

APPENDIX C

Wetland Survey Results



RATTLESNAKE BROOK RESTORATION PROJECT

January 15, 2015

MMI #5237-01-7

At the request of the Massachusetts Division of Ecological Restoration (MADER) and the City of Fall River, Milone & MacBroom, Inc. (MMI) completed a supplemental wetland delineation and field assessment on the wetlands associated with the Rattlesnake Brook dam impoundment. This work was completed to provide additional support information for future federal, state, and local permitting efforts for this project. On July 1, 2014, MMI completed the wetland delineation and field assessments. Bordering vegetated wetlands were delineated in accordance with Massachusetts Department of Environmental Protection Wetlands and Waterways Regulations 310 CMR 10.00.

Prior to our July fieldwork, MMI had previously (November 2013) delineated wetlands downstream of the dam between the Rattlesnake Brook dam and Narrows Road. The July 2014 wetland delineations were completed upstream of the dam between the Rattlesnake Brook dam and the South Main Street cross culvert. The bordering vegetated wetland limits are shown on the attached map. The Natural Resources Conservation Service (NRCS) web soil survey mapping is appended. The NRCS soil survey mapping shows the following soil types within the project wetland delineation area:

- Udorthents
- Walpole
- Scarboro Muck

Our field investigations were consistent with the NRCS soil survey mapping with extensive bordering vegetated wetlands being delineated upstream of the Rattlesnake Brook impoundment. The bordering vegetated wetlands that were delineated upstream of the dam consist of palustrine forested, palustrine scrub shrub, palustrine emergent marsh, and palustrine open water. Each of the bordering vegetated wetland communities is described below.

Palustrine Open Water

The open water wetland system has varying water depths that range from 6 inches of water to as much as 2.5 feet. Depths of water within the open water wetland are variable based on seasonal flow regimes. The open water wetland consists of an organic muck bottom that is underlain by coarse sand. The wetland supports submerged aquatic vegetation and floating aquatic vegetation. Vegetation within this community type consists of yellow spatterdock lily, white water lily, common water shield, and buttonbush. A great blue heron, mallard ducks, Canada geese, a snapping turtle, and green frogs were observed using the open water community during our site visit. The open water system does provide a limited warm-water fishery habitat; however, the amount of viable habitat varies depending upon seasonal flow regime.



Open Water Wetland System

A functional evaluation of the open water wetland based on MMI field observations is summarized in Table 1. The first column lists the functions generally ascribed to wetlands; the second column summarizes the rationale used to determine whether these functions are being performed within the subject wetland and/or watercourse.

TABLE 1
Functions and Values Assessment – Open Water Wetland

	Functions and Values	Comments
	Ground Water Recharge / Discharge	No
	Flood flow Alteration (Storage & Desynchronization)	Yes – Open water mapped by the Federal Emergency Management Agency (FEMA) does provide localized flood flow alteration.
	Fish & Shellfish Habitat	Yes – Open water has the potential to support warm-water fishery resource.
	Sediment / Toxicant Retention	Yes – Sediment deposition was observed within the open water system.

	Functions and Values	Comments
	Nutrient Removal / Retention / Transformation	Yes – Open water wetland with submerged aquatic vegetation and floating aquatic vegetation provides nutrient removal/retention.
	Production Export (Nutrient)	Yes – Bordering shrubs and trees deposit allochthonous material that is transported to downstream habitats.
	Sediment / Shoreline / Stream Bank Stabilization	Yes – Open water system is bordered by vegetation that keeps shoreline stable.
	Wildlife Habitat	Yes – Open water does provide valuable wildlife habitat for waterfowl, wading birds, passerine birds, reptiles, amphibians, mammals, and insects.
	Recreation (Consumptive & Non-Consumptive)	No – Open water wetland system is not readily accessed and does not provide a valuable fishing and/or canoeing area.
	Educational Scientific Value	No – Open water wetland does not provide any educational/scientific value.
	Uniqueness / Heritage	No
	Visual Quality / Aesthetics	Yes – Open water wetland system provides high visual quality.
ES	Endangered Species	No

The principal functions and values of the wetland system at this location include the following:

- Floodflow alteration
- Nutrient removal
- Local wildlife habitat

Palustrine Scrub Shrub

The scrub shrub wetland system is located along the periphery of the open water wetland community. This system is dominated by shrubby and herbaceous vegetation including speckled alder, willows, buttonbush, highbush blueberry, steeplebush, swamp rose, tussock sedge, and American burreed. Many of the plants are growing on hummocks with low-lying areas being dominated by dark-stained leaves and muck.



Scrub Shrub Wetland System

A functional evaluation of the scrub shrub wetland based on MMI field observations is summarized in Table 2. The first column lists the functions generally ascribed to wetlands; the second column summarizes the rationale used to determine whether these functions are being performed within the subject wetland and/or watercourse.

TABLE 2
Functions and Values Assessment – Scrub Shrub Wetland

	Functions and Values	Comments
	Ground Water Recharge / Discharge	No
	Flood flow Alteration (Storage & Desynchronization)	Yes – Scrub shrub wetland is mapped by FEMA and does provide localized flood flow alteration.
	Fish & Shellfish Habitat	No – Scrub shrub wetland does not support fishery resources.
	Sediment / Toxicant Retention	Yes – Sediment deposition was observed within the scrub shrub wetland system.
	Nutrient Removal / Retention / Transformation	Yes – Dense scrub shrub vegetation provides nutrient removal/retention.
	Production Export (Nutrient)	Yes – Vegetation does deposit allochthonous material that is transported to downstream habitats.

	Functions and Values	Comments
	Sediment / Shoreline / Stream Bank Stabilization	Yes – Existing shrubby vegetation stabilizes shoreline.
	Wildlife Habitat	Yes – Scrub shrub system does provide valuable wildlife habitat for passerine birds, reptiles, amphibians, and insects.
	Recreation (Consumptive & Non-Consumptive)	No – Scrub shrub wetland system is not readily accessible.
	Educational Scientific Value	No – Scrub shrub wetland does not provide any educational/scientific value.
	Uniqueness / Heritage	No
	Visual Quality / Aesthetics	No – Scrub shrub wetland system does not provide high visual quality.
ES	Endangered Species	No

The principal functions and values of the wetland system at this location include the following:

- Floodflow alteration
- Nutrient removal
- Local wildlife habitat

Palustrine Emergent Marsh

The emergent wetland system is intermixed between the open water wetlands and scrub shrub wetland areas. Vegetation includes soft rush, tussock sedge, broad leaved cattail, American burred, lurid sedge, sensitive fern, skunk cabbage, pickerelweed, and duck potato. A spring peeper and garter snake were observed within this community during our field delineations.

A functional evaluation of the emergent marsh wetland based on MMI field observations is



Emergent Marsh Wetland System

summarized in Table 3. The first column lists the functions generally ascribed to wetlands; the second column summarizes the rationale used to determine whether these functions are being performed within the subject wetland and/or watercourse.

TABLE 3
Functions and Values Assessment – Emergent Marsh Wetland

	Functions and Values	Comments
	Ground Water Recharge / Discharge	No
	Flood flow Alteration (Storage & Desynchronization)	Yes – Emergent marsh wetland is mapped by FEMA and does provide localized flood flow alteration.
	Fish & Shellfish Habitat	No – Emergent marsh wetland does not support fishery resources.
	Sediment / Toxicant Retention	Yes – Sediment deposition was observed within the emergent marsh wetland system.
	Nutrient Removal / Retention / Transformation	Yes – Dense emergent marsh vegetation provides nutrient removal/retention.
	Production Export (Nutrient)	Yes – Vegetation does deposit allochthonous material that is transported to downstream habitats.
	Sediment / Shoreline / Stream Bank Stabilization	Yes – Existing emergent vegetation stabilizes the shoreline.
	Wildlife Habitat	Yes – Emergent marsh system does provide valuable wildlife habitat for passerine birds, reptiles, amphibians, and insects.
	Recreation (Consumptive & Non-Consumptive)	No – Emergent marsh wetland system is not readily accessible.
	Educational Scientific Value	No – Emergent marsh wetland does not provide any educational/scientific value.
	Uniqueness / Heritage	No
	Visual Quality / Aesthetics	No – Emergent marsh wetland system does not provide high visual quality.
ES	Endangered Species	No

The principal functions and values of the wetland system at this location include the following:

- Floodflow alteration
- Nutrient removal
- Local wildlife habitat

Palustrine Forested Wetland

The forested wetland system is the largest community type found within the project reach. This community comprises the floodplain of Rattlesnake Brook. This system has a dense overstory consisting of red maple, swamp white oak, and black tupelo. The understory varies in density and consists of northern arrowwood, Morrow’s honeysuckle, highbush blueberry, sweet pepperbush, silky dogwood, spicebush, skunk cabbage, fringed sedge, soft rush, bristleback sedge, royal fern, cinnamon fern, sensitive fern, and jewelweed.



Forested Wetland System

A functional evaluation of the forested wetland based on MMI field observations is summarized in Table 4. The first column lists the functions generally ascribed to wetlands; the second column summarizes the rationale used to determine whether these functions are being performed within the subject wetland and/or watercourse.

TABLE 4
Functions and Values Assessment – Forested Wetland

	Functions and Values	Comments
	Ground Water Recharge / Discharge	Yes – Groundwater discharge was observed in a few places along the corridor.
	Flood flow Alteration (Storage & Desynchronization)	Yes – The forested wetland is mapped by FEMA and does provide localized flood flow alteration.
	Fish & Shellfish Habitat	No – Forested wetland does not support fishery resources.
	Sediment / Toxicant Retention	Yes – Sediment deposition was observed within the forested wetland system.
	Nutrient Removal / Retention / Transformation	Yes – Forested vegetation provides nutrient removal/retention.

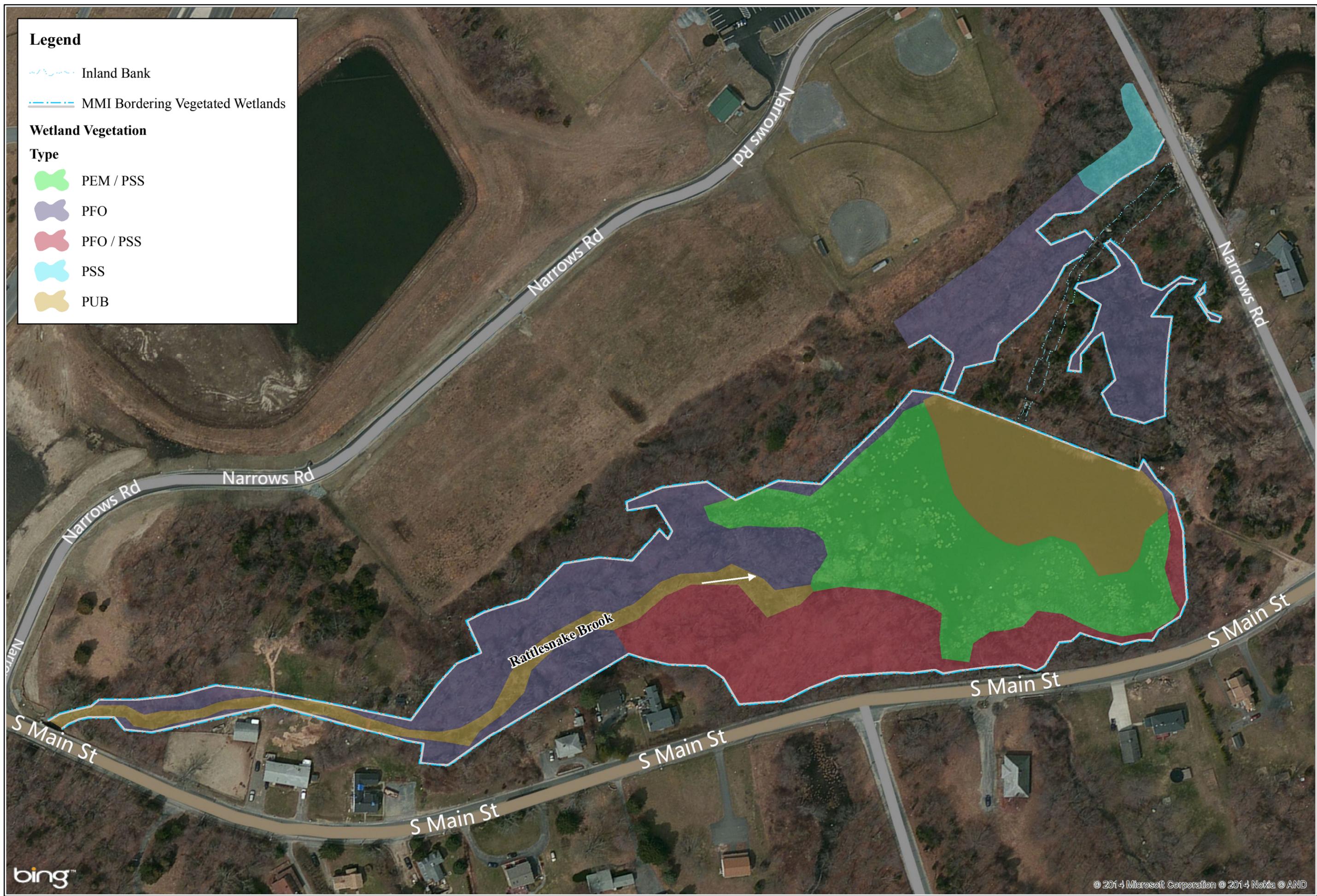
Legend

-  Inland Bank
-  MMI Bordering Vegetated Wetlands

Wetland Vegetation

Type

-  PEM / PSS
-  PFO
-  PFO / PSS
-  PSS
-  PUB



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SOURCE(S):
 Bing Maps Hybrid

WETLAND VEGETATION COMMUNITY MAP
RATTLESNAKE BROOK RESTORATION PROJECT
FALL RIVER, MASSACHUSETTS

Map By: JEP
 MMIF#: 5237-01
 MXD: Y:\5237-01\Maps\WetlandVegetation.mxd
 1st Version: 12/23/2014
 Revision: 12/23/2014
 Scale: 1 in = 130 ft

Figure 2

