



## WETLAND FIELD REPORT

**PROJECT TITLE:** Bucklin Point Wastewater Treatment Facility

**REPORT DATE:** 9/7/2021,  
updated 2/16/22

**LOCATION:** East Providence, Rhode Island

**WEATHER:** Variable

**PARE JOB NO.:** 14106.08

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### DISCUSSIONS AND COMMENTS

Coastal shoreline features, coastal wetlands, and freshwater wetlands in the vicinity of the coast located on the Bucklin Point Wastewater Treatment Facility were defined and delineated in accordance with the Coastal Resources Management Council (CRMC) Coastal Resources Management Program (referred to herein as the CRMP) and Appendix 2 of the Rhode Island Department of Environmental Management (RIDEM) Rules and Regulations Governing the Administration and Enforcement of the Rhode Island Freshwater Wetlands Act (referred to herein as the RIDEM Regulations). Inspection and delineation of the site wetlands were completed on four separate dates from November 20, 2020 to December 11, 2020. A delineation of a small portion of the Bucklin Point site was conducted on January 17, 2020 in support of a separate project, information from that delineation is also included in this report as it covers portions of the site in proximity to proposed work.

The delineation was completed to establish the limits of wetlands in the vicinity of proposed improvements to landfills within the Bucklin Point Wastewater Treatment Plant property in East Providence. The property is located at 102 Campbell Avenue on East Providence Assessors Map 302, Block 01, Lot 01. The site is located along the eastern shoreline of the Seekonk River just south of the East Providence boundary with Pawtucket. Wetland delineations have recently been performed throughout the site associated with separate projects; therefore, only areas that had not been previously delineated were inspected as part of this wetland evaluation. Shoreline and coastal wetlands were delineated north and south of the riprap armored levee that surrounds the wastewater facility in the central portion of the site, and freshwater wetlands in the vicinity of the coast were delineated surrounding the two abandoned landfills located north and south of the wastewater treatment facility.

According to the most current RIGIS data, the site is not located within the vicinity of a Natural Heritage Area. Natural Heritage Area (ID: 66) designated for Foxglove Beard-Tongue (*Penstemon digitalis*) a State Threatened Species and Salt Reedgrass (*Spartina cynosuroides*) a species of State Concern, is located to the north of the project site.

Pink field flags were placed at appropriate intervals along the edges of coastal shorelines and wetlands in the vicinity of the proposed work area. Primary parameters evaluated included vegetation, hydric soil features, visual indicators of hydrology, visual indicators of shoreline protection structures, and high tide mark (drift lines). Observed wetland and hydrologic indicators are described in the following sections. The site contains the following CRMP-regulated wetland types: **Tidal Waters, Manmade Shoreline, Coastal Wetlands, Salt Marsh, 200-foot Contiguous Area, and 100-year Floodplain**. Freshwater wetlands in the vicinity of the coast include a **Stream (<10 feet wide)** with associated **100-foot Riverbank, Forested Wetland, Emergent Plant Community, and Area Subject to Storm Flowage**.



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### WETLAND DESCRIPTIONS

#### Seekonk River

The Seekonk River is a tidal waterway connected by tidal fluctuation to Narragansett Bay. The river originates offsite directly downstream of the Main Street dam where the Blackstone River becomes tidally influenced. The river flows through Pawtucket and opens up to become a tidal estuary. This section of the river becomes up to half a mile wide in some sections and the shoreline defines the boundaries of East Providence to the east and Providence to the west. The Seekonk River is bounded primarily by a mix of residential, commercial, and industrial properties with several sections of open space in-between. The Seekonk River borders the Bucklin Point Wastewater Treatment Facility to the west.

In the vicinity of the site, the river is classified as Type 4: Multi-Purpose Waters. Type 4 waters include, “*Large expanses of open water in Narragansett Bay and the Sounds which support a variety of commercial and recreational activities while maintaining good value as a fish and wildlife habitat; and open waters adjacent to shorelines that could support water dependent commercial, industrial, and/or high intensity recreational activities.*” A federal navigation channel is located in the center of the river and classified as Type 6: Industrial Waterfronts and Commercial Navigation Channels. Type 6 waters are described by CRMC as, “*extensively altered in order to accommodate commercial and industrial water dependent and water enhanced activities.*” The US Army Corps of Engineers has authority over the navigation channel. Because the Seekonk River is a tidal waterway under the jurisdiction of CRMC, an associated **200-foot Contiguous Area** offsets the river’s most inland shoreline features. The shoreline features identified in the vicinity of the proposed project are described in the following sections.

#### Shoreline Features

The shoreline delineated along the site consists of **Coastal Wetland** and **Manmade Shoreline**. The northern shoreline of the site is defined entirely by manmade shoreline. The southern river edge (south of treatment plant levee) is defined primarily by manmade shoreline with a section of coastal wetland in a cove between the treatment facility and south landfill. The northern shoreline of the site is a continuation of a previous delineation performed by Pare that extended from Bucklin Brook to the Bucklin Point Wastewater Treatment Facility property line. Therefore, the numbering system was continued and the northern shoreline of the site is defined by flags A-64 to A-122 that have a prefix “SF” to indicate shoreline feature. Flags SF-1 to SF-50 define the shoreline in the southern portion of the site from the riprap armored shoreline to the southern property line. In this area flags SF-1 and SF-16 correspond to a delineation performed by Pare in December of 2019 as part of a separate assessment. The series was continued in the delineation performed as part of this assessment beginning at flag SF-17.

#### *Coastal Wetland*

**Coastal Wetland** is defined in Section 1.1.2 (30) as, “*Coastal wetlands include salt marshes and freshwater or brackish wetlands contiguous to salt marshes or physiographic features.*” A section of Coastal Wetland defines the shoreline feature in the cove between the wastewater facility and south landfill between flags SF-5 and SF-17. Common Reed (*Phragmites australis*) dominates coastal wetland defined shorelines and little other vegetation is present. The inland edge of coastal wetland defines the shoreline and corresponds to the high tide line which is coincident with an abrupt break in slope. Forested uplands are located upgradient of coastal wetlands in this area.



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### *Manmade Shoreline*

**Manmade Shoreline** is defined in Section 1.1.2 (83) as, “those shorelines that are characterized by concentrations of shoreline protection structures and other alterations, to the extent that natural shoreline features are no longer dominant. They most commonly abut Type 3, 5, and 6 waters.” Sections of manmade shoreline include sections of broken pieces of concrete block and slag, riprap armoring, and eroded earthen fill. Manmade shorelines are relatively steep throughout the site. In areas that were armored with riprap the shoreline feature was delineated to the uppermost limit of riprap armoring. Remaining areas of Manmade shoreline were flagged to the high tide line which was defined by a clear rack line. In many areas coastal wetland and salt marsh are located downgradient of the manmade feature.

### **Coastal Wetlands**

Coastal wetlands border the Seekonk River downgradient of manmade shoreline and in some cases define the shoreline. Coastal wetlands exist as narrow fringes along the Seekonk River. Flags were only placed along the landward edge of coastal wetland in areas where they define the shoreline feature. The perimeters of coastal wetlands were GPS-located and are shown accordingly on the Project Plans. The waterward edge of Coastal wetlands in the cove located between flags SF-1 and SF-17 were not GPS-located as this area was delineated as part of a separate assessment conducted in 2019. Coastal wetlands present in the vicinity of the site consist of salt marsh and contiguous coastal wetlands as described below.

### *Salt Marsh*

Several areas along the river edge were vegetated with Smooth Cordgrass (*Spartina alterniflora*), Salt Reedgrass also known as Big Cordgrass (*Spartina cynosuroides*), and High Tide Bush (*Iva frutescens*). Areas vegetated homogeneously by Smooth Cordgrass (*Spartina alterniflora*) are defined as, low salt marsh and are located at the lowest elevations entirely below the high tide line. Areas vegetated by Salt Reedgrass (*Spartina cynosuroides*) and High Tide Bush (*Iva frutescens*) are defined as high salt marsh. Areas of high salt marsh are sparse throughout the site and in most areas out competed by *Phragmites*-dominant coastal wetlands. Low salt marsh occupies a narrow band along the majority of the delineated shoreline.

### *Contiguous Coastal Wetlands*

Coastal wetlands vegetated by monolithic stands of Common Reed (*Phragmites australis*) are located contiguous to salt marsh or tidal waters of the Seekonk River throughout the site particularly along the northern shoreline. Coastal wetlands occupy a narrow band immediately upgradient of salt marsh and downgradient of manmade shoreline. The upper edge of coastal wetland generally corresponds to the high tide line of the Seekonk River and foot slope of manmade shoreline. Several pockets of Salt Reedgrass (*Spartina cynosuroides*) interrupt homogenous communities of Common Reed. The extent of Salt Reedgrass communities were GPS located as they are listed as a species of state concern. The waterward edge of coastal wetlands were also GPS located.



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### Freshwater Wetlands in the Vicinity of the Coast

Several freshwater wetlands were identified within the site property approximately 300-700 feet inland and isolated from coastal wetlands delineated along the shoreline. These wetlands are within the jurisdiction of the CRMC and is therefore defined as a Freshwater Wetland in the Vicinity of the Coast by the Rules and Regulations Governing the Protection and Management of Freshwater Wetlands in the Vicinity of the Coast (FWWIVC Regulations). Freshwater wetlands in the vicinity of the coast identified in the site visit conducted in 2020 are described below.

#### **Stream (<10-feet wide)**

A linear, well defined, channel discharges flow to a 12-inch pipe at the northern end of the site. The channel appears to regularly convey flow and is therefore defined as a **Stream** under the RIDEM Regulations. The stream is narrow with a general width of less than 5 feet; therefore, a **100-foot Riverbank** extends from the banks of the stream. The southern stream edge is defined by flag series S-100 to S-105 and DS-1 to DS-20 to establish the 100-foot Riverbank limits on the developed portion of the site. The course of the stream is unknown once it enters the underground pipe, but it likely discharges to the Seekonk River at one of the outfalls located along the shoreline. The portion of the stream defined by the DS flag series is lined with concrete in areas and may have been constructed as a drainage trench. At the time of delineation, the downstream end of the stream was flowing at a shallow depth (less than 6-inches) while the upper portion of the stream (closer to flag DS-20) was holding stagnant water. The stream is bordered by the C-series wetland to the north and east which drains to the stream. Overland runoff also enters the channel from the adjacent roadway. Substrate was variable and consisted of concrete, cobble, sand, and muck depending on the stream section.

A secondary channel joins the stream between flags C-21 and C-22. The centerline of the channel is defined by flag series SS-1 to SS-6. This stream originates from an apparent groundwater seepage and is also fed by overland runoff that is conveyed by an Area Subject to Storm Flowage located upgradient of the channel. This channel is very narrow with a general width of two feet. At flag SS-6 it enters the C-series wetland and continues a short distance down gradient where it joins the DS-series stream.

#### **Wetland A**

Flag series A-1 to A-8 defines the perimeter of an isolated freshwater wetland located in a defined depression upgradient of the shoreline feature between flags SF-12 and SF-16. This wetland was delineated in January 2020. The wetland appeared to be indicative of an emergent plant community however significant portions of the wetland were flooded and un-vegetated. It is recommended that a site visit be conducted during the growing season to accurately classify the wetland if necessary. A dense shrub and vine layer vegetates the outer edge of the wetland which corresponds to an abrupt break in slope. The wetland is located in a previously disturbed area as evidenced by chain link fencing and old car tires littered in the wetland. Invasive species have also colonized the wetland edge and soils consist of human transported material. The wetland is separated from the Seekonk River coastal wetlands by an upland berm. Vegetation within the wetland includes, but is not limited to, the following species.



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| Common Name           | Scientific Name              | Indicator Status |
|-----------------------|------------------------------|------------------|
| Black Birch           | <i>Betula lenta</i>          | FACU             |
| White Oak             | <i>Quercus alba</i>          | FACU             |
| Arrowwood             | <i>Viburnum dentatum</i>     | FAC              |
| Tartarian Honeysuckle | <i>Lonicera tatarica</i>     | FACU             |
| Multiflora Rose       | <i>Rosa multiflora</i>       | FACU             |
| Oriental Bittersweet  | <i>Celastrus orbiculatus</i> | UPL              |
| Sedge                 | <i>Carex sp.</i>             | Assume FACW      |

### Wetland B

A short distance south of the B-series wetland is an approximately 1,508 square foot forested wetland located along the eastern side of the access road embankment. Flag series B-1 to B-13 defines the perimeter of the wetland which is defined by the toe of the steep forested slope and a berm of stockpiled soil along the access road. The wetland is co-dominated by Eastern Cottonwood (*Populus deltoides*) and Red Maple (*Acer rubrum*). Due to the size and vegetative composition of the wetland, it is classified as a **Forested Wetland** under the RIDEM Regulations. The wetland appears to have a saturated hydrology that is fed by overland runoff and groundwater. Vegetation within the wetland includes, but is not limited to, the following species.

| Common Name          | Scientific Name              | Indicator Status |
|----------------------|------------------------------|------------------|
| Eastern Cottonwood   | <i>Populus deltoides</i>     | FACU             |
| Red Maple            | <i>Acer rubrum</i>           | FAC              |
| Sassafras            | <i>Sassafras albidum</i>     | FACU             |
| Willow               | <i>Salix sp.</i>             | Assume FAC       |
| Silky Dogwood        | <i>Cornus amomum</i>         | FACW             |
| Spicebush            | <i>Lindera benzoin</i>       | FACW             |
| Multiflora Rose      | <i>Rosa multiflora</i>       | FACU             |
| Oriental Bittersweet | <i>Celastrus orbiculatus</i> | UPL              |
| Common Reed          | <i>Phragmites australis</i>  | FACW             |

### Wetland C

A wetland complex is located in the northeastern portion of the site between the site access road and the adjacent Mount St. Marys Cemetery. The wetland is co-dominated by Eastern Cottonwood (*Populus deltoides*), and Red Maple (*Acer rubrum*) although portions located along the stream are dominated by Common Reed (*Phragmites australis*) as well. Flag series C-1 to C-101 defines the perimeter of the wetland which is approximately 1.05 acres in area. Due to the size of the wetland and overall dominance of Eastern Cottonwood and Willow, the area is classified as a **Forested Wetland**. The southern wetland edge is defined by the toe of a gentle slope along the access road embankment. The northern and eastern wetland is defined by the toe of a steep forested slope. Hydrology within the wetland appears to be seasonally flooded due surface water present within the wetland at the time of delineation and presence of water-stained leaves which indicate prolonged presence of standing water. Vegetation within the wetland includes, but is not limited to, the following species.



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| Common Name        | Scientific Name             | Indicator Status |
|--------------------|-----------------------------|------------------|
| Boxelder Maple     | <i>Acer nugundo</i>         | FAC              |
| Eastern Cottonwood | <i>Populus deltoides</i>    | FACU             |
| Gray Birch         | <i>Betula populifolia</i>   | FAC              |
| Red Maple          | <i>Acer rubrum</i>          | FAC              |
| Slippery Elm       | <i>Ulmus rubra</i>          | FAC              |
| Willow             | <i>Salix sp.</i>            | Assume FAC       |
| Black Elderberry   | <i>Sambucus nigra</i>       | FACW             |
| Speckled Alder     | <i>Alnus rugoda</i>         | FACW             |
| Silky Dogwood      | <i>Cornus amomum</i>        | FACW             |
| Multiflora Rose    | <i>Rosa multiflora</i>      | FACU             |
| Witch Hazel        | <i>Hamamelis virginiana</i> | FACU             |
| Common Rush        | <i>Juncus effusus</i>       | FACW             |
| Common Reed        | <i>Phragmites australis</i> | FACW             |
| Horsetail          | <i>Equisetum spp.</i>       | Assume FAC       |
| Sensitive Fern     | <i>Onoclea sensibilis</i>   | FACW             |

### Wetland D

An isolated wetland dominated by Common Reed (*Phragmites australis*) is located in the southern portion of the property approximately 40-60 feet inland from the shoreline feature. The wetland is approximately 5,084 square feet in area and separated from the shoreline feature by an upland berm. Due to the size and vegetative composition of the wetland, it is defined as an **Emergent Plant Community** under the FWWIVC Regulations. Flag series D-1 to D-21 defines the perimeter of the emergent plant community. The wetland is confined to a localized depression with edges defined by the toe slope of surrounding landforms. Wetland hydrology appears to be indicative of saturated conditions and is in a previously disturbed area. Vegetation within the wetland includes, but is not limited to, the following species.

| Common Name          | Scientific Name              | Indicator Status |
|----------------------|------------------------------|------------------|
| Staghorn Sumac       | <i>Rhus typhina</i>          | NI               |
| Japanese Honeysuckle | <i>Lonicera japonica</i>     | FACU             |
| Oriental Bittersweet | <i>Celastrus orbiculatus</i> | UPL              |
| Common Reed          | <i>Phragmites australis</i>  | FACW             |

### Area Subject to Storm Flowage

Four drainage channels were identified and delineated in the vicinity of the site. These features convey stormwater from upland areas into the forested wetland complex and stream, and therefore are classified as **Areas Subject to Storm Flowage (ASSFs)**. The centerline of each ASSF was delineated based upon observed drainage patterns. Each area is described briefly below.



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ASSF 100: Flag series ASSF-100 to ASSF-101 defines the centerline of an informal earthen drainageway that conveys flow from the adjacent access road to the C-series wetland between flags C-29 and C-30. The ASSF is quite short, approximately five linear feet, and appears to have developed in a low spot between the road and wetland. The ASSF was flowing at a depth of less than one inch during the November 11, 2020 site visit.

ASSF 200: Flag series ASSF-200 to ASSF-202 defines the centerline of an earthen drainageway that conveys stormwater flow from the forested upland slope to the downgradient C-series wetland. The ASSF consists of an eroded earthen channel and enters the wetland at flag C-62. The channel was dry at the time of observation however the channel is well defined with apparent drainage patterns.

ASSF 300: Flag series ASSF-300 to ASSF-303 defines the centerline of an earthen drainageway that conveys stormwater flow to the SS-series intermittent stream from the upgradient slope. The drainageway is less defined than the downgradient intermittent stream and does not appear to convey flow as regularly. At flag ASSF-303 groundwater appears to discharge to the channel where it becomes an intermittent stream. At the time of observation the ASSF channel was dry and the intermittent stream was flowing.

ASSF 400: Flag series ASSF-400 to ASSF-410 defines the centerline of a dug drainage channel that conveys stormwater flow along the edge of the access roadway. The channel is well defined and vegetated with Common Reed (*Phragmites australis*). The ASSF connects with two manmade drainageways that convey flow below the access road. An earthen berm separates the ASSF from the adjacent B-series wetland however, a low spot of the berm allows surface water from the wetland to enter the ASSF.

### **Two Hundred Foot (200') Contiguous Area**

A **200-Foot Contiguous Area** extends from the landward edge of shoreline features, including manmade shoreline and coastal wetlands. According to Rule 1.1.4 (A)(1)(c) the 200-foot contiguous area is defined as the following:

*“... all lands and waters directly adjoining shoreline features that extend inland two hundred (200) feet from the inland border of that shoreline feature.”*

### **100-Year Floodplain**

According to the FEMA Flood Insurance Rate Map for the area (Panel 44007C0326J effective date October 2, 2015), an area mapped as Zone VE (velocity zone) occupies a narrow band of the Bucklin Point site along the shoreline. In the northern portion of the site Zone VE extends to elevation 21 (NAVD 88) while in the central portion of the site Zone VE extends to elevation 14 and elevation 13 in the southern portion of the site. A small area mapped as Zone AE is located along the eastern edge of the wastewater facility peninsula that extends to elevation 13. The remaining site is mapped as Zone X (Area of minimal flood hazard).

