



Phase III CSO Program Environmental Assessment

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Revisions

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TABLE OF CONTENTS

Exe	cutive	Summary	11
Ρ	urpose	and Need	11
Ρ	ropose	d Actions and Alternatives	12
E	nvironn	nental Impacts, Consequences, and Mitigation	12
Ρ	ublic Pa	articipation	12
A	gency	Coordination and Review	13
1.0	Intro	duction	17
1.	1 N	arragansett Bay Commission	17
1.	2 P	rogram History	17
1.	3 E	nvironmental Assessment	18
2.0	Purp	bose and Need	23
3.0	Prop	bosed Actions and Alternatives	27
3.	1 A	ternative 1: Baseline CDRA	27
3.	2 A	ternative 2: Modified Baseline with Phase Implementation	27
3.	3 A	ternative 3: Modified Baseline with Extended Schedule & Interim Water Quality	
Ρ	rojects		28
3.	4 A	ternative 4: Bucklin Point Wastewater Treatment Facility Storage & Treatment	28
3.	5 R	ecommended Alternative	29
3.	6 P	rojects to be Assessed	31
4.0	Env	ironmental Impacts, Consequences, and Mitigation	35
4.	1 S	urface Water	35
	4.1.1	Potential Consequences	35
	4.1.2	Mitigation Measures	36
4.	2 G	roundwater	36
4.	3 W	etlands and Floodplains	37
	4.3.1	Potential Consequences	37
	4.3.2	Mitigation Measures	38
4.	4 W	ild or Scenic Rivers	38
4.	5 C	oastal Zones/ Costal Barrier Resources	38
	4.5.1	Potential Consequences	38
	4.5.2	Mitigation Measures	39
4.	6 S	ole Source Aquifers	39

4.7	Farmlands and Agricultural Uses			
4.8	Air	Quality	39	
4.8	.1	Potential Consequences	39	
4.8	.2	Mitigation Measures	39	
4.9	Noi	se	40	
4.9	.1	Potential Consequences	40	
4.9	.2	Mitigation Measures	40	
4.10	Veg	getation and Wildlife	40	
4.1	0.1	Potential Consequences	41	
4.1	0.2	Mitigation Measures	42	
4.11	Wa	ter Supply/Use	42	
4.12	Soi	I Disturbance	42	
4.1	2.1	Potential Consequences	43	
4.1	2.2	Mitigation Measures	43	
4.13	His	torical, Archaeological, and Cultural Resources	43	
4.1	3.1	Potential Consequences	44	
4.1	3.2	Mitigation Measures	45	
4.14	Aes	sthetics	45	
4.1	4.1	Potential Consequences	45	
4.1	4.2	Mitigation Measures	46	
4.15	Lar	nd Use	46	
4.1	5.1	Potential Consequences	46	
4.1	5.2	Mitigation Measures	46	
4.16	Eco	onomic	46	
4.1	6.1	Potential Consequences	47	
4.1	6.2	Mitigation Measures	47	
4.17	Cor	nmunity Facilities	47	
4.1	7.1	Potential Consequences	47	
4.1	7.2	Mitigation Measures	48	
4.18	Red	creation	48	
4.1	8.1	Potential Consequences	48	
4.1	8.2	Mitigation Measures	48	
4.19	Saf	ety	49	

4.1	9.1 Potential Consequences	49
4.1	9.2 Mitigation Measures	49
4.20	Solid Waste	49
4.2	20.1 Potential Consequences	49
4.2	20.2 Mitigation Measures	49
4.21	Traffic and Business Activities	50
4.2	21.1 Potential Consequences	50
4.2	21.2 Mitigation Measures	50
4.22	Other Indirect Impacts	51
5.0 F	Public Participation	55
5.1	Public Meeting	55
5.2	Public Hearing	55
5.3	Public Comments	56
6.0 A	Agency Coordination and Review	60
6.1	Rhode Island Coastal Resource Management Council (RICRMC)	60
6.2	RIDEM Division of Fish and Wildlife (RIDEM DFW)	60
6.3	RIDEM Office of Customer and Technical Assistance (RIDEM OCTA)	61
6.4	Rhode Island Division of Planning	61
6.5	Narragansett Tribal Historic Preservation Office	62
6.6	National Marine Fisheries Service Greater Atlantic Region Fisheries Office	(GARFO)62
6.7 Distrie	USDA Natural Resource Conservation Service (NRCS) Northern RI Conser	rvation 62
6.8	Rhode Island Historical Preservation & Heritage Commission (RI HPHC)	62
6.9	Rhode Island Department of Transportation (RIDOT)	62
6.10	United States Fish and Wildlife Service	62

LIST OF TABLES

Table 3-1: Phase III CSO Plan (Alternative 2)	
Table 5-1: Phase III CSO Plan (Alternative 2)	

APPENDICES

- Appendix A Figures
- Appendix B FEMA FIRM Maps
- Appendix C US Fish and Wildlife Reports
- Appendix D Programmatic Agreement (NBC and RI Historic Preservation and Heritage Commission)
- Appendix E Reevaluation Stakeholder Workshop Agendas
- Appendix F Public Comments
- Appendix G Program Narrative
- Appendix H Regulatory Review Comment Letters

List of Abbreviations and Acronyms

BPSA	Bucklin Point Service Area
BPWWTF	Bucklin Point Waste Water Treatment Facility
BVDC	Blackstone Valley District Commission
CA	Consent Agreement
CDR	Conceptual Design Report
CDRA	Conceptual Design Report Amendment
CRMC	Coastal Resources Management Council
CSO	Combined Sewer Overflow
CWA	Clean Water Act
EA	Environmental Assessment
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
FPSA	Field's Point Service Area
FPWWTF	Field's Point Waste Water Treatment Facility
FWS	Fish and Wildlife Service
GSI	Green Stormwater Infrastructure
HASP	Health and Safety Plan
MFT	Morley Field Tank
MUTCD	Manual of Uniform Traffic Control Devices
NBC	Narragansett Bay Commission
NPDES	National Pollutant Discharge Elimination System
PA	Programmatic Agreement (PA)
Reevaluation Plan	Stantec/Pare Phase III Reevaluation Plan
RIDEM	Rhode Island Department of Environmental Management
RIDEM DFW	RIDEM Division of Fish and Wildlife
RIDEM OAR	RIDEM Office of Air Resources
RIDEM OTCA	RIDEM Office of Technical and Customer Assistance
RIDEM OWR	RIDEM Office of Water Resources
RIDOT	Rhode Island Department of Transportation
RI HPHC	Rhode Island Historic Preservation and Heritage Commission
RI SHPO	Rhode Island State Historic Preservation Office
SRF	State Revolving Fund
WRI	West River Interceptor
WQS	Water Quality Standards

Executive Summary

The Narragansett Bay Commission (NBC) embarked on a three-phase Combined Sewer Overflow (CSO) control program in 1998, aimed at lowering annual CSO volumes and reducing annual shellfish bed closures in accordance with a 1992 Consent Agreement with the Rhode Island Department of Environmental Management (RIDEM). Phases I and II of this program, which focused on Fields Point Service Area (FPSA), were completed in 2008 and 2015, respectively. Phase III of the program, which began in 2016, is focused on the Bucklin Point Service Area (BPSA). Its projected completion date is 2008.

Preliminary design for CSO abatement began in 1994 with the approval of a Conceptual Design Report (CDR) and was than reassessed in 1998 through a Conceptual Design Report Amendment (CDRA). An Environmental Assessment (EA) was prepared for the 1994 CDR and then again in 1998 for the CDRA. The 1998 CDRA laid out CSO abatement over three phases. With the completion of Phases I and II, NBC saw fit for a reevaluation of Phase III due to projected costs and the impact this would have on ratepayers. NBC engaged a team led by Stantec and Pare Corporation (Stantec/Pare) that reevaluated Phase III, created four alternatives for CSO abatement, and identified a preferred alternative to carry forward as the new plan for the Phase III CSO Program. This EA has been prepared as part of the Phase III CSO Reevaluation.

Purpose and Need

The CSO control program was conceived in response to federally mandated water quality standards enacted to regulate discharges to the nation's water bodies. The Federal Clean Water Act prohibits point discharges to water bodies without a permit and gives the US EPA authority to establish the National Pollutant Discharge Elimination System (NPDES) which creates numerical limits to the allowable amount of pollutants discharged to water bodies. For Phase III CSO projects to be eligible for funding under the State of Rhode Island Clean Water State Revolving Fund (SRF) Program, environmental impacts of project alternatives shall be analyzed as part of an EA, or past environmental reviews shall be reaffirmed.

Significant elements of the 1998 CDRA Plan are still proposed, and past EAs performed in relation to those projects are hereby reaffirmed. These projects include the Pawtucket Tunnel, along with dropshafts and a tunnel dewatering pump station; regulator modifications; interceptors to capture overflows from outlying outfalls; and sewer separation in select locations in the Phase III CSO project area. However, project elements that are new to the Phase III CSO Program were reviewed under this EA. These project elements are as follows:

- Construction of the West River Interceptor;
- Construction of a Lateral Tunnel from the Pawtucket Tunnel to a location near OF-220;
- Morley Field Tank (as an alternative to the Lateral Tunnel); and
- Construction of a series of GSI projects that target areas that contribute flows to OFs 101, 104, 105, 201 204, 212 214, 216, and 217.

NBC is currently proceeding with planning and conceptual design of the recommended plan from the Phase III CSO Reevaluation, and it is anticipated that individual program components, including project alignments, will continue to be optimized as design progresses. Amendments to this EA may be required based on the extent of future design modifications.

Proposed Actions and Alternatives

The reevaluation of Phase III of the CSO program involved the creation of four alternatives which took into account overall costs, the required timeline, effects on water quality, and impact on sewer rates. The first alternative was the plan proposed in the 1998 CDRA, which is the currently approved approach for Phase III. Alternative 2, the selected alternative, was divided into four phases to stagger costs and remain largely consistent with the CDRA, but with the addition of alternative subsystems and the new projects described above. Alternative 3 was developed to evaluate an option that would extend the overall schedule, defer tunnel construction to a later date, sequence other projects earlier, and include additional projects that would improve water quality in the interim. The final alternative, Alternative 4, was in response to stakeholder interest in considering an alternative that did not include a tunnel as the centerpiece of the program, preferring to instead explore the water quality benefits that could be gained by potentially less expensive treatment options.

Environmental Impacts, Consequences, and Mitigation

The Program will result in an overall long-term improvement in water quality in the affected areas of Narragansett Bay, the Seekonk River, the Blackstone River and other tributaries, which is the most significant environmental impact to result from the Phase III CSO Program. Through the EA process, potential temporary, short-term environmental impacts that may result during construction and implementation were identified. Measures will be taken during construction and project implementation to mitigate these short-term impacts to the greatest extent practicable. Long-term adverse impacts are not anticipated at this time, and it is believed that the environmental benefits far outweigh short-term adverse impacts associated with construction projects performed under the Phase III CSO Program. On this basis, it appears that a Finding of No Significant Impact (FONSI) for the new Phase III projects is appropriate.

Public Participation

As part of the Phase III CSO Reevaluation, a stakeholder group was convened to advise the construction alternatives developed throughout the reevaluation process. The stakeholder process consisted of a total of seven workshops during which the regulatory, environmental, and economic issues involved with Phase III design and construction were discussed. The stakeholder group was comprised of individuals from a broad cross-section to the NBC service area, and included residents, government agency representatives, trade association representatives, non-profit organizations, and business owners. This group was informed of all aspects of the reevaluation process and provided input on their concerns which included technical considerations, particularly on the implementation of GSI, in addition to the anticipated impact on sewer rates.

This stakeholder outreach process serves as the Public Meeting requirement that would otherwise be conducted at the start of the EA. Presentation of this EA at a Public Hearing is still required and will be performed following RIDEM review.

Agency Coordination and Review

Several agencies were contacted as part of this EA. Each agency was provided a cover letter and project narrative describing the Phase III CSO Program in general, as well as a more detailed description of the specific projects that are new to the Program through the Phase III CSO Reevaluation.

Letters were issued on October 28, 2016 by certified mailings and review comments were requested from each agency within 30 days of their receipt of the letter. Certified mail return receipts were received from each agency; however, not all agencies provided review comments. Review comments that have been received were addressed in the EA, as appropriate. At this time, there does not appear to be any significant issues or concerns with the newly proposed Phase III projects based on reviews by these agencies.

Section 1.0 Introduction

1.0 Introduction

The Narragansett Bay Commission (NBC) embarked on a three-phase Combined Sewer Overflow (CSO) control program in 1998, aimed at lowering annual CSO volumes and reducing annual shellfish bed closures in accordance with a 1992 Consent Agreement with the Rhode Island Department of Environmental Management (RIDEM). Phases I and II of this program, which focused on the Fields Point Service Area (FPSA), were completed in 2008 and 2015, respectively.

Phase III of the program, which began in 2016, is focused on the Bucklin Point Service Area (BPSA). Its projected completion date is 2038.

1.1 Narragansett Bay Commission

The NBC's stated mission is to maintain a leadership role in the protection and enhancement of water quality in Narragansett Bay and its tributaries by providing safe and reliable wastewater collection and treatment services to its customers at a reasonable cost. NBC's service area includes Providence, North Providence, Johnston, Pawtucket, Central Falls, Cumberland, Lincoln, the northern portion of East Providence and small sections of Cranston and Smithfield. The NBC service area is shown on Figure A-1 in Appendix A.

The Narragansett Bay Commission owns and operates Rhode Island's two largest wastewater treatment plants along with extensive infrastructure of interceptors, sewers, pump stations, tidegates, and CSO structures. The Field's Point Wastewater Treatment Facility (FPWWTF), located in Providence, treats flow from Providence, North Providence and Johnston. The Bucklin Point Wastewater Treatment Facility (BPWWTF), located in East Providence, provides treatment of flow from Central Falls, Pawtucket, East Providence, Lincoln and Cumberland. The locations of both treatment plants are shown on Figure A-1. Providence, Pawtucket, and Central Falls have combined systems while the other member communities served by NBC have separated systems.

1.2 Program History

The City of Providence began its efforts for CSO abatement in 1977 by conducting a CSO management study. The goal of the CSO study was to identify CSO locations throughout the City's sewer system and mitigate them through the implementation of new treatment facilities, interceptor pipelines, and sewer separation. In 1982, the Narragansett Bay Commission was formed and assumed responsibility for the FPWWTF, several pumping stations, approximately 45 miles of interceptors in Providence, all flow regulators, and 65 CSO outlets that had been operated and maintained by the City of Providence. NBC later merged with the Blackstone Valley District Commission (BVDC) in 1992 and the area BVDC previously served was designated as the BPSA. This area includes the Cities of Central Falls and Pawtucket, the Towns of Cumberland and Lincoln, and parts of the Towns of East Providence and Smithfield. This flow is treated at the BPWWTF in East Providence. The area also currently includes 25

CSOs located in Central Falls and Pawtucket. These CSO Structures were subsequently included in NBC's efforts for CSO abatement.

In 1994, RIDEM approved the Conceptual Design Report (CDR) for the abatement program and NBC began preliminary design for CSO control facilities. NBC reassessed this plan in 1998 through a Conceptual Design Report Amendment (CDRA) in response to stakeholder input and the revisions of the CSO policy and guidelines by the US Environmental Protection Agency (EPA). The CDRA established a three-phase program with the goal of reducing annual CSO volumes by 98 percent, and achieving an 80 percent reduction in shellfish bed closures.

The first two phases of CSO control focused on the FPSA and were completed in 2008 at a cost of \$360 Million and 2015 at a cost of \$197 Million, respectively. The third and final phase prescribed by the CDRA shifts the focus to the BPSA. The Phase III CSO Control Program was conceived to primarily consist of a deep rock storage tunnel in Pawtucket similar to the Phase I Providence Tunnel, with a series of interceptors to connect outlying outfalls, and sewer separation for a few remaining areas. Due to the projected cost of Phase III and its impact on customer sewer rates, NBC decided to reevaluate Phase III to determine if it was affordable and if any modifications should be made. Of particular interest was an evaluation of the feasibility of using Green Stormwater Infrastructure (GSI) to reduce CSO volumes and potentially reduce size of conventional grey infrastructure solutions.

NBC engaged a team led by Stantec and Pare Corporation (Stantec/Pare) that reevaluated Phase III of the CSO Program and created four alternatives. These four alternatives were presented to the NBC Board of Commissioners. Alternative 2, the current Reevaluation Plan, was chosen as the recommended plan. This alternative met the water quality goals of the CSO Program, provided a schedule that allowed for adaptive management, and would result in the lowest annual increase in sewer rates of the three alternatives that met the prescribed water quality objectives. Figure A-2 in Appendix A depicts an overview of the projects planned for the Phase III CSO Program developed from the Phase III Reevaluation.

1.3 Environmental Assessment

As part of the CDR in 1994, RIDEM required that NBC conduct an Environmental Assessment (EA) to determine the environmental impacts of the projects involved in the program. The EA was conducted by Louis Berger & Associates, Inc. and was completed in February 1994. Study areas were established around all conceptual project sites and were assessed for environmental impacts to land use, traffic and transportation, noise and sensitive receptors, wetlands and floodplain, and historic and archeological resources. Applicable agencies were contacted to comment on the degree to which the study areas were evaluated and comments received from regulatory agencies were incorporated into the final draft.

The EA was updated as part of the CDRA in 1998 to evaluate the more refined plan for the CSO Abatement Program. Likewise, as part of the reevaluation of Phase III by Stantec/Pare, RIDEM has again required that the EA be updated to evaluate the new projects proposed in the Reevaluation Plan that were not originally proposed as part of Phase III in the 1998 CDRA.

It is noted that the Phase III CSO Reevaluation Plan is under review and has not yet been approved by RIDEM. One of RIDEM's review comments to the Reevaluation Plan was that preparation of an EA would be required for new project elements proposed in the Phase III CSO Reevaluation Plan where it differs from the 1998 CDRA. This EA aims to address these new project elements. However, NBC is currently proceeding with planning and conceptual design of the recommended plan from the Phase III CSO Reevaluation, and it is anticipated that individual program components, including project alignments, will continue to be optimized as design progresses. Amendments to this EA may be required based on the extent of future design modifications.

The objective of the Phase III CSO Program is specifically to improve the environment by achieving significant reductions in annual CSO volumes and shellfish bed closures. The Program will result in an overall improvement in water quality in the affected areas of Narragansett Bay, Seekonk River, Blackstone River and other tributaries. Through the EA process, potential temporary, short-term environmental impacts that may result during construction and implementation were identified. These short-term impacts are expected to be generally typical of construction activities of similar scale and will be mitigated using industry standard means and methods commensurate in scale to their overall impact. Also, no significant adverse long-term impacts on the environment associated with the Phase III projects are expected at this time. The most significant long-term effect will be a substantial improvement in water quality to Narragansett Bay and its tributaries. On this basis, it appears that a Finding of No Significant Impact (FONSI) for the new Phase III projects is appropriate.

Section 2.0 Purpose and Need

2.0 Purpose and Need

The Federal Clean Water Act (CWA), first enacted in 1972, establishes water quality standards and regulates discharges to the nation's water bodies. Enforcement of the CWA is delegated to the State of Rhode Island and administered through the Rhode Island Department of Environment Management (RIDEM) with input from the US EPA.

This Act prohibits point discharges to water bodies without a permit, and gives the US EPA authority to establish the National Pollutant Discharge Elimination System (NPDES). The NPDES created numerical limits to the allowable amount of pollutants discharged to water bodies. Common regulated pollutants are biological oxygen demand (BOD), suspended solids, fecal coliform, pH, oil and grease, and phosphorus.

Through the NPDES permit program, the US EPA has established a Combined Sewer Overflow Control Policy to control CSO discharges. The policy provides guidance to create CSO Control Plans that are both cost effective and will improve water quality. The CSO Control Policy establishes nine minimum controls that need to be in place in the event a sewer system contains a CSO Structure. These nine minimum controls are as follows:

- 1. Proper operation and regular maintenance programs for the sewer system and the CSOs
- 2. Maximum use of the collection system for storage
- 3. Review and modification of pretreatment requirements to assure CSO impacts are minimized
- 4. Maximization of flow to the existing publically owned treatment works for treatment
- 5. Prohibition of CSOs during dry weather
- 6. Control of solid and floatable materials in CSOs
- 7. Pollution prevention
- 8. Public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts
- 9. Monitoring to effectively characterize CSO impacts and the efficiency of CSO controls

The CSO Control Policy also recommends the adoption of a CSO Control Plan based on either a "presumption" approach or a "demonstration" approach. A "presumption" approach is based on an assumption that meeting one of the established criteria is sufficient in improving water quality normally impaired by CSOs. Meeting one of the following criteria is required for a "presumption" approach:

- No more than four overflow events per year; permitting authorities may allow an additional two per year
- Elimination or capture of no less than 85 percent by volume of the combined sewage collected in the combined sewer system during precipitation events on a system-wide annual average basis
- Elimination or removal of no less than the mass of the pollutants, identified as impairing water quality.

The Phase III CSO Program is NBC's plan to abate combined sewer overflows and to allow no more than four overflow events in a typical year in the BPSA and outlying areas of the FPSA. For Phase III CSO projects to be eligible for funding under the State of Rhode Island Clean Water State Revolving Fund (SRF) Program, environmental impacts of project alternatives shall be analyzed as part of an EA, or past environmental reviews shall be reaffirmed.

Significant elements of the 1998 CDRA Plan are still proposed, and past EAs performed in relation to those projects are hereby reaffirmed. These projects include the Pawtucket Tunnel, along with dropshafts and a tunnel dewatering pump station; regulator modifications; interceptors to capture overflows from outlying outfalls; and sewer separation in select locations in the Phase III CSO project area.

This EA addresses the projects that are new to the Phase III CSO Program, which include the following:

- West River Interceptor;
- Lateral Tunnel, from OF-220 to the Pawtucket Tunnel;
- Morley Field Tank at OF-220, as an alternative to the Lateral Tunnel; and
- Green Stormwater Infrastructure (GSI) projects.

Section 3.0 Proposed Actions and Alternatives

3.0 Proposed Actions and Alternatives

Four alternatives for implementation of the Phase III CSO Program were presented in the Reevaluation Plan. Each of these is discussed in the following sections.

3.1 Alternative 1: Baseline CDRA

The first alternative considered in the Phase III CSO Reevaluation is the baseline CDRA. This alternative is the currently approved approach for Phase III. The baseline CDRA is a single phase to allow construction to be completed in the fastest manner possible, as was the intent of the original Consent Agreement (CA) between NBC and the RIDEM. As part of the Phase III CSO Reevaluation, this plan was identified as "Alternative 1", and an analysis of required design activities as well as constructability and logistics analysis of this alternative was performed. That analysis concluded that an 11-year schedule for implementation would be a realistic timeframe for design and construction, adhering to the following schedule:

- 2015 2018 Regulatory Review, Design, Bidding;
- 2019 2023: Construction of the Pawtucket Tunnel, OF-206 Sewer Separation, and the Pawtucket Avenue Interceptor; and
- 2024 2025: Construction of the High & Middle Street Interceptors, and sewer separation in areas contributing to OFs 035, 039, and 056.

3.2 Alternative 2: Modified Baseline with Phase Implementation

The second alternative considered in the Phase III CSO Reevaluation is the modified baseline plan with phased implementation. Since it was concluded in the original CDRA that many of the modifications proposed in Alternative 1 are among the best approaches for CSO abatement, this alternative sought to remain consistent with the baseline CDRA plan, but with the addition of alternative subsystems and a phased approach to stagger the overall cost of the plan. For the purpose of planning and construction, Alternative 2 was divided into four phases designated Phase A through D.

Phase A consists largely of the construction of the Pawtucket Tunnel, after which is followed by the construction of the High Street and Middle Street Interceptors as part of Phase B. Addressing OF-220 is the next highest priority; therefore, either a Lateral Tunnel from OF-220 to the Pawtucket Tunnel or a near surface storage tank at OF-220 would comprise Phase C. Finally, the lowest priority projects, the West River Interceptor and Sewer Separation of OF-035 both in the FPSA and both of which address relatively small CSO volumes, would be deferred to the final Phase D. It is envisioned that each of these sub-phases would also include regulator modifications and Green Stormwater Infrastructure (GSI) projects.

Alternative 2 was proposed to be carried out over the following approximate schedule:

- 2015: Concept review and consent agreement modification
- 2016 2018: Phase A design, review and bidding

- 2019 2023: Phase A Pawtucket Tunnel, Drop Shafts & Regulator Modification; GSI projects in areas contributing to OFs 212, 213, 214
- 2024 2025: Phase B design, review and bidding
- 2026 2028: Phase B High & Cross Street Interceptor; Middle Street Interceptor; OF-206 Hybrid Separation; GSI projects in areas contributing to OFs 101, 104, 105
- 2029 2030: Phase C design, review and bidding
- 2031 2033: Phase C OF-220 Lateral Tunnel; GSI projects in areas contributing to OFs 216, 217
- 2034 2035: Phase D design, review and bidding
- 2036 2038: Phase D West River Interceptor; OF-035 Separation; GSI projects in areas contributing to OFs 201 - 204

3.3 Alternative 3: Modified Baseline with Extended Schedule & Interim Water Quality Projects

Alternative 2 satisfied the objectives of subdividing Phase III into a more manageable program that could better incorporate technical, regulatory, and financial changes into subsequent projects; however, the project prioritization resulted in sequencing the tunnel first. While the tunnel was recognized as having the largest water quality benefit and providing it at an efficient cost per gallon of combined sewer captured, throughout the Stakeholder process, it was recognized that the tunnel bore the highest cost and, therefore, caused concerns regarding the associated rate increases. Alternative 3 was developed to evaluate an option that would extend the overall schedule, defer tunnel construction to a later date, sequence other projects earlier, and include additional projects that would improve water quality in the interim.

Through the extension of the planned schedule, the original four phases of projects comprising Alternative 2 would be supplemented with interim water quality projects and would be extended into six phases that would have taken the Phase III CSO Program out to 2047. In addition to the projects proposed in Alternative 2, an interim interceptor would be constructed to capture flows from OF-218 and an interim screening and disinfection facility would be constructed at OF-220 until permanent infrastructure (e.g., Lateral Tunnel for OF-220) could be constructed.

3.4 Alternative 4: Bucklin Point Wastewater Treatment Facility Storage & Treatment

The creation of a fourth alternative was in response to Stakeholder interest to consider an alternative that did not include a tunnel as the centerpiece of the program, preferring to instead explore the water quality benefits that could be gained by potentially less expensive treatment options. This alternative would be constructed in four phases designated as Phase A through D, as follows:

<u>Phase A – OF-218 Interceptor and BPWWTF Storage / Treatment Tank</u>
 Phase A would consist of the construction of a 10-foot diameter interceptor from OF-218 to the BPWWTF, constructed by soft-ground micro-tunneling, plus a 14 million gallon near-surface storage/treatment tank and GSI project.

- <u>Phase B OF-218 to OF-205 Interceptors & OF-220 Storage / Treatment</u>
 Phase B would consist of a storage tank at OF-220 that would provide storage for up to 3 million gallons. The stored flow would be pumped to the existing Moshassuck Valley Interceptor following storm events for advanced treatment at the BPWWTF. During larger storms, flows exceeding 3 million gallons would be disinfected and discharged to the Moshassuck River. Phase B would also include the extension of the interceptor from OF-218 to OF-205. As above, Phase B would include a GSI project that would reduce total CSO volumes.
- <u>Phase C High and Middle Streets Interceptors</u>
 Phase C would consist of the construction of the High and Middle Street Interceptors to capture the northernmost OFs, and convey the flow to the interceptor at OF-205 to be constructed under Phase B above.
- <u>Phase D West River Interceptor and OF-035 Sewer Separation</u>
 Phase D would be identical to Phase D as proposed in Alternative 2 and would include the final abatement facilities in the FPSA as well as additional GSI projects.

Like Alternative 2, this alternative would be completed in 2038.

3.5 Recommended Alternative

During the development of the four Phase III CSO Program Alternatives, seven stakeholder workshops were held between March and December 2014. Once the Phase III Alternatives were finalized, after incorporating comments and concerns of stakeholders, they were submitted to the NBC Board of Commissioners. The Board was informed of the evaluation of each program alternative and after deliberation, voted on one alternative. In April 2015, Alternative 2 was selected as the preferred alternative and was presented as such in the Phase III CSO Reevaluation Plan. The Board selected Alternative 2 because it met the water quality goals of the CSO Program, provided a schedule that allowed for adaptive management, and had resulted in the most favorable sewer rates of the three alternatives that met the prescribed water quality objectives of the program. Although Alternative 4 was the least expensive alternative and had the lowest sewer rate impact, it was eliminated because of the uncertainty as to whether it would meet water quality objectives.

A more detailed summary of the projects proposed under Alternative 2 is presented in Table 3-1, while Figure A-2 in Appendix A is a graphical depiction of these project elements. The projects that are new to the Phase III CSO Program as identified in the Phase III CSO Reevaluation Plan are shown with **bold text** in Table 3-1.

Table 3-1:	Phase	III CSO	Plan	(Alternative 2)
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Phase III – A: Pawtucket Tunnel			
Pawtucket Tunnel	 Deep rock storage tunnel with 2 work shafts and 5 drop shafts 150 - 200 feet below grade, north of Bucklin Point WWTF in East Providence to Central Falls/Pawtucket border near the Blackstone River 13,000 linear feet Storage volume at least equal to overflow volume resulting from 3-month design storm from the overflows on the Seekonk and Blackstone Rivers. 		
Consolidation Conduits	 5,200 linear feet in length 48 – 72 inches internal diameter 		
Tunnel Pump Station	Located within 1,000 feet of the Bucklin Point WWTF		
GSI	• Target areas that contribute flows to OFs 212, 213, and 214		
	Phase III – B: Northern Interceptors		
High Street/Cross Street Interceptor	 42 inches internal diameter 2,160 linear feet in length, 8 – 15 feet below grade 		
Middle Street Interceptor	 30 inches internal diameter 1,710 linear feet in length, 12 – 15 feet below grade 		
Hybrid sewer separation/GSI	Implementation in the catchment for OF-206		
GSI	• Target areas that contribute flows to OFs 101, 104, and 105		
	Phase III – C: OF-220 Subsystem		
Lateral Tunnel	 Between OF-220 and the Pawtucket Tunnel Includes drop shaft and appurtenant facilities Approximately 7,000 linear feet in length 11 feet internal diameter, 70 – 200 feet below grade 		
Morley Field Tank (Alternative)	 Near surface storage tank (alternative to Lateral Tunnel) Concrete tank 250 ft. (L) x 221 ft. (W) x 12 ft. (D) Includes odor control, discharge pump station and force main 		
GSI	• Target areas that contribute flows to OFs 216 and 217		
Phase III – D: West River Interceptor and Area OF-035 Sewer Separation			
West River Interceptor	 Follows the east bank of the West River, beginning at the Branch Douglas Interceptor near OF-056 and connecting to the Moshassuck Valley Interceptor at Silver Spring Street 6 feet in diameter, 4,600 linear feet in length Approximately 10-25 feet below grade 		
Sewer separation	Implementation for the catchment contributing to OF-035		
GSI	• Target areas that contribute flows to OFs 201-204		

3.6 Projects to be Assessed

Each of the four Phase III Reevaluation Alternatives contained projects consistent with the previously approved plan for Phase III. These same projects include the Pawtucket Tunnel, along with dropshafts and a tunnel dewatering pump station; interceptors in High Street/Cross Street and Middle Street to capture flow from outlying outfalls; regulator modifications; and sewer separation in other areas draining to outfalls in the northern part of the FPSA. These projects, as currently proposed, are substantially consistent with the previously approved plan for Phase III, the 1998 CDRA. These projects are hereby reaffirmed.

The preferred alternative from the Phase III CSO Reevaluation (i.e. Alternative 2) contains four project elements that differ from the 1998 CDRA and are new to the Phase III CSO Program. In correspondence dated March 17, 2016, RIDEM required that new project elements will be subject to review under an Environmental Assessment. These project elements are as follows:

- Construction of a Lateral tunnel from the Pawtucket Tunnel to a location near OF-220
- Morley Field Tank (as an alternative to the Lateral tunnel)
- Construction of a series of GSI projects that target areas that contribute flows to OFs 101, 104, 105, 201 204, 212 214, 216, and 217
- Construction of the West River Interceptor

Figures A-3, A-4, and A-5 in Appendix A depict these projects. These new projects will be assessed using a similar methodology and meeting the same requirements as was done to complete the 1998 EA for the CDRA. These projects will be evaluated in terms of, but are not limited to, land use and zoning, traffic and transportation, noise and sensitive receptors, historic and archeological resources, wetlands and floodplain.

Section 4.0 Environmental Impacts, Consequences, and Mitigation

4.0 Environmental Impacts, Consequences, and Mitigation

The projects of the Phase III CSO Reevaluation Plan that are the subject of this EA include the construction of GSI projects in areas of Pawtucket and Central Falls, the Lateral Tunnel, the near surface storage tank at Morley Field (MFT) as an alternative to the Lateral Tunnel, and the West River Interceptor (WRI). Provided below is a discussion of the environmental conditions in these project areas, the potential for environmental impact, and the measures that will be used to mitigate the identified impacts associated with these projects. It should be noted that specific locations of GSI projects have yet to be determined and will be identified over time, taking into account property ownership, land use, infiltration capacity, and other factors. As such, GSI is addressed generally within this section of the EA. Also at this time it has not been determined whether the Lateral Tunnel or MFT would be constructed, but it is currently anticipated that both will not be required.

Direct environmental impacts identified in this assessment are those which relate directly to the implementation of the CSO abatement program, and which occur temporarily during construction or permanently as a result of the project. Direct impacts include potentially adverse effects on surface water, disturbance of wetlands and wildlife habitat, disturbance of sensitive historical, archaeological, cultural or recreational areas, and impacts to traffic, business operations or other daily activities in the project area. These types of impacts are generally short-term and can be effectively mitigated during construction. Adverse post-construction impacts are not anticipated.

On the other hand, these projects and the Phase III CSO Program in general will result in longterm environmental benefits, helping significantly improve water quality in Narragansett Bay and its tributaries. The long term benefits of the Phase III CSO Program remain unchanged between the program as it is currently proposed and past versions of the program.

4.1 Surface Water

There are several surface water bodies located within the anticipated limits of these projects, including Narragansett Bay, the Blackstone River, the Seekonk River, sections of the West River and the Moshassuck River, and Canada Pond, which discharges into the West River. The new projects proposed, as well as the Phase III CSO Program overall, will drastically reduce the CSO discharges into these surface water bodies, which will have a direct environmental benefit on improving their water quality.

4.1.1 Potential Consequences

Although site-specific locations for implementing GSI have not yet been established, general areas within CSO outfall basins have been identified. A majority of GSI is planned to be constructed in right-of-ways or previously disturbed sites and away from surface water bodies. Also, GSI projects are not anticipated to be performed within mapped floodplains. For these reasons, and because GSI projects improve water quality by design, the construction of GSI projects should result in no adverse impacts on surrounding surface waters.

The alignment of a proposed Lateral Tunnel would be through an urbanized section of Pawtucket that does not have any surface water features, though a drop shaft would be required at OF-220 in the vicinity of the Moshassuck River. Erosion and sedimentation resulting from construction associated with the drop shaft at OF-220 could potentially have an impact to the Moshassuck River if proper controls are not in place. Stockpiled materials used for the drop shaft construction may also impact the river if they are not stored and handled properly.

Surface water bodies in the vicinity of the WRI project area include Canada Pond and the West River. Under the current alignment, the WRI is proposed to follow the eastern and northern banks of the West River, with a portion of the interceptor crossing underneath the river in proximity to Hawkins Street. Micro-tunneling or similar subsurface construction methods will be implemented to minimize surface disturbance associated with pipe installation. In addition, the WRI will require the construction of manholes which will involve deep excavation. As such, erosion and sedimentation controls will be implemented to mitigate impacts to the West River, as referenced in Section 4.1.2. Impacts to Canada Pond are unlikely based on its location relative to the proposed WRI.

Similarly, the site proposed for the MFT is located in the vicinity of the Moshassuck River. Construction associated with the tank will also have sedimentation and erosion control issues similar to those associated with the construction of the WRI that will need to be addressed to minimize any impact to the river.

4.1.2 Mitigation Measures

Standard construction phase environmental protection controls will be utilized during the construction of these projects, particularly for construction associated with the West River Interceptor, the Lateral Tunnel drop shaft, the MFT, and GSI projects. Contractors will be required during the course of their work to provide proper erosion protection, siltation, and fugitive dust prevention facilities as required by Local, State, and/or Federal agencies. Surface disturbance shall be minimized wherever possible and disturbed surfaces will be restored when project conditions allow. Surface waters will be protected from sedimentation and other pollutant discharges by utilizing compost tubes, hay bales, and/or silt fences. Contractors will be required to provide spill and erosion control measures when working near any surface water bodies or wetlands. Catch basins will also be appropriately protected with straw wattles, compost filter tubes, hay bales or proprietary devices. Any water that is pumped or bailed from excavations shall be conveyed by conduit or hose and treated for sediment removal and to lower velocity prior to discharge. Ongoing monitoring, maintenance and repair of the environmental controls will be necessary to ensure proper functioning and adequate protection of adjacent surface waters.

4.2 Groundwater

According to RIDEM's online Environmental Resource Map the classification of the groundwater beneath the project areas is GB. RIDEM has classified GB as groundwater that is not suitable for drinking water use without treatment. This classification can be attributed to a highly urbanized area, permanent waste disposal area, or an active site permitted for the land disposal
of sewage sludge. It is anticipated that the quality and quantity of groundwater will remain substantially unchanged as a result of these projects. Portions of the WRI, Lateral Tunnel, and MFT may be constructed directly above or within the existing groundwater zone. Appropriate construction procedures will be utilized to discharge or recharge groundwater, as required. It is assumed that GSI will be constructed close to the ground surface and not within groundwater. GSI will incorporate treatment methods that improve the quality of stormwater runoff before it is infiltrated into the ground.

4.3 Wetlands and Floodplains

Based on review of FEMA flood zone mapping, National Wetland Inventory data layers obtained from RIGIS, and the online FEMA Flood Map Service Center, a substantial amount of the project area is located within mapped wetlands, buffer zones, and/or flood zones. Mapped wetland types within project limits include freshwater wetlands, shrub wetlands, and rivers (and their buffers). Wetlands will be both within RIDEM jurisdictional areas (i.e., freshwater wetlands) and areas within the jurisdiction of the RI Coastal Resources Management Council (CRMC). Projects within 200 feet of tidal rivers, including the stretch of the Seekonk River before it becomes the Blackstone River, are within CRMC jurisdiction.

Flood zones within the project area include zones AE and VE. Zone AE is defined as an area inundated by 1% chance of annual flooding, for which base flood elevations have been determined. Zone VE is defined as an area subject to inundation by a 1% probability of flooding every year with additional hazards due to storm-induced velocity wave action.

4.3.1 Potential Consequences

Due to the projects' proximity to river systems throughout Central Falls, Pawtucket, and Providence, the presence of RIDEM-regulated resource areas within the project limits is inevitable. Several potential GSI implementation areas may be located within the RIDEMregulated 200-foot Riverbank associated with the Blackstone River, though projects will likely not be proposed within the mapped floodplain. The Lateral Tunnel, MFT, and WRI are located within the 200-foot Riverbank associated with the Seekonk River, Moshassuck River, and West River, respectively. Additionally, several mapped wetlands are located within the project limits of the West River Interceptor.

FEMA Flood Zone AE occupies narrow portions of the Blackstone and Seekonk River-facing sides of the following GSI CSO basins: 101, 202, 203, 204, 212, 213, and 214. FEMA Flood Zone VE occupies a small river-facing portion of basin 216. As shown on the attached FEMA Flood Insurance Map for Providence County (Map Number 44007C0306H, revised October 2, 2015), the proposed location of the WRI is located almost entirely within the FEMA Flood Zone AE associated with the West River. The eastern-most portion of the Lateral Tunnel lies within an area of FEMA Flood Zones VE and AE (Map Number 44007C0307J, revised October 2, 2015), and the MFT is located just outside of FEMA Flood Zone AE associated with the Moshassuck River (Map Number 44007C0307J, revised October 2, 2015). FEMA FIRM maps are provided in Appendix B.

4.3.2 Mitigation Measures

Wherever possible, the projects will be designed to avoid impacts to wetlands and floodplains, and any unavoidable impacts will be minimized to the extent feasible while still achieving the project purpose. For all project elements, industry standard erosion and sedimentation controls will be utilized to mitigate potential short-term impacts to nearby freshwater or riverbank wetlands. As such, it does not appear that there will be any short-term or long-term impacts to nearby freshwater wetlands in these cases.

As the WRI alignment appears to encroach into jurisdictional areas associated with West River, wetland restoration or additional mitigation measures may be required. Such determinations will be made by the design team in conjunction with RIDEM and/or CRMC as appropriate once the final alignment is decided and potential wetland impacts can be assessed. Coordination with RIDEM, and CRMC when appropriate, throughout the Phase III CSO Program will ensure that compliance with applicable regulations is upheld and that impacts to jurisdictional areas are minimized to the extent practicable. It is noted that the current alignment of the WRI is approximate and its design currently conceptual in nature.

Permanent facilities constructed within the floodplain shall be resilient (i.e., allowing for continuous operation during flood events) to the extent feasible to the specified flood elevation. Such measures may include installation of emergency generators within watertight chambers, tide gates, or setting equipment to the appropriate elevation above flood levels. At this time, designing for resiliency to the 100-year flood elevation is the current design standard. However, it is understood that in the future, designs will potentially need to account for a higher flood elevation based on larger storms or to account for sea level rise.

4.4 Wild or Scenic Rivers

To date, there are no designated wild or scenic rivers in Rhode Island. Given the absence of any designated wild or scenic rivers near the project site, it does not appear that there will be any short-term or long-term impacts to these types of natural resources.

4.5 Coastal Zones/ Costal Barrier Resources

Based on review of RIDEM regulatory mapping, it has been determined that coastal resources within the project areas are limited to the tidal Seekonk River and its associated Coastal Features and 200-foot contiguous area.

4.5.1 Potential Consequences

Outfall basins for potential GSI locations located within the 200-foot contiguous area associated with the Seekonk River include outfalls 212, 213, 214, and 216. Due to the proximity of these areas to the mapped flood zones associated with the river, it is unlikely that GSI locations will be chosen in these CRMC-regulated areas. However, the easternmost end of the Lateral Tunnel appears to fall within the 200-foot contiguous area associated with the Seekonk River. No coastal resources are located within the project limits of the MFT or the WRI.

4.5.2 Mitigation Measures

Pare sent a letter to RICRMC, dated October 28, 2016, requesting their comment on their departmental jurisdiction regarding impacts to coastal resources. In a response letter dated November 30, 2016, the CRMC noted that Phase III project elements located within the contiguous area associated with the Seekonk River will require a CRMC Assent. Refer to Section 6 of this EA.

It is likely that these projects can be designed and constructed in such a way that they will have only minimal or no effect on coastal resources and that extraordinary mitigation measures will not be required.

4.6 Sole Source Aquifers

According to available RIGIS land use data, there are no sole source aquifers beneath the project area. As such, there will be no impact to sole source aquifers as a result of this project.

4.7 Farmlands and Agricultural Uses

According to available RIGIS land use data, there is no USDA regulated farmland located near or surrounding the project area. As such, there will be no impact to farmland as a result of this project.

4.8 Air Quality

4.8.1 Potential Consequences

A large amount of excavation and general construction activity will be required for these projects. Inherent air quality issues are associated with these types of projects such as dust generation and emissions from construction equipment. These will be short term impacts.

4.8.2 Mitigation Measures

Dust generated from excavation and spoils piles is not anticipated to be a significant concern. Emissions from construction equipment will be consistent with that normally expected from construction equipment on projects of this nature. All construction vehicles will be required to meet the most recent RIDOT emissions standards.

Impacts to air quality resulting from these projects will be minor in nature and are not expected to be of significant concern. During construction, contractors will be required to spray water or apply calcium chloride on construction spoil piles, disturbed areas, and existing public roadways as necessary to control dust. Street sweeping will be required to remove any accumulated soil from roadways subject to traffic.

Odor controls and treatment systems will be incorporated into the design and construction of the MFT to mitigate the potential of displacing odor into the surrounding environment when the tank fills. Also, it is anticipated that a general permit will be required from the RIDEM Office of Air

Resources (OAR) associated with emergency generators required. Air discharge permits may also be required for odor control facilities of the magnitude anticipated for these projects.

4.9 Noise

Noise associated with construction is inevitable. Noise generated from construction equipment will be consistent with that normally expected from construction equipment on projects of this nature. All of these projects are located in urban areas with a mixture of residential, commercial, industrial, and institutional uses. However, some of these project areas are in close proximity to Interstate 95 and RI Route 146 and are therefore currently subject to noise associated with high-speed traffic.

4.9.1 Potential Consequences

The construction of GSI projects will require construction vehicles and site work. These projects will be constructed within or near existing roadways and right-of-ways and will be highly visible to the general public. The WRI and Lateral Tunnel are planned to be constructed using subsurface methods which should alleviate some noise disturbance. However, noise pollution may be generated from the drilling of the drop shaft as part of the Lateral Tunnel project, and the WRI will require some surface construction when installing manholes. Some of this work could potentially be conducted in proximity to a funeral home and the Esek Hopkins Middle School. Also, due to the large amount of required site work and excavation, the proposed MFT construction could also create a noise nuisance, though this area is generally industrial in nature.

4.9.2 Mitigation Measures

Appropriate construction equipment will be supplied with mufflers that meet the most recent RIDOT standards to keep noise to a minimum. Hauling of construction materials and the staging of equipment and materials will be required at project sites and possibly within right-of-ways; however, the effects of this activity will be short-term in nature. Construction activities will be scheduled during normal business hours (7 a.m. -5 pm.). It is not anticipated that construction will occur beyond these working hours or on weekends.

In the event that surface construction is required for the completion of the West River Interceptor in the proximity of the identified funeral home or Esek Hopkins Middle School, measures will be taken to minimize noise disturbance at sensitive times. Construction activity will be coordinated with the funeral home, to the degree possible, so that intrusive construction activity is performed outside of the times of services/wakes. Construction activity will be coordinated with the school to limit noise disturbance to the maximum extent possible during school hours, particularly at times when the ballfields at the school are in use.

4.10 Vegetation and Wildlife

The construction of these projects should have minimal impact to vegetation and wildlife because the projects are proposed to be constructed in existing well developed, urban areas. While the WRI is currently proposed along the bank of the West River, subsurface construction

methods will be employed to the greatest extent possible so that surface disturbance will be performed only where necessary.

In accordance with Section 7 of the Endangered Species Act, Stantec/Pare obtained official species lists from the online United States Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPaC) tool for determination of potential impacts to any federally listed or proposed, threatened, or endangered species and wildlife habitats within the project areas. No critical habitats under the jurisdiction of the U.S. Fish and Wildlife Service are known to occur within the project areas; however, one threatened species, the Northern long-eared bat, was identified within the project limits. This species roosts in cavities, hollows, or under loose bark of many different species of trees, and forages in a variety of forest types. Any proposed work that would disturb such trees and habitats would require additional investigations to determine potential impacts to the species and possible impact minimization mitigation measures. Form letters from the USFWS identifying threatened and endangered species within the project areas are provided in Appendix C.

4.10.1 Potential Consequences

Information from the USFWS for the GSI project areas in Pawtucket and Central Falls lists the Northern long-eared Bat (Myotis septentrionalis) as a threatened species that may occur within project limits. However, no critical habitat has been identified within the project limits for this species. The work associated with GSI implementation throughout the cities of Pawtucket and Central Falls is anticipated to have little to no impact on the threatened bat species, nor on vegetation and other wildlife because a majority of the GSI work will be located within existing roadways, right-of-ways, parking lots, and other developed sites. In addition, some GSI systems, such as tree box filters and stormwater rain gardens, may generate a net increase of vegetation.

Most of the Lateral Tunnel would be constructed underground beneath residential, commercial, and industrial areas in Pawtucket. The drop shaft associated with the tunnel would have the greatest potential impact on vegetation; however, due to the highly developed, urbanized nature of the surrounding area, it is not anticipated that the drop shaft will have a significant adverse impact on vegetation or wildlife.

The MFT alternative is proposed within the existing boundaries of the Morley Field ballfield site. The site is a maintained grass ballfield bordering the Moshassuck River. Due to the maintained nature of the field, it is anticipated that the installation of the storage tank would not adversely affect natural vegetation or the presence of wildlife. The site would be restored and continue to be used as a ballfield following construction of a subsurface storage tank. Vegetation before and then following construction will consist of a grass ballfield.

Part of the proposed alignment for the West River Interceptor follows the eastern and northern banks of the West River behind the athletic fields associated with the Esek Hopkins Middle School. Due to the proximity of the interceptor to the natural areas associated with the West River, it is anticipated that some vegetation clearing will be necessary during construction.

4.10.2 Mitigation Measures

Based on the proposed areas for the projects, it appears that there will be minor impacts to vegetation and wildlife typical of construction projects performed in these types of areas. Most of the project elements are proposed to be constructed within existing well developed areas, roadways, and existing right-of-ways. It appears that a vegetated riverbank along the proposed WRI alignment may be impacted as a result of the pipeline construction; however, an alignment as far as possible from the vegetated riverbank will be selected. Also, construction of the WRI will be primarily with subsurface construction methods. Vegetation removed as part of construction will be restored to its previous condition to the greatest extent possible. However, it is noted that the alignment of the WRI is approximate and its design is currently conceptual in nature.

Based on information obtained from USFWS, there are no critical habitats located within the project areas for the threatened species of Northern long-eared bat. The work associated with these projects are anticipated to have very little to no impact on this species; however, if the scope of work changes for a project element such that it may have an impact on this species or other wildlife, then the EA will be updated accordingly and the appropriate regulatory offices will be notified.

4.11 Water Supply/Use

Water supply concerns are not applicable to these projects. Some water will be needed during the construction process (i.e., dust control and concrete mixing). This water use will be minor and of a short-term nature. Advanced notification to homeowners and businesses will be conducted prior to commencement of work in the project area and in the event a short term disturbance to water supply is required as part of construction activity.

4.12 Soil Disturbance

Inevitably, soil disturbance will occur during construction. According to the Soil Survey of Rhode Island (accessed via the NRCS Online Web Soil Survey), the project elements are located within several soil classes, which are described below.

Soils in the Lateral Tunnel project limits are classified as Merrimac-Urban land complex (MU), Udorthents-Urban land complex (UD), Paxton-Urban land complex (PD), and Urban land (Ur). Soils within the MFT project limits are classified as Udorthents-Urban land complex. The majority of soils within the project limits of the West River Interceptor are classified as Udorthents-Urban land complex. The northernmost limits of the project area lie within an area classified as Urban land. Please refer to the attached soil map, identified as Figure A-6 in Appendix A, for a geographic representation of the underlying soils within the boundaries of potential GSI locations.

• UD consists of Udorthents soils and areas of Urban land. This complex is approximately 70 percent Udorthents soils, 20 percent Urban land, and 10 percent other soils. The available water capacity is high.

- Ur consists of Urban land. This complex is approximately 85 percent urban land, and 15 percent other soils. PD consists of well drained Paxton soils and Urban land. This complex is approximately 45 percent Paxton soils, 35 percent Urban land, and 20 percent other soils. The available water capacity is very low to moderately low.
- MU consists of somewhat excessively drained Merrimac soils and areas of Urban land. This complex is approximately 45 percent Merrimac soils, 40 percent Urban land, and 15 percent other soils. The available water capacity is moderately high to high. Runoff is slow to medium on the Merrimac soils. The soil is extremely acidic through medium acidic.

4.12.1 Potential Consequences

Due to the volume of soil expected to be disturbed as part of the construction of the different project elements and the urban setting where the work will be performed, it is possible that contaminated soil will be encountered. In a response letter dated December 12, 2016 from the RIDEM Office of Technical and Customer Assistance (OTCA), the RIDEM Office of Waste Management indicated that site investigations may be required in project areas where subsurface disturbance will be performed. Refer to Section 6 of this EA.

Geotechnical investigations, including chemical sampling and chemical analysis of soils, will be performed for these projects to evaluate subsurface conditions and identify potential geotechnical constraints. Part of the scope of work for those investigations will include field screening of soil and groundwater as well as potential sample collection and laboratory analysis to assess for the presence of oil and/or hazardous materials.

4.12.2 Mitigation Measures

During geotechnical investigations and throughout the course of construction, appropriate project personnel will be directed to be aware of obvious signs of oils or hazardous materials in soils and groundwater through visual, olfactory, and PID field screening. Additionally, subsurface samples will be collected for laboratory analysis where deemed appropriate based on field screening, past site use, or other information compiled prior to or during construction. If any contaminated soil is encountered during the course of the subsurface investigation or construction, then RIDEM will be notified and appropriate remediation measures will be conducted, in accordance with RIDEM Remediation Regulations.

Soils impacted by urban fill are also likely at some project sites for the Phase III CSO Program, and field screening will be performed during subsurface investigations to identify if urban fill is present at proposed project sites. Urban fill will be handled and disposed of in accordance with a soils management plan developed for the program.

4.13 Historical, Archaeological, and Cultural Resources

Multiple historic sites, cemeteries, and districts listed on the National Register of Historic Places are located within the proposed project area of the WRI and in potential locations of GSI projects. Figures A-7, A-8, and A-9 depict the project elements that are new to the Phase III CSO Program relative to these resources.

As part of a Programmatic Agreement (PA) between NBC and the Rhode Island State Historic Preservation Office (RI SHPO), which was established prior to the initiation of Phase I of the CSO Program, NBC has agreed to several stipulations for the protection of potentially affected properties and structures for the duration of the CSO Program. These stipulations are discussed below in Section 4.13.2. A copy of the PA is included in Appendix D. Refer to Section 6 for a summary of the response letter received from the RI HPHC on December 13, 2016.

4.13.1 Potential Consequences

Land disturbance during construction can affect significant cultural and archaeological resources on or near project sites. Specific sites for GSI projects have not been identified at this time. Historic features that lie within potential GSI project locations that could be affected were identified and include the following:

Districts:

- Swan Point Cemetery & Trolley Shelter Amendment;
- Quality Hill Historic District;
- South Central Falls Historic District;
- Jenks Park Adjoining 500 Broad St Historic District;
- Jenks Park Adjoining 580 Broad St Historic District;
- Central Falls Mill Historic District; and
- Church Hill Industrial District.

<u>Cemeteries</u>: Riverside Cemetery and Old St. Mary's Cemetery.

Sites:

- ID 145 Central Falls Congregational Church;
- ID 148 David G. Fales HS;
- ID 149 Benjamin F. Greene HS;
- ID 150 Deborah Cook Sayles Public Library;
- ID 151 Pawtucket Post Office;
- ID 158 Fire Station;
- ID 161 Pawtucket Times Building;
- ID 162 Pawtucket Elks Lodge;
- ID 164 Pawtucket City Hall;
- ID 359 Pitcher-Goff House 56 Walcott St; and
- ID 360 Pawtucket Congregational Church.

If GSI sites selected during planning and design are in close proximity to any of these historic properties, NBC will coordinate with the RI Historic Preservation and Heritage Commission (HPHC), formerly the SHPO, and will plan construction accordingly to minimize possible disturbance to these properties.

The only mapped historic feature within the WRI project limits is the Wanskuck Historic District. No historic features were identified within the project area for the Lateral Tunnel or the MFT site.

As such, these projects are not anticipated to disturb historical, archaeological, or cultural resources.

4.13.2 Mitigation Measures

NBC will follow stipulations set forth by the PA in the event that nearby historic, archeological, or culturally significant properties or structures are identified as part of planning and design of these projects, particularly GSI project sites that could be selected throughout the course of the Phase III CSO Program. The stipulations to be followed regarding the identification and preservation of these properties include the following:

- REVIEW AND COMMENT PERIODS NBC has agreed to allow the RI HPHC and other consulting parties a comment period of 30 calendar days with respect to applicable reports, letters, or other written communication prepared by NBC.
- TECHNICAL REPORTING NBC has agreed to prepare all reports of archeological investigations in accordance with RI HPHC's *Performance Standards and Guidelines for Archeological Projects.*
- PROFFESIONAL QUALIFICATIONS All studies or investigations conducted in fulfillment of the programmatic agreement shall be completed by or under the supervision of a person(s) meeting the standards set forth by the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (NPA 1983:44738-9).
- CSO FACILITIES NBC has agreed to complete required studies for identifying historic properties that may be affected by construction associated with outfalls 210 and 213, outfalls 219/220, and sewer separation within the Bucklin Point service area. In the event historic properties are identified, it was stipulated that NBC will consult with HPHC, the Narragansett Indian Tribe, and other consulting parties as appropriate to resolve adverse effects.

4.14 Aesthetics

Maintaining the aesthetic of Pawtucket and Central Falls preserves the character and history of these former industrial towns as well as promotes the overall morale of its residents, business owners, and visitors.

4.14.1 Potential Consequences

The implementation of proposed GSI projects are anticipated to oftentimes be constructed in currently developed sites and existing right-of-ways. During these modifications, the presence of construction equipment and materials, disturbed pavement, and soil from the excavation will be visible. By their very nature, GSI projects may add aesthetic value to these areas by incorporating new vegetation, plantings, and restored pavement and sidewalks.

Most of the construction for the Lateral Tunnel and WRI will occur underground; however, the drop shaft for the tunnel and manholes for the WRI will be constructed to grade. Surface access to these structures will be visible after construction; however, they will either be in installed in remote locations (as is the case for the WRI) or in areas where similar utility infrastructure is

already in place. The negative aesthetic conditions associated with the storage tank will be limited to temporary impacts during construction, including the presence of construction equipment, excavation, and disturbed pavement and soils.

4.14.2 Mitigation Measures

The presence of construction vehicles and site work is required for all of these projects; however, aesthetic impacts will be short term in nature associated with typical construction activity. Upon completion of construction, disturbed areas will be restored to their pre-construction condition. Any remaining above ground structures created as part of the design of these projects will not detract from the aesthetic value of the surrounding area, and/or will be installed in remote locations that are not readily visible by the general public. Additionally, with the construction of the MFT, the site will be restored to its original use as a grass ballfield with the only visible evidence of the storage tank being a relatively small building to house odor control equipment.

4.15 Land Use

There is a mix of land uses within and surrounding anticipated Phase III CSO project sites. These projects will be primarily constructed in the subsurface so significant impacts to current land use are not anticipated.

4.15.1 Potential Consequences

Projects proposed in the Phase III CSO Program are expected to be constructed in both public right-of-ways as well as on public and privately owned properties which may require that NBC pursue land acquisition or easements. Some projects, such as GSI, may necessitate a change in land use while others, such as the MFT, may be disturbed in the short-term for construction but its long-term use can continue as a ballfield once work is complete.

4.15.2 Mitigation Measures

Construction of projects that might require land acquisition and/or easements will be pursued with the appropriate agency, municipality, or private land owner. At this time, long-term changes in land use are not anticipated, though GSI projects may be to a scale that current land use is impacted to some degree. However, it is anticipated that the majority of GSI projects will be performed on publically owned properties or in public right-of-ways, in which access to sites will be required from the controlling municipality. Implementation of GSI will be coordinated with the controlling municipality such that changes in land use can be appropriately mitigated.

4.16 Economic

Potential project sites identified for GSI implementation may be located in close proximity to existing businesses and commerce within Pawtucket and Central Falls; however, the proposed locations of the Lateral Tunnel, WRI, and MFT sites are not within close proximity of business districts and are not expected to adversely impact the local economy. To the contrary, during the construction phase these projects can be expected to benefit the local economies through

increased local construction employment and increased traffic at local businesses (e.g., gas stations, material suppliers, restaurants).

4.16.1 Potential Consequences

No significant adverse economic impacts for local businesses have been identified as a result of these projects. Commerce may be temporarily affected during construction activities for businesses in direct proximity of the work; however, local traffic will generally have access to the affected businesses throughout construction. As stated before, local construction employment and material suppliers and other businesses should be positively impacted by these projects. The more obvious economic impact of these projects is the capital cost of such an undertaking and the resulting increase in NBC customer's sewer rates. However, the Phase III CSO plan as currently proposed generally increases sewer rates at a more deliberate rate as compared to the 1998 CDRA. NBC performed a reevaluation of the 1998 CDRA to identify the most cost effective way to implement the Phase III CSO Program while remaining sensitive to its overall affordability. The recommended alternative was chosen as it met water quality objectives while minimizing anticipated rate increases for the customer base. Throughout planning and design, NBC will continue to try and identify opportunities to more cost effectively implement these projects while still achieving project goals and the overall water quality objectives.

4.16.2 Mitigation Measures

NBC will endeavor to use local construction firms for these projects when project complexity and local expertise align. It is anticipated that many of these projects, except for a Lateral Tunnel alternative which would be constructed by a tunnel boring contractor, could be constructed by construction firms that currently work in the local market. Also, construction projects will be staged and sequenced to minimize impact to local businesses whenever conditions allow. Finally, it should be noted that the Phase III CSO Reevaluation was performed largely to evaluate whether there could be cost savings by modifying the originally approved plan, which could be passed on to the customer base through lower rate increases.

4.17 Community Facilities

There are a number of community facilities, such as schools, places of worship, etc. that may be located in relatively close proximity to Phase III CSO project sites. While it is not anticipated that construction projects will drastically effect the usability of these facilities, there may be some short-term inconveniences associated with a typical construction project.

4.17.1 Potential Consequences

The exact locations of GSI projects have not been identified at this time; however, there may be some relatively minor, temporary inconveniences as a result of construction activity, including construction vehicle traffic and noise. The Lateral Tunnel is not expected to impact community facilities due to its subterranean construction. A drop shaft associated with the Lateral Tunnel will likely be constructed in a location that does not directly impact community facilities. The WRI is expected to follow the West River, which may require construction in relatively close proximity to a funeral home and the Esek Hopkins Middle School. The interceptor is also constructed

underground; however, some surface disturbance will be required along its alignment. Construction of the MFT within the existing ballfield is addressed in Section 4.18 – Recreation.

4.17.2 Mitigation Measures

Community facilities that might be impacted from construction of Phase III CSO projects will be identified during the planning stages of these projects. NBC and project designers will coordinate with these parties to inform them of anticipated project conditions, learn about their facility operations, and identify measures that will best mitigate possible adverse impacts resulting from construction.

4.18 Recreation

Providence, Pawtucket, and Central Falls all contain numerous parks, recreational areas, and greenspace to improve the quality of life of their residents and visitors. Some of these projects are proposed in close proximity to these facilities.

4.18.1 Potential Consequences

The Lateral Tunnel is not anticipated to have an impact on recreational facilities. Since the Lateral tunnel will require a drop shaft to receive flow from OF-220, it would not be located within the Morley Field because surface access could not be provided. Construction of a near surface storage tank at Morley Field for flows from OF-220 would render it temporarily unavailable until construction of the tank is completed. Surface features, such as odor control facilities, would be located beyond the limits of the ballfield and the site would be returned to a ballfield following construction of the tank.

As previously mentioned, in most instances GSI projects are anticipated to be constructed in right-of-ways and other currently developed areas. While GSI projects may be performed at sites used for recreation, disturbance to actual recreational facilities are unlikely due to their disturbance and relatively high restoration cost. There currently are no known adverse impacts to recreational facilities anticipated as part of GSI construction.

The currently proposed WRI alignment is in close proximity to ballfields at the Esek Hopkins Middle School. Design of the WRI will be such that potential impacts to the ballfields at the school are minimized or avoided altogether. As stated before, construction of the WRI is anticipated to be largely through subsurface construction means. Surface features, such as manhole covers, will be appropriately located to the degree possible so as not to interfere with the existing ballfields.

4.18.2 Mitigation Measures

Project alignments and GSI sites will be selected with minimal impact to recreational facilities to the greatest extent practicable. Where not practical, such as construction of the MFT, impacts will be relatively short term and the site will be restored to its pre-construction condition upon construction completion. There may also be short term impacts to recreational facilities, such as due to noise, impacts to traffic, etc. from construction at nearby sites and project locations but these specific impacts will be mitigated as discussed in other sections of this EA.

4.19 Safety

Construction safety will be a top priority throughout the Reevaluation Plan. A Health and Safety Plan (HASP) has been developed for the Phase III CSO Program and preparation of project-specific HASPs will be required for all construction projects.

4.19.1 Potential Consequences

Other than inherent onsite construction safety issues, pedestrian safety and safety of motorists traveling through or alongside project sites will need to be addressed for specific project elements. Since some projects are planned to be constructed in public right-of-ways, such as GSI projects, pedestrian and motor vehicle traffic may be impacted to varying degrees. Additional safety concerns involved with the Lateral Tunnel, MFT, and WRI will be associated with the heavy construction nature of these projects, including subterranean construction activity

4.19.2 Mitigation Measures

All construction projects performed under the Phase III CSO Program will adhere to all pertinent OSHA requirements. In addition to meeting these requirements, construction contractors will be required to provide a project-specific HASP that details the safety risks of each project component and the necessary measures to avoid them. During construction, unauthorized personnel will be prohibited from entering construction zones. Also, to mitigate pedestrian safety concerns associated with these projects, construction sites will be clearly marked as hazards using temporary fences and construction signage. Temporary detours for pedestrians and motorists will be provided.

4.20 Solid Waste

A large amount of solid waste will be generated during construction, much of which will consist of debris, typical of construction activity. All construction debris and other solid waste will be disposed of in compliance with Federal, State, and Local regulations.

Surplus excavated soil that cannot be reused as backfill, whether due to displacement by piping or structures or due to potentially poor quality, will also be generated in potentially large quantities for these projects. Construction contractors will be required to manage surplus soil in accordance with a soils management plan developed for the program.

4.20.1 Potential Consequences

It is possible that contaminated soil will be encountered during the course of construction due to the large amount of earthwork that is required. Contaminated soil may require disposal at a solid waste landfill or other disposal facility in accordance with the program's soils management plan, should it be encountered.

4.20.2 Mitigation Measures

Throughout the course of construction, appropriate project personnel will be directed to be aware of obvious signs of oils or hazardous materials in soils and other types of solid waste through visual and olfactory observations. Additionally, subsurface soil samples will be collected for laboratory analysis where deemed appropriate based on field screening, past site use, or other information compiled prior to or during construction. If any contaminated soil is encountered during the course of the subsurface investigation or construction, then RIDEM will be notified and appropriate remediation measures will be conducted, in accordance with RIDEM Remediation Regulations. Contaminated soil, should it be encountered, may require disposal at a solid waste landfill or other disposal facility.

Construction contractors will be required to appropriately manage solid waste at their project sites so as to prevent it from becoming a nuisance to abutters and the general public. Likewise, surplus soil shall be managed appropriately and hauled off of project sites as appropriate.

4.21 Traffic and Business Activities

The new Phase III projects are expected to be constructed, at least in part, within existing roadways and right-of-ways in residential, commercial, industrial, and institutional areas. As such, there will be short-term impacts to traffic from construction of these projects.

4.21.1 Potential Consequences

It is anticipated that at least some GSI projects will be constructed in existing public right-of ways, such as sidewalks, parking lanes, medians, and road shoulders. As such, impacts to traffic may result. Such impacts should be relatively minor as it is anticipated that most or all of these projects will be undertaken along the edge of roadways, allowing traffic flow to be maintained through temporary lane restrictions and optional detours.

The construction of the Lateral Tunnel, MFT, and WRI will have relatively minor impacts to traffic given their complexity. The majority of these project areas are either outside of public right-of-ways or the projects themselves are to be constructed with subsurface excavation methods, with limited surface disturbance. However, these projects are larger and more complex than the type of GSI project envisioned, such that any traffic impact associated with these projects may have a longer duration than impacts associated with GSI installations.

4.21.2 Mitigation Measures

Traffic control plans will be required for all projects that are expected to have an impact on normal traffic patterns. All traffic control set-ups will be in compliance with requirements of the Manual of Uniform Traffic Control Devices (MUTCD). Also, traffic controls will be coordinated with, and meet the approval of, the Rhode Island Department of Transportation (RIDOT) for work within state highways and the Cities of Pawtucket and/or Central Falls for work in local roadways.

Projects will be staged with consideration to potential traffic impacts from construction vehicles. Given the nature of GSI projects, it is possible that construction vehicle traffic will impact local roads in residential neighborhoods. However, these impacts will be short-term in nature, and construction will be limited to typical work times (Monday-Friday, 7:00 am – 5:00 pm) in most cases to minimize disruption associated with construction vehicle traffic to residential areas.

4.22 Other Indirect Impacts

Indirect environmental impacts are those which result from the circumstances imposed by the implementation of the new Phase III projects that have not specifically been addressed elsewhere in this EA. Examples of potential indirect impacts from these projects include improvements not specifically associated with the primary intent of a give project (e.g., sidewalk and roadway improvements, greenspace enhancement) and induced growth or development over time.

There likely will be long-term improvements that result from the construction of these projects beyond the water quality objectives of the Phase III CSO Program. Disturbed areas, including roadways and sidewalks, recreational facilities such as Morley Field, etc. will generally be restored to a condition equal to or better than that prior to construction. GSI projects will often incorporate technologies that have increased aesthetic value over current site uses, such as introducing street trees and vegetated areas where urban land use currently exists.

The primary goal of the Phase III CSO Program is to improve water quality in Narragansett Bay and surrounding surface water bodies. Though difficult to measure, there may be indirect benefits associated with implementation of this program, such as additional recreational opportunities resulting from improved water quality, increases in tourism and development from positive public relations, and overall improvements in community pride. However, significant growth in development and population directly linked to this program is not anticipated. This page intentionally left blank

Section 5.0 Public Participation

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5.0 Public Participation

This section describes the public participation process as it relates to this Environmental Assessment.

5.1 Public Meeting

As part of the reevaluation, a stakeholder group was convened to advise the construction alternatives for the Phase III CSO Reevaluation. The stakeholder process consisted of a total of seven workshops conducted from March through December of 2014 during which the regulatory, environmental, and economic issues involved with Phase III design and construction were discussed. The stakeholder group was comprised of individuals from a broad cross-section of the NBC service area, and included residents, government agency representatives, trade association representatives, non-profit organizations, and business owners. This group was informed of all aspects of the reevaluation process and provided input on their concerns which included technical considerations, particularly on the implementation of GSI, in addition to the anticipated impact on sewer rates. These concerns were addressed in developing and evaluating the alternatives discussed in Section 3.0.

All stakeholder workshops took place at the NBC Corporate Office Building, 1 Service Road, Providence, RI 02905. The agenda for each workshop is included in Appendix E. The following table outlines the dates and times of the seven stakeholder workshops:

Workshop No.	Date	Time
1	March 12, 2014	1:00 PM – 4:00 PM
2	April 10, 2014	1:00 PM – 4:00 PM
3	May 22, 2014	9:00 AM – 12:00 PM
4	June 19, 2014	9:00 AM – 12:00 PM
5	September 4, 2014	9:00 AM – 12:00 PM
6	October 23, 2014	9:00 AM – 12:00 PM
7	December 4, 2014	9:00 AM – 12:00 PM

Table 5-2	Phase		cso	Plan	(Alternative	2)
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In correspondence dated March 17, 2016, RIDEM stated that the public meeting requirement has already been met through the stakeholders' meetings. However, RIDEM stated that presentation of the EA at a Public Hearing would be required.

5.2 Public Hearing

This section will be completed upon completion of the public hearing. Agenda and meeting minutes will be included in Appendix F.

5.3 Public Comments

This section will be completed upon completion of the public comment period. Public comments will be summarized here and included in Appendix F.

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Section 6.0 Agency Coordination and Review

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6.0 Agency Coordination and Review

Several agencies were contacted as part of this EA. Each agency was provided a cover letter and project narrative describing the Phase III CSO Program in general, as well as a more detailed description of the specific projects that are new to the Program through the Phase III CSO Reevaluation. The following agencies were contacted:

- RI Division of Planning;
- RI Department of Transportation;
- RI Historic Preservation and Heritage Commission;
- RI Department of Environmental Management-Division of Fish and Wildlife;
- Narragansett Tribal Historic Preservation Office;
- RI Coastal Resources Management Council;
- RI Department of Environmental Management- Office of Technical and Customer Assistance;
- NOAA Fisheries Greater Atlantic Regional Fisheries Office (GARFO);
- Natural Resources Conservation District; and
- U.S. Fish and Wildlife Service.

Letters were issued on October 28, 2016 by certified mailings and review comments were requested from each agency within 30 days of their receipt of the letter. A program narrative accompanied each agency letter, a copy of which is included as Appendix G. Certified mail return receipts were received from each agency; however, not all agencies provided review comments. The following sections summarize the review comments received to date. Copies of the comment letters received are included as Appendix H.

6.1 Rhode Island Coastal Resource Management Council (RICRMC)

A comment letter dated November 30, 2016 was received from Mr. James Boyd, CRMC Coastal Policy Analyst. Mr. Boyd's comments were as follows:

• The proposed NBC Phase III CSO project elements as detailed in the October 28 filing...will require a CRMC Assent. The NBC should contact CRMC permit staff once the Environmental Assessment and project design plans are completed to assess whether a pre-application meeting will be necessary to facilitate application filing and review by the CRMC.

It is acknowledged that projects within CRMC jurisdictional areas, specifically within 200 feet of the Seekonk River, will require a CRMC Assent. NBC will coordinate with CRMC at appropriate times during planning and design of these projects so that pre-application meetings can be held prior to issuance of a permit application to CRMC for review.

6.2 RIDEM Division of Fish and Wildlife (RIDEM DFW)

No response had been received from this agency as of the date of this EA.

6.3 RIDEM Office of Customer and Technical Assistance (RIDEM OCTA)

A comment letter dated December 12, 2016 was received from Mr. Joseph Antonio of the RIDEM Office of Customer and Technical Assistance. Mr. Antonio's comments were as follows:

1. The Freshwater Wetlands Program's general comment regarding this project is that any alterations to freshwater wetlands occurring as a result of the project would require a permit from the Program. In addition, any proposed work must avoid wetlands, and if that is not possible, to minimize potential impacts to the maximum extent practicable.

This comment is acknowledged and wetlands permits will be pursued from the RIDEM Office of Water Resources - Freshwater Wetlands Program where required by project conditions.

2. The Office of Waste Management is concerned about the scope of investigatory work and the magnitude of contaminated soils involved with this project. Because the project work will cross into several towns, NBC will need to conduct a thorough survey into the number and location of sites that could be impacted as a result of this project. The Department may be able to provide some initial assistance through the file review process, as well as through GIS mapping, but ultimately NBC will be responsible for conducting a full site investigation.

This comment is acknowledged. NBC will review available RIDEM file information and GIS mapping and will perform historical records reviews, and potentially Phase I Environmental Site Assessments, to evaluate whether any recognized environmental conditions are likely to be present at project sites. When possible, project sites will be selected based on anticipated environmental conditions, particularly in the case of GSI projects which are unlikely to be performed in sites that have been impacted from oil or other hazardous materials. Geotechnical investigations performed at planning and design stages of a project will likely also include field screening and environmental sampling to assess whether contaminants are present that would need to be managed appropriately during construction.

6.4 Rhode Island Division of Planning

A review letter dated November 15, 2016 was received from Ms. Nancy Hess of the Rhode Island Department of Administration. Ms. Hess' comments were as follows:

 Based on the documents and explanations provided within, the proposed projects are consistent with the SGP policies concerning providing necessary infrastructure support because they will provide remediation of existing water quality concerns. The proposed reduction in the discharge of nutrients to receiving waters will result in improved water quality and is consistent with the appropriate Elements of the SGP related to land use, outdoor recreation, and water resources. This comment has been acknowledged and there does not appear to be any corresponding action required at this time.

6.5 Narragansett Tribal Historic Preservation Office

No response had been received from this agency as of the date of this EA.

6.6 National Marine Fisheries Service Greater Atlantic Region Fisheries Office (GARFO)

No response had been received from this agency as of the date of this EA.

6.7 USDA Natural Resource Conservation Service (NRCS) Northern RI Conservation District

No response had been received from this agency as of the date of this EA.

6.8 Rhode Island Historical Preservation & Heritage Commission (RI HPHC)

A letter dated December 13, 2016 was received from Mr. Edward F. Sanderson, State Historic Preservation Officer. Mr. Sanderson's comments were as follows:

- West River Interceptor: No historic properties affected.
- Morley Field Tank: No historic properties affected.
- Deep Rock Lateral Tunnel: The RI HPHC will need to know the location of the drop shaft when it is identified.
- Green Stormwater Infrastructure: The RI HPHC will need to know the locations of the GSI projects when they are identified.

NBC will coordinate with the RI HPHC when GSI project sites and drop shaft location are identified.

6.9 Rhode Island Department of Transportation (RIDOT)

No response had been received from this agency as of the date of this EA.

6.10 United States Fish and Wildlife Service

In lieu of issuing a letter requesting project review, the US Fish and Wildlife Service (FWS) requires that applicants obtain official species lists from their online Information for Planning and Conservation (IPaC) tool for determination of potential impacts to any federally listed or proposed, threatened, or endangered species and wildlife habitats within the proposed project areas. This was performed for the project areas that are new to the Phase III CSO Program, the results of which were discussed in Section 4.10. Refer to Appendix C for information obtained from the US FWS relative to endangered species and wildlife habitats.



Appendix	Α
Figures	

- A-1: NBC SERVICE AREAS
- A-2: PHASE III CSO PLAN OVERVIEW
- A-3: LATERAL TUNNEL & MORELY FIELD TANK PLAN
- A-4: GSI LOCATIONS & SURROUNDING CSO FACILITIES PLAN
- A-5: WEST RIVER INTERCEPTOR PLAN
- A-6: SOILS MAP
- A-7: LATERAL TUNNEL & MORLEY FIELD TANK CULTURAL RESOURCES
- A-8: GSI LOCATIONS & SURROUNDING CSO FACILITIES CULTURAL RESOURCES
- A-9: WEST RIVER INTERCEPTOR CULTURAL RESOURCES















MAP UNIT	SYMBOL	MAP UNIT NAME	RATING
	CaD	Canton-Charlton-Rock outcrop complex, 15 to 35 % slopes	В
	СВ	Canton-Urban land complex	В
	СС	Canton-Urban land complex, very rocky	В
	CdB	Canton And Charlton fine sandy loams, 3 to 8 % slopes	В
	CeC	Canton And Charlton fine sandy loams, very rocky, 3 to 15 % slopes	В
	ChC	Canton And Charlton very stony fine sandy loams, 8 to 15 % slopes	В
	ChD	Canton And Charlton very stony fine sandy loams, 15 to 25 % slopes	В
	Dc	Deerfield loamy fine Sand	А
	Du	Dumps	Not Rated
	FeA	Freetow n, mucky peat, 0 to 2 % slopes	D
	HkA	Hinckley gravelly sandy loam, 0 to 3 % slopes	A
	HkC	Hinckley gravelly sandy loam, rolling	A
	HkD	Hinckley gravelly sandy loam, hilly	A
	MmA	Merrimac sandy loam, 0 to 3 % slopes	A
	MmB	Merrimac sandy loam, 3 to 8 % slopes	Α
	MU	Merrimac-Urban land complex	A
	PbC	Paxton very stony fine sandy loam, 8 to 15 % slopes	С
	PD	Paxton-Urban land complex	С
	Pg	Pits, gravel	Not Rated
	Рр	Pootatuck fine sandy loam	В
	Rf	Ridgebury, Whitman, And Leicester extremely stony fine sandy loams	D
	Rp	Rock outcrop-Canton complex	Not Rated
	Ru	Rippow am fine sandy loam	D
	Sa	Sandyhook mucky peat, 0 to 3 percent slopes	D
	Sb	Scarboro mucky sandy loam	D
	Ss	Sudbury sandy loam	В
	SwA	Sw ansea mucky peat, 0 to 2 percent slopes	D
	UD	Udorthents-Urban land complex	A
	Ur	Urban land	Not Rated
	W	Water	Not Rated
	Wa	Walpole sandy loam	D
	WgA	Windsor loamy sand, 0 to 3 % slopes	A
	WgB	Windsor loamy sand, 3 to 8 % slopes	A
	WhA	Woodbridge fine sandy loam, 0 to 3 % slopes	D
	Ws	Water, saline	Not Rated








Appendix B FEMA FIRM Maps

- **B-1: GSI LOCATIONS 1**
- **B-2: GSI LOCATIONS 2**
- **B-3: GSI LOCATIONS 3**
- **B-4: WEST RIVER INTERCEPTOR**
- **B-5: GSI LOCATIONS AND LATERAL TUNNEL**
- **B-6: MORLEY FIELD TANK**















Appendix C US Fish and Wildlife Reports

C-1: GSI LOCATIONS – OFFICIAL SPECIES LIST

C-2: LATERAL TUNNEL & MORLEY FIELD TANK – OFFICIAL SPECIES LIST

C-3: WEST RIVER INTERCEPTOR – OFFICIAL SPECIES LIST



United States Department of the Interior

FISH AND WILDLIFE SERVICE New England Ecological Services Field Office 70 COMMERCIAL STREET, SUITE 300 CONCORD, NH 03301 PHONE: (603)223-2541 FAX: (603)223-0104 URL: www.fws.gov/newengland



Consultation Code: 05E1NE00-2017-SLI-0021 Event Code: 05E1NE00-2017-E-00024 Project Name: NBC Phase III October 06, 2016

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan

(http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and

http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment



Project name: NBC Phase III

Official Species List

Provided by:

New England Ecological Services Field Office 70 COMMERCIAL STREET, SUITE 300 CONCORD, NH 03301 (603) 223-2541_ http://www.fws.gov/newengland

Consultation Code: 05E1NE00-2017-SLI-0021 **Event Code:** 05E1NE00-2017-E-00024

Project Type: ** OTHER **

Project Name: NBC Phase III **Project Description:** Combined Sewer Overflow

Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.



Project name: NBC Phase III

Project Location Map:



Project Coordinates: The coordinates are too numerous to display here.

Project Counties: Bristol, MA | Providence, RI



Project name: NBC Phase III

Endangered Species Act Species List

There are a total of 1 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Mammals	Status	Has Critical Habitat	Condition(s)
Northern long-eared Bat (Myotis septentrionalis)	Threatened		
Population: Wherever found			



Project name: NBC Phase III

Critical habitats that lie within your project area

There are no critical habitats within your project area.

http://ecos.fws.gov/ipac, 10/06/2016 07:18 AM



United States Department of the Interior

FISH AND WILDLIFE SERVICE New England Ecological Services Field Office 70 COMMERCIAL STREET, SUITE 300 CONCORD, NH 03301 PHONE: (603)223-2541 FAX: (603)223-0104 URL: www.fws.gov/newengland



Consultation Code: 05E1NE00-2017-SLI-0022 Event Code: 05E1NE00-2017-E-00025 Project Name: NBC Phase III October 06, 2016

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan

(http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and

http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment



Project name: NBC Phase III

Official Species List

Provided by:

New England Ecological Services Field Office 70 COMMERCIAL STREET, SUITE 300 CONCORD, NH 03301 (603) 223-2541_ http://www.fws.gov/newengland

Consultation Code: 05E1NE00-2017-SLI-0022 **Event Code:** 05E1NE00-2017-E-00025

Project Type: ** OTHER **

Project Name: NBC Phase III **Project Description:** Combined Sewer Overflow

Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.



Project name: NBC Phase III

Project Location Map:



Project Coordinates: MULTIPOLYGON (((-71.3813066482544 41.867930968215674, -71.4032793045044 41.859429462589155, -71.40340805053711 41.858214869509354, -71.40242099761963 41.858278796036046, -71.40242099761963 41.859301611772366, -71.40199184417725 41.85968516345592, -71.38134956359863 41.86773921739211, -71.3813066482544 41.867930968215674)))

Project Counties: Providence, RI



Project name: NBC Phase III

Endangered Species Act Species List

There are a total of 0 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

There are no listed species identified for the vicinity of your project.

http://ecos.fws.gov/ipac, 10/06/2016 07:23 AM



Project name: NBC Phase III

Critical habitats that lie within your project area

There are no critical habitats within your project area.

http://ecos.fws.gov/ipac, 10/06/2016 07:23 AM



United States Department of the Interior

FISH AND WILDLIFE SERVICE New England Ecological Services Field Office 70 COMMERCIAL STREET, SUITE 300 CONCORD, NH 03301 PHONE: (603)223-2541 FAX: (603)223-0104 URL: www.fws.gov/newengland



Consultation Code: 05E1NE00-2016-SLI-2084 Event Code: 05E1NE00-2016-E-02911 Project Name: NBC Phase III August 18, 2016

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan

(http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and

http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment



Project name: NBC Phase III

Official Species List

Provided by:

New England Ecological Services Field Office 70 COMMERCIAL STREET, SUITE 300 CONCORD, NH 03301 (603) 223-2541_ http://www.fws.gov/newengland

Consultation Code: 05E1NE00-2016-SLI-2084 **Event Code:** 05E1NE00-2016-E-02911

Project Type: ** OTHER **

Project Name: NBC Phase III **Project Description:** Combined Sewer Overflow

Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.



Project name: NBC Phase III

Project Location Map:



Project Coordinates: The coordinates are too numerous to display here.

Project Counties: Providence, RI



Project name: NBC Phase III

Endangered Species Act Species List

There are a total of 0 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

There are no listed species identified for the vicinity of your project.

http://ecos.fws.gov/ipac, 08/18/2016 07:06 AM



Project name: NBC Phase III

Critical habitats that lie within your project area

There are no critical habitats within your project area.

http://ecos.fws.gov/ipac, 08/18/2016 07:06 AM



Appendix D Programmatic Agreement (NBC and RI Historic Preservation and Heritage Commission)

The Narragansett Bay Commission One Service Road Providence, Rhode Island 02905

401 • 461 • 8848 401 • 461 • 6540 FAX 401 • 461 • 6549 TDD

http://www.narrabay.com



Vincent J. Mesolella Chairman

Paul Pinault, P.E. Executive Director

April 1, 2003

Don L. Klima, Director Eastern Office of Review Advisory Council on Historic Preservation Old Post Office Building 1100 Pennsylvania Avenue NW Washington, D.C. 20004

Re: Narragansett Bay Commission Combined Sewer Overflow Control Facilities Program Programmatic Agreement

Dear Mr. Klima:

Please find enclosed a copy of the executed Programmatic Agreement between the Narragansett Bay Commission (NBC) and the Rhode Island State Historic Preservation Office (SHPO) for the NBC Combined Sewer Overflow Control Facilities Program in Rhode Island. This Agreement was prepared in compliance with Section 106 of the National Historic Preservation Act (16 U.S.C. 470f) and as provided for in 36 CFR 800.14(b)(1)(ii).

By letter of July 23, 2002, in accordance with 36 CFR 800.6(a)(1)(C), the Bay Commission notified the Council of its finding that the undertaking may have an adverse effect on historic properties, including properties yet to be identified, and invited the Council to participate in development of a Programmatic Agreement. Since the Council did not express in writing its intention to participate in the consultations, the Bay Commission proceeded to develop the Agreement in consultation with the SHPO. By letter of September 11, 2002, the Bay Commission forwarded a draft Agreement to the SHPO for review and comment and to the Narragansett Indian Tribe in the event that the Tribe wished to be a party to the consultation. The Bay Commission received no comment or other communication from the Tribe concerning the proposed Agreement and therefore concluded that the Tribe did not wish to participate. Please note also that the Rhode Island Department of Transportation declined to concur in the Agreement on the grounds that it had no legal responsibilities with reference to the undertaking.

Don L. Klima, Director April 1, 2003

The Bay Commission understands that submission of this executed Agreement to the Council concludes the Section 106 process for this undertaking. If you have any questions, please contact Joe Pratt at (401) 521-5980.

Sincerely,

THE NARRAGANSETT BAY COMMISSION

Thomas Brueckner

Thomas G. Brueckner, P.E. Engineering Manager

cc: E. Sanderson/RIHPHC J. Pratt/LBG M. Powers/LBG

PROGRAMMATIC AGREEMENT BETWEEN THE NARRAGANSETT BAY COMMISSION AND THE RHODE ISLAND STATE HISTORIC PRESERVATION OFFICE REGARDING THE COMBINED SEWER OVERFLOW FACILITIES PROJECT Providence, Rhode Island

Submitted to the Advisory Council on Historic Preservation pursuant to 36 CFR 800, Sections 6(b)(iv) and 14(b)(ii)

WHEREAS, the Narragansett Bay Commission (Bay Commission), an agency created by the State of Rhode Island in 1982, proposes to improve water quality in Narragansett Bay by building facilities to capture combined stormwater and wastewater during periods of high precipitation and runoff, storing it until it can be properly treated and released into the bay (CSO Facilities); and

WHEREAS, the Bay Commission will finance its construction of the CSO Facilities through a loan from the Rhode Island Clean Water Finance Agency (CWFA) which administers the State Revolving Fund (SRF); and

WHEREAS, the SRF includes capitalization grants provided to the State of Rhode Island by the U.S. Environmental Protection Agency (EPA) under Title VI of the Federal Water Pollution Control Act (33 USC Section 1251 et seq.)(Clean Water Act); and

WHEREAS, the Rhode Island Department of Environmental Management (RIDEM) must issue a Certificate of Approval for any project being proposed pursuant to the requirements of Section 201 of the Clean Water Act in order for an applicant to receive an SRF loan; and

WHEREAS, the Bay Commission has certified in writing that it will comply with the National Historic Preservation Act as a condition of receiving federal funds through the SRF and is therefore, pursuant to 36 CFR 800.2, serving as the Agency Official in this Agreement; and

WHEREAS, the Bay Commission has determined that Phase I of the Undertaking may have adverse effects on the former Rhode Island Department of Transportation (RIDOT) Headquarters and Garage (RIDOT Garage) at 30 Arline Street which is eligible for listing in the National Register of Historic Places; and

WHEREAS, the Bay Commission has determined that Phase I of the Undertaking may also have adverse effects on prehistoric and historical archaeological resources yet to be identified at the proposed location of Outfall 032 (Charles Street); and

WHEREAS, the Bay Commission has determined that Phases II and III of the CSO Program may

also have adverse effects on archaeological or historical resources at locations yet to be selected for Outfalls 213, 210, Seekonk Interceptor, Woonasquatucket Interceptor, 219/220 Interceptor and proposed Sewer Separations in Providence and Pawtucket; and

WHEREAS, The Bay Commission has consulted with the SHPO, and with the Narragansett Indian Tribe and Waterfire Providence in accordance with 36 CFR 800.6 to resolve the adverse effects of the Undertaking on historic properties; and

WHEREAS, the Rhode Island Department of Transportation has participated in the consultation and has been invited to concur in this Agreement;

NOW, THEREFORE, the Bay Commission and the SHPO agree that the Bay Commission will ensure that the following stipulations are implemented in order to take into account the effects of the Undertaking on historic properties, and that these stipulations shall govern the Undertaking and all of its parts until this Agreement expires or is terminated.

STIPULATIONS

The Bay Commission will ensure that the following measures are implemented:

I. FORMER RIDOT HEADQUARTERS AND GARAGE

A. Protection

1. The Bay Commission shall ensure that the former RIDOT Headquarters and Garage at 30 Arline Street is protected against damage during the Bay Commission's use of the surrounding site for purposes of constructing the Foundry Shaft.

2. After completion of the Foundry Shaft, the Bay Commission shall ensure the historic property is protected against damage until treatment measures agreed upon with the SHPO (see Stipulation I.B below) have been properly executed. B. Marketing and Disposal

- - 1. In consultation with the SHPO, and consistent with applicable laws governing disposal of State property in Rhode Island, the Bay Commission shall prepare and implement a marketing plan for the former RIDOT Headquarters and Garage. The plan shall include the following elements:

An information package about the building containing notification that the purchaser will be

required to convey an historic preservation easement on the building (a copy of which is found at Appendix A to this Agreement) to the Rhode Island Historic Preservation and Heritage Commission;

- A distribution list of potential purchasers or transferees;
- An advertising plan and schedule;
- A schedule for receiving and reviewing offers.

2. The Bay Commission shall employ the results of this marketing effort in its decision regarding the ultimate disposal of the former RIDOT Headquarters and Garage. The Bay Commission shall make this decision, including identification of measures to minimize or mitigate any adverse effects arising from disposal, in consultation with the SHPO.

II. OUTFALL 032

A. Prior to initiation of any construction-related ground disturbing activities, the Bay Commission will undertake a program to determine the presence or absence of soil levels associated with precolonial Native American settlement, and of any potentially significant archaeological deposits associated with the Town Work House. This program, developed in consultation with the SHPO, may include continuous soil borings and/or machine trenching. The Bay Commission will prepare and submit reports of the results to the SHPO and the Narragansett Indian Tribe. As necessary, based on the report findings and consultations with the SHPO, the Bay Commission will complete identification of historic properties in accordance with 36 CFR 800.4. In the event that historic properties are identified, the Bay Commission will consult with the SHPO and Narragansett Indian Tribe to resolve any adverse effects.

III. CSO FACILITIES, PHASE II AND PHASE III

A. In consultation with the SHPO, the Bay Commission will complete any studies required to identify historic properties that may be affected by construction in Phases II and III of Outfalls 213 and 210, Seekonk Interceptor, Woonasquatucket Interceptor, 219/220 Interceptor and proposed Sewer Separations in Providence and Pawtucket, in accordance with 36 CFR 800.4. In the event that historic properties are identified, the Bay Commission will consult with the SHPO, Narragansett Indian Tribe, and other consulting parties, as appropriate, to resolve any adverse effects.

IV. REVIEW AND COMMENT PERIODS

Unless otherwise specified in this Agreement, the SHPO and other consulting parties shall have thirty (30) calendar days from receipt to provide written comment on any reports, letters or other written communications prepared by the Bay Commission in its execution of this Agreement.

V. TECHNICAL REPORTING

All reports of archaeological investigations conducted under Stipulations II and III shall be prepared in accordance with the Rhode Island Historical Preservation and Heritage Commission's *Performance Standards and Guidelines for Archaeological Projects*.

VI. PROFESSIONAL QUALIFICATIONS

A. All archaeological investigations conducted pursuant to this Agreement shall be accomplished by or under the supervision of an individual or individuals meeting the standards for archaeologist set forth in the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (NPS 1983:44738-9).

B. All studies involving identification, evaluation and treatment of historic buildings and structures conducted pursuant to this Agreement shall be accomplished by or under the supervision of an individual or individuals meeting the standards for historian, architectural historian, or other professional as appropriate for the work, set forth in the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (NPS 1983:44738-9).

VII. ANNUAL REPORTING

A. On or before January 1of each year until the Bay Commission and the SHPO agree in writing that the terms of this Agreement have been fulfilled, the Bay Commission shall prepare and provide an annual report to the SHPO and Narragansett Indian Tribe addressing the following topics:

- 1. Progress in completing Stipulations I through III;
- 2. Any problems or unexpected issues encountered during the year;
- 3. Anticipated schedule for planning and design work over the coming year;

4. Any changes that Bay Commission believes should be made in implementation of this agreement.

B. The Bay Commission shall ensure that its annual report is made available for public inspection, that potentially interested members of the public are made aware of its availability, and that

interested members of the public are invited to provide comments to the SHPO and Narragansett Indian Tribe as well as to the Bay Commission.

VIII. DISPUTE RESOLUTION

A. Should any party to this agreement object in writing to the Bay Commission regarding any action carried out or proposed with respect to the undertaking or implementation of this agreement, the Bay Commission shall consult with the objecting party to resolve the objection. If after initiating such consultation the Bay Commission determines that the objection cannot be resolved through consultation, the Bay Commission shall forward all documentation relevant to the objection to the Advisory Council on Historic Preservation (Council), including the Bay Commission's proposed response to the objection. Within 30 days after receipt of all pertinent documentation, the Council shall exercise one of the following options:

1. The Council will consult with the objecting party, and with other parties as appropriate, to resolve the objection.

2 Provide the Bay Commission with recommendations, which the Bay Commission shall take into account in reaching a final decision regarding its response to the objection; or

3.. Notify the Bay Commission that the objection will be referred for comment pursuant to 36 CFR 800.7(a)(4), and proceed to refer the objection and comment. The Bay Commission shall take the resulting comment into account in accordance with 36 CFR 800.7(c)(4) and Section 110(1) of NHPA.

B. Should the Council not exercise one of the above options within 30 days after receipt of all pertinent documentation, the Bay Commission may assume the Council's concurrence in its proposed response to the objection.

C. The Bay Commission shall take into account any Council recommendation or comment provided in accordance with this stipulation with reference only to the subject of the objection; the Bay Commission's responsibility to carry out all actions under this agreement that are not the subjects of the objection shall remain unchanged.

IX. AMENDMENT AND TERMINATION

A. Any of the signatories to this Agreement may request that this Agreement be amended, whereupon these parties will consult in accordance with 36 C.F.R. Section 800.6(c)(7).

1.0

B. Any of the signatories to this Agreement may terminate this Agreement by providing 30 days written notice to all consulting parties, provided that the signatories consult during the 30-day notice period in order to seek agreement on amendments or other actions that would avoid termination. In the event of termination, the Bay Commission will comply with 36 C.F.R. Sections 800.3 through 800.7(c)(3), with regard to individual actions covered by this Agreement.

Execution of this Agreement by the Bay Commission and the SHPO, and its submission to the Council in accordance with 36 CFR 800.6(b)(1)(iv) shall pursuant to 36 CFR 800.6, be considered to be an Agreement with the Council for the purposes of Section 110(1) of NHPA. Execution and submission of this Agreement, and implementation of its terms, evidence that the Bay Commission has afforded the Council an opportunity to comment on the Undertaking and its effects on historic properties, and that the Bay Commission has taken into account the effects of the Undertaking on historic properties.

Signed:

NARRAGANSETT BAY COMMISSION

By:

_____Date:____2/1/03

RHODE ISLAND STATE HISTORIC PRESERVATION OFFICER

By:

alland Banderson Date: 3/3/03

Concur:

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

By:_____

Date:

ACCEPTED FOR THE ADVISORY COUNCIL ON HISTORIC PRESERVATION

By:____

Date:
STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

HISTORICAL PRESERVATION COMMISSION

HISTORICAL EASEMENT

THIS HISTORIC PRESERVATION EASEMENT is made this day of by and between meaning and intending to include therein their successors and assigns (hereinafter Grantor), and the STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS through its Historical Preservation & Heritage Commission (hereinafter sometimes called Grantee).

WITNESSETH:

WHEREAS the Grantor is the owner of land in fee simple, and holds title under the document recorded with the land evidence records of the Town/City of ______ as recorded in Book _____, Page _____, which instrument is not violated by this conveyance, which land (hereinafter "land") is described in Exhibit "A" attached hereto which land is improved with historic structure(s) (said structure sometimes hereinafter called the building), more fully described in Exhibit "B" attached hereto (said land and structures together being hereinafter called the "Premises") which premises have been registered on the National Register of Historic Places by the United States Department of the Interior;

WHEREAS the State of Rhode Island, through its Historical Preservation and Heritage Commission, is presently responsible for precluding any activity at the premises which would destroy or impair the value of the premises as a registered place on the National Register of Historic Places; and

WHEREAS the Grantor is willing to grant to the State of Rhode Island the easement as hereinafter expressed for the purpose of insuring that the value of the premises for such purpose will not be destroyed or impaired;

NOW, THEREFORE, in consideration of the sum of One Dollar, and other valuable consideration paid to the Grantor, the receipt whereof is hereby acknowledged, and Grantor does hereby give, grant, bargain, sell, and convey unto the State of Rhode Island and Providence Plantations an easement in the following described premises of the Grantor, of the nature and character and to the extent hereinafter expressed as a covenant running with the land, to be binding upon the parties hereto and their respective successors and assigns, and to that end and for the purpose of accomplishing the intent of the parties hereto to preserve, protect, and maintain the value of the premises of the Grantor as a registered place on the State Register of Historic Places, the Grantor does hereby covenant on behalf of itself, its successors and assigns, with the Grantee, its successors and assigns, to refrain from doing, and to permit the Grantee to do upon the premises of the Grantor, the various acts hereinafter mentioned.

THE EASEMENTS AND RESTRICTIONS shall be effective in perpetuity (or for a term of ____ years).

and are as follows:

- A. <u>Grantor's Covenants</u>. In furtherance of the Preservation Easement herein granted, Grantor covenants:
 - <u>Review</u> Without the written permission of Grantee, executed by a duly authorized officer under its corporate seal, which written permission or refusal to grant such permission, including a statement of reasons for refusal, shall be delivered to Grantor by Grantee within thirty (30) days of receipt of Grantor's written request for such approval, there shall be:
 - a. no demolition or partial demolition or removal of any building or structure located on the real property except in connection with interior renovation and exterior alterations described in Exhibit "C"
 - b. no change in the facade or to the landscape features and improvements or interior portions that are being protected, as set forth in Exhibit "B" subject to the Preservation Easement, including no alteration, partial removal, construction, remodeling or physical or structural change, or change in color or surfacing with respect to the appearance or construction of the facade or the landscape features and improvements or interior portions, except as described in Exhibit "C"
 - c. no addition of signs or addition to the facade including fences, or awnings except as described in Exhibit "C"
 - d. no expansion of the building either horizontally or vertically except as described in Exhibit "C"
 - e. no construction of additional building's on the premises, except as described in Exhibit "C"
 - f. no significant alteration of the topography, except as may be required by good husbandry.
 - 2. <u>Specification of Materials</u>. Grantor covenants that Grantee in providing its written authorizations for work may specify all materials, methods, cleaning substances and colors to be used in any such work, provided, nevertheless, that repair or replacement of surface

materials will be with materials of the same or similar texture and quality as currently existing and reasonably available.

- 3. <u>Casualty Damage</u>. In the event of casualty damage, no repairs or reconstruction of any type, other than temporary emergency work to prevent further damage to the real property and to protect public safety, shall be undertaken by Grantor without the prior written approval of the work by Grantee (which written approval shall be given as provided in paragraph (2) above).
- 4. <u>Inspection</u>. Grantor covenants that representatives of Grantee shall be permitted to inspect the building at reasonable times upon reasonable notice for the purpose of determining conformance to this Preservation Easement.
- 5. <u>Insurance</u>. Grantor covenants that it will maintain in force standard property and liability insurance policies. The property insurance policy shall be adequate to provide for reconstruction of the building and the liability policy shall provide coverage in the amount of at least One Million Dollars (\$1,000,000). The liability policy shall name the Grantee as a named additional insured. The amount of property and liability insurance maintained by Grantor shall be adjustable, upon the request of Grantee, to reflect proportionate increases in the cost of construction and the cost of living, respectively, provided that such a request may not be made more frequently than once every three (3) years.
- 6. <u>Real Estate Taxes</u>. The Grantor shall promptly pay all real estate taxes assessed and levied against the building on or prior to the due date, regardless of the status of protests or appeals.
- 7. Public View. Grantor agrees not to obstruct the substantial and regular opportunity of the public to view the exterior architectural features of any building, structure, or improvements of the premises from adjacent publicly accessible areas such as public streets. Grantor shall make the premises accessible to the public from time to time and by appointment to permit persons affiliated with educational organizations, professional architectural associations and historical societies to study the property. Any such public admission may be subject to restrictions, mutually agreed upon as reasonably designed for the protection and maintenance of Such admission may be subject to a the property. reasonable fee, if any, as may be approved by the Grantee.
- 8. <u>Publication</u>. The Grantee may make photographs, drawings or other representations documenting the significant historical, cultural, or architectural character and features of the property and distribute them to magazines, newsletters, or other publicly available publications, or

use them in any of its efforts or activities for the preservation and conservation of Rhode Island's heritage.

- 9. <u>Indemnity</u>. The Grantor covenants that it shall indemnify and hold Grantee harmless for any liability, costs, attorney's fees, judgments or expenses to the Grantee or any officer, employee, agent or independent contractor of the Grantee resulting from actions or claims of any nature by third parties arising from defaults under this Preservation Easement by the Grantor, or arising out of the conveyance of, possession of, or exercise of rights under this Preservation Easement, excepting any such matters arising solely from the negligence of the Grantee.
- Β. Grantee's Remedies. In the event of a violation of any provision of this Preservation Easement, in addition to any remedies now or hereafter provided by law, (i) Grantee may, following reasonable notice to Grantor, institute a suit for injunctive relief, specific performance or damages, or (ii) representatives of Grantee may enter upon the real property to correct any such violation, and hold Grantor and Grantor's successors, heirs and assigns in title responsible for the cost thereof, and such cost, until repaid, shall constitute a lien on the real property. In the event Grantor is adjudicated to have violated any of Grantor's obligations herein, Grantor shall reimburse Grantee for any costs or expenses incurred in connection with the enforcement of its rights, including court costs and attorney's fees. The exercise by Grantee of one remedy hereunder shall not have the effect of waiving any other remedy, and the failure to exercise any remedy shall not have the effect of waiving the use of such remedy at any other time.
- C. <u>Standards for Review</u>. In exercising any authority created by the Easement to inspect the premises, the buildings, or the facades; to review any construction, alteration, repair or maintenance; or to review casualty damage or to reconstruct or approve reconstruction of the buildings following casualty damage, Grantee shall apply the Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings, issued and as may be amended from time to time by the Secretary of the United States Department of the Interior. In the event that the Standards are abandoned or materially altered or otherwise become, in the sole judgment of the Grantee, inappropriate for the purposes set forth above, the Grantee may apply reasonable alternative standards, and notify the Grantor of the substituted standards.
- D. <u>Assignability</u>. Grantor agrees that Grantee may, in its discretion, and without prior notice to Grantor, convey and assign this Preservation Easement to any agency of the State of Rhode Island, to a unit of local government, or not-for-profit corporation or trust provided that the mandated purpose of such assignee includes the preservation of properties of

historical, architectural, or cultural significance. Such conveyance, assignment, or transfer shall require that the preservation and conservation purposes for which the Easement was granted will continue to be carried out.

- Ε. Duration. This Preservation Easement shall be effective for a period of _____ years. Grantor and Grantee hereby recognize that an unexpected change in the conditions surrounding the premises may make impossible the continued ownership or use of the premises for preservation and conservation purposes and necessitate extinguishment of the Easement. Such a change in conditions includes, but is not limited to, partial or total destruction of the building resulting from a casualty of such magnitude that in the opinion of Grantee the building and premises have lost their historical and architectural significance, or condemnation or loss of title through an eminent domain proceeding. Grantor agrees that this Easement shall not be released to the Grantor or its successors or assigns without the consent of the Grantee, which consent shall be appended to such release.
- F. <u>Runs with the Land</u>. The obligations imposed by this Preservation Easement shall be deemed to run as a binding servitude with the land. This instrument shall extend to and be binding upon Grantor and all persons hereafter claiming under or through Grantor, and the word "Grantor" when used herein shall include all persons. Anything contained herein to the contrary notwithstanding, a person shall have no obligations pursuant to this instrument after such person shall cease to have any interest in the Premises by reasons of a <u>bona fide</u> transfer for full value.
- G. <u>Statutory Authority</u>. This instrument is valid in Rhode Island by virtue of the enactment of Chapter 39 of title 34 of the General Laws of Rhode Island, but the invalidity of such Act or any part thereof shall not effect the validity and enforceability of this instrument according to its terms, it being the intent of the parties that this instrument constitutes a charitable trust, a preservation restriction, a common law easement in gross and a restrictive covenant.
- H. <u>Notices</u>. Any notice called for herein shall be in writing and shall be mailed postage prepaid by registered or certified mail with return receipt requested, or hand delivered and receipted. If to Grantor, then at and if to Grantee,

then at the Rhode Island Historical Preservation and Heritage Commission, 150 Benefit Street, Providence, Rhode Island. Each party may change its address set forth herein by a notice to such effect to the other party. The failure to service a change of address notice shall not waive the notice requirement.

I. <u>Compliance with Applicable Ordinances</u>. To the extent this easement permits future development of the Premises, such development shall conform with appropriate local, state or

federal standards for construction or rehabilitation. Furthermore, nothing contained herein shall be interpreted to authorize or permit Grantor to violate any ordinance relating to building materials, construction methods or use. In the event of any conflict between such ordinance and the terms hereof, the ordinance shall prevail and the Grantor promptly shall notify the Grantee of such conflict and shall cooperate with Grantee and the Town of ______ and the State of Rhode Island or other appropriate authority to accommodate the purposes of both this instrument and such ordinance.

- 1. A copy of this Preservation Easement shall be recorded with the City Recorder of Deeds and copies shall be furnished by the Grantor to the Rhode Island Historical Preservation and Heritage Commission.
- 2. The Grantee shall have the right to install a plaque of suitable design at a point easily visible by the public, from a public way, which plaque shall name the architect, the date of construction and state that the facade is subject to a Preservation Easement held by the Rhode Island Historical Preservation and Heritage Commission.
- 3. The Grantor acknowledges that the subject matter of this conveyance is a historic preservation restriction which can no longer be transferred, hypothecated or subordinated to liens or encumbrances by the Grantor except as regards to condemnation awards or insurance proceeds.
- 4. For purposes of furthering the preservation of the premises and buildings and of furthering the other purposes of this Easement, and to meet changing conditions, Grantor and Grantee are free to amend jointly the terms of this instrument in writing, without notice to any party. Such amendment shall become effective upon recording among the land records of the City or Town.

IN WITNESS THEREOF, on the date first shown above, Grantor has caused this Preservation Easement to be executed, sealed and delivered by its

ATTEST

GRANTOR:

Accepted by Grantee, Rhode Island Historical Preservation and Heritage Commission, pursuant to Chapter 39, Conservation and Preservation Restriction on Real Property, this day of

19 .

Ву .

Edward F. Sanderson, Executive Director Rhode Island Historical Preservation and Heritage Commission

ATTEST:

State of Rhode Island Town/City of

I, the undersigned, a Notary Public in and for said Town/City, in the State aforesaid, do hereby certify that personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person, and acknowledged that is duly authorized, signed, sealed and delivered the said instrument as his/her own free and voluntary act, for the uses and purposes therein set forth.

Given my hand and official seal, this day of 19.

Notary Public My commission expires;

State of Rhode Island) City of Providence)

SS

)

I, the undersigned, Notary Public, appointed in the City of

for the State of Rhode Island, do hereby certify that Edward F. Sanderson, personally known to me to be the same person whose name is, as Executive Director of the Rhode Island Historical Preservation and Heritage Commission, a not-for-profit corporation of the State of Rhode Island, subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that he is duly authorized, signed, sealed with the corporate seal and delivered the said instrument as the free and voluntary act of the corporation and as his own free and voluntary act for the uses and purposes therein set forth.

Given under my hand and official seal, this of , 19 .

Notary Public My commission expires; day

9



Appendix E Reevaluation Stakeholder Workshop Agendas

E-1: AGENDA – WEDNESDAY, MARCH 12, 2014

E-2: AGENDA – THURSDAY, APRIL 10, 2014

E-3: AGENDA – THURSDAY, MAY 22, 2014

E-4: AGENDA – THURSDAY, JUNE 19, 2014

E-5: AGENDA – THURSDAY, SEPTEMBER 4, 2014

E-6: AGENDA – THURSDAY, OCTOBER 23, 2014

E-7: AGENDA – THURSDAY, DECEMBER 4, 2014

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Vincent J. Mesolella Chairman

Raymond J. Marshall, P.E. Executive Director

AGENDA CSO PHASE III STAKEHOLDERS GROUP

Wednesday, March 12, 2014 1:00 p.m. Narragansett Bay Commission Corporate Office Building One Service Road Providence, RI 02905

- A. Introductions, short history of project, purpose of stakeholders group, 1:00 1:10 Mike Domenica, Water Resources Associates, Moderator
- B. Group introductions, 1:10 1:20
- C. Welcoming remarks, 1:20 1:30 Ray Marshall, NBC Executive Director
- D. Ground rules for stakeholders process, 1:30 1:35
- E. CSO Program Overview, 1:35 2:30 Tom Brueckner, NBC
- F. Break, 2:30 2:45
- G. Phase III Re-evaluation Approach, 2:45 4:00 Richard Raiche, MWH
- H. Adjourn

Next meeting: Wednesday, April 10, 2014, 1:00 – 4:00 PM: Baseline and Grey Infrastructure Focus

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Vincent J. Mesolella Chairman

Raymond J. Marshall, P.E. Executive Director

AGENDA CSO PHASE III STAKEHOLDERS GROUP

Thursday, April 10, 2014 1:00 p.m. Narragansett Bay Commission Corporate Office Building One Service Road Providence, RI 02905

Mike Domenica, Water Resources Associates, Moderator

- A. Review of minutes from 3/12/14 meeting
- B. Alternatives definition & Stakeholder engagement process
- C. Baseline and Grey Infrastructure Focus Infrastructure Focus, Richard Raiche, MWH
 - a. Sewer separation
 - i. Overview
 - ii. 035, 039, 056, 206 (i.e. baseline alternative)
 - b. Interceptors to Pawtucket Tunnel
 - i. Overview
 - ii. 101-4, 201-5, 220 (i.e. baseline alternative)
 - c. Spur tunnel i. 220
 - d. Localized combined flow handling (near-surface storage, treatment & discharge)
 - i. Overview
 - ii. 035, 039, 056, 220, 101, 102, 103
 - e. Stormwater control
 - i. Overview (flow controls, infiltration, storage, GSI)
 - ii. 035, 039, 056
- D. Adjourn

Next meeting: Thursday, May 22, 2014, 9:00 AM - 12 noon, Green Infrastructure focus

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Vincent J. Mesolella Chairman

Raymond J. Marshall, P.E. Executive Director

AGENDA CSO PHASE III STAKEHOLDERS GROUP

Thursday, May 22, 2014 9:00 a.m. Narragansett Bay Commission Corporate Office Building One Service Road Providence, RI 02905

Mike Domenica, Water Resources Associates, Moderator

- A. Review of minutes from 4/10/14 meeting
- B. EPA Affordability Issues, EPA Region 1
- C. Green Infrastructure Alternatives, MWH/Pare
- D. Adjourn

Next meeting: Thursday, June 19, 2014, 9:00 AM - 12 noon, Evaluation Criteria Focus

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Vincent J. Mesolella Chairman

Raymond J. Marshall, P.E. Executive Director

AGENDA CSO PHASE III STAKEHOLDERS GROUP

Thursday, June 19, 2014 9:00 a.m. Narragansett Bay Commission Corporate Office Building One Service Road Providence, RI 02905

Mike Domenica, Water Resources Associates, Moderator

- A. 9:00 9:20 Review of minutes and parking lot issues from 5/22/14 meeting
- B. 9:20 10:30 Green Infrastructure Alternatives, MWH/Pare
- C. 10:30 10:45 Break
- D. 10:45 Noon Selection of Evaluation Criteria
- E. Adjourn

Next meeting: Thursday, September 4, 2014, 9:00 AM - 12 noon, Evaluation of Alternatives

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Vincent J. Mesolella Chairman

Raymond J. Marshall, P.E. Executive Director

AGENDA CSO PHASE III STAKEHOLDERS GROUP

Thursday, September 4, 2014 9:00 a.m. Narragansett Bay Commission Corporate Office Building One Service Road Providence, RI 02905

Mike Domenica, Water Resources Associates, Moderator

- A. 9:00 9:15 Review of minutes and parking lot issues from 6/19/14 meeting
- B. 9:15 10:30 Review of Alternatives Development, Hydraulic Model Results and Evaluation Criteria, MWH/Pare
- C. 10:30 10:45 Break
- D. 10:45 Presentation and Discussion of Alternatives, MWH/Pare
- E. Adjourn

Next meeting: Thursday, October 23, 2014, 9:00 AM - 12 noon, Plan Review and Finalization

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Vincent J. Mesolella Chairman

Raymond J. Marshall, P.E. Executive Director

AGENDA CSO PHASE III STAKEHOLDERS GROUP

Thursday, October 23, 2014 9:00 a.m. Narragansett Bay Commission Corporate Office Building One Service Road Providence, RI 02905

Mike Domenica, Water Resources Associates, Moderator

- A. 9:00 9:15 Review of minutes and parking lot issues from 9/4/2014 meeting
- B. 9:15 10:30 Presentation on Affordability Analysis, MWH
- C. 10:30 10:45 Break
- D. 10:45 Noon Presentation and Discussion on Alternative Costs & Subsystem Alternatives Analysis Conclusions, MWH/Pare
- E. Adjourn

Next meeting: Thursday, November 13, 2014, 9:00 AM – 12 noon, Alternative Phase III Scenarios Review and Recommended Plan

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Vincent J. Mesolella Chairman

Raymond J. Marshall, P.E. Executive Director

AGENDA CSO PHASE III STAKEHOLDERS GROUP

Thursday, December 4, 2014 9:00 a.m. Narragansett Bay Commission Corporate Office Building One Service Road Providence, RI 02905

Mike Domenica, Water Resources Associates, Moderator

- B. 9:15 10:00 Presentation of Alternative Scenarios, MWH/Pare
- C. 10:00 10:30 Discussion
- D. 10:30 10:45 Break
- E. 10:45 11:15 Financial Evaluation of Alternative Scenarios, MWH/Pare
- F. 11:15 Noon Discussion
- G. Adjourn



Appendix F Public Comments (To be inserted when public comments are received.)



Appendix G Program Narrative



Phase III CSO Program

Introduction

The Narragansett Bay Commission (NBC) is implementing Phase III of the Combined Sewer Overflow (CSO) Abatement Program which arose from a 1992 Consent Agreement between the NBC and the Rhode Island Department of Environmental Management (RIDEM). The Phase III CSO Program is the third and final phase of a multi-decade program to eliminate the untreated discharge of combined stormwater and sewage into Narragansett Bay. Previous phases of the program addressed CSO discharges to the Providence, Woonasquatucket, and Moshassuck Rivers and their tributaries. The Phase III CSO Program focuses on CSO discharges to the Blackstone, Seekonk, and Moshassuck Rivers, and will require an update to the Environmental Assessment (EA) for the full (three phase) Program that was completed in 1998.

The project team of MWH and Pare Corporation (MWH/Pare) is serving as NBC's Program Manager to oversee and administer the Phase III CSO Program, the overall goal of which is to reduce untreated CSO discharges in NBC's Bucklin Point Service Area (BPSA), located primarily in Pawtucket and Central Falls. This narrative provides an overview of the CSO Program as well as a summary of the project elements that are anticipated at this time.

Background

When the NBC was formed in May 1982, it assumed responsibility for the Field's Point Wastewater Treatment Facility (FPWWTF) and its collection system which included several pumping stations, approximately 45 miles of interceptors in Providence, flow regulators, and 65 CSO outfalls. The Field's Point Service Area (FPSA) serves Providence and parts of North Providence and Johnston. NBC merged with the Blackstone Valley District Commission (BVDC) in 1992, and the area BVDC previously served was designated as the BPSA. This area includes Central Falls and Pawtucket as well as parts of Cumberland, East Providence, Lincoln, and Smithfield. Flow from the BPSA service area is treated at the Bucklin Point Wastewater Treatment Facility (BPWWTF) in East Providence. The area includes 25 CSO outfalls located in Central Falls and Pawtucket.

In 1992, NBC entered into a Consent Agreement (CA) with the RIDEM. The CA established a schedule for CSO control facility planning, design, and construction. In 1994, RIDEM approved a Conceptual Design Report (CDR) and NBC began preliminary design for those facilities. In that same year, the Environmental Protection Agency (EPA) issued a revised CSO policy and guidelines. Based on the revised guidelines, and with the input of a stakeholder group, NBC revisited the CDR planning effort which culminated in the preparation and approval of the



revised 1998 Conceptual Design Report Amendment (CDRA) and the modification of the 1992 CA. The CDRA established the current three-phase program with the goal of reducing annual CSO volumes by 98 percent, and achieving an 80 percent reduction in shellfish bed closures. The first two phases of this program focused on the FPSA and outfalls in Providence. The main component of Phase I was a deep rock storage tunnel in Providence that was designed to store CSO volumes during wet weather events for subsequent pump out and treatment at the FPWWTF. Phase I was completed in 2008 at an approximate cost of \$360 Million. Phase II consisted of interceptors to connect additional outfalls to the Providence Tunnel, plus sewer separation projects to address overflows at other outfalls, at a total cost of approximately \$197 Million. The final portions of Phase II were completed in 2015.

The third and final phase prescribed by the CDRA shifted the focus to the BPSA. The main element of the Phase III Program prescribed by the CDRA was a deep rock storage tunnel, similar to the Providence Tunnel and aligned generally along the Seekonk River in Pawtucket. The CDRA also called for a series of interceptors to connect outlying outfalls to the tunnel, along with sewer separation for a number of other areas contributing flow to outfalls in both the BPSA and FPSA. However, because the Phase III cost was anticipated to exceed the combined cost for Phases I and II, NBC elected to revisit the 1998 CDRA to evaluate new technologies and seek ways to minimize the financial burden on NBC's ratepayers while still achieving the overall goals of the CSO Abatement Project. The re-evaluation was performed in 2015, and while many of the major projects originally conceived for CSO abatement have been retained, some of the originally anticipated elements have been eliminated. This includes sewer separation in some outlying outfall areas. The re-evaluation identified new projects that are not proposed in place of sewer separation and/or to optimize the design of other program elements.

Phase III Re-Evaluation

Due to the projected cost of the Phase III CSO Program and its impact on sewer rates, NBC elected to re-evaluate the 1998 CDRA with respect to the planned Phase III projects to determine if any modifications could be made to reduce costs while achieving water quality objectives of the Program. Of particular interest was an evaluation of the feasibility of using Green Stormwater Infrastructure (GSI) as an alternative to conventional grey infrastructure solutions for certain CSO outfall areas.

As a part of the re-evaluation process, a stakeholder group was established and seven workshops were held between March and December of 2014 to gather input. A series of design alternatives, conditions, and the need for reevaluation were presented to this stakeholder group. The stakeholder group included state and federal agencies, representatives from the NBC service area member communities, representatives from the state congressional contingent, and other public and private groups that stand to benefit from water quality improvement in Narragansett Bay.



Stakeholders were afforded the opportunity to comment throughout the planning process. Following these workshops, four alternatives (including the original baseline plan) were developed and brought to the NBC Board of Commissioners. The selected alternative was designated as "Alternative 2". This alternative met the water quality goals of the Phase III CSO Program, provided a schedule that allowed for adaptive management, and resulted in the most favorable sewer rates of the three alternatives that achieved the water quality objectives. One alternative did not meet water quality goals so it was eliminated from consideration. The selected alternative divided Phase III into four sub-phases based on an affordability analysis to spread sewer rate increases out over a number of years.

While many of the projects originally conceived in the 1998 CDRA and addressed in the 1998 EA update are still proposed, the re-evaluated Phase III Program includes several new projects which will be the subject of the pending EA update. These new projects are as follows:

- <u>West River Interceptor</u>: The 1998 CDRA proposed sewer separation in the area around CSO Outfall (OF) 039 and OF 056 in Providence. After the re-evaluation, the sewer separation concept in this location was abandoned and construction of an interceptor to convey flows to the Moshassuck Valley Interceptor is proposed.
- <u>Lateral tunnel from OF 220 to Pawtucket Tunnel</u>: Control of flow from OF 220 was originally proposed through an interceptor with a pump station to convey flow to the Pawtucket Tunnel near OF 217. The option for a lateral tunnel was presented as a preferred alternative as it could reduce the diameter required for the Pawtucket Tunnel, for an expected cost savings.
- <u>Morley Field Tank</u>: The construction of a near surface storage tank for OF 220 was presented as an alternative to the lateral tunnel.
- <u>GSI projects:</u> GSI projects are being considered for sewershed areas that contribute flows to OFs 101, 104, and 105 in Central Falls and OFs 201 – 204, 212 – 214, 216, and 217 in Pawtucket. The 1998 CDRA did not include any GSI projects, and these projects are proposed in lieu of sewer separation and other near surface alternatives.

Environmental Assessment

The Phase III CSO Program is funded in part by the Clean Water State Revolving Fund (SRF) and is subject to certain requirements which include performing an Environmental Assessment (EA). The purpose of an EA is to provide information and analysis sufficient for the RIDEM to make either a Finding of No Significant Impact (FONSI) or determine that an Environmental Impact Statement (EIS) will be required. In cases where an EIS is not required the EA serves to document compliance with state and federal environmental review requirements.

The first EA for the CSO Abatement Program was completed in 1994 by Louis Berger & Associates, Inc. following the original CA between NBC and RIDEM. Study areas were established around all project sites and were then assessed for land use, traffic and



transportation, noise and sensitive receptors, wetlands and floodplain, and historic and archeological resources. The study area included a 1,000-foot zone in all directions from identified points of interest, such as rivers receiving overflows, existing CSO structures, and proposed improvements such as tunnel alignments and near surface storage tanks. Applicable agencies were contacted to comment on the degree to which the study areas were evaluated in the draft EA and substantive comments were incorporated into the final EA.

After the approval of the CDRA in 1998, the overall CSO abatement program was separated into the three distinct phases known today and the EA was updated to evaluate new projects added to the Program. The CDRA was reaffirmed in 2005 and again in 2010, and both times it was determined that the EA did not require updating.

Following the completion of the Phase III Re-Evaluation in 2015 it was determined that the 1998 EA will need to be updated to assess the environmental implications of the new Phase III Program elements. The EA update will include soliciting of input from a number of agencies concerning the proposed projects and the affected areas. Substantive comments received from these agencies will be incorporated into the EA update for the new Phase III projects. The following is a list of agencies that will be contacted:

- RI Statewide Planning Program
- RI Department of Transportation
- RI Historic Preservation and Heritage Commission
- RI Department of Environmental Management-Division of Fish and Wildlife
- Narragansett Tribal Historic Preservation Office
- RI Coastal Resources Management Council
- RI Department of Environmental Management-Office of Customer & Technical Assistance
- NOAA Fisheries Greater Atlantic Regional Fisheries Office
- Natural Resources Conservation District
- U.S. Fish and Wildlife Service

Phase III CSO Program Overview

The following section provides additional detail on the projects that currently comprise the Phase III CSO Program. For context the full Phase III Program is presented, however only the new projects that arose out of the Phase III Re-Evaluation will be addressed in the pending EA. These new projects are highlighted in **bold** text. It should be noted that design parameters presented herein are conceptual at the current preliminary stage of work, and therefore subject to refinement as design progresses. Table 1 provides a summary of the projects associated with each sub-phase of the Phase III CSO Program while the graphic that follows provides an estimated timeline for each sub-phase of Phase III. A USGS topographic map and aerial map



depicting the general location of each project can be found on Figures 1 and 2, respectively. Figure 3 depicts the general location of each project among several mapped resource areas based on data available from RIGIS. Figures 4.1 through 4.3 present the project elements that are new to Phase III and the subject of the forthcoming EA.

Table 1: Summary of Phase III CSO Control Facilities Program

Phase III – A: Pawtucket Tunnel				
Pawtucket Tunnel	 Deep rock storage tunnel with 2 work shafts and up to 5 drop shafts 150 – 200 feet below grade, north of Bucklin Point WWTF in East Providence to Central Falls/Pawtucket border near the Blackstone River 13,000 linear feet Storage volume at least equal to overflow volume resulting from 3-month design storm from overflows on the Seekonk & Blackstone Rivers 			
Consolidation Conduits	 5,200 linear feet in length 48 – 72 inches internal diameter 			
Tunnel Pump Station	Located within 1,000 feet of the Bucklin Point WWTF			
GSI	Target areas that contribute flows to OF 212, 213, and 214			
Phase III – B: Northern Interceptors				
High Street Interceptor	 42 inches internal diameter, 2,160 linear feet in length 8 – 15 feet below grade 			
Middle Street Interceptor	 30 inches internal diameter, 1,710 linear feet in length 12 – 15 feet below grade 			
Hybrid sewer separation/GSI	Implementation in the catchment for OF 206			
GSI	 Target areas that contribute flows to OF 101, 104, and 105 			
Phase III – C: Outfall 220 Subsystem				
Deep Rock Lateral Tunnel (Option A)	 Between OF 220 and the Pawtucket Tunnel Includes drop shaft and appurtenant facilities Approximately 7,000 linear feet in length, 11 feet internal diameter 70 – 200 feet below grade Includes odor control equipment and discharge pump station 			
Morley Field Tank (Option B)	 Near surface storage tank, alternative to deep rock lateral tunnel 250 ft. (L) x 221 ft. (W) x 12 ft. (D) 			
GSI	Target areas that contribute flows to OF 216 and 217			
Phase III – D: West River Interceptor and Area OF 035 Sewer Separation				
West River Interceptor	 Follows east bank of West River. Starts at Branch Douglas Interceptor near OF 056 and connects to Moshassuck Valley Interceptor at Silver Spring St. 6 feet diameter, 4,600 linear feet in length, approx. 10-25 feet below grade 			
Sewer separation	 Sewer separation projects for catchment contributing to OF 035 Target areas that contribute flows to OF 201 204 			
031	• Target dreas that contribute nows to OF 201-204			



<u>Phase III-A : Pawtucket Tunnel</u> 2016 - 2018 : Design, review and bidding 2019 - 2023 : Construction <u>Phase III-B : Northern Interceptors</u> 2024 - 2025 : Design, review and bidding 2026 - 2028 : Construction Phase III-C : Outfall 220 Subsystem 2029 - 2030 : Design, review and bidding 2031 - 2033 : Construction Phase III-D : West River Interceptor and Area OF 035 Sewer Separtion 2034 - 2035 : Design, review and bidding 2036 - 2038 : Construction

Estimated Phase III Timeline

Pawtucket Tunnel

The Pawtucket Tunnel is the focal point of the Phase III CSO Program. The purpose of the tunnel is to transport large flows and significantly expand the capacity of the overall system. This tunnel makes storing more stormwater possible which decreases the probability of a combined overflow event. The tunnel will be designed to provide storage at least equal to the discharge volume from the overflows along the Seekonk and Blackstone Rivers that results from the 3-month design storm after other system controls are put in place, including those in subsequent phases. The tunnel is the largest undertaking of the Phase III CSO Program and has an estimated timeline for design and construction of six years. The Pawtucket Tunnel, including associated pump station, drop shafts, and appurtenant work, remains essentially unchanged since the 1998 CDRA. It will be reaffirmed as part of the forthcoming EA update.

The tunnel is expected to be constructed 150 to 200 feet below grade and extend from just north of the BPWWTF in East Providence northerly to the Central Falls / Pawtucket Border near the Blackstone River. The tunnel alignment, as it was designed in the 1998 CDRA, is shown on attached Figures 1 and 2. Currently, the tunnel is expected to extend approximately 13,000 linear feet and have an internal diameter of up to 26 feet. These design parameters are estimates and subject to change based on design optimization activities that are currently underway.

The Pawtucket Tunnel will have two work shafts used to launch and retrieve the tunnel boring machine, as well as up to five drop shafts to convey flows into the tunnel. One or both of the work shafts may be converted to dropshafts, if possible. The two work shafts are anticipated to be approximately 30 feet in internal diameter and range from approximately 145 – 200 feet in depth, based on the final design of the tunnel. The drop shafts are expected to cause surface disruption during Phase III-A so the design currently specifies five, but this number may be consolidated to four or three. The currently proposed locations of the working and drop shafts are shown on Figures 1 and 2.



Included in the tunnel construction is up to five consolidation conduits. The consolidation conduits are used to collect flow from regulator structures upstream of the outfalls and convey this flow to the tunnel drop shafts. These consolidation conduits are anticipated to be in the range of 48-inch to 72-inch in internal diameter and have a combined total length of approximately 5,200 linear feet. Modifications will be performed at the regulator structures to convey wet weather flow to the consolidation conduits instead of to the CSO overflows for the 3-month design storm.

Another major component associated with the Pawtucket Tunnel is the construction and operation of a pump station, anticipated to be located on NBC property within 1,000 feet of the BPWWTF and at a depth of 260 feet. The pump station is anticipated to contain a two-stage pumping operation with eight 19 MGD pumps split evenly between divided lower and intermediate levels, with three pumps in operation and one on standby at each level. This station makes it possible to pump stored stormwater from the tunnel to the BBPWWTF for treatment. At this time, it is anticipated that the pump station will include a utility shaft 32 feet in internal diameter and 260 feet deep, an access shaft 12 feet in internal diameter and 260 feet deep, and a pump cavern approximately 60 feet by 120 feet with a height of approximately 70 feet. The location of the proposed pump station is shown in relation to the Pawtucket Tunnel on Figures 1 and 2. It too remains relatively unchanged from the 1998 CDRA and will be reaffirmed as part of the forthcoming EA.

Northern Interceptors

Three new interceptors are proposed to be constructed as part of Phase III-B: the High Street Interceptor, the Cross Street Interceptor, and the Middle Street Interceptor. The purpose of an interceptor is to accept and carry flows from the collector sewers in the drainage basin to the point of treatment or disposal. Each interceptor will be designed to accommodate wet-weather volumes resulting from the 3-month design storm. The proposed alignment of each interceptor can be found on the attached figures.

The High Street Interceptor is planned to be constructed along the northern part of High Street (north of Charles Street) in Pawtucket. It is anticipated to have a 42-inch internal diameter, extend approximately 2,160 linear feet in length, and be constructed 8 - 15 feet below grade. In close proximity will be the Cross Street Interceptor, which is anticipated to extend along the southern part of High Street (south of Charles Street) to the intersection with Central Street (in Pawtucket). This interceptor is anticipated to be 48-inch in internal diameter, 2,080 linear feet in length, and 15 - 22 feet below grade. This interceptor will also cross beneath the Blackstone River.

The Middle Street Interceptor is planned to be constructed along Middle Street. It is anticipated to extend approximately 1,710 linear feet in length with a 30-inch internal diameter and 12 - 15 feet below grade. A drop manhole is planned at the intersection of Middle Street and Central Street where another short interceptor is proposed. It will be constructed along with the Middle



Street Interceptor and is proposed to be 66" in internal diameter, 350 linear feet in length, and 25-45 feet below grade.

Deep Rock Lateral Tunnel

The construction of a deep rock lateral tunnel was proposed as an alternative to an interceptor for addressing overflows from OF 220 on the Moshassuck River in the southwestern part of Pawtucket as part of Phase III-C. A 9,100-foot lateral tunnel was presented as an alternative in the CDRA, between OF 220 and work shaft S5 but a revised alignment was presented in the Phase III Re-Evaluation. At this time, it is anticipated that the lateral tunnel would extend from the Pawtucket Tunnel near OF 217 to a location near OF 220. The current alignment for this lateral tunnel, which is approximately 7,000 feet in length, is depicted on Figure 4.1. The tunnel is expected to be constructed 70 to 200 feet below grade and be up to 11 feet in internal diameter, though the actual dimensions will be optimized along with the design of the Pawtucket Tunnel. Construction of the lateral tunnel will allow for auxiliary storage which may allow for a reduction in size of the Pawtucket Tunnel. Included with the construction of the lateral tunnel will be a work shaft, later converted to a drop shaft, near OF 220 that will be approximately 70 feet deep and between 6 to 8 feet in internal diameter.

Morley Field Tank

A near surface storage tank at Morley Field in Pawtucket was presented as an alternative to the lateral tunnel for the temporary storage of combined sewer flows in the area of OF 220. Like the lateral tunnel, it was not proposed as part of the 1998 CDRA. Conceptual design of this tank is based on an underground, cast in place concrete tank with approximate dimensions of 250 feet by 220 feet and a depth of 12 feet. Included in construction will be an odor control station and discharge pump station. The anticipated location of the tank, if constructed, is shown on Figure 4.1.

Green Stormwater Infrastructure

Since the 1998 CDRA and EA update, planning efforts have placed an emphasis on the incorporation of green and sustainable infrastructure technology, and NBC seeks to incorporate some of these ideas into the re-evaluated Phase III CSO Program. Green stormwater infrastructure (GSI) is predominately a control approach that seeks to approximate the natural water balance and intercept stormwater before it enters the combined sewer system. In highly urbanized environments like the NBC's services areas, the construction of separate storm and sanitary systems to replace combined sewers is extremely expensive; however, GSI can prove to be a cost-effective alternative to sewer separation in some instances.

A well designed GSI project will provide both a reduction in peak flows and improved water quality. Typically, the goal of GSI is to reduce or eliminate water pollution by:

- Reducing impervious cover,
- Increasing on-site infiltration,



- Eliminating sources of contaminants, and
- Removing pollutants from stormwater runoff.

The major benefits of GSI for the purposes of the Phase III CSO Program will be a reduction in impervious cover and an increase in on-site infiltration, which will reduce wet-weather flow to the combined sewer system with the goal of reducing the size and scope of the more traditional "grey infrastructure" CSO control components.

Typically, GSI can be divided into three categories: Source Control Measures, Pathway Measures, and Receptor Measures.

- Source Control Measures reduce peak storm water flows into the system. Managing localized flows usually involves detention and/or infiltration GSI approaches. Source control elements are normally chosen on their ability to fit into the existing landscape. A non-exclusive list of these types of GSI includes rain gardens, tree box filters, dry wells, ribbon driveways, and porous paving.
- Pathway Measures promote the management of stormwater during conveyance. This approach manages flow rates to detain and release stormwater and/or infiltrate it into the ground. Examples of this type of infrastructure include swales, infiltration trenches and chambers, filter strips, and detention basin systems.
- Receptor Measures are typically large in size and few in number. These fulfil the role of retention or longer term detention. The most recognized measures, and the most typical, are wetlands, ponds, and retention structures.

An aerial map showing the catchments considered for GSI is shown on Figure 4.2. No specific project locations or GSI designs have been established at this time; however NBC is currently evaluating sites in Pawtucket and Central Falls in which GSI can be used to the greatest effect. The RIDEM has indicated that GSI can be evaluated in a general, overall sense since specific sites or methodologies are yet to be established. Table 2 presents examples of the types of GSI systems that may be incorporated into the Phase III CSO Program.



Table 2: GSI System Examples

GSI	Description	Example
Stormwater Raingarden Bump Out	A stormwater raingarden bump out is a curb extension that intercepts stormwater runoff flowing along a gutter line before being captured by a receiving inlet. The raingarden bump out is vegetated and usually depressed to capture and store stormwater so it can be infiltrated through a designed porous media cross section or taken up by the plant material prior to overflowing to the receiving inlet. Besides promoting infiltration and removal of stormwater from the system, raingarden bump outs provide stormwater quality treatment during rainfall events.	
Tree Box Filter	A tree box filter is another method of collecting stormwater runoff and promoting infiltration and treatment. The tree box filter can be designed as a series of trees or as a single unit. These filters are set inside of the curbline along the roadway shoulder, normally adjacent to a pedestrian sidewalk. The tree box filter inlet allows runoff to flow into a planter filled with permeable filter media and/or stone that will store, treat, and infiltrate the runoff. It also allows stormwater to be taken up by the planted vegetation. Overflow from stormwater events is directed to overflow pipes that connect back to the drainage infrastructure within the roadway.	
Permeable Pavement	Permeable pavement or interlocking pavers are an engineered pavement system that comes in many variations. Standard types include permeable asphalt pavement or concrete pavement, concrete or brick pavers, open celled concrete pavers or grid grass pavers. Permeable pavement or interlocking pavers provides direct infiltration and temporary stormwater storage through a porous surface structure and underground stone base section draining to the underlying soils.	





Surface Detention Systems	As with underground detention systems, surface detention systems are designed to reduce the peak stormwater runoff in a storm event by intercepting stormwater runoff and metering it out back into the existing storm drain system. These systems are integrated into the surface landscape and can take up considerable site area, depending upon the detention time and volume required for a given project. Surface detention systems normally have a pretreatment area built into the design that would treat the stormwater for water quality prior to discharge to the larger detention cell.	
Stormwater Wetland Retention Systems	Stormwater wetland retention systems are systems of stormwater retention that employ the use of natural wetlands to store, treat, and control stormwater discharges while also providing a natural habitat for animal species. These systems are designed with multiple water storage pools and different wetland regimes. As stormwater runoff flows through the system, pollutant removal is achieved by settling and vegetation uptake. Large storage pools can be designed into the wetland system to provide large volumes of stormwater storage.	Image: constrained of the constrained o

Sewer Separation

Sewer separation, at its most basic, is the installation of additional pipe and structures to accept and convey either storm drainage or sanitary sewage exclusively, depending on what flow the existing combined sewer is designated to continue to accept. This type of project can be disruptive to residents and businesses due to the level of surface disturbance required and can have significant costs. Avoiding sewer separation wherever possible was an objective of the reevaluation of the Phase III CSO Program and has been largely avoided throughout the planning process. Sewer separation was previously proposed for the sewersheds contributing to OF



035, OF 039, OF 056, and OF 206, but is now proposed only in the OF 035 and OF 206 sewersheds.

Sewer separation in the catchment contributing to OF 035 is anticipated to include approximately two miles of new drainage pipe ranging in diameter from 8-inchs to 24-inchs. Approximately one mile of pipe replacement and another mile of pipe rehabilitation are also anticipated. Adjacent utility work and surface restoration will likely be required for this program element. For planning purposes, it is anticipated that the majority of water and gas mains, including service connections, will be replaced within the right-of-way in streets where sewer separation is performed. Likewise, pavement restoration will include a combination of full-depth restoration and surface course restoration based on existing road conditions at the start of construction. Sidewalks, wheelchair ramps, and landscape areas will also require restoration where disturbed as part of sewer separation construction.

West River Interceptor

Construction of the West River Interceptor is included as part of Phase III-D and was not proposed under the 1998 CDRA. Currently, the conceptual design is for a 72-inch diameter, 4,600-foot long interceptor installed approximately 10 – 25 feet below grade. The route is anticipated to follow the east bank of the West River, beginning at the Branch Avenue Interceptor (BAI) near OF 056, close to the intersection of Silver Spring Street. The West River Interceptor has been designed to accommodate overflow volumes resulting from the 3-month design storm and receives overflows from OF 039 and OF 056. The proposed alignment can be seen on Figure 4.3.



Figure 1: Project Overview Map





Figure 2: Project Overview Aerial




Figure 3: Resources Overview Aerial





Figure 4.1: Lateral Tunnel & Morley Field Tank





Figure 4.2: GSI Locations & Surrounding CSO Facilities





Figure 4.3: West River Interceptor





Appendix H Regulatory Review Comment Letters

H-1: RHODE ISLAND DIVISION OF PLANNING H-2: RHODE ISLAND COASTAL RESOURCES MANAGEMENT COUNCIL H-3: RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT H-4: RHODE ISLAND HISTORICAL PRESERVATION & HERITAGE COMMISSION

Department of Administration Division of Planning

One Capitol Hill Providence, Rhode Island 02908 (401) 222-6480

MEMORANDUM

To: Brandon M. Blanchard, Senior Project Engineer, Pare Corporation

CC: Art Zeman, RI DEM Kathryn Kelly, NBC

 Subject:
 Request for State Guide Plan Consistency

 Date:
 11.15.16

 From:
 Nancy Hess, Supervising Land Use Planner

Project:

Narragansett bay Commission- Phase III CSO Program-new projects Environmental Assessment

I reviewed the documents dated October 28, 2016 prepared by Pare Corporation for the Narragansett Bay Commission (NBC) pursuant to the request of Brandon M. Blanchard, for consistency with the Rhode Island State Guide Plan (SGP). The NBC has to meet discharge limitations established by a 1992 Consent Agreement with RI DEM, and is subject to the requirements of the state Clean Water State Revolving Fund. The Phase III discharge program is the 3rd and final phase of a program to eliminate the untreated discharge of combined stormwater and sewage into Narragansett Bay. This phase of the CSO program focuses on CSO discharges to the Blackstone, Seekonk, and Moshassuck Rivers. Due to project costs NBC has reevaluated the original planned Phase III projects and considered the feasibility of using green stormwater infrastructure (GSI) as an alternative to conventional grey infrastructure solutions for portions of certain CSO outfall areas. The new Phase III projects to be included are:

- West River Interceptor
- Lateral tunnel from OF 220 to Pawtucket Tunnel
- Morley Field Tank
- GSI projects

Based on the documents and explanations provided within, the proposed projects are consistent with the SGP policies concerning providing necessary infrastructure support because they will provide remediation of existing water quality concerns. The proposed reduction in the discharge of nutrients to receiving waters will result in improved water quality and is consistent with the appropriate Elements of the SGP related to land use, outdoor recreation, and water resources. Thank you for the opportunity to comment on the proposed Assessment. Should you have any questions about this review, please feel free to contact me at the number above.



State of Rhode Island and Providence Plantations Coastal Resources Management Council Oliver H. Stedman Government Center 4808 Tower Hill Road, Suite 116 Wakefield, RI 02879-1900

(401) 783-3370 Fax (401) 783-3767

November 30, 2016

Ms. Kathryn Kelly, P.E. Narragansett Bay Commission 1 Service Road Providence, RI 02905

Mr. Brandon Blanchard, P.E. Pare Corporation 8 Blackstone Valley Place Lincoln, RI 02865

Re: Environmental Assessment – Narragansett Bay Commission Phase III CSO Program – Request for comments regarding CZMA and CBRA

Reference CRMC File 2016-11-080

Dear Ms. Kelly and Mr. Blanchard,

The RI Coastal Resources Management Council (CRMC) is in receipt of your filing dated October 28, 2016 concerning the proposed new elements of the Narragansett Bay Commission (NBC) Phase III combine sewer overflow (CSO) project. You have indicated that an Environmental Assessment is in preparation and have requested CRMC comments concerning potential impacts to the Coastal Zone Management Act (CZMA) and Coastal Barriers Resource Act (CBRA). The Phase III CSO Program is directed at reducing untreated CSO discharges to the Blackstone, Seekonk and Moshassuck Rivers. The new elements of the Phase III CSO Program include the following:

- 1. West River Interceptor (Providence) construction of a new interceptor to convey flows to the Moshassuck Valley Interceptor;
- 2. Deep Rock Lateral Tunnel from Outfall 220 to Pawtucket Tunnel (Pawtucket);
- 3. Morley Field Tank (Pawtucket) construction of a near surface concrete sewage storage tank; and
- 4. Green Stormwater Infrastructure (Central Falls, Pawtucket, and Providence) installation of various stormwater practices such as biofiltration units, tree box filters, permeable pavement, surface detention systems and stormwater wetland retention systems in selected locations within the CSO Phase III service area.

In regard to any potential impacts to the Coastal Barriers Resource Act, we would not expect any physical impacts to the CBRA identified resources within Rhode Island based on the proposed area of construction activity as shown in Figure 1 Project Overview Map of the filing, as there are no CBRA resources within the project area. See: <u>https://www.fws.gov/ecological-services/habitat-conservation/cbra/Maps/index.html</u>.

The RI Coastal Resources Management Council administers and implements the State's federally approved Coastal Resources Management Program (CRMP) under the auspices of the Coastal Zone Management Act. Thus, the CRMC reviews activities and proposed projects and issues permits (Assents) where such activities comply with the CRMP. Based on Project Overview Map (Fig. 1), it appears that construction of the proposed Deep Rock Lateral Tunnel, the Pawtucket Tunnel, the Tunnel Dewater Pump Station and new CSO outfalls will involve construction activity on a coastal feature, the 200-foot contiguous area or within tidal waters. Therefore, a CRMC Assent will be required for those activities. However, the West River Interceptor and the Morley Field Tank would not require a CRMC Assent, as those activities are located well inland from any coastal features or the 200-foot contiguous area. It is likely that the installation of most of the Green Stormwater Infrastructure (GSI) proposed within the project communities of Central Falls, Pawtucket and Providence would not require CRMC Assents except for those GSI projects that may be located along a coastal feature or the 200-foot contiguous area.

The proposed Phase III CSO outfalls that discharge into the Seekonk River (tidal waters) are identified on Figure 1 as 215, 216, 217, 218, and 002. These outfalls will discharge to CRMC designated Type 4 Multipurpose Waters. In addition, there are numerous areas of coastal wetlands located along the Seekonk River, but none of them are "designated for preservation" by the CRMC. However, the CRMP states that "salt marshes adjacent to Type 3, 4, 5, and 6 waters that are not designated for preservation may be altered if: (a) the alteration is made to accommodate a designated priority use for that water area; (b) the applicant has examined all reasonable alternatives and the Council has determined that the selected alternative is the most reasonable; and (c) only the minimum alteration necessary to support the priority use is made." <u>See</u> CRMP Section 210.3.C.6. As part of the CRMC permitting process, the NBC will need to demonstrate conformance with the afore noted policy.

It is worth noting that the CRMC's policy for Type 4 waters states that "the Council shall work to promote the maintenance of good water quality within the Bay. While recognizing that stresses on water quality will always be present in urban areas such as the Providence River, the Council shall work to promote a diversification of activities within the upper Bay region through the water quality improvement process." <u>See</u> CRMP Section 200.4.C.4.

The proposed NBC Phase II CSO project elements as detailed in the October 28 filing and noted above, will require a CRMC Assent. The NBC should contact CRMC permit staff once the Environmental Assessment and project design plans are completed to assess whether a pre-application meeting will be necessary to facilitate application filing and review by the CRMC.

Please contact me should you have any questions concerning this review and comments concerning the Coastal Resources Management Program.

Sincerely,

ams Bo

James Boyd CRMC Coastal Policy Analyst

cc: Grover J. Fugate, CRMC Executive Director Jeffrey M. Willis, CRMC Deputy Director David Reis, Supervising Environmental Scientist Richard Lucia, Supervising Engineer CRMC File 2016-11-080



RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

235 Promenade Street, Providence, RI 02908-5767

TDD 401-222-4462

December 12, 2016

Brandon Blanchard, P.E. Pare Corporation 8 Blackstone Valley Place Lincoln, RI 02865

Re: <u>Departmental Comments</u> – Environmental Assessment – Narragansett Bay Commission, Phase III CSO Program

Dear Mr. Blanchard:

Below are the Department's preliminary comments regarding the Environmental Assessment for the Narragansett Bay Commission (NBC) Phase III Combined Sewer Overflow (CSO) Program. Your request for comments is in response to your letter to the Department dated October 28, 2016. The Office of Customer & Technical Assistance notes the following:

- 1. The Freshwater Wetlands Program's general comment regarding this project is that any alterations to freshwater wetlands occurring as a result of the project would require a permit from the Program. In addition, any proposed work must avoid wetlands, and if that is not possible, to minimize potential impacts to the maximum extent practicable.
- 2. The Office of Waste Management is concerned about the scope of investigatory work and the magnitude of contaminated sites involved with this project. Because the project work will cross into several towns, NBC will need to conduct a thorough survey into the number and location of sites that could be impacted as a result of this project. The Department may be able to provide some initial assistance through the file review process, as well as through GIS mapping, but ultimately NBC will be responsible for conducting a full site investigation.

This concludes RIDEM's preliminary comments regarding this project proposal. I hope that they are of assistance to you. Please note that this letter does not relieve the property owner from his/her obligation to obtain any local, state, or federal approvals or permits required by ordinance or law. If you have any questions concerning these comments, or would like to schedule a pre-application meeting, please contact me at 401-222-4700, x4410 or by email at joseph.antonio@dem.ri.gov.

Sincerely,

reph Antonio

Joseph Antonio, Senior Environmental Scientist RI Department of Environmental Management/Office of Customer & Technical Assistance

Cc: Ronald Gagnon, RIDEM Kathryn Kelly, P.E., NBC



STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS



HISTORICAL PRESERVATION & HERITAGE COMMISSION

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RIHPHC No. 11962 161205.02

5 December 2016

Via email: bblanchard@parecorp.com

Brandon Blanchard Senior Project Engineer Pare Corporation 8 Blackstone Valley Place Lincoln, RI 02865

Re: Pare No. 14106.01 Environmental Assessment Narragansett Bay Commission Phase III CSO Program Central Falls, East Providence, and Pawtucket, Rhode Island

Dear Mr. Blanchard:

The Rhode Island Historical Preservation and Heritage Commission (RIHPHC) staff has reviewed the documentation submitted for the above-referenced project. The purpose of the Phase III CSO program is abate overflows in the Bucklin Point Service Area in Central Falls and Pawtucket, as well as parts of the Field's Point Service Area in the northern sections of Providence.

In 2003, the RIHPHC entered into a Programmatic Agreement with the Narragansett Bay Commission regarding the Combined Sewer Overflow Facilities Project. While several projects included as part of Phase III are still planned, new projects are proposed. They include the following: Pawtucket Tunnel, three new northern interceptors, Deep Rock Lateral Tunnel, Morley Field Tank, and Green Stormwater Infrastructure.

The RIHPHC cannot comment on project effects at this time. The RIHPHC will need to know the locations of the proposed drop shafts associated with the Pawtucket Tunnel and the drop shaft(s) associated with the Deep Rock Lateral Tunnel. The RIHPHC inquired about the availability of smaller scale maps of the drop shaft locations by email on November 18 and November 30, 2016 but have received no response to date. Additionally, the RIHPHC will need to review the locations for the Green Stormwater Infrastructure when they have been identified.

The RIHPHC looks forward to continuing Section 106 consultation on this project. If you have any questions, please contact Glenn Modica, Senior Project Review Coordinator of this office, at glenn.modica@preservation.ri.gov or 401-222-2671.

Very truly yours,

FR Edward F. Sanderson Executive Director State Historic Preservation Officer

cc: Kathryn Kelly, Narragansett Bay Commission, by email

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS



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RIHPHC No. 11962 161213.01

13 December 2016

Via email: bblanchard@parecorp.com

Brandon Blanchard Senior Project Engineer Pare Corporation 8 Blackstone Valley Place Lincoln, RI 02865

Re: Pare No. 14106.01 Environmental Assessment Narragansett Bay Commission Phase III CSO Program Central Falls, East Providence, and Pawtucket, Rhode Island

Dear Mr. Blanchard:

This letter supersedes the Rhode Island Historical Preservation and Heritage Commission's (RIHPHC) previous letter dated 5 December 2016 regarding the above-referenced project. The Narragansett Bay Commission is undertaking the Phase III Combined Sewer Overflow (CSO) program to abate overflows in the Bucklin Point Service Area in Central Falls and Pawtucket, as well as parts of the Field's Point Service Area in the northern sections of Providence.

In 2003, the RIHPHC entered into a Programmatic Agreement with the Narragansett Bay Commission regarding the CSO program. Several projects included as part of Phase III are still planned and their potential effects on historic properties will be assessed per the Programmatic Agreement. New proposed projects and an assessment of project effects are identified below.

<u>West River Interceptor</u> No historic properties affected.

<u>Morley Field Tank</u> No historic properties affected.

<u>Deep Rock Lateral Tunnel</u> The RIHPHC will need to know the location of the drop shaft when it is identified.

<u>Green Stormwater Infrastructure</u> The RIHPHC will need to know the locations of the GSI projects when they are identified. These comments are provided in accordance with Section 106 of the National Historic Preservation Act. If you have any questions, please contact Glenn Modica, Senior Project Review Coordinator of this office, at glenn.modica@preservation.ri.gov or 401-222-2671.

Very truly yours,

Edward F. Sanderson Executive Director State Historic Preservation Officer

cc: Kathryn Kelly, Narragansett Bay Commission, by email