
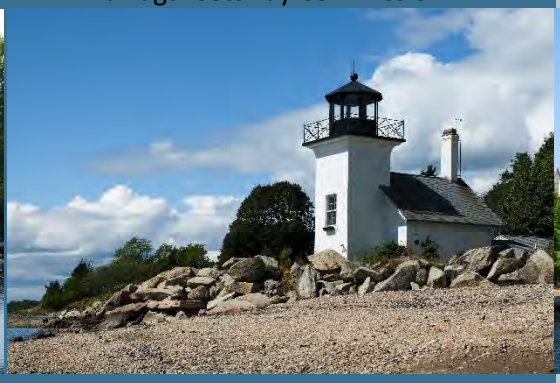


Phase III CSO Program

Environmental Assessment

Date: October 16, 2017

Stantec

PARE CORPORATION

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Revisions

Revision History

Date	Version	Description	Author(s)	Reviewer(s)	Date of Review(s)
12-22-16	0.1	DRAFT for NBC Review	B. Blanchard B. Lang	K. Kelly T. Brueckner	1-4-17
1-12-17	0.2	Revised DRAFT	B. Blanchard B. Lang	C. Feeney	1-18-17
1-19-17	1.0	Final DRAFT for RIDEM Submission	B. Blanchard B. Lang	K. Kelly T. Brueckner	1-27-17
4-26-17	1.1	2nd Revised DRAFT for NBC Review	B. Blanchard S. Pierce	C. Feeney	5-1-17
5-26-17	1.2	Updated EA for RIDEM Review	B. Blanchard S. Pierce	K. Kelly	5-15-17
10-16-17	2.0	FINAL EA	B. Blanchard S. Pierce		

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APPENDICES

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
NSS	Near Surface Storage
PA	Programmatic Agreement (PA)
Re-Evaluation Plan	Stantec/Pare Phase III Re-Evaluation 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
WI	West River Interceptor
WQS	Water Quality Standards

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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 2041.

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 re-evaluation 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.

The Phase III CSO Re-Evaluation was issued to RIDEM in 2015. Since then, the plan has been optimized to continue to achieve water quality objectives at a reduced overall cost to reduce the financial burden on rate payers. The results of plan optimization are presented in a May 2017 update to the Phase III CSO Re-Evaluation plan. This EA has been prepared in support of the 2015 Phase III CSO Re-Evaluation and 2017 Plan Optimization. The EA provides reaffirmation for facilities originally proposed in the 1998 CDRA with an analysis of impacts on newly proposed facilities.

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.

NBC prepared the “Conceptual Design Report Amendment Reaffirmation” in January 2005 (Reaffirmation) and a “Conceptual Design Report Amendment Second Reaffirmation” in December 2010 (Second Reaffirmation). These documents affirmed that the CSO Control Facilities proposed in the CDRA had not substantially changed. At the time of the second reaffirmation, Phase I construction had been finalized and the design of Phase II facilities was

nearing completion. Specifically, the Second Reaffirmation stated that “there have been no changes to the Phase III facilities”, which were identified to include “a 13,000-foot long, 26-foot diameter tunnel, three CSO Interceptors, and five sewer separation projects”.

The Second Reaffirmation included an update to *Section 10.3 Environmental Evaluation* of the CDRA which specifically addressed the Environmental Assessment, CDRA Section 10.3.2. Short-term/construction impacts (CDRA Section 10.3.2.1) and Conclusions (CDRA Section 10.3.2.3) were not amended from the 1998 CDRA. However, CDRA Section 10.3.2.2 was amended relative to Long-Term/Operational Impacts. The following is a summary of the updates provided in the Second Reaffirmation:

- Proposed facilities are sited to minimize operational impacts on the surrounding area;
- Above-ground structures will be designed to be compatible with the surrounding area and appropriate landscaping will be incorporated;
- Facilities will be designed to minimize pump noise and vibration and minimize air quality impacts;
- Facility sites have been selected to enable continuation of existing land uses following construction of near surface facilities or tunnel shafts;
- Appropriate measures would be taken to mitigate minor visual impacts associated with new above-ground structures, such as designing them to fit with the architecture of the surrounding area; and
- There would be no long-term impacts to public/recreational land use, traffic noise/sensitive receptors, and cultural, surface water/aquatic, and wildlife resources.

The Second Reaffirmation also indicated that minor air quality impacts would be experienced at all project sites, particularly at tunnel shaft locations where odors can be released when the tunnel fills in wet weather. Odor control facilities will be incorporated into tunnel drop shafts at appropriate locations to mitigate this, such as incorporating louvers that remain closed when the tunnel is not filling. Additional odor control facilities including force ventilation and activated carbon were incorporated into the Phase I tunnel based on operating experience following its construction; the lessons learned from the operation of this tunnel will be incorporated into the design and operation of the Pawtucket Tunnel proposed for Phase III.

Significant elements of the 1998 CDRA Plan as they relate to Phase III facilities are still proposed, and are reaffirmed in this EA update. These projects include the Pawtucket Tunnel, along with drop shafts 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. The potential impacts associated with these facilities remain as identified in the December 2010 Second Reaffirmation.

The purpose of this EA is to re-affirm previously documented facilities in Phase III of the CSO Program and present potential short term and long term environmental impacts of newly proposed program elements. Project elements that are new to the Phase III CSO Program, either from the 2015 Re-Evaluation or 2017 Plan Optimization, are assessed in this update to the EA. These project elements include the following:

- Stub Tunnel, from OF-220 to the Pawtucket Tunnel;
- Morley Field Near Surface Storage Tank at OF-220, as an alternative to the Stub Tunnel;
- Green Stormwater Infrastructure (GSI) projects;
- West River Interceptor (WI); and
- Blackstone Valley Interceptor (BVI) Relief Facilities, which include a relief structure in the vicinity of OF-205 (Upper-BVI Relief), a 15-inch Relief Sewer in Roosevelt Avenue, and a relief structure and drop shaft in the vicinity of OFs 215 and 216 (Mid-BVI Relief).

Proposed Actions and Alternatives

The re-evaluation 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.

Since the 2015 Re-Evaluation, the plan has been optimized to continue to meet the water quality objectives of the Program, but at a lower overall cost. Plan optimization consisted of validating the recommended plan developed during the re-evaluation as well as identifying and evaluating variations of it that continued to meet water quality objectives but at potentially lower overall cost. The optimization process was conducted by performing the following major actions:

- Updating and expanding the hydraulic model with improved definition of interceptors and large capacity combined sewers throughout the BPSA;
- Performing dry weather and wet weather model calibration using several months of flow metering and rain gauge data collected in late 2016;
- Completing a desktop geologic study that compiled available geologic and geotechnical data along potential tunnel alignments;
- Identification and evaluation of sites believed to be suitable for tunnel work shafts, drop shafts, and other associated facilities;
- Development of opinions of probable construction costs (OPCCs) for several variations of the Phase III CSO Plan; and
- Coordination with stakeholders (e.g. City of Pawtucket) and property owners to review siting considerations for Phase III CSO facilities.

Selection of one of these variations as the Optimized Plan for the Phase III CSO Program followed this optimization process. A comparison of the projects currently proposed following

plan optimization in 2017 and the projects proposed in the 1998 CDRA and 2015 Re-Evaluation is presented in Table 1.

Table 1: Historical Phase III CSO Program Project Elements

Project	Project Originally Presented in 1998 CDRA?	Project Carried Forward or Introduced in 2015 Re-Evaluation?	Project Currently Proposed Following 2017 Plan Optimization?
Pawtucket Tunnel	**YES** Tunnel alignment proposed along west side of river.	**YES** Tunnel alignment unchanged from 1998 CDRA.	**YES** Tunnel alignment relocated to east side of river during plan optimization.
Consolidation Conduits, Drop Shafts	**YES** Consolidation conduits required between outfalls and dropshafts.	**YES** Consolidation conduits and dropshafts generally consistent with CDRA.	**YES** Consolidation conduits, dropshaft locations still proposed, adjusted for new tunnel alignment.
Tunnel Pump Station	**YES** Tunnel Pump Station proposed at Bucklin Point WWTF.	**YES** Location and design requirements unchanged from 1998 CDRA.	**YES** Location and design requirements unchanged from 1998 CDRA and 2015 Re-Evaluation.
High Street/Middle Street Interceptors	**YES** Proposed to control overflows in northern catchments.	**YES** Interceptors in High Street and Middle Street carried forward.	**YES** Interceptors remain unchanged, though possibly replaced with BVI relief upstream of OF-205
Regulator Modifications	**YES** Modifications proposed at several existing CSO Regulator structures	**YES** Regulator modifications substantially unchanged from 1998 CDRA.	**YES** Regulator modifications remain substantially unchanged from 1998 CDRA, 2015 Re-Evaluation.
Sewer separation	**YES**	**YES** Sewer separation proposed for control at fewer OFs in 2015 Re-Evaluation than in CDRA.	**YES** Unchanged from 2015 Re-Evaluation.
Green Stormwater Infrastructure	**NO**	**YES** Introduced in 2015 Re-Evaluation as an alternative to other near surface work	**YES** Remains unchanged from 2015 Re-Evaluation.
Deep Rock Stub Tunnel	**NO** Sewer interceptor originally proposed for CSO control at OF-220	**YES** Introduced in 2015 Re-Evaluation as an alternative to a new sewer interceptor.	**YES** Design requirements, potential impacts unchanged, length/alignment modified for new Pawtucket Tunnel alignment.
Morley Field Near Surface Storage Tank	**NO** Sewer interceptor originally proposed for CSO control at OF-220	**YES** Introduced in 2015 Re-Evaluation as an alternative to the Stub Tunnel.	**YES** Substantially unchanged from 2015 Re-Evaluation.
West River Interceptor	**NO** Sewer separation originally proposed for OF-039, OF-056.	**YES** Introduced in 2015 Re-Evaluation as an alternative to sewer separation.	**YES** Largely unchanged, downstream sections increased from 72” to 96” diameter.
Blackstone Valley Interceptor (BVI) Relief	**NO**	**NO**	**YES** New relief facilities proposed upstream of OF-205 as an alternate to High/Middle Street interceptors and on midpoint of BVI near OF-215. Also includes 15-inch relief sewer on Roosevelt Ave.

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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. Through the EA process, potential temporary, short-term environmental impacts that may occur during construction and implementation were identified. Measures will be taken during 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 Re-Evaluation, a stakeholder group was convened to advise the construction alternatives developed throughout the re-evaluation 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 re-evaluation 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.

RIDEM stated in a letter to NBC dated March 17, 2016 that the public meeting requirement was met through the stakeholder process. Presentation of this EA at a Public Hearing is still required and will be scheduled for late June or early July 2017. Notice of this hearing will be published in the Providence Journal a minimum of 30 days in advance of the scheduled hearing date.

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.

Letters were issued on October 28, 2016 by certified mailings relative to the Phase III CSO Program as proposed in the 2015 Re-Evaluation. 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. Letters were again issued by certified mail on April 19, 2017 to inform agencies of changes to the Program following plan optimization. Review comments received in response to these letters have also been incorporated into this EA. 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.

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Section 1.0
Introduction

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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 (Phase III CSO Program), which began in 2016, is focused primarily on the BPSA in the communities of Pawtucket and Central Falls. The final sub-phase of the program does address the final remaining outfalls in the FPSA. Its projected completion date is 2041.

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.

NBC owns and operates Rhode Island's two largest wastewater treatment plants along with extensive infrastructure of interceptors, sewers, pump stations, tide-gates, and CSO structures. The Field's Point Wastewater Treatment Facility (FPWWTF), located in Providence, treats flow from Providence, North Providence, Johnston, Lincoln, and Cranston. The Bucklin Point Wastewater Treatment Facility (BPWWTF), located in East Providence, provides treatment of flow from Central Falls, Pawtucket, East Providence, Lincoln, Cumberland, and Smithfield. 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.

1.1 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, NBC 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. It includes 25 CSOs

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

In 1994, RIDEM approved the Conceptual Design Report (CDR) for the CSO 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 initiated a re-evaluation process to determine the affordability of the plan 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. One of these alternatives was chosen as the recommended plan and was presented as such in the 2015 Phase III Reevaluation report. 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. Since then, the plan has been optimized to achieve water quality objectives at lower overall cost. The goal of optimization has been to refine the recommended plan to meet the defined program design criteria and reduce the financial impact of the Phase III CSO Program. The results of plan optimization are presented in the 2017 update to the Phase III Re-Evaluation report.

1.2 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, which 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, following the 2015 reevaluation of Phase III and subsequent plan optimization by Stantec/Pare, RIDEM has again required that the EA be updated to evaluate new projects that were not originally proposed as part of Phase III in the 1998 CDRA. This EA has been updated to reflect the plan currently proposed following plan optimization, as presented in the May 2017 amendment to the Phase III CSO Re-Evaluation report.

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.

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Section 2.0
Purpose and Need

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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 RIDEM with input from the 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.

NBC prepared the "Conceptual Design Report Amendment Reaffirmation" in January 2005 (Reaffirmation) and a "Conceptual Design Report Amendment Second Reaffirmation" in December 2010 (Second Reaffirmation). These documents affirmed that the CSO Control Facilities proposed in the CDRA had not substantially changed. At the time of the second reaffirmation, Phase I construction had been finalized and the design of Phase II facilities was nearing completion. Specifically, the Second Reaffirmation stated that "there have been no changes to the Phase III facilities", which were identified to include "a 13,000 foot long tunnel, three CSO Interceptors and five sewer separation projects".

The Second Reaffirmation included an update to *Section 10.3 Environmental Evaluation* of the CDRA which specifically addressed the Environmental Assessment, CDRA Section 10.3.2. Short-term/construction impacts (CDRA Section 10.3.2.1) and Conclusions (CDRA Section 10.3.2.3) were not amended from the 1998 CDRA. However, CDRA Section 10.3.2.2 was amended relative to Long-Term/Operational Impacts. The following is a summary of the updates provided in the Second Reaffirmation:

- Proposed facilities are sited to minimize operational impacts on the surrounding area;
- Above-ground structures will be designed to be compatible with the surrounding area and appropriate landscaping will be incorporated;
- Facilities will be designed to minimize pump noise and vibration and minimize air quality impacts;
- Facility sites have been selected to enable continuation of existing land uses following construction of near surface facilities or tunnel shafts;
- Appropriate measures would be taken to mitigate minor visual impacts associated with new above-ground structures, such as designing them to fit with the architecture of the surrounding area; and
- There would be no long-term impacts to public/recreational land use, traffic noise/sensitive receptors, and cultural, surface water/aquatic, and wildlife resources.

The Second Reaffirmation also indicated that minor air quality impacts would be experienced at all project sites, particularly at tunnel shaft locations where odors can be released when the tunnel fills in wet weather. Odor control facilities will be incorporated into tunnel drop shafts at appropriate locations to mitigate this, such as incorporating louvers that remain closed when the tunnel is not filling. Additional odor control facilities including force ventilation and activated carbon were incorporated into the Phase I tunnel based on operating experience following its construction, and the lessons learned from the operation of this tunnel will be incorporated into the design and operation of the Pawtucket Tunnel proposed for Phase III.

Significant elements of the 1998 CDRA Plan as they relate to Phase III facilities are still proposed, and are reaffirmed for a third time in this EA update. These projects include the Pawtucket Tunnel, along with drop shafts 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. The potential impacts associated with these facilities remain as identified in the December 2010 Second Reaffirmation.

Project elements that are new to the Phase III CSO Program, either from the 2015 Re-Evaluation or 2017 Plan Optimization, are assessed in this update to the EA. These project elements include the following:

- Stub Tunnel, from OF-220 to the Pawtucket Tunnel;
- Morley Field Near Surface Storage (NSS) Tank at OF-220, as an alternative to the Stub Tunnel;
  Green Stormwater Infrastructure (GSI) projects;
- West River Interceptor (WI); and
- Blackstone Valley Interceptor (BVI) Relief Facilities, which include a relief structure in the vicinity of OF-205 (Upper-BVI Relief), a 15-inch Relief Sewer in Roosevelt Avenue, and a relief structure and drop shaft in the vicinity of OFs 215 and 216 (Mid-BVI Relief).

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Section 3.0

Proposed Actions and Alternatives

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3.0 Proposed Actions and Alternatives

Four alternatives for implementation of the Phase III CSO Program were presented in the Re-Evaluation Plan, with a preferred alternative being selected as the recommended plan for the Phase III CSO Program. Subsequently, the recommended plan was validated and optimized in 2016-2017 by assessing a number of variations to the recommended plan. The optimized plan is presented in the May 2017 update to the Phase III CSO Re-Evaluation and is the subject of this EA update.

The following summarizes the identification of alternatives, NBC's selection of a preferred alternative, and the subsequent optimization process to find improvements that continue to meet water quality objectives while lowering the overall cost of the program.

3.1 Alternative 1: Baseline CDRA

The first alternative considered in the Phase III CSO Re-Evaluation 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 Re-Evaluation, 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 Re-Evaluation 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 as Phases IIIA through IIID.

Phase IIIA consists largely of the construction of the Pawtucket Tunnel, followed by the construction of the High Street/Cross St and Middle Street Interceptors proposed as part of Phase IIIB. Addressing OF-220 is the next highest priority; therefore, either a Stub Tunnel from OF-220 to the Pawtucket Tunnel or a near surface storage tank at OF-220 would comprise Phase IIIC. 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 IIID. 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 IIIA design, review and bidding
- 2019 – 2023: Phase IIIA – Pawtucket Tunnel, Drop Shafts & Regulator Modification; GSI projects in areas contributing to OFs 212, 213, 214
- 2024 – 2025: Phase IIIB design, review and bidding
- 2026 – 2028: Phase IIIB – High and Cross Street Interceptor; Middle Street Interceptor; OF-206 Hybrid Separation; GSI projects in areas contributing to OFs 101, 104, 105
- 2029 – 2030: Phase IIIC design, review and bidding
- 2031 – 2033: Phase IIIC – OF-220 Stub Tunnel; GSI projects in areas contributing to OFs 216, 217
- 2034 – 2035: Phase IIID design, review and bidding
- 2036 – 2038: Phase IIID – West River Interceptor; OF-035 Separation; GSI projects in areas contributing to OFs 201 - 204

3.3 Alternative 3: Modified Baseline with Extended Schedule and 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., Stub Tunnel for OF-220) could be constructed.

3.4 Alternative 4: Bucklin Point Wastewater Treatment Facility Storage and 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 IIIA through IIID, as follows:

- Phase IIIA – OF-218 Interceptor and BPWWTF Storage / Treatment Tank
  Phase IIIA 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.

- Phase IIIB – OF-218 to OF-205 Interceptors & OF-220 Storage / Treatment
  Phase IIIB 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 IIIB would also include the extension of the interceptor from OF-218 to OF-205. As above, Phase IIIB would include a GSI project that would reduce total CSO volumes.

- Phase IIIC – High and Middle Streets Interceptors
  Phase IIIC 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.

- Phase IIID – West River Interceptor and OF-035 Sewer Separation
  Phase IIID would be identical to Phase IIID 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 – 2015 Re-Evaluation

During the re-evaluation of Phase III and development of these four 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 Re-Evaluation 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.

3.6 Plan Optimization

Plan optimization consisted of validating the recommended plan developed during the re-evaluation as well as identifying and evaluating variations of it that continued to meet water quality objectives but at potentially lower overall cost. The optimization process was conducted by performing the following major actions:

- Updating and expanding the hydraulic model with improved definition of interceptors and large capacity combined sewers throughout the BPSA;
- Completing a desktop geologic study that compiled available geologic and geotechnical data along potential tunnel alignments;
- Identification and evaluation of sites believed to be suitable for tunnel work shafts, drop shafts, and other associated facilities;
- Development of opinions of probable construction costs (OPCCs) for several variations of the Phase III CSO Plan; and
- Coordination with stakeholders (e.g. City of Pawtucket) and property owners to review siting considerations for Phase III CSO facilities.

Selection of one of these variations as the Optimized Plan for the Phase III CSO Program followed this optimization process. The timeline for completing Phase III was also extended out from 2038 to 2041, to reflect the actual date for a revised consent agreement and RIDEM approval of the Phase III Re-Evaluation. A comparison of the projects currently proposed following plan optimization in 2017 and the projects proposed in the 1998 CDRA and 2015 Re-Evaluation is presented in Table 3-1.

One of the modifications borne out of plan optimization is relocation of the proposed Pawtucket Tunnel to an alignment along the east side of the Blackstone and Seekonk Rivers. While this differs from the previous westerly tunnel alignment, its depth, capacity, and length remain generally consistent with past plans. The tunnel is still proposed to begin at the BPWWTF and terminate in the vicinity of OF-205, but the alignment east of the river eliminates a lengthy river crossing that was otherwise required for the tunnel alignments that followed along the west side of the river. The river crossing presented a great degree of construction risk associated with unknown and highly variable geologic conditions beneath the river.

Drop shafts are proposed at each end of the tunnel (i.e., near OF-205 and at the BPWWTF), at OF-218, and at OF-213. Consolidation conduits are still proposed between outfalls and drop shafts, but fewer drop shafts are proposed when compared to previous conceptual layouts that included drop shafts near OF-210 and OF-217 in addition to those identified above.

The potential environmental impacts associated with the easterly alignment of the tunnel and drop shafts are anticipated to be generally the same as those from the originally proposed westerly alignment. The Pawtucket Tunnel has been reaffirmed for the purposes of this EA (see Section 3.7).

Table 3-1: Historical Phase III CSO Program Project Elements

Project	Project Originally Presented in 1998 CDRA?	Project Carried Forward or Introduced in 2015 Re-Evaluation?	Project Currently Proposed Following 2017 Plan Optimization?
Pawtucket Tunnel	**YES** Tunnel alignment proposed along west side of river.	**YES** Tunnel alignment unchanged from 1998 CDRA.	**YES** Tunnel alignment relocated to east side of river during plan optimization.
Consolidation Conduits, Drop Shafts	**YES** Consolidation conduits required between outfalls and drop shafts.	**YES** Consolidation conduits and drop shafts generally consistent with CDRA.	**YES** Consolidation conduits, drop shaft locations still proposed, adjusted for new tunnel alignment.
Tunnel Pump Station	**YES** Tunnel Pump Station proposed at Bucklin Point WWTF.	**YES** Location and design requirements unchanged from 1998 CDRA.	**YES** Location and design requirements unchanged from 1998 CDRA and 2015 Re-Evaluation.
High Street/Middle Street Interceptors	**YES** Proposed to control overflows in northern catchments.	**YES** Interceptors in High Street and Middle Street carried forward.	**YES** Interceptors remain unchanged, though possibly replaced with BVI relief upstream of OF-205
Regulator Modifications	**YES** Modifications proposed at several existing CSO Regulator structures	**YES** Regulator modifications substantially unchanged from 1998 CDRA.	**YES** Regulator modifications remain substantially unchanged from 1998 CDRA, 2015 Re-Evaluation.
Sewer separation	**YES**	**YES** Sewer separation proposed for control at fewer OFs in 2015 Re-Evaluation than in CDRA.	**YES** Unchanged from 2015 Re-Evaluation.
Green Stormwater Infrastructure	**NO**	**YES** Introduced in 2015 Re-Evaluation as an alternative to other near surface work	**YES** Remains unchanged from 2015 Re-Evaluation.
Deep Rock Stub (Stub) Tunnel	**NO** Sewer interceptor originally proposed for CSO control at OF-220	**YES** Introduced in 2015 Re-Evaluation as an alternative to a new sewer interceptor.	**YES** Design requirements, potential impacts unchanged, length/alignment modified for new Pawtucket Tunnel alignment.
Morley Field Near Surface Storage Tank	**NO** Sewer interceptor originally proposed for CSO control at OF-220	**YES** Introduced in 2015 Re-Evaluation as an alternative to the Stub Tunnel.	**YES** Substantially unchanged from 2015 Re-Evaluation.
West River Interceptor	**NO** Sewer separation originally proposed for OF-039, OF-056.	**YES** Introduced in 2015 Re-Evaluation as an alternative to sewer separation.	**YES** Largely unchanged, downstream sections increased from 72” to 96” diameter.
Blackstone Valley Interceptor (BVI) Relief	**NO**	**NO**	**YES** New relief facilities proposed upstream of OF-205 as an alternate to High/Middle Street interceptors and on midpoint of BVI near OF-215. Includes 15-inch relief sewer on Roosevelt Ave.

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3.7 Projects to be Assessed

Table 3.2 provides a summary of the projects proposed for the Phase III CSO Program, while Figure A-2 in Appendix A provides a graphical depiction of these project elements. Many of these projects are generally consistent with the CDRA, as well as the 2010 Second Reaffirmation, as they relate to Phase III. These same projects include the Pawtucket Tunnel, along with drop shafts 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 the catchment area to OF-206 and catchment area to OF-035. The short-term and long-term impacts of these projects remain unchanged from those identified in previous assessments and reaffirmations and are reaffirmed as part of this EA update.

The optimized plan for the Phase III CSO Program includes five project elements that were not incorporated into the 1998 CDRA or latest reaffirmation 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 Stub Tunnel from the Pawtucket Tunnel to a location near OF-220
- Morley Field Near Surface Storage (NSS) Tank (as an alternative to the Stub 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
- Construction of relief facilities on the Blackstone Valley Interceptor (BVI) in the vicinity of OF-205 (Upper-BVI Relief), 15-inch Relief Sewer, and in the vicinity of OFs 215 and 216 (Mid-BVI Relief)

Figures A-3 through A-6 in Appendix A depict these projects, while Figure A-7 shows them relative to mapped USDA soil classifications. Figures A-8 through A-15 show the new project sites relative to mapped Cultural Resources and mapped Natural Heritage Areas. 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.

Table 3-2: Phase III CSO Optimized Plan

Phase IIIA	
Pawtucket Tunnel	• Deep rock storage tunnel with 2 work shafts and 4 drop shafts (optimized plan uses fewer drop shafts than originally proposed) • 13,000 linear feet, 150 – 200 feet below grade, north of Bucklin Point WWTF in East Providence to Central Falls/Pawtucket border near the Blackstone River • **Reaffirmed in updated EA, but updated alignment presented in figures**
Consolidation Conduits	• Proposed to consolidate flow from multiple overflows to tunnel drop shafts • Multiple sections ranging from 30" – 78" diameter, 5,600' combined total length • Additional consolidation conduits required due to reduction in drop shafts • **Reaffirmed in updated EA, but updated locations presented in figures**
Tunnel Pump Station	• Located within 1,000 feet of the Bucklin Point WWTF • **Reaffirmed in updated Environmental Assessment**
Regulator Modifications	• Regulator Modifications proposed at OFs 202-218 • **Reaffirmed in updated Environmental Assessment**
Mid-BVI Relief Facilities	• Relief at midpoint along existing Blackstone Valley Interceptor, near OF-215 • New diversion structure, gate/screening structure, 48-inch consolidation conduit • **Subject to assessment in updated Environmental Assessment**
GSI	• Target areas that contribute flows to OF 212, 213, and 214 • Possible GSI Demonstration Project in Central Falls • **Subject to assessment in updated Environmental Assessment**
Phase IIIB	
Hybrid sewer separation/GSI	• Implementation in the catchment for OF 206 within the BPSA • **Reaffirmed in updated Environmental Assessment**
Upper-BVI Relief Facilities	• Relief at upstream point along existing Blackstone Valley Interceptor • New diversion structure, consolidation conduit, and relief sewer near OF-205 • 15-inch Relief Sewer on Roosevelt Avenue • **Subject to assessment in updated Environmental Assessment**
High St./Middle St. Interceptors	• Possibly constructed as an alternate to Upper BVI Relief Facilities • **Reaffirmed in updated Environmental Assessment**
Regulator Modifications	• Regulator Modifications proposed at OFs 101, 103, 104, 105, 201, 202 • **Reaffirmed in updated Environmental Assessment**
GSI	• Target areas that contribute flows to OF 101, 104, and 105 • **Subject to assessment in updated Environmental Assessment**
Phase IIIC	
Stub Tunnel	• Between OF 220 and the Pawtucket Tunnel • Includes drop shaft, odor controls, pump station and appurtenant facilities • Approximately 7,750 linear feet, 10 feet internal diameter, 70 feet to 200 feet below grade • **Subject to assessment in updated Environmental Assessment**
Morley Field Storage Tank	• 250 ft. (L) x 221 ft. (W) x 12 ft. (D) near surface tank • Possibly constructed as an alternate to Stub Tunnel • **Subject to assessment in updated Environmental Assessment**
Regulator Modifications	• Regulator Modifications proposed at OFs 107, 220 • **Reaffirmed in updated Environmental Assessment**
GSI	• Target areas that contribute flows to OF 216 and 217 • **Subject to assessment in updated Environmental Assessment**

Phase IIID	
West River Interceptor	• Follows east side of West River. Starts at Branch Douglas Interceptor near OF 056 and connects to Moshassuck Valley Interceptor at Silver Spring Street. • 6 feet to 8 feet diameter, 4,600 linear feet in length, approx. 10-25 feet below grade • **Subject to assessment in updated Environmental Assessment**
Sewer separation	• Sewer separation projects for catchment contributing to OF 035 • **Reaffirmed in updated Environmental Assessment**
Regulator Modifications	• Regulator Modifications proposed at OF 036 • **Reaffirmed in updated Environmental Assessment**
GSI	• Target areas that contribute flows to OF 201-204 • **Subject to assessment in updated Environmental Assessment**

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Section 4.0

Environmental Impacts, Consequences, and Mitigation

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4.0 Environmental Impacts, Consequences, and Mitigation

The projects of the Phase III CSO Program that are assessed in this EA update include the construction of GSI projects in areas of Pawtucket and Central Falls, the Stub Tunnel for control of overflows at OF-220, the near surface storage (NSS) tank at Morley Field as an alternative to the Stub Tunnel, the WI, and relief facilities on the existing BVI. 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 constraints. As such, GSI is addressed generally within this section of the EA. However, a site selection and screening process has been performed to identify sites thought most suitable for GSI based on these factors, resulting in the development of screening maps which have been included as Appendix B. It is important to note that not all of these sites will be pursued for GSI, and it is possible that sites not identified by this screening process may be considered in the future. Currently, NBC is considering a GSI demonstration project in Central Falls and is coordinating with the City to determine an appropriate site.

NBC has selected the Stub Tunnel as their preferred measure to address overflows at OF-220 based on operational experience with remote storage facilities. The use of a NSS at Morley Field may be considered in the future. As such, the EA will evaluate the short-term and long-term environmental impacts of both facilities to address overflows at OF-220.

Finally, high-level relief facilities on the existing BVI in the vicinity of OF-205 (a.k.a. Upper-BVI Relief) and at another location near OF-215 (a.k.a. Mid-BVI Relief) are currently being pursued as a replacement to interceptors originally proposed in High Street/Cross Street and Middle Street. These relief facilities would bypass flow to the Pawtucket Tunnel, gaining capacity in the BVI to accommodate flows from the areas that would be controlled by new interceptors. A 15-inch relief sewer in Roosevelt Avenue is also anticipated to be required as part of this work. While relief facilities are the currently selected alternative proposed in the 2017 update to the Re-Evaluation, NBC may decide to instead construct the interceptors referenced above if construction of the relief facilities is infeasible. The interceptors were assessed in the past and the short-term and long-term impacts of these remain unchanged.

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 Program. 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.

The Phase III CSO Program in general will result in long-term 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 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, Blackstone River, Seekonk River, West River, 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 in most instances. 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 Stub Tunnel would primarily 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. As a result of Phase III Optimization, the realignment of the Pawtucket Tunnel to the east side of the Seekonk River will require the Stub Tunnel to travel beneath the river to connect to the Pawtucket Tunnel. This realignment will not create any additional impacts to surface waters in the area, as the tunnel will be a deep rock storage tunnel substantially below grade, constructed using a tunnel boring machine (TBM) and/or drill and blast with work shafts in the vicinity of OF-218 and OF-220.

Surface water bodies in the vicinity of the WI project area include Canada Pond and the West River. Under the current alignment, the WI 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 likely be implemented to minimize surface disturbance associated with pipe installation. In addition, the WI 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 WI.

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 WI that will need to be addressed to minimize any impact to the river. Furthermore, it is not anticipated that operation of a near surface storage tank at this site will have a detrimental effect on the nearby Moshassuck River.

The proposed BVI Relief Facilities are located in the general proximity of the Blackstone/Seekonk River. As such, erosion and sedimentation controls will be implemented to mitigate potential impacts to the river during construction, as referenced in Section 4.1.2. No adverse long-term impacts to surface waters are anticipated from these facilities.

4.1.2 Mitigation Measures

Standard construction phase environmental protection controls will be utilized during the construction of all projects described above. 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 area 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 WI, Stub Tunnel, BVI Relief Facilities, 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 projects will result in stormwater infiltration but techniques that might adversely impact groundwater quality will not be proposed.

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/CRMC-regulated resource areas within the project limits is inevitable. BVI Relief Facilities and several potential GSI implementation areas may be located within the RIDEM-regulated 200-foot Riverbank associated with the Blackstone River; though projects will likely not be proposed within the mapped floodplain in most instances. A portion of the Stub Tunnel is located within the CRMC-regulated 200-foot contiguous area of the Seekonk River but impacts are not anticipated based on its depth and method of construction. The MFT and WI are located within the 200-foot Riverbank associated with the Moshassuck River and West River, respectively. Additionally, several mapped wetlands are located within the project limits of the West River Interceptor. Long-term impacts to these areas are not anticipated but potential short-term impacts associated with construction activity may require mitigation as discussed in Section 4.3.2.

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 WI is located almost entirely within the FEMA Flood Zone AE associated with the West River. The eastern portion of the Stub Tunnel lies within an area of FEMA Flood Zone VE (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). Proposed BVI Relief Facilities are not located within any mapped FEMA floodplain. FEMA FIRM maps are provided in Appendix C.

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 WI alignment appears to encroach into jurisdictional areas associated with the West River, wetland restoration or additional mitigation measures may be required. Such determinations will be made by the design team in conjunction with RIDEM 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 WI 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 work in the catchment areas to outfalls 212, 213, 214, and 216. Due to the proximity of these areas to the mapped flood zones associated with the river, GSI facilities will be located as far from coastal features as possible. GSI facilities within 200 feet of the coastal feature will be permitted with CRMC. The Stub Tunnel will cross beneath the Seekonk River, as will an adit tunnel connection from the drop shafts at OF-213 to the main tunnel. These crossings will occur within the associated 200-foot contiguous area, but impacts are unlikely based on its depth and construction methodology. No coastal resources are located within the project limits of the NSS at Morley Field, BVI Relief Facilities, or the WI.

4.5.2 Mitigation Measures

Correspondence received from CRMC noted that Phase III project elements located within the contiguous area associated with the Seekonk River will require a CRMC Assent. The upstream

limits of the tidally influenced Seekonk River are defined at the Main Street Dam in Pawtucket. 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. No adverse long-term impacts to Coastal Zones or Resources are anticipated, and potential short-term impacts typical of construction will be mitigated to the greatest extent possible.

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

Air quality impacts, primarily associated with potential odors from Phase III facilities, were noted as a potential environmental consequence in the Second Reaffirmation in 2010. There remains the potential for odors from some of the facilities proposed in the Phase III CSO Program following the Re-Evaluation and Plan Optimization. However, the tunnel is proposed to have one fewer drop shaft than previously proposed and drop shafts have been sited to minimize potential impacts to sensitive receptors. Drop shafts are the most likely location for odors to impact the surrounding environment, and odor control facilities will be integrated in the design and construction of these structures.

4.8.1 Potential Consequences

A large amount of excavation and general construction activity will be required for each of the projects assessed in this EA update. Inherent air quality issues are possible with these types of construction 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 Pawtucket Tunnel and the NSS tank at Morley Field to mitigate the potential of displacing odor into the surrounding environment when these facilities fill. Also, it is anticipated that a general permit will be required from the RIDEM Office of Air Resources (OAR) associated with emergency generators required for mechanical facilities and pump stations. 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 and the BVI Relief Facilities will require construction vehicles and site work in areas that are within or near existing roadways and right-of-ways which will be highly visible to the general public. The WI, Stub Tunnel, and adit tunnels are planned to be constructed using subsurface methods which should alleviate some noise disturbance. However, noise pollution may be generated from rock removal/blasting and the drilling of the drop shaft as part of the Stub Tunnel project, and the WI 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. In most instances, construction activities will be scheduled during normal working hours (7 a.m. – 5 pm.) typical in construction. It is not anticipated that construction will occur beyond these working hours or on weekends. The exception to this is tunnel construction, which is a 24-hour operation but noise impacts are not typical based on construction methodology.

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 WI is currently proposed along the bank of the West River, subsurface construction methods are likely to 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 measures to minimize associated impacts. Form letters from the USFWS identifying threatened and endangered species within the project areas are provided in Appendix D.

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.

The Stub Tunnel would be constructed underground, primarily 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 around OF-220, it is not anticipated that the drop shaft will have a significant adverse impact on vegetation or wildlife.

The NSS tank alternative to the Stub Tunnel 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 will 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 and temporary disturbance will be necessary during construction.

BVI Relief Facilities are proposed to be located within previously disturbed areas and are therefore anticipated to have little or no impact on vegetation and wildlife.

4.10.2 Mitigation Measures

Based on the proposed areas for these projects, it appears that there may be minor, short-term 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 WI 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 WI 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 WI 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 is 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 agencies 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) which will be coordinated with the water supplier serving the project area. 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 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.

A majority of soils in the Stub Tunnel project limits are classified as Paxton-Urban land complex (PD) and Urban land (Ur). Soils within the NSS tank 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 (UD). The northernmost limits of the project area lie within an area classified as Urban land. Soils within the BVI Relief facilities are Merrimac Urban land complex (MU). Please refer to the attached soil map, identified as Figure A-7 in Appendix A, for a geographic representation of the underlying soils within the boundaries of potential Phase III CSO projects.

- 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. Correspondence 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 alert for 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.

One of the environmental benefits to come out of Phase III CSO Plan Optimization was the elimination of a drop shaft at OF-217. This outfall is in the vicinity of the Tidewater site, which is known to have soil and groundwater contamination present from its past use. The long term remedial measure for this site is encapsulation; however, construction of a drop shaft through contaminated media would have required disturbance of this cap, soil removal and hauling, and disposal at an offsite facility.

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 WI and in potential locations of GSI projects. The revised alignment of the Stub Tunnel now passes underneath a historic cemetery and the new alignment of the Pawtucket Tunnel is in close proximity to mapped historic properties. Figures A-8, A-9, A-10, and A-11 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 E. 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.

Cemeteries: 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 WI project limits is the Wanskuck Historic District. No historic features were identified within the project area for the BVI Relief Facilities or the MFT site. As such, these projects are not anticipated to disturb historical, archaeological, or cultural resources. An updated alignment of the Stub Tunnel passes beneath the Riverside Cemetery, based on the new alignment for the Pawtucket Tunnel along the east side of the river. However, as the tunnel will be located well below grade, no direct impacts to this site are anticipated. It should also be noted that while the current alignment of the Pawtucket Tunnel is

shown passing beneath a historic property (Pawtucket Armory), this alignment is conceptual in nature and subject to revision as design progresses.

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

Most of the construction for the Stub Tunnel, WI, and BVI Relief Facilities will occur underground; however, the presence of construction equipment and materials will be visible during construction as well. The drop shaft for the tunnel, manholes for the WI, and surface

access for BVI Relief Facilities will be constructed to grade which will be visible after construction; however, they will either be installed in remote locations (as is the case for the WI) or in areas where similar utility infrastructure is already in place. The negative aesthetic conditions associated with the MFT alternative to the Stub Tunnel 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 in most instances.

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 facilities, 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. However, GSI projects will most often be constructed to compliment or accommodate current or future land use.

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 case 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 while still meeting the intended long-term use of each particular site.

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 Stub Tunnel, WI, BVI Relief Facilities, and NSS Tank 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 strives to minimize the financial burden to ratepayers to the greatest extent possible. NBC performed a re-evaluation of the 1998 CDRA in 2015 and optimized this plan in 2017 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 being assessed, except for a Stub 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 Re-Evaluation 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 more affordable rates.

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. It is noted however that project sites have been selected to minimize potential impacts to these types of facilities wherever possible. An example of this is the elimination of a drop shaft near OF-217, which was

once proposed in the general vicinity of an elementary school, ballfields, and the Tidewater property which is known to have soil and groundwater contamination associated with its former uses.

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. However, siting and construction of GSI facilities may enhance and have a long-term benefit to community facilities in some instances. The Stub Tunnel is not expected to impact community facilities due to its subterranean construction. A drop shaft associated with the Stub Tunnel in the vicinity of OF-220 will likely be constructed in a location that does not directly impact community facilities. The BVI Relief Facilities are not located proximate to existing community facilities. The WI 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 Stub Tunnel is not anticipated to have an impact on recreational facilities. Since the Stub 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, possible disturbance to these facilities would be temporary and these sites would be restored to a condition equal to or better than its pre-construction condition.

The currently proposed WI alignment is in close proximity to ballfields at the Esek Hopkins Middle School. Design of the WI will be such that potential impacts to the ballfields at the school are minimized or avoided altogether. As stated before, construction of the WI 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.

The BVI Relief Facilities are not located at sites currently used for recreation.

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 all projects of the Phase III CSO Program. 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 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 Stub Tunnel, MFT, BVI Relief Facilities, and WI will be associated with the heavy construction nature of these projects.

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 to the degree required while also minimizing adverse impacts to traffic.

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 unsuitable physical or chemical characteristics, 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 appropriate Program-level or individual project-level soils management plans, should it be encountered.

4.20.2 Mitigation Measures

Throughout the course of construction, appropriate project personnel will be directed to be alert for 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

Phase III CSO Program projects assessed in this EA 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 temporary and 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 Stub Tunnel, NSS Tank at Morley Field, BVI Relief Facilities, and WI 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. Still, these impacts are of a temporary nature and long-term impacts to traffic and business activities should not result from any of these projects.

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 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 given 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.

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 Re-Evaluation, a stakeholder group was convened to advise the construction alternatives for the Phase III CSO Re-Evaluation. 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 re-evaluation 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 F. The following table outlines the dates and times of the seven stakeholder workshops:

Table 5-1: Stakeholder Workshop Schedule

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

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

A public hearing was held on June 27, 2017 at 5:00 PM at the Narragansett Bay Commission's Administrative Offices located at 1 Service Road, Providence RI 02905. Representatives of NBC, Stantec, and Pare Corporation were in attendance along with a stenographer from Allied

Court Reporters, Inc. No members of the public attended the hearing; however, a PowerPoint slideshow was prepared for the hearing which summarizes the CSO Program history and provides information pertaining to the 2017 Phase III CSO Program EA. Provided in Appendix G is the sign-in sheet and stenographer report of the public hearing as well as a copy of the advertisement published in the Providence Journal on May 26, 2017. A copy of the PowerPoint presentation is incorporated into the stenographer report.

5.3 Public Comments

A 30-day public comment period was initiated on May 26, 2017. No comments were received during the 30-day public comment period, nor have any public comments been received since.

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 Re-Evaluation. 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.

6.1 Agency Coordination and Review - Fall 2016

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. Figures and a program narrative accompanied each agency letter, a copy of which is included as Appendix H. 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 from Fall 2016 are included as Appendix I.

6.1.1 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.

6.1.2 RIDEM Division of Fish and Wildlife (RIDEM DFW)

No response has been received from this agency in response to the letter sent in October 2016.

6.1.3 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.

6.1.4 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.

6.1.5 Narragansett Tribal Historic Preservation Office

No response has been received from this agency in response to the letter sent in October 2016.

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

No response has been received from this agency in response to the letter sent in October 2016.

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

No response has been received from this agency in response to the letter sent in October 2016.

6.1.8 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 Stub 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.

6.1.9 Rhode Island Department of Transportation (RIDOT)

No response has been received from this agency in response to the letter sent in October 2016.

6.1.10 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 D for information obtained from the US FWS relative to endangered species and wildlife habitats.

6.2 Agency Coordination and Review - Spring 2017

A second agency review period was performed in spring 2017 to allow agencies a chance to comment on the Phase III CSO Program following the 2017 Plan Optimization. Letters were again issued by certified mailings on April 19, 2017, and review comments were requested from each agency within 30 days of their receipt of the letter. A cover letter and revised figures describing the optimized plan for Phase III and how it differs from the 1998 CDRA and 2015 Re-Evaluation were presented for review. Copies of each letter are included as Appendix J.

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 from Spring 2017 are included as Appendix K.

6.2.1 Rhode Island Coastal Resource Management Council (RICRMC)

A comment letter dated May 9, 2017 was received from Mr. Grover Fugate, CRMC Executive Director. The letter indicates that CRMC previously provided comments in a November 30, 2016 letter, which indicated that it appears that construction activity for some Phase III CSO Program elements will be "on a coastal feature, the 200-foot contiguous area, or within tidal waters. Therefore, a CRMC Assent will be require for those activities."

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.

6.2.2 RIDEM Division of Fish and Wildlife (RIDEM DFW)

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

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

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

6.2.4 Rhode Island Division of Planning

An email from Ms. Nancy Hess of the Rhode Island Division of Planning was received on May 16, 2017 with the following two comments:

- The revised proposal describes a "near surface storage tank" at Morley Field in Pawtucket. It is unclear if this storage facility will take the place of the field and render it unusable. If so, to be consistent with SGP Element #152, Ocean State Outdoors (SCORP), the project should identify a replacement recreational area to make up if the field is displaced.

- As Morley Field is directly adjacent to the Moshassuck River, precautionary steps should be taken during development and operation to ensure that the water quality of the river is not adversely affected by the development and use of this "near surface" storage facility.

No long-term impact is anticipated to Morley Field, should NBC pursue a near surface storage tank at this site (though it is noted that the Stub Tunnel is the currently preferred option over a near surface storage tank). As indicated in Section 4.18.1 of this EA:

> *"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."

Potential impacts to the Moshassuck River will be mitigated during development and operation of a near surface storage tank at this site. As indicated in Section 4.1.1 of this EA:

"Construction associated with the tank will also have sedimentation and erosion control issues similar to those associated with the construction of the WI that will need to be addressed to minimize any impact to the river. Furthermore, it is not anticipated that operation of a near surface storage tank at this site will have a detrimental effect on the nearby Moshassuck River."

6.2.5 Narragansett Tribal Historic Preservation Office

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

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

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

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

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

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

A comment letter dated May 24, 2017 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 review drop shaft locations when they are identified.*
- *Green Stormwater Infrastructure: The RI HPHC will need to review the locations of the GSI projects when they are identified.*
- *Pawtucket Tunnel: The RI HPHC will need to review drop shaft locations when they are identified.*
- *Blackstone Valley Interceptor Relief: The RI HPHC will need to review drop shaft locations when they are identified.*

NBC will coordinate with the RI HPHC when GSI project sites and drop shaft locations for the Lateral Tunnel, Pawtucket Tunnel, and Blackstone Valley Interceptor Relief are more formally identified.

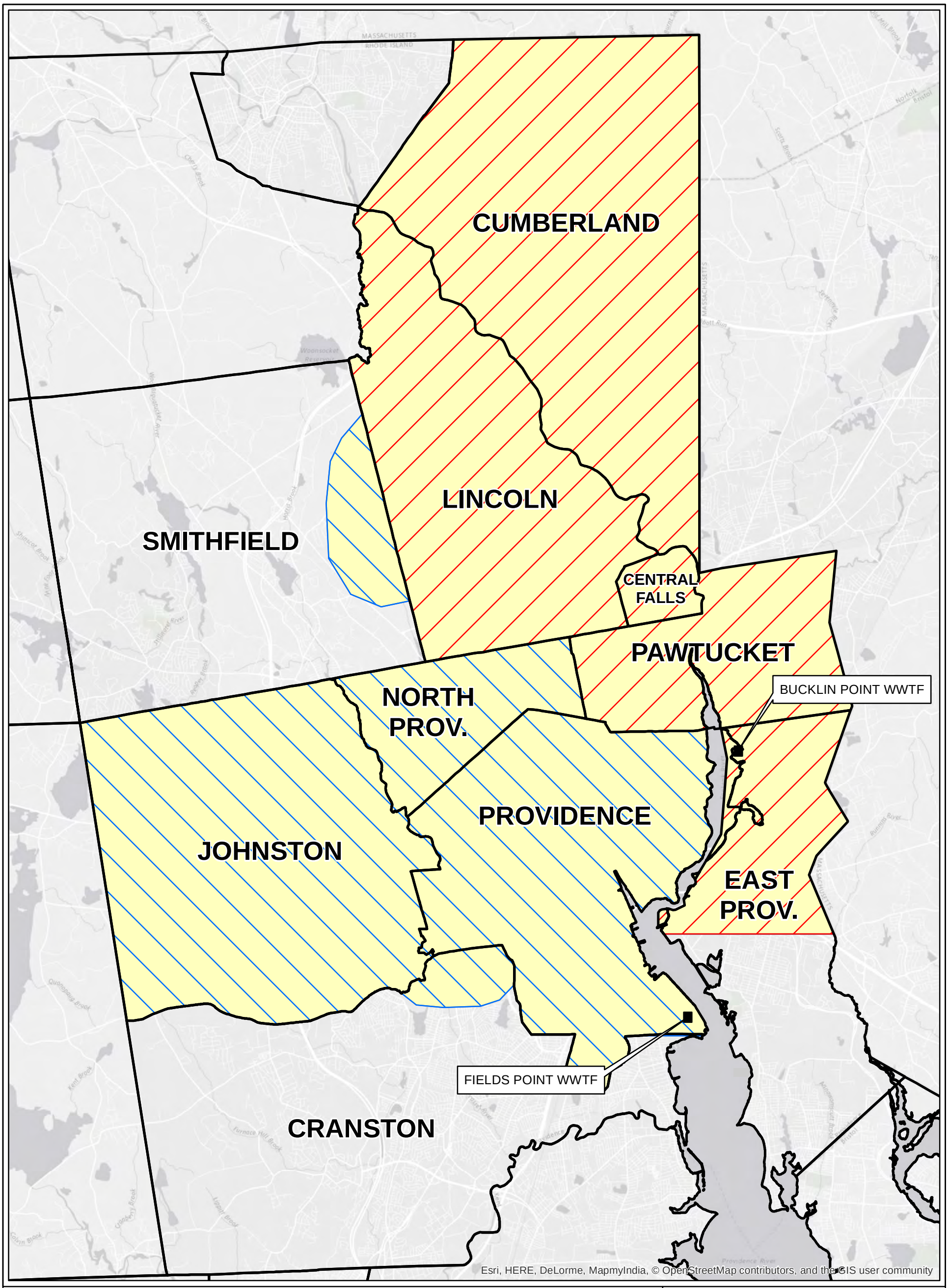
6.2.9 Rhode Island Department of Transportation (RIDOT)

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

6.2.10 United States Fish and Wildlife Service

As indicated previously, 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 D for information obtained from the US FWS relative to endangered species and wildlife habitats.

Appendix A
Figures



LEGEND:

- Town Lines
- Areas Serviced by Bucklin Point
- Areas Serviced by Fields Point
- Approximate NBC Service Area

N W E S

8,000 4,000 0 8,000 Feet

TITLE:

PROJECT OVERVIEW MAP

PHASE III CSO CONTROL FACILITIES PROGRAM

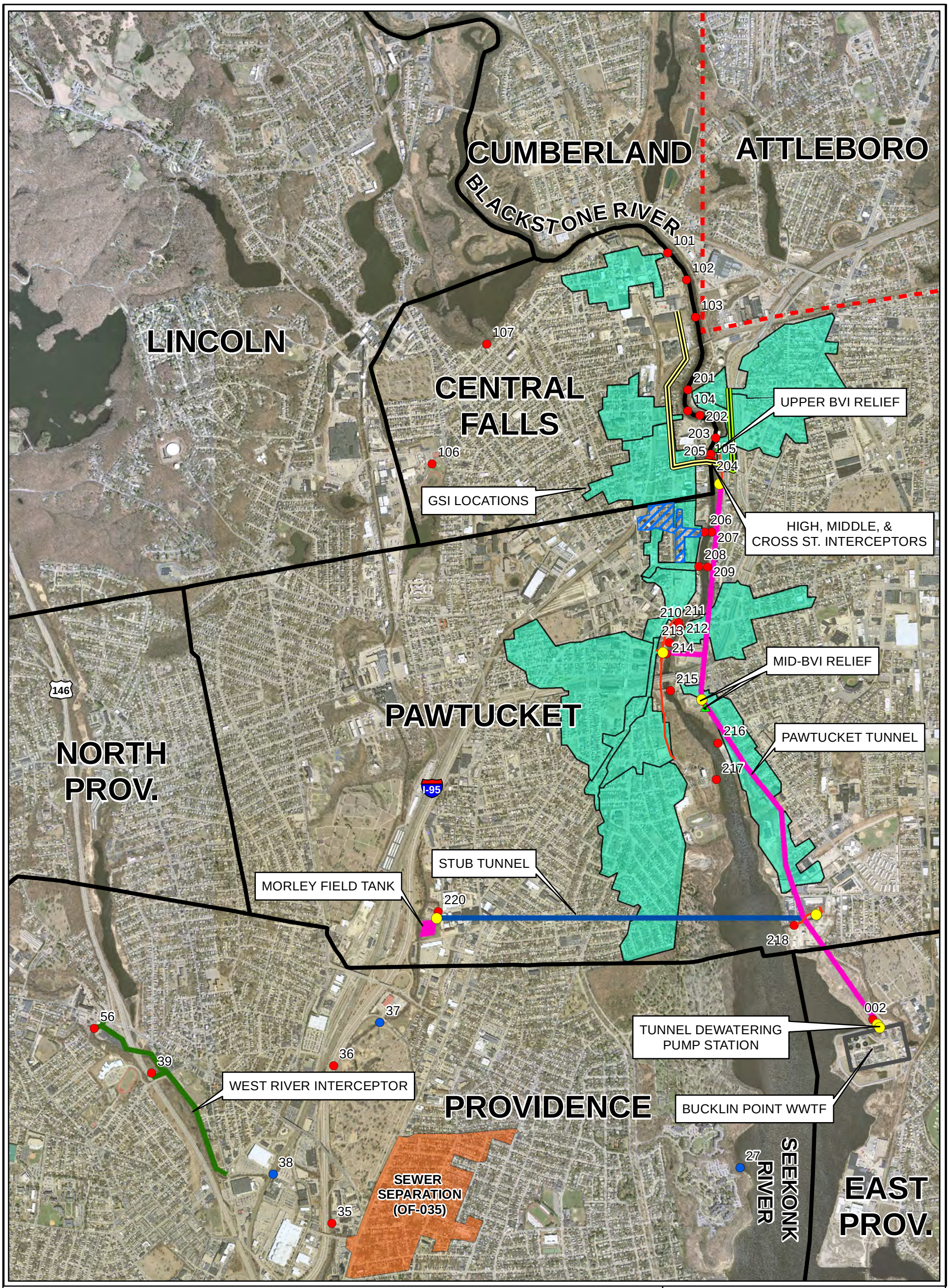
REFERENCE(S):
Coordinate System: NAD83 Rhode Island ft
Units: Foot US

DATE: MAY 2017

Stantec

PARE CORPORATION

FIGURE: **A-1**



LEGEND:

- CSO Outfall Phase III
- Other CSO Outfalls
- Bucklin Point WWTF
- Sewer Separation
- Hybrid Sewer Separation
- State Line
- Town Line
- Pawtucket Tunnel
- West River Interceptor
- Stub Tunnel
- Morley Field Tank
- GSI Catchment Areas
- Diversion Structures
- Dropshafts
- Consolidation Conduit
- Middle St Interceptor
- High St & Cross St Interceptors

N W E S

2,000 1,000 0 2,000 Feet

TITLE:

PHASE III CSO PLAN OVERVIEW

PHASE III CSO CONTROL FACILITIES PROGRAM

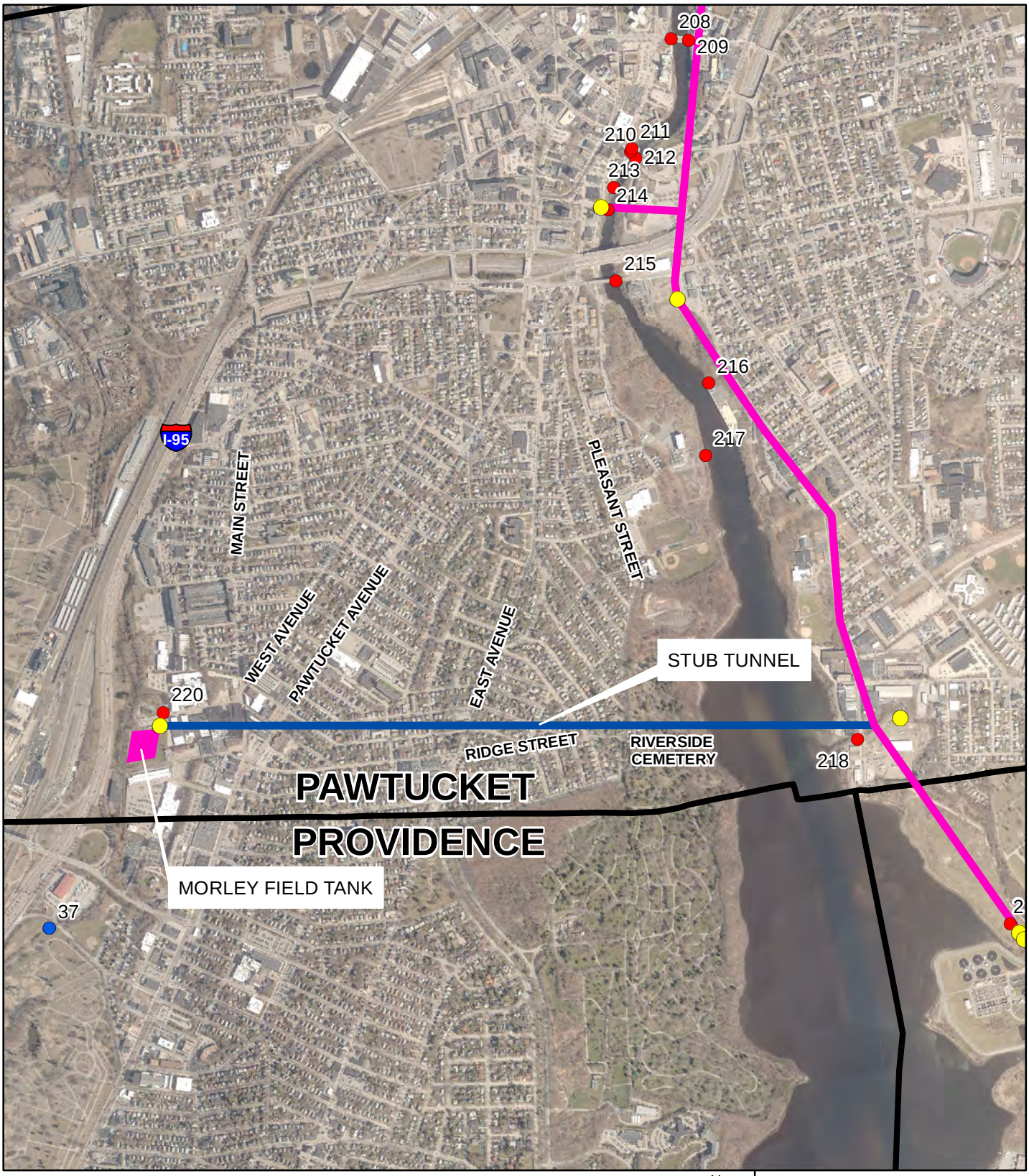
REFERENCE(S):
Coordinate System: NAD83 Rhode Island ft
Units: Foot US

DATE: MAY 2017

Stantec

PARE CORPORATION

FIGURE: **A-2**



LEGEND:

- CSO Outfall Phase III
- Other CSO Outfalls
- Dropshafts
- Stub Tunnel
- Pawtucket Tunnel
- Morley Field Tank
- Town Line

N W E S

1,500 750 0 1,500 Feet

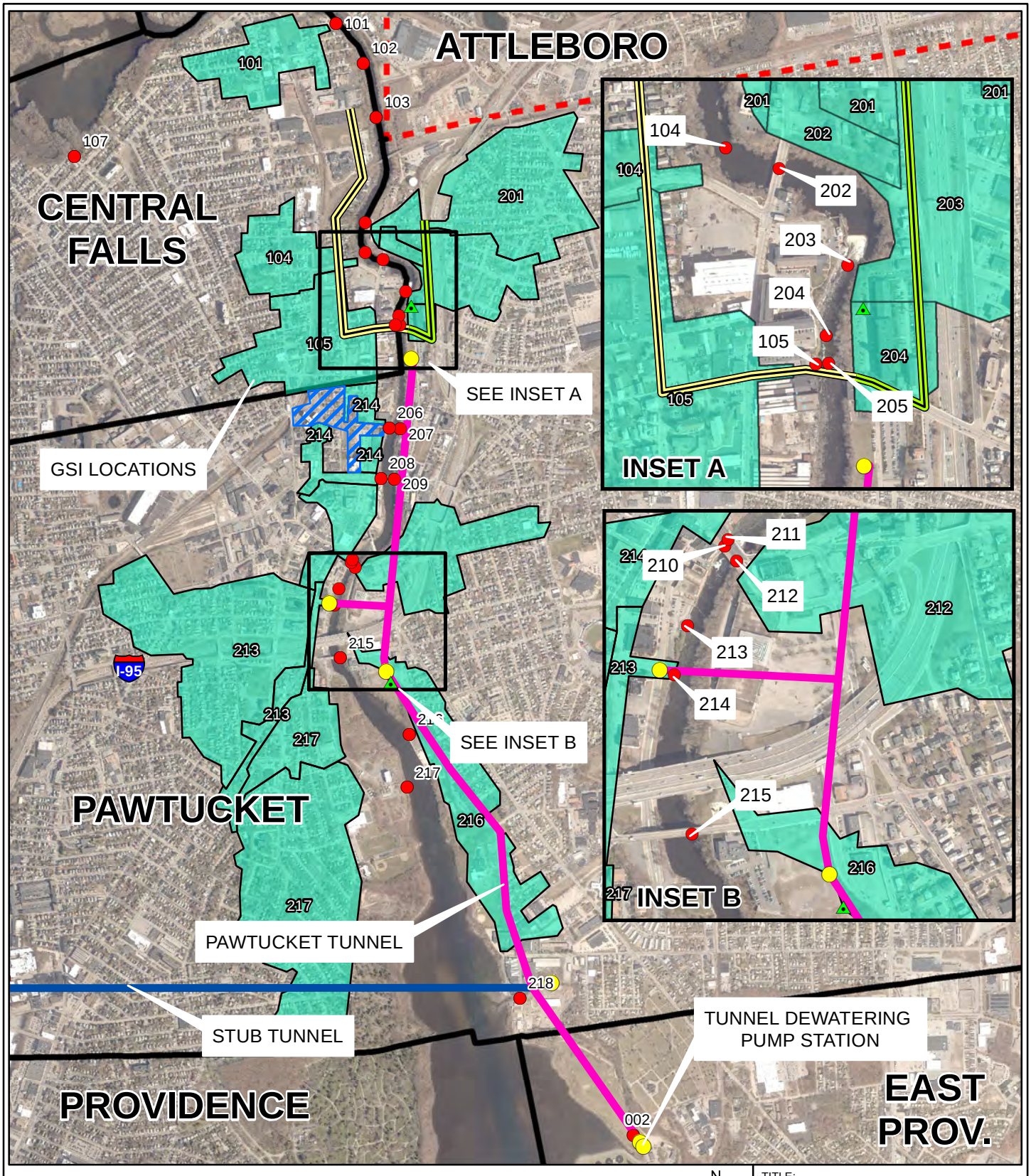
TITLE:
STUB TUNNEL & MORLEY FIELD TANK

PHASE III CSO CONTROL FACILITIES PROGRAM

REFERENCE(S): DATE: MAY 2017
Coordinate System: NAD83 Rhode Island ft
Units: Foot US

Stantec
PARE CORPORATION

FIGURE: **A-3**



LEGEND:

- CSO Outfall Phase III
- Other CSO Outfalls
- Dropshafts
- Diversion Structures
- Stub Tunnel
- Pawtucket Tunnel
- Middle St Interceptor
- High St & Cross St Interceptors
- Hybrid Sewer Separation
- GSI Catchment Areas
- Town Line
- State Line

2,000 1,000 0 2,000 Feet

N W E S

TITLE:
GSI LOCATIONS & SURROUNDING CSO FACILITIES

PHASE III CSO CONTROL FACILITIES PROGRAM

REFERENCE(S): DATE: MAY 2017
Coordinate System: NAD83 Rhode Island ft
Units: Foot US

Stantec
PARE CORPORATION

FIGURE: **A-4**

LEGEND:

- CSO Outfall Phase III
- Other CSO Outfalls
- West River Interceptor

N
W E
S

750 375 0 750 Feet

TITLE:

WEST RIVER INTERCEPTOR

PHASE III CSO CONTROL FACILITIES PROGRAM

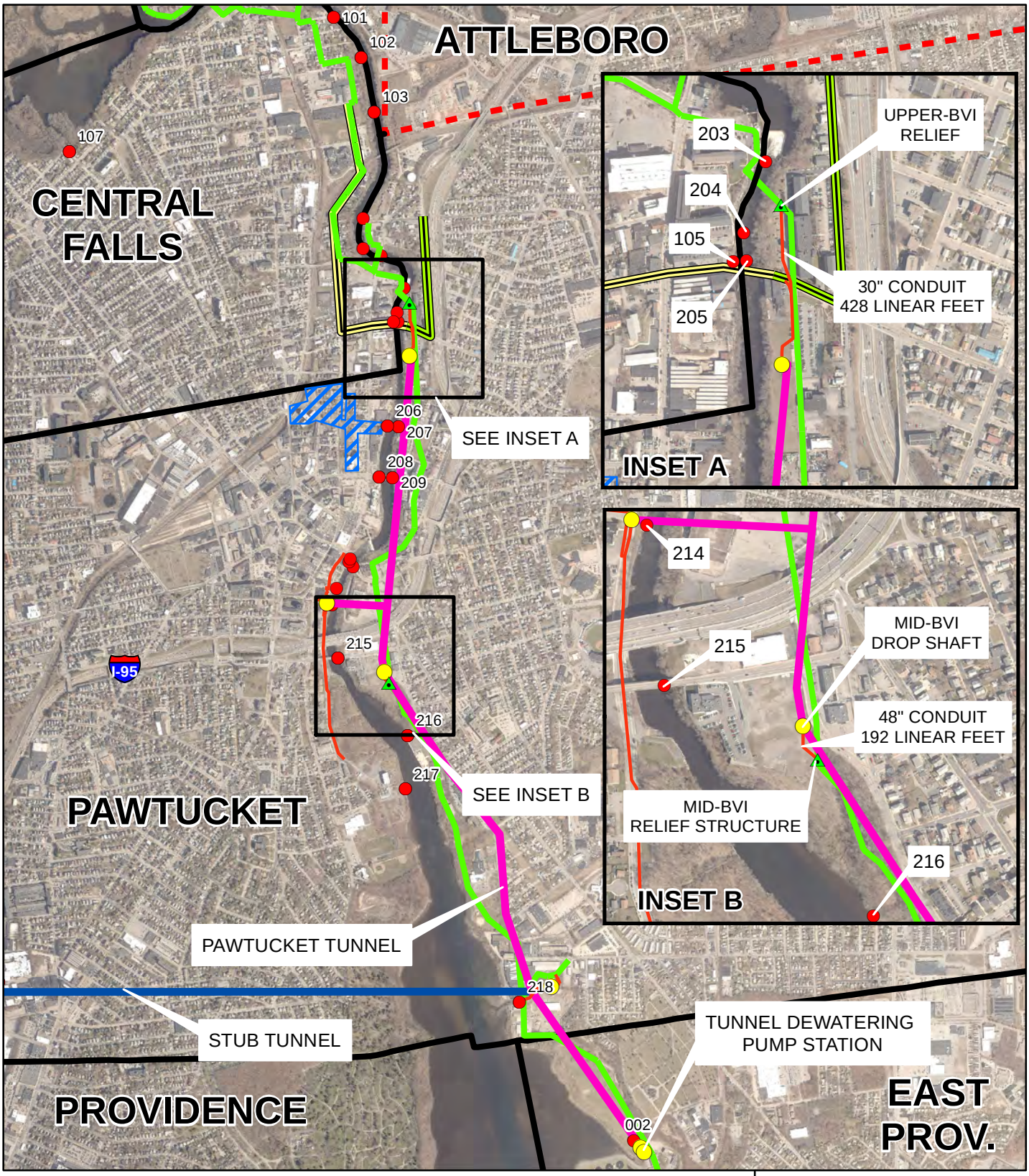
REFERENCE(S): DATE: MAY 2017

Coordinate System: NAD83 Rhode Island ft
Units: Foot US

Stantec

PARE CORPORATION

FIGURE: **A-5**



LEGEND:

- Diversion Structures
- Dropshafts
- Pawtucket Tunnel
- Stub Tunnel
- CSO Outfall Phase III
- Other CSO Outfalls
- Consolidation Conduit
- Blackstone Valley Interceptor
- Hybrid Sewer Separation
- Middle St Interceptor
- High St & Cross St Interceptors
- Town Line
- State Line

N W E S

2,000 1,000 0 2,000 Feet

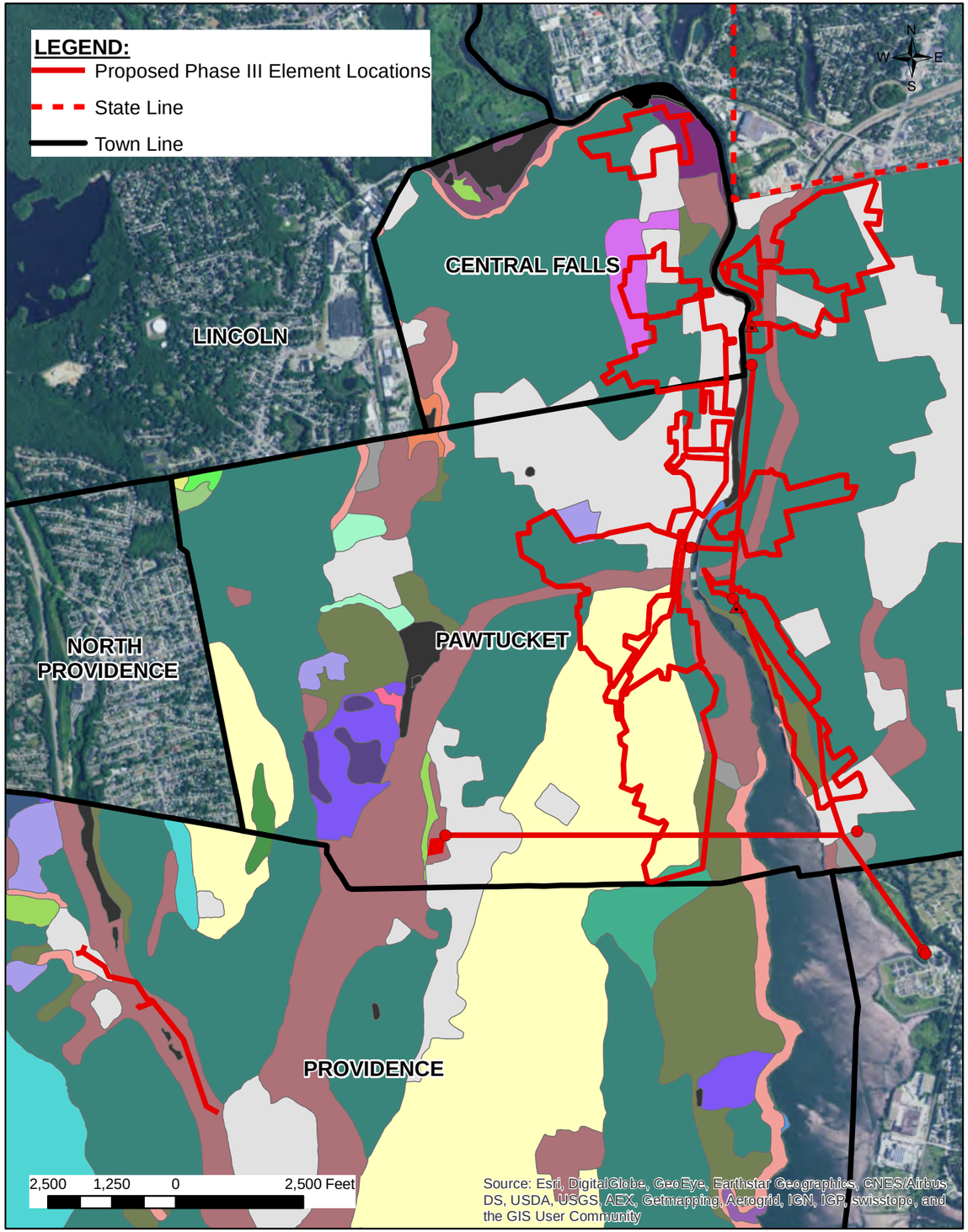
TITLE:
BVI RELIEF STRUCTURES

PHASE III CSO CONTROL FACILITIES PROGRAM

REFERENCE(S): DATE: MAY 2017
Coordinate System: NAD83 Rhode Island ft
Units: Foot US

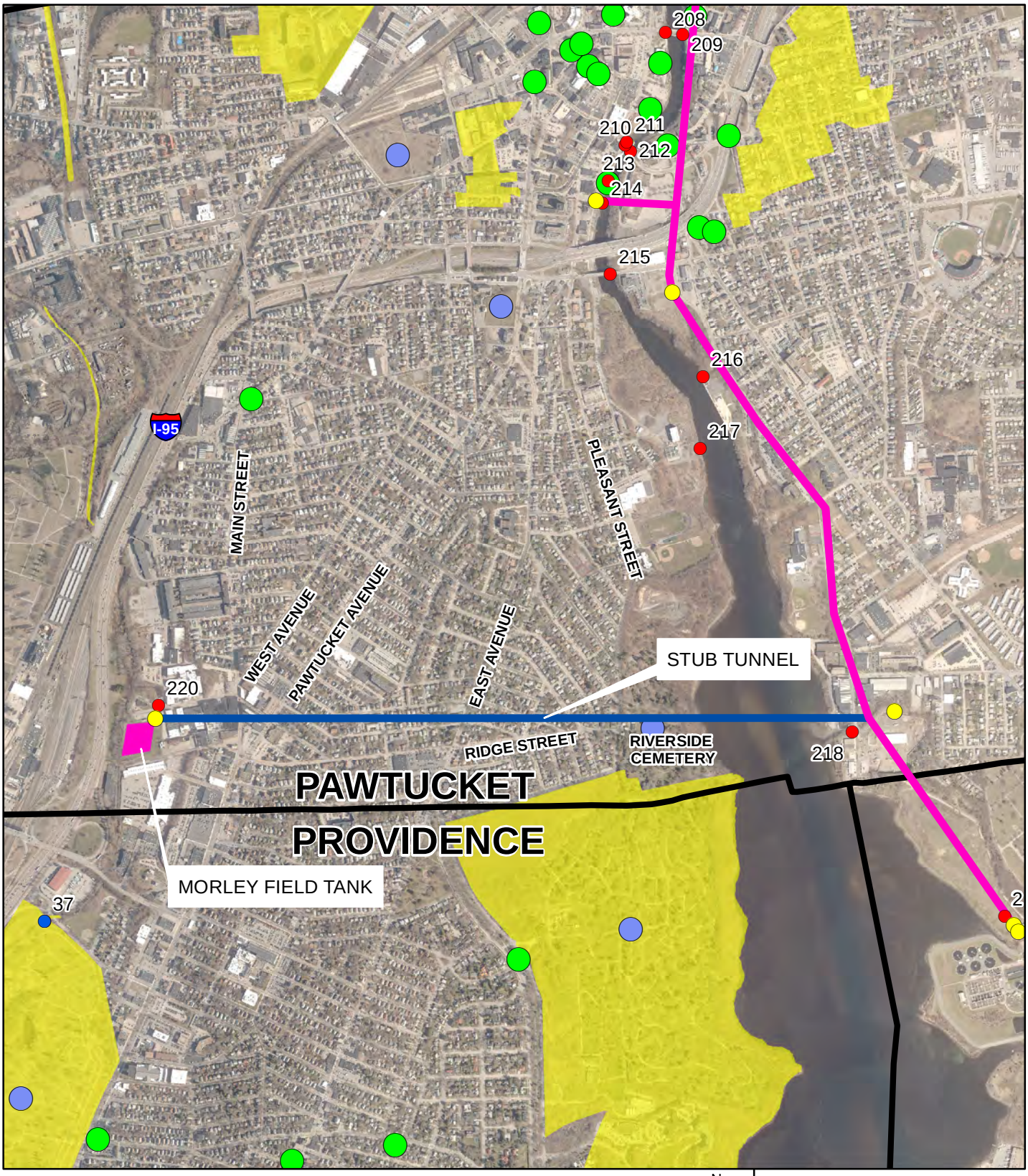
Stantec
PARE CORPORATION

FIGURE: **A-6**



MAP UNIT SYMBOL	MAP UNIT NAME	RATING
CaD	Canton-Charlton-Rock outcrop complex, 15 to 35 % slopes	B
CB	Canton-Urban land complex	B
CC	Canton-Urban land complex, very rocky	B
CdB	Canton And Charlton fine sandy loams, 3 to 8 % slopes	B
CeC	Canton And Charlton fine sandy loams, very rocky, 3 to 15 % slopes	B
ChC	Canton And Charlton very stony fine sandy loams, 8 to 15 % slopes	B
ChD	Canton And Charlton very stony fine sandy loams, 15 to 25 % slopes	B
Dc	Deerfield loamy fine Sand	A
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	A
MU	Merrimac-Urban land complex	A
PbC	Paxton very stony fine sandy loam, 8 to 15 % slopes	C
PD	Paxton-Urban land complex	C
Pg	Pits, gravel	Not Rated
Pp	Pootatuck fine sandy loam	B
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	B
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

FIGURE A-7



LEGEND:

- CSO Outfall Phase III
- Other CSO Outfalls
- Dropshafts
- Stub Tunnel
- Pawtucket Tunnel
- Morley Field Tank

CULTURAL RESOURCES

- Historical Cemeteries (RIGIS 2012)
- Historic Sites (RIGIS 1995)
- Historic Districts (RIGIS 1995)
- Town Line

1,500 750 0 1,500 Feet

N W E S

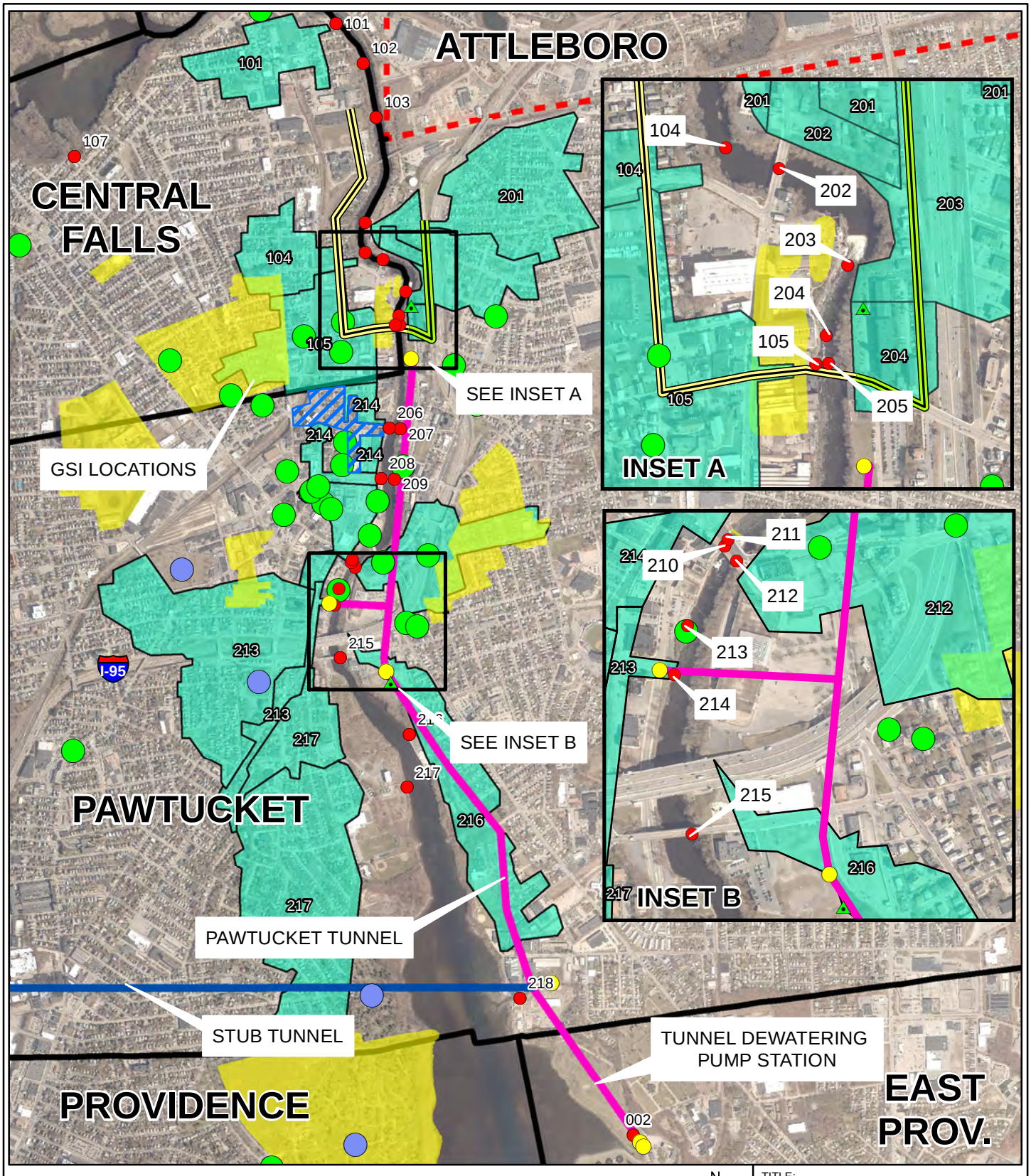
TITLE:
STUB TUNNEL & MORLEY FIELD TANK

PHASE III CSO CONTROL FACILITIES PROGRAM

REFERENCE(S): DATE: MAY 2017
Coordinate System: NAD83 Rhode Island ft
Units: Foot US

Stantec
PARE CORPORATION

FIGURE: **A-8**



LEGEND:

- CSO Outfall Phase III
- Other CSO Outfalls
- Dropshafts
- Diversion Structures
- Stub Tunnel
- Pawtucket Tunnel
- Middle St Interceptor
- High St & Cross St Interceptors
- Hybrid Sewer Separation
- GSI Catchment Areas
- Town Line
- State Line

CULTURAL RESOURCES

- Historic Sites (RIGIS 1995)
- Historical Cemeteries (RIGIS 2012)
- Historic Districts (RIGIS 1995)

N W E S

2,000 1,000 0 2,000 Feet

TITLE:
GSI LOCATIONS & SURROUNDING CSO FACILITIES

PHASE III CSO CONTROL FACILITIES PROGRAM

REFERENCE(S): DATE: MAY 2017
Coordinate System: NAD83 Rhode Island ft
Units: Foot US

Stantec
PARE CORPORATION

FIGURE: **A-9**

LEGEND:

- CSO Outfall Phase III
- Other CSO Outfalls
- West River Interceptor
- Historic Sites (RIGIS 1995)
- Historic Districts (RIGIS 1995)

CULTURAL RESOURCES

N W E S

750 375 0 750 Feet

TITLE:

WEST RIVER INTERCEPTOR

PHASE III CSO CONTROL FACILITIES PROGRAM

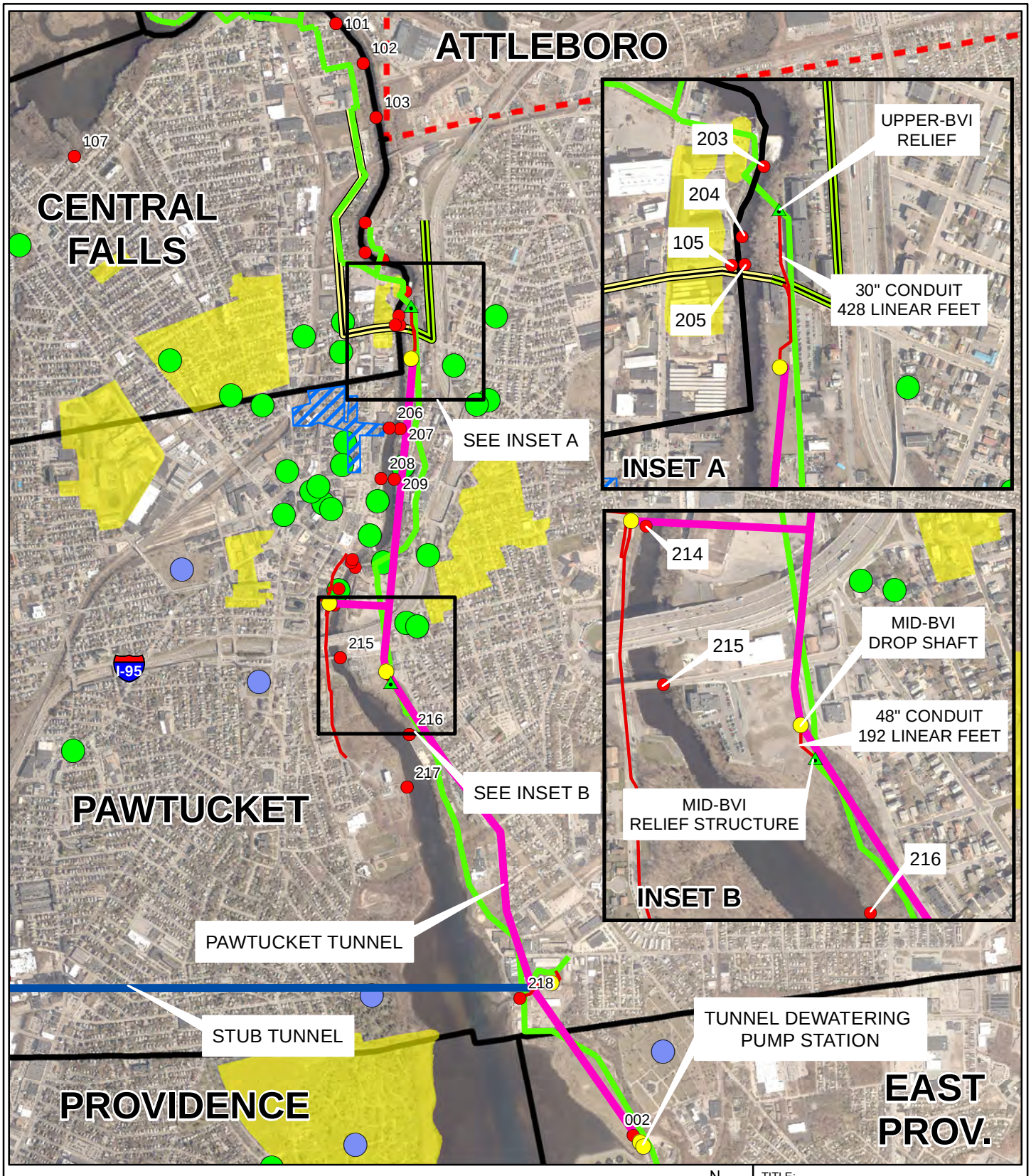
REFERENCE(S): DATE: MAY 2017

Coordinate System: NAD83 Rhode Island ft
Units: Foot US

Stantec

PARE CORPORATION

FIGURE: **A-10**



LEGEND:

- Diversion Structures
- Dropshafts
- Pawtucket Tunnel
- Stub Tunnel
- CSO Outfall Phase III
- Other CSO Outfalls
- Consolidation Conduit
- Blackstone Valley Interceptor
- Hybrid Sewer Separation
- Middle St Interceptor
- High St & Cross St Interceptors

CULTURAL RESOURCES

- Historic Sites (RIGIS 1995)
- Historical Cemeteries (RIGIS 2012)
- Historic Districts (RIGIS 1995)
- Town Line
- State Line

2,000 1,000 0 2,000 Feet

N W E S

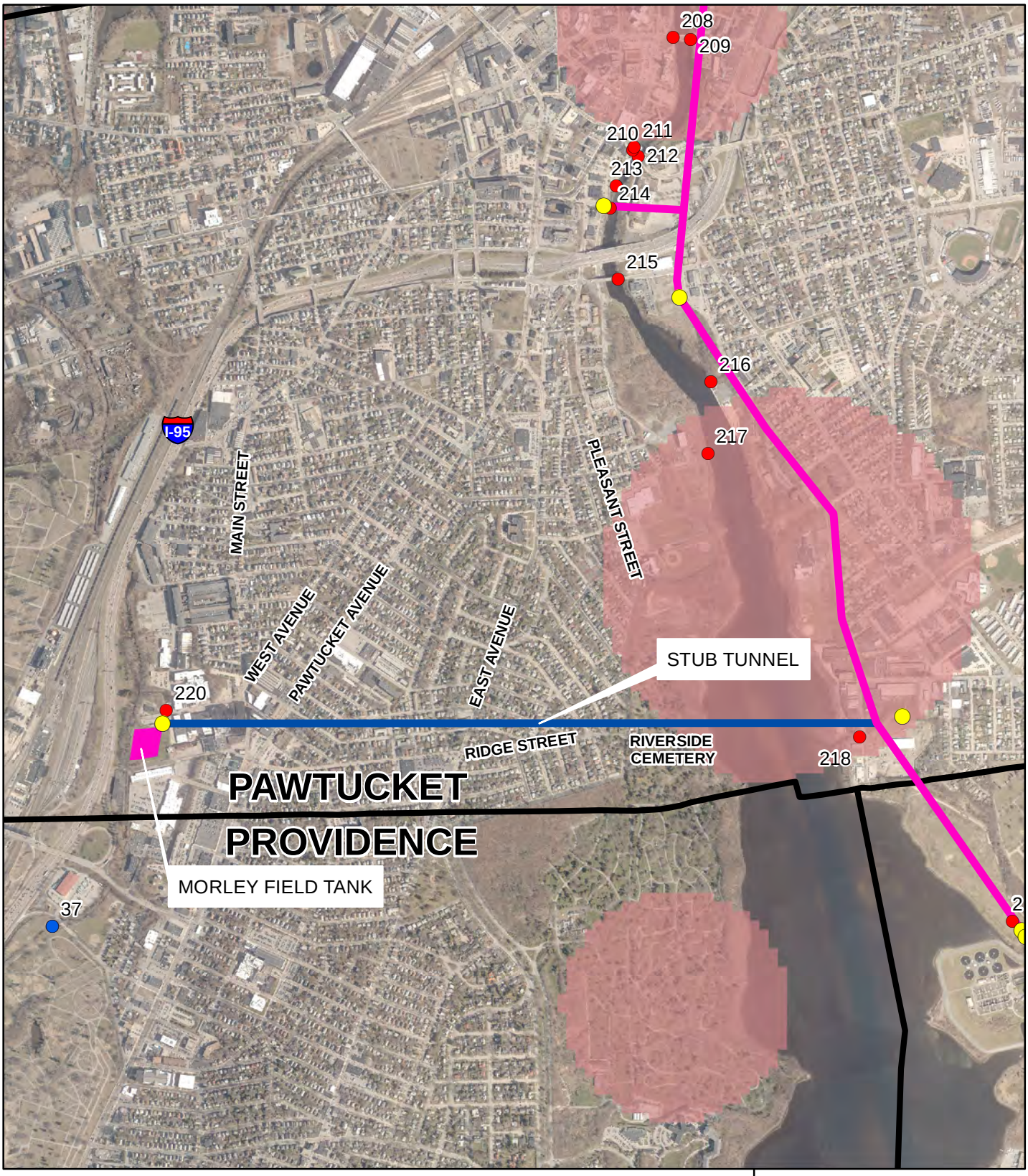
TITLE:
BVI RELIEF STRUCTURES

PHASE III CSO CONTROL FACILITIES PROGRAM

REFERENCE(S): DATE: MAY 2017
Coordinate System: NAD83 Rhode Island ft
Units: Foot US

Stantec
PARE CORPORATION

FIGURE: **A-11**



LEGEND:

- CSO Outfall Phase III
- Other CSO Outfalls
- Dropshafts
- Stub Tunnel
- Pawtucket Tunnel

NATURAL HERITAGE AREAS

- Morley Field Tank
- Town Line
- Natural Heritage Areas

N W E S

1,500 750 0 1,500 Feet

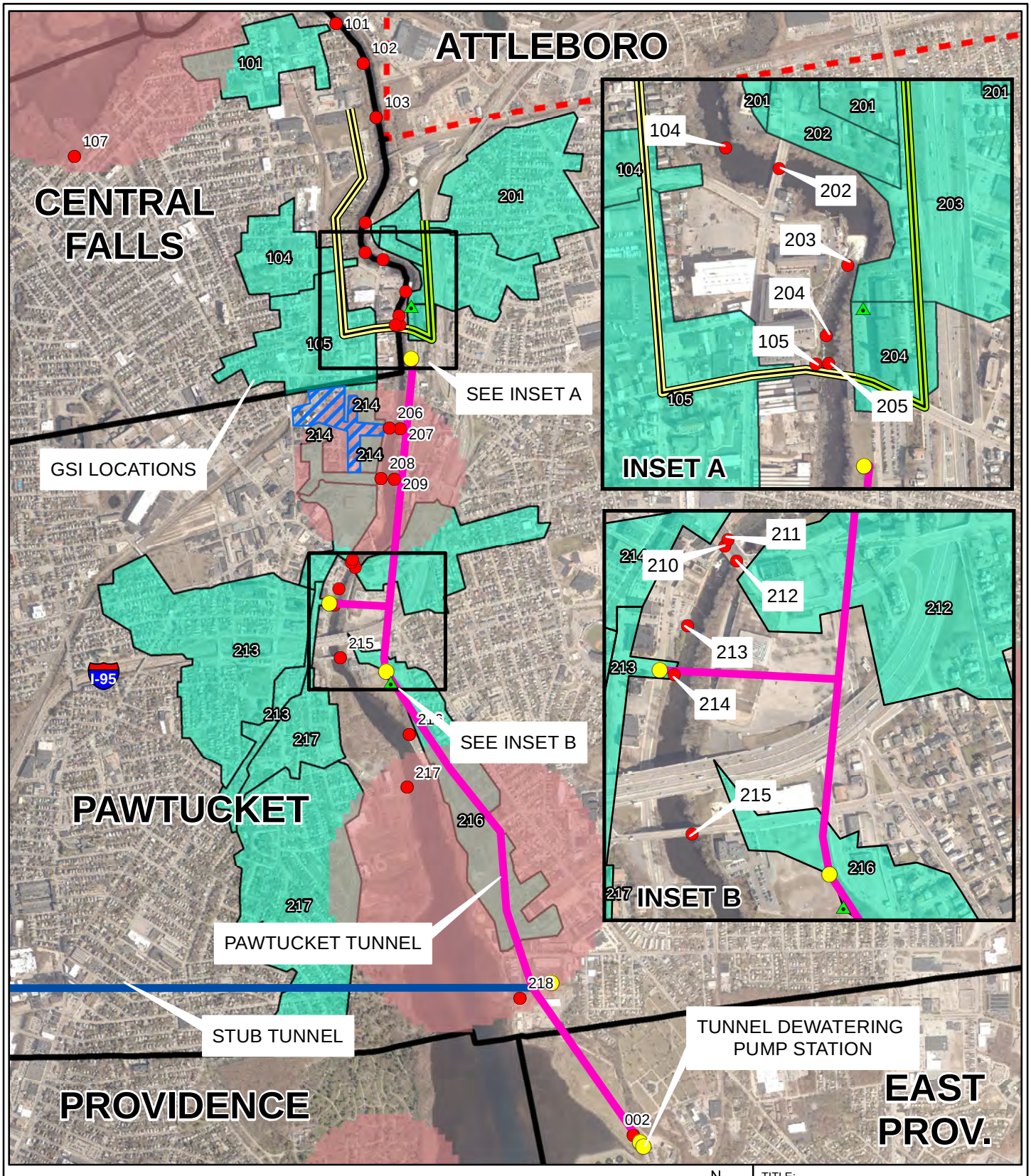
TITLE:
STUB TUNNEL & MORLEY FIELD TANK

PHASE III CSO CONTROL FACILITIES PROGRAM

REFERENCE(S): DATE: MAY 2017
Coordinate System: NAD83 Rhode Island ft
Units: Foot US

Stantec
PARE CORPORATION

FIGURE: **A-12**



LEGEND:

- CSO Outfall Phase III
- Other CSO Outfalls
- Dropshafts
- Diversion Structures
- Stub Tunnel
- Pawtucket Tunnel
- Middle St Interceptor
- High St & Cross St Interceptors
- Hybrid Sewer Separation
- GSI Catchment Areas
- Town Line
- State Line

NATURAL HERITAGE AREAS

- Natural Heritage Areas

N W E S

2,000 1,000 0 2,000 Feet

TITLE:
GSI LOCATIONS & SURROUNDING CSO FACILITIES

PHASE III CSO CONTROL FACILITIES PROGRAM

REFERENCE(S): DATE: MAY 2017
Coordinate System: NAD83 Rhode Island ft
Units: Foot US

Stantec
PARE CORPORATION

FIGURE: **A-13**

LEGEND:

- CSO Outfall Phase III
- Other CSO Outfalls
- West River Interceptor
- Natural Heritage Areas

NATURAL HERITAGE AREAS

N W E S

750 375 0 750 Feet

TITLE:

WEST RIVER INTERCEPTOR

PHASE III CSO CONTROL FACILITIES PROGRAM

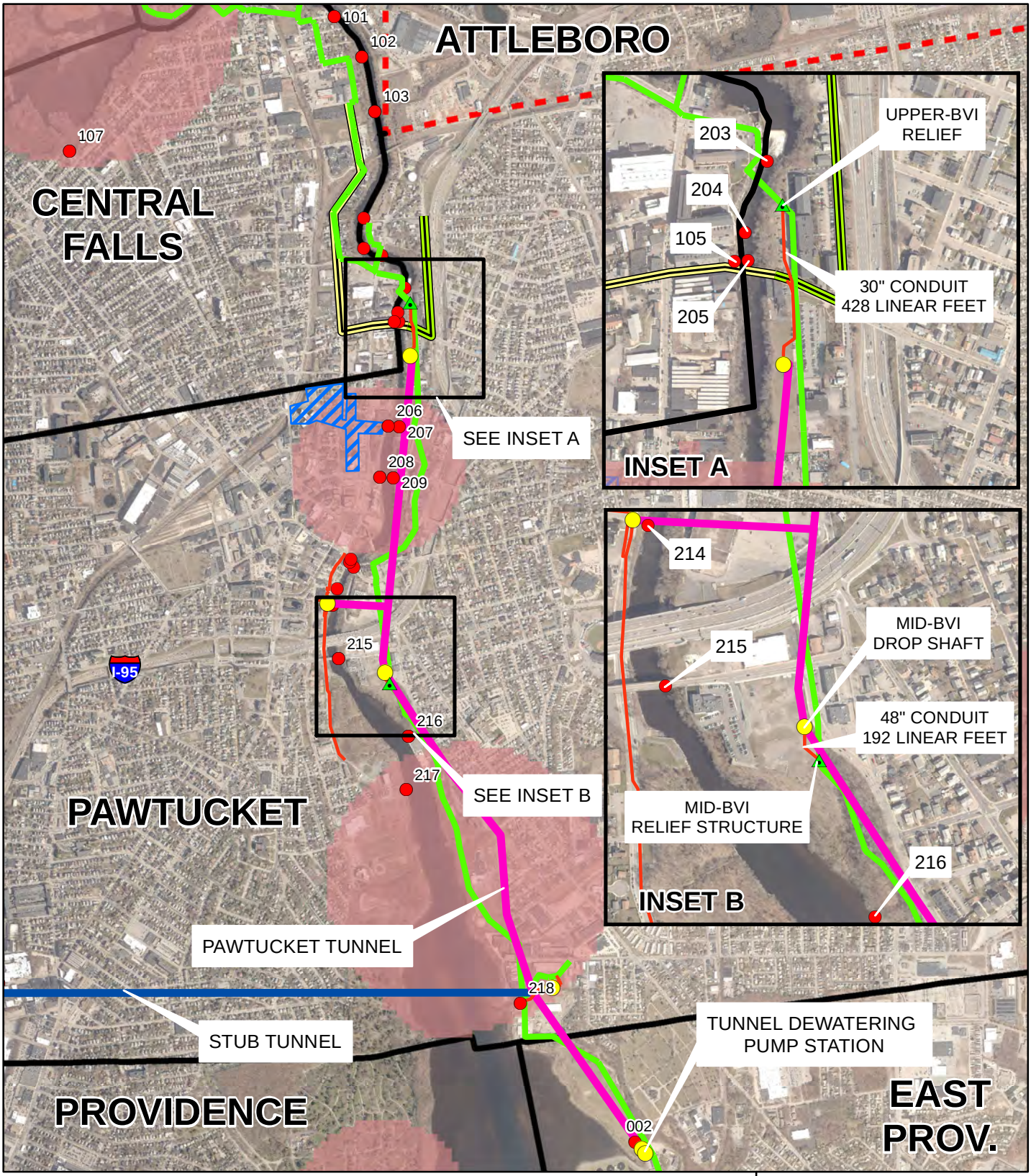
REFERENCE(S): DATE: MAY 2017

Coordinate System: NAD83 Rhode Island ft
Units: Foot US

Stantec

PARE CORPORATION

FIGURE: **A-14**



LEGEND:

- Diversion Structures
- Dropshafts
- Pawtucket Tunnel
- Stub Tunnel
- CSO Outfall Phase III
- Other CSO Outfalls
- Consolidation Conduit
- Blackstone Valley Interceptor
- Hybrid Sewer Separation
- Middle St Interceptor
- High St & Cross St Interceptors

NATURAL HERITAGE AREAS

- Natural Heritage Areas
- Town Line
- State Line

N W E S

2,000 1,000 0 2,000 Feet

TITLE:
BVI RELIEF STRUCTURES

PHASE III CSO CONTROL FACILITIES PROGRAM

REFERENCE(S): DATE: MAY 2017
Coordinate System: NAD83 Rhode Island ft
Units: Foot US

Stantec
PARE CORPORATION

FIGURE: **A-15**

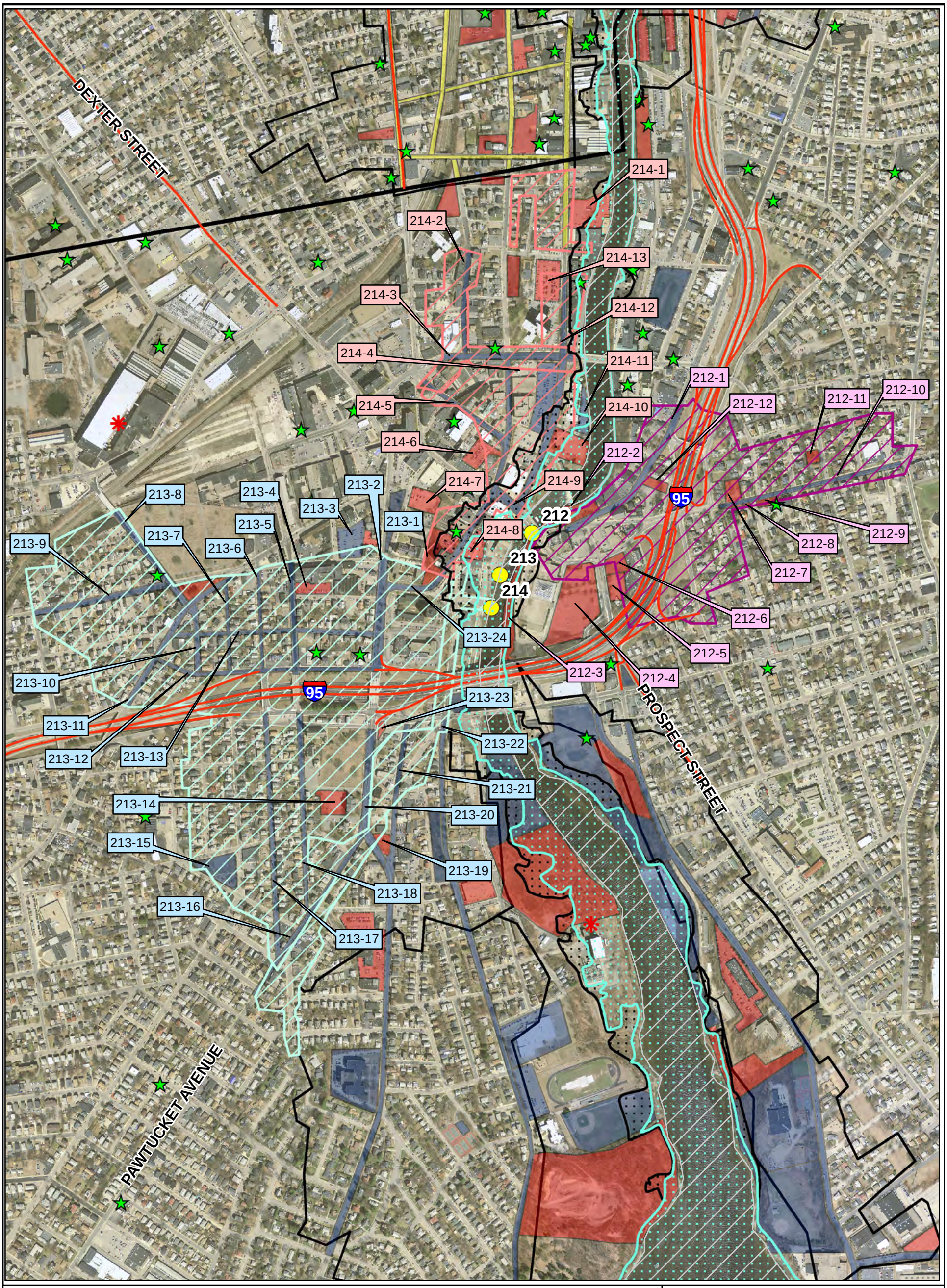
Appendix B
GSI Screening Maps

B-1: PHASE IIIA POTENTIAL GSI LOCATIONS

B-2: PHASE IIIB POTENTIAL GSI LOCATIONS

B-3: PHASE IIIC POTENTIAL GSI LOCATIONS

B-4: PHASE IIID POTENTIAL GSI LOCATIONS



LEGEND:

- Outfall 214 Basin
- Outfall 213 Basin
- Outfall 212 Basin
- Other Outfall Basins
- FEMA Floodway
- FEMA Zones AE/VE
- FEMA Flood Zone X
- CSO Outfalls Phase III (212, 213, 214)

Potential GSI Locations

- Privately Owned
- City of Central Falls
- City of Pawtucket

- Leaking Underground Storage Tanks (RIGIS 2012)
- CERCLIS Sites
- RIDOT Roads (RIGIS 2016)
- Town Line

N W E S

700 350 0 700 Feet

TITLE:

PHASE III A POTENTIAL GSI LOCATIONS BY OWNERSHIP

PHASE III CSO CONTROL FACILITIES PROGRAM

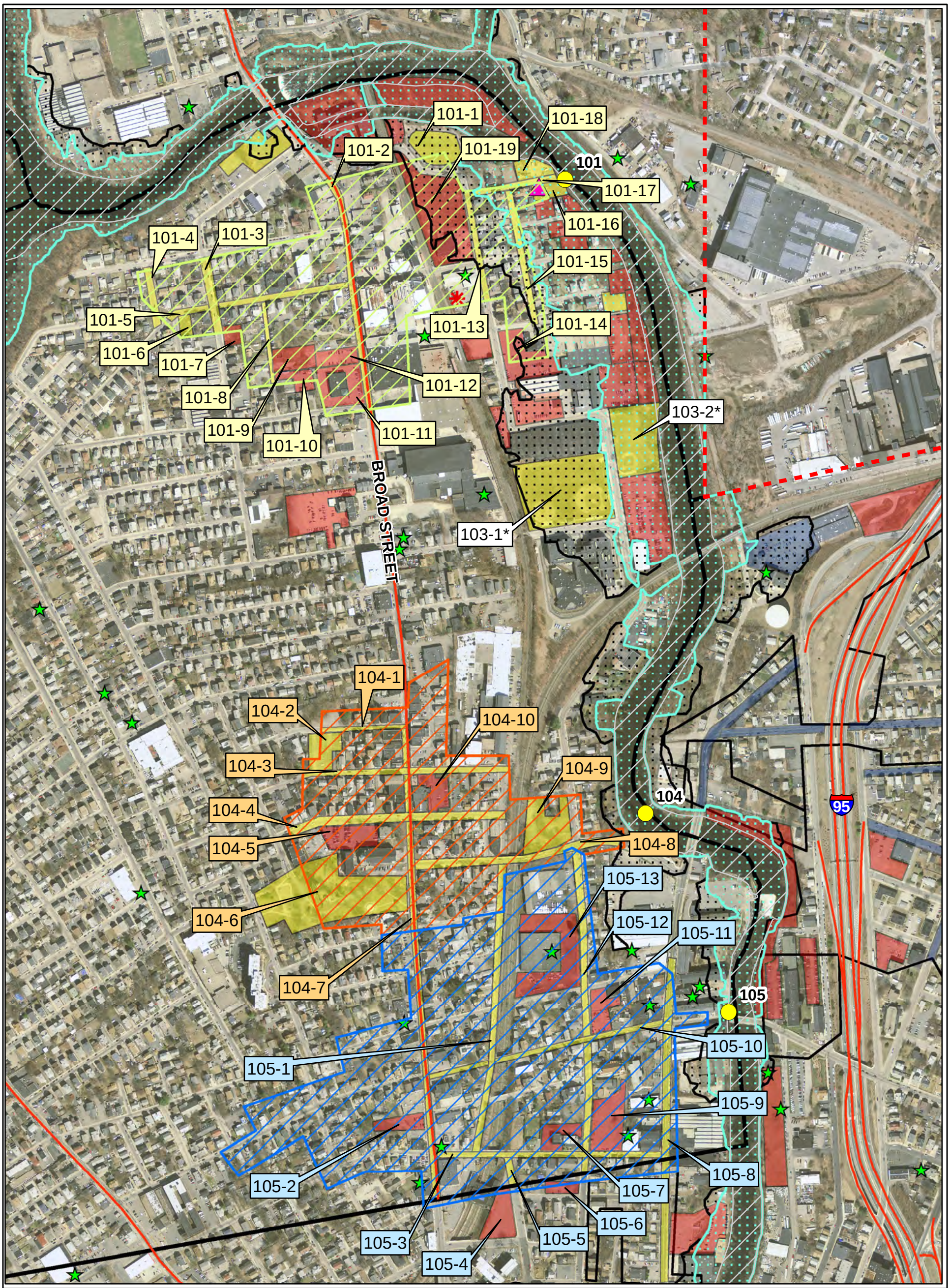
REFERENCE(S):
Coordinate System: NAD83 Rhode Island ft
Units: Foot US

DATE: MAY 2017

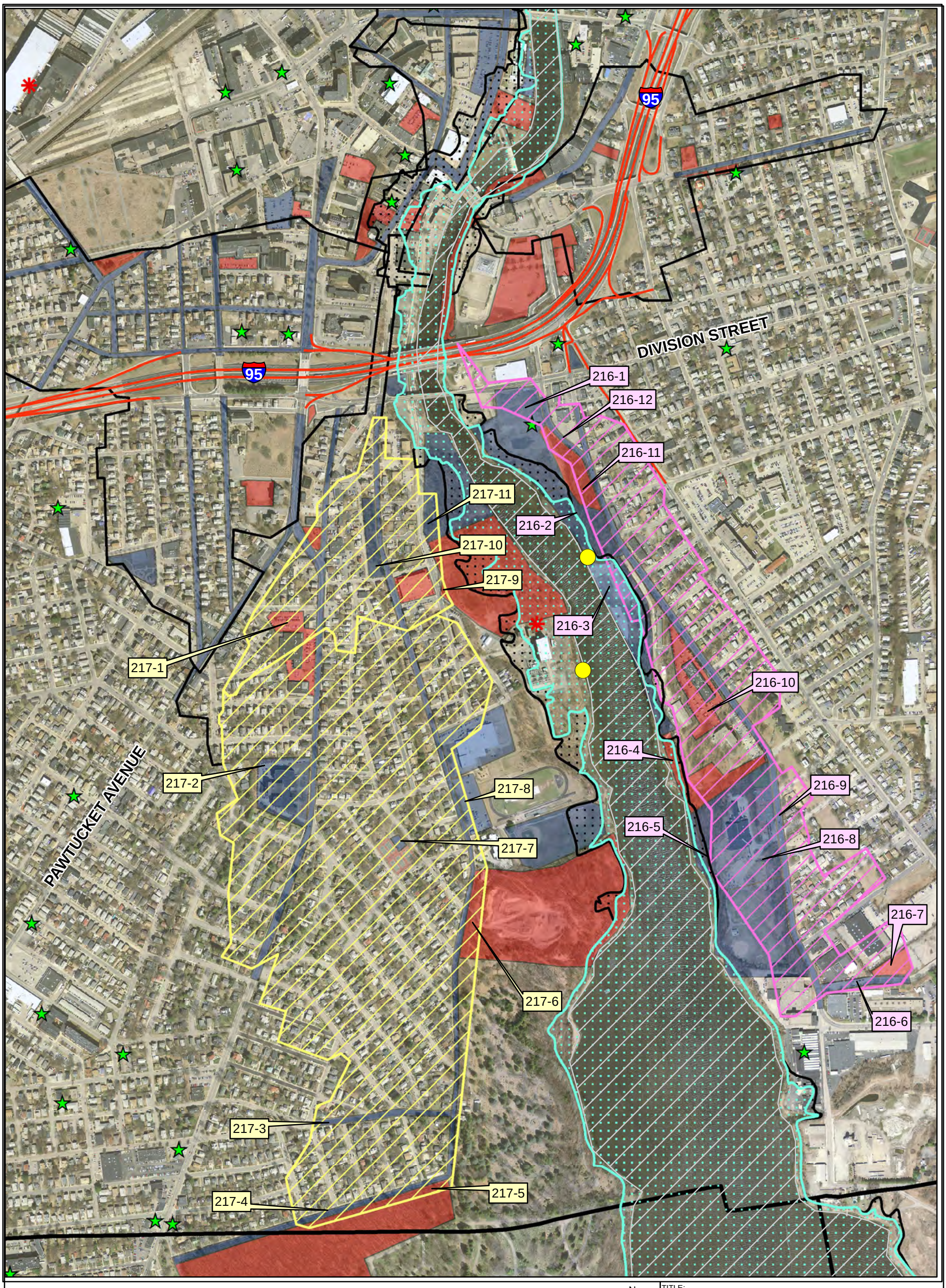
Stantec

PARE CORPORATION

FIGURE: B-1



*Note: GSI for Outfall Basin 103 were not originally included in Phase III B; Sites 103-1 and 103-2 were identified by the City as potential GSI sites



LEGEND:

- FEMA Floodway
- FEMA Zones AE/VE
- FEMA Flood Zone X
- Outfall 216 Basin
- Outfall 217 Basin
- Other Outfall Basins
- Town Line

- CSO Outfalls Phase III (216, 217)

Potential GSI Locations

- Privately Owned
- City of Central Falls
- City of Pawtucket

- Leaking Underground Storage Tanks (RIGIS 2012)
- CERCLIS Sites
- RIDOT Roads (RIGIS 2016)

N W E S

650 325 0 650 Feet

TITLE:

PHASE III C POTENTIAL GSI LOCATIONS BY OWNERSHIP

PHASE III CSO CONTROL FACILITIES PROGRAM

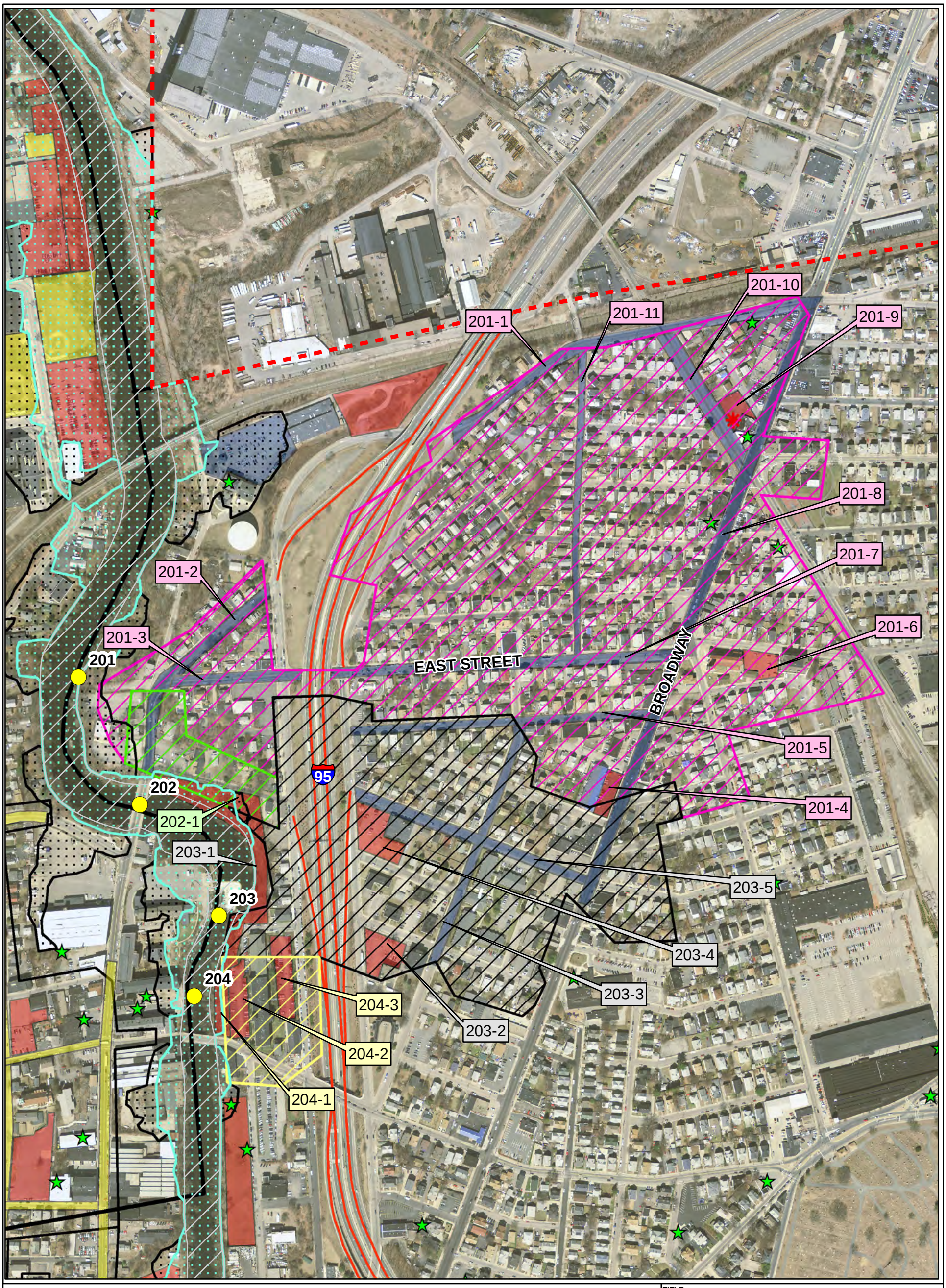
REFERENCE(S):
Coordinate System: NAD83 Rhode Island ft
Units: Foot US

DATE: MAY 2017

Stantec

PARE CORPORATION

FIGURE: B-3



LEGEND:

- FEMA Floodway
- FEMA Zones AE/VE
- FEMA Flood Zone X
- Outfall 204 Basin
- Outfall 203 Basin
- Outfall 202 Basin
- Outfall 201 Basin
- Other Outfall Basins
- CSO Outfalls Phase III (201, 202, 203, 204)

Potential GSI Locations

- Privately Owned
- City of Central Falls
- City of Pawtucket
- Leaking Underground Storage Tanks (RIGIS 2012)
- CERCLIS Sites
- RIDOT Roads (RIGIS 2016)
- Town Line
- State Line

N W E S

400 200 0 400 Feet

TITLE:

PHASE III D POTENTIAL GSI LOCATIONS BY OWNERSHIP

PHASE III CSO CONTROL FACILITIES PROGRAM

REFERENCE(S):
Coordinate System: NAD83 Rhode Island ft
Units: Foot US

DATE: MAY 2017

Stantec

PARE CORPORATION

FIGURE: B-4

Appendix C
FEMA FIRM Maps

C-1: GSI LOCATIONS 1

C-2: GSI LOCATIONS 2

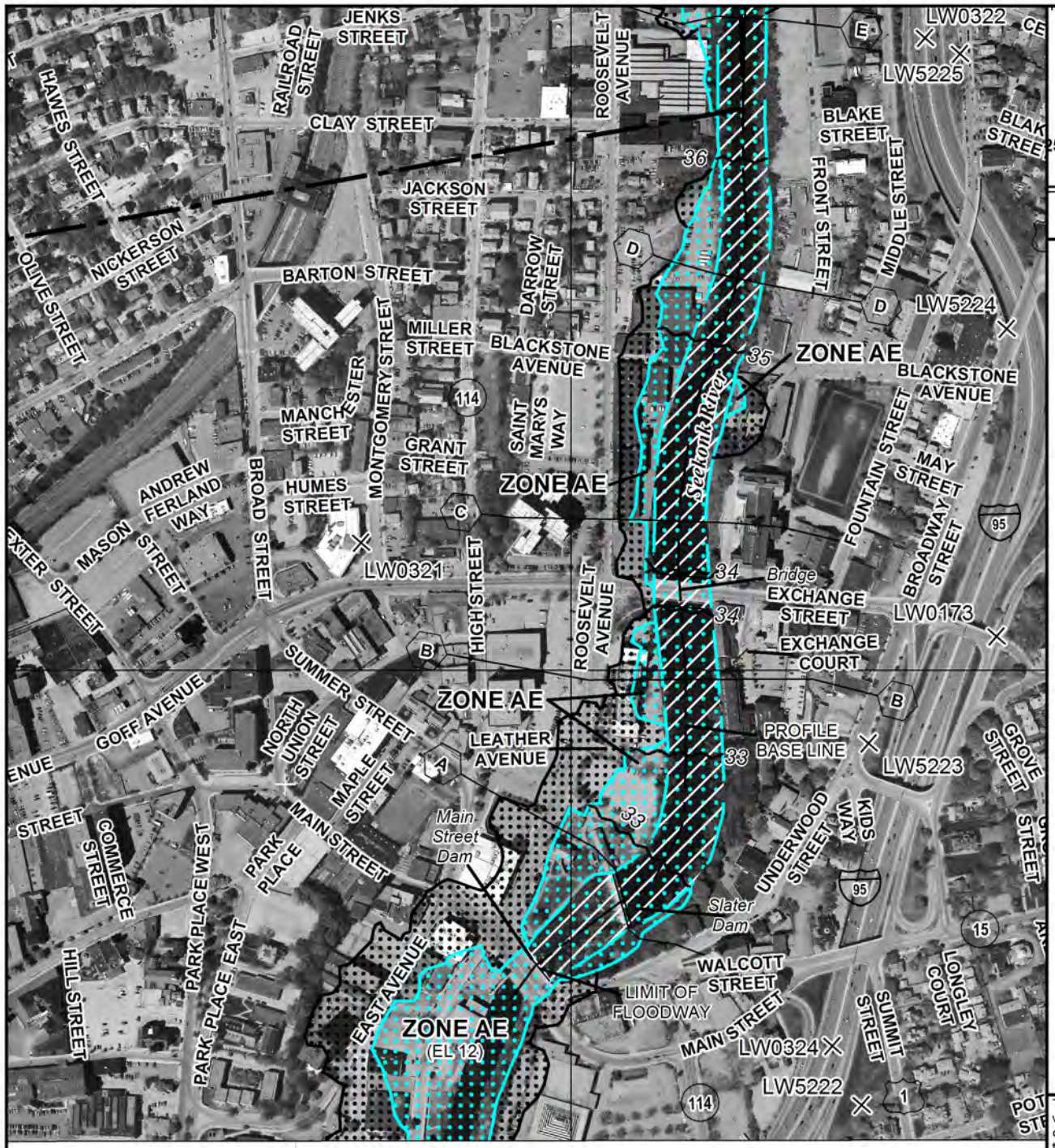
C-3: GSI LOCATIONS 3

C-4: GSI LOCATIONS 4

C-5: WEST RIVER INTERCEPTOR

C-6: GSI LOCATIONS AND STUB TUNNEL

C-7: MORLEY FIELD TANK



MAP SCALE 1" = 500'

250 0 500 1000

FEET

METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0194J

FIRM

FLOOD INSURANCE RATE MAP

Providence County, Rhode Island
(ALL JURISDICTIONS)

PANEL 194 OF 451
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

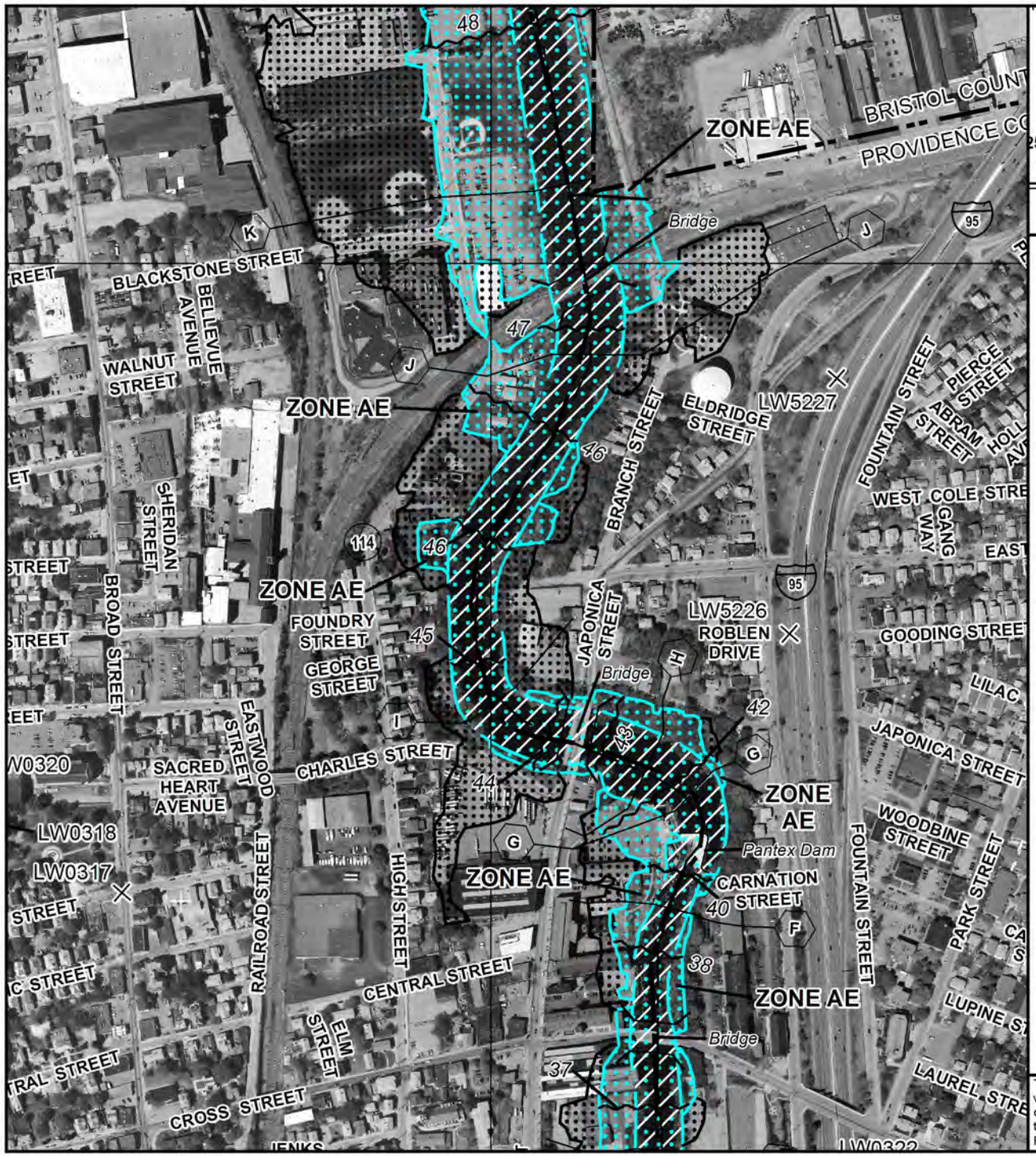
COMMUNITY	NUMBER	PANEL	SUFFIX
CENTRAL FALLS, CITY OF	445394	0194	J
CUMBERLAND, TOWN OF	440016	0194	J
LINCOLN, TOWN OF	445400	0194	J
PAWTUCKET, CITY OF	440022	0194	J

MAP NUMBER
44007C0194J

MAP REVISED
OCTOBER 2, 2015

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



MAP SCALE 1" = 500'

250 0 500 1000

FEET

METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0194J

FIRM

FLOOD INSURANCE RATE MAP

Providence County, Rhode Island
(ALL JURISDICTIONS)

PANEL 194 OF 451
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CENTRAL FALLS, CITY OF	445394	0194	J
CUMBERLAND, TOWN OF	440016	0194	J
LINCOLN, TOWN OF	445400	0194	J
PAWTUCKET, CITY OF	440022	0194	J

MAP NUMBER
44007C0194J

MAP REVISED
OCTOBER 2, 2015

Federal Emergency Management Agency

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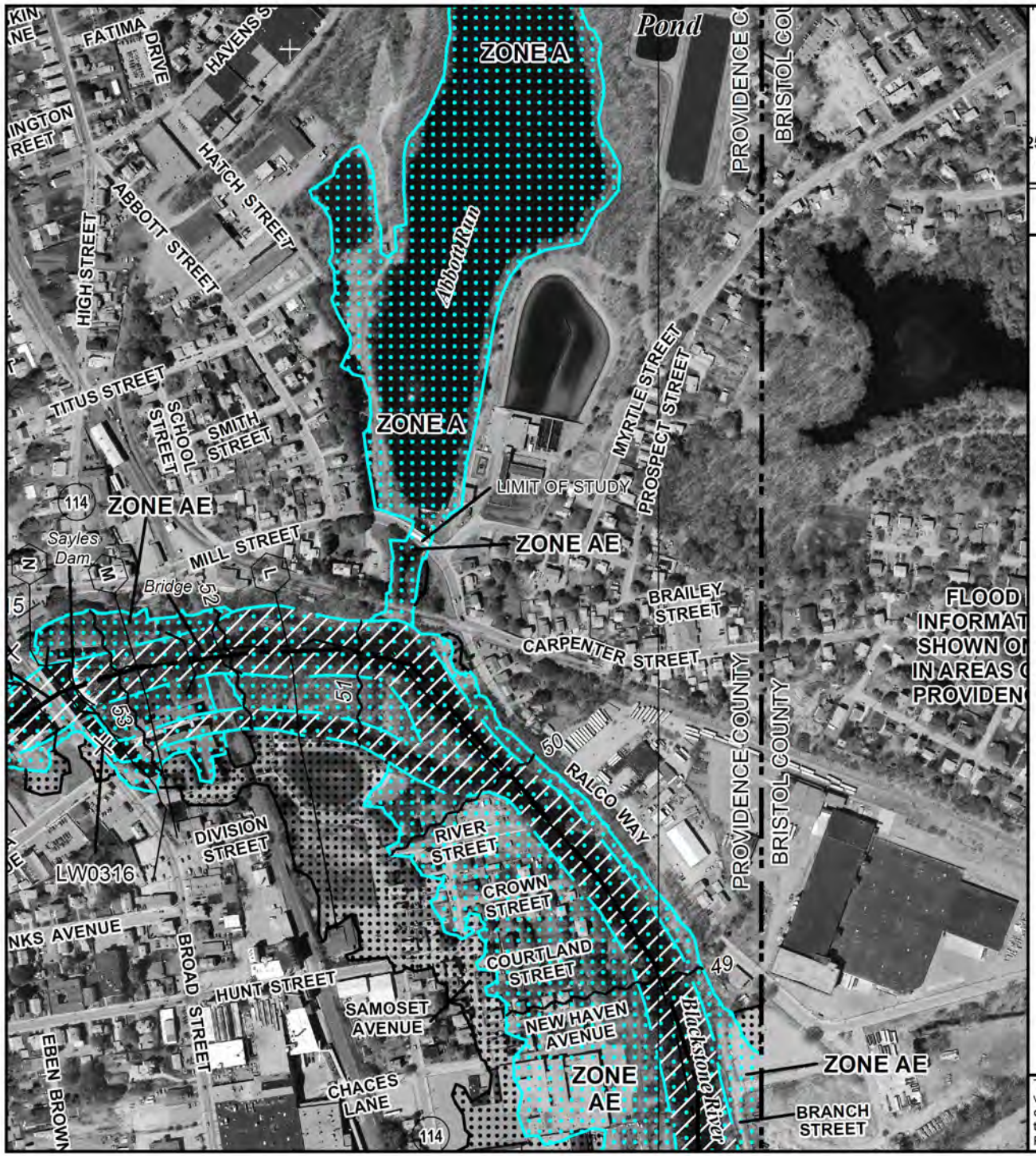

MAP SCALE 1" = 500'

250 0 500 1000

FEET

METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0194J

FIRM

FLOOD INSURANCE RATE MAP

Providence County, Rhode Island
(ALL JURISDICTIONS)

PANEL 194 OF 451
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CENTRAL FALLS, CITY OF	445394	0194	J
CUMBERLAND, TOWN OF	440016	0194	J
LINCOLN, TOWN OF	445400	0194	J
PAWTUCKET, CITY OF	440022	0194	J

MAP NUMBER
44007C0194J

MAP REVISED
OCTOBER 2, 2015

Federal Emergency Management Agency

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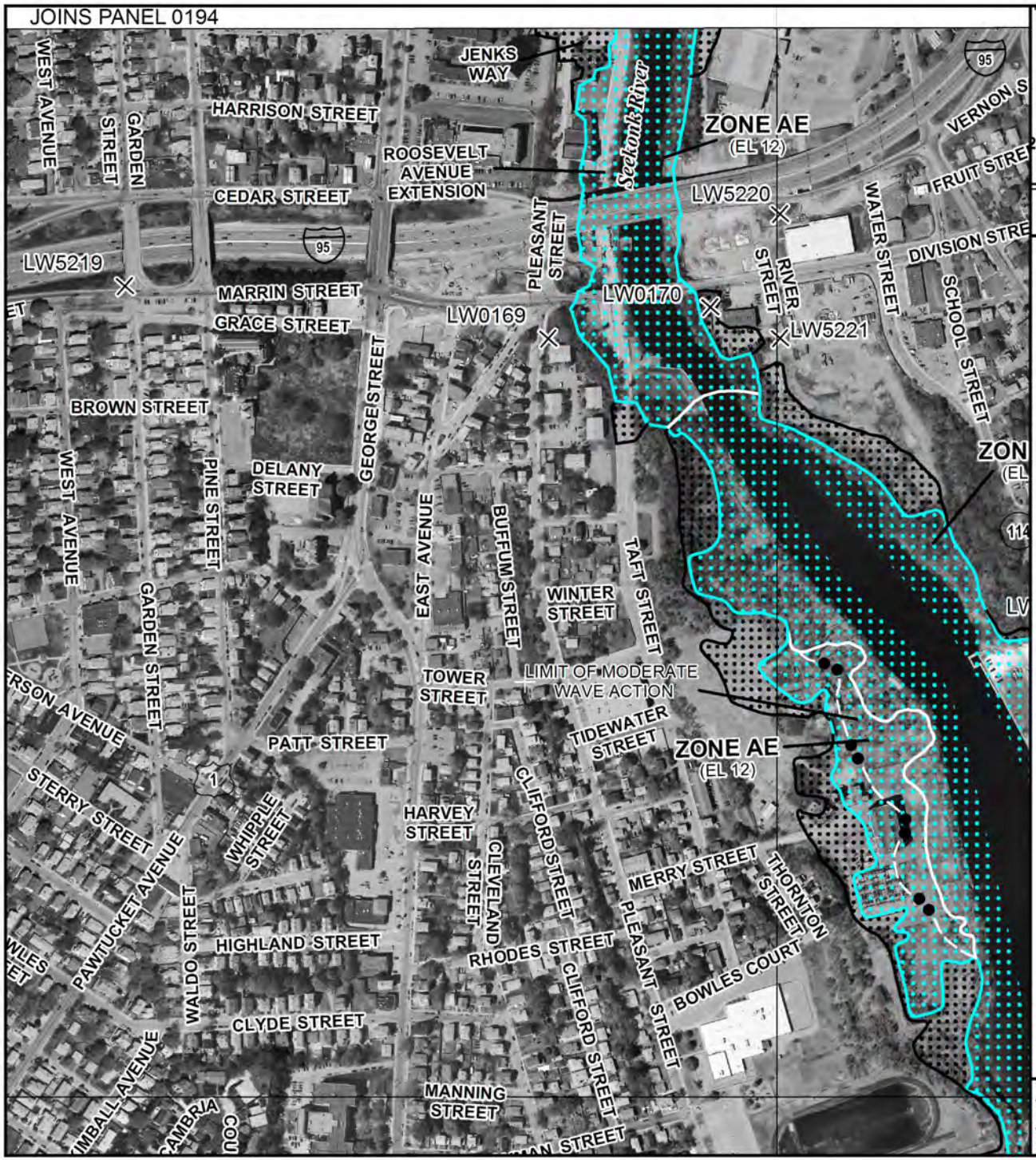


MAP SCALE 1" = 500'

250 0 500 1000

FEET

METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0307J

FIRM

FLOOD INSURANCE RATE MAP

Providence County, Rhode Island
(ALL JURISDICTIONS)

PANEL 307 OF 451
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

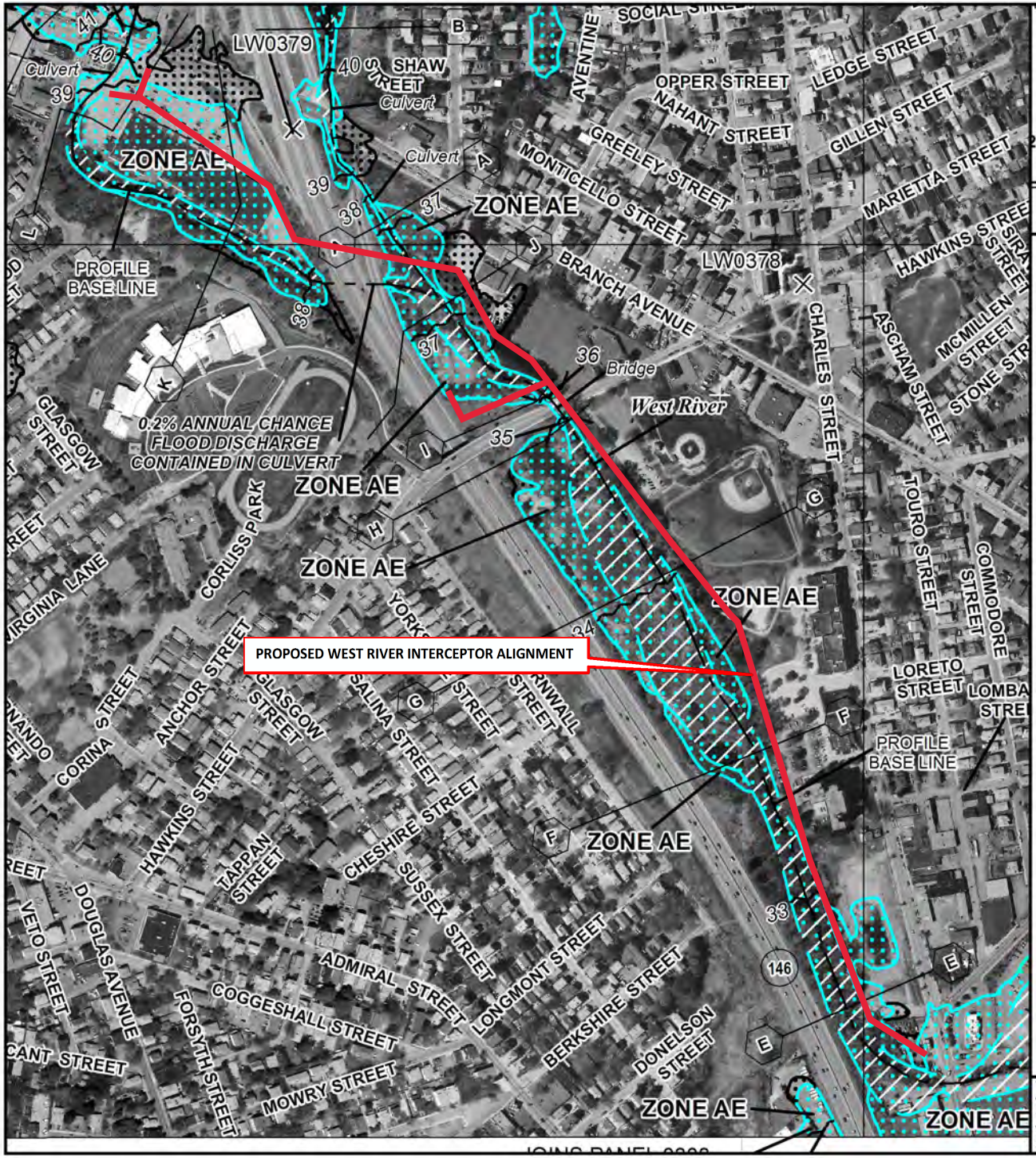
COMMUNITY	NUMBER	PANEL	SUFFIX
PAWTUCKET, CITY OF	440022	0307	J
PROVIDENCE, CITY OF	445406	0307	J

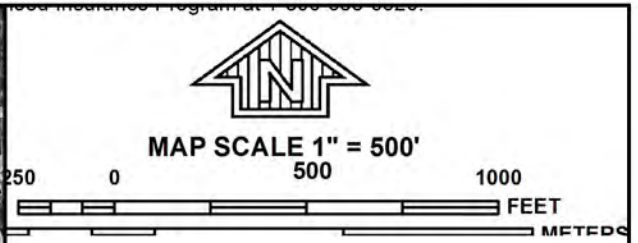
MAP NUMBER
44007C0307J

MAP REVISED
OCTOBER 2, 2015

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov





NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0306H

FIRM

FLOOD INSURANCE RATE MAP

Providence County, Rhode Island
(ALL JURISDICTIONS)

PANEL 306 OF 451
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

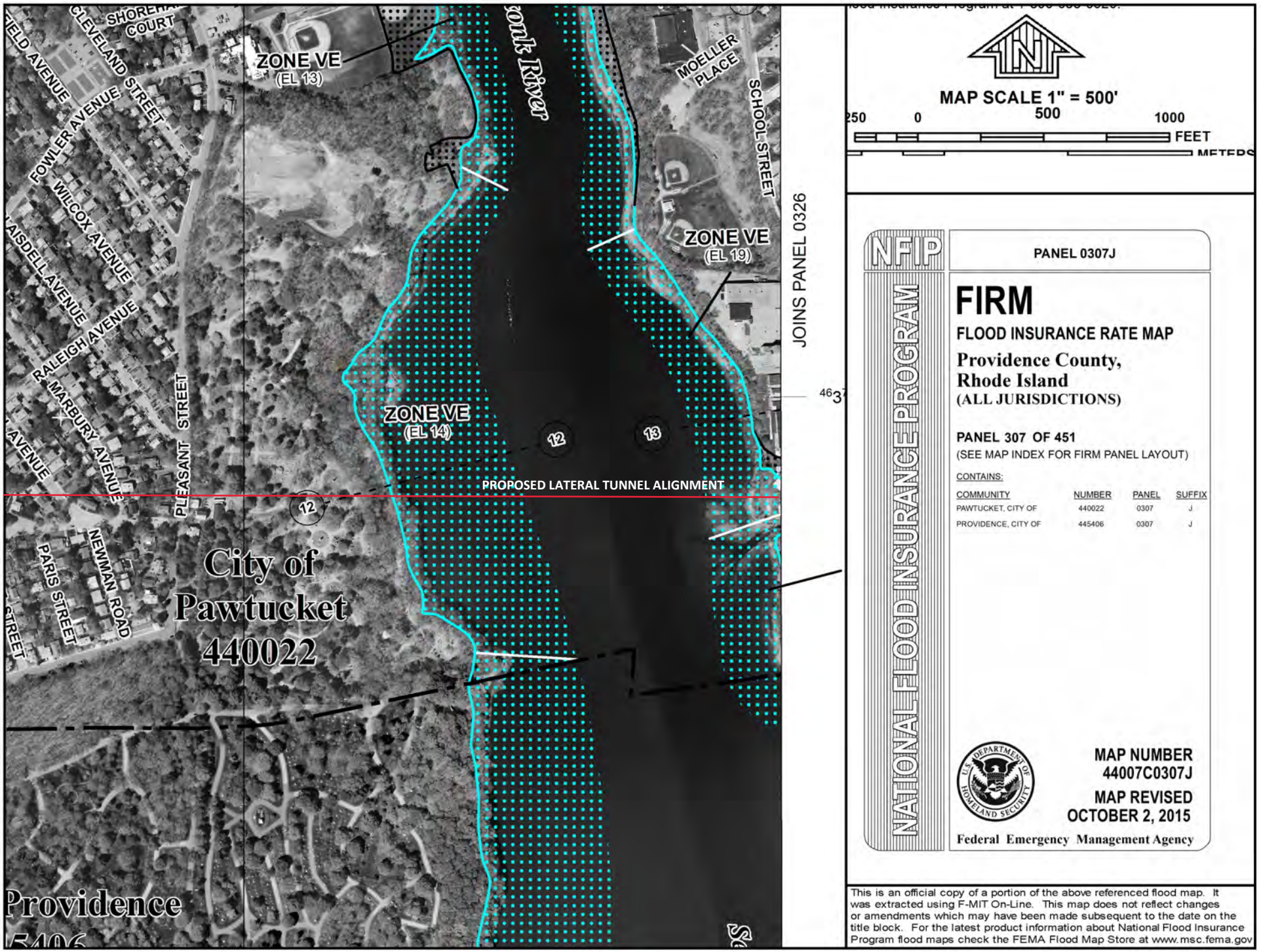
COMMUNITY	NUMBER	PANEL	SUFFIX
NORTH PROVIDENCE, TOWN OF	440020	0306	H
PAWTUCKET, CITY OF	440022	0306	H
PROVIDENCE, CITY OF	445406	0306	H

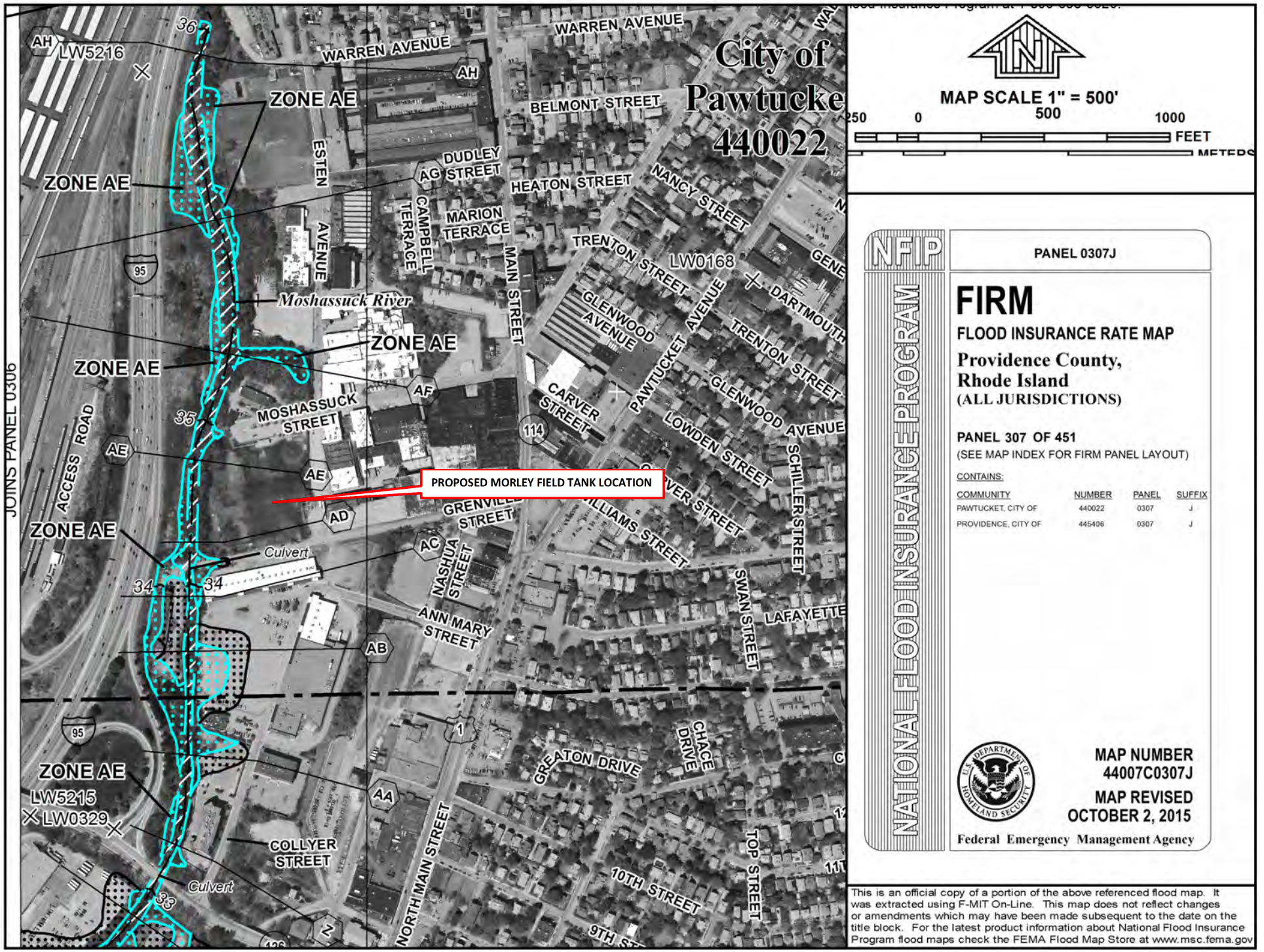
MAP NUMBER
44007C0306H

MAP REVISED
OCTOBER 2, 2015

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov


ZONE VE
(EL 13)
ZONE VE
(EL 19)
ZONE VE
(EL 14)
Blackstone River
JOINS PANEL 0326
PROPOSED LATERAL TUNNEL ALIGNMENT
City of
Pawtucket
440022
Providence
MOELLER PLACE
SCHOOL STREET
CLEVELAND STREET
FOWLER AVENUE
WILCOX AVENUE
AISDELL AVENUE
RALEIGH AVENUE
MARBURY AVENUE
PLEASANT STREET
PARIS STREET
NEWMAN ROAD
MAP SCALE 1" = 500'
500
1000
FEET
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0307J
FIRM
FLOOD INSURANCE RATE MAP
Providence County,
Rhode Island
(ALL JURISDICTIONS)
PANEL 307 OF 451
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
CONTAINS:
COMMUNITY NUMBER PANEL SUFFIX
PAWTUCKET, CITY OF 440022 0307 J
PROVIDENCE, CITY OF 445406 0307 J
MAP NUMBER
44007C0307J
MAP REVISED
OCTOBER 2, 2015
Federal Emergency Management Agency
This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov


City of Pawtucket 440022
PROPOSED MORLEY FIELD TANK LOCATION
ZONE AE
ZONE AE
ZONE AE
ZONE AE
ZONE AE
ZONE AE
Moshassuck River
Culvert
Culvert
WARREN AVENUE
WARREN AVENUE
BELMONT STREET
DUDLEY STREET
HEATON STREET
NANCY STREET
TRENTON STREET
MARION TERRACE
CAMPBELL TERRACE
ESTEN AVENUE
MAIN STREET
GLENWOOD AVENUE
PAWTUCKET AVENUE
CARVER STREET
LOWDEN STREET
SCHILLER STREET
MOSHASSUCK STREET
ACCESS ROAD
GRENVILLE STREET
NASHUA STREET
ANN MARY STREET
SWAN STREET
LAFAYETTE
GREATON DRIVE
CHACE DRIVE
COLLYER STREET
NORTH MAIN STREET
10TH STREET
TOP STREET
LW5216
LW0168
LW5215
LW0329
JOINS PANEL 0306
MAP SCALE 1" = 500'
500
1000
FEET
NFIP
PANEL 0307J
FIRM
FLOOD INSURANCE RATE MAP
Providence County, Rhode Island
(ALL JURISDICTIONS)
PANEL 307 OF 451
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
CONTAINS:
COMMUNITY NUMBER PANEL SUFFIX
PAWTUCKET, CITY OF 440022 0307 J
PROVIDENCE, CITY OF 445406 0307 J
NATIONAL FLOOD INSURANCE PROGRAM
MAP NUMBER 44007C0307J
MAP REVISED OCTOBER 2, 2015
Federal Emergency Management Agency
This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

Appendix D
US Fish and Wildlife Reports

D-1: GSI LOCATIONS – OFFICIAL SPECIES LIST

D-2: STUB TUNNEL & MORLEY FIELD TANK – OFFICIAL SPECIES LIST

D-3: WEST RIVER INTERCEPTOR – OFFICIAL SPECIES LIST

D-4: BVI RELIEF STRUCTURES – 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 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

In Reply Refer To: April 12, 2017
Consultation Code: 05E1NE00-2017-SLI-0021
Event Code: 05E1NE00-2017-E-02525
Project Name: NBC Phase III

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(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2017-SLI-0021

Event Code: 05E1NE00-2017-E-02525

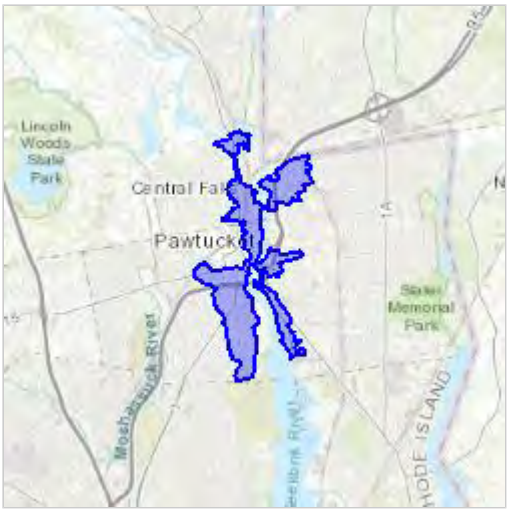
Project Name: NBC Phase III

Project Type: ** OTHER **

Project Description: Combined Sewer Overflow

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/41.87768457327087N71.37686749754408W



Counties: Bristol, MA | Providence, RI

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate 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. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area. Please contact the designated FWS office if you have questions.

Mammals

NAME	STATUS
Northern Long-eared Bat *(Myotis septentrionalis)*	Threatened

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9045

Critical habitats

There are no critical habitats within your project area.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

In Reply Refer To: April 12, 2017
Consultation Code: 05E1NE00-2017-SLI-1302
Event Code: 05E1NE00-2017-E-02532
Project Name: NBC Phase III

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(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2017-SLI-1302

Event Code: 05E1NE00-2017-E-02532

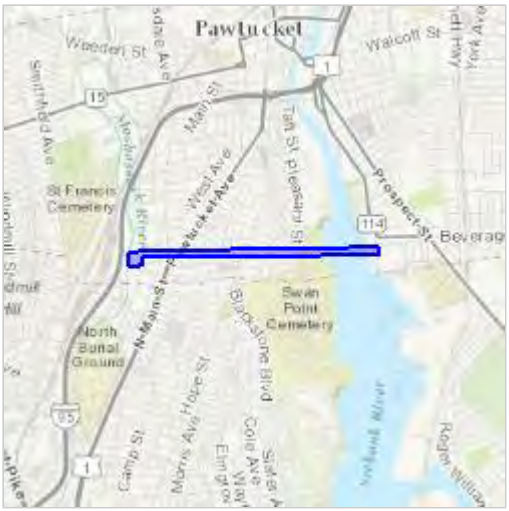
Project Name: NBC Phase III

Project Type: ** OTHER **

Project Description: Combined Sewer Overflow

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/41.85895001444576N71.39944002488122W



Counties: Providence, RI

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate 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. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area. Please contact the designated FWS office if you have questions.

Mammals

NAME	STATUS
Northern Long-eared Bat *(Myotis septentrionalis)*	Threatened

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9045

Critical habitats

There are no critical habitats within your project area.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

In Reply Refer To: April 12, 2017
Consultation Code: 05E1NE00-2016-SLI-2084
Event Code: 05E1NE00-2017-E-02529
Project Name: NBC Phase III

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(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2016-SLI-2084

Event Code: 05E1NE00-2017-E-02529

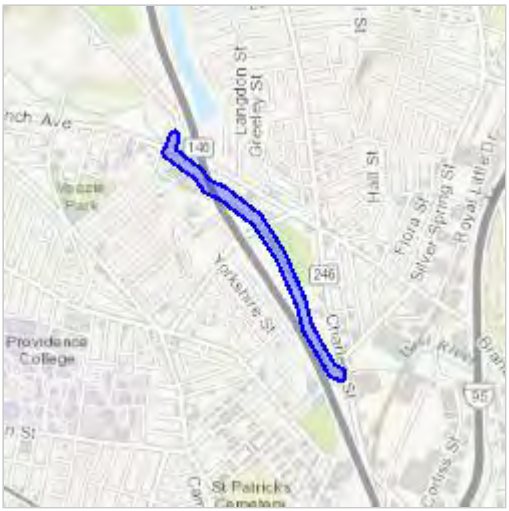
Project Name: NBC Phase III

Project Type: ** OTHER **

Project Description: Combined Sewer Overflow

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/41.84911367081256N71.42218929836093W



Counties: Providence, RI

Endangered Species Act Species

There is a total of 0 threatened, endangered, or candidate 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. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area. Please contact the designated FWS office if you have questions.

Critical habitats

There are no critical habitats within your project area.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

In Reply Refer To: April 12, 2017
Consultation Code: 05E1NE00-2017-SLI-1303
Event Code: 05E1NE00-2017-E-02534
Project Name: NBC Phase III

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:

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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.

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This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2017-SLI-1303

Event Code: 05E1NE00-2017-E-02534

Project Name: NBC Phase III

Project Type: ** OTHER **

Project Description: Combined Sewer Overflow

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/41.87008591102078N71.37927450047349W

Counties: Providence, RI

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate 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. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area. Please contact the designated FWS office if you have questions.

Mammals

NAME	STATUS
Northern Long-eared Bat *(Myotis septentrionalis)*	Threatened

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9045

Critical habitats

There are no critical habitats within your project area.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

In Reply Refer To: May 22, 2017
Consultation Code: 05E1NE00-2017-SLI-1601
Event Code: 05E1NE00-2017-E-03229
Project Name: NBC Phase III

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

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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.

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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.

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This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2017-SLI-1601

Event Code: 05E1NE00-2017-E-03229

Project Name: NBC Phase III

Project Type: ** OTHER **

Project Description: Combined Sewer Overflow

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/41.87918690515522N71.38064436941264W

Counties: Providence, RI

Endangered Species Act Species

There is a total of 0 threatened, endangered, or candidate 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. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area. Please contact the designated FWS office if you have questions.

Critical habitats

There are no critical habitats within your project area.

Appendix E

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 pre-colonial 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(l) 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) .

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: 2/21/03

RHODE ISLAND STATE HISTORIC PRESERVATION OFFICER

By:_____ 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).

W I T N E S S E T H :

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. Grantor's Covenants. In furtherance of the Preservation Easement herein granted, Grantor covenants:

1. Review 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. Specification of Materials. 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. Casualty Damage. 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. Inspection. 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. Insurance. 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. Real Estate Taxes. 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 the property. Such admission may be subject to a reasonable fee, if any, as may be approved by the Grantee.

8. Publication. 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. Indemnity. 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.

B. 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. Standards for Review. 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. Assignability. 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.

E. 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. Runs with the Land. 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 bona fide transfer for full value.

G. Statutory Authority. 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. Notices. 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. Compliance with Applicable Ordinances. 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 .

By _____
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)
) SS
City of Providence)

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 day of , 19 .

_____

Notary Public

My commission expires;

_____

Appendix F
Reevaluation Stakeholder Workshop Agendas

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

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

F-3: AGENDA – THURSDAY, MAY 22, 2014

F-4: AGENDA – THURSDAY, JUNE 19, 2014

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

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

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

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

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http://www.narrabay.com

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

All presentations and handouts available at www.narrabay.com

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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

All presentations and handouts available at www.narrabay.com

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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

All presentations and handouts available at www.narrabay.com

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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

All presentations and handouts available at www.narrabay.com

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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

A. 9:00 – 9:15 Remarks by Vincent Mesolella, Chairman, NBC Board of Commissioners

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

All presentations and handouts available at www.narrabay.com

Appendix G
Public Hearing Attachments

DS Notice is hereby given that, Lincoln Housing Authority, Lincoln, Rhode Island hereinafter called receive separate sealed bids for "Lincoln Manor, Parking Lot and Site Improvements," 10 Franklin idders are invited to submit separate sealed BIDS to the PHA per Instructions to Bidders and to Bidders. The sealed proposals shall be delivered before 11:00 AM, local time, June 20, 2017 to using Authority, 10 Franklin Street, Lincoln, Rhode Island 02865. Proposals received after the pted. Bids will be publicly opened at the Lincoln Manor Community Room at 11:00 AM, local time, RACT DOCUMENTS may be examined, during normal business hours, at the office of Edward Massasoit Avenue, Suite 300, East Providence, Rhode Island on or after May 30, 2017. CD containing the Contract Documents (drawings and specifications in "pdf" format) for their use. uments shall be at the contractor's expense. Individuals requesting interpreter services for the the Lincoln Housing Authority at (401) 724-8910 seventy-two hours prior to bid opening. tive Director "An Equal Employment Opportunity/Affirmative Action Employer"

Published: 5/31/2017

BAY COMMUNITY ACTION PROGRAM Reception Desk and Office Renovations Qualified t bids for construction services for the renovations to East Bay Community Action Program / ks Point Ave. Riverside, RI 02915. This is an approximate 2,365 square foot office renovation for rea for a primary care medical facility as described in this Document, Sections 001116 Invitation to ons to Bidders in the specifications. A. Owner Representative: Bill Ingram, Facilities Director, 100 ovidence, RI 02915, 401.437.1000 ext. 109 B. Architect: Northeast Collaborative Architects, 38 rt, RI, 401.846.9583 ext. 2005 Questions: All questions shall be directed to Northeast ention: Dan Kwasniewski AIA in writing via email dkwasniewski@ncarchitects.com. All questions will be answered by Addenda. The last day to submit questions for review by NCA is June 30, at 4 pm. BID SUBMITTAL AND OPENING C. Owner will receive sealed bids until the bid time and date at the location indicated below. Bids received after closing will not be reviewed. Owner will consider bids prepared in compliance with the Instructions to Bidders issued by Owner, and delivered as follows: 1. Bid date: July 11, 2017 2. Bid Time: 2:00 p.m. local time 3. Location: EBCAP, 100 Bullocks Point Avenue, East Providence, RI 02915 D. Bids will be thereafter privately opened and bidders will receive a copy of the bid results. E. Bid security shall be submitted with each bid in the amount of 5 percent of the bid amount. No bids may be withdrawn for a period of 90 days after opening. PREBID CONFERENCE F. A mandatory pre-bid conference for all bidders will be held at project site on June 22nd at 9:00 a.m. local time. Prospective bidders are required to attend. DOCUMENTS G. Printed Procurement and Contracting Documents: obtain on June 5th by contacting The Color Company 68 Dorrance Street Providence, RI 02903 401-278-4000 Documents will be provided to prime bidders only; only complete sets of documents will be issued. Documents also available on this link http://thecolorcousa.com/send/.

Published: 5/31/2017

LEGAL NOTICE NATIONAL GRID Tariff Advice Request RIPUC Docket No. 4673 Pursuant to Rhode Island General Laws

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deem just, pursuant to R.I.G.L. 15-5-16-1. That the Defendant be defaulted. Now, therefore, you the said DEFENDANT are hereby summoned to answer, if you shall see fit, before the Family Court, to be held at Providence within the County of Providence, on the 19th day of June, 2017. Witness the seal of the Family Court at Providence this 19th day of April, 2017. Ronald J. Pagliarini Administrator/Clerk

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The Warwick Public School District desires to seek sealed statements for: RFP #17-0053 Fire Alarm System Upgrades-Norwood & Holliman Elementary School Bid To access the bid through the electronic bidding service, you must first register at https://bidexpress.com. In order to bid, you must create and enable a digital ID within the service. This process requires the submission of notarized paperwork and may take up to five business days to complete. Bids will be opened publicly in the Conference Room at the WPS Greene Administration Office at 51 Draper Avenue, Warwick, RI 02889. If you have any questions or concerns regarding this bid please contact, Camely Machado at camely.machado@warwickschools.org. Bethany Furtado School Committee Chair Affirmative Action/EOE

Published: 5/31/2017

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Town of Lincoln Public Schools Invitation to Bid Athletic Supplies & Equipment Athletic Uniforms The Town of Lincoln Public Schools is accepting sealed bids for Athletic Supplies & Equipment and Athletic Uniforms. Bids are due at the administrative offices of the Lincoln Public Schools, 1624 Lonsdale Avenue, Lincoln, RI 02865 as follows: Athletic Supplies & Equipment 2:30 p.m. on Thursday, June 8, 2017 Athletic Uniforms 2:45 p.m. on Thursday , June 8, 2017 All bids will be publicly opened and read at that time. Bids received after that time will be returned to the sender. Bids for the above equipment must be placed in a sealed envelope and labeled as advertised above. Specifications are available at the Business Office, Lincoln Public Schools, 1624 Lonsdale Avenue, Lincoln, RI 02865, between the hours of 8:30 a.m. and 3:00 p.m. The School Committee reserves the right to reject any or all proposals, to waive irregularities in any proposal or to accept any bids or to accept that proposal deemed in the best interest of the Lincoln School Department. Lori A. Miller School Business Administrator

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Town of Smithfield REQUEST FOR PROPOSALS BILLING FOR FIRE & RESCUE COST RECOVERY SERVICES SEALED PROPOSALS from qualified firms will be received in the Office of the Finance Director, 64 Farnum Pike, Smithfield, RI 02917; until Tuesday, June 13, 2017 at 10:00 AM, at which time the proposal will be opened and publicly read aloud in the Town Council Chambers, 2nd Floor of the Town Hall Building. Proposal specifications may be obtained through the Town's website at www.smithfieldri.com/bids. The Town of Smithfield reserves the right to reject any and all proposals or part thereof, to waive any and all informalities, and to award the contract on the basis of the lowest responsible evaluated bid proposal. Randy R. Rossi Finance Director

Published: 5/31/2017

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PAWTUCKET SCHOOL DEPARTMENT Request for Proposal #C2017-05 Potter Burns Elementary School Furniture Notice is hereby given that the Pawtucket School District (PSD), Pawtucket, RI will receive Proposals for the Supply, Assembly and Install of Office and Classroom Furniture at the Potter Burns Elementary School. Responses to this solicitation are requested no later than June 16, 2017 at 1:30 pm to the PSD at 286 Main Street, Pawtucket RI, 02860 in a sealed envelope marked "Pawtucket School Department, Bid Package # C2017-05, "Potter Burns Elementary School Furniture", Attn: Melissa Devine, Chief Financial Officer. The bid documents are available at the address above, between the hours of 9:00 am and 4:00 pm, Monday through Friday. There will be a pre-bid meeting commencing at 9AM on June 7, 2017; at: Potter Burns School, 973 Newport Ave, Pawtucket, RI 02860. All questions regarding this Request for Bids may be directed to Frank Gionfrido, at Colliers International, frank.gionfrido@colliers.com. "An Equal Employment/ Opportunity Affirmative Action Employer"

Published: 5/30/2017

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PUBLIC MEETING The Mid-Atlantic Fishery Management Council will hold a meeting June 6-8, 2017. The meeting will be held at Hilton Norfolk The Main, 100 East Main St., Norfolk, VA 23510; telephone (757) 763-6200. For further information, please contact Christopher M. Moore, Executive Director, telephone 302-526-5255 or visit the Council's website at www.mafmc.org.

Published: 5/30/2017

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PUBLIC NOTICE Cellco Partnership and its controlled affiliates doing business as Verizon Wireless (Verizon Wireless) is proposing to collocate antennas at a top height of 42 feet, 11 inches on a 43-foot building at 143 Westminster Street, Providence, RI 02903. Public comments regarding potential effects from this site on historic properties may be submitted within 30-days from the date of this publication to: Project 6117002213-WRR c/o EBI Consulting, wross@ebiconsulting.com, 21 B Street, Burlington, MA 01803, or via telephone at 914-434-2173.

Published: 5/30/2017

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PUBLIC NOTICE Cox is currently negotiating with SHOWTIME NETWORK to receive their signals on our video channel lineup. We are optimistic a new agreement will be reached prior to their current expiration date, so that there is no disruption to our customers. However, Cox is providing this required notice, to customers, of potential changes to the channel lineup. Channel name, Ch. # Showtime SD/HD, 240/1240 Showtime 2, 241 Showtime Showcase SD/HD, 242/1242 Showtime Extreme SD/HD, 243/1243 Showtime Beyond SD/HD, 244/1244 Flix, 294 Showtime (West) HD, 1250 The Movie Channel SD/HD, 260/1260 The Movie Channel Extra, 261 The Movie Channel (West) HD, 1262

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STATE OF CONNECTICUT SUPERIOR COURT JUVENILE MATTERS ORDER OF NOTICE NOTICE TO: Patricia Porter mother of a male child born 5-20-16, formerly of Providence, RI now of parts unknown A petition has been filed seeking: Termination of parental rights of the above named in minor child(ren). The petition whereby the court's decision can affect your parental rights, if any, regarding minor child(ren) will be heard on: 6/14/17 at 10:15 a.m. at SCJM 81 Columbia Avenue, Willimantic, CT 06226. Therefore, ORDERED, that notice of the hearing of this petition be given by publishing this Order of Notice once, immediately upon receipt, in the: Providence Journal, 75 Fountain Street, Providence, RI 02902 a newspaper having a circulation in the town/city of: Providence, RI Honorable Steven Spellman Judge, Katrina Fletcher, Deputy Chief Clerk Date signed: 5/22/17 RIGHT TO COUNSEL: Upon proof of inability to pay for a lawyer, the court will provide to you by the Chief Public Defender. Request for an attorney should be made immediately in person, by mail, or by fax at the court office where your Hearing is to be held.

Published: 5/30/2017

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DOWNTOWN PROVIDENCE DISTRICT MANAGEMENT AUTHORITY (d.b.a. Downtown Improvement District) PUBLIC HEARING ON PROPOSED OPERATING BUDGET Notice is hereby given that a Public Hearing is scheduled to be held on THURSDAY, June 15, 2017, at 8:30 A.M. in the first floor auditorium at the Commerce Center, 30 Exchange Terrace, Providence, Rhode Island 02903. The Public Hearing is being held in accordance with Rhode Island General Law 45-59-14(b) and the City of Providence Code of Ordinances Chapter 2004-36, Number 348, Paragraph 9(e). At the Public Hearing, the estimate of receipts and an estimate of expenditures will be presented and reviewed for the fiscal year beginning July 1, 2017, and ending June 30, 2018. All persons interested will have an opportunity to be heard and/or submit communication in writing. Communications can be sent prior to the Public Hearing to the Downtown Providence District Management Authority, 30 Exchange Terrace, 4th Floor, Providence, Rhode Island 02903. Further information on the proposed budget can be obtained at the Downtown Improvement District offices 8:30 A.M. to 5:00 P.M. during regular business days or by calling (401) 421-4450. The auditorium at 30 Exchange Terrace is accessible to individuals with disabilities. If you are in need of interpreter services for the hearing impaired, please contact the Downtown Improvement District at (401) 421-4450 by Friday, June 8, 2017. PER ORDER OF BOARD OF DIRECTORS Joseph R. Paolino Jr. Chairman Steve Durkee Vice-Chairman John Rupp Treasurer Richard Lappin Secretary Emily Crowell Joseph DiBattista Robert Gagliardi Evan Granoff Susan Lapidus Robert Taylor

Published: 5/29/2017

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BURRILLVILLE SCHOOL DEPARTMENT Request for Proposal: Wood Shop Dust Collector Specifications Available at Business Office 2300 Bronco Highway, Harrisville RI 02830 Bids Due and Opened June 12, 2017 at 10:00 a.m. Burrillville School Department reserves the right to reject any and all bids or to waive any informality in the bidding.

Published: 5/28/2017

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The Town of Hopkinton, RI is currently seeking sealed bids for: MUNICIPAL WASTE REMOVAL (RE-BID II) A complete document package containing bid information, instructions, requirements and specifications may be obtained at the Town Clerk's Office, 1 Town House Rd., Hopkinton, RI 02833 from 8:30 AM - 4:30 PM, M-F, and is available on the Town's website www.hopkintonri.org. Sealed bids will be accepted at the Clerk's Office until June 12, 2017 at 2:15 p.m. and opened at 2:30 p.m. William A. McGarry Town Manager

Published: 5/28/2017

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INVITATION TO BID Coventry Public Schools is seeking bids for Student Agenda Planners with a three year contract including annual renewals for the years 2017-2018, 2018-2019 and 2019-2020. Sealed bids will be received no later than 12:00 p.m. on Friday, June 9, 2017 at 1675 Flat River Road, Coventry, RI 02816. Specifications may be obtained at coventryschools.net or our Administrative offices at 1675 Flat River Road, Coventry, RI. Please contact obriencrystal@coventryschools.net or 401-822-9400 ext. 210, TTY 800-745-5555 for any additional questions.

Published: 5/27/2017

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NOTICE OF PUBLIC HEARING In accordance with Sections 1801 and 1907 of the Providence Zoning Ordinance, the Downtown Design Review Committee (DDRC) will hold a public hearing on MONDAY, JUNE 12, 2017 4:45 PM Joseph A. Doorley, Jr. Municipal Building 444 Westminster Street, 1st Floor Conference Room Providence, RI 02903 The subject of the hearing will be an application by the CV South Street Landing LLC, requesting a waiver from Providence Zoning Ordinance Section 604(C)(4), Fences and Walls, which limits the height of fences to six (6) feet in height. As per Section 604(C)(4) the DDRC is authorized to grant a waiver to the provisions of the Zoning Ordinance relating to fences and walls. The applicant is proposing to install an approximately nine (9) foot high fence at 350 Eddy Street, Providence, RI. The application is available for review at the Department of Planning and Development, Planning Division, Suite 3A, 444 Westminster Street, Providence, RI, during regular business hours. INDIVIDUALS REQUESTING INTERPRETER SERVICES MUST NOTIFY THE DEPARTMENT OF PLANNING AND DEVEL,OPMENT AT 680-8400, 48 HOURS IN ADVANCE OF THE HEARING DATE. Kristi Gelnett, Chair Downtown Design Review Committee Jorge O. Elorza, Mayor City of Providence

Published: 5/27/2017

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Commonwealth of Massachusetts The Trial Court Bristol Probate and Family Court NOTICE AND ORDER: Petition for Appointment of Guardian of a Minor Docket No. BR16P2087GD In the interests of Scarlette Rose Wilde of New Bedford, MA, Minor NOTICE TO ALL INTERESTED PARTIES A hearing on a Petition for Appointment of Guardian of a Minor filed on 09/09/2016 by Judith E. Wilde of Westport, MA will be held 06/28/2017 at 8:30 AM (Guardianship of Minor Hearing) at Probate & Family Court, 505 Pleasant Street, New Bedford, MA. You may respond by filing a written response to the Petition or by appearing in person at the hearing. If you choose to file a written response, you need to: File the original with the Court; and Mail a copy to all interested parties at least five (5) business days before the hearing. The minor (or an adult on behalf of the minor) has the right to request that counsel be appointed for the minor. A minor over age 14 has the right to be present at any hearing, unless the Court finds that it is not in the minor's best interests. Gina L. DeRossi Register of Probate May 12, 2017

Published: 5/26/2017

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NARRAGANSETT BAY COMMISSION PHASE III COMBINED SEWER OVERFLOW PROGRAM Notice of Availability of Environmental Assessment Document and Public Hearing An Environmental Assessment has been prepared and submitted to the Rhode Island Department of Environmental Management for work proposed under the Narragansett Bay Commission's Phase III Combined Sewer Overflow (CSO) Program. A Public Hearing will be held on Tuesday, June 27, 2017 at 5:00 pm at the Narragansett Bay Commission's Administrative Offices located at 1 Service Road, Providence, RI 02905. The hearing will be for the purposes of discussing any questions regarding the results of the assessment. The meeting place is accessible. Individuals requesting interpreter services must notify the Commission office at 401-461-8848/TTY (RI Relay Operator) at least 72 hours in advance of the meeting date. The Environmental Assessment is available for review at the Narragansett Bay Commission's Administrative Office Monday through Friday from 8:30 a.m. to 4:00 p.m. and on the Commission's website at www.narrabay.com. Alternate document forms available upon request.

Published: 5/26/2017

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Section 00100 Advertisement for Bids Town of Coventry, RI Sealed bids for construction of the Quidnick Village Hazard Street Sewer Project, Contract 8C for the Town of Coventry, Rhode Island, will be received at the office of the Town Clerk, located at Coventry Town Hall, 1670 Flat River Road, Coventry, Rhode Island 02816 until 10:00 a.m. prevailing time, on June 19, 2017 at which time and place said bids will be publicly opened and read aloud. The scope of work includes construction of approximately 1,300 linear feet of 8-inch gravity sewer and appurtenant work. The required contract completion period is on or before October 27, 2017. Bid Security in the form of a bid bond, cash, certified check, treasurer's or cashier's check payable to the Owner, is required in the amount of five percent of the total bid, in accordance with Section 00200, INSTRUCTIONS TO BIDDERS. The Instructions to Bidders, Form of General Bid, Agreement, Plans, Specifications, Performance and Payment Bond, and other Contract Documents may be examined at the following locations during normal

business hours: Town of Coventry Department of Public Works, 1670 Flat River Road, Coventry, Rhode Island Contract Documents may be viewed and downloaded as a Portable Document Format (PDF) file free of charge at vvw-w.accentblueprints.com. Copies may be obtained for a fee by completing an order online or by calling 978-362-8038 for each set. Completed orders may be picked up at the offices of Accent Printing located at 99 Chelmsford Road, North Billerica, MA 01862 (978-362- 8038), from 9 a.m. to 4 p.m. Copies may also be shipped to prospective bidders for an additional charge to cover handling and mailing fees. All payments for printing and shipping are nonrefundable. The selected contractor shall furnish a performance bond and a payment bond in amount at least equal to one hundred percent (100%) of the contract price as stipulated in Section 00700 GENERAL CONDITIONS of these specifications. Disadvantaged Business Enterprises (including Minority Business Enterprise (MBE) and Women's Business Enterprise (WBE)) policies of the State of Rhode Island and the Town of Coventry are applicable to this Contract. The goal for this project is a minimum of ten percent (10%) participation by state-certified MBEs and WBEs. The Bidder shall submit completed MBE/WBE forms with the bid. Failure to comply with the requirements of this paragraph may be deemed to render a proposal nonresponsive. No waiver of any provision of this section will be granted unless approved by the Rhode Island Minority Business Enterprise Compliance Office. All bids for this project are subject to applicable federal and state laws. Bidders shall be required to comply with "Equal Opportunity Clause" and "Nondiscrimination in Employment" as well as Federal Executive Order No. 11246 and Rhode Island Executive Order No. 85-11, including any amendments and supplements relating thereto. Attention of bidders is particularly called to the requirements as to conditions of employment to be observed and minimum wage rates to be paid under the contract as determined by the Department of Labor and Industries under the provisions of Title 37 of the Rhode Island General Laws, Chapters 12 and 13, as amended. The Bidder agrees that this bid shall be good and may not be withdrawn for a period of 30 working days, Saturdays, Sundays and legal holidays excluded after the opening of bids. The Owner reserves the right to waive any informalities or to reject any or all bids. Town of Coventry RI By Its Town Clerk, Cheryl A. George Coventry, RI

Published: 5/26/2017

State of Rhode Island and Providence Plantations Department of Environmental Management Office of Water Resources 235 Promenade Street Providence, Rhode Island 02908-5767 Notice of Polluted Shellfishing Grounds May 2017 Effective at sunrise May 27, 2017 In accordance with the provisions of title 20, chapter 8.1 of the general laws of 1956 entitled "shellfish grounds", notice is hereby given that the water areas in Rhode Island overlying shell-fish grounds described in the document entitled, "Notice of Polluted Shellfishing Grounds May 2017" have been found to be in an unsatisfactory sanitary condition for the taking of shellfish for human consumption and are declared to be polluted areas. Persons taking shellfish from said waters will be prosecuted in accordance with the provisions of the aforementioned chapter. The aforementioned document is available in its entirety on our website at the following address: http://www.dem.ri.gov/maps/mapfile/shellfsh.pdf Printed copies of the document may be obtained by emailing RIDEM at: Dem.shellfish@dem.ri.gov or by contacting RIDEM's Permit Application Center at the above address or calling 401-222-6822.

Published: 5/26/2017

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS FAMILY COURT JUVENILE CLERK'S OFFICE ADVERTISEMENT KENT COUNTY DATE: April 28, 2017 NOTICE TO: The father of a child born to HOLLY MANCINI born on 10-APR-2001 any & all parties in interest. A case has been brought in the Rhode Island Family Court to decide whether you have any parental rights to this child. If you do not appear at a hearing about this matter at the Family Court, 222 Quaker Lane, Warwick, RI 02886 on 08-JUN-2017, at 9:00 AM an order will enter without your consent that you no longer have any rights to this child, and the child may be adopted. Ronald J. Pagliarini Administrator/Clerk

Published: 5/26/2017

308.00D PUBLIC HEARING SIGN-IN SHEET

Project:	308.00D: Phase III CSO Program	**Meeting Date:**	June 27, 2017
Facilitator:	Kathryn Kelly-NBC Brandon Blanchard-Pare Corporation	**Place/Room:**	NBC Corporate Office Building One Service Road, Providence, RI

Name	Company	Phone	E-Mail
Kathryn Kelly	NBC	461 8848 x316	KKelly@narrabay.com
Chris Feeney	Stantec	368-0963	~~Cfeeney~~ Christopher.Feeney@Stantec.com
Brandon Blanchard	PARE	401 334 4100	bblanchard@parecorp.com
Rich Bernier	NBC	461-8848 x326	rbernier@narrabay.com

In The Matter Of:

Narragansett Bay Commission

Phase III CSO Program

June 27, 2017

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NARRAGANSETT BAY COMMISSION PUBLIC MEETING

****
IN RE: *
*
ENVIRONMENTAL ASSESSMENT *
PHASE III CSO CONTROL FACILITIES PROGRAM *
****

DATE: June 27, 2017
TIME: 5:00 P.M.
PLACE: Narragansett Bay Commission
One Service Road
Providence, Rhode Island 02905

APPEARANCES:

Narragansett Bay Commission
BY: Kathryn Kelly, P.E.
Principal Environmental Engineer

ALSO PRESENT: Rick Bernier, NBC
Brandon Blanchard, Pare Corp.
Christopher Feeney, Stantec

E-X-H-I-B-I-T-S

(HEARING COMMENCED AT 5:20 P.M.)

MS. KELLY: It's 5:20 p.m., and this is the public hearing of the Narragansett Bay Commission's Environmental Assessments for the Phase III CSO Program.

My name is Kathryn Kelly. With me is: Rich Bernier, Director of Construction Services with the Narragansett Bay Commission. Brandon Blanchard, who works for the consulting firm Pare Corporation, and Chris Feeney who works for the consulting firm, Stantec.

Notice of this public hearing was published in the Providence Journal on May 26th, 2017. There being no one present from the public, I am closing this hearing at 5:21 p.m.

I will enter this PowerPoint presentation into the record as Exhibit A.

EXHIBIT A - MARKED FOR I.D.

(HEARING CONCLUDED AT 5:23 P.M.)

C-E-R-T-I-F-I-C-A-T-I-O-N

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
PROVIDENCE, SC.

I, SALLY BRASSARD, do hereby certify that the foregoing is a true, accurate, and complete transcript of my notes taken of the above-entitled proceeding.

IN WITNESS WHEREOF, I have hereunto set my hand this 27th day of June, 2017.

Sally Brassard
Notary Public

SALLY BRASSARD, CSR/RPR
NOTARY PUBLIC
MY COMMISSION EXPIRES: 1/16/21

Phase III CSO Control Facilities Program

Environmental Assessment

Public Hearing

June 27, 2017
5:00 PM

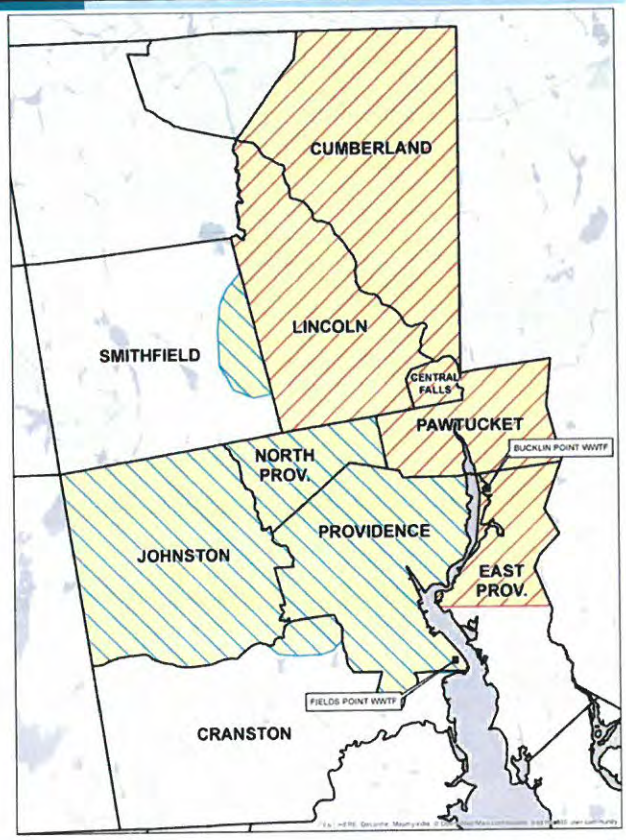
Stantec | PARE CORPORATION

The Narragansett Bay Commission

Narragansett Bay Commission

- Narragansett Bay Commission (NBC) was formed in 1980 through legislation passed by RI General Assembly
- NBC serves all or part of 10 RI municipalities in the Greater Providence area
- 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."



CSO Program History

- 1992: Consent Agreement Between RIDEM and NBC
- 1994: Conceptual Design Report (CDR) – First iteration of the Combined Sewer Overflow (CSO) Abatement Program
- 1998: Conceptual Design Report Amendment (CDRA) – Additional alternatives and a multi-phase approach to CSO abatement
  - Goal: 98% reduction in annual CSO volumes
  - Goal: 80% reduction in shellfish bed closures
  - Established Phases I, II, and III

Phases I & II of CSO Program

- Phase I CSO Program completed in 2008
- Phase II CSO Program completed in 2015
- Fields Point Service Area (City of Providence)

Substantial water quality benefits in keeping with Consent Agreement

Providence Journal article 2017

'A momentous day' for R.I. shellfishermen: DEM relaxes restrictions on quahog beds in the upper Bay

May 26, 2017 - Alex Kuffner

Phase III CSO Program History

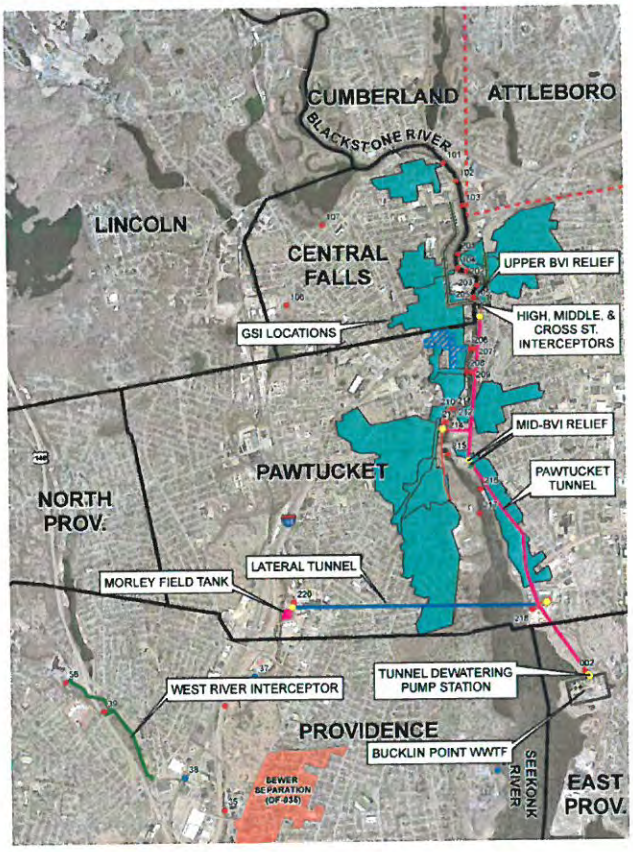
- Phase III concentrates on Bucklin Point Service Area (Central Falls & Pawtucket)
- 2015: Re-Evaluation of CDRA to further develop Phase III
  - Consider technologies developed since 1998 CDRA
  - Adopt "Lessons Learned" from previous phases
  - Design controls and select sites that are less disruptive to public
  - Reduce cost burden to ratepayers

Phase III CSO Program History (cont.)

- 2017: Plan Optimization
  - Identify additional cost savings
  - Lower financial impact of Phase III to ratepayers
  - Continue to meet CSO control objectives
  - Reassess timeline
    - » *4 Subphases Identified*
    - » *Phase IIIA completion in 2025*
    - » *Phase III entirely complete by 2041*
  - Environmental Assessment for Phase III

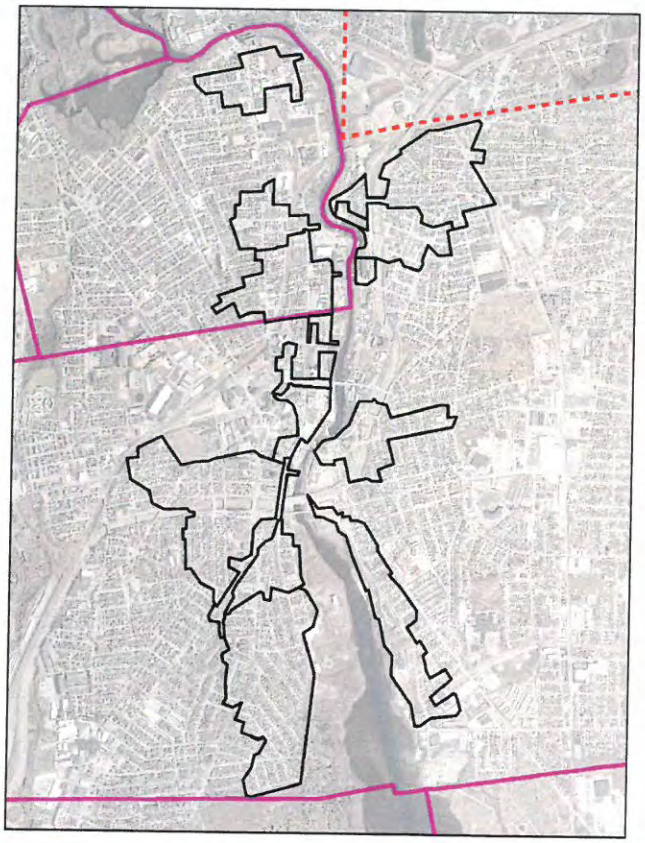
Phase III Environmental Assessment

- Reaffirm elements proposed for Phase III in 1998 CDRA:
  - Pawtucket Tunnel
  - Tunnel Drop Shafts and Consolidation Conduits
  - Tunnel Pump Station
  - Sewer Separation
  - Regulator Modifications
  - High Street/Middle Street Interceptors*
- Assess new elements:
  - Green Stormwater Infrastructure (GSI)
  - Stub Tunnel/Morley Field Tank*
  - West River Interceptor
  - Blackstone Valley Interceptor (BVI) relief structures*



Green Stormwater Infrastructure

- Intercept stormwater before entering combined system
- Infiltrate or detain stormwater
- Reduce volume to CSOs



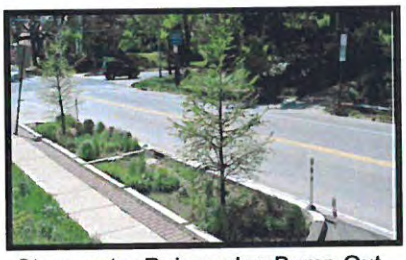
Types of GSI

- To be used at public sites and public right-of-ways
- Broad selection of GSI can be implemented at vacant or developed sites
- Adaptable to various landscapes
- May enhance aesthetics of underutilized land

Surface Detention Systems

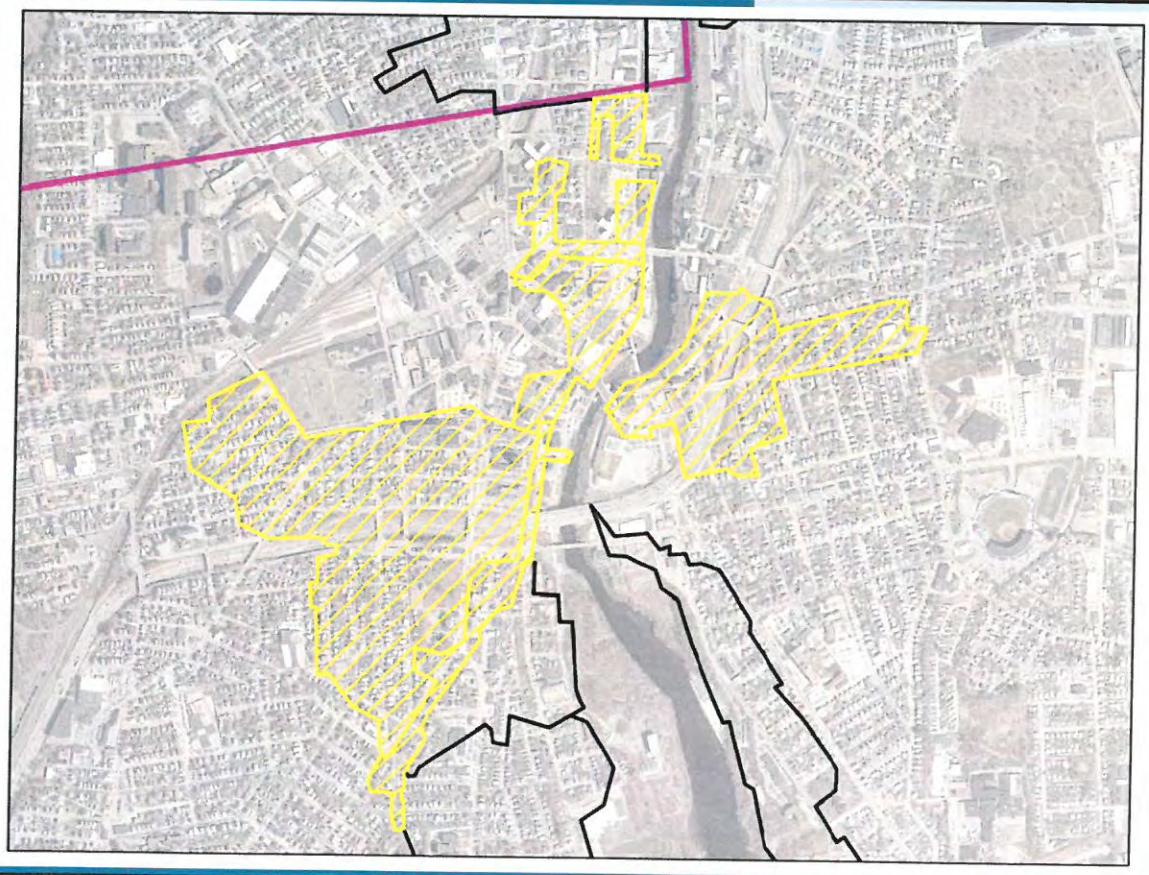
Permeable Pavement

Tree Box Filter

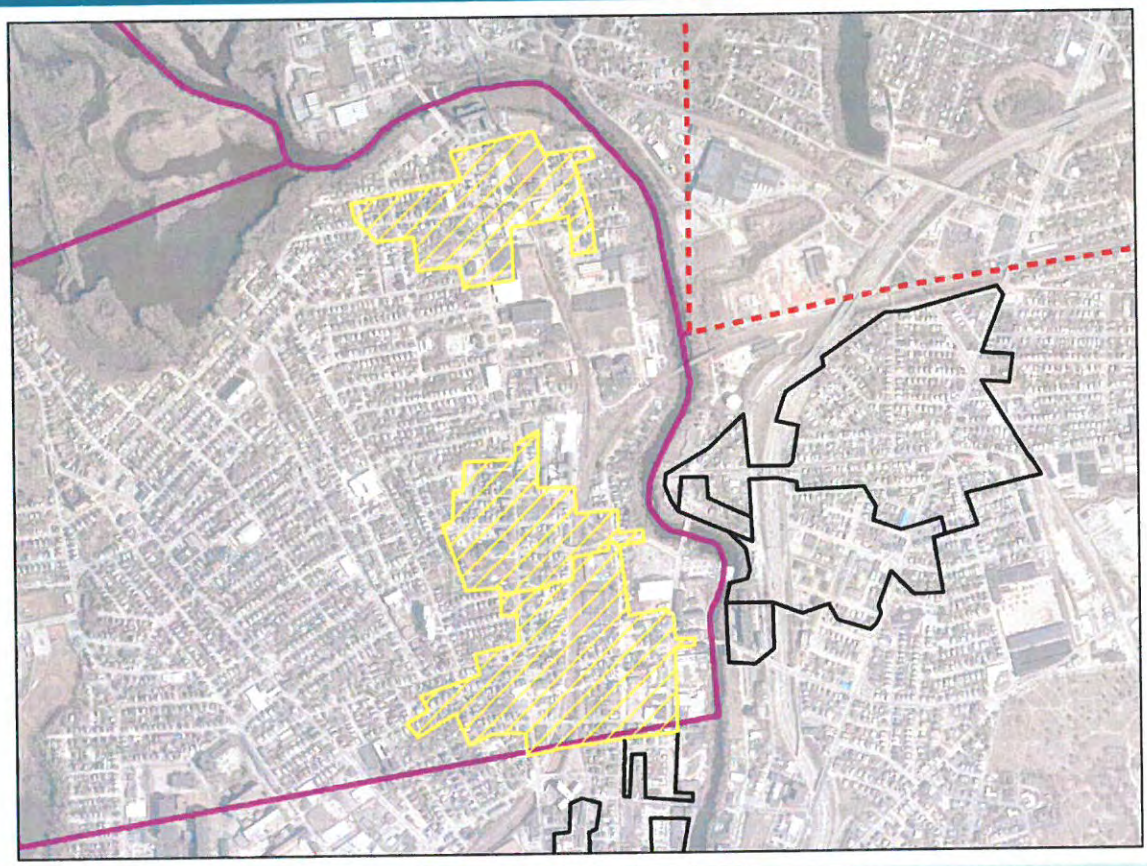


Stormwater Raingarden Bump Out

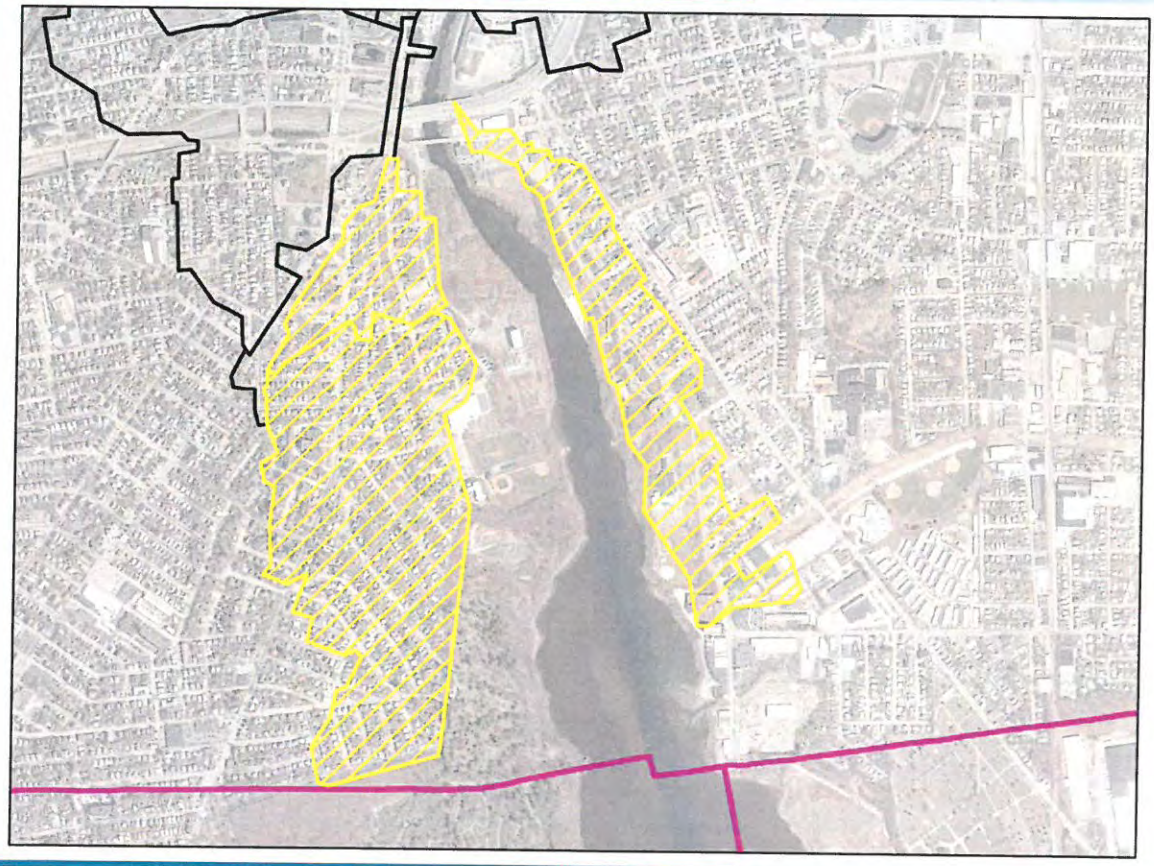
GSI – Downtown Pawtucket



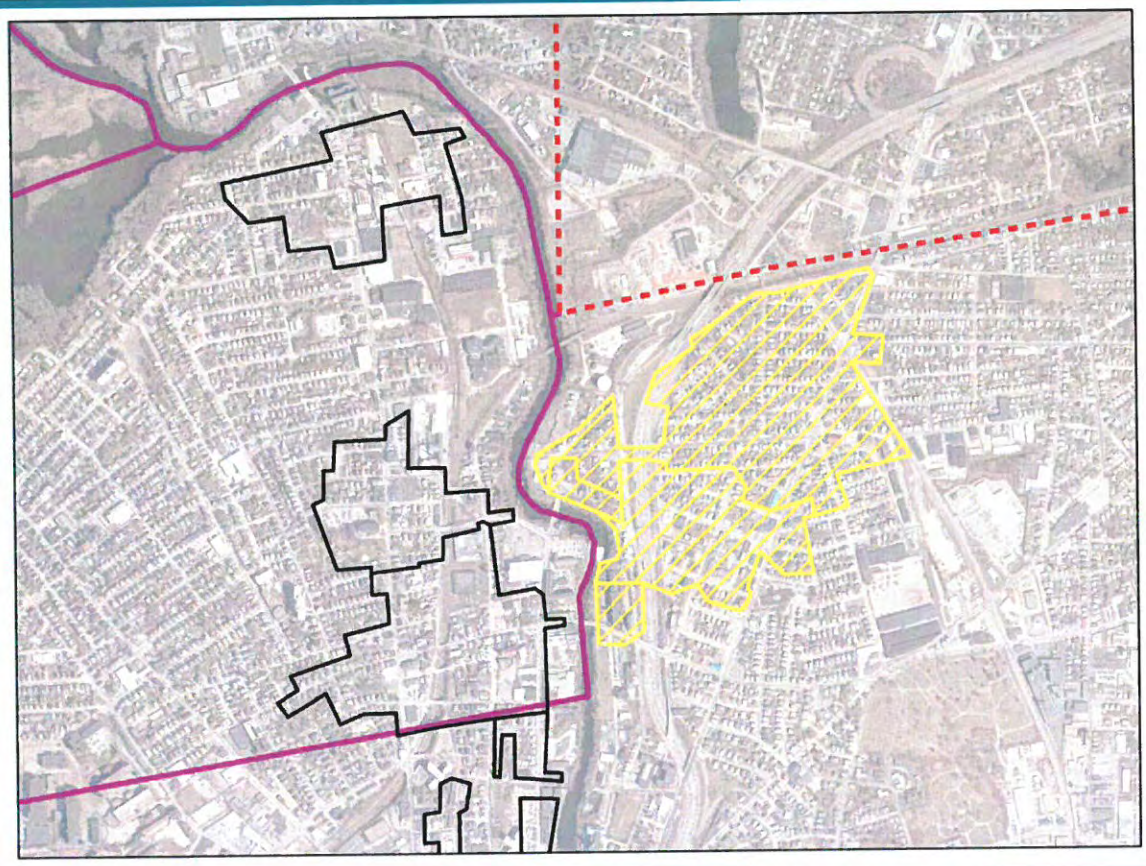
GSI – Central Falls



GSI – Oak Hill & Vicinity, Pawtucket

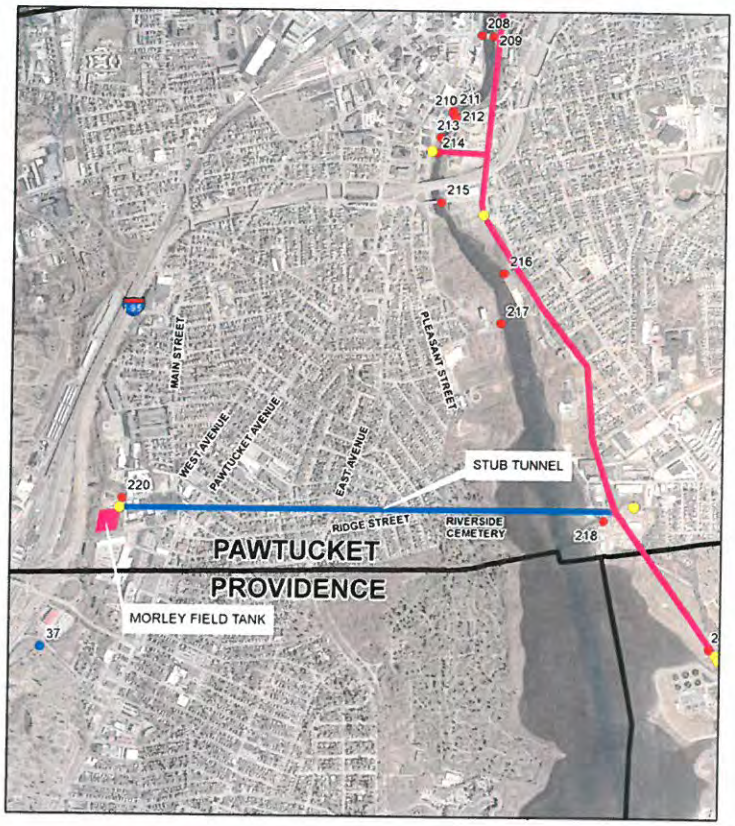


GSI – Darlington & Vicinity, Pawtucket



Stub Tunnel/Morley Field Tank

- Either Stub Tunnel or Morley Field Tank will be implemented to address overflows to Moshassuck River at OF-220
- Stub Tunnel is the currently preferred measure:
  - 7,750-foot long, 10-foot diameter tunnel to convey combined sewer to Pawtucket Tunnel
- Morley Field Tank may be considered in the future
  - 2.2 MG tank constructed under Morley Field to store combined sewer for future pump out

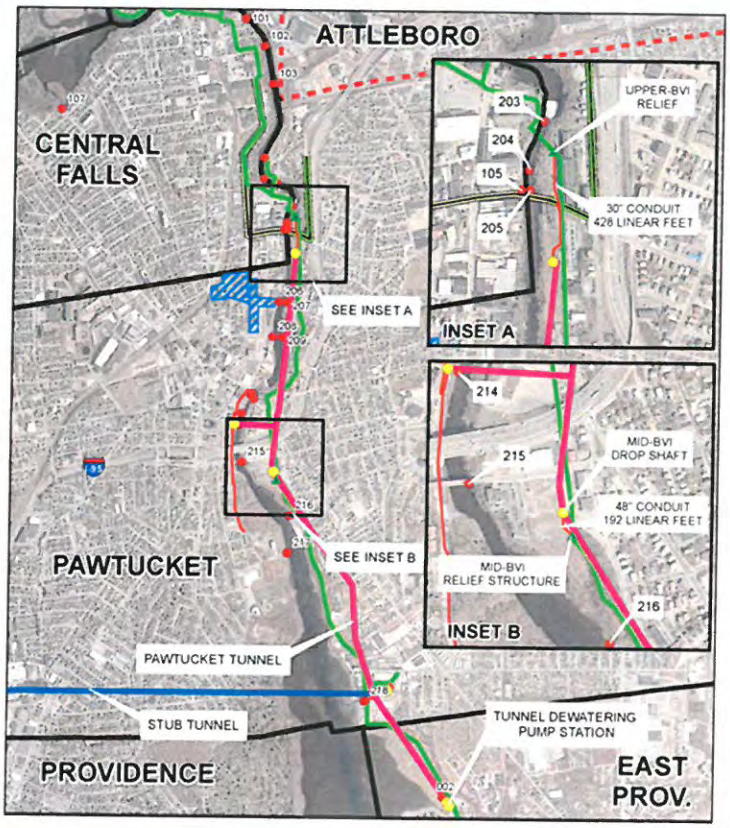


West River Interceptor

- New interceptor sewer to control overflows to West River at OF-039 and OF-056
- Will also provide relief for the existing Branch Avenue Interceptor
- 4,600-foot long interceptor ranging from 72 to 96 inches in diameter

Blackstone Valley Interceptor Relief Structures

- The Upper-BVI and Mid-BVI relief facilities would bypass flow to the Pawtucket Tunnel, gaining capacity in the existing BVI
- Upper BVI Relief near OF-205 near Front Street
- Mid BVI Relief near OF-215 south of Division Street



Potential Environmental Impacts Evaluated

All Impacts Evaluated

1. Surface Water
2. Groundwater
3. Wetlands and Floodplain
4. Wild or Scenic Rivers
5. Coastal Zones/Coastal Barrier Resources
6. Sole Source Aquifers
7. Farmlands and Agricultural Uses
8. Air Quality
9. Noise
10. Vegetation and Wildlife
11. Water Supply/Use
12. Soil Disturbance
13. Historical, Archaeological, and Cultural Resources
14. Aesthetics
15. Land Use
16. Economic
17. Community Facilities
18. Recreation
19. Safety
20. Solid Waste
21. Traffic and Business Activities
22. Other Indirect Impacts

Potential Environmental Impacts Evaluated

Some do not apply

1. Surface Water
2. Groundwater
3. Wetlands and Floodplain
4. *Wild or Scenic Rivers*
5. Coastal Zones/Coastal Barrier Resources
6. *Sole Source Aquifers*
7. *Farmlands and Agricultural Uses*
8. Air Quality
9. Noise
10. Vegetation and Wildlife
11. Water Supply/Use
12. Soil Disturbance
13. Historical, Archaeological, and Cultural Resources
14. Aesthetics
15. Land Use
16. Economic
17. Community Facilities
18. Recreation
19. Safety
20. Solid Waste
21. Traffic and Business Activities
22. Other Indirect Impacts

Potential Environmental Impacts Evaluated

Some are short-term impacts typical of construction

1. *Surface Water*
2. *Groundwater*
3. Wetlands and Floodplain
4. *Wild or Scenic Rivers*
5. Coastal Zones/Coastal Barrier Resources
6. *Sole Source Aquifers*
7. *Farmlands and Agricultural Uses*
8. *Air Quality*
9. *Noise*
10. Vegetation and Wildlife
11. *Water Supply/Use*
12. *Soil Disturbance*
13. Historical, Archaeological, and Cultural Resources
14. Aesthetics
15. Land Use
16. Economic
17. *Community Facilities*
18. *Recreation*
19. *Safety*
20. *Solid Waste*
21. *Traffic and Business Activities*
22. Other Indirect Impacts

Potential Environmental Impacts Evaluated

Some have the potential for longer term impacts

1. **Surface Water**
2. *Groundwater*
3. *Wetlands and Floodplain*
4. *Wild or Scenic Rivers*
5. *Coastal Zones/Coastal Barrier Resources*
6. *Sole Source Aquifers*
7. *Farmlands and Agricultural Uses*
8. *Air Quality*
9. *Noise*
10. *Vegetation and Wildlife*
11. Water Supply/Use
12. Soil Disturbance
13. *Historical, Archaeological, and Cultural Resources*
14. **Aesthetics**
15. *Land Use*
16. **Economic**
17. Community Facilities
18. Recreation
19. Safety
20. Solid Waste
21. Traffic and Business Activities
22. *Other Indirect Impacts*

Avoidance, Minimization, and Mitigation

- Site selection based in part on minimizing impacts to the community
- Best management practices (BMPs) used in design and construction
  - Erosion/dust control
  - Noise, traffic, odor controls
  - Establish work hours in accordance with local ordinances
- GSI projects planned for publicly-owned property
- Projects to receive appropriate permits and undergo regulatory review
- Program to coordinate with Historical Preservation and Heritage Commission
- Design of structures to be consistent with local architecture and land uses

Public Participation

Stakeholder outreach was performed in 2014 as part of the Re-Evaluation.

- Stakeholders included:
  - Residents
  - Government agency representatives
  - Trade association representatives
  - Non-profit organizations
  - Business owners from across the NBC service area.
- Input from stakeholders incorporated into the 2015 Phase III CSO Re-Evaluation Plan.

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

State and Federal Agency Review

- Several agencies were provided an opportunity to review and comment on assessment of Phase III CSO Program:
  - 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
  - U.S. Fish and Wildlife Service
- Comments received incorporated into Draft EA

Project Impacts and Benefits

- Impacts short-term in nature, limited to construction related activities. All efforts to mitigate and minimize these impacts will be made.
- CSO Abatement will improve water quality in the Blackstone, Seekonk, Moshassuck, and West Rivers, and Narragansett Bay as a whole.
- Tunnels and relief structures add storage capacity to NBC system.
- GSI increases infiltration, improves aesthetics.

Next Steps

- Draft Environmental Assessment currently under review by RIDEM
- RIDEM review comments to be addressed in revised EA
- Comments from public to be incorporated into finalized EA
- Finalized EA to be resubmitted to RIDEM for acceptance
- Finding of No Significant Impact (FONSI) expected from RIDEM

The Narragansett Bay Commission

Phase III CSO Program

Environmental Assessment

Date: May 26, 2017

Stantec

PARE

Appendix H
Program Narrative – Fall 2016

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:

- West River Interceptor: 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.
- Lateral tunnel from OF 220 to Pawtucket Tunnel: 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.
- Morley Field Tank: The construction of a near surface storage tank for OF 220 was presented as an alternative to the lateral tunnel.
- GSI projects: 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

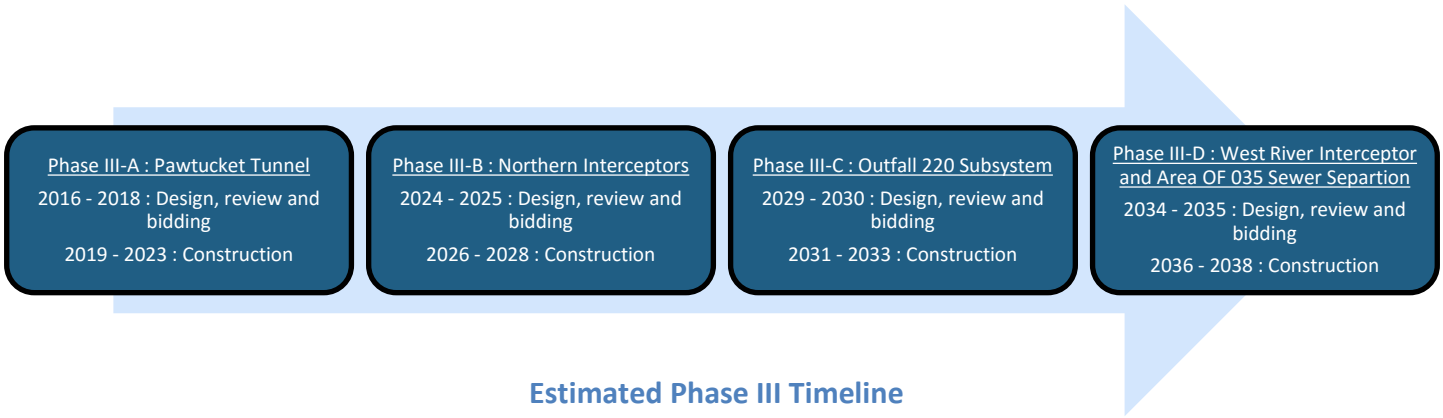
Phase III CSO Program Overview

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
GSI	• Target areas that contribute flows to OF 201-204



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.

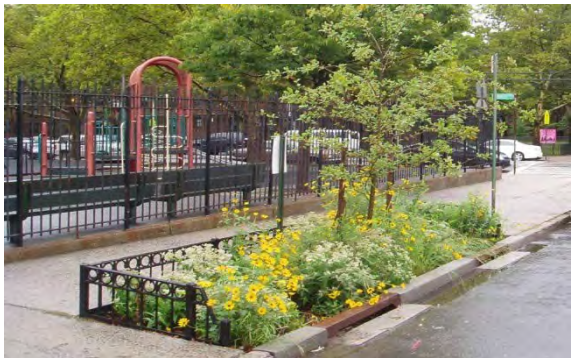
The major benefits of GSI for the purposes of the Phase III CSO Program will be a reduction in impervious cover and an increase in on-site infiltration, which will reduce wet-weather flow to the combined sewer system with the goal of reducing the size and scope of the more traditional "grey infrastructure"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

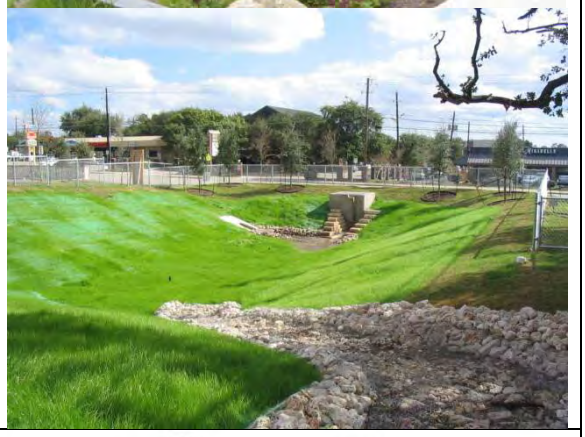
Typically, GSI can be divided into three categories: Source Control Measures, Pathway Measures, and Receptor Measures.

- 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.	

<u>Sewer Separation</u>

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 re-evaluation 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

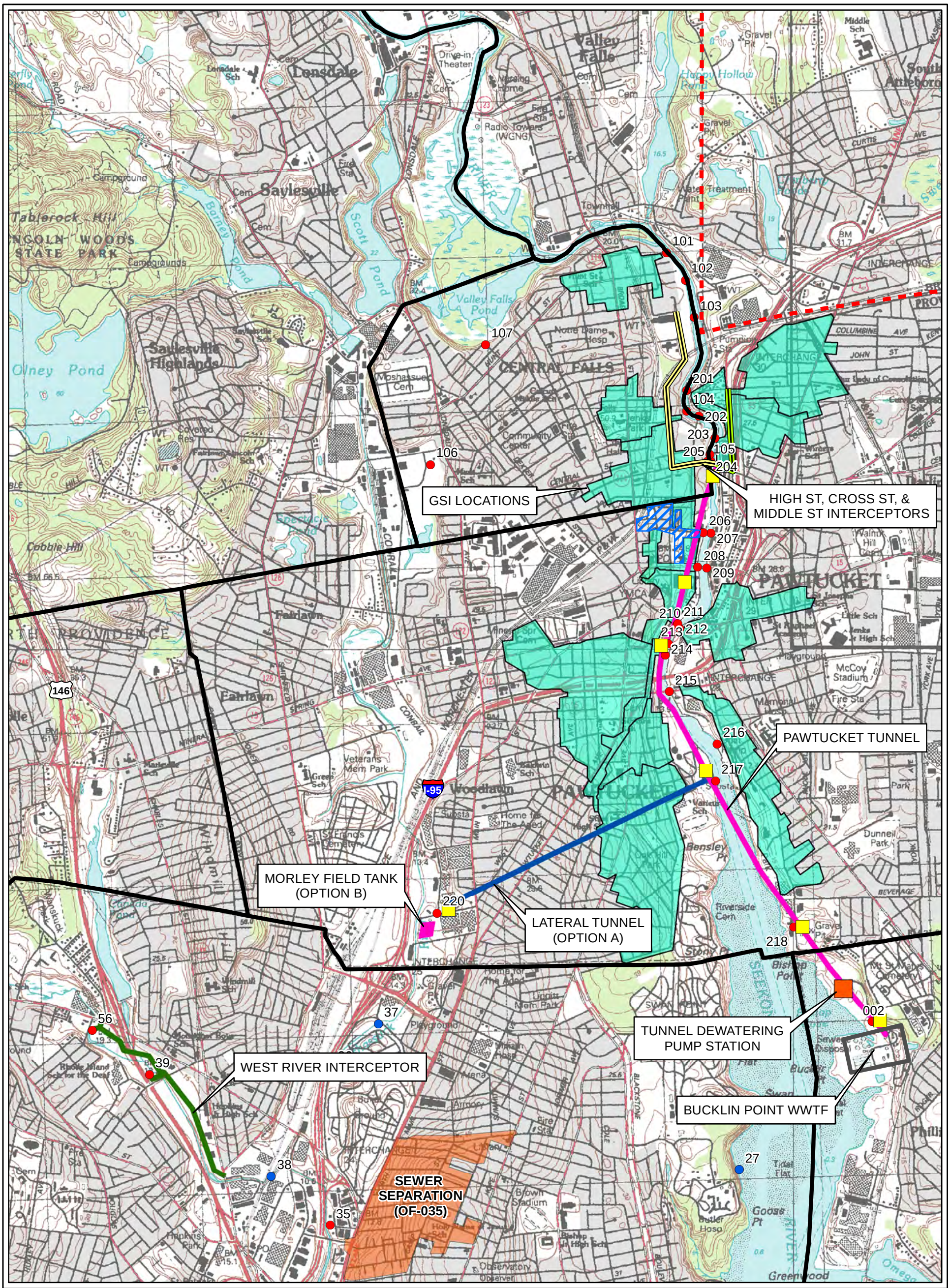
035, OF 039, OF 056, and OF 206, but is now proposed only in the OF 035 and OF 206 sewersheds.

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



TITLE:

PROJECT OVERVIEW MAP

PHASE III CSO CONTROL FACILITIES PROGRAM

REFERENCE(S):
Coordinate System: NAD83 Rhode Island ft
Units: Foot US

DATE: OCTOBER 2016

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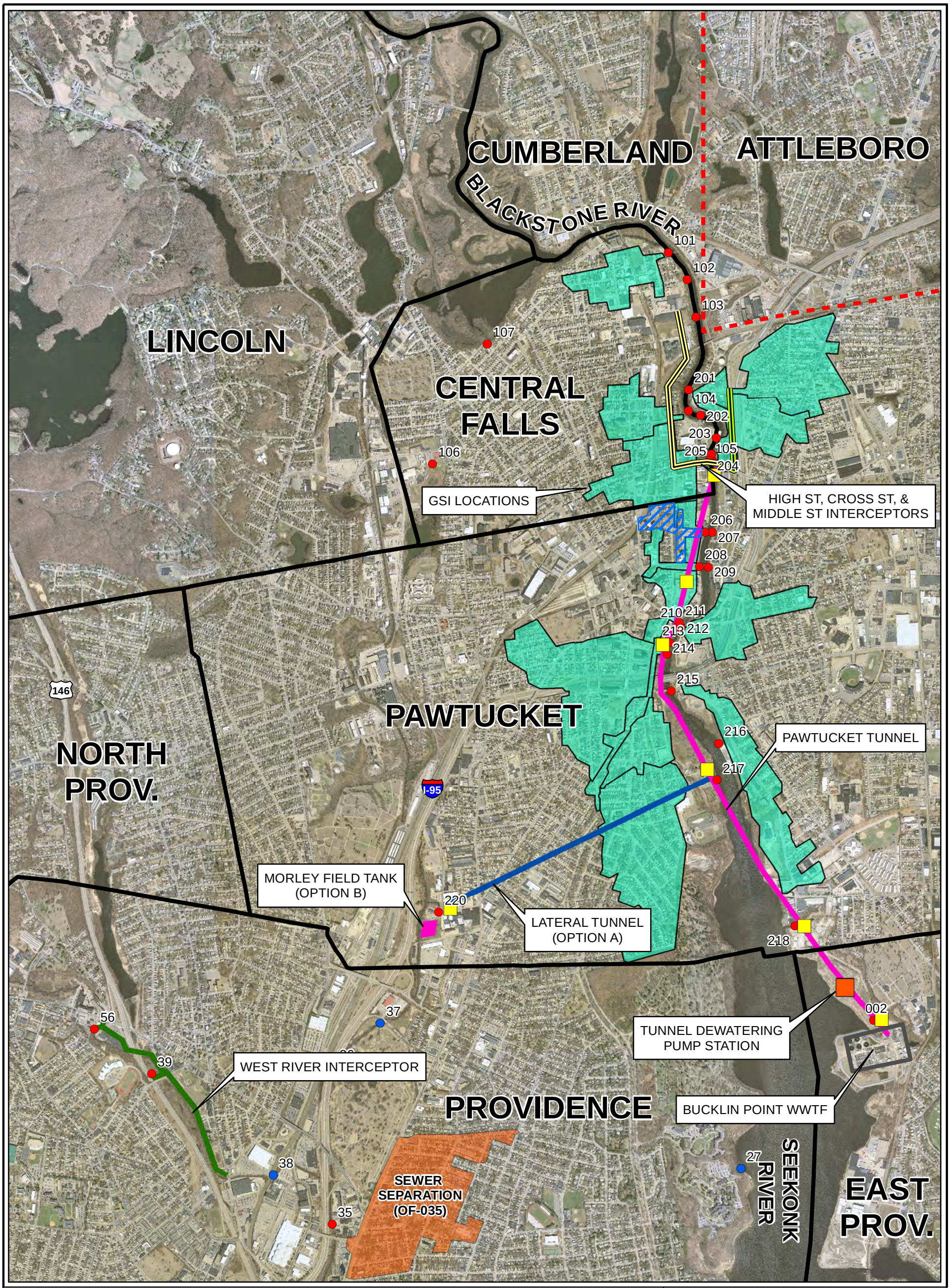
FIGURE: 1

Figure 2: Project Overview Aerial



LEGEND:

- CSO Outfall Phase III
- CSO Outfalls
- State Line
- Town Line
- Bucklin Point WWTF
- Sewer Separation
- Pump Station
- Pawtucket Tunnel
- West River Interceptor
- Lateral Tunnel
- Morley Field Tank
- GSI Catchment Areas
- Hybrid Sewer Separation
- Pawtucket Tunnel Shaft Phase III
- Middle St Interceptor
- High St & Cross St Interceptors

N W E S

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TITLE:

PROJECT OVERVIEW AERIAL

PHASE III CSO CONTROL FACILITIES PROGRAM

REFERENCE(S):
Coordinate System: NAD83 Rhode Island ft
Units: Foot US

DATE: OCTOBER 2016

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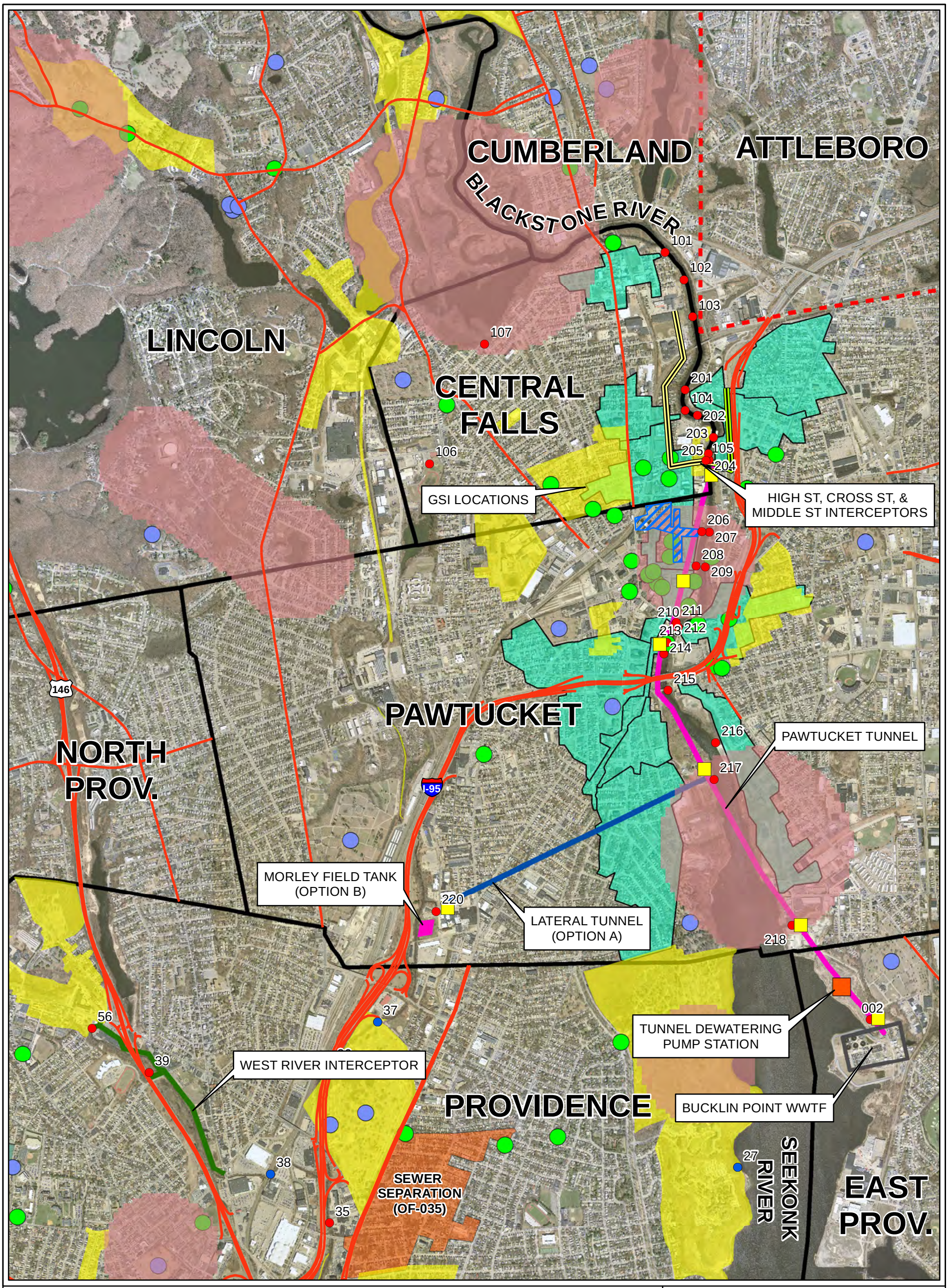
FIGURE: **2**

Figure 3: Resources Overview Aerial



LEGEND:

- CSO Outfalls
- CSO Outfalls Phase III
- State Line
- Town Line
- Bucklin Point WWTF
- Sewer Separation
- Pump Station
- Pawtucket Tunnel
- West River Interceptor
- Lateral Tunnel
- Morley Field Tank
- GSI Catchment Areas
- RIDOT Roads (RIGIS 2016)
- Natural Heritage Areas
- Pawtucket Tunnel Shaft Phase
- Hybrid Sewer Separation
- Historical Cemeteries (RIGIS 2012)
- Historic Sites (RIGIS 1995)
- Historic Districts (RIGIS 1995)

N W E S

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TITLE:

RESOURCES OVERVIEW AERIAL

PHASE III CSO CONTROL FACILITIES PROGRAM

REFERENCE(S):
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Units: Foot US

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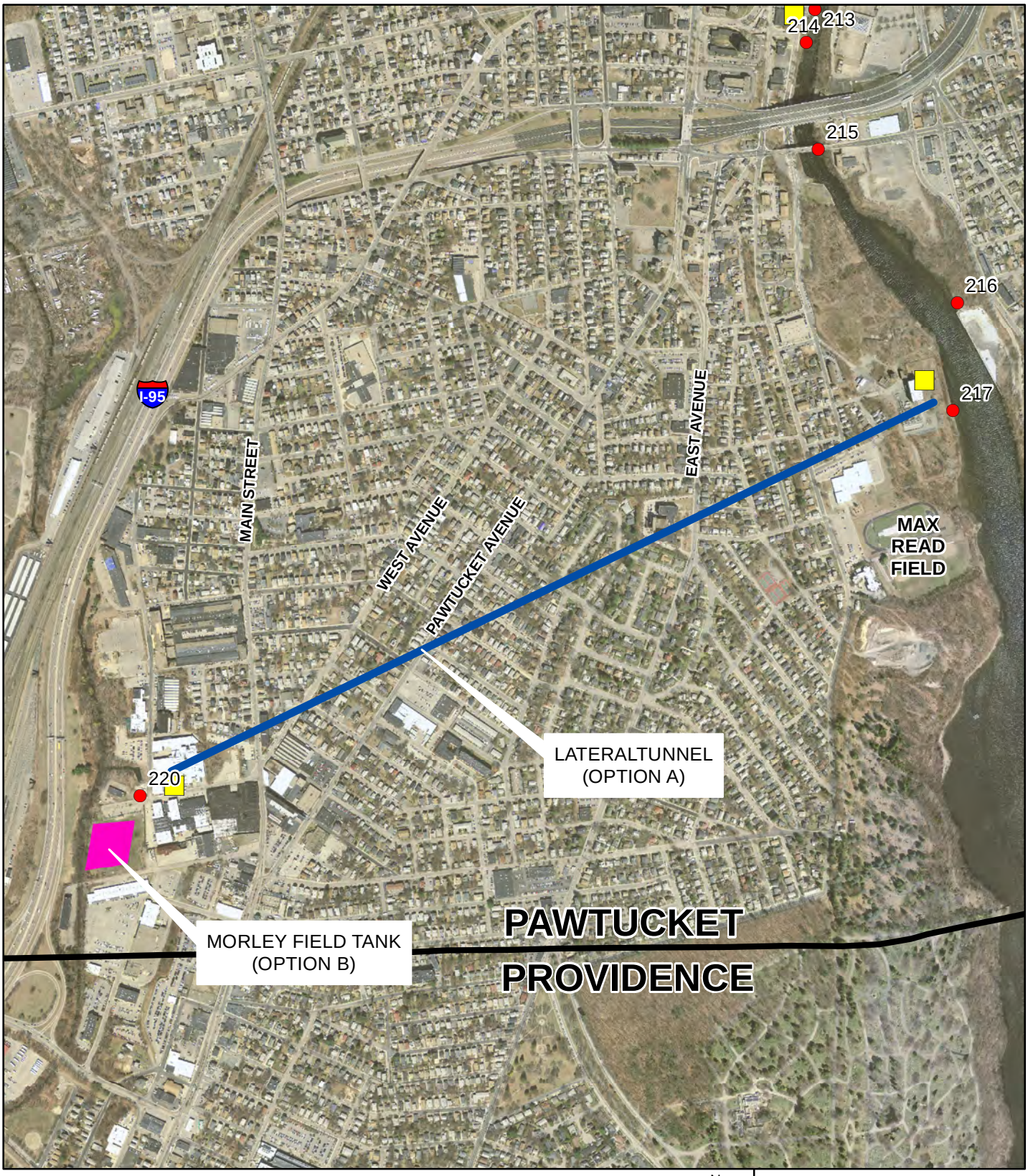
FIGURE: 3

Figure 4.1: Lateral Tunnel & Morley Field Tank



LEGEND:

- Pawtucket Tunnel Shaft Phase III
- CSO Outfall Phase III
- Lateral Tunnel
- Morley Field Tank
- Town Line

N W E S

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TITLE:
LATERAL TUNNEL & MORLEY FIELD TANK

PHASE III CSO CONTROL FACILITIES PROGRAM

REFERENCE(S): DATE: OCTOBER 2016
Coordinate System: NAD83 Rhode Island ft
Units: Foot US

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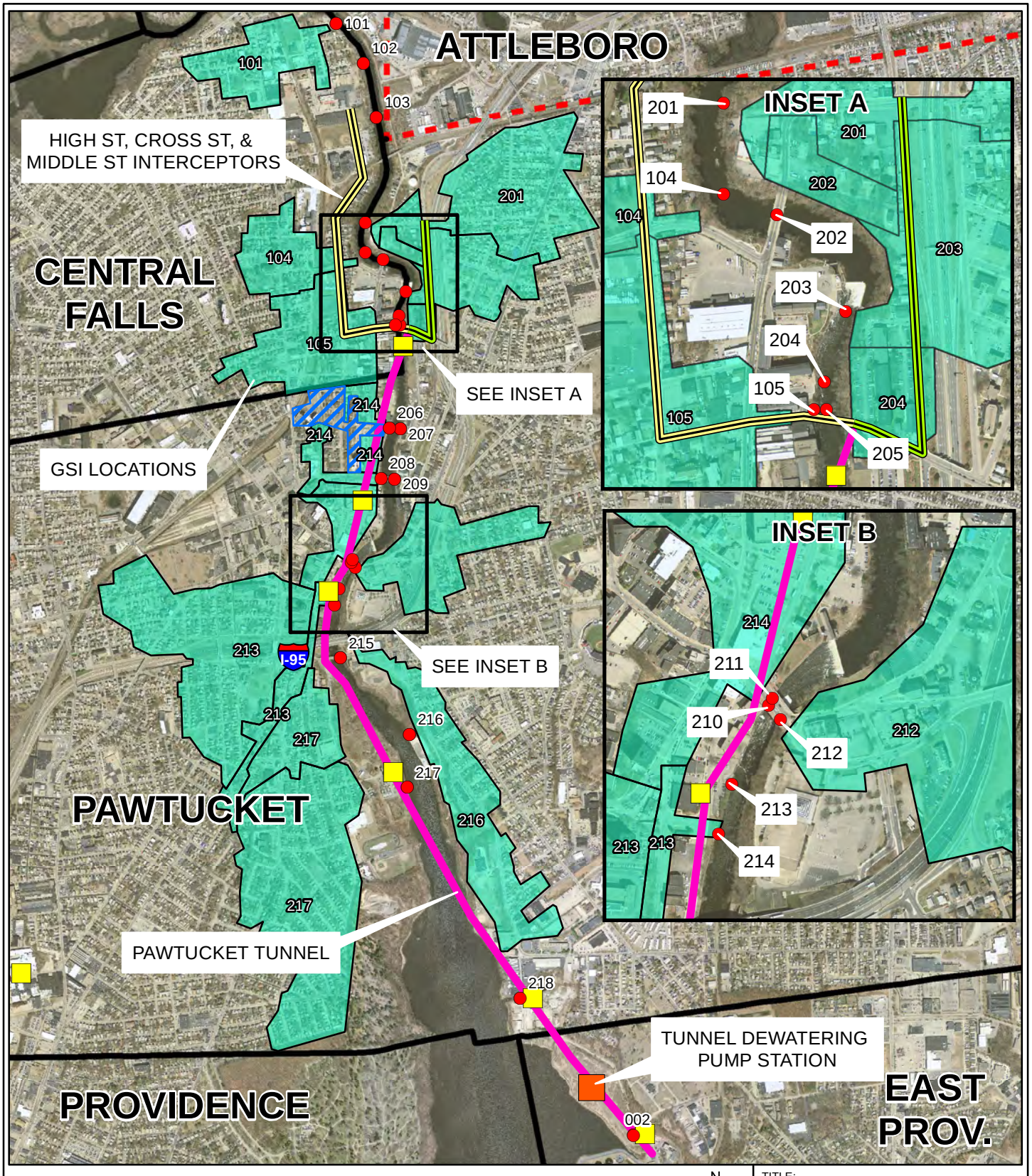
FIGURE: **4.1**

Figure 4.2: GSI Locations & Surrounding CSO Facilities



LEGEND:

- Pawtucket Tunnel Shaft Phase III
- CSO Outfall Phase III
- CSO Outfalls
- Pump Station
- Pawtucket Tunnel
- GSI Catchment Areas
- Middle St Interceptor
- High St & Cross St Interceptors
- Town Line
- State Line
- Hybrid Sewer Separation

N W E S

2,000 1,000 0 2,000 Feet

TITLE:
GSI LOCATIONS & SURROUNDING CSO FACILITIES

PHASE III CSO CONTROL FACILITIES PROGRAM

REFERENCE(S): DATE: OCTOBER 2016
Coordinate System: NAD83 Rhode Island ft
Units: Foot US

MWH Stantec PARE CORPORATION

FIGURE: 4.2

Figure 4.3: West River Interceptor

LEGEND:

- CSO Outfall Phase III
- CSO Outfalls
- West River Interceptor

N
W E
S

750 375 0 750 Feet

TITLE:

WEST RIVER INTERCEPTOR

PHASE III CSO CONTROL FACILITIES PROGRAM

REFERENCE(S):

DATE: OCTOBER 2016

Coordinate System: NAD83 Rhode Island ft
Units: Foot US

MWH now part of Stantec

PARE CORPORATION

FIGURE: **4.3**

Appendix I
Regulatory Review Comment Letters – Fall 2016

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: https://www.fws.gov/ecological-services/habitat-conservation/cbra/Maps/index.html.

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.

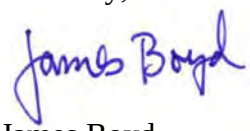
The proposed Phase III CSO outfalls that discharge into the Seekonk River (tidal waters) are identified on Figure 1 as 215, 216, 217, 218, and 002. These outfalls will discharge to CRMC designated Type 4 Multipurpose Waters. In addition, there are numerous areas of coastal wetlands located along the 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." See 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." See 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,



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: **Departmental Comments – 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,

Joseph 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
Old State House • 150 Benefit Street • Providence, R.I. 02903-1209
TEL (401) 222-2678 FAX (401) 222-2968
TTY / Relay 711 Website www.preservation.ri.gov

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,

FOR Edward F. Sanderson
Executive Director
State Historic Preservation Officer

cc: Kathryn Kelly, Narragansett Bay Commission, by email

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
HISTORICAL PRESERVATION & HERITAGE COMMISSION
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TTY / Relay 711 Website www.preservation.ri.gov

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.

West River Interceptor
No historic properties affected.

Morley Field Tank
No historic properties affected.

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

Green Stormwater Infrastructure
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,

FOR Edward F. Sanderson
Executive Director
State Historic Preservation Officer

cc: Kathryn Kelly, Narragansett Bay Commission, by email

Appendix J
Agency Letters – Spring 2017

Phase III CSO Program

April 18, 2017

Mr. Christopher J. Raithel
RI DEM Division of Fish and Wildlife
277 Great Neck Road
West Kingston, RI 02892

Subject: **Environmental Assessment**
NBC Phase III CSO Program
Pare Project No.: 14106.01

Certified Mail
Return Receipt Requested

Dear Mr. Raithel,

The project team of Stantec and Pare Corporation (Stantec/Pare) has prepared this letter on behalf of the Narragansett Bay Commission (NBC) to update you on changes that have recently been made to the proposed plan for the Phase III Combined Sewer Overflow (CSO) Program. The Stantec/Pare team is serving as NBC's Program Management/Construction Management consultant for overseeing and administering the Phase III CSO Program.

Your agency was previously provided a narrative and figures describing the projects planned for the Phase III CSO Program. This documentation was provided by certified mail in November 2016 for your review and comment as part of the Environmental Assessment (EA) process. Your attention was specifically called to project elements that were new to the Program as proposed in the 2015 Re-Evaluation of the 1998 Conceptual Design Report Amendment (CDRA). Based on discussions with RIDEM, it was determined that projects that are unchanged from the 1998 CDRA will be reaffirmed, but new project elements are required to be assessed as part of an updated EA. The new project elements presented in the 2015 Re-Evaluation consist of the following:

- Green stormwater infrastructure (GSI) projects for reduction in CSO volumes in various sewersheds in Pawtucket and Central Falls;
- A lateral (stub) tunnel, connected to the main Pawtucket Tunnel, for storage of CSO volumes from OF-220;
- A near surface storage tank at Morley Field in Pawtucket, as an alternative to a lateral (stub) tunnel for temporary storage of CSO volumes from OF-220; and
- A new sewer interceptor, identified as the West River Interceptor, to collect and convey CSO volumes from the OF-039 and OF-056 outfalls in Providence.

Agency review comments were integrated into a draft EA, dated January 31, 2017 and submitted to RIDEM. However, since our last correspondence, the proposed plan has undergone an optimization process in which five alternatives were identified with the basis of determining the best approach to achieve the objectives of the Phase III CSO Program. The completed optimization process resulted in the selection of a preferred alternative and the plan for the Phase III CSO Program has been modified accordingly from the plan presented in the 2015 Re-Evaluation.

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260 W. Exchange Street
Suite 001
Providence, RI 02903

After consulting with RIDEM, it was determined that the current draft EA should be modified to reflect the optimized plan now being proposed for the Phase III CSO Program. A Phase III CSO Program Optimized Plan (serving as an update to the 2015 Re-Evaluation) and accompanying EA are anticipated to be completed and submitted to RIDEM by May 26, 2017.

Phase III CSO Program Plan Optimization

Table 1 provides a comparison of the Phase III CSO Program elements that were originally presented in the 1998 CDRA, projects that were carried forward and/or introduced in the 2015 Re-Evaluation, and projects currently proposed following the 2017 Plan Optimization. Table 2 summarizes the details of each project element that comprises the Phase III CSO Program Optimized Plan.

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Table 1: Historical Phase III CSO Program Project Elements

Project	Project Originally Presented in 1998 CDRA?	Project Carried Forward or Introduced in 2015 Re-Evaluation?	Project Currently Proposed Following 2017 Plan Optimization?
Pawtucket Tunnel	**YES** Tunnel alignment proposed along west side of river.	**YES** Tunnel alignment unchanged from 1998 CDRA.	**YES** Tunnel alignment relocated to east side of river during plan optimization.
Consolidation Conduits, Drop Shafts	**YES** Consolidation conduits required between outfalls and dropshafts.	**YES** Consolidation conduits and dropshafts generally consistent with CDRA.	**YES** Consolidation conduits, dropshaft locations still proposed, adjusted for new tunnel alignment.
Tunnel Pump Station	**YES** Tunnel Pump Station proposed at Bucklin Point WWTF.	**YES** Location and design requirements unchanged from 1998 CDRA.	**YES** Location and design requirements unchanged from 1998 CDRA and 2015 Re-Evaluation.
High Street/Middle Street Interceptors	**YES** Proposed to control overflows in northern catchments.	**YES** Interceptors in High Street and Middle Street carried forward.	**YES** Interceptors remain unchanged, though possibly replaced with BVI relief upstream of OF-205
Regulator Modifications	**YES** Modifications proposed at several existing CSO Regulator structures	**YES** Regulator modifications substantially unchanged from 1998 CDRA.	**YES** Regulator modifications remain substantially unchanged from 1998 CDRA, 2015 Re-Evaluation.
Sewer separation	**YES**	**YES** Sewer separation proposed for control at fewer OFs in 2015 Re-Evaluation than in CDRA.	**YES** Unchanged from 2015 Re-Evaluation.
Green Stormwater Infrastructure	**NO**	**YES** Introduced in 2015 Re-Evaluation as an alternative to other near surface work	**YES** Remains unchanged from 2015 Re-Evaluation.
Deep Rock Lateral (Stub) Tunnel	**NO** Sewer interceptor originally proposed for CSO control at OF-220	**YES** Introduced in 2015 Re-Evaluation as an alternative to a new sewer interceptor.	**YES** Design requirements, potential impacts unchanged, length/alignment modified for new Pawtucket Tunnel alignment.
Morley Field Near Surface Storage Tank	**NO** Sewer interceptor originally proposed for CSO control at OF-220	**YES** Introduced in 2015 Re-Evaluation as an alternative to the Lateral Tunnel.	**YES** Substantially unchanged from 2015 Re-Evaluation.
West River Interceptor	**NO** Sewer separation originally proposed for OF-039, OF-056.	**YES** Introduced in 2015 Re-Evaluation as an alternative to sewer separation.	**YES** Largely unchanged, downstream sections increased from 72" to 96" diameter.
Blackstone Valley Interceptor (BVI) Relief	**NO**	**NO**	**YES** New relief facilities proposed upstream of OF-205 as an alternate to High/Middle Street interceptors and on midpoint of BVI near OF-215.

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Providence, RI 02903

Table 2: Phase III CSO Program Optimized Plan

Phase III – A	
Pawtucket Tunnel	• Deep rock storage tunnel with 2 work shafts and 3 drop shafts (optimized plan uses fewer dropshafts than originally proposed) • 13,000 linear feet, 150 – 200 feet below grade, north of Bucklin Point WWTF in East Providence to Central Falls/Pawtucket border near the Blackstone River • **Will be reaffirmed in updated EA, but updated alignment will be presented**
Consolidation Conduits	• Proposed to consolidate flow from multiple overflows to tunnel dropshafts • Multiple sections ranging from 30" – 78" diameter, 5,600' combined total length • Additional consolidation conduits required due to reduction in dropshafts • **Will be reaffirmed in updated EA, but updated locations will be presented**
Tunnel Pump Station	• Located within 1,000 feet of the Bucklin Point WWTF • **Will be reaffirmed in updated Environmental Assessment**
Mid-BVI Relief Facilities	• Relief at midpoint along existing Blackstone Valley Interceptor, near OF-215 • New diversion structure, gate/screening structure, 48-inch consolidation conduit • **Subject to assessment in updated Environmental Assessment**
GSI	• Target areas that contribute flows to OF 212, 213, and 214 • **Subject to assessment in updated Environmental Assessment**
Phase III – B	
Hybrid sewer separation/GSI	• Implementation in the catchment for OF 206 • **Will be reaffirmed in updated Environmental Assessment**
Upper-BVI Relief Facilities	• Relief at upstream point along existing Blackstone Valley Interceptor • New diversion structure, consolidation conduit, and relief sewer near OF-205 • **Subject to assessment in updated Environmental Assessment**
High St./Middle St. Interceptors	• Possibly constructed as an alternate to Upper BVI Relief Facilities • **Will be reaffirmed in updated Environmental Assessment**
GSI	• Target areas that contribute flows to OF 101, 104, and 105 • **Subject to assessment in updated Environmental Assessment**
Phase III – C	
Lateral (Stub) Tunnel	• Between OF 220 and the Pawtucket Tunnel • Includes drop shaft, odor controls, pump station and appurtenant facilities • Approximately 8,800 linear feet, 10' internal diameter, 70' – 200' below grade • **Subject to assessment in updated Environmental Assessment**
Morley Field Storage Tank	• 250 ft. (L) x 221 ft. (W) x 12 ft. (D) near surface tank, alternate to lateral tunnel • **Subject to assessment in updated Environmental Assessment**
GSI	• Target areas that contribute flows to OF 216 and 217 • **Subject to assessment in updated Environmental Assessment**
Phase III – D	
West River Interceptor	• Follows east side of West River. Starts at Branch Douglas Interceptor near OF 056 and connects to Moshassuck Valley Interceptor at Silver Spring Street. • 6' – 8' diameter, 4,600 linear feet in length, approx. 10-25 feet below grade • **Subject to assessment in updated Environmental Assessment**
Sewer separation	• Sewer separation projects for catchment contributing to OF 035 • **Will be reaffirmed in updated Environmental Assessment**
GSI	• Target areas that contribute flows to OF 201-204 • **Subject to assessment in updated Environmental Assessment**

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Providence, RI 02903

Following plan optimization, the project elements requiring assessment in the updated EA remain the Lateral (Stub) Tunnel, Morley Field Storage Tank, West River Interceptor, and GSI projects in addition to the newly proposed Blackstone Valley Interceptor (BVI) Relief facilities. Because these projects are to be assessed and not reaffirmed from past Environmental Assessments, additional details of each follow.

- Lateral Tunnel from OF 220 to Pawtucket Tunnel: As part of plan optimization and realignment of the main Pawtucket Tunnel, the current alignment of the Lateral Tunnel has been modified. Its alignment is anticipated to be from OF-220 to the Pawtucket Tunnel near OF-218, with an approximate length of 8,800 linear feet. The revised Lateral (Stub) Tunnel alignment travels below the Riverside Cemetery in Pawtucket. It is still anticipated to be between 70 feet and 200 feet below grade. 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 and 8 feet in interior diameter.

- Morley Field Tank: This element of Phase III was not changed during Plan Optimization. It remains as proposed in the 2015 Re-Evaluation and as presented in our last correspondence to you in November.

- West River Interceptor: This element of Phase III was not changed during Plan Optimization. It remains as proposed in the 2015 Re-Evaluation and as presented in our last correspondence to you in November.

- GSI projects: This element of Phase III was not changed during Plan Optimization. It remains as proposed in the 2015 Re-Evaluation and as presented in our last correspondence to you in November.

- BVI Relief Facilities: BVI relief facilities are newly proposed and are an outcome of plan optimization. These relief facilities will require assessment in the updated EA, though it is noted that these facilities are proximate to work already anticipated and previously assessed. Mid-BVI relief facilities will include construction of a new diversion structure, a new gate and screening structure, and approximately 500 linear feet of new 48-inch consolidation conduit to relieve flow from an approximate midpoint of the existing BVI and convey it to the Pawtucket Tunnel via a dropshaft near OF-215. Upper-BVI relief facilities will include a new relief structure, approximately 516 linear feet of new 30-inch diameter consolidation conduit, and approximately 743 linear feet of new 15-inch diameter relief sewer upstream of OF-205. Upper BVI Relief Facilities could eliminate the need for interceptor sewers in High Street and Middle Street that were previously proposed; however, High Street and Middle Street interceptors will be reaffirmed in the forthcoming updated EA in the event NBC elects to construct them.

Updated figures depicting additional details on the Optimized Plan and the projects anticipated to be completed as part of the Phase III CSO Program are attached. Attached figures include the following:

- Figure 1 – Project Overview Map, with a USGS topographic basemap;
- Figure 2 – Project Overview Aerial, with aerial photography basemap;
- Figure 3 – Resource Overview Map, with aerial photography basemap;

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Suite 001
Providence, RI 02903

- Figure 4.1 – Lateral Tunnel & Morley Field Tank figure, depicting the Lateral (Stub) Tunnel and Morley Field Tank projects among pertinent RIGIS mapped data layers;
- Figure 4.2 – GSI Locations & Surrounding CSO Facilities figure, depicting sewersheds where GSI is proposed among pertinent RIGIS mapped data layers;
- Figure 4.3 – West River Interceptor figure, depicting the West River Interceptor among pertinent RIGIS mapped data layers; and
- Figure 4.4 – BVI Relief Structure figure, depicting the relief structures and appurtenant facilities proposed for the Mid-BVI and Upper-BVI Relief Facilities.

Additionally, Figures 5.1 through 5.4 depict the project elements being assessed and their locations relative to Natural Heritage areas as available from RIGIS mapping. Please note we have also reassessed the projects relative to potential impacts to federally listed threatened and endangered species. The results show no change from the last review, but are enclosed for your use.

You are invited to review the information contained herein and provide us with any comments and/or concerns you may have as they pertain to the new elements of the Phase III CSO Program and their potential direct or indirect impacts. All new and previously received comments will be incorporated into the updated draft EA.

Thank you in advance for your timely review of this information, and we would appreciate any comments within 30 days of the date of this letter. Comments can be provided to the NBC, and copied to the undersigned, as follows:

Narragansett Bay Commission
1 Service Road
Providence, RI 02905
Attn: Ms. Kathryn Kelly, P.E.
Tel: (401) 461-8848 x316
Email: kkelly@narrabay.com

Pare Corporation
8 Blackstone Valley Place
Lincoln, RI 02865
Attn: Mr. Brandon Blanchard, P.E.
Tel: (401) 334-4100 x4122
Email: bblanchard@parecorp.com

Please do not hesitate to contact the undersigned should you have any questions or require additional information that may assist you in your review of the enclosed information.

Very truly yours,

Brandon M. Blanchard, P.E.
Managing Engineer, Pare Corporation

Enclosures

cc: Mr. Thomas Brueckner, P.E. – Narragansett Bay Commission
Ms. Kathryn Kelly, P.E. – Narragansett Bay Commission
Ms. Melissa Carter, P.E. – Stantec
Mr. Sean Searles, P.E. – Stantec
Mr. Christopher Feeney, P.E. – Stantec
Mr. Briscoe B. Lang, PWS – Pare Corporation

Stantec
260 W. Exchange Street
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Providence, RI 02903

Phase III CSO Program

April 18, 2017

Mr. Joseph Antonio – Senior Environmental Scientist
RI DEM - Office of Customer and Technical Assistance
235 Promenade Street
Providence, RI 02908-5767

Subject: **Environmental Assessment**
NBC Phase III CSO Program
Pare Project No.: 14106.01

Certified Mail
Return Receipt Requested

Dear Mr. Antonio,

The project team of Stantec and Pare Corporation (Stantec/Pare) has prepared this letter on behalf of the Narragansett Bay Commission (NBC) to update you on changes that have recently been made to the proposed plan for the Phase III Combined Sewer Overflow (CSO) Program. The Stantec/Pare team is serving as NBC's Program Management/Construction Management consultant for overseeing and administering the Phase III CSO Program.

Your agency was previously provided a narrative and figures describing the projects planned for the Phase III CSO Program. This documentation was provided by certified mail in November 2016 for your review and comment as part of the Environmental Assessment (EA) process. Your attention was specifically called to project elements that were new to the Program as proposed in the 2015 Re-Evaluation of the 1998 Conceptual Design Report Amendment (CDRA). Based on discussions with RIDEM, it was determined that projects that are unchanged from the 1998 CDRA will be reaffirmed, but new project elements are required to be assessed as part of an updated EA. The new project elements presented in the 2015 Re-Evaluation consist of the following:

- Green stormwater infrastructure (GSI) projects for reduction in CSO volumes in various sewersheds in Pawtucket and Central Falls;
- A lateral (stub) tunnel, connected to the main Pawtucket Tunnel, for storage of CSO volumes from OF-220;
- A near surface storage tank at Morley Field in Pawtucket, as an alternative to a lateral (stub) tunnel for temporary storage of CSO volumes from OF-220; and
- A new sewer interceptor, identified as the West River Interceptor, to collect and convey CSO volumes from the OF-039 and OF-056 outfalls in Providence.

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modified accordingly from the plan presented in the 2015 Re-Evaluation.

After consulting with RIDEM, it was determined that the current draft EA should be modified to reflect the optimized plan now being proposed for the Phase III CSO Program. A Phase III CSO Program Optimized Plan (serving as an update to the 2015 Re-Evaluation) and accompanying EA are anticipated to be completed and submitted to RIDEM by May 26, 2017.

Phase III CSO Program Plan Optimization

Table 1 provides a comparison of the Phase III CSO Program elements that were originally presented in the 1998 CDRA, projects that were carried forward and/or introduced in the 2015 Re-Evaluation, and projects currently proposed following the 2017 Plan Optimization. Table 2 summarizes the details of each project element that comprises the Phase III CSO Program Optimized Plan.

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Table 1: Historical Phase III CSO Program Project Elements

Project	Project Originally Presented in 1998 CDRA?	Project Carried Forward or Introduced in 2015 Re-Evaluation?	Project Currently Proposed Following 2017 Plan Optimization?
Pawtucket Tunnel	**YES** Tunnel alignment proposed along west side of river.	**YES** Tunnel alignment unchanged from 1998 CDRA.	**YES** Tunnel alignment relocated to east side of river during plan optimization.
Consolidation Conduits, Drop Shafts	**YES** Consolidation conduits required between outfalls and dropshafts.	**YES** Consolidation conduits and dropshafts generally consistent with CDRA.	**YES** Consolidation conduits, dropshaft locations still proposed, adjusted for new tunnel alignment.
Tunnel Pump Station	**YES** Tunnel Pump Station proposed at Bucklin Point WWTF.	**YES** Location and design requirements unchanged from 1998 CDRA.	**YES** Location and design requirements unchanged from 1998 CDRA and 2015 Re-Evaluation.
High Street/Middle Street Interceptors	**YES** Proposed to control overflows in northern catchments.	**YES** Interceptors in High Street and Middle Street carried forward.	**YES** Interceptors remain unchanged, though possibly replaced with BVI relief upstream of OF-205
Regulator Modifications	**YES** Modifications proposed at several existing CSO Regulator structures	**YES** Regulator modifications substantially unchanged from 1998 CDRA.	**YES** Regulator modifications remain substantially unchanged from 1998 CDRA, 2015 Re-Evaluation.
Sewer separation	**YES**	**YES** Sewer separation proposed for control at fewer OFs in 2015 Re-Evaluation than in CDRA.	**YES** Unchanged from 2015 Re-Evaluation.
Green Stormwater Infrastructure	**NO**	**YES** Introduced in 2015 Re-Evaluation as an alternative to other near surface work	**YES** Remains unchanged from 2015 Re-Evaluation.
Deep Rock Lateral (Stub) Tunnel	**NO** Sewer interceptor originally proposed for CSO control at OF-220	**YES** Introduced in 2015 Re-Evaluation as an alternative to a new sewer interceptor.	**YES** Design requirements, potential impacts unchanged, length/alignment modified for new Pawtucket Tunnel alignment.
Morley Field Near Surface Storage Tank	**NO** Sewer interceptor originally proposed for CSO control at OF-220	**YES** Introduced in 2015 Re-Evaluation as an alternative to the Lateral Tunnel.	**YES** Substantially unchanged from 2015 Re-Evaluation.
West River Interceptor	**NO** Sewer separation originally proposed for OF-039, OF-056.	**YES** Introduced in 2015 Re-Evaluation as an alternative to sewer separation.	**YES** Largely unchanged, downstream sections increased from 72" to 96" diameter.
Blackstone Valley Interceptor (BVI) Relief	**NO**	**NO**	**YES** New relief facilities proposed upstream of OF-205 as an alternate to High/Middle Street interceptors and on midpoint of BVI near OF-215.

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Table 2: Phase III CSO Program Optimized Plan

Phase III – A	
Pawtucket Tunnel	• Deep rock storage tunnel with 2 work shafts and 3 drop shafts (optimized plan uses fewer dropshafts than originally proposed) • 13,000 linear feet, 150 – 200 feet below grade, north of Bucklin Point WWTF in East Providence to Central Falls/Pawtucket border near the Blackstone River • **Will be reaffirmed in updated EA, but updated alignment will be presented**
Consolidation Conduits	• Proposed to consolidate flow from multiple overflows to tunnel dropshafts • Multiple sections ranging from 30" – 78" diameter, 5,600' combined total length • Additional consolidation conduits required due to reduction in dropshafts • **Will be reaffirmed in updated EA, but updated locations will be presented**
Tunnel Pump Station	• Located within 1,000 feet of the Bucklin Point WWTF • **Will be reaffirmed in updated Environmental Assessment**
Mid-BVI Relief Facilities	• Relief at midpoint along existing Blackstone Valley Interceptor, near OF-215 • New diversion structure, gate/screening structure, 48-inch consolidation conduit • **Subject to assessment in updated Environmental Assessment**
GSI	• Target areas that contribute flows to OF 212, 213, and 214 • **Subject to assessment in updated Environmental Assessment**
Phase III – B	
Hybrid sewer separation/GSI	• Implementation in the catchment for OF 206 • **Will be reaffirmed in updated Environmental Assessment**
Upper-BVI Relief Facilities	• Relief at upstream point along existing Blackstone Valley Interceptor • New diversion structure, consolidation conduit, and relief sewer near OF-205 • **Subject to assessment in updated Environmental Assessment**
High St./Middle St. Interceptors	• Possibly constructed as an alternate to Upper BVI Relief Facilities • **Will be reaffirmed in updated Environmental Assessment**
GSI	• Target areas that contribute flows to OF 101, 104, and 105 • **Subject to assessment in updated Environmental Assessment**
Phase III – C	
Lateral (Stub) Tunnel	• Between OF 220 and the Pawtucket Tunnel • Includes drop shaft, odor controls, pump station and appurtenant facilities • Approximately 8,800 linear feet, 10' internal diameter, 70' – 200' below grade • **Subject to assessment in updated Environmental Assessment**
Morley Field Storage Tank	• 250 ft. (L) x 221 ft. (W) x 12 ft. (D) near surface tank, alternate to lateral tunnel • **Subject to assessment in updated Environmental Assessment**
GSI	• Target areas that contribute flows to OF 216 and 217 • **Subject to assessment in updated Environmental Assessment**
Phase III – D	
West River Interceptor	• Follows east side of West River. Starts at Branch Douglas Interceptor near OF 056 and connects to Moshassuck Valley Interceptor at Silver Spring Street. • 6' – 8' diameter, 4,600 linear feet in length, approx. 10-25 feet below grade • **Subject to assessment in updated Environmental Assessment**
Sewer separation	• Sewer separation projects for catchment contributing to OF 035 • **Will be reaffirmed in updated Environmental Assessment**
GSI	• Target areas that contribute flows to OF 201-204 • **Subject to assessment in updated Environmental Assessment**

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Following plan optimization, the project elements requiring assessment in the updated EA remain the Lateral (Stub) Tunnel, Morley Field Storage Tank, West River Interceptor, and GSI projects in addition to the newly proposed Blackstone Valley Interceptor (BVI) Relief facilities. Because these projects are to be assessed and not reaffirmed from past Environmental Assessments, additional details of each follow.

- Lateral Tunnel from OF 220 to Pawtucket Tunnel: As part of plan optimization and realignment of the main Pawtucket Tunnel, the current alignment of the Lateral Tunnel has been modified. Its alignment is anticipated to be from OF-220 to the Pawtucket Tunnel near OF-218, with an approximate length of 8,800 linear feet. The revised Lateral (Stub) Tunnel alignment travels below the Riverside Cemetery in Pawtucket. It is still anticipated to be between 70 feet and 200 feet below grade. 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 and 8 feet in interior diameter.

- Morley Field Tank: This element of Phase III was not changed during Plan Optimization. It remains as proposed in the 2015 Re-Evaluation and as presented in our last correspondence to you in November.

- West River Interceptor: This element of Phase III was not changed during Plan Optimization. It remains as proposed in the 2015 Re-Evaluation and as presented in our last correspondence to you in November.

- GSI projects: This element of Phase III was not changed during Plan Optimization. It remains as proposed in the 2015 Re-Evaluation and as presented in our last correspondence to you in November.

- BVI Relief Facilities: BVI relief facilities are newly proposed and are an outcome of plan optimization. These relief facilities will require assessment in the updated EA, though it is noted that these facilities are proximate to work already anticipated and previously assessed. Mid-BVI relief facilities will include construction of a new diversion structure, a new gate and screening structure, and approximately 500 linear feet of new 48-inch consolidation conduit to relieve flow from an approximate midpoint of the existing BVI and convey it to the Pawtucket Tunnel via a dropshaft near OF-215. Upper-BVI relief facilities will include a new relief structure, approximately 516 linear feet of new 30-inch diameter consolidation conduit, and approximately 743 linear feet of new 15-inch diameter relief sewer upstream of OF-205. Upper BVI Relief Facilities could eliminate the need for interceptor sewers in High Street and Middle Street that were previously proposed; however, High Street and Middle Street interceptors will be reaffirmed in the forthcoming updated EA in the event NBC elects to construct them.

Updated figures depicting additional details on the Optimized Plan and the projects anticipated to be completed as part of the Phase III CSO Program are attached. Attached figures include the following:

- Figure 1 – Project Overview Map, with a USGS topographic basemap;
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- Figure 4.4 – BVI Relief Structure figure, depicting the relief structures and appurtenant facilities proposed for the Mid-BVI and Upper-BVI Relief Facilities.

Additionally, Figures 5.1 through 5.4 depict the project elements being assessed and their locations relative to Natural Heritage areas as available from RIGIS mapping.

You are invited to review the information contained herein and provide us with any comments and/or concerns you may have as they pertain to the new elements of the Phase III CSO Program and their potential direct or indirect impacts. All new and previously received comments will be incorporated into the updated draft EA.

Thank you in advance for your timely review of this information, and we would appreciate any comments within 30 days of the date of this letter. Comments can be provided to the NBC, and copied to the undersigned, as follows:

Narragansett Bay Commission
1 Service Road
Providence, RI 02905
Attn: Ms. Kathryn Kelly, P.E.
Tel: (401) 461-8848 x316
Email: kkelly@narrabay.com

Pare Corporation
8 Blackstone Valley Place
Lincoln, RI 02865
Attn: Mr. Brandon Blanchard, P.E.
Tel: (401) 334-4100 x4122
Email: bblanchard@parecorp.com

Please do not hesitate to contact the undersigned should you have any questions or require additional information that may assist you in your review of the enclosed information.

Very truly yours,

Brandon M. Blanchard, P.E.
Managing Engineer, Pare Corporation

Enclosures

cc: Mr. Thomas Brueckner, P.E. – Narragansett Bay Commission
Ms. Kathryn Kelly, P.E. – Narragansett Bay Commission
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Mr. Briscoe B. Lang, PWS – Pare Corporation

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Phase III CSO Program

April 18, 2017

Mr. Grover J. Fugate, Executive Director
Coastal Resources Management Council
Oliver H. Stedman Government Center
4808 Tower Hill Road, Suite 3
Wakefield, RI 02879-1900

Subject: **Environmental Assessment**
NBC Phase III CSO Program
Pare Project No.: 14106.01

Certified Mail
Return Receipt Requested

Dear Mr. Fugate,

The project team of Stantec and Pare Corporation (Stantec/Pare) has prepared this letter on behalf of the Narragansett Bay Commission (NBC) to update you on changes that have recently been made to the proposed plan for the Phase III Combined Sewer Overflow (CSO) Program. The Stantec/Pare team is serving as NBC's Program Management/Construction Management consultant for overseeing and administering the Phase III CSO Program.

Your agency was previously provided a narrative and figures describing the projects planned for the Phase III CSO Program. This documentation was provided by certified mail in November 2016 for your review and comment as part of the Environmental Assessment (EA) process. Your attention was specifically called to project elements that were new to the Program as proposed in the 2015 Re-Evaluation of the 1998 Conceptual Design Report Amendment (CDRA). Based on discussions with RIDEM, it was determined that projects that are unchanged from the 1998 CDRA will be reaffirmed, but new project elements are required to be assessed as part of an updated EA. The new project elements presented in the 2015 Re-Evaluation consist of the following:

- Green stormwater infrastructure (GSI) projects for reduction in CSO volumes in various sewersheds in Pawtucket and Central Falls;
- A lateral (stub) tunnel, connected to the main Pawtucket Tunnel, for storage of CSO volumes from OF-220;
- A near surface storage tank at Morley Field in Pawtucket, as an alternative to a lateral (stub) tunnel for temporary storage of CSO volumes from OF-220; and
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1 Service Road
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Attn: Ms. Kathryn Kelly, P.E.
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Very truly yours,

Brandon M. Blanchard, P.E.
Managing Engineer, Pare Corporation

Enclosures

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Phase III CSO Program

April 18, 2017

Mr. Christopher Boelke – Field Office Supervisor
Greater Atlantic Region Fisheries Office
National Marine Fisheries Service
55 Great Republic Drive
Gloucester, MA 01930

Subject: **Environmental Assessment**
NBC Phase III CSO Program
Pare Project No.: 14106.01

Certified Mail
Return Receipt Requested

Dear Mr. Boelke,

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Deep Rock Lateral (Stub) Tunnel	**NO** Sewer interceptor originally proposed for CSO control at OF-220	**YES** Introduced in 2015 Re-Evaluation as an alternative to a new sewer interceptor.	**YES** Design requirements, potential impacts unchanged, length/alignment modified for new Pawtucket Tunnel alignment.
Morley Field Near Surface Storage Tank	**NO** Sewer interceptor originally proposed for CSO control at OF-220	**YES** Introduced in 2015 Re-Evaluation as an alternative to the Lateral Tunnel.	**YES** Substantially unchanged from 2015 Re-Evaluation.
West River Interceptor	**NO** Sewer separation originally proposed for OF-039, OF-056.	**YES** Introduced in 2015 Re-Evaluation as an alternative to sewer separation.	**YES** Largely unchanged, downstream sections increased from 72" to 96" diameter.
Blackstone Valley Interceptor (BVI) Relief	**NO**	**NO**	**YES** New relief facilities proposed upstream of OF-205 as an alternate to High/Middle Street interceptors and on midpoint of BVI near OF-215.

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Table 2: Phase III CSO Program Optimized Plan

Phase III – A	
Pawtucket Tunnel	• Deep rock storage tunnel with 2 work shafts and 3 drop shafts (optimized plan uses fewer dropshafts than originally proposed) • 13,000 linear feet, 150 – 200 feet below grade, north of Bucklin Point WWTF in East Providence to Central Falls/Pawtucket border near the Blackstone River • **Will be reaffirmed in updated EA, but updated alignment will be presented**
Consolidation Conduits	• Proposed to consolidate flow from multiple overflows to tunnel dropshafts • Multiple sections ranging from 30" – 78" diameter, 5,600' combined total length • Additional consolidation conduits required due to reduction in dropshafts • **Will be reaffirmed in updated EA, but updated locations will be presented**
Tunnel Pump Station	• Located within 1,000 feet of the Bucklin Point WWTF • **Will be reaffirmed in updated Environmental Assessment**
Mid-BVI Relief Facilities	• Relief at midpoint along existing Blackstone Valley Interceptor, near OF-215 • New diversion structure, gate/screening structure, 48-inch consolidation conduit • **Subject to assessment in updated Environmental Assessment**
GSI	• Target areas that contribute flows to OF 212, 213, and 214 • **Subject to assessment in updated Environmental Assessment**
Phase III – B	
Hybrid sewer separation/GSI	• Implementation in the catchment for OF 206 • **Will be reaffirmed in updated Environmental Assessment**
Upper-BVI Relief Facilities	• Relief at upstream point along existing Blackstone Valley Interceptor • New diversion structure, consolidation conduit, and relief sewer near OF-205 • **Subject to assessment in updated Environmental Assessment**
High St./Middle St. Interceptors	• Possibly constructed as an alternate to Upper BVI Relief Facilities • **Will be reaffirmed in updated Environmental Assessment**
GSI	• Target areas that contribute flows to OF 101, 104, and 105 • **Subject to assessment in updated Environmental Assessment**
Phase III – C	
Lateral (Stub) Tunnel	• Between OF 220 and the Pawtucket Tunnel • Includes drop shaft, odor controls, pump station and appurtenant facilities • Approximately 8,800 linear feet, 10' internal diameter, 70' – 200' below grade • **Subject to assessment in updated Environmental Assessment**
Morley Field Storage Tank	• 250 ft. (L) x 221 ft. (W) x 12 ft. (D) near surface tank, alternate to lateral tunnel • **Subject to assessment in updated Environmental Assessment**
GSI	• Target areas that contribute flows to OF 216 and 217 • **Subject to assessment in updated Environmental Assessment**
Phase III – D	
West River Interceptor	• Follows east side of West River. Starts at Branch Douglas Interceptor near OF 056 and connects to Moshassuck Valley Interceptor at Silver Spring Street. • 6' – 8' diameter, 4,600 linear feet in length, approx. 10-25 feet below grade • **Subject to assessment in updated Environmental Assessment**
Sewer separation	• Sewer separation projects for catchment contributing to OF 035 • **Will be reaffirmed in updated Environmental Assessment**
GSI	• Target areas that contribute flows to OF 201-204 • **Subject to assessment in updated Environmental Assessment**

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Following plan optimization, the project elements requiring assessment in the updated EA remain the Lateral (Stub) Tunnel, Morley Field Storage Tank, West River Interceptor, and GSI projects in addition to the newly proposed Blackstone Valley Interceptor (BVI) Relief facilities. Because these projects are to be assessed and not reaffirmed from past Environmental Assessments, additional details of each follow.

- Lateral Tunnel from OF 220 to Pawtucket Tunnel: As part of plan optimization and realignment of the main Pawtucket Tunnel, the current alignment of the Lateral Tunnel has been modified. Its alignment is anticipated to be from OF-220 to the Pawtucket Tunnel near OF-218, with an approximate length of 8,800 linear feet. The revised Lateral (Stub) Tunnel alignment travels below the Riverside Cemetery in Pawtucket. It is still anticipated to be between 70 feet and 200 feet below grade. 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 and 8 feet in interior diameter.

- Morley Field Tank: This element of Phase III was not changed during Plan Optimization. It remains as proposed in the 2015 Re-Evaluation and as presented in our last correspondence to you in November.

- West River Interceptor: This element of Phase III was not changed during Plan Optimization. It remains as proposed in the 2015 Re-Evaluation and as presented in our last correspondence to you in November.

- GSI projects: This element of Phase III was not changed during Plan Optimization. It remains as proposed in the 2015 Re-Evaluation and as presented in our last correspondence to you in November.

- BVI Relief Facilities: BVI relief facilities are newly proposed and are an outcome of plan optimization. These relief facilities will require assessment in the updated EA, though it is noted that these facilities are proximate to work already anticipated and previously assessed. Mid-BVI relief facilities will include construction of a new diversion structure, a new gate and screening structure, and approximately 500 linear feet of new 48-inch consolidation conduit to relieve flow from an approximate midpoint of the existing BVI and convey it to the Pawtucket Tunnel via a dropshaft near OF-215. Upper-BVI relief facilities will include a new relief structure, approximately 516 linear feet of new 30-inch diameter consolidation conduit, and approximately 743 linear feet of new 15-inch diameter relief sewer upstream of OF-205. Upper BVI Relief Facilities could eliminate the need for interceptor sewers in High Street and Middle Street that were previously proposed; however, High Street and Middle Street interceptors will be reaffirmed in the forthcoming updated EA in the event NBC elects to construct them.

Updated figures depicting additional details on the Optimized Plan and the projects anticipated to be completed as part of the Phase III CSO Program are attached. Attached figures include the following:

- Figure 1 – Project Overview Map, with a USGS topographic basemap;
- Figure 2 – Project Overview Aerial, with aerial photography basemap;

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- Figure 4.4 – BVI Relief Structure figure, depicting the relief structures and appurtenant facilities proposed for the Mid-BVI and Upper-BVI Relief Facilities.

You are invited to review the information contained herein and provide us with any comments and/or concerns you may have as they pertain to the new elements of the Phase III CSO Program and their potential direct or indirect impacts. All new and previously received comments will be incorporated into the updated draft EA.

Thank you in advance for your timely review of this information, and we would appreciate any comments within 30 days of the date of this letter. Comments can be provided to the NBC, and copied to the undersigned, as follows:

Narragansett Bay Commission
1 Service Road
Providence, RI 02905
Attn: Ms. Kathryn Kelly, P.E.
Tel: (401) 461-8848 x316
Email: kkelly@narrabay.com

Pare Corporation
8 Blackstone Valley Place
Lincoln, RI 02865
Attn: Mr. Brandon Blanchard, P.E.
Tel: (401) 334-4100 x4122
Email: bblanchard@parecorp.com

Please do not hesitate to contact the undersigned should you have any questions or require additional information that may assist you in your review of the enclosed information.

Very truly yours,

Brandon M. Blanchard, P.E.
Managing Engineer, Pare Corporation

Enclosures

cc: Mr. Thomas Brueckner, P.E. – Narragansett Bay Commission
Ms. Kathryn Kelly, P.E. – Narragansett Bay Commission
Ms. Melissa Carter, P.E. – Stantec
Mr. Sean Searles, P.E. – Stantec
Mr. Christopher Feeney, P.E. – Stantec
Mr. Briscoe B. Lang, PWS – Pare Corporation

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Phase III CSO Program

April 18, 2017

Mr. Christopher Modisette
USDA Natural Resources Conservation Service
Northern Rhode Island Conservation District
2283 Hartford Avenue
Johnston, RI 02919

Subject: **Environmental Assessment**
NBC Phase III CSO Program
Pare Project No.: 14106.01

Certified Mail
Return Receipt Requested

Dear Mr. Modisette,

The project team of Stantec and Pare Corporation (Stantec/Pare) has prepared this letter on behalf of the Narragansett Bay Commission (NBC) to update you on changes that have recently been made to the proposed plan for the Phase III Combined Sewer Overflow (CSO) Program. The Stantec/Pare team is serving as NBC's Program Management/Construction Management consultant for overseeing and administering the Phase III CSO Program.

Your agency was previously provided a narrative and figures describing the projects planned for the Phase III CSO Program. This documentation was provided by certified mail in November 2016 for your review and comment as part of the Environmental Assessment (EA) process. Your attention was specifically called to project elements that were new to the Program as proposed in the 2015 Re-Evaluation of the 1998 Conceptual Design Report Amendment (CDRA). Based on discussions with RIDEM, it was determined that projects that are unchanged from the 1998 CDRA will be reaffirmed, but new project elements are required to be assessed as part of an updated EA. The new project elements presented in the 2015 Re-Evaluation consist of the following:

- Green stormwater infrastructure (GSI) projects for reduction in CSO volumes in various sewersheds in Pawtucket and Central Falls;
- A lateral (stub) tunnel, connected to the main Pawtucket Tunnel, for storage of CSO volumes from OF-220;
- A near surface storage tank at Morley Field in Pawtucket, as an alternative to a lateral (stub) tunnel for temporary storage of CSO volumes from OF-220; and
- A new sewer interceptor, identified as the West River Interceptor, to collect and convey CSO volumes from the OF-039 and OF-056 outfalls in Providence.

Agency review comments were integrated into a draft EA, dated January 31, 2017 and submitted to RIDEM. However, since our last correspondence, the proposed plan has undergone an optimization process in which five alternatives were identified with the basis of determining the best approach to achieve the objectives of the Phase III CSO Program. The completed optimization process resulted in the selection of a preferred alternative and the plan for the Phase III CSO Program has been modified accordingly from the plan presented in the

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2015 Re-Evaluation.

After consulting with RIDEM, it was determined that the current draft EA should be modified to reflect the optimized plan now being proposed for the Phase III CSO Program. A Phase III CSO Program Optimized Plan (serving as an update to the 2015 Re-Evaluation) and accompanying EA are anticipated to be completed and submitted to RIDEM by May 26, 2017.

Phase III CSO Program Plan Optimization

Table 1 provides a comparison of the Phase III CSO Program elements that were originally presented in the 1998 CDRA, projects that were carried forward and/or introduced in the 2015 Re-Evaluation, and projects currently proposed following the 2017 Plan Optimization. Table 2 summarizes the details of each project element that comprises the Phase III CSO Program Optimized Plan.

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Table 1: Historical Phase III CSO Program Project Elements

Project	Project Originally Presented in 1998 CDRA?	Project Carried Forward or Introduced in 2015 Re-Evaluation?	Project Currently Proposed Following 2017 Plan Optimization?
Pawtucket Tunnel	**YES** Tunnel alignment proposed along west side of river.	**YES** Tunnel alignment unchanged from 1998 CDRA.	**YES** Tunnel alignment relocated to east side of river during plan optimization.
Consolidation Conduits, Drop Shafts	**YES** Consolidation conduits required between outfalls and dropshafts.	**YES** Consolidation conduits and dropshafts generally consistent with CDRA.	**YES** Consolidation conduits, dropshaft locations still proposed, adjusted for new tunnel alignment.
Tunnel Pump Station	**YES** Tunnel Pump Station proposed at Bucklin Point WWTF.	**YES** Location and design requirements unchanged from 1998 CDRA.	**YES** Location and design requirements unchanged from 1998 CDRA and 2015 Re-Evaluation.
High Street/Middle Street Interceptors	**YES** Proposed to control overflows in northern catchments.	**YES** Interceptors in High Street and Middle Street carried forward.	**YES** Interceptors remain unchanged, though possibly replaced with BVI relief upstream of OF-205
Regulator Modifications	**YES** Modifications proposed at several existing CSO Regulator structures	**YES** Regulator modifications substantially unchanged from 1998 CDRA.	**YES** Regulator modifications remain substantially unchanged from 1998 CDRA, 2015 Re-Evaluation.
Sewer separation	**YES**	**YES** Sewer separation proposed for control at fewer OFs in 2015 Re-Evaluation than in CDRA.	**YES** Unchanged from 2015 Re-Evaluation.
Green Stormwater Infrastructure	**NO**	**YES** Introduced in 2015 Re-Evaluation as an alternative to other near surface work	**YES** Remains unchanged from 2015 Re-Evaluation.
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Narragansett Bay Commission
1 Service Road
Providence, RI 02905
Attn: Ms. Kathryn Kelly, P.E.
Tel: (401) 461-8848 x316
Email: kkelly@narrabay.com

Pare Corporation
8 Blackstone Valley Place
Lincoln, RI 02865
Attn: Mr. Brandon Blanchard, P.E.
Tel: (401) 334-4100 x4122
Email: bblanchard@parecorp.com

Please do not hesitate to contact the undersigned should you have any questions or require additional information that may assist you in your review of the enclosed information.

Very truly yours,

Brandon M. Blanchard, P.E.
Managing Engineer, Pare Corporation

Enclosures

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Phase III CSO Program

April 18, 2017

Ms. Meredith E. Brady, Administrator
Division of Planning
Rhode Island Department of Transportation
Two Capitol Hill, Room 370B
Providence, RI 02903-1124

Subject: **Environmental Assessment**
NBC Phase III CSO Program
Pare Project No.: 14106.01

Certified Mail
Return Receipt Requested

Dear Ms. Brady,

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Morley Field Storage Tank	• 250 ft. (L) x 221 ft. (W) x 12 ft. (D) near surface tank, alternate to lateral tunnel • **Subject to assessment in updated Environmental Assessment**
GSI	• Target areas that contribute flows to OF 216 and 217 • **Subject to assessment in updated Environmental Assessment**
Phase III – D	
West River Interceptor	• Follows east side of West River. Starts at Branch Douglas Interceptor near OF 056 and connects to Moshassuck Valley Interceptor at Silver Spring Street. • 6' – 8' diameter, 4,600 linear feet in length, approx. 10-25 feet below grade • **Subject to assessment in updated Environmental Assessment**
Sewer separation	• Sewer separation projects for catchment contributing to OF 035 • **Will be reaffirmed in updated Environmental Assessment**
GSI	• Target areas that contribute flows to OF 201-204 • **Subject to assessment in updated Environmental Assessment**

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Following plan optimization, the project elements requiring assessment in the updated EA remain the Lateral (Stub) Tunnel, Morley Field Storage Tank, West River Interceptor, and GSI projects in addition to the newly proposed Blackstone Valley Interceptor (BVI) Relief facilities. Because these projects are to be assessed and not reaffirmed from past Environmental Assessments, additional details of each follow.

- Lateral Tunnel from OF 220 to Pawtucket Tunnel: As part of plan optimization and realignment of the main Pawtucket Tunnel, the current alignment of the Lateral Tunnel has been modified. Its alignment is anticipated to be from OF-220 to the Pawtucket Tunnel near OF-218, with an approximate length of 8,800 linear feet. The revised Lateral (Stub) Tunnel alignment travels below the Riverside Cemetery in Pawtucket. It is still anticipated to be between 70 feet and 200 feet below grade. 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 and 8 feet in interior diameter.

- Morley Field Tank: This element of Phase III was not changed during Plan Optimization. It remains as proposed in the 2015 Re-Evaluation and as presented in our last correspondence to you in November.

- West River Interceptor: This element of Phase III was not changed during Plan Optimization. It remains as proposed in the 2015 Re-Evaluation and as presented in our last correspondence to you in November.

- GSI projects: This element of Phase III was not changed during Plan Optimization. It remains as proposed in the 2015 Re-Evaluation and as presented in our last correspondence to you in November.

- BVI Relief Facilities: BVI relief facilities are newly proposed and are an outcome of plan optimization. These relief facilities will require assessment in the updated EA, though it is noted that these facilities are proximate to work already anticipated and previously assessed. Mid-BVI relief facilities will include construction of a new diversion structure, a new gate and screening structure, and approximately 500 linear feet of new 48-inch consolidation conduit to relieve flow from an approximate midpoint of the existing BVI and convey it to the Pawtucket Tunnel via a dropshaft near OF-215. Upper-BVI relief facilities will include a new relief structure, approximately 516 linear feet of new 30-inch diameter consolidation conduit, and approximately 743 linear feet of new 15-inch diameter relief sewer upstream of OF-205. Upper BVI Relief Facilities could eliminate the need for interceptor sewers in High Street and Middle Street that were previously proposed; however, High Street and Middle Street interceptors will be reaffirmed in the forthcoming updated EA in the event NBC elects to construct them.

Updated figures depicting additional details on the Optimized Plan and the projects anticipated to be completed as part of the Phase III CSO Program are attached. Attached figures include the following:

- Figure 1 – Project Overview Map, with a USGS topographic basemap;
- Figure 2 – Project Overview Aerial, with aerial photography basemap;

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- Figure 4.3 – West River Interceptor figure, depicting the West River Interceptor among pertinent RIGIS mapped data layers; and
- Figure 4.4 – BVI Relief Structure figure, depicting the relief structures and appurtenant facilities proposed for the Mid-BVI and Upper-BVI Relief Facilities.

Additionally, Figures 5.1 through 5.4 depict the project elements being assessed and their locations relative to RIDOT roads as available from RIGIS mapping.

You are invited to review the information contained herein and provide us with any comments and/or concerns you may have as they pertain to the new elements of the Phase III CSO Program and their potential direct or indirect impacts. All new and previously received comments will be incorporated into the updated draft EA.

Thank you in advance for your timely review of this information, and we would appreciate any comments within 30 days of the date of this letter. Comments can be provided to the NBC, and copied to the undersigned, as follows:

Narragansett Bay Commission
1 Service Road
Providence, RI 02905
Attn: Ms. Kathryn Kelly, P.E.
Tel: (401) 461-8848 x316
Email: kkelly@narrabay.com

Pare Corporation
8 Blackstone Valley Place
Lincoln, RI 02865
Attn: Mr. Brandon Blanchard, P.E.
Tel: (401) 334-4100 x4122
Email: bblanchard@parecorp.com

Please do not hesitate to contact the undersigned should you have any questions or require additional information that may assist you in your review of the enclosed information.

Very truly yours,

Brandon M. Blanchard, P.E.
Managing Engineer, Pare Corporation

Enclosures

cc: Mr. Thomas Brueckner, P.E. – Narragansett Bay Commission
Ms. Kathryn Kelly, P.E. – Narragansett Bay Commission
Ms. Melissa Carter, P.E. – Stantec
Mr. Sean Searles, P.E. – Stantec
Mr. Christopher Feeney, P.E. – Stantec
Mr. Briscoe B. Lang, PWS – Pare Corporation

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Phase III CSO Program

April 18, 2017

Mr. John Brown – Historic Preservation Officer
Narragansett Tribal Historic Preservation Office
4425 South County Trail
Charlestown, RI 02813

Subject: **Environmental Assessment**
NBC Phase III CSO Program
Pare Project No.: 14106.01

Certified Mail
Return Receipt Requested

Dear Mr. Brown,

The project team of Stantec and Pare Corporation (Stantec/Pare) has prepared this letter on behalf of the Narragansett Bay Commission (NBC) to update you on changes that have recently been made to the proposed plan for the Phase III Combined Sewer Overflow (CSO) Program. The Stantec/Pare team is serving as NBC's Program Management/Construction Management consultant for overseeing and administering the Phase III CSO Program.

Your agency was previously provided a narrative and figures describing the projects planned for the Phase III CSO Program. This documentation was provided by certified mail in November 2016 for your review and comment as part of the Environmental Assessment (EA) process. Your attention was specifically called to project elements that were new to the Program as proposed in the 2015 Re-Evaluation of the 1998 Conceptual Design Report Amendment (CDRA). Based on discussions with RIDEM, it was determined that projects that are unchanged from the 1998 CDRA will be reaffirmed, but new project elements are required to be assessed as part of an updated EA. The new project elements presented in the 2015 Re-Evaluation consist of the following:

- Green stormwater infrastructure (GSI) projects for reduction in CSO volumes in various sewersheds in Pawtucket and Central Falls;
- A lateral (stub) tunnel, connected to the main Pawtucket Tunnel, for storage of CSO volumes from OF-220;
- A near surface storage tank at Morley Field in Pawtucket, as an alternative to a lateral (stub) tunnel for temporary storage of CSO volumes from OF-220; and
- A new sewer interceptor, identified as the West River Interceptor, to collect and convey CSO volumes from the OF-039 and OF-056 outfalls in Providence.

Agency review comments were integrated into a draft EA, dated January 31, 2017 and submitted to RIDEM. However, since our last correspondence, the proposed plan has undergone an optimization process in which five alternatives were identified with the basis of determining the best approach to achieve the objectives of the Phase III CSO Program. The completed optimization process resulted in the selection of a preferred alternative and the plan for the Phase III CSO Program has been modified accordingly from the plan presented in the 2015 Re-Evaluation.

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After consulting with RIDEM, it was determined that the current draft EA should be modified to reflect the optimized plan now being proposed for the Phase III CSO Program. A Phase III CSO Program Optimized Plan (serving as an update to the 2015 Re-Evaluation) and accompanying EA are anticipated to be completed and submitted to RIDEM by May 26, 2017.

Phase III CSO Program Plan Optimization

Table 1 provides a comparison of the Phase III CSO Program elements that were originally presented in the 1998 CDRA, projects that were carried forward and/or introduced in the 2015 Re-Evaluation, and projects currently proposed following the 2017 Plan Optimization. Table 2 summarizes the details of each project element that comprises the Phase III CSO Program Optimized Plan.

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Table 1: Historical Phase III CSO Program Project Elements

Project	Project Originally Presented in 1998 CDRA?	Project Carried Forward or Introduced in 2015 Re-Evaluation?	Project Currently Proposed Following 2017 Plan Optimization?
Pawtucket Tunnel	**YES** Tunnel alignment proposed along west side of river.	**YES** Tunnel alignment unchanged from 1998 CDRA.	**YES** Tunnel alignment relocated to east side of river during plan optimization.
Consolidation Conduits, Drop Shafts	**YES** Consolidation conduits required between outfalls and dropshafts.	**YES** Consolidation conduits and dropshafts generally consistent with CDRA.	**YES** Consolidation conduits, dropshaft locations still proposed, adjusted for new tunnel alignment.
Tunnel Pump Station	**YES** Tunnel Pump Station proposed at Bucklin Point WWTF.	**YES** Location and design requirements unchanged from 1998 CDRA.	**YES** Location and design requirements unchanged from 1998 CDRA and 2015 Re-Evaluation.
High Street/Middle Street Interceptors	**YES** Proposed to control overflows in northern catchments.	**YES** Interceptors in High Street and Middle Street carried forward.	**YES** Interceptors remain unchanged, though possibly replaced with BVI relief upstream of OF-205
Regulator Modifications	**YES** Modifications proposed at several existing CSO Regulator structures	**YES** Regulator modifications substantially unchanged from 1998 CDRA.	**YES** Regulator modifications remain substantially unchanged from 1998 CDRA, 2015 Re-Evaluation.
Sewer separation	**YES**	**YES** Sewer separation proposed for control at fewer OFs in 2015 Re-Evaluation than in CDRA.	**YES** Unchanged from 2015 Re-Evaluation.
Green Stormwater Infrastructure	**NO**	**YES** Introduced in 2015 Re-Evaluation as an alternative to other near surface work	**YES** Remains unchanged from 2015 Re-Evaluation.
Deep Rock Lateral (Stub) Tunnel	**NO** Sewer interceptor originally proposed for CSO control at OF-220	**YES** Introduced in 2015 Re-Evaluation as an alternative to a new sewer interceptor.	**YES** Design requirements, potential impacts unchanged, length/alignment modified for new Pawtucket Tunnel alignment.
Morley Field Near Surface Storage Tank	**NO** Sewer interceptor originally proposed for CSO control at OF-220	**YES** Introduced in 2015 Re-Evaluation as an alternative to the Lateral Tunnel.	**YES** Substantially unchanged from 2015 Re-Evaluation.
West River Interceptor	**NO** Sewer separation originally proposed for OF-039, OF-056.	**YES** Introduced in 2015 Re-Evaluation as an alternative to sewer separation.	**YES** Largely unchanged, downstream sections increased from 72" to 96" diameter.
Blackstone Valley Interceptor (BVI) Relief	**NO**	**NO**	**YES** New relief facilities proposed upstream of OF-205 as an alternate to High/Middle Street interceptors and on midpoint of BVI near OF-215.

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Table 2: Phase III CSO Program Optimized Plan

Phase III – A	
Pawtucket Tunnel	• Deep rock storage tunnel with 2 work shafts and 3 drop shafts (optimized plan uses fewer dropshafts than originally proposed) • 13,000 linear feet, 150 – 200 feet below grade, north of Bucklin Point WWTF in East Providence to Central Falls/Pawtucket border near the Blackstone River • **Will be reaffirmed in updated EA, but updated alignment will be presented**
Consolidation Conduits	• Proposed to consolidate flow from multiple overflows to tunnel dropshafts • Multiple sections ranging from 30" – 78" diameter, 5,600' combined total length • Additional consolidation conduits required due to reduction in dropshafts • **Will be reaffirmed in updated EA, but updated locations will be presented**
Tunnel Pump Station	• Located within 1,000 feet of the Bucklin Point WWTF • **Will be reaffirmed in updated Environmental Assessment**
Mid-BVI Relief Facilities	• Relief at midpoint along existing Blackstone Valley Interceptor, near OF-215 • New diversion structure, gate/screening structure, 48-inch consolidation conduit • **Subject to assessment in updated Environmental Assessment**
GSI	• Target areas that contribute flows to OF 212, 213, and 214 • **Subject to assessment in updated Environmental Assessment**
Phase III – B	
Hybrid sewer separation/GSI	• Implementation in the catchment for OF 206 • **Will be reaffirmed in updated Environmental Assessment**
Upper-BVI Relief Facilities	• Relief at upstream point along existing Blackstone Valley Interceptor • New diversion structure, consolidation conduit, and relief sewer near OF-205 • **Subject to assessment in updated Environmental Assessment**
High St./Middle St. Interceptors	• Possibly constructed as an alternate to Upper BVI Relief Facilities • **Will be reaffirmed in updated Environmental Assessment**
GSI	• Target areas that contribute flows to OF 101, 104, and 105 • **Subject to assessment in updated Environmental Assessment**
Phase III – C	
Lateral (Stub) Tunnel	• Between OF 220 and the Pawtucket Tunnel • Includes drop shaft, odor controls, pump station and appurtenant facilities • Approximately 8,800 linear feet, 10' internal diameter, 70' – 200' below grade • **Subject to assessment in updated Environmental Assessment**
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Updated figures depicting additional details on the Optimized Plan and the projects anticipated to be completed as part of the Phase III CSO Program are attached. Attached figures include the following:

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Thank you in advance for your timely review of this information, and we would appreciate any comments within 30 days of the date of this letter. Comments can be provided to the NBC, and copied to the undersigned, as follows:

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Brandon M. Blanchard, P.E.
Managing Engineer, Pare Corporation

Enclosures

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Phase III CSO Program

April 18, 2017

Ms. Nancy Hess
Rhode Island Division of Planning
Office of Strategic Planning
One Capitol Hill
Providence, Rhode Island 02908-5871

Subject: **Environmental Assessment**
NBC Phase III CSO Program
Pare Project No.: 14106.01

Certified Mail
Return Receipt Requested

Dear Ms. Hess,

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- West River Interceptor: This element of Phase III was not changed during Plan Optimization. It remains as proposed in the 2015 Re-Evaluation and as presented in our last correspondence to you in November.

- GSI projects: This element of Phase III was not changed during Plan Optimization. It remains as proposed in the 2015 Re-Evaluation and as presented in our last correspondence to you in November.

- BVI Relief Facilities: BVI relief facilities are newly proposed and are an outcome of plan optimization. These relief facilities will require assessment in the updated EA, though it is noted that these facilities are proximate to work already anticipated and previously assessed. Mid-BVI relief facilities will include construction of a new diversion structure, a new gate and screening structure, and approximately 500 linear feet of new 48-inch consolidation conduit to relieve flow from an approximate midpoint of the existing BVI and convey it to the Pawtucket Tunnel via a dropshaft near OF-215. Upper-BVI relief facilities will include a new relief structure, approximately 516 linear feet of new 30-inch diameter consolidation conduit, and approximately 743 linear feet of new 15-inch diameter relief sewer upstream of OF-205. Upper BVI Relief Facilities could eliminate the need for interceptor sewers in High Street and Middle Street that were previously proposed; however, High Street and Middle Street interceptors will be reaffirmed in the forthcoming updated EA in the event NBC elects to construct them.

Updated figures depicting additional details on the Optimized Plan and the projects anticipated to be completed as part of the Phase III CSO Program are attached. Attached figures include the following:

- Figure 1 – Project Overview Map, with a USGS topographic basemap;
- Figure 2 – Project Overview Aerial, with aerial photography basemap;

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- Figure 3 – Resource Overview Map, with aerial photography basemap;
- Figure 4.1 – Lateral Tunnel & Morley Field Tank figure, depicting the Lateral (Stub) Tunnel and Morley Field Tank projects among pertinent RIGIS mapped data layers;
- Figure 4.2 – GSI Locations & Surrounding CSO Facilities figure, depicting sewersheds where GSI is proposed among pertinent RIGIS mapped data layers;
- Figure 4.3 – West River Interceptor figure, depicting the West River Interceptor among pertinent RIGIS mapped data layers; and
- Figure 4.4 – BVI Relief Structure figure, depicting the relief structures and appurtenant facilities proposed for the Mid-BVI and Upper-BVI Relief Facilities.

You are invited to review the information contained herein and provide us with any comments and/or concerns you may have as they pertain to the new elements of the Phase III CSO Program and their potential direct or indirect impacts. All new and previously received comments will be incorporated into the updated draft EA.

Thank you in advance for your timely review of this information, and we would appreciate any comments within 30 days of the date of this letter. Comments can be provided to the NBC, and copied to the undersigned, as follows:

Narragansett Bay Commission
1 Service Road
Providence, RI 02905
Attn: Ms. Kathryn Kelly, P.E.
Tel: (401) 461-8848 x316
Email: kkelly@narrabay.com

Pare Corporation
8 Blackstone Valley Place
Lincoln, RI 02865
Attn: Mr. Brandon Blanchard, P.E.
Tel: (401) 334-4100 x4122
Email: bblanchard@parecorp.com

Please do not hesitate to contact the undersigned should you have any questions or require additional information that may assist you in your review of the enclosed information.

Very truly yours,

Brandon M. Blanchard, P.E.
Managing Engineer, Pare Corporation

Enclosures

cc: Mr. Thomas Brueckner, P.E. – Narragansett Bay Commission
Ms. Kathryn Kelly, P.E. – Narragansett Bay Commission
Ms. Melissa Carter, P.E. – Stantec
Mr. Sean Searles, P.E. – Stantec
Mr. Christopher Feeney, P.E. – Stantec
Mr. Briscoe B. Lang, PWS – Pare Corporation

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Phase III CSO Program

April 18, 2017

Mr. Edward Sanderson
Executive Director, Deputy State Historic Preservation Officer
Rhode Island Historical Preservation & Heritage Commission
Old State House
150 Benefit Street
Providence, RI, 02903

Subject: **Environmental Assessment**
NBC Phase III CSO Program
Pare Project No.: 14106.01

Certified Mail
Return Receipt Requested

Dear Mr. Sanderson:

The project team of Stantec and Pare Corporation (Stantec/Pare) has prepared this letter on behalf of the Narragansett Bay Commission (NBC) to update you on changes that have recently been made to the proposed plan for the Phase III Combined Sewer Overflow (CSO) Program. The Stantec/Pare team is serving as NBC's Program Management/Construction Management consultant for overseeing and administering the Phase III CSO Program.

Your agency was previously provided a narrative and figures describing the projects planned for the Phase III CSO Program. This documentation was provided by certified mail in November 2016 for your review and comment as part of the Environmental Assessment (EA) process. Your attention was specifically called to project elements that were new to the Program as proposed in the 2015 Re-Evaluation of the 1998 Conceptual Design Report Amendment (CDRA). Based on discussions with RIDEM, it was determined that projects that are unchanged from the 1998 CDRA will be reaffirmed, but new project elements are required to be assessed as part of an updated EA. The new project elements presented in the 2015 Re-Evaluation consist of the following:

- Green stormwater infrastructure (GSI) projects for reduction in CSO volumes in various sewersheds in Pawtucket and Central Falls;
- A lateral (stub) tunnel, connected to the main Pawtucket Tunnel, for storage of CSO volumes from OF-220;
- A near surface storage tank at Morley Field in Pawtucket, as an alternative to a lateral (stub) tunnel for temporary storage of CSO volumes from OF-220; and
- A new sewer interceptor, identified as the West River Interceptor, to collect and convey CSO volumes from the OF-039 and OF-056 outfalls in Providence.

Agency review comments were integrated into a draft EA, dated January 31, 2017 and submitted to RIDEM. We acknowledge receipt of letters from your office dated December 5, 2016 and December 13, 2016 and copies of these were added as attachments to the draft EA. However, since our last correspondence, the proposed plan has undergone an optimization process in which five alternatives were identified with the basis of determining the best approach to achieve the objectives of the Phase III CSO Program. The completed optimization

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process resulted in the selection of a preferred alternative and the plan for the Phase III CSO Program has been modified accordingly from the plan presented in the 2015 Re-Evaluation.

After consulting with RIDEM, it was determined that the current draft EA should be modified to reflect the optimized plan now being proposed for the Phase III CSO Program. A Phase III CSO Program Optimized Plan (serving as an update to the 2015 Re-Evaluation) and accompanying EA are anticipated to be completed and submitted to RIDEM by May 26, 2017.

Phase III CSO Program Plan Optimization

Table 1 provides a comparison of the Phase III CSO Program elements that were originally presented in the 1998 CDRA, projects that were carried forward and/or introduced in the 2015 Re-Evaluation, and projects currently proposed following the 2017 Plan Optimization. Table 2 summarizes the details of each project element that comprises the Phase III CSO Program Optimized Plan.

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Table 1: Historical Phase III CSO Program Project Elements

Project	Project Originally Presented in 1998 CDRA?	Project Carried Forward or Introduced in 2015 Re-Evaluation?	Project Currently Proposed Following 2017 Plan Optimization?
Pawtucket Tunnel	**YES** Tunnel alignment proposed along west side of river.	**YES** Tunnel alignment unchanged from 1998 CDRA.	**YES** Tunnel alignment relocated to east side of river during plan optimization.
Consolidation Conduits, Drop Shafts	**YES** Consolidation conduits required between outfalls and dropshafts.	**YES** Consolidation conduits and dropshafts generally consistent with CDRA.	**YES** Consolidation conduits, dropshaft locations still proposed, adjusted for new tunnel alignment.
Tunnel Pump Station	**YES** Tunnel Pump Station proposed at Bucklin Point WWTF.	**YES** Location and design requirements unchanged from 1998 CDRA.	**YES** Location and design requirements unchanged from 1998 CDRA and 2015 Re-Evaluation.
High Street/Middle Street Interceptors	**YES** Proposed to control overflows in northern catchments.	**YES** Interceptors in High Street and Middle Street carried forward.	**YES** Interceptors remain unchanged, though possibly replaced with BVI relief upstream of OF-205
Regulator Modifications	**YES** Modifications proposed at several existing CSO Regulator structures	**YES** Regulator modifications substantially unchanged from 1998 CDRA.	**YES** Regulator modifications remain substantially unchanged from 1998 CDRA, 2015 Re-Evaluation.
Sewer separation	**YES**	**YES** Sewer separation proposed for control at fewer OFs in 2015 Re-Evaluation than in CDRA.	**YES** Unchanged from 2015 Re-Evaluation.
Green Stormwater Infrastructure	**NO**	**YES** Introduced in 2015 Re-Evaluation as an alternative to other near surface work	**YES** Remains unchanged from 2015 Re-Evaluation.
Deep Rock Lateral (Stub) Tunnel	**NO** Sewer interceptor originally proposed for CSO control at OF-220	**YES** Introduced in 2015 Re-Evaluation as an alternative to a new sewer interceptor.	**YES** Design requirements, potential impacts unchanged, length/alignment modified for new Pawtucket Tunnel alignment.
Morley Field Near Surface Storage Tank	**NO** Sewer interceptor originally proposed for CSO control at OF-220	**YES** Introduced in 2015 Re-Evaluation as an alternative to the Lateral Tunnel.	**YES** Substantially unchanged from 2015 Re-Evaluation.
West River Interceptor	**NO** Sewer separation originally proposed for OF-039, OF-056.	**YES** Introduced in 2015 Re-Evaluation as an alternative to sewer separation.	**YES** Largely unchanged, downstream sections increased from 72" to 96" diameter.
Blackstone Valley Interceptor (BVI) Relief	**NO**	**NO**	**YES** New relief facilities proposed upstream of OF-205 as an alternate to High/Middle Street interceptors and on midpoint of BVI near OF-215.

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Table 2: Phase III CSO Program Optimized Plan

Phase III – A	
Pawtucket Tunnel	• Deep rock storage tunnel with 2 work shafts and 3 drop shafts (optimized plan uses fewer dropshafts than originally proposed) • 13,000 linear feet, 150 – 200 feet below grade, north of Bucklin Point WWTF in East Providence to Central Falls/Pawtucket border near the Blackstone River • **Will be reaffirmed in updated EA, but updated alignment will be presented**
Consolidation Conduits	• Proposed to consolidate flow from multiple overflows to tunnel dropshafts • Multiple sections ranging from 30" – 78" diameter, 5,600' combined total length • Additional consolidation conduits required due to reduction in dropshafts • **Will be reaffirmed in updated EA, but updated locations will be presented**
Tunnel Pump Station	• Located within 1,000 feet of the Bucklin Point WWTF • **Will be reaffirmed in updated Environmental Assessment**
Mid-BVI Relief Facilities	• Relief at midpoint along existing Blackstone Valley Interceptor, near OF-215 • New diversion structure, gate/screening structure, 48-inch consolidation conduit • **Subject to assessment in updated Environmental Assessment**
GSI	• Target areas that contribute flows to OF 212, 213, and 214 • **Subject to assessment in updated Environmental Assessment**
Phase III – B	
Hybrid sewer separation/GSI	• Implementation in the catchment for OF 206 • **Will be reaffirmed in updated Environmental Assessment**
Upper-BVI Relief Facilities	• Relief at upstream point along existing Blackstone Valley Interceptor • New diversion structure, consolidation conduit, and relief sewer near OF-205 • **Subject to assessment in updated Environmental Assessment**
High St./Middle St. Interceptors	• Possibly constructed as an alternate to Upper BVI Relief Facilities • **Will be reaffirmed in updated Environmental Assessment**
GSI	• Target areas that contribute flows to OF 101, 104, and 105 • **Subject to assessment in updated Environmental Assessment**
Phase III – C	
Lateral (Stub) Tunnel	• Between OF 220 and the Pawtucket Tunnel • Includes drop shaft, odor controls, pump station and appurtenant facilities • Approximately 8,800 linear feet, 10' internal diameter, 70' – 200' below grade • **Subject to assessment in updated Environmental Assessment**
Morley Field Storage Tank	• 250 ft. (L) x 221 ft. (W) x 12 ft. (D) near surface tank, alternate to lateral tunnel • **Subject to assessment in updated Environmental Assessment**
GSI	• Target areas that contribute flows to OF 216 and 217 • **Subject to assessment in updated Environmental Assessment**
Phase III – D	
West River Interceptor	• Follows east side of West River. Starts at Branch Douglas Interceptor near OF 056 and connects to Moshassuck Valley Interceptor at Silver Spring Street. • 6' – 8' diameter, 4,600 linear feet in length, approx. 10-25 feet below grade • **Subject to assessment in updated Environmental Assessment**
Sewer separation	• Sewer separation projects for catchment contributing to OF 035 • **Will be reaffirmed in updated Environmental Assessment**
GSI	• Target areas that contribute flows to OF 201-204 • **Subject to assessment in updated Environmental Assessment**

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Following plan optimization, the project elements requiring assessment in the updated EA remain the Lateral (Stub) Tunnel, Morley Field Storage Tank, West River Interceptor, and GSI projects in addition to the newly proposed Blackstone Valley Interceptor (BVI) Relief facilities. Because these projects are to be assessed and not reaffirmed from past Environmental Assessments, additional details of each follow.

- Lateral Tunnel from OF 220 to Pawtucket Tunnel: As part of plan optimization and realignment of the main Pawtucket Tunnel, the current alignment of the Lateral Tunnel has been modified. Its alignment is anticipated to be from OF-220 to the Pawtucket Tunnel near OF-218, with an approximate length of 8,800 linear feet. The revised Lateral (Stub) Tunnel alignment travels below the Riverside Cemetery in Pawtucket. It is still anticipated to be between 70 feet and 200 feet below grade. 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 and 8 feet in interior diameter.

- Morley Field Tank: This element of Phase III was not changed during Plan Optimization. It remains as proposed in the 2015 Re-Evaluation and as presented in our last correspondence to you in November.

- West River Interceptor: This element of Phase III was not changed during Plan Optimization. It remains as proposed in the 2015 Re-Evaluation and as presented in our last correspondence to you in November.

- GSI projects: This element of Phase III was not changed during Plan Optimization. It remains as proposed in the 2015 Re-Evaluation and as presented in our last correspondence to you in November.

- BVI Relief Facilities: BVI relief facilities are newly proposed and are an outcome of plan optimization. These relief facilities will require assessment in the updated EA, though it is noted that these facilities are proximate to work already anticipated and previously assessed. Mid-BVI relief facilities will include construction of a new diversion structure, a new gate and screening structure, and approximately 500 linear feet of new 48-inch consolidation conduit to relieve flow from an approximate midpoint of the existing BVI and convey it to the Pawtucket Tunnel via a dropshaft near OF-215. Upper-BVI relief facilities will include a new relief structure, approximately 516 linear feet of new 30-inch diameter consolidation conduit, and approximately 743 linear feet of new 15-inch diameter relief sewer upstream of OF-205. Upper BVI Relief Facilities could eliminate the need for interceptor sewers in High Street and Middle Street that were previously proposed, which are to be reaffirmed in the forthcoming updated EA in the event they are constructed. Upper BVI Relief Facilities could eliminate the need for interceptor sewers in High Street and Middle Street that were previously proposed; however, High Street and Middle Street interceptors will be reaffirmed in the forthcoming updated EA in the event NBC elects to construct them.

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Updated figures depicting additional details on the Optimized Plan and the projects anticipated to be completed as part of the Phase III CSO Program are attached. Attached figures include the following:

- Figure 1 – Project Overview Map, with a USGS topographic basemap;
- Figure 2 – Project Overview Aerial, with aerial photography basemap;
- Figure 3 – Resource Overview Map, with aerial photography basemap;
- Figure 4.1 – Lateral Tunnel & Morley Field Tank figure, depicting the Lateral (Stub) Tunnel and Morley Field Tank projects among pertinent RIGIS mapped data layers;
- Figure 4.2 – GSI Locations & Surrounding CSO Facilities figure, depicting sewersheds where GSI is proposed among pertinent RIGIS mapped data layers;
- Figure 4.3 – West River Interceptor figure, depicting the West River Interceptor among pertinent RIGIS mapped data layers; and
- Figure 4.4 – BVI Relief Structure figure, depicting the relief structures and appurtenant facilities proposed for the Mid-BVI and Upper-BVI Relief Facilities.

Additionally, Figures 5.1 through 5.4 depict the project elements being assessed and their locations relative to historic districts, historic sites, and historic cemeteries as available from RIGIS mapping. Also note that while the figures depict the Pawtucket Tunnel passing through a historic property (e.g., Pawtucket Armory), its actual location will be refined during design and the tunnel will be located within public right of ways whenever possible, even though it will be well underground. The current tunnel alignment is conceptual at the current planning stage of the Program.

You are invited to review the information contained herein and provide us with any comments and/or concerns you may have as they pertain to the new elements of the Phase III CSO Program and their potential direct or indirect impacts. All new and previously received comments will be incorporated into the updated draft EA.

It is also acknowledged that 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, has stipulations for NBC to follow regarding the protection of potentially affected properties and structures for the duration of the CSO Program.

Thank you in advance for your timely review of this information, and we would appreciate any comments within 30 days of the date of this letter. Comments can be provided to the NBC, and copied to the undersigned, as follows:

Narragansett Bay Commission
1 Service Road
Providence, RI 02905
Attn: Ms. Kathryn Kelly, P.E.
Tel: (401) 461-8848 x316
Email: kkelly@narrabay.com

Pare Corporation
8 Blackstone Valley Place
Lincoln, RI 02865
Attn: Mr. Brandon Blanchard, P.E.
Tel: (401) 334-4100 x4122
Email: bblanchard@parecorp.com

Please do not hesitate to contact the undersigned should you have any questions or require additional information that may assist you in your review of the enclosed information.

Very truly yours,

Brandon M. Blanchard, P.E.
Managing Engineer, Pare Corporation

Enclosures

cc: Mr. Thomas Brueckner, P.E. – Narragansett Bay Commission
Ms. Kathryn Kelly, P.E. – Narragansett Bay Commission
Ms. Melissa Carter, P.E. – Stantec
Mr. Sean Searles, P.E. – Stantec
Mr. Christopher Feeney, P.E. – Stantec
Mr. Briscoe B. Lang, PWS – Pare Corporation

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Appendix K
Regulatory Review Comment Letters – Spring 2017

K-1: RHODE ISLAND COASTAL RESOURCES MANAGEMENT COUNCIL

K-2: RHODE ISLAND DIVISION OF PLANNING

K-3: RHODE ISLAND HISTORIC PRESERVATION & HERITAGE COMMISSION

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

May 9, 2017

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 Blackstone Valley Interceptor Reference CRMC File 2017-05-020**

Dear Ms. Kelly and Mr. Blanchard,

The RI Coastal Resources Management Council (CRMC) is in receipt of your filing dated April 18, 2017 concerning the newly proposed Blackstone Valley Interceptor (BVI) relief facility elements of the Narragansett Bay Commission (NBC) Phase III combine sewer overflow (CSO) project. The proposed BVI work is described in your filing as follows: (1) Mid-BVI relief facilities will include construction of a new diversion structure, a new gate and screening structure, and approximately 500 linear feet of new 48-inch consolidation conduit to relieve flow from an approximate midpoint of the existing BVI and convey it to the Pawtucket Tunnel via dropshaft near OF-215; and (2) Upper-BVI relief facilities will include a new relief structure, approximately 516 linear feet of new 15-inch diameter relief sewer upstream of OF-2015. These new BVI facilities were added as an outcome of recent plan optimization. The CRMC has previously provided comments to you dated November 30, 2016 and detailed in CRMC File 2016-11-080 in regard to the following Phase III CSO Program elements:

1. West River Interceptor (Providence);
2. Deep Rock Lateral Tunnel from Outfall 220 to Pawtucket Tunnel (Pawtucket);
3. Morley Field Tank (Pawtucket); and
4. Green Stormwater Infrastructure (Central Falls, Pawtucket, and Providence)

You have indicated that the new BVI facilities will require assessment in the updated Environmental Assessment, though it is noted that these facilities are proximate to construction work already anticipated and previously assessed. As I previously indicated in my November 30,

2016 comments, 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. It appears based on Figure 4.4 in your filing that The Mid-BVI relief structure may be within 200 feet of a coastal feature, and therefore this proposed Phase III CSO program element may also require a CRMC Assent.

As noted previously the proposed NBC Phase III CSO program elements as detailed in the October 28, 2016 and more recently the April 18, 2017 filings 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,

Grover J. Fugate, Executive Director
Coastal Resources Management Council

/jrb/lat

cc: Jeffrey M. Willis, CRMC Deputy Director
David Reis, Supervising Environmental Scientist
Richard Lucia, Supervising Engineer
CRMC File 2016-11-080 and 2017-05-020

Brandon Blanchard

From: Hess, Nancy (DOA) <Nancy.Hess@doa.ri.gov>
Sent: Tuesday, May 16, 2017 1:56 PM
To: kkelly@narrabay.com; Brandon Blanchard
Cc: Zeman, Art (DEM)
Subject: State Guide Plan Consistency - new Elements of Phase III CSO Program for NBC

Brandon,

We reviewed the materials submitted by the project team of Stantec and Pare Corporation on behalf of the Narragansett Bay Commission. The materials detail the changes made to the Phase III Combined Sewer Overflow (CSO) Program. Based on the April 18, 2017 document provided, the new project elements are consistent with the appropriate elements of the SGP related to natural and water resource elements. These are:

- Green Stormwater Infrastructure to reduce stormwater volumes in Pawtucket and Central Falls.
- A lateral (Stub) tunnel connected to the main Pawtucket Tunnel, for storage of CSO.
- A near surface storage tank at Morley field in Pawtucket, and
- A new sewer interceptor (West River Interceptor).

A few general comments are:

- The revised proposal describes a "near surface storage tank" at Morley Field in Pawtucket. It is unclear if this storage facility will take the place of the field and render it unusable. If so, to be consistent with SGP Element #152, *Ocean State Outdoors*, (SCORP), the project should identify a replacement recreational area to make up if the field that is displaced.
- As Morley Field is directly adjacent to the Moshassuck River, precautionary steps should be taken during development and operation to ensure that the water quality of the river is not adversely affected by the development and use of this "near surface" storage facility.

Thank you for including Table 1 regarding the historical and project development of the CSO project and for the opportunity to comment on the project. Should you have any questions about this review, please feel free to contact me.

Nancy Hess
Supervising Land Use Planner
Division of Planning
One Capitol Hill
Providence, RI 02908

Phone: (401) 222-6480
E-Mail: nancy.hess@doa.ri.gov
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STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
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TTY / Relay 711 Website www.preservation.ri.gov

RIHPHC No. 11962.03
170524.05

24 May 2017

Via email: bblanchard@parecorp.com

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

Re: Pare No. 14106.01
Updated 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's (RIHPHC) has reviewed the updated documentation for the above-referenced project. The Narragansett Bay Commission (NBC) 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 NBC 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 project elements planned as part of the Phase CSO Program were presented in a 2015 Re-Evaluation report and an updated Environmental Assessment (EA). The RIHPHC commented on the new project components by letters dated 13 December 2016 and 5 December 2016. A Draft EA was subsequently prepared on 31 January 2017. Since the completion of the Draft EA, the project has been modified to include new or revised project components. The RIHPHC's comments on new and revised project components follow below.

West River Interceptor
No historic properties affected.

Morley Field Tank
No historic properties affected.

Deep Rock Lateral Tunnel
After completion of the Draft EA, the length and alignment has been modified for a new Pawtucket Tunnel alignment. The RIHPHC will need to review the drop shaft locations when they are identified.

Green Stormwater Infrastructure
The RIHPHC will need to review the locations of the GSI projects when they are identified.

Pawtucket Tunnel
After completion of the Draft EA, the tunnel alignment was moved to the east side of the Blackstone/Seekonk River. The RIHPHC will need to review the drop shaft locations when they are identified.

Blackstone Valley Interceptor Relief
After completion of the Draft EA, this component has been added to the project. The RIHPHC will need to review the drop shaft locations 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,

For Edward F. Sanderson
Executive Director
State Historic Preservation Officer

cc: Kathryn Kelly, Narragansett Bay Commission, by email