11-2006

Town of Newfields Wetland Evaluation Report

West Environmental Inc.

Town of Newfields
Wetland Evaluation Report

Prepared for:

Town of Newfields, NH
Conservation Commission

Piscassic River Floodplain

November 2006

Prepared by:

WEST ENVIRONMENTAL INC.
122 Mast Road, Suite 6, Lee, NH 03824

with assistance from

NewHampshire Estuaries Project

Abridged Version

To minimize file size, parts of this report were omitted. Contact the NHEP at 603.862.3403 or email request to Contact.NHEP@unh.edu to obtain a complete copy.

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II. METHODOLOGY

West Environmental, Inc. identified 45 wetlands for the inventory in the Newfields Wetland Mapping Report (February 2006). These wetlands all met the following criteria:

- State of New Hampshire jurisdictional wetlands with the presence of hydric soils, hydrophytic vegetation and wetland hydrology

Wetland Mapping

Forty-four wetland systems were mapped onto stereo color photographs with a flight date of April 16, 2005. Individual wetlands components were classified using the US Fish and Wildlife-Cowardin classification system. WEI staff then field inspected accessible wetlands during the 2006 growing season. The wetland boundaries were verified to assess general accuracy and hydrologic connections. Wetland boundary revisions were drawn directly onto the aerial photos. These color aerial photo overlays are included in the report and the boundary for each wetland is shown in dark blue. Tidal wetlands were identified with a light blue color for contrast. The wetland boundaries were not flagged "on the ground" in the field and do not constitute a wetland delineation according to the 1987 Corps of Engineers Wetland Delineation Manual, Technical report Y-87-1. These wetland boundaries are not appropriate for project permitting by local, State or Federal Agencies.

Wetland Evaluation

The Wetland Inventory Data Form includes wetland plant community descriptions, verifications of NRCS poorly and very poorly drained soil mapping, and information on field observations of wetland hydrology. This form also includes wildlife habitat observations. A photolog of the various wetland components is included to illustrate the physical features of each wetland. The wetland systems were evaluated utilizing a wetland assessment methodology developed by WEI based in part on the US Army Corps of Engineers New England Divisions Highway Methodology Workbook Supplement. This evaluation is based on collection of data on the physical characteristics of the wetland through field inspections, research of existing information and best professional judgment. This methodology provides a better understanding of the physical characteristics of each wetland for both its function and values.

I. INTRODUCTION

West Environmental, Inc. (WEI) has prepared this report to document the evaluation of 45 wetlands within the Town of Newfields, New Hampshire. These wetlands were previously identified in the Newfields Wetland Mapping Report (February 2006), also prepared by WEI. The field work for this evaluation was conducted from May to October 2006 and included the verification of potential prime wetland boundaries.

The purpose of this wetland evaluation was to gain a better understanding of the wetland resources within the Town of Newfields and to identify wetlands that qualify for Prime Wetland Designation. Each wetland was analyzed to determine its relative importance within the town and the region. The information in this report may also be used as a planning tool by town officials to identify and protect natural resources within the community. The wetland boundaries identified on the aerial photo overlays are for planning and Prime Wetland Designation purposes and are not to be construed as site specific wetland delineations per State of New Hampshire regulations.

The Town of Newfields can utilize this report as the basis for selecting Prime Wetland candidates for designation in accordance with the requirements of RSA 482-A:15 and Chapter Wt 700 of the New Hampshire Department of Environmental Services (NHDES) administrative rules. These regulations allow for designation of "wetlands of significant value…because of their uniqueness, fragility and unspoiled character."

The following sections of this report document the functions and values of 45 wetlands and include the supporting information used to make these determinations.

The physical features were evaluated to determine if a function is present. The wetland is then evaluated to determine if the function present is a principal function of that wetland based on comparison to other wetlands in the region and using professional judgment.

Wetland Inventory Functional Value Assessment Data Forms were completed for each wetland (See Appendix A). This assessment evaluates the following wetland functions:

- ***Groundwater Recharge/Discharge*** – This function includes the ability of a wetland to provide recharge of surface water into the ground and/or discharge groundwater into surface waters.
- ***Flood-flow Alteration*** – This function considers the effectiveness of the wetland in reducing flood damage by attenuation of floodwaters for prolonged periods following precipitation events.
- ***Sediment/Toxicant/Pathogen Retention*** – The presence of this function reduces or prevents degradation of water quality because the wetland acts as a trap for sediments, toxicants or pathogens.
- ***Nutrient Removal/Retention Transformation*** – This function relates to the effectiveness of the wetland to prevent adverse effects of excess nutrients entering surface waters or aquifers.
- ***Product Export*** – This function relates to the effectiveness of the wetland to produce food or usable products for human or other living organisms.
- ***Sediment/Shoreline Stabilization*** – This function relates to the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.
- ***Wildlife Habitat*** – This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with the wetland and the wetland edge (includes resident and migratory species).

The assessment also evaluates the following values associated with wetlands:

- **Recreational Value** – This value considers the effectiveness of the wetland and associated watercourses to provide recreation opportunities such as canoeing, fishing, hunting, hiking and other passive recreational activities. This does not include any activities that involve wheeled or tracked vehicles.
- **Educational/Scientific Value** – This value considers the effectiveness of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.
- **Uniqueness/Heritage** – This value includes such things as archeological sites, unusual aesthetic quality, historical features, or unique plants, animal or unusual geologic features.

An assessment of Restoration Potential was also performed for each wetland

Restoration Stabilization Potential – This assessment includes evaluating the restoration potential of wetlands that have ecological deterioration due to human activity. This includes water quality impacts, invasive species, ditching and fill from erosion or human disturbance.

A comparison of the functions and values used in this study with the Method for Comparative Evaluation of Non-tidal Wetlands in New Hampshire (1991) (NH Method) is shown below.

	Wetland Functions/Values	**NH Method**
1	Groundwater Recharge/Discharge	Groundwater Use Potential
2	Floodflow Alteration	Flood Control Potential
3	Sediment/Toxicant/Pathogen Retention	Sediment Trapping
4	Nutrient Removal/Retention Transformation	Nutrient Attenuation
5	Production Export	(No equivalent)
6	Sediment/Shoreline Stabilization	Shoreline Anchoring & Dissipation of Erosive Forces
7	Wildlife Habitat	Wildlife Habitat
8	Recreational Value	Water-based Recreation
9	Educational/Scientific Value	Educational Potential
10	Uniqueness/Heritage	Noteworthiness
11	Restoration Potential	(No equivalent)

Wetlands with rare species, critical wildlife habitat and/or known historical significance have been noted based on the information contained in the *NH Natural Heritage Bureau List, Piscassic River Wildlife Habitat Study 2002* and *The Land Conservation Plan for New Hampshire's Coastal Watersheds 2006* (See Appendices B, C and D) . These documents indicate the presence of three rare wildlife species; *spotted turtle, Blanding's turtle, sora(bird*; and five rare wetland plant communities; *Low-gradient silty-sandy riverbank system, High brackish tidal riverbank marsh, High salt marsh, Low brackish tidal riverbank marsh, and Low salt marsh* within portions of Newfields.

III. FINDINGS

The 45 wetland systems identified for the inventory include 7 tidal wetlands and 38 freshwater wetlands. The mapped area of the 45 wetlands totals approximately 605 acres. Salt marsh habitat dominated the 75 acres +/- of tidal wetland systems. Forested and scrub-shrub wetlands dominated the 530 +/- acres of freshwater wetlands. The wetlands within Newfields are associated with three main watersheds the Squamscott River, the Piscassic River and the Lamprey River (See Appendix E). The Piscassic River eventually joins the Lamprey River in Newmarket. Wetlands 1 and 3 are in the Lamprey River watershed. Wetlands 2 through 15 are in the Piscassic River watershed and the remaining wetlands are in the Squamscott River watershed.

The salt marsh systems in Newfields are all associated with the Squamscott River which demarcates the eastern town boundary. Wetlands 33 and 38 are the largest tidal wetlands and are located in the northeast corner of Newfields. Most of the salt marsh systems, (i.e. Wetlands 33, 38, 40, 41, 42 & 43) occur at the mouth of freshwater streams where tidal flooding occurs on a daily basis. These areas are typically dominated by salt marsh cordgrass. Portions of these wetlands include high marsh which is less frequently flooded and includes critical ecological transition zones. The NH Natural Heritage Bureau has identified the tidal marsh plant communities along the Squamscott River as having “Very High Importance”.

The freshwater wetland systems identified in the inventory include forested and scrub-shrub swamps, wet meadows, marshes, and beaver ponds. They range in size from 0.5 acre to 94 acres. Most of the freshwater wetlands are associated with intermittent streams and many of them are interconnected and drain into the Piscassic River in the central portion of Newfields or into Parting Brook in the eastern portion of town. The NH Natural Heritage Bureau has identified a Low-gradient silty-sandy riverbank system of “Very High Importance” along the Piscassic River.

Based on field assessments of the above-mentioned wetland values and functions a ranking system was developed to assess the comparative function and value of each wetland (see Tables 1 Freshwater Wetlands & Table 2 Tidal Wetlands). The ranking system in this report is based on three components of each wetland: **size** (larger wetlands generally provide greater potential to perform wetland function); **number of principal functions** (diverse wetlands with numerous functions are more important than wetlands with limited functions); and **wetland values** (wetlands that provide human-based values provide greater benefit to the community). These elements were combined to provide a total score for each wetland. Tidal wetlands were elevated in importance due to their extremely high productivity and general rarity within the State of New Hampshire.

The calculation for ranking the freshwater wetlands is as follows:

Wetland size (acres) x Number of principal functions + Wetland Value score = Total Score

For the Wetland Value score there are 3 values and each value gets a score of 1, 2 or 3 for low, medium and high.

Tidal wetlands use the same equation for ranking but multiply the score by 2 for tidal importance.

Based on the ranking system, three distinct tiers of wetlands emerged. Tier 1 (*Table 3*) includes 11 of the largest, most diverse freshwater and tidal wetlands complexes in Newfields. These wetlands represent 475 acres or 78% of the wetland acreage evaluated in this report. These wetlands range in size from 13 to 94.6 acres and all of them score over 150 in their evaluations.

Tier 2 (*Table 4*) includes 11 wetlands that score over 50 and under 150. These wetlands, although smaller than the Tier 1 wetlands, are diverse and high functioning for their size. They range from a 15 acre freshwater scrub-shrub swamp to the smallest (3 acres) tidal wetland in Newfields. All of these wetlands meet the minimum qualifications for Prime Wetland status.

Tier 3 (*Table 5*) includes the remaining 23 wetlands which are all freshwater wetlands under 5 acres in size. These wetlands provide more limited function and individually score under 20. Some of these wetlands do not have very poorly drained soils and do not qualify as prime wetland candidates. Some of the Tier 3 wetlands are vernal pools and have the potential to provide habitat for one of the two rare turtle species found in Newfields.

Table 1

Newfields Freshwater Wetlands Ranking

Wetland ID	Size(acres)	#PF	WVs	Total Score	Rank
1	94.6 x	7	+ 9	= 671.2	1
2	86.3	7	9	613.1	2
3	2.5	3	5	12.5	35
4	0.9	2	4	5.8	43
5	48.5	7	7	346.5	5
6	3.4	3	3	13.2	33
7	1.3	6	6	13.8	31
8	2.4	4	6	15.6	27
9	8	6	9	57	19
10	45	7	8	323	7
11	15	6	7	97	13
12	1.2	5	3	9	40
13	45	7	9	324	6
14	1.7	6	5	15.2	29
15	49.3	7	8	352	4
15b	4	4	3	19	23
16a	2	6	5	17	24
16b	2	4	3	11	38
17	10.6	7	6	80.2	14
18	1.4	6	5	13.4	32
19	1.9	4	4	11.6	37
20	1.4	7	7	16.8	26
21	0.9	6	7	12.4	36
22	0.7	6	7	11.2	38
23	1.2	6	7	14.4	30
24	26	7	7	191	10
25	2.8	5	3	17	25
26	10	7	5	75	16
27	21	7	9	156	11
28	7	7	6	55	20
29	3.3	3	3	12.9	34
30	1.1	2	3	5.2	44
31	13.6	7	7	102.2	12
32	3.1	4	3	15.4	28

#PF = Number of Principal Functions WVs = Wetland Value score

Table 1 (cont.)

Wetland ID	Size(acres)	#PF	WVs	Total Score	Rank
34	0.5	1	4	4.5	45
35	Not accessible				
36	Not accessible				
37	1.6	2	5	8.2	41
44	8	7	5	61	18
45	0.5	6	4	7	42
Total Acres	529.23				

#PF = Number of Principal Functions identified in the Wetland Evaluation

WVs = Wetland Values score for Each Wetland

Table 2

Newfields Tidal Wetlands Ranking

Wetland ID	Size	#PF	WVs	Total Score	Tidal Importance	Rank
33	28 x	6	+ 8	= 176	x 2 = 352	3
38	18	6	8	116	232	8
39	3	6	9	27	54	21
40	3.12	6	8	26.72	53.44	22
41	5.15	6	8	38.9	77.8	15
42	4.4	6	6	32.4	64.8	17
43	13	6	8	86	172	9
Total Acres	74.67					

Tidal Importance = multiply by 2

Table 3

Tier One All wetlands with a score over 150

Wetland ID	Size	Score	Rank
1	94.6	671.2	1
2	86.3	613.1	2
33 (T)	28	352	3
15	49.3	352	4
5	48.5	346	5
13	45	324	6
10	45	324	7
38 (T)	18	232	8
43 (T)	13	172	9
24	26	191	10
27	21	156	11
Total acres	474.7		

(T) = Tidal wetland

Table 4

Tier Two
All wetlands with a score over 50 and under 150

Wetland ID	Size	Score	Rank
31	13.6	102	12
11	15	97	13
17	10.6	80.2	14
41 (T)	5.15	77.8	15
26	10	75	16
42 (T)	4.4	64.8	17
44	8	61	18
9	8	57	19
28	7	55	20
39 (T)	3	54	21
40 (T)	3.12	53.44	22
Total acres	87.87		

(T) = Tidal wetland

Table 5

Tier Three All wetlands with a score under 20

Wetland ID	Size	Score	Rank
15b	4	19	23
16a	2	17	24
25	2.8	17	25
20	1.4	16.8	26
8	2.4	15.6	27
32	3.1	15.4	28
14	1.7	15.2	29
23	1.2	14.4	30
7	1.3	13.8	31
18	1.4	13.4	32
6	3.4	13.2	33
29	3.3	12.9	34
3	2.5	12.5	35
21	0.9	12.4	36
19	1.9	11.6	37
22	0.7	11.2	38
16b	2	11	39
12	1.2	9	40
37	1.6	8.2	41
45	0.5	7	42
4	0.9	5.8	43
30	1.1	5.2	44
34	0.5	4.5	45
Total acres	45.5		

IV. RECOMMENDATIONS

Prime Wetland Recommendations

West Environmental, Inc. (WEI) recommends all of the wetlands in Tier 1 and Tier 2 be nominated as prime wetland candidates for designation by Newfields to the NHDES Wetlands Bureau. These 22 wetlands represent the highest functioning wetlands that provide critical habitat, crucial wetlands function and recreational and educational opportunities to the residents of Newfields. All of these wetlands qualify for Prime Wetland status and the majority of them are identified as highest value wildlife habitat of state importance in the NH Fish & Game's Wildlife Action Plan (2006).

It is recommended that the boundaries of these wetlands be finalized and digitized for placement on the Newfields Tax Maps as part of the local Prime Wetland Designation. The Newfields Conservation Commission should engage the Newfields Planning Board in this process and a warrant article should be crafted per RSA 482-A:15 for local Prime Wetland Designation. A public hearing should be held presenting the information regarding these wetlands and the public should have the opportunity to review the wetland maps and reports and ask questions. When and if the public approves these wetlands for Prime Designation, a final report with the Prime Wetland tax map overlays should be submitted to the NHDES Wetlands Bureau for their acceptance.

Vernal Pool Survey

A significant number of the Tier 3 wetlands provide critical vernal pool habitat that may be utilized by spotted or Blanding's turtles. Wetlands 16a, 16b, 19, 20, 21, 22 and 23 all have the potential to be important habitat for these turtle species and deserve further study. Numerous smaller vernal pools were also identified during field inspections. The presence of this large vernal pool cluster in Newfields is unique to southeastern New Hampshire. A Vernal Pool Survey conducted during amphibian and turtle breeding season would help determine whether these wetlands in fact provide rare species habitat. This information could then be utilized in determining how these wetlands should be protected in the future.

Wetland Restoration Projects

Several of the wetlands identified in this study have the potential for some degree or form of restoration. Alterations to wetland hydrology, inadequate culvert sizing, and disturbance/encroachment were observed in some of the wetlands. Several of these wetlands have invasive species which could be controlled through management and better storm water protection in the wetlands watershed. These areas should be further evaluated and landowners could be contacted in a cooperative effort to restore wetland function lost to impacts and degradation. Grants could potentially be obtained to fund these restoration projects.

Wetland Ordinance Revisions

Another option for Newfields would be to amend Article VII Wetland Ordinance of the Newfields Zoning Ordinances to reference the information contained in this study and to increase protection of prime wetland candidates with greater setbacks and more restrictive buffer zones. This effort would be supported by the data collected in the wetland evaluation and would provide a higher level of protection to these critical resource areas.

1. This photo shows the phragmites invading Wetland 31B.

2. This photo shows the salt shed located in Wetland 31B.

3. This photo shows where the water drains straight down into Wetland 31B.

4. This photo shows Wetland 30.

5. This photo shows the stream channel in Wetland 30. This channel is about 2 feet wide with a sandy, leafy bottom.

Newfields Wetland Mapping Report

Prepared for:

The Town of Newfields
Conservation Commission

February 2006

Prepared by:

WEST ENVIRONMENTAL INC

122 Mast Road, Suite 6, Lee, NH 03824
Phone 603-659-0416 ♦ Fax 603-659-0418

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Appendices

I. INTRODUCTION

West Environmental, Inc. has prepared this report to document the Wetland Mapping performed in 2005 for the Newfields Conservation Commission. The purpose of this project is to begin the inventory of wetland resources within the Town of Newfields. This report documents the mapping portion of the Wetland Inventory. The following sections of the report detail the methodology used to map the forty-five wetland areas were previously identified on a town-wide surface water resources map (see Appendix A). The Rockingham County soil survey map of Newfields was also consulted to located potential wetlands (see Appendix B).

West Environmental, Inc. has included recommendations for how the results of this mapping can be utilized by the Town of Newfields in the future.

II. METHODOLOGY

As discussed, to prepare accurate wetland boundaries, an aerial photo interpretation was completed using 2005 aerial photos at a scale of 1 inch to 600 feet. This photography was flown in color in May of 2005 specifically for this project. This photography was interpreted by Janice Stone, Aerial Photo Expert (see a copy of a letter by Janice in Appendix C). This interpretation included depicting the wetland boundaries and classification based on the USFWS Cowardin System (please see an explanation of this classification system on pages 5 - 8). After this interpretation, the wetland boundaries were plotted onto an aerial photo overlay. Wetland boundaries have not been confirmed in the field.

III. EXPLANATION OF THE COWARDIN CLASSIFICATION SYSTEM

In 1979, the U.S. Fish & Wildlife Service (USFWS) published a classification of wetlands and deepwater habitats (Cowardin et al., 1979). In this classification system, wetlands are defined by plants (hydrophytes), soils (hydric soils), and frequency of flooding.

The structure of the classification scheme is hierarchical, with systems forming the highest level of the classification hierarchy. Four of these systems are described below:

1. **Estuarine System –** Consists of tidal wetlands that are periodically inundated by ocean water including salt marshes and fringe wetlands.

2. **Riverine System** – All fresh water rivers and their tributaries are included in this system.

3. **Lacustrine System –** Includes areas of open water greater than 20 acres of more than 6.6 feet in depth.

4. **Palustrine System –** All nontidal wetlands dominated by trees, shrubs, and persistent emergent herbaceous plants.

Within these four systems, wetlands are further divided into a number of classes. The classes which are important to the remapping of Exeter Prime Wetlands are as follows:

a) **Open Water** – Areas of water where there are no beds of emergent, submergent, or floating vegetation.

b) **Aquatic Bed** – Water areas dominated by plants that grow principally on or below the surface of the water for most of the growing season, (e.g. Pondweeds, Waterlillies, Water Milfoil).

c) **Emergent Wetland** – Characterized by rooted herbaceous and grasslike plants which stand erect above the water or ground surface, (e.g. Cattails, Pickerel Weed).

d) **Scrub-Shrub Wetland** – Wetlands dominated by shrubs and tree saplings less than 20 feet in height, (e.g. Buttonbush, Alders, Red Maple saplings).

e) **Forested Wetland** – Wetlands dominated by trees taller than 20 feet in height, e.g. Red Maple, American Elm, Ashes, Spruce.

WEI has provided the abbreviations of wetland classifications and a description of each for clarification purposes. These individual classifications can be observed on the aerial photo at each wetland – these classifications describe the individual wetland components found within the larger wetland. To understand the interpretation of an abbreviated classification more closely, please see the example on page 8.

Estuarine

Tidal Marsh

E2EM1P	Estuarine intertidal emergent persistent irregularly flooded
E2EM1P6	Estuarine intertidal emergent persistent irregularly flooded Oliogohaline
E2EM1Pd	Estuarine intertidal emergent persistent irregularly flooded ditched

Palustrine

Forested Wetlands

PFO1E	Palustrine forested broad-leaved deciduous seasonally flooded / saturated
PFO1/4E	Palustrine forested broad-leaved deciduous needle-leaved evergreen
PFO1/EM1Fb	Palustrine forested broad-leaved deciduous emergent persistent semi-permanently flooded beaver
PFO1/SS1E	Palustrine forested broad-leaved deciduous scrub-shrub broad-leaved deciduous seasonally flooded / saturated
PFO2/B	Palustrine forested needle-leaved deciduous saturated
PFO4/1E	Palustrine forested needle-leaved deciduous forested evergreen
PFO4B	Palustrine forested broad-leaved deciduous needle-leaved evergreen saturated

PFO4E	Palustrine forested needle-leaved evergreen seasonally flooded / saturated
PFO5Fb	Palustrine forested dead semi-permanently flooded beaver

Scrub Shrub Swamps

PSS1E	Palustrine scrub-shrub broad-leaved deciduous seasonally flooded / saturated
PSS1F	Palustrine scrub-shrub broad-leaved deciduous semi-permanently flooded
PSS1/EM1E	Palustrine scrub-shrub broad-leaved deciduous emergent persistent broad-leaved deciduous seasonally flooded / saturated
PSS1/FO1E	Palustrine scrub-shrub broad-leaved deciduous forested broad-leaved deciduous seasonally flooded / saturated
PSS3B	Palustrine scrub-shrub broad-leaved evergreen saturated
PSS3/1B	Palustrine scrub-shrub broad-leaved evergreen broad-leaved deciduous saturated

Marsh Systems

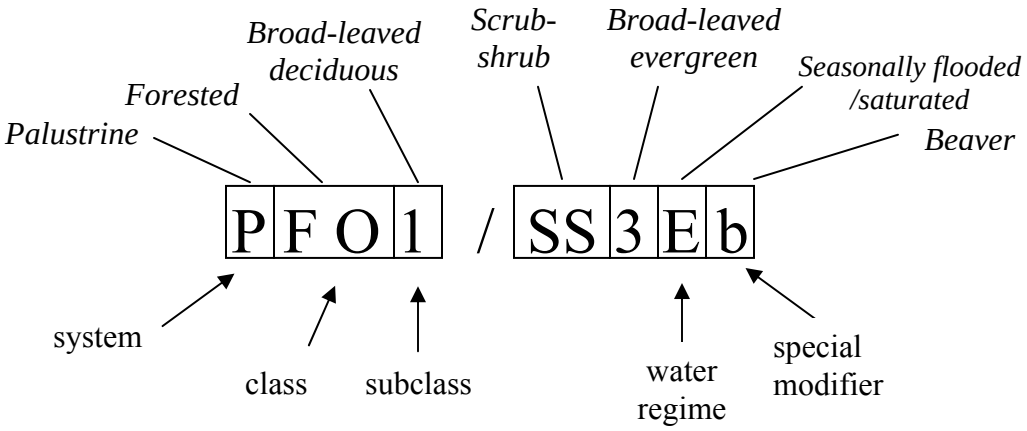
PEM1E	Palustrine emergent persistent broad-leaved deciduous seasonally flooded / saturated
PEM1Fb	Palustrine emergent persistent broad-leaved deciduous semi-permanently flooded beaver
PEM1/SS1E	Palustrine emergent persistent broad-leaved deciduous scrub-shrub broad-leaved deciduous seasonally flooded / saturated

Open Water Systems

PUBFb	Palustrine unconsolidated bottom semi-permanently flooded beaver
PUBH	Palustrine unconsolidated bottom permanently flooded
PUB/EM1Fb	Palustrine unconsolidated bottom emergent persistent broad-leaved deciduous semi-permanently flooded beaver
PUBGx	Palustrine unconsolidated bottom intermittently exposed excavated

Note: There are a few wetlands with (vp) noted next to the classification. These areas are believed to be vernal pools but must be field verified.

Example



IV. FINDINGS

Newfields Wetland Inventory

Wetland #	Size (in acres)	20 or more Acres	10-19 Acres	2-9 Acres	< 2 Acres	Dominant Classification
1a	55.7	X				PFO1/4E
1b	9.0			X		PEM1E
1c	6.8			X		PFO4/1E
2	86.3	X				PFO1E
3	33.0	X				PEM1Fb
4	0.9				X	PFO4E
5	48.5	X				PEM1E
6	2.7			X		PFO4/1Ed
7	1.3				X	PFO4/1E
8	2.1			X		PEM1E
9	6.7			X		PSS1E
10/13	91.1	X				PFO4/1E & PUBHh
11	15.0		X			PSS1/EM1Ed
12	1.2				X	PFO1E
14	1.7				X	PFO4E
15	53.3	X				PFO1/SS1E
16	1.6				X	PSS1F
17	10.6		X			PFO1/4Ed
18	1.4				X	PFO1E
19	1.9				X	PFO1E
20	1.4				X	PFO4/1E
21	0.9				X	PFO4/SS1E
22	0.7				X	PFO1E
23	1.2				X	PSS1E
24	26.4	X				PSS1E
25	2.8			X		PFO1Cd
26	10.0			X		PFO1Ed
27	21.1	X				PUBH/SS1E
28	7.0			X		PEM1Fb
29	3.3			X		PFO4/1E

Wetland #	Size (in acres)	20 or more Acres	10-19 Acres	2-9 Acres	< 2 Acres	Dominant Classification
30	1.1				X	PFO1/4E
31	5.8			X		PEM1E
32	3.1			X		PFO1E
33	46.8	X				E2EM1P
34	0.5				X	PFO4/1E
35	0.3				X	PSS1C
37	1.6				X	PSS1E
39	2.96			X		E2EM1P
40	3.12			X		E2EM1P/PEM1E
41	5.15			X		E2EM1P
42	4.37			X		E2EM1P
43	12.79		X			E2EM1P
44	5.77			X		PFO1/4E
45	1.40				X	PFO1/4E

Total Acres of Wetland: 600.1

V. RECOMMENDATIONS

West Environmental, Inc. recommends that the next step for the Town of Newfields is to evaluate the functions and values of the more than 45 wetlands mapped onto the aerial photos through field inspection. In addition, the field inspection could verify wetland boundaries and wetland connections. The ultimate goal of the study would be to develop a list of the Prime Wetland Candidates from the wetlands that are evaluated. The Prime Wetland regulations for evaluation and designation are located in Appendix F.

Newfields Prime Wetland Candidates

Presented by:

WEST ENVIRONMENTAL INC.

The Process

- Present Recommendations in Public Hearing
- Final Decision of Prime Wetland Candidates
- Final Mapping of Prime Wetland Candidates
- Digitize Prime Wetland Boundaries
- Prepare Tax Map overlays
- Town Vote
- Submittal to NHDES

Wetland Functions/ Values NH Method

1	Groundwater Recharge/Discharge	Groundwater Use Potential
2	Floodflow Alteration	Flood Control Potential
3	Sediment/Toxicant/Pathogen Retention	Sediment Trapping
4	Nutrient Removal/Retention Transformation	Nutrient Attenuation
5	Production Export	(No equivalent)
6	Sediment/Shoreline Stabilization	Shoreline Anchoring & Dissipation of Erosive Forces
7	Wildlife Habitat	Wildlife Habitat
8	Recreational Value	Water-based Recreation
9	Educational/Scientific Value	Educational Potential
10	Uniqueness/Heritage	Noteworthiness
11	Restoration Potential	(No equivalent)

Prime Wetland Mapping

- Wetlands mapped onto 2005 stereo color aerial photos
- Wetland boundaries were field verified
- Must be able to identify and defend Prime Wetland Boundary

WEI Recommendations

- 22 candidates
- Tier 1 and 2 wetlands
- Smaller sized tidal wetlands should be considered because of their high function

Tier One – all wetlands with a score over 150

Wetland ID	Size	Score	Rank
1	94.6	671.2	1
2	86.3	613.1	2
33 (T)	28	352	3
15	49.3	352	4
5	48.5	346	5
13	45	324	6
10	45	324	7
38 (T)	18	232	8
43 (T)	13	172	9
24	26	191	10
27	21	156	11

Total acres 474.7

(T) = Tidal wetland

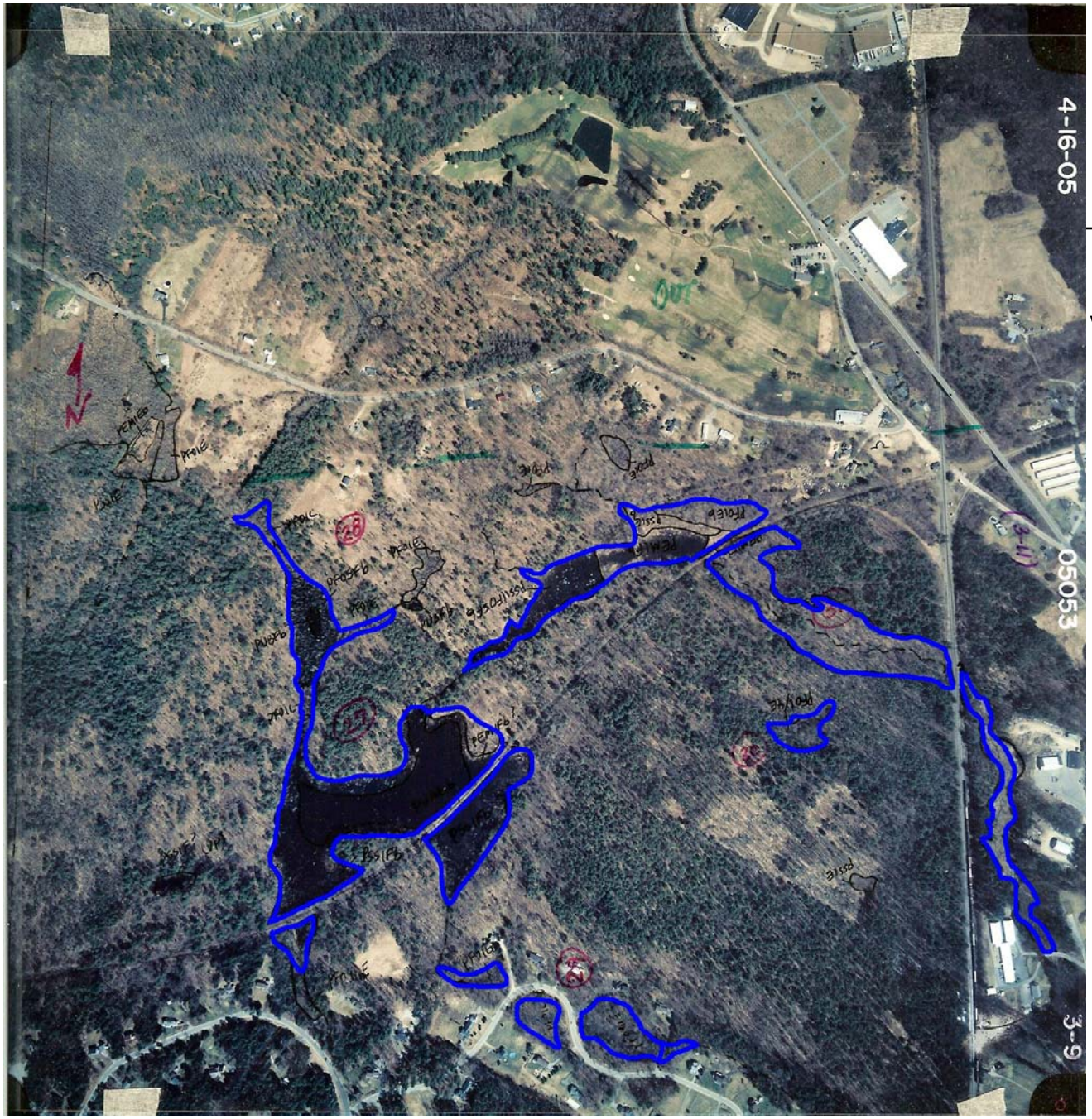
Wetland 33

Wetland 33

Tier Two – all wetlands with a score over 50 and under 150

Wetland ID	Size	Score	Rank
31	13.6	102	12
11	15	97	13
17	10.6	80.2	14
41 (T)	5.15	77.8	15
26	10	75	16
42 (T)	4.4	64.8	17
44	8	61	18
9	8	57	19
28	7	55	20
39 (T)	3	54	21
40 (T)	3.12	53.44	22
Total acres	87.87		

(T) = Tidal wetland



Wetland 27

Wetland 27

Why Designate Prime Wetlands?

- Greater potential to protect and preserve these valuable Portsmouth natural resources.

- Wetland Bureau examines applications for potential work or development **in** or **adjacent to** Prime Wetlands much more closely.

Wt 703.01 Criteria for Approval of Projects in and Adjacent to Prime Wetlands

(b) Prior to approving an application for any project in or contiguous to a prime wetland, the applicant shall show, and the department shall find, as required under RSA 482-A:11, IV, based on clear and convincing evidence, that:

Wt 703.01 Criteria for Approval of Projects in and Adjacent to Prime Wetlands (cont.)

(1) No significant net loss of values;

(3) The project could not be relocated to avoid impacts on prime wetlands…;

(4) The project's impacts on prime wetlands are the minimum practical …; and

(5) The project incorporates appropriate and practicable compensatory mitigation for each of the wetland functions and values of RSA 482-A:1, and each of the functions and values.

Wt 703.03 Public Hearing

A public hearing shall be held by the department prior to approval of an application for any project in or contiguous to a prime wetland.

Benefits

Prime Wetland Designation benefits towns as a planning tool and engages the NHDES Wetlands Bureau in local wetland protection.