Tidewater Site Remedy Presentation

October 29, 2020

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THE TIDEWATER SITE

Image courtesy of Google Professional

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CURRENT CONDITIONS - TIDEWATER SITE

Former Wharf
Central Portion of Site

Granite Stone Block Wall
and Steel Sheeting

Granite Stone Block Walls
Northern Portion of Site

Manmade Earthen Riverbank
Southern Portion of the Site

Chain Link Fencing
Northwest Portion of the Site

Chain Link Fencing
Southwest Portion of the Site

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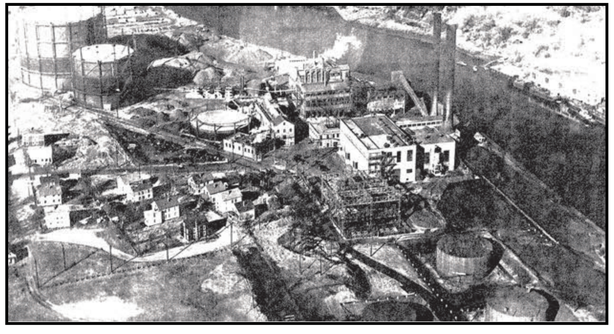
SITE HISTORY

The Tidewater Site has a long History of industrial use dating back to at least 1881. Site operations, including the historic Manufactured Gas Plant (MGP), provided essential electric and gas service to the community for over 130 years. Large areas of the site are currently vacant. Currrent operations include a natural gas regulation facility, electrical transmission facilities and an electrical switch and substation facility.



1881
The Pawtucket Gas Company constructs the Tidewater Manufactured Gas Plant (MGP) to produce manufactured gas from coal and oil using industrial processes.

1908
Blackstone Valley Gas and Electric Company (BVG&E) purchases the Pawtucket Gas Company.

1938
The Great Hurricane of 1938 causes significant damage to the MGP and power plant.

1961
Valley Gas Company (VGC) acquires the MGP from BVG&E.

1962
The transmission towers are first evident in historical records for the power plant.

1975
The power plant is officially decommissioned.

1986
Site investigations begin.

2000
National Grid acquires the Rhode Island electric utility and the electric portion of the Tidewater Site.

2006
National Grid acquires the Rhode Island gas utility and the gas portion of the Tidewater Site.

2017
Performance of Limited Design Investigation

2019
RAWP Addendum submitted to RIDEM

Period of MGP Operations

National Grid Ownership of the Former Gas Plant Area and the North Fill Area

1880 1900 1920 1940 1960 1980 2000 2020

Period of Active Power Plant Operations

National Grid Ownership of the Former Power Plant Area and the South Fill Area

1890
Pawtucket Gas Company constructs the power plant.

1923
Power plant changes its primary fuel from coal to oil.

1954
Majority of MGP operations ceases, though oil gas is produced on an as-needed basis to supplement available natural gas supply until approximately 1968.

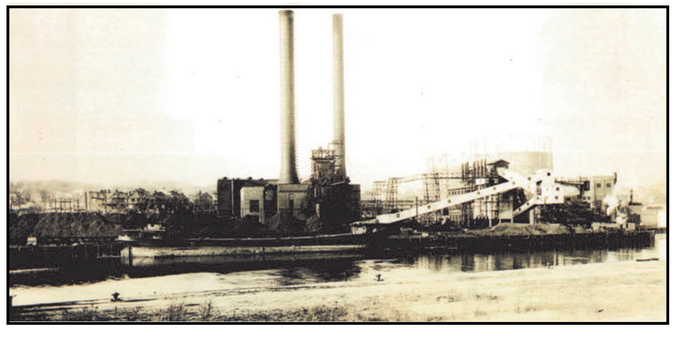
1968
The Blackstone Valley Electric Company (BVEC) acquires the power plant from BVG&E. The MGP is officially decommissioned. The City of Pawtucket acquires portions of the southernmost section.

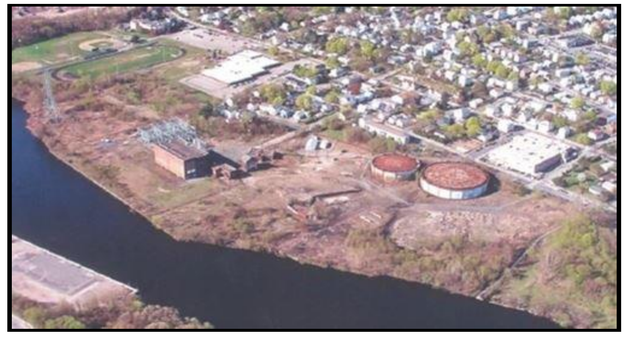
1995
Rhode Island Department of Environmental Management (RIDEM) issues a Letter of Resposibility to BVEC and VGC.

2009-2016
Facility upgrades include:
- Natural Gas Regulating Station upgrades
- Gasholders Nos. 7 and 8 decommissioned and demolished
- Pawtucket No.1 Substation and Switching Station modifications
- Former gas buildings demolished
- Repair of the south washout area

2018
Remedial Action Work Plan Submitted to RIDEM

2020
RIDEM Issued Order of Approval





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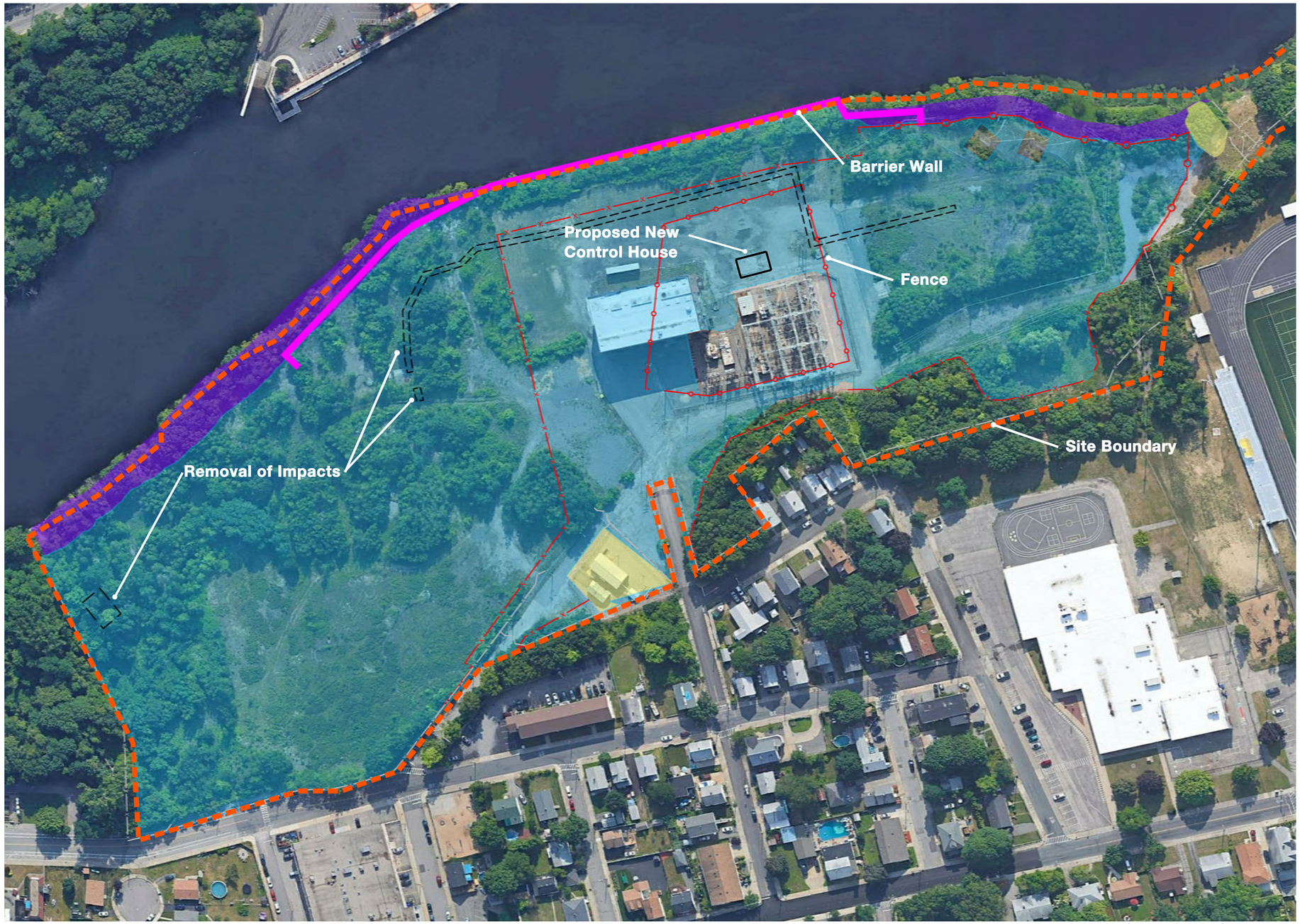
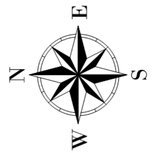
REMEDIAL LAYOUT PLAN

The remedy for the Site consists of targeted removal of certain impacts, installation of a subsurface barrier wall designed to protect the Seekonk River and and the use of engineered caps to isolate impacts. This remedy was selected based on its ability to address Site impacts while minimizing community disturbance during implementation.





LEGEND

- Engineered Cap Cap
- Previously Capped Areas
- Rip Rap Cap
- Substation Fencing
- Perimeter Fencing

Image courtesy of Google Professional

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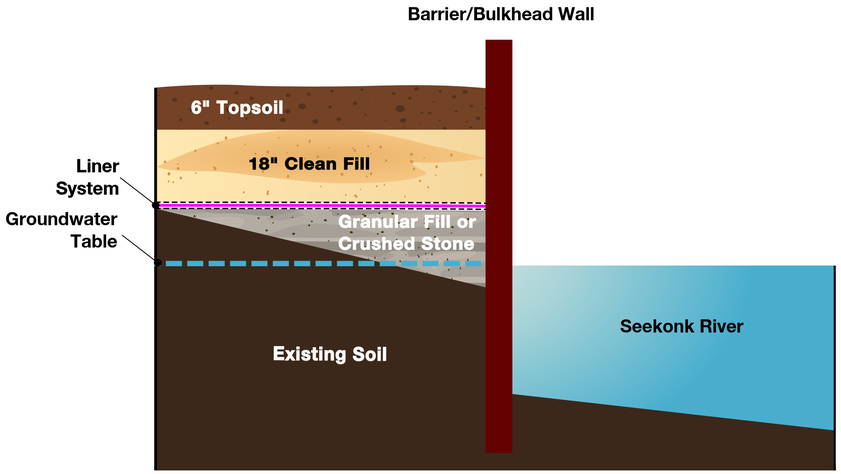
BARRIER WALL DETAILS

A subsurface barrier wall, installed along the Seekonk River, will prevent the migration of impacted groundwater and non-aqueous phase liquids (NAPLs)

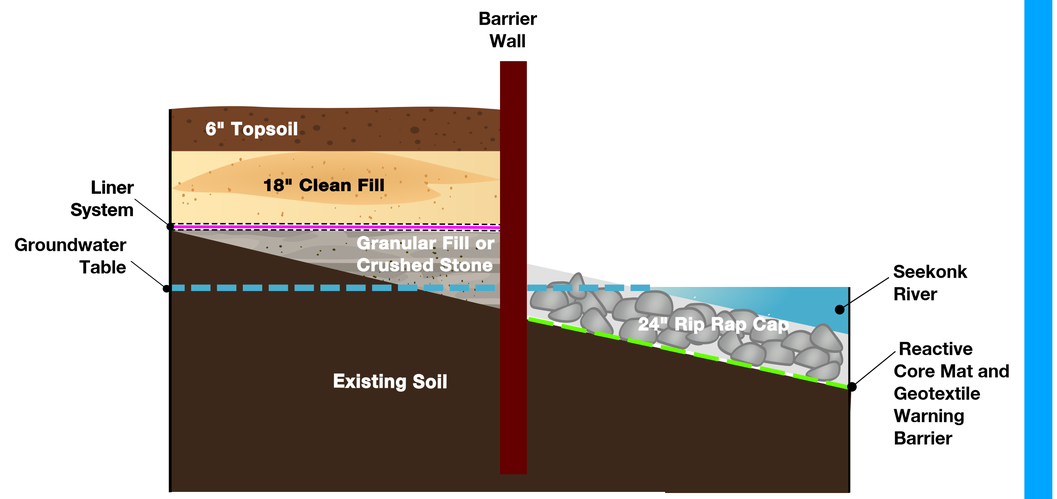
BARRIER/BULKHEAD WALL



WHAT TO EXPECT
Examples from other projects

Construction of Barrier Wall - Sheet Pile Installation

BARRIER WALL WITH RIP RAP RETAINING SLOPE



WHAT TO EXPECT
Examples from other projects

Shoreline Improvement

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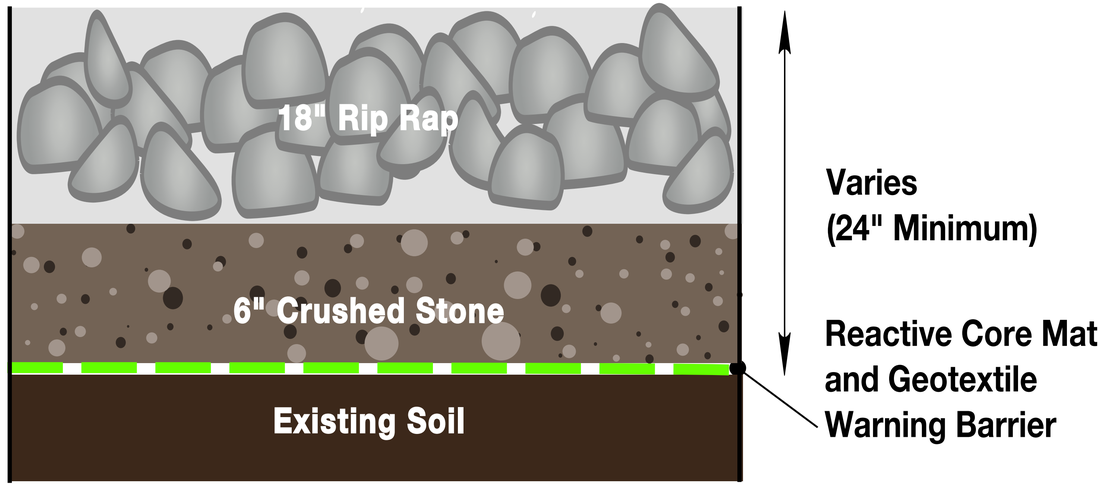
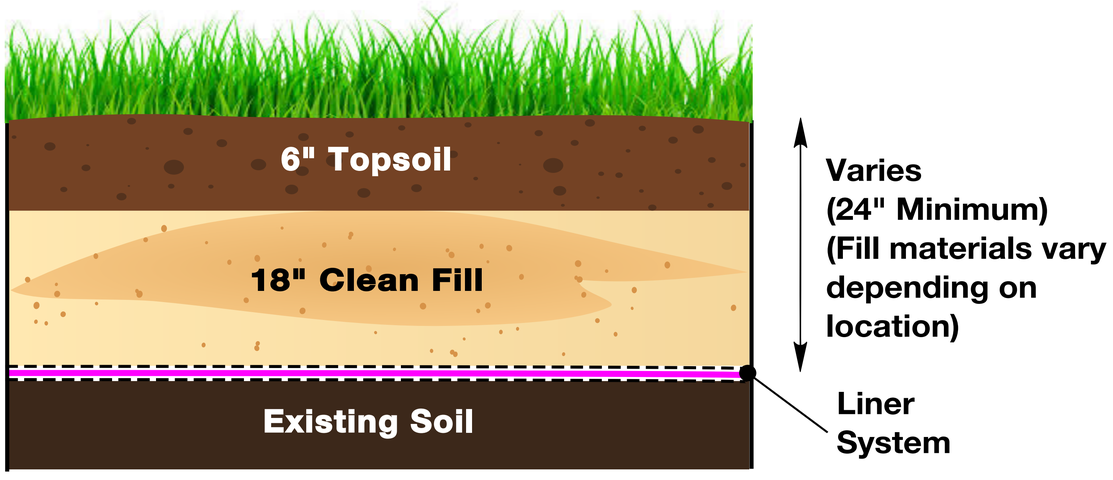
ENGINEERED CAP DETAILS

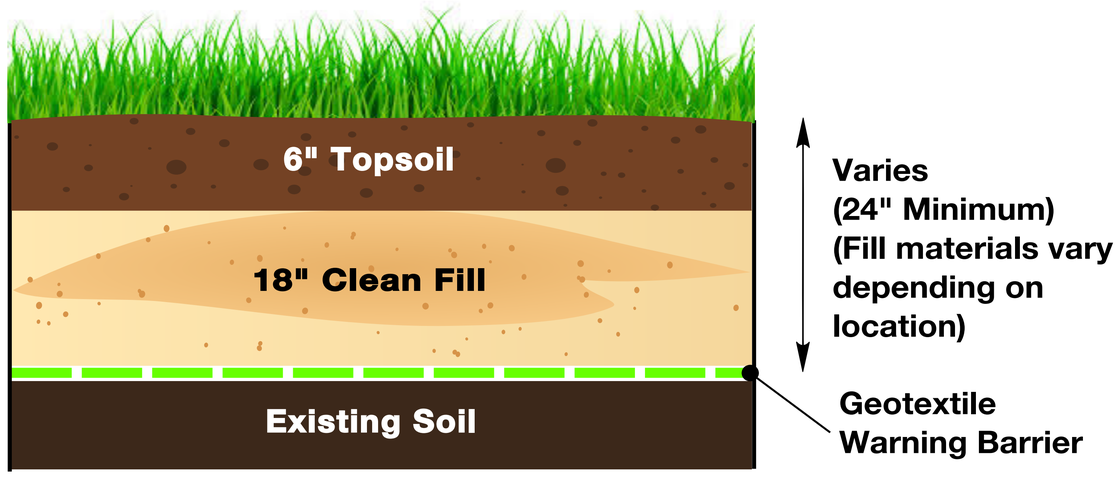
Rip Rap Cap



Impermeable Cap



Permeable Cap



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MATERIAL IMPORT AND DISPOSAL

The Tidewater Site remedy includes excavation and disposal of targeted impacted areas,as well as the installation of an engineered cap to prevent direct contact with Site materials and protect groundwater. In order to install the engineered cap and minimize the amount of materials needed to be transported offsite, National Grid will re-grade the Tidewater Site. Clean fill materials will be transported onto the Site to construct the cap.

ROUTES

From Site to I-95N:
Taft Street to Roosevelt Avenue Extension
Roosevelt Avenue Extension to Main Street
Main Street to I-95N On-Ramp

From Site to I-95S:
Taft Street to Jenks Way
Jenks Way to Pleasant Street
Pleasant Street to Grace Street
Grace Street to George Street
George Street to Cedar Street
Cedar Street to I-95S On-Ramp

From I-95N to Site
Marrin Street to Grace Street
Grace Street to Pleasant Street
Pleasant Street to Jenks Way
Jenks Way to Taft Street
Taft Street to Tidewater Street

From I-95S to Site
Cedar Street to George Street
Geirge Street to Grace Street
Grace Street to Pleasant Street
Pleasant Street to Jenks Way
Jenks Way to Taft Street
Taft Street to Tidewater Street

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WHAT TO EXPECT DURING REMEDY CONSTRUCTION

National Grid regularly completes work similar to what is outlined in the Remedial Action Plan (RAWP) for the Tidewater Site. These images from other similar projects show the type of activities the community can expect to see during construction of the remedy.

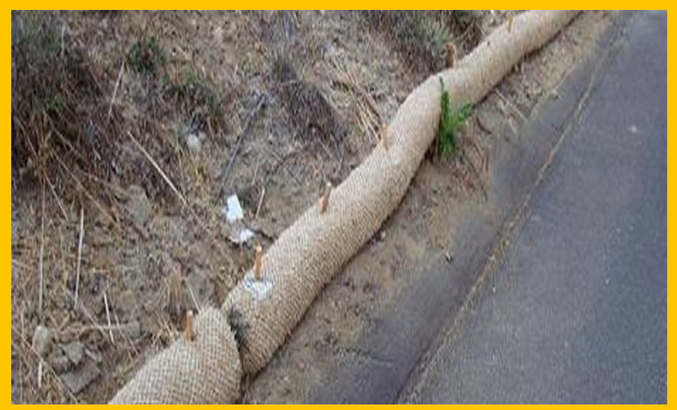
DUST & ODOR CONTROL

Water Truck Control Dust

Covered Stockpiles Control Dust and Odors

Foam Addresses Any Odors

SEDIMENT & EROSION CONTROL



Straw Wattles Limit Erosion

Turbidity Curtains Prevent Sediments From Migrating Away From Site

OFFSITE TRACKING CONTROL

Tracking Pad Prevents Offsite Tracking of Material

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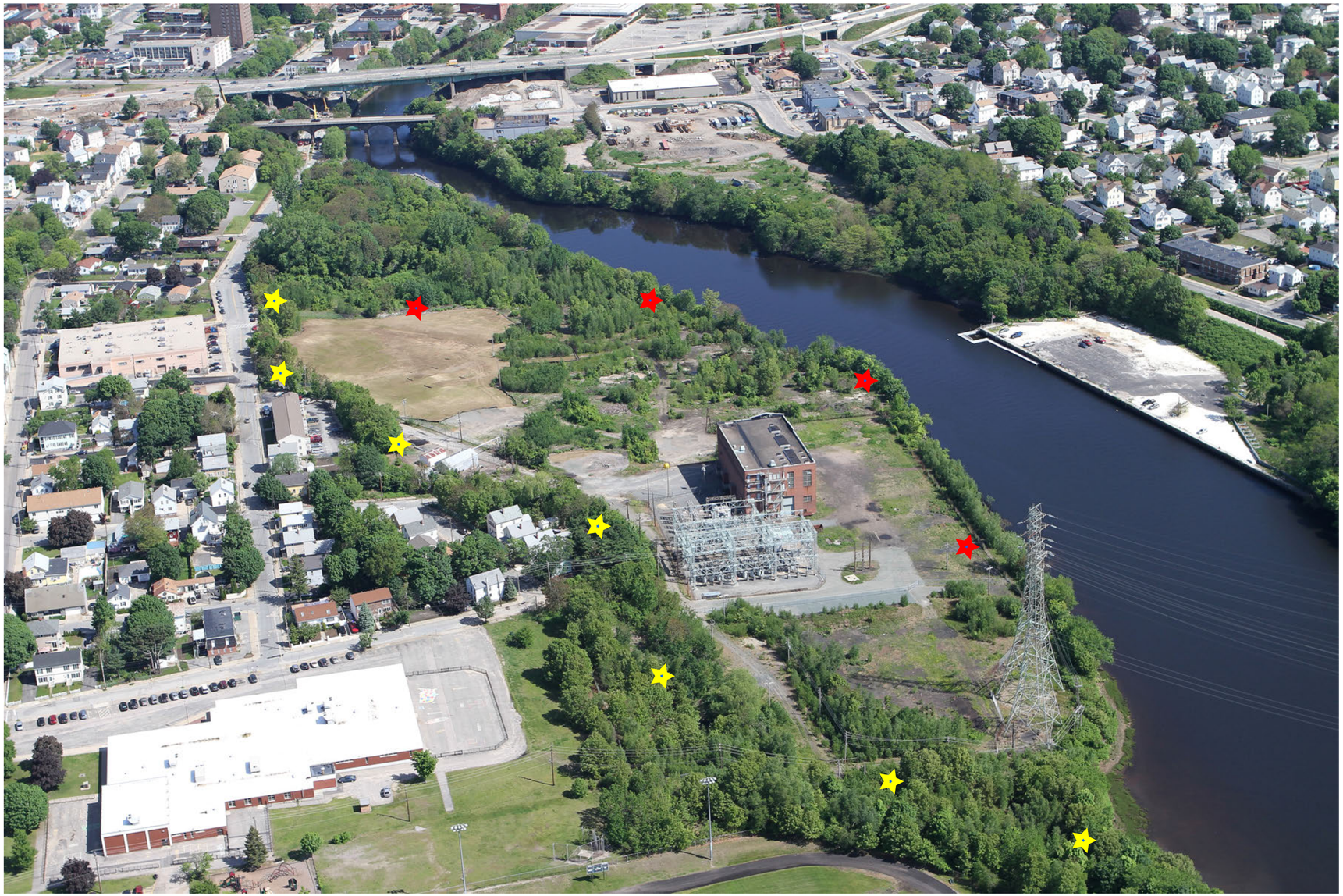
AIR MONITORING PROGRAM

Throughout construction of the remedy, National Grid will deploy a robust, multi-tier air monitoring program to protect both onsite workers and community.



LEGEND

- Air Monitoring Station - Solar Light Units (Organic Vapors and Fugitive Dust)
- Full Air Monitoring Station - Classic Units (Organic Vapors, Fugitive Dust and Benzene)

TIER 1 - REAL-TIME MONITORING

SITE PERIMETER

Classic Units

Solar Lite Units

Handheld Equipment

TIER 2 - AIR SAMPLE COLLECTION FOR LABORATORY TESTING

TIME-INTEGRATED SAMPLING

Summa Cannister

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ANTICIPATED REMEDY CONSTRUCTION SCHEDULE

CONTRACTOR MOBILIZATION TO SITE
DECEMBER 2020

IMPLEMENTATION/CONSTRUCTION OF REMEDY PHASES 1-3

BALANCE OF REMEDY

JANUARY 2020 | APRIL 2020 | JULY 2020 | OCTOBER 2020 | JANUARY 2021 | APRIL 2021 | JULY 2021 | OCTOBER 2021 | 2022

COMMUNITY OUTREACH EVENTS PERIODICALLY DURING IMPLEMENTATION

OCTOBER 29, 2020
Community Outreach Event

TWO TO THREE MONTHS AFTER IMPLEMENTATION
Submittal of Remedial Action Closure Report to RIDEM

Images of National Grid's work at other sites.

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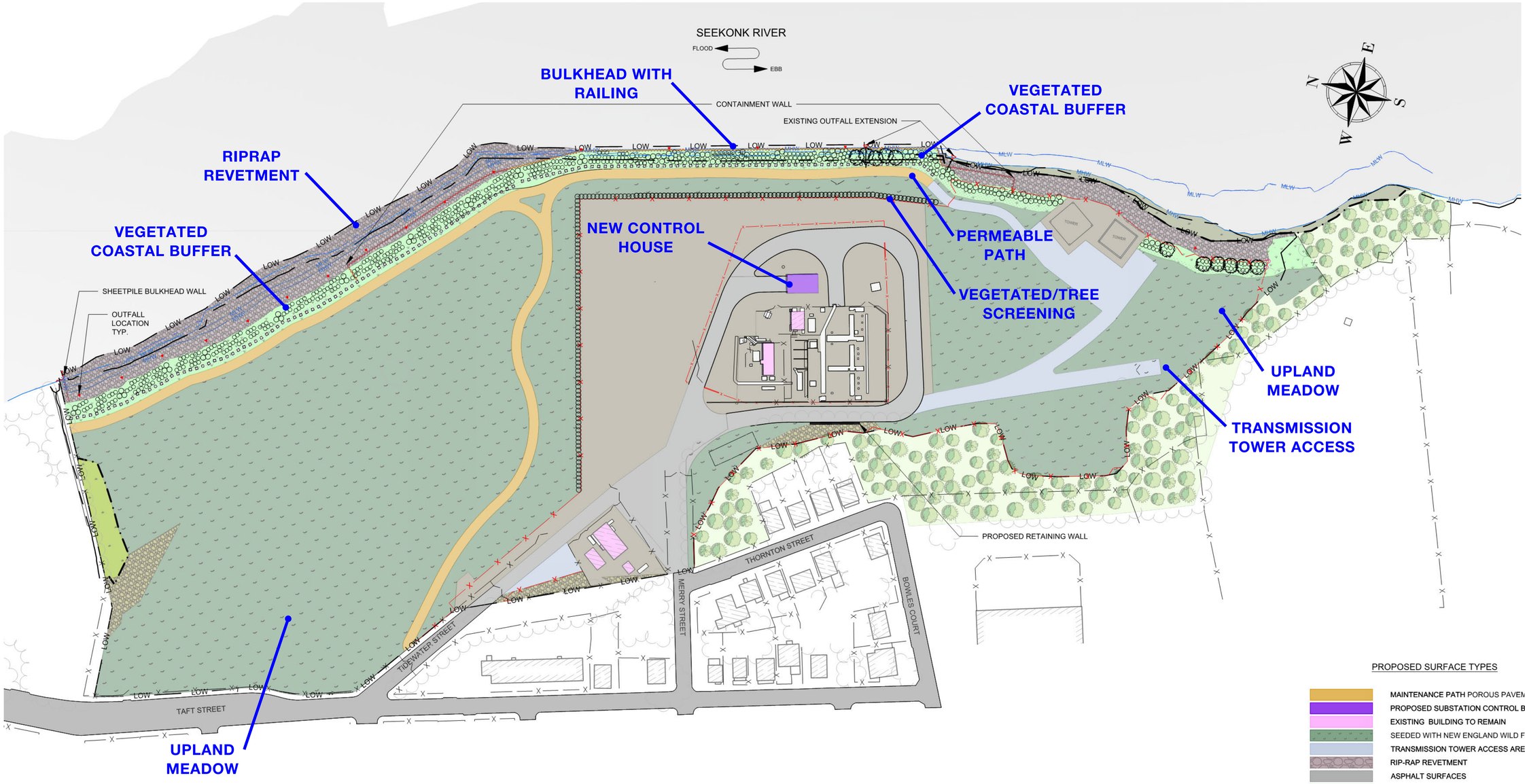
SITE CONDITIONS AFTER IMPLEMENTATION OF REMEDY
TIDEWATER SITE



PROPOSED SURFACE TYPES

- MAINTENANCE PATH POROUS PAVEMENT
- PROPOSED SUBSTATION CONTROL BUILDING
- EXISTING BUILDING TO REMAIN
- SEEDED WITH NEW ENGLAND WILD FLOWER MIX
- TRANSMISSION TOWER ACCESS AREA
- RIP-RAP REVETMENT
- ASPHALT SURFACES
- CRMC 25 FOOT BUFFER AREA
- RIP-RAP SLOPE STABILIZATION
- CRUSHED STONE
- WETLAND RESTORATION AREA
- WETLAND AREA TO REMAIN
- CONCRETE SURFACE

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EXAMPLES OF SITE CONDITIONS AFTER IMPLEMENTATION OF REMEDY FROM OTHER PROJECTS

Example of Bulkhead

Example of Bulkhead Railing System

Example of River Bike Path

Example of Bike Path with Adjacent Revetment

Example of a Riprap Revetment

Example of Vegetated Coastal Buffer

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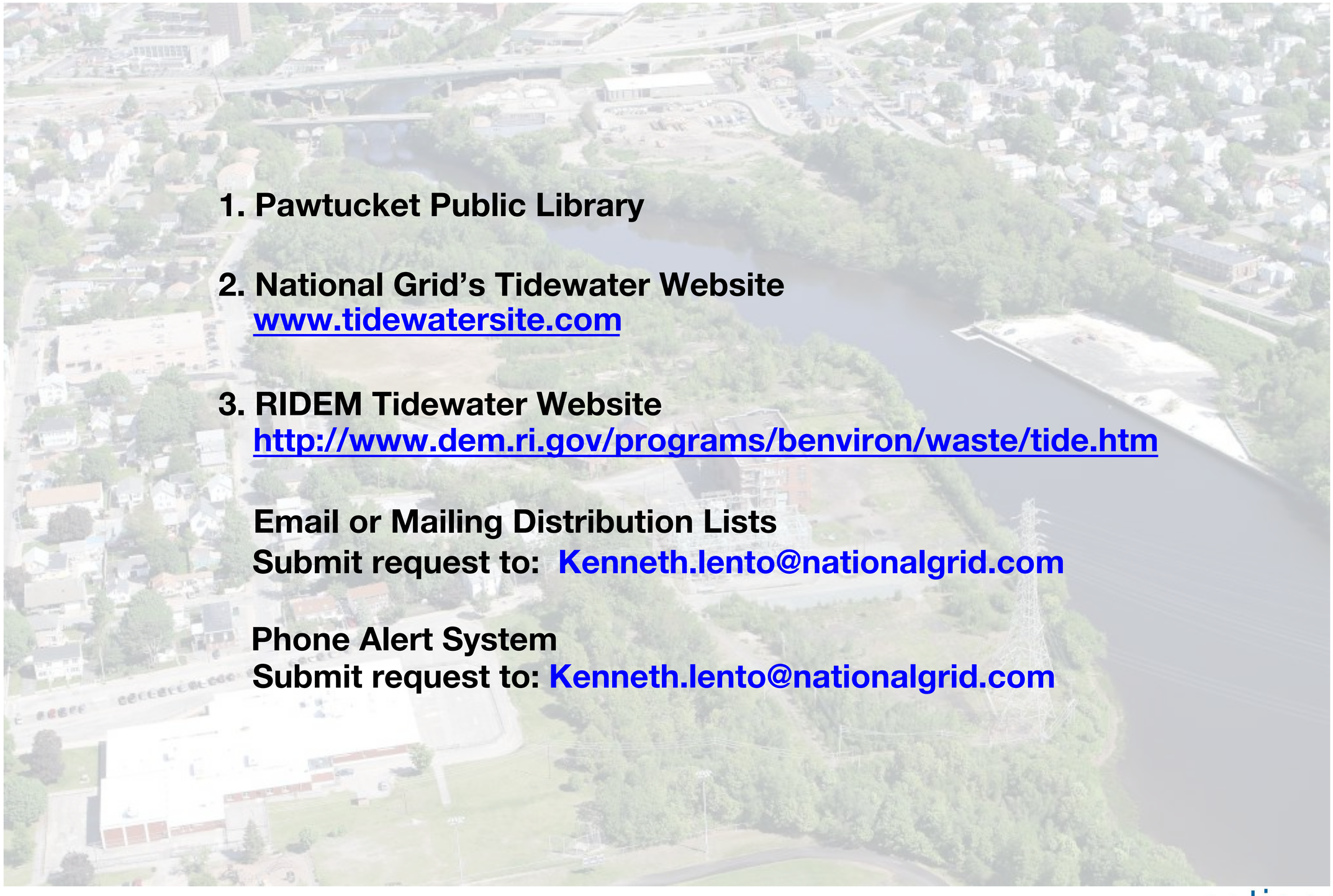
ADDITIONAL INFORMATION - TIDEWATER SITE



1. Pawtucket Public Library

2. National Grid's Tidewater Website
   www.tidewatersite.com

3. RIDEM Tidewater Website
   http://www.dem.ri.gov/programs/benviron/waste/tide.htm

Email or Mailing Distribution Lists
Submit request to: Kenneth.lento@nationalgrid.com

Phone Alert System
Submit request to: Kenneth.lento@nationalgrid.com

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