in accordance with the schedule.

26. Commencing in calendar year 2016 and continuing thereafter, RIDOT shall incorporate an environmental inspector requirement into RIDOT program contracts for catch basin cleaning, inspection, and repair. One of the environmental inspector's roles will be to investigate the drainage system for signs of illicit discharges, track and report evidence of illicit discharges, and coordinate appropriate follow up within RIDOT. Appropriate follow up actions may include: outfall, manhole or catch basin water sampling and testing, coordination of the removal of illicit discharges, inspection of adjacent properties, and reporting.

27. Commencing in calendar year 2015 and continuing thereafter, RIDOT shall provide targeted training of construction and maintenance staff to report evidence of potential illicit discharges. RIDOT shall develop a training program and provide annual refresher training of staff. Commencing in calendar year 2016, RIDOT will provide a copy of its training materials to EPA and RIDEM for comment.

28. Commencing in calendar year 2015 and continuing thereafter, RIDOT shall develop an IDDE tracking program and policy for eliminating identified illicit discharges, including but not limited to illicit connections. RIDOT shall develop a GIS database of potential illicit discharges, including but not limited to illicit connections. RIDOT shall also develop follow-up steps that RIDOT will use once a potential illicit discharge issue is found and develop a Standard

Operating Procedure (SOP) for staff to use in response. The SOP will include RIDOT staff roles and responsibilities and time frames for responding to issues.

29. By December 31, 2015, RIDOT shall submit to EPA for review and Approval, and to RIDEM for review and comment, a revised IDDE Plan for screening and monitoring of RIDOT MS4 Discharge Points, investigation of sub-catchment areas, and removal of illicit discharges that is consistent with EPA New England's draft Bacterial Source Tracking Protocol dated January 2012 (Appendix 10) and this Consent Decree. RIDOT shall amend its SWMPP to incorporate the revised IDDE Plan within thirty (30) days of Approval by EPA, after an opportunity for review and comment by RIDEM, of the IDDE Plan and shall implement such revised IDDE Plan thereafter.

30. RIDOT shall utilize the following IDDE screening thresholds as guidelines for its analysis of the data generated for each field sample unless otherwise Approved by EPA, after an opportunity for review and comment by RIDEM,:

- Bacteria: Fecal coliform in excess of 400 MPN/100 ml
Class AA, A, B, B1, B(a), or B1(a) waters- Enterococcus: greater than 61 colony forming units (cfu)/100 ml
Class SA, SA(b), SB, SB1, SB(a), or SB1(a) waters- Enterococcus: greater than 104 cfu/100 ml;
- Surfactants: equal to or greater than 0.25 milligrams per liter ("mg/l") (via field kits) or 0.1 mg/l via laboratory analysis;
- Ammonia: equal to or greater than 0.5 mg/l;
- Chlorine: greater than non-detect (0.02 mg/l method detection limit); and
- Coliphage: equal to or greater than 50 pfu/100 ml

31. RIDOT shall initiate an IDDE investigation within sixty (60) days of identifying or being made aware of the presence of a potential illicit discharge into or from the RIDOT MS4 based

upon any of the following information: (a) a RIDOT MS4 Discharge Point with IDDE sampling results above the bacteria guidelines in Paragraph 30 and above any of the guidelines for the other parameters established in Paragraph 30; (b) a RIDOT MS4 Discharge Point with IDDE sampling results above the bacteria guidelines established in Paragraph 30 and other evidence of an illicit discharge including, but not limited to, elevated pharmaceutical testing results, visual signs of toilet paper, or excessive odor; (c) a RIDOT MS4 Discharge Point with IDDE sampling results above the surfactants or ammonia guidelines established in Paragraph 30 and detectable levels of chlorine; (d) a report of an illicit discharge from RIDEM or EPA that is supported by IDDE sampling data consistent with subparts (a), (b) or (c) of this Paragraph or by other information, as appropriate; (e) a citizen complaint of the presence of an illicit discharge, as appropriate; and (f) indications of illicit discharges discovered by RIDOT staff or contractors under Paragraph 49 during catch basin inspections or during other construction or maintenance work. RIDOT shall consider all reliable sources of data, including testing by RIDOT, EPA or RIDEM. RIDOT shall conduct all IDDE investigations in accordance with its IDDE Plan as Approved by EPA, after an opportunity for review and comment by RIDEM.

32. RIDOT shall complete all IDDE investigations within 180 days of initiation, unless not feasible. If a RIDOT IDDE investigation is not completed within 180 days of initiation of the investigation, RIDOT shall establish a schedule for completing the IDDE investigation as expeditiously as possible. RIDOT shall comply with all schedules for completion of IDDE investigations established pursuant to this Paragraph.

33. For purposes of this Consent Decree, the “date of verification” of an illicit discharge shall be the date on which RIDOT has identified a point of entry from a specific location or address that contributes wastewater or other illicit flow to the RIDOT MS4.

34. RIDOT shall notify EPA, RIDEM and the property owner(s) of the existence of an illicit discharge within fourteen (14) calendar days of the date of verification.

35. RIDOT shall eliminate all illicit discharges to the RIDOT MS4 within one hundred twenty (120) days of the date of verification, unless RIDOT does not have sufficient authority to require elimination of the illicit discharge. If an illicit discharge to the RIDOT MS4 is not eliminated within one hundred twenty (120) days of the date of verification, RIDOT shall establish a schedule to take the actions within its authority to remove the illicit discharge as expeditiously as possible. If RIDOT does not have the authority to require the property owner to eliminate the illicit discharge to the RIDOT MS4, RIDOT shall establish a plan that states the steps it will take to coordinate with RIDEM to ensure the prompt elimination of the illicit discharge. RIDOT shall comply with all schedules and plans for elimination of illicit discharges established pursuant to this Paragraph.

36. Within 120 days of a verified illicit discharge to the RIDOT MS4 being eliminated, RIDOT shall conduct dry- and wet-weather monitoring for the parameters identified in Paragraph 30 to confirm that all illicit discharges have been eliminated.

D. Housekeeping/Operation and Maintenance

Street Sweeping

37. a. In accordance with the schedule provided in Paragraph 37.a.i. below, RIDOT shall implement a street sweeping tracking system that is sufficient to document the date and location of sweeping of all RIDOT maintained roads and parking lots within the RIDOT Permit

Area, and RIDOT shall continue implementation of the street sweeping tracking system thereafter. Implementation of the street sweeping tracking system will include the installation of GPS equipment on street sweeping vehicles.

i. By March 31, 2016, complete implementation of system to collect and track all street sweeping coverage in a database.

b. RIDOT is required to identify Other RIDOT Roadways in accordance with the timeframes specified in Paragraphs 18.e. above and 38.b. below. Except to the extent that by those dates RIDOT has entered into a written agreement consistent with Section IV.A.2 of the Permit with a municipality that provides that the municipality will perform the required street sweeping of such roadways and confirms that the municipality is in fact implementing the requirement, RIDOT shall add these roadways to its street sweeping tracking system and perform the street sweeping required under Paragraphs 39 to 42 below.

38. a. By September 30, 2015, RIDOT shall submit to EPA for review and comment a RIDOT road and parking lot inventory within the RIDOT Permit Area that contains road segment and parking lot identification information by location. The inventory shall be provided in both map and tabular form. RIDOT shall organize the inventory of RIDOT roads and parking lots (or allow it to be sorted) by divided highway and non-divided highway.

b. RIDOT shall identify by June 30, 2022, all Other RIDOT Roadways in areas within the RIDOT Permit Area where Group SCPs are not required, and shall provide a list of those roadways to EPA and RIDEM, along with associated mapping, outfall, and catch basin information for those roads or road segments.

c. RIDOT is required to identify Other RIDOT Roadways on or before the

timeframes specified in Paragraphs 18.e. and 38.b. above. Upon identification of such roadways, RIDOT shall add such roadways to its inventory. Where RIDOT has entered into a written agreement consistent with Section IV.A.2 of the Permit with a municipality that provides that the municipality will perform the required street sweeping of the Other RIDOT Roadways and confirms that the municipality is in fact implementing the requirement, such information shall be referenced in the inventory.

39. Beginning in calendar year 2017 and in each calendar year thereafter, RIDOT shall sweep every RIDOT road and parking lot within the RIDOT Permit Area, except divided highways, at least once in each calendar year.

40. Beginning in calendar year 2017 and in each calendar year thereafter, RIDOT shall sweep all RIDOT divided highways, including paved shoulders, at least once in each calendar year. RIDOT may, upon submission of data justifying a lesser frequency and review and Approval by EPA, after an opportunity for review and comment by RIDEM, sweep divided highways on a lesser frequency thereafter.

41. RIDOT shall conduct increased frequency (i.e., more than once per calendar year) street sweeping in the areas described in Appendix 11, unless and until EPA approves, after an opportunity for review and comment by RIDEM, a RIDOT SCP submitted pursuant to Paragraph 15.a. for a particular Impaired Sub-Watershed that demonstrates that RIDOT will satisfy the pollutant load reduction percentage required by the applicable TMDLs without increased frequency street sweeping in these areas and that SCP has been fully implemented.

42. RIDOT may sweep its roads at a greater frequency than required by the Permit as an Enhanced Non-Structural BMP to meet the requirements for pollutant reductions in Impaired Water Body Segments with or without TMDLs, as provided in Paragraph 13.b.

Catch Basin and Other Asset Maintenance

43. a. By March 31, 2016, RIDOT shall submit to EPA and RIDEM for review and comment an inventory of RIDOT catch basins, manholes, outfalls, and existing Stormwater Treatment Units (“STUs”) within the RIDOT Permit Area. The inventory shall be provided in both map and tabular form. The inventory shall describe the road segment and GIS location for each catch basin and provide similar locational data for each manhole, outfall, and STU. The inventory shall also identify whether the catch basin, manhole, outfall, and STU is associated with a divided highway and indicate whether it is located in an Impaired Sub-Watershed, and, if so, which Impaired Sub-Watershed.

b. RIDOT is required to identify Other RIDOT Roadways on or before the timeframes specified in Paragraphs 18.e. and 38.b. above. Within nine months of identification of such roadways, RIDOT shall supplement its inventory of RIDOT catch basins, manholes, outfalls, and STUs with the information specified in Paragraph 43.a. above pertaining to such roadways. Where RIDOT has entered into a written agreement consistent with Section IV.A.2 of the Permit with a municipality that provides that the municipality will perform the required inspection and maintenance (including cleaning) of the catch basins and manholes for such roadways and confirms that the municipality is in fact implementing the requirements, such information shall be referenced in the inventory. Agreements relating to STU maintenance, including schedule, shall also be referenced in the inventory.

44. a. In accordance with the schedule provided in Paragraph 44.a.i. and ii. below, RIDOT shall implement a maintenance management system which incorporates a catch basin, manhole, outfall, and STU tracking system that documents the date and type of activity for RIDOT catch basin, manhole, outfall, and STU inspections and maintenance for all RIDOT catch basins, manholes, outfalls, and STUs within the RIDOT Permit Area, and RIDOT shall continue implementation of the catch basin, manhole, outfall, and STU inspection and maintenance tracking system thereafter. Maintenance includes cleaning, where applicable. Schedules for inspection and maintenance of STUs and catch basins developed under Paragraphs 44.a.iii., 45, and 48 below shall be added to and identified in the tracking system, as applicable.

- i. By November 30, 2015, complete design of the catch basin, manhole, outfall, and STU inspection and maintenance management system.
- ii. By April 30, 2016, implement the catch basin, manhole, outfall, and STU inspection and maintenance management system.
- iii. As structural controls are constructed, they shall be added to the maintenance management system, with identification of the inspection and maintenance requirements including schedule, as specified in the Operations and Maintenance Plan for the structural control.

b. RIDOT is required to identify Other RIDOT Roadways on or before the timeframes specified in Paragraph 18.e. and 38.b. above. Except to the extent RIDOT has entered into a written agreement consistent with Section IV.A.2 of the Permit with a municipality that provides that the municipality will perform the required inspection and maintenance (including cleaning) of the catch basins and manholes for such roadways and confirms that the

municipality is in fact performing the required inspection and maintenance of these catch basins and manholes, RIDOT shall perform the requirements relating to inspection and maintenance (including cleaning) of the catch basins and manholes for such roadways in accordance with Paragraphs 46 to 48 below, and track its performance of such activities in its maintenance management system. Unless there is a written agreement which provides for maintenance of STUs by the municipality for such roadways and RIDOT confirms that the municipality is in fact performing inspection and maintenance of these STUs, RIDOT shall also perform inspection and maintenance of STUs for such roadways at least once a year and track its performance of such activities in its maintenance management system.

45. By June 30, 2016, RIDOT shall submit to EPA and RIDEM for review and comment a schedule for inspection and maintenance of its existing STUs and shall thereafter inspect and maintain its existing STUs in accordance with the schedule. The schedule shall provide for inspection and, as needed, maintenance of each existing STU a minimum of once a year. The schedule and inspection and maintenance requirements for the existing STUs shall be identified in the maintenance management system. If an Operations and Maintenance Plan for the existing STU with a different schedule is later Approved by EPA, the maintenance management system shall be revised to reflect the modified schedule.

46. Beginning in calendar year 2017, whenever RIDOT conducts an infrastructure development program project, as part of the project, RIDOT shall clean and inspect all catch basins, manholes, pipes, and outfalls (where possible without creating a safety hazard) within the infrastructure development program project limits or otherwise associated with the infrastructure development project. Infrastructure development program projects include, but are not limited

to, new construction or Re-construction of RIDOT roads or other facilities and preservation projects such as mill and overlay, level and overlay, thin overlay, in-place recycling, and reclamation projects. Cleaning shall include the removal of sediment and debris as necessary to ensure proper operation of the catch basins, manholes, pipes and outfalls.

47. In addition to the requirement in Paragraph 46 above, RIDOT shall implement an inspection and maintenance program for the closed drainage system components, including catch basins, manholes, pipes, and outfalls, within the RIDOT MS4 within the RIDOT Permit Area, as set forth in Paragraphs 47.a. through f. below. The program shall provide for cleaning and repair as necessary to ensure proper operation of the components.

a. RIDOT shall inspect all catch basins, manholes, and outfalls along RIDOT Maintained Roadways, RIDOT parking lots, and other RIDOT facilities within the RIDOT Permit Area by December 31, 2017. RIDOT shall inspect at least 50% of these catch basins, manholes, and outfalls by December 31, 2016. As part of the inspection, RIDOT shall identify which catch basins, manholes, and outfalls need to be cleaned and, to the extent possible from the inspection, which catch basins, manholes, and outfalls need to be repaired. RIDOT shall track the results of its inspections in its maintenance management system, including information on whether the catch basin, manhole, or outfall needs to be cleaned or repaired. RIDOT shall also note any information available from the inspections as to whether pipes or any other closed drainage system components associated with the catch basins, manholes, or outfalls require cleaning or repair and include such information in its maintenance management system.

b. Except as provided in Paragraph 44.b., RIDOT shall inspect all catch basins, manholes, and outfalls along Other RIDOT Roadways within the RIDOT Permit Area within 15

months of identification of those roadways. As part of the inspection, RIDOT shall determine, to the extent possible from the inspection, which catch basins, manholes, and outfalls require cleaning or repair and whether pipes or any other closed drainage systems components require cleaning or repair and include such information in its maintenance management system.

c. Commencing in calendar year 2016 and continuing until all catch basins and manholes along non-Interstate RIDOT Maintained Roadways, RIDOT parking lots, and other RIDOT facilities within the RIDOT Permit Area that are identified as needing cleaning in the inspections required under Paragraph 47.a. have been cleaned, RIDOT shall clean an average of 1,250 of these catch basins and manholes per calendar year. The average shall be calculated as a three year rolling average. Where the piping associated with these catch basins or manholes also needs to be cleaned, RIDOT shall also clean the piping concurrently with the catch basins and manholes, if it is feasible and practical to do so. In developing the schedule for cleaning catch basins and manholes under this Paragraph 47.c., RIDOT shall consider the following as priority factors: (A) roads and other facilities in areas where SCPs are planned soon or are under way and (B) roads and other facilities in areas where IDDE is a concern. Except as provided in Paragraph 44.b., RIDOT shall clean all catch basins and manholes along Other RIDOT Roadways that are identified as needing cleaning in the inspections required under Paragraph 47.b. within 18 months of identification of the need for cleaning, and RIDOT shall also clean the piping associated with these catch basins or manholes concurrently if such cleaning is needed and if feasible and practical.

d. Commencing in calendar year 2017 and continuing until all catch basins and manholes along non-Interstate RIDOT Maintained Roadways, RIDOT parking lots, and other

RIDOT facilities within the RIDOT Permit Area that are identified as needing repair in the inspections required under Paragraph 47.a. (or through other means of identification) have been repaired, RIDOT shall repair an average of 1,000 of these catch basins and manholes per calendar year. The average shall be calculated as a three year rolling average. Except as provided in Paragraph 44.b., RIDOT shall repair all catch basins and manholes along Other RIDOT Roadways that are identified as needing repair in the inspections required under Paragraph 47.b. (or through other means of identification) within 24 months of identification of the need for repair.

e. Commencing in calendar year 2017 and continuing until all catch basins and manholes along Interstate RIDOT Maintained Roadways within the RIDOT Permit Area that are identified as needing cleaning or repair in the inspections required under Paragraph 47.a. (or through other means of identification) have been cleaned and, if needed, repaired, RIDOT shall clean and, if needed, repair an average of 2,000 catch basins and manholes along Interstate RIDOT Maintained Roadways per calendar year. The average shall be calculated as a three year rolling average.

f. On or before March 10, 2018, RIDOT shall submit to EPA and RIDEM for review and comment a plan for cleaning and repair of RIDOT closed drainage system components within the RIDOT Permit Area other than catch basins and manholes that are identified as needing cleaning or repair in the inspections required under Paragraphs 47.a. or 47.b. (or through other means of identification), including but not limited to pipes and outfalls. The plan shall identify by roadway segment and/or other locational information the pipes, outfalls, and other non-catch basin or manhole closed drainage system components that need

cleaning or repair. RIDOT shall commence implementation of the plan on or before March 10, 2018 and continue implementation of the plan, with any revisions made in response to EPA or RIDEM comment, until all such RIDOT closed system drainage components that need cleaning and/or repair have been cleaned and/or repaired. If RIDOT does not provide for cleaning and/or repair of such closed drainage system components other than catch basins and manholes concurrently with (or before) the cleaning and/or repair of the catch basins and manholes they are associated with, RIDOT shall provide for cleaning and/or repair of such non-catch basin or manhole closed drainage system components as soon as is feasible and practical after the cleaning and/or repair work on the associated catch basins and manholes. RIDOT shall endeavor to provide for completion of all of the non-catch basin or manhole closed drainage system component cleaning and repair work referred to in this Paragraph 47.f. by December 31, 2024.

48. After completion of the catch basin inspections under Paragraph 47.a. or 47.b. for an individual road segment (or other facility) and any cleaning of catch basins identified as necessary in the inspections under Paragraph 47.a. or 47.b. for that road segment, RIDOT shall clean and inspect the catch basins along that road segment (or other facility) in the following year and then shall submit for EPA review and Approval, and to RIDEM for review and comment, a schedule for future regular catch basin inspections and cleaning for that road segment (or other facility). The schedule for RIDOT catch basin inspections and cleaning for the road segment (or other facility) shall (a) be based on observations made on sediment accumulation in catch basins, sediment accumulation at outfalls, any observed flooding problems, land use information, and information on whether the catch basins are likely to receive discharges from construction activities, and (b) ensure that catch basins are never more than 50

percent full (i.e., the contents within the catch basin never exceed one half the distance between the bottom interior of the catch basin and the invert of the lowest outlet of the catch basin).

RIDOT shall implement the regular catch basin inspection and cleaning program for that road segment (or other facility) thereafter according to the EPA-Approved schedule. Upon Approval of the schedule for regular catch basin inspection and cleaning for the individual road segment (or other facility), RIDOT shall add an identification of the required regular catch basin inspection and cleaning schedule for that road segment (or other facility) to its maintenance management system. Catch basin inspection and cleaning under this Paragraph for an individual road segment (or other facility) shall be in addition to the inspection and cleaning requirements of Paragraphs 46-47.

49. Beginning on or before the date of lodging of the Consent Decree and continuing thereafter, RIDOT shall train personnel performing catch basin or manhole inspections to recognize indications of illicit discharges and shall provide and implement a mechanism for personnel to report indications of illicit discharges in catch basins or manholes to the appropriate personnel at RIDOT. Upon receiving a report of indications of illicit discharges based upon a catch basin or manhole inspection, RIDOT or RIDOT-contractor personnel shall investigate the potential illicit discharge in a manner consistent with Paragraphs 30-36 of this Consent Decree, EPA New England's draft Bacterial Source Tracking Protocol dated January 2012, and RIDOT's IDDE Plan, as revised pursuant to Paragraph 29.

E. Compliance Plan

50. Within 180 days of lodging of this Consent Decree, RIDOT shall submit a Compliance Plan to EPA and RIDEM for review and comment. The Compliance Plan shall detail the RIDOT

technical and legal staff, contractor resources, equipment and other resources necessary to implement this Consent Decree, including, but not limited to, the Remedial Measures and Compliance Reporting required by Sections VI and VIII of this Consent Decree. RIDOT shall ensure that it establishes, funds, and adequately supports personnel with appropriate experience or verifiable certification and training to manage and accomplish all Consent Decree related tasks. The Compliance Plan, with any changes made by RIDOT in response to review and comment by EPA and RIDEM, shall be incorporated into and become enforceable under this Consent Decree. RIDOT may supplement this Compliance Plan with Plan Supplement(s) in following years if RIDOT determines that additional technical and legal staff, contractor resources, equipment or other resources are necessary to implement this Consent Decree. RIDOT shall submit such Plan Supplement(s) to EPA and RIDEM for review and comment, and the Plan Supplement(s), with any changes made by RIDOT in response to review and comment by EPA and RIDEM, shall be incorporated into and become enforceable under this Consent Decree.

VII. SUPPLEMENTAL ENVIRONMENTAL PROJECTS

51. RIDOT shall implement the two supplemental environmental projects (“SEPs”) set forth in Appendix 12 in accordance with the provisions of this Consent Decree and Appendix 12. The two SEPs are: (a) the Johnston Parcel Preservation SEP and (b) the Lincoln Parcel Preservation SEP. The SEPs shall be completed in accordance with the schedules set forth in Appendix 12.

52. RIDOT is responsible for the satisfactory completion of the SEPs in accordance with the requirements of this Consent Decree and Appendix 12. RIDOT may use contractors or consultants in planning and implementing the SEPs.

53. With regard to the SEPs, RIDOT certifies the truth and accuracy of each of the following:

a. that all information provided to EPA in connection with EPA's approval of the SEP is complete and accurate and that RIDOT in good faith estimates that (a) the tax value of the Johnston Parcel is approximately \$77,000 and (b) the tax value of the Lincoln Parcel is approximately \$157,600;

b. that, as of the date of executing this Consent Decree, RIDOT is not required to perform or develop the SEPs by any federal, state, or local law or regulation and is not required to perform or develop the SEPs by agreement, grant, or as injunctive relief awarded in any other action in any forum;

c. that each SEP is not a project that RIDOT was planning or intending to construct, perform, or implement other than in settlement of the claims resolved in this Consent Decree;

d. that RIDOT has not received and will not receive credit for the SEPs in any other enforcement action;

e. that RIDOT will not receive any reimbursement for any portion of the SEPs from any other person; and

f. that (i) RIDOT is not a party to any open federal financial assistance transaction that is funding or could fund the same activity as the SEPs described in Appendix 12; and (ii) RIDOT has inquired of the Rhode Island Department of Environmental Management whether it is a party to an open federal financial assistance transaction that is funding or could fund the same activity as the pertinent SEP and has been informed by RIDEM that it is not a party to such a transaction. For purposes of these certifications, the term "open federal financial assistance transaction" refers to a grant, cooperative agreement, loan, federally-guaranteed loan guarantee,

or other mechanism for providing federal financial assistance whose performance period has not yet expired.

54. No later than the dates specified in Appendix 12, RIDOT shall submit SEP Completion Reports to the United States Attorney's Office, the U.S. Department of Justice, EPA, and RIDEM at the addresses specified in Paragraph 93 below. Each SEP Completion Report shall contain the following information:

- a. a detailed description of the SEP as implemented;
- b. a description of any problems encountered in completing the SEP and the solutions thereto;
- c. an itemized list of all SEP expenditures;
- d. certification that the SEP has been fully implemented pursuant to the provisions of this Consent Decree and Appendix 12; and
- e. a description of the environmental and public health benefits resulting from the implementation of the SEP.

55. EPA may, in its sole discretion, require information in addition to that described in the preceding Paragraph, in order to evaluate RIDOT's SEP Completion Reports.

56. After receiving each SEP Completion Report, the United States shall notify RIDOT whether or not RIDOT has satisfactorily completed the SEP. If RIDOT has not completed the SEP in accordance with this Consent Decree and Appendix 12, stipulated penalties may be assessed under Section X.

57. Disputes concerning the satisfactory performance of the SEPs may be resolved under Section XII (Dispute Resolution). No other disputes arising under this Section shall be subject to Dispute Resolution.

58. Each submission required under this Section shall be signed by an official with knowledge of the SEP and shall bear the certification language set forth in Paragraph 94.

59. Any public statement, oral or written, in print, film, or other media, made by RIDOT making reference to either SEP under this Consent Decree shall include the following language: “This project was undertaken in connection with the settlement of an enforcement action, United States v. Rhode Island Department of Transportation, taken on behalf of the U.S. Environmental Protection Agency under the Clean Water Act.”

VIII. COMPLIANCE REPORTING

60. Beginning on the first March 10 following the entry of this Consent Decree, and thereafter each March 10th through termination of this Consent Decree, RIDOT shall submit to EPA and RIDEM, for review and comment, Compliance Reports for the previous calendar year (“Reporting Period”). Each Compliance Report shall include, at a minimum, the following items:

- a. an identification of all plans, reports, and other submissions required by this Consent Decree that RIDOT completed and submitted during the Reporting Period;
- b. a description of all proposed changes to the remedial measures included in documents as Approved by EPA under the terms of this Consent Decree;
- c. the status of RIDOT’s actions to address Impaired Water Body Segments as required under Paragraphs 9-11, through a list of all Impaired Water Body

Segments, organized by SCP Group, to which the RIDOT MS4 discharges from the RIDOT Permit Area, including the following information:

- i. Impaired Water Body Segment name;
- ii. Impaired Water Body Segment ID number;
- iii. all Pollutant(s) of Concern for the Impaired Water Body Segment;
- iv. date(s) of the TMDL(s) for the Impaired Water Body Segment;
- v. the status of identification of Other RIDOT Roadways in the geographical areas that are the subject of the Group SCP and a list of the Other RIDOT Roadways identified in accordance with Paragraph 18.e.;
- vi. date the SCP for the Impaired Water Body Segment is or was due, according to Paragraph 18;
- vii. SCP status (*e.g.*, to be completed, submitted to EPA, Approved by EPA, construction in progress, etc.);
- viii. planned or actual date SCP submitted to EPA;
- ix. date SCP Approved by EPA;
- x. summary of actions proposed in SCP;
- xi. construction status of all structural stormwater controls proposed in SCP (*e.g.*, no new structural controls required, construction planned, on-going, complete);
- xii. construction completion date of all structural stormwater controls in the Impaired Water Body Segment (actual or projected); and

- xiii. implementation status of all Enhanced Non-Structural BMPs proposed in SCP;
- d. a Structural Control Status Report that identifies each proposed structural control in an approved SCP and the status of implementation of the structural control (*e.g.*, 30% design completed (if applicable), 75% design completed (if applicable), final design completed, construction commenced, or construction completed). The report shall also state the estimate of the level of pollutant removal (and runoff volume reduction and peak flow attenuation if the Impervious Cover Standard is applicable) that was anticipated to be achieved by the proposed structural control at the SCP stage and updated estimates at the 75% or final design completed stage (whichever further design has been completed) and construction completed stage. If the estimate at the 75% or final design completed stage (whichever further design has been completed) or construction completed stage is different from the estimate in the approved SCP, RIDOT shall identify the change in estimate and provide a summary of the reasons for the change in estimate. Where Paragraph 15.b. is applicable, proposed SCP amendment(s) shall be submitted in accordance with the time frames in Paragraph 15.b. and shall be referenced in the annual Compliance Report;
- e. for each structural control for which construction was completed since the previous annual Compliance Report, a Construction Report that includes the following information: (i) certification that the structural stormwater control was constructed, and is operating, in accordance with manufacturer or design specifications; (ii) the

- date construction of the structural stormwater control was completed; and (iii) a description of any differences between the final structural stormwater control as built and as designed;
- f. for each structural control for which construction was completed since the previous annual Compliance Report, revised O&M Plans for structural controls (if previously approved O&M Plans need to be updated), which shall be subject to Approval by EPA, after review and comment by RIDEM;
 - g. a summary of the status of design and implementation of stormwater control projects under Paragraph 16 above that are not yet incorporated into EPA-approved SCPs;
 - h. an updated list of the SCPs incorporated by reference into the RIDOT SWMPP;
 - i. a summary of O&M activities performed by RIDOT for structural stormwater controls (including yearly inspections, but not including minor routine housekeeping, such as mowing or trash removal in median), excluding catch basin inspections and cleaning. The O&M summary shall include the activity, identification of the structural control by type and location, and date. For this requirement, RIDOT may submit an electronic or paper copy of an O&M report or a report from the RIDOT maintenance management system;
 - j. a list of all Impaired Water Body Segments that receive discharges from RIDOT MS4 Discharge Points that were added to the RIDEM CWA Section 303(d) list as requiring TMDLs during the Reporting Period and a revision to Appendix 5 as follows:

- i. if the waterbody segment newly added to the Section 303(d) list is located in a watershed that includes a grouping of other Impaired Water Body Segments in Appendix 5 for which a Group SCP has not yet been developed, the newly added Section 303(d) waterbody segment shall be added to that grouping in Appendix 5 and shall be addressed in the Group SCP for that grouping;
- ii. if the waterbody segment newly added to the Section 303(d) list is located in a watershed where Group SCP(s) for all other Impaired Water Body Segments in the watershed have been completed, the newly added Section 303(d) waterbody segment shall be added to the closest grouping of other Impaired Water Body Segments in Appendix 5 for which a Group SCP has not yet been developed and shall be addressed in the Group SCP for that grouping;
- k. the total number of RIDOT MS4 Discharge Points screened in dry weather and in wet weather during the Reporting Period;
- l. the status of identification of Other RIDOT Roadways in the geographical areas where Group SCPs are not required and a list of the Other RIDOT Roadways identified in accordance with Paragraph 38.b.;
- m. the results of all RIDOT IDDE outfall and other MS4 Discharge Point screening or sampling completed during the Reporting Period, organized by Impaired Water Body Segment;
- n. a description of all IDDE illicit discharge investigations RIDOT conducted during

the Reporting Period, including a description of what information prompted the investigation (*e.g.*, IDDE screening, catch basin inspection, citizen complaint, etc.), on what date that information was received by RIDOT, the date on which the RIDOT IDDE investigation was completed, and the outcome of the IDDE investigation;

- o. for the MS4 outfalls listed in Appendix 9, the results of RIDOT's work during the Reporting Period to determine whether there are any interconnections between the RIDOT MS4 and the associated MS4 through which the RIDOT MS4 indirectly discharges to the associated MS4 outfall and the results of screening at any such RIDOT MS4 interconnections;
- p. a list of all IDDE illicit discharge investigations that were not completed within 180 days of initiation of the investigation, a schedule for completing each such IDDE illicit discharge investigation, and an explanation as to why the schedule will ensure that the illicit discharge investigation is completed as expeditiously as possible. For each IDDE illicit discharge investigation schedule listed in the previous annual Compliance Report, specify whether RIDOT complied with its schedule for completion, and if not, the reasons for the delay;
- q. a description of all (i) citizen complaints of illicit discharges, (ii) reports of illicit discharges from RIDEM, or (iii) internal referrals for IDDE evaluation based upon catch basin inspections under Paragraph 49 or during other RIDOT construction or maintenance work, and if an IDDE investigation was not initiated, the reasons RIDOT did not initiate such an investigation;

- r. an updated list of all RIDOT illicit discharges verified through the end of the Reporting Period, including the following information:
 - i. the date the illicit discharge was verified;
 - ii. the dates RIDEM and EPA were notified of the presence of the illicit discharge;
 - iii. the date(s) the owner of the illicit discharge was notified;
 - iv. a list of those illicit discharges verified but not removed within one hundred twenty (120) days of verification, with an explanation for each;
 - v. the schedule for the removal of each illicit discharge that was not removed within one hundred twenty (120) days of verification and an explanation as to why the schedule will ensure that the illicit discharge is eliminated as expeditiously as possible;
 - vi. for each schedule for the removal of an illicit discharge listed in the previous annual Compliance Report, specify whether RIDOT complied with its schedule for removal, and if not, the reasons for the delay;
 - vii. the actions RIDOT has taken to eliminate the illicit discharge and the dates on which the actions were taken;
 - viii. the date the illicit discharge was eliminated; and
 - ix. dates and results of IDDE dry and wet weather sampling to confirm removal of the illicit discharge;
- s. an update of RIDOT street sweeping status, broken down by the category of sweeping frequency required by Paragraphs 39 and 40. For each category, the

update shall include the total RIDOT curb-miles in that frequency category, the curb-miles swept (and number of times swept) in that category during the Reporting Period. The update shall also report on increased frequency street sweeping under Paragraph 41;

- t. an update of catch basin and manhole inspection status, including identification of the roadways or road segments or other facilities (by road number and/or general geographical location) where catch basins and manholes were inspected during the Reporting Period and a summary of the results of the inspections, including a list of the catch basins and manholes that were identified as needing cleaning or repair and a list of the pipes or other closed drainage system components associated with the catch basins or manholes inspected identified as needing cleaning or repair. This information shall include the number of catch basins and manholes inspected during the Reporting Period;
- u. an update of outfall inspection status, including identification of the outfalls (by ID number and location) where the outfall was inspected during the Reporting Period and a summary of the results of the inspections, including a list of the outfalls that were identified as needing cleaning or repair and a list of the pipes or other closed drainage system components associated with the outfalls inspected identified as needing cleaning or repair. This information shall include the number of outfalls inspected during the Reporting Period;
- v. an update of catch basin and manhole cleaning status, including identification of the catch basins and manholes that were cleaned during the Reporting Period. This

information shall include the number of catch basins and manholes that were cleaned during the Reporting Period and be broken down by non-Interstate RIDOT Maintained Roadway, Interstate RIDOT Maintained Roadway, Other RIDOT Roadway, and other RIDOT facility categories and by general geographical location. RIDOT shall also provide a summary of its plan for cleaning of catch basins and manholes for the upcoming two years following the Reporting Period, including identification of the roadway segments and other facilities along which such work is planned to be conducted, broken down by non-Interstate RIDOT Maintained Roadway, Interstate RIDOT Maintained Roadway, Other RIDOT Roadway, and other RIDOT facility categories and by general geographical location;

- w. an update of catch basin and manhole repair status, including identification of the catch basins and manholes that were repaired during the Reporting Period. This information shall include the number of catch basins and manholes that were repaired during the Reporting Period and be broken down by non-Interstate RIDOT Maintained Roadway, Interstate RIDOT Maintained Roadway, Other RIDOT Roadway, and other RIDOT facility categories and by general geographical location. RIDOT shall also provide a summary of its plan for repair of catch basins and manholes for the upcoming two years following the Reporting Period, including identification of the roadway segments and other facilities along which such work is planned to be conducted, broken down by non-Interstate RIDOT Maintained Roadway, Interstate RIDOT Maintained Roadway, Other RIDOT

Roadway, and other RIDOT facility categories and by general geographical location;

- x. an update of non-catch basin and manhole closed drainage system component cleaning and repair status, including identification of the non-catch basin and manhole closed drainage system components that were cleaned or repaired during the Reporting Period. This information shall identify the pipes, outfalls, or other components by applicable identifiers (road number, ID number, and/or geographical location) and indicate whether the component was cleaned, repaired, or both, and describe the consistency of RIDOT's work with the plan submitted under Paragraph 47.f. RIDOT shall also identify the non-catch basin and manhole drainage system components that it plans to clean or repair in the upcoming two years following the Reporting Period by applicable identifiers (road number, ID number, and/or geographical location);
- y. a discussion of RIDOT's progress in satisfying its obligations in connection with each of the SEPs under Section VII and Appendix 12 including, at a minimum, (i) a narrative description of activities undertaken and (ii) the status of any compliance measures, including the completion of any milestones set forth in Appendix 12;
- z. an identification of all noncompliance with the requirements of this Consent Decree. If any noncompliance is reported, the notification shall include the following information:
 - i. a description of the noncompliance;
 - ii. a description of all factors that explain or mitigate the noncompliance;

- iii. a description of all actions taken or proposed by RIDOT to comply with all lapsed requirements; and
- iv. the date by which RIDOT will perform the required actions.

61. Beginning on the first August 1 following the entry of this Consent Decree, and thereafter until the remedial measures specified under Paragraphs 20.a. and b., 21.a., and 25.b. and c. have been completed, RIDOT shall submit a six-month IDDE Compliance Update on or before August 1 of each year that provides the information specified in Paragraphs 60.k. and m.-r. with respect to the preceding January 1 through June 30 time period.

62. The reporting requirements set forth in Paragraphs 60 and 61 do not relieve RIDOT of its obligation to submit all other reports or information as required by federal, State or local law, regulation, or permit. EPA reserves the right to review and require modifications to the above reporting requirements.

IX. REVIEW AND APPROVAL

63. After review of any plan, schedule, report, or other item that is required to be submitted for Approval by EPA pursuant to this Consent Decree, EPA shall in writing:

- a. approve, in whole or in part, the submission;
- b. approve, in whole or in part, the submission upon specified conditions; or
- c. disapprove, in whole or in part, the submission.

64. In the event of Approval pursuant to Paragraph 63.a., RIDOT shall take all actions required to implement such plan, schedule, report, or other item, as approved. In the event of Approval in part pursuant to Paragraph 63.a., or Approval upon specified conditions pursuant to Paragraph 63.b., upon written direction of EPA, RIDOT shall take all actions required by the

approved plan or schedule, report or other item that EPA determines are technically severable from any disapproved portions, subject to RIDOT's right to dispute only the specified conditions or non-approved portions pursuant to Section XII (Dispute Resolution).

65. Upon receipt of a written notice of disapproval pursuant to Paragraph 63.c., RIDOT shall, within thirty (30) Days or such other time as RIDOT and EPA agree in writing, correct the deficiencies and resubmit the plan, schedule, report, or other item, or portion thereof, for Approval. Any stipulated penalties applicable to the original submission shall accrue during the thirty (30) Day period or other specified period, but shall not be payable unless the resubmission is untimely and/or disapproved as provided in Paragraph 63; provided that, if the original submission was disapproved by EPA in whole, stipulated penalties applicable to the original submission shall be due and payable upon demand notwithstanding any subsequent resubmission.

66. In the event that a resubmitted plan, report or other item, or portion thereof, is disapproved by EPA, EPA may again require RIDOT to correct the deficiencies in accordance with the preceding Paragraphs.

67. If upon resubmission, a plan, report, or item, or portion thereof, is disapproved by EPA, RIDOT shall be bound by EPA's decision unless RIDOT invokes the dispute resolution procedures set forth in Section XII (Dispute Resolution) within twenty (20) Days of receipt of EPA's last written position. If EPA's disapproval is upheld after dispute resolution, stipulated penalties shall accrue for the violation from the date of the disapproval of the original submission.

68. All plans, reports, and other items required to be submitted to EPA under this Consent Decree shall, upon Approval by EPA, be enforceable under this Consent Decree. In the event EPA approves a portion of a plan, report, or other item required to be submitted under this Consent Decree, the approved portion shall be enforceable under this Consent Decree.

69. In the event a dispute arises among the Parties regarding EPA's Approval upon specified conditions or disapproval in part or in whole of any plans, reports, and other items required to be submitted to EPA under this Consent Decree, the position of EPA shall govern unless RIDOT invokes the dispute resolution procedures set forth in Section XII (Dispute Resolution).

X. STIPULATED PENALTIES

70. RIDOT shall pay stipulated penalties to the United States for violations or noncompliance with the requirements of this Consent Decree, as set forth below, unless excused under Section XI (Force Majeure). A violation or noncompliance includes failing to perform an obligation required by the terms of this Consent Decree, including any work plan or schedule approved under this Consent Decree, according to all applicable requirements of this Consent Decree and within the specified time schedules or by the date(s) established by or approved under this Consent Decree:

a. Late Payment of Civil Penalty. If RIDOT fails to pay the Civil Penalty required to be paid under Section V (Penalty for Past Violations) when due, RIDOT shall pay a stipulated penalty as follows:

<u>Penalty Per Violation Per Day</u>	<u>Period of Noncompliance</u>
\$ 750	1st through 10th Day
\$ 1,500	11th through 20th Day
\$ 2,500	21st Day and beyond.

b. Reporting Requirements. For every Day that RIDOT fails to timely submit a report required by Paragraph 60 or Paragraph 61 of this Consent Decree or fails to provide the certification required by Paragraph 94 of this Consent Decree, RIDOT shall pay a stipulated penalty as follows:

<u>Penalty Per Violation Per Day</u>	<u>Period of Noncompliance</u>
\$ 500	1st through 14th Day
\$ 1,500	15th through 30th Day
\$ 2,500	31st Day and beyond.

c. Remedial Measures. For every Day that RIDOT fails timely to meet the requirements of Section VI (Remedial Measures) of this Consent Decree, including but not limited to, submitting an approvable plan, schedule, report, or other item, other than a report required by Paragraphs 60 or 61, or fails to implement remedial requirements in a plan, schedule, report, or other item approved by EPA, RIDOT shall pay a stipulated penalty as follows:

<u>Penalty Per Violation Per Day</u>	<u>Period of Noncompliance</u>
\$ 750	1st through 14th Day
\$ 1,000	15th through 30th Day
\$ 2,500	31st Day and beyond.

d. Supplemental Environmental Projects.

i. For each of the SEPs set forth in Section VII and Appendix 12, if RIDOT fails to satisfactorily complete the SEP by the deadline set forth in Appendix 12, RIDOT shall pay stipulated penalties for each day for which it fails to satisfactorily complete the SEP, as follows:

<u>Penalty Per Violation Per Day</u>	<u>Period of Noncompliance</u>
\$ 250	1st through 30th Day
\$ 500	31st through 60th Day

\$ 1,000

61st Day and beyond.

ii. For the Johnston Parcel Preservation SEP, if RIDOT fails to implement the SEP, or halts or abandons work on the SEP, RIDOT shall pay a stipulated penalty of \$80,000. For the Lincoln Parcel Preservation SEP, if RIDOT fails to implement the SEP, or halts or abandons work on the SEP, RIDOT shall pay a stipulated penalty of \$160,000. The penalty under this subparagraph shall accrue as of the date specified for completing the SEP or the date performance ceases, whichever is earlier.

iii. For each of the SEPs set forth in Section VII and Appendix 12, if RIDOT fails to comply with the interim milestones in Appendix 12 for implementing the SEP or fails to submit the SEP Completion Report, containing the information required under Paragraph 54, by the dates specified in Appendix 12, RIDOT shall pay stipulated penalties for each failure to meet an applicable deadline, as follows:

<u>Penalty Per Violation Per Day</u>	<u>Period of Noncompliance</u>
\$ 100	1st through 30th Day
\$ 250	31st through 60th Day
\$ 500	61st Day and beyond.

71. Stipulated penalties shall automatically begin to accrue on the Day after performance is due or on the Day a violation occurs and shall continue to accrue each Day until performance is satisfactorily completed or until the violation or noncompliance ceases. Stipulated penalties shall accrue simultaneously for separate violations of or instances of noncompliance with this Consent Decree.

72. Following the United States' determination that RIDOT has failed to comply with a requirement of this Consent Decree, the United States may give RIDOT written notification of

the same and describe the noncompliance. The United States may send RIDOT a written demand for the payment of the stipulated penalties. However, the stipulated penalties shall accrue as provided in the preceding Paragraph regardless of whether the United States has notified RIDOT of a violation of or noncompliance with the requirements of this Consent Decree, or demanded payment of stipulated penalties.

73. RIDOT shall pay stipulated penalties as specified in this Section by delivering the payment to the United States within thirty (30) Days of the date of a demand for payment of stipulated penalties, in accordance with the instructions set forth below:

a. RIDOT shall pay stipulated penalties in the manner set forth and with the confirmation notices required by Paragraph 8, except that the transmittal letter shall state that the payment is for stipulated penalties and shall state for which violation(s) or noncompliance the penalties are being paid.

b. In the event RIDOT fails to pay stipulated penalties according to the terms of this Consent Decree, such penalty (or portion thereof) shall be subject to interest at the statutory judgment rate set forth at 28 U.S.C. § 1961, accruing as of the date payment became due. Nothing in this Paragraph shall be construed to limit the United States from seeking any remedy otherwise provided by law for failure of RIDOT to pay any stipulated penalties.

74. Stipulated penalties shall continue to accrue as provided in Paragraph 71, during any dispute resolution, but need not be paid until the following:

a. If the dispute is resolved by agreement or a decision of the United States that is not appealed to the Court, RIDOT shall pay accrued penalties determined to be owed, together with interest accruing at the rate specified in 28 U.S.C. § 1961, to the United States within thirty

(30) Days of the effective date of the agreement or the receipt of the United States' decision or order.

b. If the dispute is appealed to the Court and the United States prevails in whole or in part, RIDOT shall pay all accrued penalties, together with interest, within thirty (30) Days of receiving the Court's decision or order, except as provided in Subparagraph c below.

c. If any Party appeals the District Court's decision, RIDOT shall pay all accrued penalties determined to be owed, together with interest, within fifteen (15) Days of receiving the final appellate court decision.

75. The stipulated penalties set forth above shall be in addition to any other remedies, sanctions, or penalties which may be available by reason of RIDOT's failure to comply with the requirements of this Consent Decree. The United States expressly reserves any and all legal and equitable remedies, including contempt sanctions, which may be available to enforce the provisions of this Consent Decree.

XI. FORCE MAJEURE

76. "Force Majeure," for purposes of this Consent Decree, is defined as any event arising from causes entirely beyond the control of RIDOT or of any entity controlled by RIDOT, including its engineers, consultants, contractors and subcontractors, that delays or prevents the timely performance of any obligation under this Consent Decree notwithstanding RIDOT's best efforts to fulfill the obligation. The requirement that RIDOT exercise "best efforts" includes using best efforts to anticipate any potential Force Majeure event and best efforts to address the effects of any such event (a) as it is occurring and (b) after it has occurred to prevent or minimize any resulting delay to the greatest extent possible. "Force Majeure" does not include RIDOT's

financial inability to perform any obligation under this Consent Decree. Stipulated Penalties shall not be due for the number of Days of noncompliance caused by a Force Majeure event as defined in this Section, provided that RIDOT complies with the terms of this Section.

77. If any event occurs that may delay or prevent the performance of any obligation under this Consent Decree, whether or not caused by a Force Majeure event, RIDOT shall notify EPA and RIDEM within seventy-two (72) hours after RIDOT first knew or should have known that the event might cause a delay. Within ten (10) working Days thereafter, RIDOT shall submit to EPA, with a copy to RIDEM, at the addresses specified in Section XIV (Form of Notice), a written explanation of the cause(s) of any actual or expected delay or noncompliance, the anticipated duration of any delay, the measure(s) taken and to be taken by RIDOT to prevent or minimize the delay, a proposed schedule for the implementation of such measures, RIDOT's rationale for attributing such delay to a force majeure event if it intends to assert such a claim; and a statement as to whether, in the opinion of RIDOT, such event may cause or contribute to an endangerment to public health, welfare, or the environment. RIDOT shall include with any notice all available documentation supporting the claim that the delay was attributable to a force majeure. RIDOT shall be deemed to know of any circumstances of which RIDOT, any entity controlled by RIDOT, or RIDOT's contractors knew or should have known. Failure to provide timely and complete notice in accordance with this Paragraph shall constitute a waiver of any claim of Force Majeure with respect to the event in question.

78. If EPA agrees that a delay or anticipated delay is attributable to Force Majeure, the time for performance of the obligations under this Consent Decree that are affected by the Force Majeure event shall be extended by EPA, after a reasonable opportunity for review and comment

by RIDEM, for a period of time as may be necessary to allow performance of such obligations. EPA will notify RIDOT in writing of the length of the extension, if any, for performance of the obligations affected by the Force Majeure event.

79. If EPA does not agree the delay or anticipated delay is attributable to Force Majeure, or on the number of Days of noncompliance caused by such event, EPA will notify RIDOT in writing of its decision. RIDOT may then elect to initiate the dispute resolution process set forth in Section XII (Dispute Resolution). In any dispute resolution proceeding, RIDOT shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a Force Majeure event, that the duration of the delay or the extension sought was or will be warranted under the circumstances, that “best efforts” were exercised to avoid and mitigate the effects of the delay, and that RIDOT complied with the requirements of Paragraphs 76 and 77, above. If RIDOT carries this burden, the delay at issue shall be deemed not to be a violation by RIDOT of the affected obligation(s) of this Consent Decree identified to EPA and the Court.

80. Delay in performance of any obligation under this Consent Decree shall not automatically justify or excuse delay in complying with any subsequent obligation or requirement of this Consent Decree.

XII. DISPUTE RESOLUTION

81. Unless otherwise expressly provided for in this Consent Decree, the dispute resolution procedures set forth in this Section shall be the exclusive mechanism to resolve disputes arising under or with respect to this Consent Decree. RIDOT’s failure to seek resolution of a dispute under this Section shall preclude RIDOT from raising any such undisputed issue as a defense to

an action by the United States to enforce any obligation of RIDOT arising under this Consent Decree. The procedures set forth in this Section shall not apply to actions by the United States to enforce obligations that RIDOT has not disputed in accordance with this Section.

82. Informal Dispute Resolution. Any dispute subject to dispute resolution under this Consent Decree shall first be the subject of informal negotiations. The dispute shall be considered to have arisen when RIDOT sends the United States a written Notice of Dispute. Such Notice of Dispute shall state clearly the matter in dispute, and shall be accompanied by a Statement of Position that shall include, but need not be limited to, any factual data, analysis, or opinion supporting that position and any supporting documentation relied upon by RIDOT. The period of informal negotiations shall not exceed thirty (30) Days from the date the dispute arises, unless that period is modified by written agreement between the Parties. EPA shall maintain an administrative record of the dispute, which shall contain all statements of the Parties, including supporting documentation, submitted pursuant to this Section.

83. In the event that RIDOT elects to invoke dispute resolution according to this Section, RIDOT shall do so by giving the United States written notice of the existence of the dispute within twenty (20) Days after receipt of a notice of disapproval, Approval with conditions or modification, a Force Majeure determination by EPA, or a written demand for payment of stipulated penalties. If RIDOT fails to give such notice, it shall be deemed to have waived any right to invoke dispute resolution regarding such dispute, and the position advanced by the United States shall be considered binding.

84. If RIDOT cannot resolve a dispute by informal negotiations, then the position advanced by the United States shall be considered binding unless, within thirty (30) Days after the

conclusion of the informal negotiation period, RIDOT seeks judicial review of the dispute by filing with the Court and serving on the United States, in accordance with Section XIV (Form of Notice), a motion requesting judicial resolution of the dispute. Any such motion shall contain a written statement of RIDOT's position on the matter in dispute, including any supporting factual data, analysis, opinion, or documentation, and shall set forth the relief requested and any schedule within which the dispute must be resolved for orderly implementation of the Consent Decree.

85. The United States shall respond to RIDOT's motion within the time period allowed by the Federal Rules of Civil Procedure and the Local Rules of this Court. RIDOT may file a reply memorandum, to the extent permitted by the Federal Rules of Civil Procedure and the Local Rules.

86. Standard of Review.

a. Disputes Concerning Matters Accorded Record Review. Except as otherwise provided in this Consent Decree, any dispute brought under this Section pertaining to the adequacy or appropriateness of plans, procedures to implement plans, schedules, or any other items requiring Approval by EPA under this Consent Decree; the adequacy of the performance of work undertaken pursuant to this Consent Decree; and all other disputes that are accorded review on the administrative record under applicable principles of administrative law, RIDOT shall have the burden of demonstrating, based upon the administrative record, that the United States' position is arbitrary and capricious or otherwise not in accordance with law.

b. Other Disputes. Except as otherwise provided in this Consent Decree, in any other dispute brought under this Section, RIDOT shall bear the burden of demonstrating that its

position complies with this Consent Decree, furthers the objectives of this Consent Decree more positively than the position advanced by the United States, and that RIDOT is entitled to relief under applicable principles of law.

87. The invocation of dispute resolution procedures under this Section shall not, by itself, extend, postpone, or affect in any way any obligation of RIDOT under this Consent Decree, unless and until final resolution of the dispute so provides. Stipulated penalties with respect to the disputed matter shall continue to accrue from the first Day of noncompliance, but payment shall be stayed pending resolution of the dispute as provided in Paragraph 74. If RIDOT does not prevail on the disputed issue, stipulated penalties shall be assessed and paid as provided in Section X (Stipulated Penalties).

XIII. RIGHT OF ENTRY, DOCUMENT RETENTION, AND WEBSITE POSTING

88. EPA and its contractors, consultants, and attorneys shall have authority to enter any property and/or facility owned or controlled by RIDOT, at all reasonable times, upon proper identification, for the purposes of: (a) monitoring the progress of activity required by this Consent Decree; (b) verifying any data or information submitted to EPA under this Consent Decree; (c) assessing RIDOT's compliance with this Consent Decree; (d) obtaining samples and, upon request, splits of any samples taken by RIDOT or its representatives, contractors, or consultants; and (e) obtaining documentary evidence, including photographs and similar data. Upon request, EPA shall provide RIDOT splits of any samples taken by EPA.

89. Until five years after the termination of this Consent Decree, RIDOT shall retain all non-identical copies of all documents, records, or other information (including documents, records, or other information in electronic form) generated by RIDOT, and all data collected and

all reports generated by RIDOT's contractors (including data and reports in electronic form), that relate in any manner to RIDOT's performance of its obligations under this Consent Decree. This information retention requirement shall apply regardless of any contrary corporate or institutional policies or procedures. At any time during this information-retention period, upon request by the United States, RIDOT shall provide copies of any documents, records, or other information required to be maintained under this Paragraph.

90. At the conclusion of the information-retention period provided in the preceding Paragraph, RIDOT shall notify the United States at least ninety (90) Days prior to the destruction of any documents, records, or other information subject to the requirements of the preceding Paragraph and, upon request by the United States, RIDOT shall deliver any such documents, records, or other information to EPA. RIDOT may assert that certain documents, records, or other information are privileged under the attorney-client privilege or any other privilege recognized by federal law. If RIDOT asserts such a privilege, it shall provide the following: (a) the title of the document, record, or information; (b) the date of the document, record, or information; (c) the name and title of each author of the document, record, or information; (d) the name and title of each addressee and recipient; (e) a description of the subject of the document, record, or information; and (f) the privilege asserted by RIDOT. However, no documents, records, data, reports or other information created or generated pursuant to the requirements of this Consent Decree shall be withheld on grounds of privilege.

91. This Consent Decree in no way limits or affects any right of entry and inspection, or any right to obtain information, held by the United States or RIDEM pursuant to applicable federal or State laws, regulations, or permits, nor does it limit or affect any duty or obligation of RIDOT to

maintain documents, records, or other information imposed by applicable federal or State laws, regulations, or permits.

92. RIDOT Stormwater Management Website. RIDOT shall update and maintain its stormwater management website in accordance with the terms of this Paragraph. RIDOT shall ensure that its stormwater management website is easily accessible by the public, including, but not limited to, a prominent link on RIDOT's homepage. RIDOT shall, at a minimum, post the following documents on its website: (a) this Consent Decree, including all of its Appendices, (b) the most up-to-date version of RIDOT's SWMPP, (c) Compliance Reports and IDDE Compliance Updates submitted under Paragraphs 60 and 61, and (d) Approved SCPs, Approved SCP Amendments, and Approved SCP Updates. RIDOT shall update its website posting of its SWMPP, as applicable, Compliance Reports, IDDE Compliance Updates, Approved SCPs, Approved SCP Amendments, and Approved SCP Updates at least once a year on or about the time it submits its annual Compliance Report under Paragraph 60.

XIV. FORM OF NOTICE

93. Unless otherwise specified in this Decree, whenever notifications, submissions, or communications are required by this Consent Decree, they shall be in writing and addressed to the following respective addressees, unless written notice is given that another individual has been designated to receive the documents. Any submission required by this Consent Decree must be received by EPA, with a copy to RIDEM, upon the due date stated in or required under this Consent Decree. Notifications, submissions, or communications shall be made electronically and may, in addition, be made by certified mail with return receipt or by any reliable commercial delivery service that provides written verification of delivery. If a

submission or notice cannot be provided via electronic mail due to its size, an electronic copy shall be provided by CD-ROM or other similar digital format.

As to the Department of Justice

EES Case Management Unit
Environment and Natural Resources Division
United States Department of Justice
P.O. Box 7611, Ben Franklin Station
Washington, D.C. 20044
eescasemanagement.enrd@usdoj.gov
Re: DJ No. 90-5-1-1-10908

As to the United States Attorney

United States Attorney
District of Rhode Island
50 Kennedy Plaza, 8th Floor
Providence, RI 02903
zachary.cunha@usdoj.gov

As to EPA

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Environmental Engineer
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Kevin P. Pechulis
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As to RIDEM

Angelo Liberti
Chief of Surface Water Protection
Office of Water Resources
Rhode Island Department of Environmental Management
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Mary E. Kay
Executive Counsel
Rhode Island Department of Environmental Management
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As to the State Attorney General

Gregory S. Schultz
Special Assistant Attorney General
Rhode Island Department of Attorney General
150 South Main Street
Providence, R.I. 02903
gschultz@riag.ri.gov

As to RIDOT

Director (Peter Alviti, Jr., P.E.)
Chief Engineer (David W. Fish, P.E. – Acting Chief Engineer)
Chief Operating Officer (Peter J. Garino)
Administrator for Highway and Bridge Maintenance (Joseph Bucci, P.E. – Acting Administrator)
Rhode Island Department of Transportation
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diane.bestwick@dot.ri.gov
david.fish@dot.ri.gov
peter.garino@dot.ri.gov
cynthia.parker@dot.ri.gov

Chief Legal Counsel (John Igliazzi – Acting Chief Legal Counsel)
Rhode Island Department of Transportation
Two Capitol Hill
Providence, R.I. 02903
john.iglozzi@dot.ri.gov
annette.jacques@dot.ri.gov

94. All written notices, reports and all other submissions required by this Consent Decree shall contain the following certification by a duly authorized representative of RIDOT:

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

XV. EFFECT OF SETTLEMENT

95. This Consent Decree resolves the civil claims of the United States for the violations alleged in the Complaint filed in this action through the Date of Lodging.

96. This Consent Decree is neither a permit nor a modification of any existing permit under any federal, State, or local law or regulation. RIDOT is responsible for achieving and maintaining complete compliance with all applicable federal, State, and local laws and regulations, and permits, and RIDOT's compliance with this Consent Decree shall be no defense to any action commenced pursuant to any such laws, regulations, or permits, except as set forth herein. The United States does not, by its consent to the entry of this Consent Decree, warrant or aver in any manner that RIDOT's compliance with any aspect of this Consent Decree will result in compliance with provisions of the CWA or with any other provisions of federal, State, or local laws, regulations or permits. This Consent Decree shall not be construed to constitute EPA

approval of any equipment or technology installed by RIDOT under the terms of this Consent Decree.

97. This Consent Decree does not limit any rights or remedies available to the United States for any violation by RIDOT of the CWA and associated regulations or permit conditions other than those claims alleged in the Complaint through the Date of Lodging. This Consent Decree does not limit any rights or remedies available to the United States for any criminal violations. The United States expressly reserves all rights and remedies, legal and equitable, available to the United States for all violations of the CWA or other applicable law where such violations are not alleged in the Complaint, and reserve all rights and remedies, legal and equitable, available to enforce the provisions of this Consent Decree. Nothing herein shall be construed to limit the power of the United States, consistent with its authorities, to undertake any action against any person, in response to conditions which may present an imminent and substantial endangerment to the public's health or welfare, or the environment.

98. In any subsequent administrative or judicial proceeding initiated by the United States for injunctive relief, civil penalties, or other appropriate relief relating to the RIDOT MS4, or RIDOT's violations of federal law, RIDOT shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim preclusion, claim-splitting, or other defenses based upon any contention that the claims raised by the United States in the subsequent proceeding were or should have been brought in the instant case, except with respect to claims that have been specifically resolved pursuant to Paragraph 95 of this Section.

99. This Consent Decree does not limit or affect the rights of RIDOT or the United States against any third parties, not party to this Consent Decree, nor does it limit the rights of third parties, not party to this Consent Decree, against RIDOT, except as otherwise provided by law.

100. This Consent Decree shall not be construed to create rights in, or grant any cause of action to, any third party not party to this Consent Decree.

XVI. COSTS

101. Each Party shall bear its own expenses, costs and attorney's fees in this action. RIDOT shall be responsible for all documented expenses, costs and attorney's fees incurred by the United States in collecting any penalties due and payable under Section V (Civil Penalty) and Section X (Stipulated Penalties) of this Consent Decree. In no event shall the United States be responsible for any expenses, costs or attorney's fees incurred by RIDOT.

XVII. EFFECTIVE DATE

102. The Effective Date of this Consent Decree shall be the date upon which this Consent Decree is entered by the Court or a motion to enter the Consent Decree is granted, whichever occurs first, as recorded on the Court's docket; provided, however, that RIDOT hereby agrees that it shall be bound to perform duties scheduled to occur prior to the Effective Date. In the event the United States withdraws or withholds consent to this Consent Decree before entry, or the Court declines to enter the Consent Decree, then the preceding requirement to perform duties scheduled to occur before the Effective Date shall terminate.

XVIII. RETENTION OF JURISDICTION

103. The Court shall retain jurisdiction to modify and enforce the terms and conditions

of this Consent Decree and to resolve disputes arising hereunder as may be necessary or appropriate for the construction or execution of this Consent Decree and to assess any stipulated penalties that may have accrued during the term of the Consent Decree.

XIX. MODIFICATION

104. The terms of this Consent Decree, including modifications to any schedule specified in or approved under the Consent Decree, may be modified only by a subsequent written agreement signed by both the Parties. Where the modification constitutes a material change to the Consent Decree, it shall be effective only upon approval by the Court. Any disputes concerning modification of this Consent Decree shall be resolved pursuant to Section XII (Dispute Resolution), provided, however, that, instead of the burden of proof provided by Paragraph 86, the Party seeking the modification bears the burden of demonstrating that it is entitled to the requested modification in accordance with Federal Rule of Civil Procedure 60(b).

XX. SEVERABILITY PROVISION

105. The provisions of this Consent Decree shall be severable, and should any provisions be declared by a court of competent jurisdiction to be unenforceable, the remaining provisions shall remain in full force and effect.

XXI. TERMINATION

106. After RIDOT has paid all outstanding penalties, has completed all remedial measures and reports required under Sections VI (Remedial Measures) and VIII (Compliance Reporting), and has completed all requirements of Section VII (Supplemental Environmental Projects), RIDOT may serve upon the United States a Request for Termination, stating that RIDOT has satisfied those requirements, together with all applicable supporting documentation.

107. Following receipt by the United States of RIDOT's Request for Termination, the Parties shall confer informally concerning the Request and any disagreement that the Parties may have as to whether RIDOT has satisfied the requirements for termination of this Consent Decree. If the United States agrees that this Consent Decree may be terminated, the Parties shall submit, for the Court's approval, a joint stipulation terminating the Consent Decree.

108. If the United States does not agree that RIDOT has paid all outstanding penalties and completed all remedial measures, reporting, and SEPs required under Sections VI, VII, and VIII, and therefore, that this Consent Decree may be terminated, RIDOT may invoke dispute resolution under Section XII (Dispute Resolution). However, RIDOT shall not seek dispute resolution of any dispute regarding termination until sixty (60) Days after service of its Request for Termination.

XXII. FINAL JUDGMENT

109. Entry of this Consent Decree constitutes Final Judgment under Rule 54 of the Federal Rules of Civil Procedure.

XXIII. WAIVER OF SERVICE

110. RIDOT hereby agrees to accept service of process by mail with respect to all matters arising under or relating to this Consent Decree and to waive the formal service requirements set forth in Rules 4 and 5 of the Federal Rules of Civil Procedure and any applicable Local Rules of this Court including, but not limited to, service of a summons.

XXIV. PUBLIC COMMENT

111. This Consent Decree shall be lodged with the Court for a period of not less than thirty (30) Days for public notice and comment in accordance with 28 C.F.R. § 50.7. The United

States reserves the right to withdraw or withhold its consent if the comments received disclose facts or considerations that indicate that this Consent Decree is inappropriate, improper, or inadequate. RIDOT consents to the entry of this Consent Decree without further notice and agrees not to withdraw from this Consent Decree or oppose entry of this Consent Decree by the Court or to challenge any provision of this Decree, unless the United States has notified RIDOT in writing that it no longer supports entry of this Decree.

XXV. SIGNATORIES

112. Each undersigned representative of RIDOT and the Assistant Attorney General for the Environment and Natural Resources Division of the Department of Justice certifies that he or she is fully authorized to enter into the terms and conditions of this Consent Decree and to execute and legally bind the Party he or she represents to this document.

113. This Consent Decree may be signed in counterparts, and its validity shall not be challenged on that basis.

XXVI. INTEGRATION

114. This Consent Decree constitutes the final, complete, and exclusive agreement and understanding among the Parties with respect to the settlement embodied in the Decree and supersedes all prior agreements and understanding, whether oral or written, concerning the settlement embodied herein. Other than submissions that are subsequently submitted and Approved by EPA pursuant to this Decree, no other document, nor any representation, inducement, agreement, understanding, or promise, constitutes any part of this Decree or the settlement it represents, nor shall it be used in construing the terms of this Decree.

XXVII. APPENDICES

115. The following Appendices are attached to and part of this Consent Decree:


- a. "Appendix 1" is entitled "RIDOT Pollutant Reduction Percentages for Non-Bacteria TMDLs."
- b. "Appendix 2" is entitled "Impervious Cover Standard."
- c. "Appendix 3" is entitled "Methodologies for Calculating Pollutant Load Reductions Achieved for Structural Stormwater Controls and Enhanced Non-Structural BMPs and Methodologies for Calculating Runoff Volume Reduction and Peak Flow Attenuation Factors for the Impervious Cover Standard."
- d. "Appendix 4" is entitled "Stormwater Control Plan (SCP)."
- e. "Appendix 5" is entitled "Groupings of Impaired Water Body Segments."
- f. "Appendix 6" is entitled "High Priority IDDE RIDOT MS4 Discharge Points."
- g. "Appendix 7" is entitled "System Vulnerability Criteria."
- h. "Appendix 8" is entitled "RIDOT MS4 Discharge Points for which RIDOT must provide a schedule for initiating IDDE investigations."
- i. "Appendix 9" is entitled "MS4 outfalls for which RIDOT shall identify upgradient interconnections with the MS4 under Paragraph 25.c. of the Consent Decree."
- j. "Appendix 10" is entitled "EPA New England Bacterial Source Tracking Protocol."
- k. "Appendix 11" is entitled "Increased Frequency Street Sweeping Areas."
- l. "Appendix 12" is entitled "Supplemental Environmental Projects."

Judgment is hereby entered in accordance with the foregoing Consent Decree this _____
day of _____.

UNITED STATES DISTRICT JUDGE

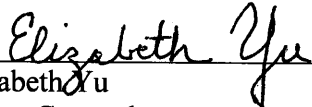
The following parties hereby consent to the entry of this Consent Decree:

For Plaintiff UNITED STATES OF AMERICA



John C. Cruden
Assistant Attorney General
Environment & Natural Resources Division
United States Department of Justice

10-14-15
DATE



Elizabeth Yu
Senior Counsel
Environmental Enforcement Section
Environment & Natural Resources Division
United States Department of Justice
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Washington, D.C. 20044
(202) 514-2277
elizabeth.yu@usdoj.gov

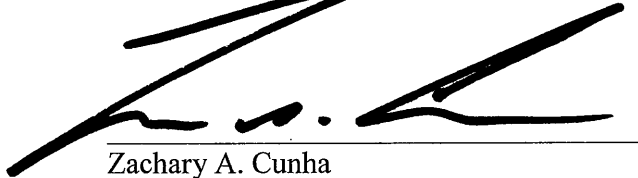
10-14-15
DATE

For Plaintiff UNITED STATES OF AMERICA



Peter F. Neronha
United States Attorney
District of Rhode Island

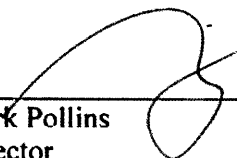
10-15-15
DATE



Zachary A. Cunha
Assistant United States Attorney
50 Kennedy Plaza, 8th Floor
Providence, RI 02903
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zachary.cunha@usdoj.gov

10/15/15
DATE

For the UNITED STATES ENVIRONMENTAL PROTECTION AGENCY




Mark Pollins
Director

10-8-15

DATE

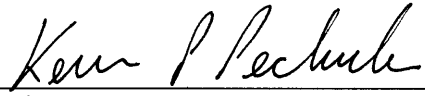
Water Enforcement Division
Office of Civil Enforcement
Office of Enforcement and Compliance Assurance
United States Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

For the UNITED STATES ENVIRONMENTAL PROTECTION AGENCY



Susan Studlien, Director
Office of Environmental Stewardship
United States Environmental Protection Agency,
Region 1
5 Post Office Square
Boston, MA 02109-3912

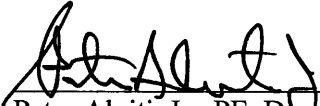
10-6-15
DATE



Kevin P. Pechulis
Enforcement Counsel
Office of Environmental Stewardship
United States Environmental Protection Agency,
Region 1
5 Post Office Square
Boston, MA 02109-3912

10/2/15
DATE

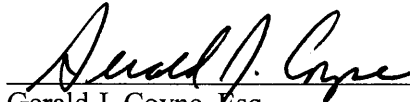
For Defendant RHODE ISLAND DEPARTMENT OF TRANSPORTATION



Peter Alviti, Jr., PE, Director
Rhode Island Department of Transportation
Two Capitol Hill
Providence, R.I. 02903

9/29/15
DATE

Approved as to form:



Gerald J. Coyne, Esq.
Deputy Attorney General
Rhode Island Department of Attorney General
150 South Main Street
Providence, R.I. 02903

9/28/15
DATE

Appendix 1 – RIDOT Pollutant Reduction Percentages for Non-Bacteria TMDLs

TMDL Name/Water Body (Date)	Water Body Segment and Segment ID Number	Impairment	Pollutant reduction percentage for RIDOT¹
Stafford Pond (December 1998)	Stafford Pond, RI0007037L-01	Phosphorus	38% reduction
Chickasheen Brook, Barber Pond, Yawgoo Pond (May 2004)	Chickasheen Brook (above Yawgoo Pond), RI0008039R-05A	Phosphorus	30% reduction
Chickasheen Brook, Barber Pond, Yawgoo Pond (May 2004)	Yawgoo Pond, RI0008039L-15	Phosphorus	30% reduction
Chickasheen Brook, Barber Pond, Yawgoo Pond (May 2004)	Chickasheen Brook (Yawgoo Pond to Barber Pond), upper end of RI0008039R-05B	Phosphorus	30% reduction
Chickasheen Brook, Barber Pond, Yawgoo Pond (May 2004)	Barber Pond, RI0008039L-14	Phosphorus	30% reduction
Kickemuit Reservoir and Upper Kickemuit River (December 2006)	Reach 4b, Upper Kickemuit River (Western Tributary), RI0007034R-01	Phosphorus	63% reduction
Kickemuit Reservoir and Upper Kickemuit River (December 2006)	Reaches 5 and 6, Upper and Lower reach, Lower Kickemuit Reservoir, RI0007034L-01	Phosphorus	30% reduction
Woonasquatucket River (August 2007)	Reach 10A (Woonasquatucket River headwaters to Georgiaville Pond, excluding reservoirs and ponds and including tributaries), RI0002007R-10A	Dissolved Zinc	16% reduction

¹ Each pollutant load reduction percentage specified in this Appendix 1 shall apply, unless EPA, after consultation with RIDEM, approves an alternative interpretation of the TMDL pollutant load reduction requirement for the specified pollutant and water body segment.

TMDL Name/Water Body (Date)	Water Body Segment and Segment ID Number	Impairment	Pollutant reduction percentage for RIDOT¹
Woonasquatucket River (August 2007)	Reach 10D (Woonasquatucket River from the CSO outfall at Glenbridge Avenue to the confluence with the Merrimack River), RI0002007R-10D	Dissolved Copper Dissolved Lead Dissolved Zinc	35% reduction 43% reduction 41% reduction
Mashapaug Pond (November 2007)	Mashapaug Pond, RI0006017L-06	Phosphorus	65% reduction
Nine Eutrophic Ponds (November 2007)	Brickyard Pond, RI0007020L-02	Phosphorus	71% reduction
Nine Eutrophic Ponds (November 2007)	Gorton Pond, RI0007025L-01	Phosphorus	68% reduction
Nine Eutrophic Ponds (November 2007)	North Easton Pond, RI0007035L-03	Phosphorus	80% reduction
Nine Eutrophic Ponds (November 2007)	Roger Williams Park Ponds, RI0006017L-05	Phosphorus	78% reduction
Nine Eutrophic Ponds (November 2007)	Sand Pond, RI0006017L-09	Phosphorus	72% reduction
Nine Eutrophic Ponds (November 2007)	Spectacle Pond, RI0006017L-07	Phosphorus	68% reduction ²
Nine Eutrophic Ponds (November 2007)	Upper Dam Pond, RI0006014L-04	Phosphorus	46% reduction
Nine Eutrophic Ponds (November 2007)	Warwick Pond, RI0007024L-02	Phosphorus	33% reduction

² The 68% reduction in phosphorus for Spectacle Pond only applies to RIDOT if RIDOT determines that its MS4 discharges, directly or indirectly, to Spectacle Pond.

TMDL Name/Water Body (Date)	Water Body Segment and Segment ID Number	Impairment	Pollutant reduction percentage for RIDOT¹
Indian Run Brook (July 2008)	Indian Run Brook, Sub-watershed C (Lower Indian Run Peacedale-Wakefield Center), RI0010045R-02	Dissolved Copper Dissolved Zinc	76% reduction 39% reduction
Belleville Ponds and Belleville Upper Pond Inlet (September 2010)	Belleville Ponds and tributaries, RI0007027L-02	Phosphorus	18% reduction
Ten Mile River Watershed (April 2014)	Upper Ten Mile River, RI0004009-10A	Phosphorus Total Aluminum	80% reduction 25% reduction
Ten Mile River Watershed (April 2014)	Central Pond, RI0004009L-01A	Phosphorus Dissolved Cadmium	48% reduction 54% reduction
Ten Mile River Watershed (April 2014)	Turner Reservoir, RI0004009L-01B	Phosphorus	46% reduction
Ten Mile River Watershed (April 2014)	Omega Pond, RI0004009L-03	Phosphorus	75% reduction
Ten Mile River Watershed (April 2014)	Lower Ten Mile River, RI0004009-10B	Dissolved Cadmium	36% reduction

Appendix 2 – Impervious Cover Standard

The concept behind the Impervious Cover Standard (“IC Standard”) is that it is desirable for a sub-watershed to be similar, in terms of water quality effects, to a watershed with 10% or less impervious cover overall. Accordingly, under the IC Standard, the amount of impervious cover that would need to be eliminated (or treated to act as if it were eliminated) from the sub-watershed to reach the 10% target is calculated, and RIDOT’s proportional share of that amount is also determined. The IC Standard requires RIDOT to provide treatment of impervious cover that is equivalent to completely eliminating its proportional share of the target reduction. The required treatment that RIDOT must achieve is referred to as the Equivalent Area Requirement because RIDOT may treat a greater amount of impervious cover acreage to a lesser degree, such that the overall reduction (in terms of pollutant removal reduction, runoff volume reduction and peak flow attenuation) is equivalent.

1. Required Treatment Level (Equivalent Area Requirement) - Based on the total size of the Impaired Sub-Watershed and the amount of all (RIDOT and non-RIDOT) impervious cover in the Impaired Sub-Watershed, RIDOT shall calculate the area of impervious cover that would need to be eliminated from the entire (RIDOT and non-RIDOT) Impaired Sub-Watershed to reach 10% impervious cover for the Impaired Sub-Watershed as a whole, and then express that area to be eliminated as a percentage of existing impervious cover in the sub-watershed. RIDOT shall calculate the Equivalent Area for RIDOT impervious cover by multiplying that calculated percentage reduction for the overall sub-watershed by the total area of RIDOT impervious cover in the Impaired Sub-Watershed that discharges directly or indirectly to the Impaired Water Body Segment.

RIDOT shall implement treatment at least equal to completely eliminating the acreage of impervious cover equal to the Equivalent Area. The required level of treatment can be achieved by treating an amount of impervious cover acreage that is greater than the calculated Equivalent Area to a lesser degree than complete elimination. RIDOT may implement a mixture of types and sizes of structural controls across catchment areas to RIDOT MS4 Discharge Point(s) in an Impaired Sub-Watershed to meet the Impervious Cover Standard, using credits for each control as described below, but RIDOT must at least evaluate the feasibility of distributing infiltration structural controls across the Impaired Sub-Watershed in areas where RIDOT’s MS4 discharges directly or indirectly to the Impaired Water Body Segment.

2. Under 10% IC - If the total (RIDOT and non-RIDOT) impervious cover for an Impaired Sub-Watershed is less than 10%, RIDOT need not implement any new structural stormwater controls in the Impaired Sub-Watershed, unless (a) RIDEM has specifically determined in an EPA-approved TMDL that RIDOT should implement structural stormwater controls, in which case RIDOT shall implement, at the locations indicated by RIDEM, structural stormwater controls that are consistent with the assumptions and recommendations of the TMDL and the performance standards and criteria in the RI Stormwater Design and Installations Manual for water quality and groundwater recharge or (b) new structural controls are needed to achieve the requirements of Paragraphs 9.b. or 10.b. of the Consent Decree.
3. Treatment Credits - In order to achieve treatment equal to the Equivalent Area Requirement, RIDOT shall implement structural controls or Enhanced Non-Structural BMPs within the Impaired

Sub-Watershed that achieve equivalent area credits that total the elimination of the Equivalent Area calculated in Paragraph 1 of this Appendix. For each area treated by structural controls or Enhanced Non-Structural BMPs, the equivalent area credit is equal to the area of impervious cover treated by the control multiplied by the equivalent pervious cover factor. The equivalent pervious cover factor is a fraction ranging from 0 to 1 representing how similar the discharge from the treated impervious cover is to a similar area of the same size with no impervious cover. For example, a factor of 1 indicates that the discharge from the treated impervious cover is equal to the discharge from an area of the same size with no impervious cover, while a factor of 0.5 indicates that the treated discharge is similar to a discharge from an area of the same size that has 50% impervious cover. The area treated for Enhanced Non-Structural BMPs shall be only the area of impervious cover subject to the Enhanced Non-Structural BMP (*e.g.*, the actual street area subject to increased street sweeping) that discharges to the impaired water body.

The equivalent pervious cover factor shall be calculated as the average of the pollutant removal factor and the flow factor; the flow factor is the average of the runoff volume reduction factor and the peak flow attenuation factor. In other words, the equivalent pervious cover factor = $\frac{1}{4} [(2 \times \text{pollutant removal factor}) + \text{runoff volume reduction factor} + \text{peak flow attenuation factor}]$.

The pollutant removal factor, runoff volume reduction factor, and peak flow attenuation factor for a particular control are each equal to the percentage of impervious cover that would need to be completely eliminated from the control's treated area to reach the same pollutant removal, runoff volume reduction, or peak flow attenuation, respectively, as the control. For instance, if a two-acre area of impervious cover has a peak flow after installation of a control that is similar to a two-acre area that is 25% pervious and 75% impervious, the control would have a 25% peak flow attenuation factor.

The pollutant removal factor shall be calculated as described in Paragraph 4 below, or another method approved by EPA. The runoff volume reduction factor shall be calculated as described in Paragraph 5 below, or another method approved by EPA. The peak flow attenuation factor shall be calculated as described in Paragraph 6 below, or another method approved by EPA.

4. Pollutant Removal Factor - Unless another method is approved by EPA, the pollutant removal factor shall be calculated using average annual ("yearly") phosphorous removal by the control (expressed as a percentage) as a surrogate for all pollutants. No removal of phosphorous is considered to be equivalent to no reduction of impervious cover, and a 90% removal of phosphorous is equivalent to all impervious cover eliminated. It is assumed that pollutants vary linearly with percentage of impervious cover. Therefore the pollutant removal factor is the percentage of yearly phosphorous removal divided by 0.9 (except that the pollutant removal factor shall not exceed 1).¹ If the Impaired Water Body Segment is only impaired for nitrogen, RIDOT may use the yearly nitrogen removal by the control (expressed as a percentage, using a method approved by EPA) as an option to the yearly phosphorous removal by the control (expressed as a percentage) in calculating the pollutant removal factor.

¹ The 90% percentage and corresponding 0.9 fraction in Paragraph 4 of this Appendix 2 shall apply, unless RIDOT submits for review and Approval, and EPA approves, a different percentage and fraction based on data and analyses pertaining to a weighted average of the soil types at RIDOT roadways.

For each control, the yearly phosphorous removal percentage shall be calculated according to the methods in Appendix 3 of this Consent Decree.

5. Runoff Volume Reduction Factor - Unless another method is approved by EPA, the Runoff Volume Reduction Factor is based on the percentage yearly reduction of runoff volume as a result of the control. No reduction in runoff volume is considered to be equivalent to no reduction of impervious cover, and a reduction of 90% of runoff volume is equivalent to all impervious cover eliminated. It is also assumed that runoff volume varies linearly with impervious cover percentage. The runoff volume reduction factor is therefore the percentage yearly reduction of runoff volume divided by 0.9 (except that the runoff volume reduction factor shall not exceed 1).²

For each control, the percentage yearly reduction of runoff volume shall be calculated according to the methods in Appendix 3 of this Consent Decree.

6. Peak flow attenuation factor - The peak flow attenuation factor is based on the highest twelve-hour runoff flow rate in an average year for conditions ranging from 0 to 100% impervious cover. This will be calculated assuming that peak flow varies linearly with the size of the area contributing flow, and varies linearly with the percentage of impervious cover in the contributing area.

The highest twelve-hour runoff flow rate for each control will be calculated using the methods in Appendix 3 of this Consent Decree.

The peak flow attenuation factor will be calculated based on the reduction in peak flow rate achieved by the structural control from the completely impervious model. No reduction from the completely impervious model shall have a peak flow attenuation factor of 0, while a control that reduces peak flow down to the level of the completely pervious model shall have a peak flow attenuation factor of 100%; for partial attenuation of peak flow, the peak flow attenuation factor will be based on linear interpolation between the peak flow rates for the completely pervious and completely impervious models.³

² The 90% percentage and corresponding 0.9 fraction in Paragraph 5 of this Appendix 2 shall apply, unless RIDOT submits for review and Approval, and EPA approves, a different percentage and fraction based on data and analyses pertaining to a weighted average of the soil types at RIDOT roadways.

³ In developing the curves and tables that indicate peak flows for model one-acre watersheds, as required under Section C of Appendix 3, RIDOT may develop, and submit for EPA review and Approval, curves and tables that pertain to a weighted average of the soil types at RIDOT roadways.

Appendix 3 – Methodologies for Calculating Pollutant Load Reductions Achieved for Structural Stormwater Controls and Enhanced Non-Structural BMPs and Methodologies for Calculating Runoff Volume Reduction and Peak Flow Attenuation Factors for the Impervious Cover Standard.

A. Pollutant Load Reductions and Yearly Pollutant Removal Percentages Calculation

For non-bacteria TMDLs with a pollutant load reduction percentage that applies to RIDOT, the pollutant load reduction RIDOT is required to meet under Paragraphs 9.b. and 10.b. of the Consent Decree and Paragraph 1 of Appendix 4 for a given Impaired Water Body Segment is the required pollutant load reduction percentage multiplied by the pollutant loading rate (as mass per acre per year) multiplied by the area of RIDOT impervious cover in the Impaired Sub-Watershed that discharges directly or indirectly to the Impaired Water Body Segment. In order to determine the extent of the contribution of an individual structural control or Enhanced Non-Structural BMP to meeting this requirement, it is necessary to calculate the pollutant load reduction achieved by the control. Pollutant loading rates and/or average annual (“yearly”) pollutant removal rates (expressed as a percentage) for individual controls are required to be determined for input to these calculations.

Yearly pollutant removal rates (expressed as a percentage) for individual controls are also required to be determined as one of the inputs to calculations under Appendix 2 (Impervious Cover Standard) related to meeting the requirements of Paragraphs 9.c., 10.c., and 11 of the Consent Decree.

1. Pollutant Loading Rates

For those calculations which require yearly phosphorus pollutant loading rates from RIDOT areas as inputs, RIDOT shall use either (a) the highway impervious cover and, if applicable, developed land pervious cover phosphorus yearly load export rates in Table 3-1 of Appendix F Attachment 3¹ or (b) other yearly phosphorus loading rates proposed by RIDOT, subject to review and Approval by EPA, based on credible stormwater runoff phosphorus quality information that is representative of road/ highway impervious cover, and, if applicable, associated pervious cover, for New England, *e.g.*, USGS studies in Massachusetts.

For those calculations which require yearly zinc, other metals, nitrogen, or total suspended solids (TSS) loading rates as inputs, RIDOT shall use either (a) yearly loading rates for the specific pollutant provided by EPA, where available, or (b) other yearly loading rates for the specific pollutant proposed by RIDOT, subject to review and Approval by EPA, based on credible stormwater runoff quality information that is representative of road/highway impervious

¹ “Appendix F Attachment 3” refers to Attachment 3 to Appendix F of the draft Massachusetts Small MS4 Permit, the notice of availability for which was published at 79 Fed. Reg. 58,774-58,776 (September 30, 2014).

cover and, if applicable, associated pervious cover, for New England, *e.g.*, USGS studies in Massachusetts.

2. Yearly Pollutant Removal Percentages for Individual Controls

i. Structural Controls

RIDOT shall use the calculation methods and BMP Performance Curves and BMP Performance Tables in Appendix F Attachment 3 to determine yearly phosphorus removal percentages for calculating the pollutant load reduction achieved by individual structural controls for the types of structural controls specifically addressed by these performance curves and tables and for other types of structural controls that are analogous, where phosphorus is the pollutant of concern.

These methods and tables shall also be used to determine the yearly phosphorus removal percentages for individual controls when calculating the Pollutant Removal Factor described in Appendix 2.

RIDOT shall also use methods in Appendix F Attachment 3 and BMP Performance Curves and BMP Performance Tables similar to those in Appendix F Attachment 3 that have been developed by EPA, where available, to determine yearly zinc, TSS, or nitrogen pollutant removal percentages to be used in calculating zinc, TSS, or nitrogen load reduction achieved by individual structural controls for the types of structural controls specifically addressed by these performance curves and tables and for other types of structural controls that are analogous, where zinc, TSS, or nitrogen, respectively, is the pollutant of concern. The percentages in the BMP Performance Curves and BMP Performance Tables developed for zinc shall also be used for other metal(s), where those metal(s) are the pollutant(s) of concern.

RIDOT may develop similar types of curves and tables, subject to review and Approval by EPA, for particular types of controls that are not analogous to the types of controls for which BMP Performance Curves and BMP Performance Tables have been developed by EPA.

ii. Enhanced Non-Structural BMPs

RIDOT shall use the methods in Appendix F Attachment 2² to calculate phosphorus load reduction credits for individual Enhanced Non-Structural BMPs implemented by RIDOT that fall within the categories described in Appendix F Attachment 2. RIDOT shall also use the Phosphorus Reduction Factors in these methods for individual controls when calculating the Pollutant Removal Factor described in Appendix 2.

Where pertinent and appropriate, RIDOT shall use methods similar to those in Appendix F Attachment 2 developed by EPA, where available, to calculate nitrogen or TSS load reduction

² “Appendix F Attachment 2” refers to Attachment 2 to Appendix F of the draft Massachusetts Small MS4 Permit, the notice of availability for which was published at 79 Fed. Reg. 58,774-58,776 (September 30, 2014).

credits for individual enhanced non-structural control practices implemented by RIDOT that fall within the categories described in Appendix F Attachment 2.

Where pertinent and appropriate, RIDOT may develop methods to calculate credits for enhanced non-structural control practices for other pollutants of concern or for types of enhanced non-structural controls not addressed in Appendix F Attachment 2 for its use in assessing pollutant loading reduction credits, subject to review and Approval by EPA.

B. Runoff Volume Reduction Calculation

For calculation of the Runoff Volume Reduction Factor described in Appendix 2 (Impervious Cover Standard) for an individual control related to meeting the requirements of Paragraphs 9.c. and 10.c. and 11. of the Consent Decree, a determination of the yearly stormwater runoff volume reduction (expressed as a percentage) for the individual control (for those controls that provide infiltration) is required as an input.

RIDOT shall use the methods and BMP Performance Curves and BMP Performance Tables in Appendix F Attachment 3 to determine the yearly stormwater runoff volume reduction percentages for individual controls that provide infiltration when calculating the Runoff Volume Reduction Factor described in Appendix 2 for the types of structural controls that provide infiltration specifically addressed by these performance curves and tables and for other types of structural controls that are analogous.

RIDOT may develop similar types of curves and tables, subject to review and Approval by EPA, for particular types of controls that provide infiltration that are not analogous to the types of controls for which BMP Performance Curves and BMP Performance Tables have been developed by EPA.

C. Peak Flow Attenuation Calculation

For calculation of the Peak Flow Attenuation Factor described in Appendix 2 (Impervious Cover Standard) for an individual control related to meeting the requirements of Paragraphs 9.c. and 10.c. and 11. of the Consent Decree, a determination of the attenuation in peak flow provided by the individual control is required (for the types of controls that reduce peak flow rate) as an input.

RIDOT shall develop, for EPA review and Approval, curves and tables that indicate peak flow (as the maximum twelve-hour flow in an average year) for a model one-acre impervious watershed after treatment by different types and depths of structural controls. RIDOT shall also provide peak flows for the model one-acre watershed at 100% and 0% impervious cover without any treatment. RIDOT shall use SWMM or similar modeling, or an alternative as approved by EPA, to develop these curves and tables, for use in calculating the attenuation in peak flow provided by the individual control.

Appendix 4 – Stormwater Control Plan (SCP)

RIDOT shall submit to EPA for review and Approval, and to RIDEM for review and comment, a Stormwater Control Plan (SCP) for each Impaired Water Body Segment and associated Impaired Sub-Watershed that is required to be addressed under Paragraphs 9-11 of this Consent Decree. If multiple existing EPA-approved TMDLs apply to a particular Impaired Water Body Segment, only a single SCP shall be submitted for that Impaired Water Body Segment. If an EPA-approved TMDL applies to several Impaired Water Body Segments, a separate SCP shall be submitted for each segment. The SCPs for individual Impaired Water Body Segments in each grouping of Impaired Water Body Segments provided in Appendix 5 shall be submitted together, as a Group SCP, as provided in Paragraph 18 of the Consent Decree.

Each SCP must include the following information:

- 1) For Impaired Water Body Segments with EPA-approved TMDLs, identification of the applicable TMDL(s), the Pollutant(s) of Concern, for non-bacteria TMDLs the required pollutant load reductions for RIDOT, as required by Paragraphs 9 and 10 of this Consent Decree, and all other recommendations and requirements of the TMDL(s) applicable to RIDOT. For non-bacteria TMDLs with a pollutant load reduction percentage that applies to RIDOT (*e.g.*, as described in Appendix 1 or determined under Paragraph 10.b.2 of the Consent Decree), the total required pollutant load reduction (in mass per year) shall be expressed as the required pollutant load reduction percentage multiplied by the pollutant loading rate (as mass per acre per year) multiplied by the area of RIDOT impervious cover in the Impaired Sub-Watershed that discharges directly or indirectly to the Impaired Water Body Segment. RIDOT may implement a mixture of types and sizes of controls across catchment areas to RIDOT MS4 Discharge Point(s) in an Impaired Sub-Watershed to meet the required pollutant load reduction.
- 2) For Impaired Water Body Segments where RIDOT is required to meet the Impervious Cover Standard specified in Appendix 2, information and calculations pertinent to implementation of the Impervious Cover Standard, including:
 - a) the total area of the Impaired Sub-Watershed for the Impaired Water Body Segment;
 - b) the total area of all impervious cover in the Impaired Sub-Watershed (the Rhode Island GIS impervious cover layer is an acceptable source for this information);
 - c) the percentage of the total area in the Impaired Sub-Watershed that is impervious cover. If the overall Impaired Sub-Watershed impervious cover percentage is 10% or below and there are no additional EPA-approved TMDL recommendations or requirements for RIDOT in the Impaired Sub-Watershed, no further information needs to be submitted with the SCP for the purposes of this Paragraph;
 - d) the percentage reduction in all impervious cover that is required to reach 10% impervious cover in the entire Impaired Sub-Watershed;
 - e) the total area of RIDOT impervious cover in the Impaired Sub-Watershed that discharges directly or indirectly to the Impaired Water Body Segment;
 - f) a map showing the total area of impervious cover in the Impaired Sub-Watershed owned or operated by RIDOT that discharges directly or indirectly to the Impaired

Water Body Segment;

- g) the product of Paragraphs 2.d. and 2.e. of this Appendix, which represents the Equivalent Area of RIDOT impervious cover required to be eliminated under Paragraph 1 of the Impervious Cover Standard.
- 3) A map or maps showing the extent of all RIDOT pervious and impervious areas in the RIDOT Permit Area contributing flow directly or indirectly to the Impaired Water Body Segment. The map(s) must include the RIDOT MS4, including the locations of RIDOT roads and facilities, catch basins, interconnections with other MS4s, and RIDOT MS4 Discharge Points, and flow directions sufficient to identify which areas contribute to each RIDOT MS4 Discharge Point. The outfall points associated with each catch basin shall be provided. While it may not be necessary for RIDOT to map the exact route of all RIDOT MS4 piping, mapping must be sufficient to support calculation of the total RIDOT impervious cover that contributes flow directly or indirectly to the Impaired Water Body Segment and to support calculation of the impervious area treated by each control for which pollutant removal or Impervious Cover Standard credit is or will be claimed. To the extent individual pipes are not mapped, the maps shall be accompanied by a short narrative explaining how the drainage patterns were determined and how the RIDOT impervious cover calculations were made. If any RIDOT MS4 Discharge Points discharge to another MS4, the entire path through the other MS4 does not need to be mapped, but the eventual discharge location must be identified. If any non-RIDOT areas contribute flow to the RIDOT MS4, the inflow point must be indicated and the approximate size of the area contributing inflow must be noted, but the entire non-RIDOT area does not need to be mapped in detail. The map(s) must show all existing and proposed structural controls in detail sufficient to determine areas contributing flow to each structure. If the SCP is submitted electronically, the map(s) may be submitted as a .PDF or other image file, or as a GIS file in a format acceptable to EPA. The same map(s) may be used to meet the requirements of this Paragraph and Paragraph 2.f in this Appendix.
 - 4) A description of how RIDOT has worked, or will work, cooperatively with the operators of all stormwater systems that are interconnected with the RIDOT MS4 and from which, or into which, stormwater discharges to the Impaired Water Body Segment.
 - 5) A list of all direct or indirect discharges from the RIDOT MS4 and RIDOT owned or operated areas to the Impaired Water Body Segment. For each such discharge, the list shall identify the following information:
 - a. discharge location;
 - b. size and material of pipe/outfall;
 - c. all existing discharge data (flow data and water quality monitoring data);
 - d. if the discharge is a connection to another system, the owner/operator of the receiving system; and
 - e. all non-RIDOT stormwater systems which contribute flow to the outfall through interconnections, and an estimate of the acreage of non-RIDOT contributing area.

- 6) A description of all existing and proposed structural stormwater controls and proposed Enhanced Non-Structural BMPs that will be used to meet requirements in Paragraphs 1 and 2 of this Appendix and Paragraphs 9-11 of this Consent Decree. The description must include the following information for each control:
 - a. type of control;
 - b. for existing structural controls, a photo and documentation that the structural control is performing in accordance with manufacturer design or specifications, including verification of the physical capacity of the structural control;
 - c. for proposed structural controls, a preliminary design plan of the structural control;
 - d. for all structural controls, the structural dimensions and physical storage capacity of the control to hold runoff volume, and for infiltration controls, the soil type and associated Hydrologic Soil Group (HSG) present at the control;
 - e. for all structural controls, the area contributing drainage to the control;
 - f. for all structural and non-structural controls, the area of RIDOT impervious cover treated by the control;
 - g. for all structural controls, the treatment depth provided by the control (e.g. for controls treating only impervious cover, the physical storage capacity divided by the area treated; for controls treating both pervious and impervious cover, the calculations according to Appendix 3);
 - h. for all controls, effective pollutant removal that will be achieved by the control (expressed as a percentage removal);
 - i. for all structural controls where the Impervious Cover Standard is applicable,
 - A. the Runoff Volume Reduction Factor (for controls that provide infiltration) and the basis for the calculation,
 - B. the Peak Flow Attenuation Factor (for controls that provide peak flow reduction);
 - j. for proposed controls, siting and permitting requirements for the control;
 - k. for proposed controls, identification of all known obstacles to implementation of the control (and any plans to overcome such obstacles); and
 - l. for proposed controls, preliminary engineering requirements for the control.

- 7) A listing of all areas of impervious cover being treated to meet requirements in Paragraphs 1 and 2 of this Appendix and Paragraphs 9-11 of this Consent Decree. The listed areas should be non-overlapping. The listing must include the following information for each area:
 - a. short identification of area;
 - b. total size of area;
 - c. total amount of RIDOT impervious cover, pervious cover and types of pervious cover (in the area);
 - d. all controls providing pollutant removal for the area;
 - e. effective pollutant removal by the controls;
 - f. where non-bacteria TMDLs are applicable, total pollutant removal by the controls (in mass per year); and
 - g. where the IC method is applicable:

- i. all controls providing runoff volume reduction
- ii. the resulting runoff volume reduction factor
- iii. the total runoff volume reduction
- iv. all controls providing peak flow attenuation
- v. the resulting peak flow attenuation factor
- vi. the resulting equivalent pervious cover factor
- vii. the resulting equivalent area credit for the area.

Also include a detailed description of the process and rationale for the selection of the areas being treated and the controls selected for each area.

- 8) A schedule for implementation of proposed structural stormwater controls in the Impaired Sub-Watershed, including interim design milestones and proposed construction start and completion dates.
- 9) Operation and Maintenance (O&M) Plans for all existing and proposed structural stormwater controls. The O&M Plans must include an inspection and maintenance schedule for each structural stormwater control that is consistent with manufacturer or design specifications and that will maintain full functionality of the control, methods for tracking maintenance and assuring compliance with the schedule, and the RIDOT program or department responsible for structural control inspection and maintenance.
- 10) Cost estimates for all proposed structural stormwater controls and Enhanced Non-Structural BMPs, including construction, inspections and maintenance, and on-going operating costs.
- 11) Evaluation of pollutant removal achieved for the Impaired Sub-Watershed for Impaired Water Body Segments with an EPA-approved non-bacteria TMDL. Include the following information for each Pollutant of Concern:
 - a. the required pollutant reduction (according to Paragraph 1 of this Appendix) expressed as mass per year;
 - b. total pollutant reduction achieved by all existing and proposed structural controls and Enhanced Non-Structural BMPs in the Impaired Sub-Watershed (according to Paragraphs 6 and 7 of this Appendix), as a sum of mass per year over all areas listed according to Paragraph 7 of this Appendix; and
 - c. an assessment of whether the required pollutant load reduction will be met.
- 12) For Impaired Sub-Watersheds subject to the Impervious Cover Standard, an evaluation of the Equivalent Area credits achieved for the Impaired Sub-Watershed and other information related to benefits achieved, including:
 - a. the Equivalent Area of RIDOT impervious cover required to be treated, as calculated under Paragraph 1 of Appendix 2;
 - b. the total Equivalent Area credits achieved for the Impaired Sub-Watershed by the RIDOT controls;

- c. an assessment of whether the required Equivalent Area credits will be met;
- d. the total pollutant (as phosphorus) reduction achieved by the RIDOT controls across the Impaired Sub-Watershed; and
- e. the yearly groundwater recharge volume (calculated as runoff reduction) across all existing and proposed structural controls that provide infiltration.

13) If the total pollutant load reduction and Equivalent Area credits that will be achieved by the proposed and existing structural stormwater controls and proposed Enhanced Non-Structural BMPs do not meet the pollutant load reduction requirements under Paragraphs 9-10 of this Consent Decree and Paragraph 1 of this Appendix and the treatment level requirement of the Impervious Cover Standard under Paragraphs 9.c., 10.c., and 11 and Appendix 2 of this Consent Decree, RIDOT shall explain why achieving those requirements that are not achieved is not feasible and why the proposed and existing structural controls and proposed Enhanced Non-Structural BMPs will achieve the maximum pollutant reduction and maximum level of treatment to meet the Impervious Cover Standard that are feasible. Where EPA-Approved TMDLs specify that groundwater recharge is to be achieved to the maximum extent feasible, RIDOT shall also explain why the proposed and existing structural controls will achieve the groundwater recharge to the maximum extent feasible. RIDOT's explanations must include a list of all locations considered for structural stormwater controls, including locations on RIDOT roadways, associated rights of way, and easements and on public and privately-owned property adjacent to RIDOT Property, and a narrative description of the physical, technical, legal, and cost constraints that affect the suitability of those locations and other possible locations in the Impaired Sub-Watershed for structural stormwater controls. RIDOT may include in its narrative description a discussion of road closure/access issues, highway design guidelines including safety, issues relating to soils and slopes, issues relating to resource areas (e.g. wetlands, rare species, areas of historic significance), and issues relating to utilities. RIDOT shall evaluate non-RIDOT property for location of potential RIDOT structural controls where there is a good opportunity for achieving beneficial treatment of RIDOT impervious cover.

14) For Impaired Water Body Segments with EPA-Approved TMDLs, a description of how the SCP addresses all other recommendations or requirements of the TMDL specific to RIDOT. The SCP shall also address any additional requirements for TMDL implementation plans specified in the TMDLs that are not otherwise addressed pursuant to Paragraphs 1-13 above of this Appendix. Where the TMDL identifies priority outfalls (or requires the MS4 operator to identify priority outfalls) and requires the MS4 operator to design and construct structural controls to reduce the pollutant of concern and stormwater volumes to the maximum extent feasible, the SCP shall include a discussion of the priority outfalls identified, an evaluation of the feasibility of distribution of RIDOT infiltration controls (or controls that provide equivalent water quality treatment where infiltration controls are not feasible), throughout the drainage area of the outfalls (including upland areas), and how the RIDOT controls selected reduce the pollutant(s) of concern and stormwater volumes discharged by RIDOT impervious cover to priority outfalls to the maximum extent feasible.

Appendix 5 - Groupings of Impaired Water Body SegmentsCategory 1

<u>Group #</u>	<u>WBID #s</u>
4050201 –	RI0002007R-01 RI0002007R-10D RI0002007R-10B RI0002007R-10C
4050200 –	RI0002007R-02 RI0002007R-05 RI0002007L-06 RI0002007R-09 RI0002007R-10A
4060900A –	RI0006017L-06 RI0006017L-05 RI0006017L-07
4090200 –	RI0007024R-01 RI0007024R-03 RI0007024E-02 RI0007024R-02 RI0007024R-05 RI0007024E-01 RI0007024R-04 RI0007024L-02 RI0007027E-03J
4090300 & – 4090301	RI0007025E-01 RI0007025R-06 RI0007025E-02 RI0007025E-03 RI0007025E-04A RI0007025E-04B RI0007025E-05A RI0007025E-05B RI0007025R-11 RI0007025R-09 RI0007025R-05 RI0007025E-06A RI0007025E-06B RI0007025R-04 RI0007025L-01

RI0007025R-13
RI0007025R-01
RI0007025R-03
RI0007025R-14
RI0007025R-16

4090500 – RI0007034L-01
RI0007033E-01A
RI0007033E-01B
RI0007033E-01C
RI0007032E-01A
RI0007032E-01B
RI0007032E-01C
RI0007032E-01D
RI0007031E-01A
RI0007031E-03B
RI0007034R-01

4090900 – RI0010047L-01
RI0007035R-01
RI0007029E-01C
RI0007029E-01O
RI0007035R-04
RI0010047L-02
RI0007035R-02A
RI0007035R-02B
RI0007029L-01
RI0007030E-01A
RI0007030E-01D
RI0007035L-03
RI0007035R-03
RI0007029E-03

5040200 – RI0010045R-01
RI0010045L-04
RI0010045R-02
RI0010045R-03A
RI0010045R-03B
RI0010043E-06B
RI0010043E-06C
RI0010043E-06D
RI0010043E-06K
RI0010045R-04
RI0010045L-01
RI0010045R-05C
RI0010045R-05B
RI0010045L-05

Category 2

<u>Group #</u>	<u>WBID #s</u>
3020700 –	RI0001006R-01A RI0001006R-01B RI0001006R-06 RI0001006R-03 RI0001006R-02
3020800 –	RI0001003R-01A RI0001003R-01B RI0001004R-01 RI0001003R-03 RI0001003R-04 RI0001003L-01 RI0001003L-02 RI0001003R-02
4040100 –	RI0004009L-03 RI0004009R-01A RI0004009R-01B RI0004009L-01B RI0004009L-01A
4090800 –	RI0007027L-02 RI0007027R-02 RI0007027E-02A RI0007036R-01 RI0007027E-03K RI0007027E-03L RI0007027E-04B
4091200 –	RI0010044R-03 RI0010044R-10 RI0010044E-01A RI0010044E-01B RI0010044L-02

Category 3

<u>Group #</u>	<u>WBID #s</u>
4050100 –	RI0003008L-02 RI0003008R-01A RI0003008R-01B RI0003008R-01C RI0003008R-03B RI0003008R-03C
4060300 –	RI0006013R-01 RI0006016L-02 RI0006012R-05 RI0006016R-06A RI0006016R-06B RI0006014R-04B RI0006013L-04 RI0006014L-02 RI0006014R-05 RI0006014R-08 RI0006014L-04 RI0006015R-11 RI0006015R-16 RI0006015R-30
4060800 –	RI0006018L-06 RI0006018R-01 RI0006018R-02A RI0006018R-03A RI0006018R-03B RI0006018L-05 RI0006018R-04 RI0006018L-03
4060900B –	RI0006017L-08 RI0006017R-02 RI0006017R-03 RI0006017L-09 RI0006017R-04 RI0006017L-02
4070200 –	RI0007021E-01A RI0007022E-01A RI0007020E-02 RI0007021R-01

4090100 – RI0007020L-02
RI0007020E-01A
RI0007020E-01B
RI0007019E-01

4090400 & – RI0007028R-01
4090401 RI0007028R-02
RI0007028R-03A
RI0007028R-06
RI0007027E-01A
RI0007028R-03C
RI0007028R-03D
RI0007028R-03B
RI0007028R-07
RI0007028E-01A
RI0007028R-05

Category 4

<u>Group #</u>	<u>WBID #s</u>
1050100 –	RI0005011R-03
3020200 & – 3020600	RI0001002R-03 RI0001002R-05D RI0001002R-05C RI0005047R-02 RI0005047L-04 RI0001002R-09 RI0001002R-01A RI0001002R-01B RI0001002L-09 RI0001002R-13B
4080300 –	RI0010048R-02C RI0010048L-02 RI0007037L-01 RI0007037R-01
5010100 –	RI0008040R-01 RI0008040R-18 RI0008040L-14 RI0008040R-02 RI0008040L-13 RI0008040R-23 RI0008040R-05 RI0008040L-12 RI0008040L-16 RI0008040R-14 RI0008040R-16A RI0008040L-11 RI0008039R-30 RI0008039R-31B
5010200 –	RI0008040L-01 RI0008040L-04 RI0008040R-03B RI0008040R-04A RI0008040R-04B RI0008040L-10 RI0008040L-06 RI0008040R-16D RI0008040L-07

5020100 – RI0008039R-01
RI0008039L-14
RI0008039R-05A
RI0008039R-06B
RI0008039L-13
RI0008039L-11
RI0008039L-08
RI0008039R-27B
RI0008039L-15

5020500 – RI0008039L-01
RI0008039R-13
RI0008039L-05
RI0008039R-14
RI0008039R-18B
RI0008039R-18C
RI0008039R-18D
RI0008039R-19
RI0008039R-23
RI0008039R-24
RI0008039L-02
RI0008039L-26

5030100 – RI0008039R-02A
RI0008039R-37

5030300 – RI0008038E-02A
RI0008039R-11
RI0008039R-18E
RI0008038E-01A
RI0008038E-01B
RI0008038E-02B

5040301 – RI0010043R-02
RI0010043E-02
RI0010043E-04B
RI0010043R-04

5040400 – RI0010046E-01C
RI0010046L-01

Appendix 6 – High Priority IDDE RIDOT MS4 Discharge Points

RIDOT or RIDEM Outfall Identifier, if applicable	Receiving Water	Town/Location Information
RIDOT - BLACK 615	Blackstone River	Providence Pike, North Smithfield
RIDOT – MOSH 019	West River	Douglas Pike, North Providence
RIDOT – NARR 313	Brush Neck Cove	West Shore Road, Warwick
RIDOT – NARR 472	Unknown	I 95 N, Warwick
RIDOT – PAWC 800	Tomaquag Brook	I 95 N, Hopkinton
RIDOT – PAWT 468	North Branch, Pawtuxet River	RT 115, Scituate
RIDOT – PAWT 721	Unknown	Post Road, Warwick
RIDEM – 302	Blackstone River	Town of Cumberland - RIDOT MS4 discharge point near Panda Restaurant. See TMDL analysis for Blackstone River Watershed – Table 4.2 and Blackstone River Final Report 2: Field Investigations – Figure 5-17.
NA	Sakonnet River	Portsmouth, RI - RIDOT MS4 discharge points along Boyds Lane and Park Ave. that discharge to the Sakonnet River
NA	Mastuxet Brook (tributary to Pawcatuck River)	Town of Westerly - RIDOT MS4 outfall(s) that discharge to Mastuxet Brook
NA	Pierce Brook	East Greenwich, RI - RIDOT MS4 outfall(s) that discharge to Pierce Brook
RIDEM – SD6	Mashapaug Pond	Providence, RI - outfall at Lakeview Drive
NA	Mashapaug Pond	Providence, RI - Route 10 storm drainage system discharge point to outlet between Spectacle Pond and Mashapaug Pond
NA	Knowles Brook	Warwick, RI - RIDOT MS4 outfall(s) that discharge to Knowles Brook

Appendix 7 – System Vulnerability Criteria

System vulnerability factors indicate a risk of sanitary or septic system inputs to the MS4 under wet weather conditions and include the following:

1. History of SSOs, including, but not limited to, those resulting from wet weather, high water table, or fat/oil/grease blockages;
2. Sewer pump/lift stations, siphons, or known sanitary sewer restrictions where power/equipment failures or blockages could readily result in SSOs;
3. Inadequate sanitary sewer level of service (LOS) resulting in regular surcharging, customer back-ups, or frequent customer complaints;
4. Common or twin-invert manholes serving storm and sanitary sewer alignments;
5. Common trench construction serving both storm and sanitary sewer alignments;
6. Crossings of storm and sanitary sewer alignments;
7. Sanitary sewer alignments known or suspected to have been constructed with an underdrain system;
8. Sanitary sewer infrastructure defects such as leaking service laterals, cracked, broken, or offset sanitary infrastructure, directly piped connections between storm drain and sanitary sewer infrastructure, or other vulnerability factors identified through Inflow/Infiltration Analyses, Sanitary Sewer Evaluation Surveys or other infrastructure investigations;
9. Areas formerly served by combined sewer systems;
10. Any sanitary sewer and storm drain infrastructure greater than 40 years old in medium and densely developed areas;
11. Widespread code-required septic system upgrades required at property transfers (indicative of inadequate soils, water table separation, or other physical constraints of the area rather than poor owner maintenance); and
12. History of multiple Board of Health actions addressing widespread septic system failures (indicative of inadequate soils, water table separation, or other physical constraints of the area rather than poor owner maintenance).

RIDOT shall document the presence or absence (or lack of information) of system vulnerability factors for the catchment to each outfall and retain this documentation as part of its IDDE program. It is understood that RIDOT is not an owner or operator of sanitary sewer systems or septic systems and will be relying primarily on information provided by municipalities and/or RIDEM when available in regard to sanitary sewer systems and septic systems.

Appendix 8 – RIDOT MS4 Discharge Points for which RIDOT must provide a schedule for initiating IDDE investigations

RIDOT or RIDEM Outfall Identifier, if applicable	Receiving Water	Town/Location Information
RIDEM – S4 and S5	Woonasquatucket River	Providence, RI - 72 inch outfall (S4) and 60 inch outfall (S5) at Mancini Drive (also referred to as W6)
RIDEM – RI129	Pawcatuck River	Town of Westerly – Commerce Street (RIDOT outfall 5)
RIDEM – RI130	Pawcatuck River	Town of Westerly – 181 Main Street (RIDOT outfall 9)
RIDEM – SB02	Scarborough Beach	Town of Narragansett – Outfall SB02 also known as Ocean Road 1S outfall located at the southern end of the beach
RIDEM – 5-21	Kickemuit River	Town of Warren – Child Street outfall, west of bridge, 18 inch culvert
RIDEM – 5-18	Kickemuit River	Town of Warren – Metacom Avenue, outfall at railroad bridge at Barker Ave.
RIDEM – 5-12	Kickemuit River	Town of Warren – Metacom Avenue, outfall at Parker Ave., 42 x 20 inch box culvert
RIDEM – 5-13	Kickemuit River	Town of Warren – Metacom Avenue, outfall at Parker Ave., 30 inch culvert
NA	Unknown	Johnston, RI – 228 Putnam Pike

Appendix 9 –MS4 outfalls for which RIDOT shall identify upgradient interconnections with the MS4 under Paragraph 25.c of the Consent Decree

RIDOT or RIDEM Outfall Identifier, if applicable	Receiving Water	Town/Location Information; Description of Outfall¹
RIDEM - 263	Blackstone River	City of Woonsocket - Davison Avenue ²
RIDEM – 333	Blackstone River	Town of Cumberland - Sneeck Brook
RIDEM – 304	Blackstone River	Town of Cumberland - Okonite
RIDEM – 324	Blackstone River	Town of Cumberland - John Dean Memorial Blvd.
RIDEM – 311	Blackstone River	Town of Cumberland - Abbot Run Brook – West
RIDEM – 435	Blackstone River	Town of Lincoln - Winter Street
NA	Sakonnet River	Portsmouth, RI – RIDOT shall evaluate whether it has any interconnections with the MS4 system along the following roads (or at the following addresses) that discharge to the Sakonnet River: 62 Narragansett Ave., Lee/President Lanes, 81 Lee Ave., 37 Aquidneck Ave., 13 Aquidneck Ave., Aquidneck Ave. and right of way, and Water St. and Morningside Lane
RIDEM - 17-28	Mount Hope Bay	Town of Tiverton - outfall at Robert Gray Ave.; in particular, RIDOT shall evaluate if there are any interconnections between Main Road and the Tiverton MS4
RIDEM - 17-27	Mount Hope Bay	Town of Tiverton - outfall at Summerfield Lane; in particular, RIDOT shall evaluate if there are any interconnections between Main Road and the Tiverton MS4
RIDEM – 17-14	Mount Hope Bay	Town of Bristol - outfall at State boat ramp south of Annawamscutt Dr.; in particular, RIDOT shall evaluate if there are any interconnections between Metacom Ave. and the Bristol MS4
RIDEM 17-45	Mount Hope Bay	Town of Bristol - outfall at Roger Williams University (stream from detention pond); in particular, RIDOT shall evaluate if there are any interconnections between Metacom Ave. and the Bristol MS4
RIDEM 17-7	Mount Hope Bay	Town of Bristol - outfall at Bristol Landing Condominiums; in particular, RIDOT shall evaluate if there are any interconnections between Metacom Ave. and the Bristol MS4
RIDEM 5-17	Kickemuit River	Town of Warren – outfall at Libby Lane, 18 inch culvert

¹ If RIDOT determines that it owns or operates the relevant MS4 outfall, it shall also submit to EPA for review and Approval, and to RIDEM for review and comment, a schedule for conducting dry and wet-weather screening at such outfall.

² For all of the outfalls in this Appendix that discharge to the Blackstone River, RIDOT shall refer to the aerial photographs available from RIDEM for specific outfall location.

RIDOT or RIDEM Outfall Identifier, if applicable	Receiving Water	Town/Location Information; Description of Outfall¹
RIDEM 5-1	Kickemuit River	Town of Bristol - outfall at Kickemuit mouth north of Narrows Road; in particular, RIDOT shall evaluate if there are any interconnections between Metacom Ave. and the Bristol MS4
RIDEM 17-13	Mount Hope Bay	Town of Bristol - outfall at Viking Drive; in particular, RIDOT shall evaluate if there are any interconnections between Metacom Ave. and the Bristol MS4
RIDEM 17-15	Mount Hope Bay	Town of Bristol - outfall at Annawamscutt Drive; in particular, RIDOT shall evaluate if there are any interconnections between Metacom Ave. and the Bristol MS4
RIDEM – RI103	Pawcatuck River	Town of Westerly - outfall at Margin Street
RIDEM - RI100	Pawcatuck River	Town of Westerly - outfall under Broad Street Bridge
NA	Mastuxet Brook (tributary to Pawcatuck River)	Town of Westerly - RIDOT shall evaluate if it has any interconnections between its MS4 and Westerly's MS4 upgradient of where the Westerly MS4 discharges to Mastuxet Brook
NA	Pierce Brook	East Greenwich, RI - RIDOT shall evaluate if it has any interconnections between its MS4 and East Greenwich's MS4 upgradient of where the East Greenwich MS4 discharges to Pierce Brook
NA	Woonasquatucket River	North Providence, RI - RIDOT shall evaluate if it has any interconnections between its MS4 and the North Providence MS4 upgradient of 36 Sampson Ave. or 11 Kristen Drive in North Providence
NA	Woonasquatucket River	North Providence, RI – RIDOT shall evaluate if it has any interconnections between its MS4 and the North Providence MS4 upgradient of where the North Providence MS4 discharges to the Woonasquatucket River in the following areas: (1) eastern area of Johnston located between Route 128 and the Woonasquatucket River, (2) Greystone, Centerdale, Allendale, and Lymanville areas of North Providence, (3) Esmond area of Smithfield, in the vicinity of Route 104; and (4) Olneyville Area of Providence and Kinsley and Promenade Streets
NA	Lockwood Brook	Warwick, RI - RIDOT shall evaluate if it has any interconnections between its MS4 and the Warwick MS4 upgradient of where the Warwick MS4 discharges to Lockwood Brook through the outfalls at June Ave., Emerson Ave., Meadowbrook Ave., and Ridgeway Ave.
NA	Knowles Brook	Warwick, RI - RIDOT shall evaluate if it has any interconnections between its MS4 and the Warwick MS4 upgradient of where the Warwick MS4 discharges to Knowles Brook

Appendix 10 – EPA New England Bacterial Source Tracking Protocol

EPA New England Bacterial Source Tracking Protocol

Draft – January 2012

Purpose

This document provides a common framework for EPA New England (“EPA-NE”) staff to develop and implement bacterial source tracking sample events, and provides a recommended approach to watershed association, municipal, and State personnel. Adopted from Boston Water and Sewer Commission (“BWSC”) (2004), Pitt (2004), and based upon fieldwork conducted and data collected by EPA-NE, the protocol relies primarily on visual observations and the use of field test kits and portable instrumentation during dry and wet weather to complete a screening-level investigation of stormwater outfall discharges or flows within the drainage system. When necessary, the addition of more conclusive chemical markers may be included. The protocol is applicable to most typical Municipal Separate Storm Sewer Systems (“MS4s”) and smaller tributary streams. The smaller the upstream catchment area and/or more concentrated the flow, the greater the likelihood of identifying an upstream wastewater source.

Introduction

The protocol is structured into several phases of work that progress through investigation planning and design, laboratory coordination, sample collection, and data evaluation. The protocol involves the concurrent collection and analyses of water samples for surfactants, ammonia, total chlorine, and bacteria. When more precise confirmation regarding the presence or absence of human sanitary sewage is necessary, and laboratory capacity is available, the additional concurrent collection of samples for select Pharmaceutical and Personal Care Product (“PPCP”) analysis is advised. When presented with a medium to large watershed or numerous stormwater outfalls, the recommended protocol is the screening of all outfalls using the surfactant, ammonia, total chlorine, and bacterial analyses, in addition to a thorough visual assessment. The resulting data and information should then be used to prioritize and sample a subset of outfalls for all parameters, including PPCP compounds and additional analyses as appropriate. Ideally, screening-level analyses can be conducted by state, municipal, or local watershed association personnel, and a prioritized sub-set of outfalls can be sampled through a commercial laboratory or by EPA-NE using more advanced confirmatory techniques.

Step I – Reconnaissance and Investigation Design

Each sample event should be designed to answer a specific problem statement and work to identify the source of contamination. Any relevant data or reports from State, municipal, or local watershed associations should be reviewed when selecting sample locations. Aerial photography, mapping services, or satellite imagery resources are available free to the public through the internet, and offer an ideal way to pre-select locations for either field verification or sampling.

Sample locations should be selected to segregate outfall sub-catchment areas or surface waters into meaningful sections. A common investigative approach would be the identification of a

specific reach of a surface water body that is known to be impaired for bacteria. Within this specific reach, stormwater outfalls and smaller tributary streams would be identified by desktop reconnaissance, municipal outfall mapping, and field investigation when necessary. Priority outfalls or areas to field verify the presence of outfalls should be selected based on a number of factors, including but not limited to the following: those areas with direct discharges to critical or impaired waters (e.g. water supplies, swimming beaches); areas served by common/twin-invert manholes or underdrains; areas with inadequate levels of sanitary sewer service, Sanitary Sewer Overflows (“SSOs”) or the subject of numerous/chronic sanitary sewer customer complaints; formerly combined sewer areas that have been separated; culverted streams, and; outfalls in densely populated areas with older infrastructure. Pitt (2004) provides additional detailed guidance.

When investigating an area for the first time, the examination of outfalls in dry-weather is recommended to identify those with dry-weather flow, odor, and the presence of white or gray filamentous bacterial growth that is common (but not exclusively present) in outfalls contaminated with sanitary sewage (see Attachment 1 for examples). For those outfalls with dry-weather flow and no obvious signs of contamination, one should never assume the discharge is uncontaminated. Sampling by EPA-NE staff has identified a number of outfalls with clear, odorless discharges that upon sampling and analyses were quite contaminated. Local physical and chemical conditions, in addition to the numerous causes of illicit discharges, create outfall discharges that can be quite variable in appearance. Outfalls with no dry-weather flow should be documented, and examined for staining or the presence of any obvious signs of past wastewater discharges downstream of the outfall.

As discussed in BWSC (2004), the protocol may be used to sample discreet portions of an MS4 sub-catchment area by collecting samples from selected junction manholes within the stormwater system. This protocol expands on the BWSC process and recommends the concurrent collection of bacteria, surfactant, ammonia, and chlorine samples at each location to better identify and prioritize contributing sources of illicit discharges, and the collection of PPCP compounds when more conclusive source identification is necessary.

Finally, as discussed further in Step IV, application of this sampling protocol in wet-weather is recommended for most outfalls, as wet-weather sampling data may indicate a number of illicit discharge situations that may not be identified in dry weather.

Step II – Laboratory Coordination

All sampling should be conducted in accordance with a Quality Assurance Project Plan (“QAPP”). A model QAPP is included as Attachment 2. While the QAPP details sample collection, preservation, and quality control requirements, detailed coordination with the appropriate laboratory staff will be necessary. Often sample events will need to be scheduled well in advance. In addition, the sampling team must be aware of the strict holding time requirements for bacterial samples – typically samples analysis must begin within 6 hours of sample collection. For sample analyses conducted by a commercial laboratory, appropriate

coordination must occur to determine each facilities respective procedures and requirements. The recommendations in this protocol are based on the use of a currently unpublished EPA-NE modification to *EPA Method 1694 – Pharmaceuticals and Personal Care Products in Water, Soil, Sediment, and Biosolids by HPLC/MS/MS*. Several commercial laboratories may offer Method 1694 capability. EPA-NE recommends those entities wishing to utilize a contract laboratory for PPCP analyses ensure that the laboratory will provide quantitative analyses for acetaminophen, caffeine, cotinine, carbamazepine, and 1,7-dimethylexanthine, at Reporting Limits similar to those used by EPA-NE (See Attachment 3). Currently, the EPA-NE laboratory has limited capacity for PPCP sampling, and any proposed EPA-NE PPCP sample events must be coordinated well in advance with the appropriate staff.

Step III – Sample Collection

Once a targeted set of outfalls has been selected, concurrent sampling and analyses for surfactants, ammonia, and total chlorine (which can all be done through the use of field kits), in addition to bacteria (via laboratory analysis) should be conducted. When numerous outfalls with dry-weather flow exist, sample locations should be prioritized according to the criteria mentioned above. In addition, field screening using only the field kits may occur during the field reconnaissance. However, it must be emphasized that the concurrent sampling and analyses of bacteria, surfactant, ammonia, and total chlorine parameters is the most efficient and cost-effective screening method.

When first observed, the physical attributes of each outfall or sampling location should be noted for construction materials, size, flow volume, odor, and all other characteristics listed on the data collection form (Attachment 4). In addition, GPS coordinates should be collected and a photograph of the sample location taken. Whenever possible, the sampling of storm drain outfalls should be conducted as close to the outfall opening as possible. Bacterial samples should be collected first, with care to not disturb sediment materials or collect surface debris/scum as best possible. A separate bottle is used to collect a single water sample from which aliquots will be analyzed for surfactants, ammonia, and total chlorine. A sample for PPCP analysis is recommended to be collected last, as the larger volume required and larger bottle size may cause some sediment disturbance in smaller outfalls or streams. If necessary, a second smaller, sterile and pre-cleaned sampling bottle may be used to collect the surface water which can then be poured into the larger PPCP bottle. Last, a properly calibrated temperature/specific conductance/salinity meter should be used to record all three parameters directly from the stream or outfall. When flow volume or depth is insufficient to immerse the meter probe, a clean sample bottle may be utilized to collect a sufficient volume of water to immerse the probe. In such instances, meter readings should be taken immediately.

As soon as reasonably possible, sample aliquots from the field kit bottle should be analyzed. When concurrent analyses are not possible, ammonia and chlorine samples should be processed first, followed by surfactant analysis, according to each respective Standard Operating Procedure as appropriate based on the particular brand and type of field test kit being used. All waste from the field test kits should be retained and disposed of according to manufacture instructions.

Where waste disposal issues would otherwise limit the use of field kits, EPA-NE recommends that, at a minimum, ammonia test strips with a Reporting Limit below 0.5 mg/L be utilized. Such test strips typically are inexpensive and have no liquid reagents associated with their use. Results should be recorded, samples placed in a cooler on ice, and staff should proceed to the next sample location.

Upon completion of sampling and return to the laboratory, all samples will be turned over to the appropriate sample custodian(s) and accompanied by an appropriate Chain-of-Custody (“COC”) form.

Step IV – Data Evaluation

Bacterial results should be compared to the applicable water quality standards. Surfactant and ammonia concentrations should be compared to the thresholds listed in Table 1. Evaluation of the data should include a review for potential positive results due to sources other than human wastewater, and for false negative results due to chemical action or interferences. In the EPA-NE region, field sampling has indicated that the biological breakdown of organic material in historically filled tidal wetlands may cause elevated ammonia readings, as can the discharge from many landfills. In addition, salinity levels greater than 1 part per thousand may cause elevated surfactant readings, the presence of oil may likewise indicate elevated levels, and fine suspended particulate matter may cause inconclusive surfactant readings (for example, the indicator ampule may turn green instead of a shade of blue). Finally, elevated chlorine from leaking drinking water infrastructure or contained in the illicit wastewater discharge may inhibit bacterial growth and cause very low bacterial concentrations. Any detection of total chlorine above the instrument Reporting Limit should be noted.

Table 1 – Freshwater Water Quality Criteria, Threshold Levels, and Example Instrumentation ¹

Analyte/ Indicator	Threshold Levels/ Single Sample ³	Instrumentation
E. coli ²	235 cfu/100ml	Laboratory via approved method
Enterococci ²	61 cfu/100ml	Laboratory via approved method
Surfactants (as MBAS)	≥ 0.25 mg/l	MBAS Test Kit (e.g. CHEMetrics K-9400)
Ammonia (NH ₃)	≥ 0.5 mg/l	Ammonia Test Strips (e.g. Hach brand)
Chlorine	> Reporting Limit	Field Meter (e.g. Hach Pocket Colorimeter II)
Temperature	See Respective State Regulations	Temperature/Conductivity/Salinity Meter (e.g. YSI Model 30)

¹ The mention of trade names or commercial products does not constitute endorsement or recommendation for use by the U.S. EPA

² 314 CMR 4.00 MA - Surface Water Quality Standards - Class B Waters.

³ Levels that may be indicative of potential wastewater or washwater contamination

Once dry-weather data has been examined and compared to the appropriate threshold values, outfalls or more discreet reaches of surface water can be selected for sampling or further investigation. Wet-weather sampling is also recommended for all outfalls, in particular for those that did not have flow in dry weather or those with dry-weather flow that passed screening thresholds. Wet-weather sampling will identify a number of situations that would otherwise pass unnoticed in dry weather. These wet-weather situations include, but are not limited to the following: elevated groundwater that can now cause an exchange of wastewater between cracked or broken sanitary sewers, failed septic systems, underdrains, and storm drains; increased sewer volume that can exfiltrate through cracks in the sanitary piping; increased sewer volume that can enter the storm drain system in common manholes or directly-piped connections to storm drains; areas subject to capacity-related SSO discharges, and; illicit connections that are not carried through the storm drain system in dry-weather.

Step V – Costs

Use of field test kits and field instruments for a majority of the analytical parameters allows for a significantly reduced analytical cost. Estimated instrument costs and pro-rated costs per 100 samples are included in Table 2. The cost per 100 samples metric allows averaged costs to account for reagent refills that are typically less expensive as they do not include the instrument cost, and to average out the initial capital cost for an instrument such as a temperature/ conductivity/salinity meter. For such capital costs as the meters, the cost over time will continue to decrease.

Table 2 – Estimated Field Screening Analytical Costs ¹

Analyte/ Indicator	Instrument or Meter ²	Instrument or Meter Cost/No. of Samples	Cost per Sample (Based on 100 Samples) ³
Surfactants (as MBAS)	Chemetrics K- 9400	\$77.35/20 samples (\$58.08/20 sample refill)	\$3.09
Ammonia (NH ₃)	Hach brand 0 – 6 mg/l	\$18.59/25 samples	\$0.74
Total Chlorine	Hach Pocket Colorimeter II	\$389/100 samples (\$21.89 per 100 sample refill)	\$3.89
Temperature/ Conductivity/ Salinity	YSI	\$490 (meter and cable probe)	\$4.90

¹ Estimated costs as of February 2011

² The mention of trade names or commercial products does not constitute endorsement or recommendation for use by the U.S. EPA

³ One-time meter costs and/or refill kits will reduce sample costs over time

From Table 2, the field analytical cost is approximately \$13 per outfall. Typical bacterial analyses costs can vary depending on the analyte, method, and total number of samples to be

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performed by the laboratory. These bacterial analyses costs can range from \$20 to \$60.
Therefore, the analytical cost for a single outfall, based on the cost per 100 samples, ranges from
\$33 to \$73. As indicated above, these costs will decrease slightly over time due to one-time
capitals costs for the chlorine and temperature/conductivity/salinity meters.

Step VI – Follow-Up

Once all laboratory data has been reviewed and determined final in accordance with appropriate quality assurance controls, results should be reviewed with appropriate stakeholders to determine next steps. Those outfalls or surface water segments that fail to meet the appropriate water quality standard, and meet or exceed the surfactant and ammonia threshold values, in the absence of potential interferences mentioned in Step IV, indicate a high likelihood for the presence of illicit connections upstream in the drainage system or surface water. Whereas illicit discharges are quite variable in nature, the exceedance of the applicable water quality standard and only the ammonia or surfactant threshold value may well indicate the presence of an illicit connection. When available, the concurrent collection and analyses of PPCP data can greatly assist in confirming the presence of human wastewater. However, such data will not be available in all instances, and the collective data set and information regarding the physical characteristics of each sub-catchment or surface water reach should be used to prioritize outfalls for further investigation. As warranted, data may be released to the appropriate stakeholders, and should be accompanied by an explanation of preliminary findings. Release of EPA data should be fully discussed with the case team or other appropriate EPA staff.

References Cited

Boston Water & Sewer Commission, 2004, *A systematic Methodology for the Identification and Remediation of Illegal Connections*. 2003 Stormwater Management Report, chap. 2.1.

Pitt, R. 2004 *Methods for Detection of Inappropriate Discharge to Storm Drain Systems*. Internal Project Files. Tuscaloosa, AL, in The Center for Watershed Protection and Pitt, R., *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments*: Cooperative Agreement X82907801-0, U.S. Environmental Protection Agency, variously pagged. Available at: <http://www.cwp.org>.

Instrumentation Cited (Manufacturer URLs)

MBAS Test Kit - CHEMetrics K-9400: <http://www.chemetrics.com/Products/Deterg.htm>

Portable Colorimeter – Hach Pocket Colorimeter II: <http://www.hach.com/>

Ammonia (Nitrogen) Test Strips: <http://www.hach.com/>

Portable Temperature/Conductivity/Salinity Meter: YSI Model 30:
<http://www.ysi.com/productsdetail.php?30-28>

Disclaimer: *The mention of trade names or commercial products in this protocol does not constitute endorsement or recommendation for use by the U.S. EPA.*

EPA NE Bacterial Source Tracking Protocol – Attachment 1
Stormwater Outfalls With Indicators of Illicit Discharges



Note white, gray, or off-white filamentous bacterial growth



EPA NE Bacterial Source Tracking Protocol – Attachment 1
Stormwater Outfalls With Indicators of Illicit Discharges



Note off-white filamentous bacterial growth



Note gray bacterial growth, suds, cloudy and gray plunge pool

EPA New England Bacterial Source Tracking Protocol – Attachment 2
Example Quality Assurance Project Plan (“QAPP”)

**Stormwater Monitoring Quality Assurance Project Plan
2011-2016**

RFA #

Sampling Plan Acceptance

EPA OES Enforcement and Project Manager/Coordinator Signature:	 Date:
EPA OEME Project Managers/Coordinator Signature:	 Date:
EPA OEME QA Officer Signature:	 Date:
EPA Chemistry Team Lead Signature:	 Date:

*** Draft Document for Informational Purposes Only ***

EPA New England Bacterial Source Tracking Protocol – Attachment 2
Example Quality Assurance Project Plan (“QAPP”)

1.0 Background

U.S. EPA Administrative Order 5360.1 requires that “all projects involving environmental monitoring performed by or for the U.S. EPA shall not be undertaken without an adequate Quality Assurance Project Plan (QAPP).” The purpose of this document is to describe the process used to develop, select, manage, and finalize stormwater monitoring projects. In describing this process, quality assurance goals and methods will be established, thus ensuring that the overall program and each monitoring project will meet or exceed EPA requirements for quality assurance.

The objective of these projects will be to collect data that is usable by _____ for _____. The primary focus of this project will be on urban water stormwater outfalls in the New England Region watersheds.

2.0 Sampling overview

Monitoring will be conducted on pre-scheduled days with the Laboratory. Samples will be retrieved from surface water, in stream or outfalls at suspected hotspots or areas that need further delineation. Sample sites will be located using GPS, with an accuracy goal of ± 1 meter and PDOP less than 6. Less accurate GPS reading or coordinates from maps will be accepted when site or other conditions do not allow ± 1 meter accuracy.

The primary focus of this sampling will be used to identify illegal discharges. Results from the sampling will be used by _____. For this project, sampling will be conducted according to EPA’s Ambient Water Sampling SOP (Table 3). Volunteers and watershed association staff may assist in sampling. All procedures will be followed that are specified in Table 3. Parameter to be sampled will be predetermined staff, based on data needs.

A. Locations

Site locations will be determined from field or desktop reconnaissance by project staff. Sample analyses will be predetermined based on conditions known about the sampling location prior to sampling. These may include data from previous sampling or from data collected from Mass DEP or local watershed associations. Any of the parameters listed in table 2 may be analyzed.

B. Analytical Methods and Reporting limits

Sample analyses will be conducted by EPA Laboratories.

Pharmaceuticals and Personal Care Products (“PPCPs”), E.coli and enterococcus will be analyzed by EPA’s Laboratory. Surfactants, ammonia, total chlorine will be analyzed with field test kits. Potential additional laboratory analyses include nitrogen (nitrate/nitrite), TSS, BOD, surfactants, ammonia and TPH. The Laboratory used for each sampling event will be determined prior to sampling by the OEME Project Manager based on required analyses Laboratory availability and contract funds available.

Where available, a known concentration sample will be used to evaluate the performance of each test method. The known concentration sample will be processed in the field and Laboratory as a routine sample. The analyst or field technician will not know the concentration of the sample prior to analyzing and reporting the sample result. Sampling for PPCP testing will be done using

EPA New England Bacterial Source Tracking Protocol – Attachment 2
Example Quality Assurance Project Plan ("QAPP")

extreme care not to contaminate the sample. No caffeine products should be consumed prior to sampling.

Table 1: Parameter specifications

Parameter (lab - equipment)	Preservation	Holding time
PH	None	Immediate
Temperature	None	Immediate
Sp Cond	None	Immediate
DO	None	Immediate
Total Phosphorus (EPA)	H ₂ SO ₄ (pH <2) + Ice	28 days
TSS (EPA)	Ice	7 days
TSS	Ice	7 days
BOD	Ice	48 hours
Surfactants	Ice	48 hours
Surfactants (field kit)	None	Immediate
Ammonia	H ₂ SO ₄ (pH <2) + Ice	28 days
Ammonia (test strips)	None	Immediate
TPH Petroleum ID	Ice	7 Days to extraction 40 days after extraction
E. Coli (EPA)	Ice	6 hrs to lab
Enterococcus (EPA)	Ice	6 hrs to lab
PPCP	Ice (acidified in Lab)	7 day to extraction 40 days after extraction
Chlorine (Field kit)	None	Immediate

EPA New England Bacterial Source Tracking Protocol – Attachment 2
Example Quality Assurance Project Plan ("QAPP")

Table 2: Analytical References and Quality Control Goals

Parameter (lab- equipment)	Reporting Limits	Water Quality Criteria or Guidelines (MA or EPA)	Quality Assurance Goals		
			Precision	Accuracy	Completeness
PH	4 to 10 units	6.5 - 8.3	0.02 unit	± 0.3 units	90%
Temperature	0 to +40°C	28.3°C	0.1 °C	+ 0.15°C	90%
Sp Cond	0 to 100 mS/cm	NA	5 uS/cm	±10% cal std (µS/cm)	90%
DO	0.5mg/l to Sat	≥5 mg/l , >60% saturation	0.02mg/l	± .5 mg/l	90%
Total Phosphorus (EPA)	5.0 ug/l	NA	Field dup 30% RPD	MS 70-130%	90%
TSS (EPA)	5mg/L	NA	Field dup 30% RPD	See SOP	
TSS	5 mg/L	NA	Field dup 30% RPD	See SOP	90%
BOD	2 mg/L	NA	Field dup 30% RPD	See SOP	90%
Surfactants (field kit)	0.25 mg/L ¹	0.25 mg/L	Field dup 30% RPD	TBD	90%
Ammonia (test strips)	0.25 mg/L ¹	1.0 mg/L	Field dup 30% RPD	TBD	90%
TPH Petroleum ID	Variable	NA	Field dup 30% RPD	See SOP	
E. Coli (EPA)	4 col./ 100 ml	≤126 col./100 ml* ≤ 235 col./100 ml	+100 col/100ml or 30% RPD	N/A	90%
Enterococcus (EPA)	1 col/100ml	≤33 col./100 ml* ≤ 61 col./100 ml	+100 col/100ml or 30% RPD	See SOP	90%
PPCP	TBD	NA	Field dup 50% RPD	TBD	90%
Chlorine (Field kit)	0.02 mg/l	NA	Field dup 30% RPD	TBD	90%

Note

*Geometric mean Criteria

TBD = To be determined, Field methods and some colorimeter methods do not have accuracy criteria determined.

¹ Needs field verification to confirm

EPA New England Bacterial Source Tracking Protocol – Attachment 2
Example Quality Assurance Project Plan (“QAPP”)

Table 3: Field and Laboratory References

Parameter	Analytical Method Reference	SOP reference
	Field References- 5/2005	
pH		
Conductivity		
Temperature		
dissolved oxygen	n/a	ECASOP-YSISondes9
Ambient water samples	n/a	ECASop-Ambient Water Sampling2
Chain of custody of samples	n/a	EIASOP-CHAINOFCUST
Sample login, tracking, disposition	n/a	EIASOP-ADMLOG14
	Lab. References- 5/2005	
Total Phosphorus (EPA)	EPA 365.3	EIASOP-INGTP8
TSS (EPA)	EPA 160.2	EIASOP-INGTSS-TDS-VRES5
TSS	EPA 160.2,SM2540D	SOP
BOD	EPA 405.1,SM5210B	SOP
Surfactants (field kit)		Draft
Ammonia (test strips)		Draft
TPH Petroleum ID	8015B (M)	
E. Coli (EPA)	SM9230	ECASOP- TC/EC Colilert2
Enterococcus (EPA)	SM9230	ECASOP-Enterolert1
PPCP	EPA 1694	TBD
Chlorine (Field kit)		TBD

*Specific conductance is the only parameter identified as non critical

Bottle list

Table 4: Bottle Sampling List

Parameter (lab - equipment)	Bottle	Preservation
Primary analyses		
E. Coli (EPA)	(2) 120ml or 250ml sterile	Ice
Enterococcus (EPA)		Ice
PPCP	1 Liter Amber	Ice (acidified in Lab)
Optional analyses		
Chlorine	500 ml	Ice
Total Phosphorus (EPA)	125 ml	H ₂ SO ₄ (pH <2) + Ice
TSS (EPA)	1 liter	Ice
TSS	1 liter	Ice
BOD	1 Liter	Ice
TPH Petroleum ID	2 -1 Liter Amber Glass teflon lined	Ice
E. Coli (alt lab)	120 ml sterile	Ice
Enterococcus (alt lab)	120 ml sterile	Ice

EPA New England Bacterial Source Tracking Protocol – Attachment 2
Example Quality Assurance Project Plan (“QAPP”)

C. Quality Control

Calibration: EPA will calibrate its sondes according to the EPA sonde calibration SOP.

Field duplicate: One duplicate sample will be collected per sampling event or approximately for every ten samples.

Trip Blank: OEME Chemist will run appropriate QA samples for PPCP’s. One blank sample will be collected for approximately every ten bacteria samples. Reported data that is less than 5 times the trip (field) blank concentration will be flagged.

QC Criteria: Are specified in table 2, data not meeting this criteria will be reviewed by the Project Manager. Data that does not meet laboratory QA/QC criteria will be flagged by the laboratory.

D. Chain of Custody

Chain of custody procedures will follow the OEME/Investigations Office SOP (Table 3)

3.0 Data Review

EPA Microbiology data will be reviewed by the Biology QAO. Microbiology sample results for samples analyzed by an outside laboratory will be reviewed by the OEME Project Manager. All field data and draft data reports will be reviewed by the OEME Project manager. All laboratory generated data will be reviewed by the Chemistry Team Leader.

4.0 Data reports

Data reports will be reviewed by the Project Coordinator and the OEME Project Manager before a final report is released to the Project Manager. Draft reports may be released without a complete review.

EPA New England Bacterial Source Tracking Protocol – Attachment 2
Example Quality Assurance Project Plan ("QAPP")

5.0 Attachments (Q:\share\RARE\QAPP)

- 1) Standard Operating Procedure Enterococcus (SM9230B), Multiple Tube Technique. SOP/07-01 *Alpha Analytical, Inc. May 28, 2005*
- 2) Standard Operating Procedure E. Coli (SM9213D). SOP/07-41 *Alpha Analytical, Inc. May 28, 2005*
- 3) Standard Operating Procedure MBAS, Ionic Surfactants. Draft SOP *EPA Laboratory. January 28, 2010*
- 4) Standard Operating Procedure Nitrogen Ammonia. Draft SOP *EPA Laboratory. February 10, 2011*
- 5) Standard Operating Procedure Total Chlorine. Draft SOP *EPA Laboratory. February 12, 2010*
- 6) Standard Operating Procedure TSS/ TVSS (SM2540 D, EPA 160.2). SOP/07-29 *Alpha Analytical, Inc. September 29, 2007*
- 7) Standard Operating Procedure BOD-5day, SBOD-5day, and cBOD-5day (SM 5210B, and EPA 405.1). SOP/07-13 *Alpha Analytical, Inc. September 29, 2007*
- 8) Standard Operating Procedure TPH 8015D – Modified 0-017 (EPA 8015D Modified) *Alpha Analytical, Inc. March 04, 2008*
- 9) Standard Operating Procedure determination of Trace Elements in Water and Wastes by Inductively Coupled Plasma- Mass Spectrometry (200.8). SOP/06-11 *Alpha Analytical, Inc. July 13, 200*
- 10) Standard Operating Procedure Inductively Coupled Plasma – Mass Spectrometry (6020). SOP/06-10 *Alpha Analytical, Inc. October 25, 2007*

EPA NE Bacterial Source Tracking Protocol – Attachment 3
Target Compounds, Uses, and Reporting Limits

Target Compound	Major Use	RL (ng/L)	Daily Dose (ng)
Caffeine	Natural Stimulant	5.0	200,000,000
1,7-DMX	Metabolite of caffeine	2.5	N/A
Acetaminophen	Pain Reliever	2.5	650,000,000
Carbamazepine	Anti- depressant / bi-polar Anti-convulsant (epilepsy)	0.5	100,000,000
Primidone	Anti- epilepsy drug (AED)	5.0	100,000,000
Atenolol	Beta Blocker High Blood Pressure	2.5	50,000,000
Cotinine	Metabolite of Nicotine	0.5	3,500-7,200 (ng/mL)
Urobilin	By-product of hemoglobin breakdown (mammals)	5.0	1,300,000 ng/g in feces
Azithromycin	Antibiotic	1.6	200,000,000

EPA NE Bacterial Source Tracking Protocol – Attachment 4

STORMWATER MONITORING

Field Collection Requirements (To be recorded at each site)

Sample

Site Name _____

Time collected _____

Date collected _____

Inspection

****Take picture at site****

Outfall diameter _____ ('na' if open stream)

Flow estimate _____ ('na' if open stream)

Odor _____

Color _____

Turbidity _____

Floatables _____

Other observations _____

YSI Meter (calibrate in lab)

Salinity _____

Temp _____

Conductivity (give both #'s)

Location information

Short description of where sample was collected at site _____

GPS _____

Field Kits listed in the order they should be conducted in, include any applicable notes-

NH3 strip _____

Cl2 kit _____

Surfactants _____

Additional Notes:

(Note any changes in weather conditions) _____

Appendix 11 – Increased Frequency Street Sweeping Areas

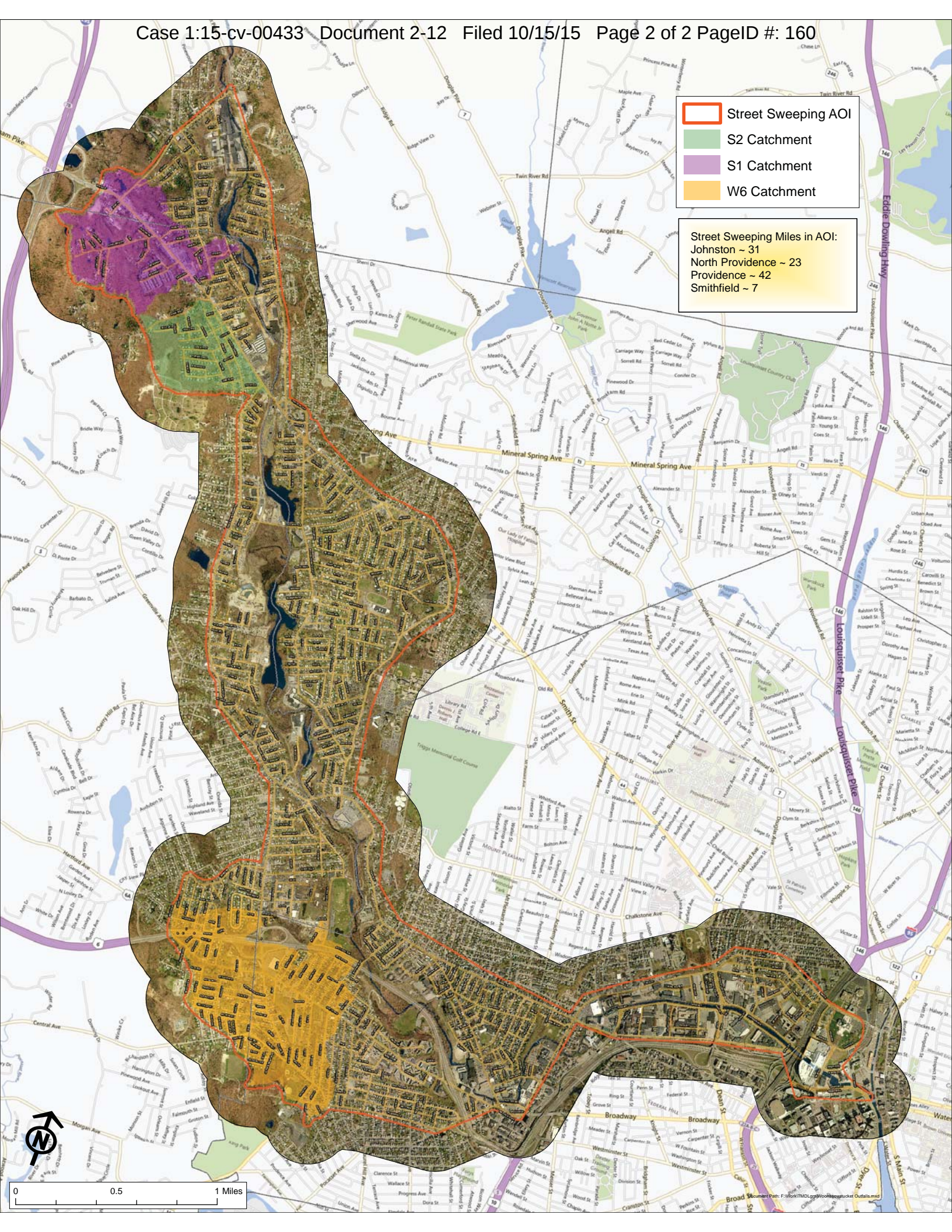
RIDOT Roadways that directly or indirectly discharge to the Woonasquatucket River that are within the Street Sweeping AOI

RIDOT Roadways that directly or indirectly discharge to Mashapaug Pond

RIDOT Roadways that directly or indirectly discharge to Indian Run Brook

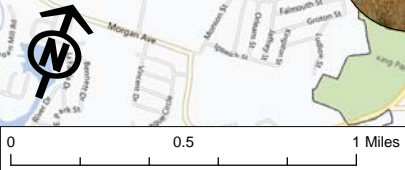
RIDOT Roadways that directly or indirectly discharge to Eutrophic Ponds (Roger Williams Park Ponds, Spectacle Pond, Gorton Pond, Sand Pond, Warwick Pond, Almy Pond, Brickyard Pond, Upper Dam Pond, North Easton Pond)

RIDOT Roadways that directly or indirectly discharge to Newport Water Supply Reservoirs (on Aquidneck Island and Tiverton and Little Compton)



 Street Sweeping AOI
 S2 Catchment
 S1 Catchment
 W6 Catchment

Street Sweeping Miles in AOI:
Johnston ~ 31
North Providence ~ 23
Providence ~ 42
Smithfield ~ 7



Appendix 12 – Supplemental Environmental Projects (SEPs)

Johnston Parcel Preservation SEP

Purpose of SEP:

RIDOT owns an approximately 55 acre parcel of property located in the Town of Johnston, Rhode Island near the I-295/Route 44 interchange, which is bordered by I-295 on the east, the Town of Smithfield and Johnston Lot 51-5 on the north, and Johnston Lots 51-4, 51-8, 51-9, and 51-17 on the west or south (“Johnston Parcel”). The Johnston Parcel is in the watershed of the Assapumpset Brook, which is a tributary to the Woonasquatucket River. Both the Assapumpset Brook and the Woonasquatucket River are listed on the Rhode Island Section 303(d) List of Impaired Waters. The Johnston Parcel is an undeveloped parcel of land that is forested and contains wetlands. It is located adjacent to the Powder Mill Ledges Wildlife Refuge, which is owned and managed by the Audubon Society of Rhode Island. The purpose of the SEP is to preserve the Johnston Parcel in its natural state in perpetuity, providing environmental protection to a portion of the watershed of the Assapumpset Brook. The SEP will serve this purpose by providing for the transfer of the Johnston Parcel to the Rhode Island Department of Environmental Management (“RIDEM”) and the placement of deed restrictions and covenants to ensure that the Johnston Parcel is maintained in its natural state in perpetuity.

Scope of Work:

RIDOT shall coordinate with RIDEM and develop a certificate of land transfer (deed), including appropriate exhibits, that provides for the transfer of the Johnston Parcel to RIDEM and includes conservation restrictions and covenants to ensure that the Johnston Parcel is maintained in its natural state in perpetuity. The deed shall be consistent with the laws of Rhode Island, including but not limited to R.I.G.L. Chapters 34-39, 37-7 and 45-36. The deed shall provide that the deed restrictions and covenants to ensure that the Johnston Parcel is maintained in its natural state in perpetuity run with the land. Appropriate exhibits may include, but not be limited to, a legal description of the property, a title report, and a management plan. The deed shall prohibit uses of the property that impair conservation values, materially alter the landscape, or degrade environmental quality, including by prohibiting the construction of impervious cover. The deed may allow use of the property for natural, educational, and passive recreational purposes. The deed shall provide that, notwithstanding any other provision of the deed, RIDEM will allow RIDOT to implement structural or nonstructural stormwater controls on the property if such stormwater controls are at any time approved by EPA after consultation with RIDEM.

RIDOT shall submit the proposed deed, including appropriate exhibits, to EPA, for review and Approval (under Section IX of the Consent Decree) by EPA after consultation with RIDEM. Following the approval of the deed, with exhibits, by EPA, RIDOT shall obtain the execution of the deed, with exhibits, and provide a copy of the executed deed, with exhibits, to EPA. Following execution of the deed, RIDOT shall record the deed, with exhibits, with the Rhode Island Secretary of State and in the records of land evidence for the Town of Johnston. Following recordation of the deed, with exhibits, RIDOT shall submit a SEP Completion Report to EPA.

Schedule:

Activity	Milestone
Commence development of the certificate of transfer (deed) (including conservation restrictions and covenants) and including appropriate exhibits	Prior to the end of one month from the Effective Date of the Consent Decree
Submit proposed deed, including appropriate exhibits, to EPA	Prior to the end of six months from the Effective Date of the Consent Decree
Obtain the execution of the deed, with exhibits, and provide a copy of the executed deed, with exhibits, to EPA	Within 45 days of approval by EPA of the deed, with exhibits
Record the deed, with exhibits	Within 14 days of execution of the deed, with exhibits
Submit SEP Completion Report under Paragraph 54 of the Consent Decree to EPA, including a recorded copy of the executed deed, with exhibits	Within 14 days of recordation of the deed, with exhibits

Lincoln Parcel Preservation SEP

Purpose of SEP:

RIDOT owns an approximately 24.86 acre parcel of property located in the Town of Lincoln, Rhode Island on Cobble Hill Road in the vicinity of Olney Pond in Lincoln Woods State Park (the "Lincoln Parcel"). The Lincoln Parcel is in the watershed of the Moshassuck River. The Moshassuck River is listed on the Rhode Island Section 303(d) List of Impaired Waters. The Lincoln Parcel is an undeveloped parcel of land that is forested. The purpose of the SEP is to preserve the Lincoln Parcel in its natural state in perpetuity, providing environmental protection to a portion of the watershed of the Moshassuck River. The SEP will serve this purpose by providing for the transfer of the Lincoln Parcel to the Rhode Island Department of Environmental Management and the placement of deed restrictions and covenants to ensure that the Lincoln Parcel is maintained in its natural state in perpetuity.

Scope of Work:

RIDOT shall coordinate with RIDEM and develop a certificate of land transfer (deed), including appropriate exhibits, that provides for the transfer of the Lincoln Parcel to RIDEM and includes conservation restrictions and covenants to ensure that the Lincoln Parcel is maintained in its natural state in perpetuity. The deed shall be consistent with the laws of Rhode Island, including but not limited to R.I.G.L. Chapters 34-39, 37-7 and 45-36. The deed shall provide that the deed restrictions and covenants to ensure that the Lincoln Parcel is maintained in its natural state in perpetuity run with the land. Appropriate exhibits may include, but not be limited to, a legal description of the property, a title report, and a management plan. The deed shall prohibit uses of the property that impair conservation values, materially alter the landscape, or degrade environmental quality, including by prohibiting the construction of impervious cover. The deed may allow use of the property for natural, educational, and passive recreational purposes. The deed shall provide that, notwithstanding any other provision of the deed, RIDEM will allow RIDOT to implement structural or nonstructural stormwater controls on the property if such stormwater controls are at any time approved by EPA after consultation with RIDEM.

RIDOT shall submit the proposed deed, including appropriate exhibits, to EPA, for review and Approval (under Section IX of the Consent Decree) by EPA after consultation with RIDEM. Following the approval of the deed, with exhibits, by EPA, RIDOT shall obtain the execution of the deed, with exhibits, and provide a copy of the executed deed, with exhibits, to EPA. Following execution of the deed, RIDOT shall record the deed, with exhibits, with the Rhode Island Secretary of State and in the records of land evidence for the Town of Lincoln. Following recordation of the deed, with exhibits, RIDOT shall submit a SEP Completion Report to EPA.

Schedule:

Activity	Milestone
Commence development of the certificate of transfer (deed) (including conservation restrictions and covenants) and including appropriate exhibits	Prior to the end of one month from the Effective Date of the Consent Decree
Submit proposed deed, including appropriate exhibits, to EPA	Prior to the end of six months from the Effective Date of the Consent Decree
Obtain the execution of the deed, with exhibits, and provide a copy of the executed deed, with exhibits, to EPA	Within 45 days of approval by EPA of the deed, with exhibits
Record the deed, with exhibits	Within 14 days of execution of the deed, with exhibits
Submit SEP Completion Report under Paragraph 54 of the Consent Decree to EPA, including a recorded copy of the executed deed, with exhibits	Within 14 days of recordation of the deed, with exhibits