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Town of Sandown Wetland Evaluation Report

West Environmental

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Town of Sandown Wetland Evaluation Report

Prepared for:

Town of Sandown, NH
Conservation Commission



August 2008

Prepared by:



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I. INTRODUCTION

West Environmental, Inc. (WEI) has prepared this report to document the evaluation of 36 wetlands within the Town of Sandown, New Hampshire. These wetlands were identified on the Sandown Preliminary Inventory Map (October 11, 2007), also prepared by WEI and Neatline Associates. The field work for this evaluation was conducted from February to July 2008 and included the verification of aerial photo interpreted wetland boundaries and functional assessments.

The purpose of this wetland evaluation was to gain a better understanding of the wetland resources within the Town of Sandown 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 Sandown 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 36 wetlands and include the supporting information used to make these determinations.

II. METHODOLOGY

West Environmental, Inc. identified 36 wetlands for the inventory on the Sandown Preliminary Wetland Inventory Map (October 11, 2007). 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

Thirty-six wetland systems were mapped onto stereo black & white photographs with a flight date of March 28, 2006. Individual wetland components were classified using the US Fish and Wildlife-Cowardin classification system. WEI staff then field inspected accessible wetlands during the 2008 field season. The wetland boundaries were verified to assess general accuracy and hydrologic connections. Wetland boundary revisions were drawn directly onto the aerial photo overlays. These color aerial photo overlays are included in the report and the boundary for each wetland is shown in dark blue. 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 functions and values.

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.

	<u>Wetland Functions/Values</u>	<u>NH Method</u>
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)

III. FINDINGS

The 36 wetland systems identified for the inventory include wetlands ranging in size from 2.5 to 120 acres. The mapped area of the 36 wetlands totals approximately 793 acres. Forested and scrub-shrub wetlands were the dominant wetland type. Beaver activity was present in a significant percentage of the wetlands creating open water, deep marsh, and shallow marsh habitat. The wetlands within Sandown are associated with two main watersheds: the Exeter River and the Powwow River. By far the majority of wetlands drain into the Exeter River which enters the west portion of town from Chester and exits into the northeast portion of Sandown in Danville, near the Fremont town line. Wetlands associated with Punch Pond and Cub Pond in the southeast portion of town are drained by Colby Brook. Wetlands associated with Angle Pond drain into Bartlett Brook. Both of these brooks are tributaries to the Powwow River. The freshwater wetland systems identified in the inventory include forested and scrub-shrub swamps, wet meadows, marshes, and beaver ponds. Most of the freshwater wetlands are associated with intermittent streams and many of them are interconnected and drain into the Exeter 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 Table 1 Freshwater 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.

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.

Based on the ranking system, four distinct tiers of wetlands emerged. Tier 1 includes 9 of the largest, most diverse freshwater wetlands in Sandown. These wetlands represent 490

acres. These wetlands range in size from 29 to 120 and all of them score over 200 in their evaluations.

Tier 2 includes 9 wetlands that score over 100 and under 200 except for two wetlands that are unique plant and animal habitats. These wetlands, although smaller than the Tier 1 wetlands, are diverse and high functioning. They range from an 11 acre great blue heron rookery to a 26 acre scrub-shrub swamp in the northwest portion of Sandown. The total acreage of this tier is 176.

Tier 3 includes the next 5 wetlands ranging from scores of 80 to 100. These wetlands range in size from 11 to 16 acres and provide significant wetland function and value. The total acreage of this tier is 65.

Tier 4 includes the remaining 13 wetlands that scored below 80. All of these wetlands still qualify as prime but they do not have the high function and value that the top 23 wetlands have.

Table 1

Sandown Prime Wetland Candidate Ranking

<u>Wetland ID</u>	<u>Size (acres)</u>	<u>#PF</u>	<u>WVs</u>	<u>Total Score</u>	<u>Rank</u>
1	56 x	7	+ 7	= 399	3
2	8	7	5	61	26
3	38	6	5	233	7
4	12	7	5	89	19
5	16	5	4	84	20
6	14	7	6	104	16
7	41	7	5	292	5
8	20	6	6	126	14
9a	43	7	7	308	4
9b	7	6	7	49	30
9c *	11	5	8	63	24
10a	19	6	5	119	15
10b	2	4	3	11	36
11 **	17	5	5	90	18
12	6	3	6	23	35
13	29	7	6	209	9
14	23	7	8	169	10
15	9	6	5	59	27
16	23	7	6	167	12
17	11	7	5	82	22
18	40	7	6	288	6
19	91	7	9	646	2
20	32	7	9	233	8
21	9	7	8	71	23
22	7	6	8	50	29
23	8	7	6	62	25
24	120	7	8	848	1
25	7	6	5	47	31
26	23	7	7	168	11
27	4	6	5	29	34
28	26	6	6	162	13
29	9	5	6	51	28
30	13	6	5	83	21
31	13	7	8	99	17
32	6	6	6	42	32
33	7.5	4	7	37	33

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

* Great blue heron rookery

** Exemplary plant community

Table 2

Tier One All wetlands with a score over 200

<u>Wetland ID</u>	<u>Size (acres)</u>	<u>Total Score</u>	<u>Rank</u>
24	120	848	1
19	91	646	2
1	56	399	3
9a	43	308	4
7	41	292	5
18	40	288	6
3	38	233	7
20	32	233	8
13	29	209	9
Total acres	490		

Table 3

Tier Two

All wetlands with a score over 100 and under 200

Wetland ID	Size	Score	Rank
14	23	169	10
26	23	168	11
16	23	167	12
28	26	162	13
8	20	126	14
10a	19	119	15
6	14	104	16
11 *	17	90	18
9c **	11	63	24
Total acres	176		

* Great blue heron rookery

** Exemplary plant community

Table 4

Tier Three
All wetlands with a score over 80 and under 100

<u>Wetland ID</u>	<u>Size</u>	<u>Score</u>	<u>Rank</u>
31	13	99	17
4	12	89	19
5	16	84	20
30	13	83	21
17	11	82	22
Total acres	65		

Table 5

Tier Four All wetlands with a score under 80

<u>Wetland ID</u>	<u>Size (acres)</u>	<u>Total Score</u>	<u>Rank</u>
21	9	71	23
23	8	62	25
2	8	61	26
15	9	59	27
29	9	51	28
22	7	50	29
9b	7	49	30
25	7	47	31
32	6	42	32
33 *	7.5	37	33
27	4	29	34
12	6	23	35
10b	2	11	36
Total acres	89.5		

* does not qualify

IV. RECOMMENDATIONS

Prime Wetland Recommendations

West Environmental, Inc. (WEI) recommends all of the wetlands in Tiers 1, 2 & 3 be nominated as prime wetland candidates for designation by Sandown to the NHDES Wetlands Bureau. These 23 wetlands represent the highest functioning wetlands that provide critical habitat, crucial wetlands function and recreational and educational opportunities to the residents of Sandown. All of these wetlands qualify for Prime Wetland status and many 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 Sandown Tax Maps as part of the local Prime Wetland Designation. The Sandown Conservation Commission should engage the Sandown Planning Board and Selectmen 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. Numerous smaller vernal pools were also identified during field inspections. 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 Sandown would be to amend Article VII Wetland Ordinance of the Sandown 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.

V. AERIAL PHOTO WETLAND MAPS
WETLAND INVENTORY DATA FORMS
PHOTO DOCUMENTATION



WETLAND INVENTORY DATA FORM

WETLAND ID:

CLASSIFICATION:

ACREAGE:

WEI PROJECT #: 07-069NH

SCIENTIST: Mark West

DATE:

WETLAND TYPE:

- | | | | |
|--|---|--|--|
| <input type="checkbox"/> WOODED SWAMP
<input type="checkbox"/> MARSH
<input type="checkbox"/> WET MEADOW
<input type="checkbox"/> RIVER
<input type="checkbox"/> STREAM
<input type="checkbox"/> POND
<input type="checkbox"/> LAKE
<input type="checkbox"/> VERNAL POOL
<input type="checkbox"/> HUMAN MADE or OTHER
<input type="checkbox"/> BEAVER FLOWAGE | <input type="checkbox"/> Deciduous
<input type="checkbox"/> Freshwater Shallow
<input type="checkbox"/> Ditched
<input type="checkbox"/> Upper Perennial
<input type="checkbox"/> Perennial
Name:
Name:
<input type="checkbox"/> Documented
Description:
<input type="checkbox"/> Active | <input type="checkbox"/> Evergreen
<input type="checkbox"/> Freshwater Deep
<input type="checkbox"/> Grazed
<input type="checkbox"/> Lower Perennial
<input type="checkbox"/> Intermittent

<input type="checkbox"/> Potential

<input type="checkbox"/> Abandoned | <input type="checkbox"/> Scrub-Shrub
<input type="checkbox"/> Tidal

Order: |
|--|---|--|--|

WETLAND DESCRIPTION

WETLAND PLANT COMMUNITY DATA

TREE LAYER

SAPLING LAYER

SHRUB LAYER

HERBACEOUS LAYER

WETLAND SOILS DATA

WETLAND HYDROLOGY DATA:

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

WETLAND INVENTORY DATA FORM

WETLAND ID: #33

CLASSIFICATION: POWfb

ACREAGE: 7.5

WEI PROJECT #: 07-069NH

SCIENTIST: Earle Chase

DATE: 1/8/08

WETLAND TYPE:

- | | | | |
|--|--|--|--|
| <input type="checkbox"/> WOODED SWAMP | <input type="checkbox"/> Deciduous | <input type="checkbox"/> Evergreen | <input type="checkbox"/> Scrub-Shrub |
| <input checked="" type="checkbox"/> MARSH | <input checked="" type="checkbox"/> Freshwater Shallow | <input type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input type="checkbox"/> RIVER | <input type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: 1 st tributary to Exeter River |
| <input checked="" type="checkbox"/> STREAM | <input checked="" type="checkbox"/> Perennial | <input checked="" type="checkbox"/> Intermittent | |
| <input checked="" type="checkbox"/> POND | Name: Unnamed | | |
| <input type="checkbox"/> LAKE | Name: | | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |

WETLAND DESCRIPTION

This wetland contains a small surface water that has been historically impounded. A perennial stream exits this pond on the southeast. Beaver have occupied the pond and adjacent forested / scrub-shrub component. The immediate land on the east is being actively managed as a tree farm.

WETLAND PLANT COMMUNITY DATA

TREE LAYER

Absent

SAPLING LAYER

Absent

SHRUB LAYER

Absent

HERBACEOUS LAYER

Absent

WETLAND SOILS DATA

Adjacent soils are mapped in the Rockingham County Soil Survey as a (140) Chatfield-Hollis-Canton Complex. Typical inclusions (up to 25%) are Scarboro, Ossipee, and Greenwoods soils, all very poorly drained.

WETLAND HYDROLOGY DATA:

- This is a surface water (frozen during field inspection).
- This surface water normally flows to the southeast. Flowage is also directed northwesterly in the spring months.
- An intermittent flows from the southwest into this small pond.

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

Beaver (browse)
Coyote (tracks)
Grey squirrel (tracks)

Note: The wetland that is situated just northwest of this surface water is hydrologically connected via an overflow channel. This seasonal stream channel descends a short steep slope separating the two wetland systems.

WETLAND INVENTORY DATA FORM

WETLAND ID: #32

CLASSIFICATION: PUB3E/Fb

ACREAGE: 6.0

WEI PROJECT #: 07-069NH

SCIENTIST: Earle Chase

DATE: 3/6/08

WETLAND TYPE:

- | | | | |
|--|---|---|--------------------------------------|
| <input checked="" type="checkbox"/> WOODED SWAMP | <input type="checkbox"/> Deciduous | <input checked="" type="checkbox"/> Evergreen | <input type="checkbox"/> Scrub-Shrub |
| <input type="checkbox"/> MARSH | <input type="checkbox"/> Freshwater Shallow | <input type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input type="checkbox"/> RIVER | <input type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: |
| <input type="checkbox"/> STREAM | <input checked="" type="checkbox"/> Perennial | <input type="checkbox"/> Intermittent | |
| <input type="checkbox"/> POND | Name: | | |
| <input type="checkbox"/> LAKE | Name: | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input type="checkbox"/> Abandoned | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |
| <input checked="" type="checkbox"/> BEAVER FLOWAGE | <input checked="" type="checkbox"/> Active | | |

WETLAND DESCRIPTION

This wetland is situated in a drainageway / hollow that is oriented north and south. Beaver have occupied the wetland. The larger percentage (PUB3E/Fb) is a open water component. Flowage outlets from the south via a perennial stream.

WETLAND PLANT COMMUNITY DATA

TREE LAYER

Interspersed snags

SAPLING LAYER

Absent

SHRUB LAYER

Sweet pepperbush*
Buckthorn (spp.)*

HERBACEOUS LAYER

Wetland grasses (spp.)

*on perimeter

WETLAND SOILS DATA

The Rockingham County Soil Survey keys the underlying soils as (295) Greenwood mucky peat. The surface, subsoil, and substratum layers all consist of mucky peat. Greenwood soils are very poorly drained.

WETLAND HYDROLOGY DATA:

- Overall hydrology is being affected by activity of beaver – it appears a dam structure located in the south has backed surface water to the north
- Wetland #31 flows westwards into Wetland #32
- A perennial stream outlets from Wetland #2
- Evident aquifer transmissivity

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

- Beaver (a lodge, dam, browse)
- Coyote (tracks)
- Much of this wetland is contained within the Greenwood-Hooke conservation parcel

WETLAND INVENTORY DATA FORM

WETLAND ID: #31

CLASSIFICATION: PUB3E/Fb

ACREAGE: 13.0

WEI PROJECT #: 07-069NH

SCIENTIST: Earle Chase

DATE: 3/24/08

WETLAND TYPE:

- | | | | |
|--|--|---|--------------------------------------|
| <input checked="" type="checkbox"/> WOODED SWAMP | <input type="checkbox"/> Deciduous | <input type="checkbox"/> Evergreen | <input type="checkbox"/> Scrub-Shrub |
| <input checked="" type="checkbox"/> MARSH | <input checked="" type="checkbox"/> Freshwater Shallow | <input checked="" type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input type="checkbox"/> RIVER | <input type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: |
| <input checked="" type="checkbox"/> STREAM | <input type="checkbox"/> Perennial | <input checked="" type="checkbox"/> Intermittent | |
| <input type="checkbox"/> POND | Name: | (entering from the north) | |
| <input type="checkbox"/> LAKE | Name: | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input type="checkbox"/> Abandoned | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |
| <input checked="" type="checkbox"/> BEAVER FLOWAGE | <input checked="" type="checkbox"/> Active | | |

WETLAND DESCRIPTION

This wetland contains an active beaver colony. A series of dams have created two open water components. At least two lodges were observed. The wetland receives flowage from Wetlands #29 & 30 and empties into Wetland #32.

WETLAND PLANT COMMUNITY DATA

PUB3E/Fb (most western wetland component)

TREE LAYER

Interspersed dead snags

SAPLING LAYER

Absent

SHRUB LAYER

Absent

HERBACEOUS LAYER

Woolgrass

PUB3E/Fb; PFO5EFb (southeastern wetland component)

TREE LAYER

Dead snag component

SAPLING LAYER

Absent

SHRUB LAYER

Maleberry *
 Highbush blueberry*
 Buckthorn (spp.)*
 Speckled alder (heavily browsed)

HERBACEOUS LAYER

Woolgrass

*located on perimeter

WETLAND SOILS DATA

The Rockingham County Soil Survey identifies the underlying soils as a (140D) Chatfield-Hollis-Canton complex. Inclusions of wetland soils make-up about 25% of this soil unit. Among these are Walpole soils which are found in drainageways. Scarborough, and Greenwood soils in hollows. The current inundation of soils by beaver activity has permanently altered these soils.

WETLAND HYDROLOGY DATA:

- Wetland #31 is hydrologically connected with Wetlands #29 & 30
- A series of beaver dams have created components of surface water
- The wetland drains both southerly and westerly into Wetland #32
- Aquifer transmissivity present

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

- Beaver (lodges, dams, browse)
- Muskrat (lodge, broad-leaved cattail habitat)
- A pair of mallard ducks (visual)
- Wetland #31 contains a substantial snag component
- Situated in close proximity to the Greenwood-Hooke conservation parcel
- Noted ATV and 4-wheel drive wetland impacts

WETLAND INVENTORY DATA FORM

WETLAND ID: #30

CLASSIFICATION: PFO5E/PEM1E

ACREAGE: 13.0

WEI PROJECT #: 07-069NH

SCIENTIST: Earle Chase

DATE: 3/6/08

WETLAND TYPE:

- | | | | |
|--|--|--|--------------------------------------|
| <input checked="" type="checkbox"/> WOODED SWAMP | <input type="checkbox"/> Deciduous | <input type="checkbox"/> Evergreen | <input type="checkbox"/> Scrub-Shrub |
| <input checked="" type="checkbox"/> MARSH | <input checked="" type="checkbox"/> Freshwater Shallow | <input type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input type="checkbox"/> RIVER | <input type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: |
| <input type="checkbox"/> STREAM | <input type="checkbox"/> Perennial | <input type="checkbox"/> Intermittent | |
| <input type="checkbox"/> POND | Name: | | |
| <input type="checkbox"/> LAKE | Name: | | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |
| <input type="checkbox"/> BEAVER FLOWAGE | | | |

WETLAND DESCRIPTION

This wetland is largely emergent with a component of overtopping snags. This wetland is situated on the west by gravel operations and development on the south. Land usage has removed much of the pre-existing woodland buffer. The wetland drains in a westerly direction.

WETLAND PLANT COMMUNITY DATA

TREE LAYER

Snag component

SAPLING LAYER

Absent

SHRUB LAYER

Steeplebush (on perimeter)
Meadowsweet (on perimeter)

HERBACEOUS LAYER

Broad-leaved cattail
Canada rush
Swamp dewberry

WETLAND SOILS DATA

The Rockingham County Soil Survey identifies the underlying soil as a (295) Greenwood mucky peat. The surface layer, subsoil, and substratum all consist of a mucky peat, very poorly drained.

WETLAND HYDROLOGY DATA:

- This wetland is hydrologically connected with Wetland #31
- The wetland flowage drains southwesterly
- Evident aquifer transmissivity

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

- Red-winged black birds (audio)
- A single great blue heron nest was noted
- The existing wetland boundary was flagged along the northern perimeter possibly suggesting future development

WETLAND INVENTORY DATA FORM

WETLAND ID: #29

CLASSIFICATION: PUB3Fb; PSS3E/Fb

ACREAGE: 9.0

WEI PROJECT #: 07-069NH

SCIENTIST: Earle Chase

DATE: 2/25/08

WETLAND TYPE:

- | | | | |
|--|---|--|---|
| <input checked="" type="checkbox"/> WOODED SWAMP | <input type="checkbox"/> Deciduous | <input type="checkbox"/> Evergreen | <input checked="" type="checkbox"/> Scrub-Shrub |
| <input type="checkbox"/> MARSH | <input type="checkbox"/> Freshwater Shallow | <input type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input type="checkbox"/> RIVER | <input type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: |
| <input type="checkbox"/> STREAM | <input checked="" type="checkbox"/> Perennial | <input checked="" type="checkbox"/> Intermittent | |
| <input checked="" type="checkbox"/> POND | Name: Hunt Pond | | |
| <input type="checkbox"/> LAKE | Name: | | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |
| <input checked="" type="checkbox"/> BEAVER FLOWAGE | | | |

WETLAND DESCRIPTION

This wetland contains a large open water component with an internal scrub-shrub leatherleaf plant community. The wetland is occupied by a large colony of beaver. Six individual lodges were observed.

WETLAND PLANT COMMUNITY DATA

TREE LAYER

Interspersed snags

SAPLING LAYER

Absent

SHRUB LAYER

Leatherleaf (90%)
Red maple

HERBACEOUS LAYER

Broad-leaved cattail

Invasives: common reed and greenbriar

WETLAND SOILS DATA

The Rockingham County Soil Survey identifies the underlying soil as a (97) Greenwood or Ossipee soil, ponded. The surface layer, subsoil, and substratum all consist of mucky peat, very poorly drained.

WETLAND HYDROLOGY DATA:

- This wetland is hydrologically connected with Wetland #31
- Current hydrology is being affected by a large colony of beaver
- An intermittent feeds the wetland from the north; a perennial outlets the wetland on the south
- Evident aquifer transmissivity

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

- Interspersed snags were evident providing potential cavities
- A few wood duck houses were observed suggesting that this species is utilizing the wetland's overall habitat
- This wetland is situated in close proximity to the Greenwood-Hooke Conservation Area

WETLAND INVENTORY DATA FORM

WETLAND ID: #28

CLASSIFICATION: PUB3Eb; PEM1Eb;
PEM1Eb/PFo5Eb

ACREAGE: 26.0

WEI PROJECT #: 07-069NH

SCIENTIST: Earle Chase

DATE: 2/25/08

WETLAND TYPE:

- | | | | |
|--|--|---|---|
| <input type="checkbox"/> WOODED SWAMP | <input type="checkbox"/> Deciduous | <input type="checkbox"/> Evergreen | <input checked="" type="checkbox"/> Scrub-Shrub |
| <input checked="" type="checkbox"/> MARSH | <input checked="" type="checkbox"/> Freshwater Shallow | <input checked="" type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input type="checkbox"/> RIVER | <input type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: |
| <input type="checkbox"/> STREAM | <input type="checkbox"/> Perennial | <input type="checkbox"/> Intermittent | |
| <input type="checkbox"/> POND | Name: | | |
| <input type="checkbox"/> LAKE | Name: | | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |
| <input checked="" type="checkbox"/> BEAVER FLOWAGE | | | |

WETLAND DESCRIPTION

Wetland #28 is a large interconnecting beaver flowage. Beaver dams divide open water and emergent marsh wetland components. It is situated between the separate developments on the north and a newer subdivision on the southwest.

WETLAND PLANT COMMUNITY DATA

TREE LAYER

Absent

SAPLING LAYER

Absent

SHRUB LAYER

Sweet pepperbush*
Buckthorn (spp.)*

*noted on perimeter

HERBACEOUS LAYER

Broad-leaved cattail
Woolgrass
2 lg components of phragmites

Invasives: common reed (phragmites), buckthorn (spp.), and greenbriar

WETLAND SOILS DATA

The Rockingham County Soil Survey identifies the underlying soil as a (97) Greenwood & Ossipee soil, ponded. The surface layer, subsoil, and substratum all consist of mucky peat. Beaver dams were in evidence raising the overall water level.

WETLAND HYDROLOGY DATA:

Beaver have altered the hydrology within this wetland. Beaver have built at least 3 dams created 3 ponded areas. Adjacent wetland components are emergent in character.

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

- Beaver (at least 2 lodges, dams, browse)
- Fisher (tracks)

WETLAND INVENTORY DATA FORM

WETLAND ID: #27

CLASSIFICATION: PEM1Eb/PFO5Eb

ACREAGE: 4.0

WEI PROJECT #: 07-069NH

SCIENTIST: Earle Chase

DATE: 3/10/08

WETLAND TYPE:

- | | | | |
|--|--|--|--------------------------------------|
| <input checked="" type="checkbox"/> WOODED SWAMP | <input type="checkbox"/> Deciduous | <input type="checkbox"/> Evergreen | <input type="checkbox"/> Scrub-Shrub |
| <input checked="" type="checkbox"/> MARSH | <input checked="" type="checkbox"/> Freshwater Shallow | <input type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input type="checkbox"/> RIVER | <input type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: |
| <input checked="" type="checkbox"/> STREAM | <input type="checkbox"/> Perennial | <input checked="" type="checkbox"/> Intermittent | |
| <input type="checkbox"/> POND | Name: | | |
| <input type="checkbox"/> LAKE | Name: | | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |
| <input checked="" type="checkbox"/> BEAVER FLOWAGE | | | |

WETLAND DESCRIPTION

This wetland is situated just east of the Chester town line. Beaver have occupied this wetland (earlier lodge, dam and browse evident) but have since relocated. It appears that the adjacent topography (moderate to steep) did not allow for expansion. The wetland is squeezed between two subdivisions.

WETLAND PLANT COMMUNITY DATA

TREE LAYER

Dead snag component

SAPLING LAYER

Absent

SHRUB LAYER

Highbush blueberry*
Steeplebush*
Buckthorn (spp.)*

*All located on perimeter

HERBACEOUS LAYER

Broad-leaved cattail (90%)
Woolgrass
Purple loosestrife

WETLAND SOILS DATA

The Rockingham County Soil Survey keys the soil as a (295) Ossipee mucky peat. The surface layer and subsoil consist of a mucky peat. The substratum consists of a greenish-gray clay loam.

WETLAND HYDROLOGY DATA:

Hydrology is being influenced by the impoundment of water by prior beaver occupation.

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

Beaver (lodge, dam, browse)

River otter (tracks)

This abandoned beaver flowage may intercept some amphibians during their migration to local vernal pools

WETLAND INVENTORY DATA FORM

WETLAND ID: #26

CLASSIFICATION: PFO1Ed/PSS1Ed;
PFO1Ed

ACREAGE: 23.0

WEI PROJECT #: 07-069NH

SCIENTIST: Earle Chase

DATE: 4/11/08

WETLAND TYPE:

- | | | | |
|--|---|--|---|
| <input checked="" type="checkbox"/> WOODED SWAMP | <input checked="" type="checkbox"/> Deciduous | <input type="checkbox"/> Evergreen | <input checked="" type="checkbox"/> Scrub-Shrub |
| <input type="checkbox"/> MARSH | <input type="checkbox"/> Freshwater Shallow | <input type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input checked="" type="checkbox"/> Ditched (extensively) | <input type="checkbox"/> Grazed | |
| <input checked="" type="checkbox"/> RIVER | <input checked="" type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: |
| <input type="checkbox"/> STREAM | <input type="checkbox"/> Perennial | <input type="checkbox"/> Intermittent | |
| <input type="checkbox"/> POND | Name: | | |
| <input type="checkbox"/> LAKE | Name: | | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |
| <input type="checkbox"/> BEAVER FLOWAGE | <input type="checkbox"/> Active | <input type="checkbox"/> Abandoned | |

WETLAND DESCRIPTION

Wetland #26 is forested and scrub-shrub in character. The wetland has been historically ditched. This wetland is hydrologically connected with the Exeter River, located to the north. The wetland straddles the Chester/Sandown town line.

WETLAND PLANT COMMUNITY DATA

TREE LAYER

Red maple

SAPLING LAYER

Red maple
American elm

SHRUB LAYER

Silky dogwood
Speckled alder
Northern arrowwood
Winterberry
Meadowsweet

HERBACEOUS LAYER

Tussock sedge
Cinnamon fern
Sphagnum moss
Blueflag

WETLAND SOILS DATA

When soil augering, 3-4' of mucky peat was revealed. The Rockingham County Soil Survey designated the soil within this wetland as a (295) Greenwood mucky peat, very poorly drained.

WETLAND HYDROLOGY DATA:

- Surficial rooting
- Pit & mound topography
- Standing water 3-4" deep
- Seasonal streams/historical ditch lines present
- Wetland is hydrologically connected with the Exeter River

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

- White tailed deer (scat, browse of silky dogwood, deer stand)
- Black capped chickadee (visual)
- Red winged blackbird (audio)

WETLAND INVENTORY DATA FORM

WETLAND ID: #25

CLASSIFICATION: PF01/4E // PSS1E

ACREAGE: 7.0

WEI PROJECT #: 07-069NH

SCIENTIST: Earle Chase

DATE: 4/11/08

WETLAND TYPE:

- | | | | |
|--|---|---|---|
| <input checked="" type="checkbox"/> WOODED SWAMP | <input checked="" type="checkbox"/> Deciduous | <input checked="" type="checkbox"/> Evergreen | <input checked="" type="checkbox"/> Scrub-Shrub |
| <input type="checkbox"/> MARSH | <input type="checkbox"/> Freshwater Shallow | <input type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input checked="" type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input type="checkbox"/> RIVER | <input type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: |
| <input type="checkbox"/> STREAM | <input type="checkbox"/> Perennial | <input type="checkbox"/> Intermittent | |
| <input type="checkbox"/> POND | Name: | | |
| <input type="checkbox"/> LAKE | Name: | | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |
| <input type="checkbox"/> BEAVER FLOWAGE | <input type="checkbox"/> Active | <input type="checkbox"/> Abandoned | |

WETLAND DESCRIPTION

Wetland #25 is forested in character with a scrub/shrub understory. A new 40-lot subdivision is located just north of this wetland. The density of the tree and shrub layers provides good cover to a variety of wildlife species within an area that is being rapidly developed.

WETLAND PLANT COMMUNITY DATA

TREE LAYER

Red maple
Black gum
Eastern hemlock
Yellow birch

SAPLING LAYER

Red maple
Yellow birch

SHRUB LAYER

Winterberry
Maleberry
Eastern hemlock
Sweet pepperbush

HERBACEOUS LAYER

Cinnamon fern
Sphagnum moss
Royal fern
Goldthread
Partridgeberry

WETLAND SOILS DATA

When soil augering, 2-3' of mucky peat was revealed. The Rockingham County Soil Survey designated the soil within this wetland as a (395) Chocorua mucky peat, very poorly drained.

WETLAND HYDROLOGY DATA:

- Saturation to the soil surface
- Surficial rooting
- Pit & mound topography
- Pockets of standing water 3-4" deep

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

- White breasted nuthatch
- Black capped chickadee
- A new 40-lot subdivision is located north of this wetland

WETLAND INVENTORY DATA FORM

WETLAND ID: #24

**CLASSIFICATION: PFO1/SS1Cb;
PSS1/EM1E; PSS1E**

ACREAGE: 120

WEI PROJECT #: 07-069NH

SCIENTIST: Mark West

DATE: 7/08

WETLAND TYPE:

- | | | | |
|--|---|---|---------------------------------------|
| <input checked="" type="checkbox"/> WOODED SWAMP | <input type="checkbox"/> Deciduous | <input type="checkbox"/> Evergreen | <input type="checkbox"/> Scrub-Shrub |
| <input type="checkbox"/> MARSH | <input type="checkbox"/> Freshwater Shallow | <input type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input checked="" type="checkbox"/> RIVER | <input type="checkbox"/> Upper Perennial | <input checked="" type="checkbox"/> Lower Perennial | Order: 3 rd - Exeter River |
| <input type="checkbox"/> STREAM | <input checked="" type="checkbox"/> Perennial | <input type="checkbox"/> Intermittent | |
| <input type="checkbox"/> POND | Name: | | |
| <input type="checkbox"/> LAKE | Name: | | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |
| <input type="checkbox"/> BEAVER FLOWAGE | <input type="checkbox"/> Active | <input type="checkbox"/> Abandoned | |

WETLAND DESCRIPTION

This is the largest wetland complex in Sandown and it includes a scrub-shrub marsh and floodplain forest associated with the Exeter River. This area is identified in the Land Conservation Plan for NH's Coastal Watersheds as a Conservation Focus area. It borders the largest wetland in Danville (downstream).

WETLAND PLANT COMMUNITY DATA

PFO1/SS1E

TREE LAYER

Red maple

SAPLING LAYER

Red maple

SHRUB LAYER

Sweet pepperbush
Highbush blueberry

Winterberry
Silky dogwood
Speckled alder

HERBACEOUS LAYER

Wood reed
Cinnamon fern
Tussock sedge
Phragmites

Sedges
Royal fern
Blue joint grass

PSS1E

TREE LAYER

SAPLING LAYER

SHRUB LAYER

Buttonbush

Black willow

HERBACEOUS LAYER

Sedges

Green briar

WETLAND SOILS DATA

295 Greenwood mucky peat, very poorly drained

WETLAND HYDROLOGY DATA:

Seasonally flooded by the Exeter River and flooded by beaver dams up to 3-4' deep
Active floodplain

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

Grackle, red-winged black bird, wood duck, mallard duck, black duck, kingfisher, green frog, bullfrog, gray tree frog, and yellow throat observed.

WETLAND INVENTORY DATA FORM

WETLAND ID: #23

CLASSIFICATION: PEM1Eb/PSS1Eb;
PF04E

ACREAGE: 8.0

WEI PROJECT #: 07-069NH

SCIENTIST: Earle Chase

DATE: 4/11/08

WETLAND TYPE:

- | | | | |
|--|---|---|--------------------------------------|
| <input checked="" type="checkbox"/> WOODED SWAMP | <input type="checkbox"/> Deciduous | <input checked="" type="checkbox"/> Evergreen | <input type="checkbox"/> Scrub-Shrub |
| <input type="checkbox"/> MARSH | <input type="checkbox"/> Freshwater Shallow | <input type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input type="checkbox"/> RIVER | <input type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: |
| <input checked="" type="checkbox"/> STREAM | <input checked="" type="checkbox"/> Perennial | <input type="checkbox"/> Intermittent | |
| <input type="checkbox"/> POND | Name: | | |
| <input type="checkbox"/> LAKE | Name: | | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |
| <input checked="" type="checkbox"/> BEAVER FLOWAGE | <input type="checkbox"/> Active | <input checked="" type="checkbox"/> Abandoned | |

WETLAND DESCRIPTION

Until recently, this wetland was occupied by beaver. The area encompassed by the earlier beaver flowage is now chiefly emergent with a moderate interspersion of shrubs. At the western end of this wetland system, a forested wetland is evident. An abandoned railroad bisects this wetland.

WETLAND PLANT COMMUNITY DATA

TREE LAYER
Absent

SAPLING LAYER
Red maple

SHRUB LAYER (33%)
Common buckthorn
Meadowsweet
Steeplebush

HERBACEOUS LAYER (66%)
Tussock sedge
Sphagnum moss

Noted invasive: common buckthorn

WETLAND SOILS DATA

When soil augering, 12" of muck was revealed; directly beneath this was a hardpan. The Rockingham County Soil Surcey designated the soil within this wetland as a (295) Greenwood mucky peat, very poorly drained.

WETLAND HYDROLOGY DATA:

- Previously occupied by beaver, now drained
- Saturation to the soil surface with pockets of standing water
- A perennial stream flows from this wetland flowing northwards to the Exeter River

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

Beaver – historical usage by this mammal

WETLAND INVENTORY DATA FORM

WETLAND ID: #22

CLASSIFICATION: PSS1Eb

ACREAGE: 7

WEI PROJECT #: 07-069NH

SCIENTIST: Mark West

DATE: 7/08

WETLAND TYPE:

- | | | | |
|--|---|---|---|
| <input checked="" type="checkbox"/> WOODED SWAMP | <input checked="" type="checkbox"/> Deciduous | <input type="checkbox"/> Evergreen | <input checked="" type="checkbox"/> Scrub-Shrub |
| <input checked="" type="checkbox"/> MARSH | <input type="checkbox"/> Freshwater Shallow | <input checked="" type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input type="checkbox"/> RIVER | <input type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: |
| <input checked="" type="checkbox"/> STREAM | <input type="checkbox"/> Perennial | <input checked="" type="checkbox"/> Intermittent | |
| <input type="checkbox"/> POND | Name: | | |
| <input type="checkbox"/> LAKE | Name: | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input type="checkbox"/> Abandoned | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |
| <input type="checkbox"/> BEAVER FLOWAGE | <input type="checkbox"/> Active | | |

WETLAND DESCRIPTION

This linear wetland drains south to Wetland #14. It is a buttonbush swamp with high value scrub-shrub habitat.

WETLAND PLANT COMMUNITY DATA

TREE LAYER

SAPLING LAYER

SHRUB LAYER

HERBACEOUS LAYER

Sweet pepperbush
Highbush blueberry
Leatherleaf

Meadowsweet
Buttonbush
Speckled alder

Purple loosestrife
Tussock sedge
Marsh fern
Arrow arum

Eastern burreed
Swamp loosestrife
Spatterdock

WETLAND SOILS DATA

295 Greenwood mucky peat, very poorly drained

WETLAND HYDROLOGY DATA:

Seasonally flooded to 2' deep

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

High value water fowl habitat
Potential Blanding's turtle habitat
Painted turtles, green frogs, bullfrogs, yellow throat, phoebe, and aquatic insects observed.

WETLAND INVENTORY DATA FORM

WETLAND ID: #21

CLASSIFICATION: PSS1Eb/PEM1Fb/PUB3b ACREAGE: 9.5

WEI PROJECT #: 07-069NH

SCIENTIST: Earle Chase

DATE: 1/22/08

WETLAND TYPE:

- | | | | |
|--|---|---|---|
| <input checked="" type="checkbox"/> WOODED SWAMP | <input type="checkbox"/> Deciduous | <input type="checkbox"/> Evergreen | <input checked="" type="checkbox"/> Scrub-Shrub |
| <input checked="" type="checkbox"/> MARSH | <input type="checkbox"/> Freshwater Shallow | <input checked="" type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input type="checkbox"/> RIVER | <input type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: 1st |
| <input checked="" type="checkbox"/> STREAM | <input checked="" type="checkbox"/> Perennial | <input checked="" type="checkbox"/> Intermittent | |
| <input type="checkbox"/> POND | Name: | | |
| <input type="checkbox"/> LAKE | Name: | | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |
| <input checked="" type="checkbox"/> BEAVER FLOWAGE | <input checked="" type="checkbox"/> Active | <input type="checkbox"/> Abandoned | |

WETLAND DESCRIPTION

This wetland is currently occupied by a large colony of beaver. Four individual lodges were observed. The main wetland includes an open water component, an emergent marsh, and a scrub-shrub component. This wetland is hydrologically connected via a perennial stream on the southeast to Wetland #20. This wetland is surrounded by conservation land (i.e. the Stoneford Parcel).

WETLAND PLANT COMMUNITY DATA

PEM1Fb

TREE LAYER
Absent

SAPLING LAYER
Absent

SHRUB LAYER
Red maple

HERBACEOUS LAYER
Broad-leaved cattail
Woolgrass

PSS1Eb

TREE LAYER
Absent

SAPLING LAYER
Absent

SHRUB LAYER
Speckled alder
Winterberry

HERBACEOUS LAYER
Buttonbush (heavily browsed)
Steeplebush

HERBACEOUS LAYER
Tussock sedge

WETLAND SOILS DATA

Soils are mapped in the Rockingham County Soil Survey as a (295) Greenwood mucky peat. These soils normally occur in basins, hollows, and drainageways. The surface layer, subsoil, and substratum all consist of mucky peat. These soils are very poorly drained, seasonally, inundated with surface water.

WETLAND HYDROLOGY DATA:

Activity by beaver has influenced overall hydrology by raising water levels. The wetland is now semi-permanently flooded. Flowage is received from the north via an intermittent stream. A perennial stream exits the wetland on the southeast. The flowage of the perennial eventually reaches Wetland #20.

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

- Beaver (4 lodges, 2 dams, browse)
- Porcupine (scat in adjacent hemlock stand)
- White-tailed deer (tracks, scat)
- American robin (5-6 individual birds)
- Songbird nest within interior of scrub-shrub component – species unknown
- Entry / exit hole observed on the ice (most likely used by a river otter or mink)

Note: Wetland #21 is situated within conservation land; appears wetland accommodates recreational pursuits

WETLAND INVENTORY DATA FORM

WETLAND ID: #20

CLASSIFICATION: PUBF; PSS1F

ACREAGE: 32.0

WEI PROJECT #: 07-069NH

SCIENTIST: Earle Chase

DATE: 1/10/08

WETLAND TYPE:

- | | | | |
|--|---|--|---|
| <input checked="" type="checkbox"/> WOODED SWAMP | <input type="checkbox"/> Deciduous | <input type="checkbox"/> Evergreen | <input checked="" type="checkbox"/> Scrub-Shrub |
| <input type="checkbox"/> MARSH | <input type="checkbox"/> Freshwater Shallow | <input type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input checked="" type="checkbox"/> RIVER | <input checked="" type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: 3rd |
| <input checked="" type="checkbox"/> STREAM | <input checked="" type="checkbox"/> Perennial | <input type="checkbox"/> Intermittent | |
| <input type="checkbox"/> BEAVER FLOWAGE | Name: Lily Pond | | |
| <input checked="" type="checkbox"/> POND | Name: | | |
| <input type="checkbox"/> LAKE | <input type="checkbox"/> Documented | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> VERNAL POOL | Description: | | |
| <input type="checkbox"/> HUMAN MADE or OTHER | | | |

WETLAND DESCRIPTION

This wetland contains a large open water component with associated scrub-shrub. Beaver occupy the northeastern end of this wetland. The Exeter River flows into, through, and out of this wetland.

WETLAND PLANT COMMUNITY DATA

TREE LAYER
Absent

SAPLING LAYER
Absent

SHRUB LAYER
Speckled alder
Buttonbush
Meadowsweet
Red maple

HERBACEOUS LAYER
Absent

Barberry (spp) noted in adjacent uplands

WETLAND SOILS DATA

Soils are mapped in the Rockingham County Soil Survey as a (295) Greenwood mucky peat. The surface layer, subsoil, and substratum all consist of mucky peat. The soils are very poorly drained. In those areas directly adjacent Lily Pond, soils are semi-permanently covered with surface waters.

WETLAND HYDROLOGY DATA:

- This wetland is connected hydrologically with Wetlands #19 & 21
- The Exeter River flows in a northeasterly direction through this wetland. A large percentage of this wetland is semi-permanently flooded.
- A perennial stream enters this wetland from the northwest
- Aquifer transmissivity occurring

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

White-tailed deer (tracks, river crossing) in forested buffer
Beaver (lodge, browse)

The open body of water and river flowages provide fisheries habitat

Conservation lands are situated on the northwest and east, accentuating this wetland's function and value

WETLAND INVENTORY DATA FORM

WETLAND ID: #19

CLASSIFICATION: PSS1Fb; PFO1E/PSS1E

ACREAGE: 91.0

WEI PROJECT #: 07-069NH

SCIENTIST: Earle Chase

DATE: 1/08

WETLAND TYPE:

- | | | | |
|--|---|--|---|
| <input checked="" type="checkbox"/> WOODED SWAMP | <input type="checkbox"/> Deciduous | <input type="checkbox"/> Evergreen | <input checked="" type="checkbox"/> Scrub-Shrub |
| <input type="checkbox"/> MARSH | <input type="checkbox"/> Freshwater Shallow | <input type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input checked="" type="checkbox"/> RIVER | <input checked="" type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: 3rd |
| <input checked="" type="checkbox"/> STREAM | <input checked="" type="checkbox"/> Perennial | <input checked="" type="checkbox"/> Intermittent | |
| <input type="checkbox"/> POND | Name: | | |
| <input type="checkbox"/> LAKE | Name: | | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |
| <input checked="" type="checkbox"/> BEAVER FLOWAGE | | | |

WETLAND DESCRIPTION

This wetland system is the second largest in Sandown. It is hydrologically connected on the south with Wetlands #15 & 18, and on the north with Wetland #20. Two substantial flowages (the Exeter River and a large perennial stream originating at Phillips Pond) converge and flow through this diverse and highly productive wetland.

WETLAND PLANT COMMUNITY DATA

TREE LAYER

Absent

SAPLING LAYER

Absent

SHRUB LAYER

Buttonbush
Winterberry
Speckled alder
Leatherleaf
Meadowsweet

HERBACEOUS LAYER

Royal fern
Purple loosestrife
Tussock sedge

WETLAND SOILS DATA

Soils are mapped in the Rockingham County Soil Survey as a (295) Greenwood mucky peat. The surface layer, subsoil, and substratum all consist of mucky peat. The soils are very poorly drained, semi-permanently inundated by adjacent river flowage.

WETLAND HYDROLOGY DATA:

The associated Exeter River and large perennial originating at Phillips Pond contribute significantly to this wetland's overall hydrology. Wetland components adjacent the two respective flowages appear to serve as spill-over areas that are either seasonally or semi-permanently flooded.

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

Beaver (lodge, browse)
Fisheries potential
May provide critical habitat to banded sunfish

WETLAND INVENTORY DATA FORM

WETLAND ID: #18

CLASSIFICATION: PEM1/SS1E; PSS1E

ACREAGE: 40.0

WEI PROJECT #: 07-069NH

SCIENTIST: Earle Chase

DATE:

WETLAND TYPE:

- | | | | |
|--|--|--|---|
| <input checked="" type="checkbox"/> WOODED SWAMP | <input type="checkbox"/> Deciduous | <input type="checkbox"/> Evergreen | <input checked="" type="checkbox"/> Scrub-Shrub |
| <input checked="" type="checkbox"/> MARSH | <input checked="" type="checkbox"/> Freshwater Shallow | <input type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input type="checkbox"/> RIVER | <input type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: |
| <input checked="" type="checkbox"/> STREAM | <input checked="" type="checkbox"/> Perennial | <input type="checkbox"/> Intermittent | |
| <input checked="" type="checkbox"/> POND | Name: Phillips Pond | | |
| <input type="checkbox"/> LAKE | Name: | | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |

WETLAND DESCRIPTION

This wetland system is moderately sized and chiefly scrub-shrub in character. A large perennial originating at Phillips Pond flows in a northerly direction through this wetland. The wetland borders a railroad bed on the west and north accommodating public access. This wetland is hydrologically connected with Wetland #19 to the north.

WETLAND PLANT COMMUNITY DATA

PSS1E (adj. Shore Drive)

TREE LAYER

Absent

SAPLING LAYER

Absent

SHRUB LAYER

Maleberry
Red maple
Leatherleaf

Winterberry
Buttonbush
Sweet pepperbush

HERBACEOUS LAYER

Broad-leaved cattail
Purple loosestrife

PEM1/SS1E (southeast end adj. pond)

TREE LAYER

Absent

SAPLING LAYER

Absent

SHRUB LAYER

Maleberry
Red maple

Speckled alder
Buttonbush

HERBACEOUS LAYER

Broad-leaved cattail
Purple loosestrife
Tussock sedge

Invasive species noted: common reed, purple loosestrife

WETLAND SOILS DATA

Soils are mapped in the Rockingham County Soil Survey as a (295) Greenwood mucky peat. These soils normally occur in basins, hollows, and drainageways. The surface layer, subsoil, and substratum all consist of mucky peat. These soils are very poorly drained, seasonally saturated by surface waters.

WETLAND HYDROLOGY DATA:

- The southeast end of this wetland is influenced by lakeside hydrology from Phillips Pond
- A large perennial originating at Phillips Pond bisects this wetland
- The flowage of the perennial appears restrained at its outlet by two side by side 3'6" corrugated culverts (on School House Road)
- Aquifer transmissivity occurring

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

Beaver (lodge)
Song bird (spp.) nest

WETLAND INVENTORY DATA FORM

WETLAND ID: #17

CLASSIFICATION: PEM1E/F//PSS1E/F;
PFO4E; PFO1E

ACREAGE: 11.0

WEI PROJECT #: 07-069NH

SCIENTIST: Earle Chase

DATE: 2/14/08

WETLAND TYPE:

- | | | | |
|--|---|---|---|
| <input checked="" type="checkbox"/> WOODED SWAMP | <input checked="" type="checkbox"/> Deciduous | <input checked="" type="checkbox"/> Evergreen | <input checked="" type="checkbox"/> Scrub-Shrub |
| <input checked="" type="checkbox"/> MARSH | <input type="checkbox"/> Freshwater Shallow | <input checked="" type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input type="checkbox"/> RIVER | <input type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: |
| <input type="checkbox"/> STREAM | <input type="checkbox"/> Perennial | <input checked="" type="checkbox"/> Intermittent | |
| <input checked="" type="checkbox"/> POND | Name: Phillips Pond | | |
| <input type="checkbox"/> LAKE | Name: | | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |
| <input type="checkbox"/> BEAVER FLOWAGE | | | |

WETLAND DESCRIPTION

This wetland descends in a westerly direction from Route 121A to Phillips Pond. Wetland classifications range from scrub-shrub to forested. A seasonal stream is formed within the wetland and flows to an open water component where it finally exits the wetland system underneath Brown Avenue to Phillips Pond.

**WETLAND PLANT
COMMUNITY DATA**

PEM1E/F (66%)/PSS1E/F (33%) - on edge of Phillips Pond

<u>TREE LAYER</u>	<u>SAPLING LAYER</u>	<u>SHRUB LAYER</u>	<u>HERBACEOUS LAYER</u>
Absent	Absent	Sweet pepperbush Meadowsweet Winterberry Red maple	Maleberry Steeplebush Speckled alder Leatherleaf Broad-leaved cattails Purple loosestrife

WETLAND SOILS DATA

The southwestern component of this wetland is underlain by a (295) Greenwood mucky peat. The surface layer, subsoil, and substratum all consist of mucky peat. This soil is very poorly drained.

WETLAND HYDROLOGY DATA:

It appears overall hydrology may have increased with the formation of an open water component at the center of the wetland (maybe by beaver or by a constriction at the crossing structure underneath Brown Avenue). With this expansion of hydrology, the quantity of hydric soils also appears larger than originally mapped. Aquifer transmissivity is also present.

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

- 4 or 5 wild turkeys were observed on the southern perimeter of this wetland
- Due to the wetland's proximity to Phillips Road, fish presence is likely

WETLAND INVENTORY DATA FORM

WETLAND ID: #16

CLASSIFICATION: PFO5/4Fb; PSS1Fb;
PFO5Eb; PFO1E

ACREAGE: 24.0

WEI PROJECT #: 07-069NH

SCIENTIST: Earle Chase

DATE: 1/8/08

WETLAND TYPE:

- | | | | |
|--|---|--|---|
| <input checked="" type="checkbox"/> WOODED SWAMP | <input type="checkbox"/> Deciduous | <input checked="" type="checkbox"/> Evergreen | <input checked="" type="checkbox"/> Scrub-Shrub |
| <input type="checkbox"/> MARSH | <input type="checkbox"/> Freshwater Shallow | <input type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input type="checkbox"/> RIVER | <input type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: |
| <input checked="" type="checkbox"/> STREAM | <input checked="" type="checkbox"/> Perennial | <input checked="" type="checkbox"/> Intermittent | |
| <input checked="" type="checkbox"/> POND | Name: Phillips Pond | | |
| <input type="checkbox"/> LAKE | Name: | | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |
| <input checked="" type="checkbox"/> BEAVER FLOWAGE | <input checked="" type="checkbox"/> Active | <input type="checkbox"/> Abandoned | |

WETLAND DESCRIPTION

This wetland is situated on the southwestern perimeter of Phillips Pond. The northwestern components of this wetland are semi-permanently flooded (influenced by lakeside hydrology). Beaver and muskrat currently occupy the wetland. Dam activity has raised the water level of the more southern forested wetland, killing a large percentage of its contained tree canopy.

WETLAND PLANT COMMUNITY DATA

PPFO5/4Eb (most northeastern wetland component)

<u>TREE LAYER</u>	<u>SAPLING LAYER</u>	<u>SHRUB LAYER</u>	<u>HERBACEOUS LAYER</u>
Dead snag component	Atlantic white cedar	Leatherleaf Sweet pepperbush	Speckled alder Tussock sedge Wetland grass (spp.)
<i>PSS1Fb (adj. pond)</i>			
<u>TREE LAYER</u>	<u>SAPLING LAYER</u>	<u>SHRUB LAYER</u>	<u>HERBACEOUS LAYER</u>
Interspersed dead snags	Red maple	Sweet pepperbush Meadowsweet Leatherleaf	Speckled alder Buttonbush Royal fern Wetland grass (spp.) Tussock sedge

Invasive species noted: purple loosestrife

WETLAND SOILS DATA

The soils immediately adjacent the pond are mapped in the Rockingham County Soil Survey as a (295) Greenwood mucky peat, very poorly drained. The remaining soils (approximately 50%) are mapped as (42B) Canton with inclusions of Newfields, Charlton or Montauk.

WETLAND HYDROLOGY DATA:

- This wetland is influenced by lakeside hydrology from Phillips Pond
- Hydrology has been altered by beaver
- Intermittent streams feed the wetland system from the south and north
- It appears that there is enough stream flow to qualify the consolidated flowage as a perennial stream in its final reach

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

Beaver (3 lodges, dam, browse)
Muskrat (lodge)
American robins (visual)
Black capped chickadee (visual)
Song bird species unknown (nest)
The wetland system provides much diversity

WETLAND INVENTORY DATA FORM

WETLAND ID: #15

CLASSIFICATION: PFO1E; PSS1/EM1Eb

ACREAGE: 9.0

WEI PROJECT #: 07-069NH

SCIENTIST: Earle Chase

DATE: 1/10/08

WETLAND TYPE:

- | | | | |
|--|--|--|---|
| <input checked="" type="checkbox"/> WOODED SWAMP | <input checked="" type="checkbox"/> Deciduous | <input type="checkbox"/> Evergreen | <input checked="" type="checkbox"/> Scrub-Shrub |
| <input checked="" type="checkbox"/> MARSH | <input checked="" type="checkbox"/> Freshwater Shallow | <input type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input type="checkbox"/> RIVER | <input type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: 1st |
| <input checked="" type="checkbox"/> STREAM | <input checked="" type="checkbox"/> Perennial | <input type="checkbox"/> Intermittent | |
| <input type="checkbox"/> POND | Name: | | |
| <input type="checkbox"/> LAKE | Name: | | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |
| <input checked="" type="checkbox"/> BEAVER FLOWAGE | | | |

WETLAND DESCRIPTION

Glastonbury Drive, a newer road that accesses Avalon Estates, divides this wetland system. The more northern PSS1/EM1Eb wetland component is/was occupied by beaver. It appears that a beaver dam has been recently dismantled, lowering water levels. A perennial stream flows in a northerly direction through this wetland eventually emptying into the Exeter River (and Wetland #19).

WETLAND PLANT COMMUNITY DATA

TREE LAYER

Red maple with dead trees

SAPLING LAYER

Red maple

SHRUB LAYER

Red maple

HERBACEOUS LAYER

Reed canary grass
Lurid sedge

WETLAND SOILS DATA

Soils are mapped in the Rockingham County Soil Survey as a (295) Greenwood mucky peat. The surface layer, subsoil, and substratum all consist of mucky peat. The soils are very poorly drained, seasonally inundated with water.

WETLAND HYDROLOGY DATA:

- Recently changes to hydrology due to dismantling of a beaver dam in northern section of wetland
- A perennial stream enters and exits this wetland
- This wetland is connected hydrologically with Wetland #19
- Aquifer transmissivity occurring; evident blow down

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

Beaver (lodge, dam, browse)

The prior damming of the wetland by beaver raised water levels and killed a percentage of the pre-existing red maple component. The dead/dying trees provide potential cavities to a variety of songbird species

The crossing structure on Glastonbury Drive is a 4'x4' concrete box culvert. Appropriate headers were not noted.

Two side by side 4' diameter galvanized culverts are situated underneath Deer Run

WETLAND INVENTORY DATA FORM

WETLAND ID: #14

CLASSIFICATION: PSS1Eb; PEM1Eb;
PFO1/5Eb

ACREAGE: 23

WEI PROJECT #: 07-069NH

SCIENTIST: Mark West

DATE: 7/08

WETLAND TYPE:

- | | | | |
|--|--|---|---|
| <input checked="" type="checkbox"/> WOODED SWAMP | <input checked="" type="checkbox"/> Deciduous | <input type="checkbox"/> Evergreen | <input checked="" type="checkbox"/> Scrub-Shrub |
| <input checked="" type="checkbox"/> MARSH | <input checked="" type="checkbox"/> Freshwater Shallow | <input checked="" type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input type="checkbox"/> RIVER | <input type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: |
| <input checked="" type="checkbox"/> STREAM | <input checked="" type="checkbox"/> Perennial | <input type="checkbox"/> Intermittent | |
| <input type="checkbox"/> POND | Name: | | |
| <input type="checkbox"/> LAKE | Name: | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input type="checkbox"/> Abandoned | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |
| <input checked="" type="checkbox"/> BEAVER FLOWAGE | <input type="checkbox"/> Active | | |

WETLAND DESCRIPTION

This linear wetland receives runoff from Wetland #10 to the east and drains west into the Exeter River. It includes a variety of wetland cover types, several beaver dams, and is bordered by the railroad bed.

WETLAND PLANT COMMUNITY DATA

TREE LAYER

SAPLING LAYER

SHRUB LAYER

HERBACEOUS LAYER

Sweet pepperbush
Highbush blueberry
Leatherleaf

Meadowsweet
Buttonbush
Speckled alder

Sedges
Cattail
Marsh fern
Arrow arum
Purple loosestrife

Eastern burreed
Swamp loosestrife
Spatterdock
Tussock sedge
Pickerel weed

WETLAND SOILS DATA

295 Greenwood mucky peat, very poorly drained

WETLAND HYDROLOGY DATA:

Seasonally flooded to 2-3' deep
Perennial stream with beaver impoundments

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

High value water fowl habitat, painted turtle, swallows, yellow throat, yellow warbler, veery, wood frogs, green frogs and aquatic insects observed.

Potential spotted and Blanding's turtle habitat.

WETLAND INVENTORY DATA FORM

WETLAND ID: #13

CLASSIFICATION: PSS1E/PFO1E

ACREAGE: 29.0

WEI PROJECT #: 07-069NH

SCIENTIST: Earle Chase

DATE: 1/25/08

WETLAND TYPE:

- | | | | |
|--|---|--|---|
| <input checked="" type="checkbox"/> WOODED SWAMP | <input checked="" type="checkbox"/> Deciduous (33%) | <input type="checkbox"/> Evergreen | <input checked="" type="checkbox"/> Scrub-Shrub (66%) |
| <input type="checkbox"/> MARSH | <input type="checkbox"/> Freshwater Shallow | <input type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input type="checkbox"/> RIVER | <input type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: 1st |
| <input checked="" type="checkbox"/> STREAM | <input type="checkbox"/> Perennial | <input checked="" type="checkbox"/> Intermittent | |
| <input type="checkbox"/> POND | Name: | | |
| <input type="checkbox"/> LAKE | Name: | | |
| <input checked="" type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input checked="" type="checkbox"/> Potential | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |
| <input type="checkbox"/> BEAVER FLOWAGE | | | |

WETLAND DESCRIPTION

This is a scrub-shrub wetland with a thin to moderate interspersed sapling layer. An intermittent stream exits this wetland on the north and connects Wetland #14 hydrologically.

WETLAND PLANT COMMUNITY DATA

<u>TREE LAYER</u>	<u>SAPLING LAYER</u>	<u>SHRUB LAYER</u>	<u>HERBACEOUS LAYER</u>
Absent	Red maple Grey birch White pine	Speckled alder Maleberry Leatherleaf	Meadowsweet Highbush blueberry Chokeberry (spp.) Royal fern Reed canary grass

Three invasives noted in the adjacent uplands: barberry (spp.), Japanese knotweed, and oriental bittersweet

WETLAND SOILS DATA

The soils are mapped in the Rockingham County Soil Survey as a (295) Greenwood mucky peat. The surface layer, the subsoil, and substratum all consist of mucky peat. These soils are very poorly drained, seasonally inundated with water.

WETLAND HYDROLOGY DATA:

- Frozen standing water was noted on 1/25/08
- An intermittent exits the wetland flowing northwards
- This wetland is connected hydrologically with Wetland #14
- Aquifer transmissivity occurring

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

- Areas within this wetland with standing water may provide vernal pool habitat
- Fox (spp.) – tracks
- The wetland is situated in close proximity with the Sandown Central School, accommodating potential wetland education

WETLAND INVENTORY DATA FORM

WETLAND ID: #12

CLASSIFICATION: PFO1/4E

ACREAGE: 6

WEI PROJECT #: 07-069NH

SCIENTIST: Mark West

DATE: 7/08

WETLAND TYPE:

- | | | | |
|--|---|---|--------------------------------------|
| <input checked="" type="checkbox"/> WOODED SWAMP | <input checked="" type="checkbox"/> Deciduous | <input checked="" type="checkbox"/> Evergreen | <input type="checkbox"/> Scrub-Shrub |
| <input type="checkbox"/> MARSH | <input type="checkbox"/> Freshwater Shallow | <input type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input type="checkbox"/> RIVER | <input type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: |
| <input type="checkbox"/> STREAM | <input type="checkbox"/> Perennial | <input type="checkbox"/> Intermittent | |
| <input type="checkbox"/> POND | Name: | | |
| <input type="checkbox"/> LAKE | Name: | | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |
| <input type="checkbox"/> BEAVER FLOWAGE | <input type="checkbox"/> Active | <input type="checkbox"/> Abandoned | |

WETLAND DESCRIPTION

This is a small basin swamp with an important component of black ash in the canopy and sapling layers, making it a unique plant community in southern NH.

WETLAND PLANT COMMUNITY DATA

TREE LAYER

Red maple
Black ash
White pine

SAPLING LAYER

Red maple
Black ash

SHRUB LAYER

Winterberry
Sweet pepperbush
Highbush blueberry

HERBACEOUS LAYER

Royal fern
Cinnamon fern
Marsh fern
Wild sarsaparilla
Virginia creeper
Fringed sedge
Goldthread

WETLAND SOILS DATA

295 Greenwood mucky peat, very poorly drained

WETLAND HYDROLOGY DATA:

Seasonally flooded to 12"

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

Black throated green warbler, veery, wood frog observed

WETLAND INVENTORY DATA FORM

WETLAND ID: #11

CLASSIFICATION: PFO1/4E

ACREAGE: 17

WEI PROJECT #: 07-069NH

SCIENTIST: Mark West

DATE: 7/08

WETLAND TYPE:

- | | | | |
|--|---|--|--------------------------------------|
| <input checked="" type="checkbox"/> WOODED SWAMP | <input checked="" type="checkbox"/> Deciduous | <input checked="" type="checkbox"/> Evergreen | <input type="checkbox"/> Scrub-Shrub |
| <input type="checkbox"/> MARSH | <input type="checkbox"/> Freshwater Shallow | <input type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input type="checkbox"/> RIVER | <input type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: |
| <input type="checkbox"/> STREAM | <input type="checkbox"/> Perennial | <input checked="" type="checkbox"/> Intermittent | |
| <input type="checkbox"/> POND | Name: | | |
| <input type="checkbox"/> LAKE | Name: | | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |
| <input type="checkbox"/> BEAVER FLOWAGE | <input type="checkbox"/> Active | <input type="checkbox"/> Abandoned | |

WETLAND DESCRIPTION

This basin swamp includes an important component of black gum and black ash in the canopy and is identified by NH Natural Heritage as an exemplary community. This wetland is sensitive to changes in hydrology and water quality impacts associated with development.

WETLAND PLANT COMMUNITY DATA

TREE LAYER

Red maple
Hemlock
White pine
Yellow birch
Black gum
American elm

SAPLING LAYER

American elm
Red maple
Yellow birch
Black ash

SHRUB LAYER

Sweet pepperbush
Highbush blueberry
Winterberry

HERBACEOUS LAYER

Sensitive fern
Fringed sedge
Royal fern
Jack in the pulpit
Goldthread

Cinnamon fern
Rushes
Bugleweed
Sphagnum moss
Sarsaparilla

WETLAND SOILS DATA

295 Greenwood mucky peat, very poorly drained

WETLAND HYDROLOGY DATA:

Seasonally flooded to 12'

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

Black throated green warbler, wood frog, sphagnum moss noted on forest floor.

WETLAND INVENTORY DATA FORM

WETLAND ID: #10b

CLASSIFICATION: PEM1/SS1E

ACREAGE: 2.5

WEI PROJECT #: 07-069NH

SCIENTIST: Mark West

DATE: 7/08

WETLAND TYPE:

- | | | | |
|--|--|--|---|
| <input checked="" type="checkbox"/> WOODED SWAMP | <input type="checkbox"/> Deciduous | <input type="checkbox"/> Evergreen | <input checked="" type="checkbox"/> Scrub-Shrub |
| <input checked="" type="checkbox"/> MARSH | <input checked="" type="checkbox"/> Freshwater Shallow | <input type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input type="checkbox"/> RIVER | <input type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: |
| <input type="checkbox"/> STREAM | <input type="checkbox"/> Perennial | <input type="checkbox"/> Intermittent | |
| <input type="checkbox"/> POND | Name: | | |
| <input type="checkbox"/> LAKE | Name: | | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |
| <input checked="" type="checkbox"/> BEAVER FLOWAGE | | | |

WETLAND DESCRIPTION

This finger of Wetland #10 was separated by the construction of a new subdivision road. This scrub-shrub marsh is now bordered by house sites and the new roadway significantly reducing its function and value. This small shallow marsh area is the smallest wetland evaluated in this study.

WETLAND PLANT COMMUNITY DATA

TREE LAYER

Dead

SAPLING LAYER

SHRUB LAYER

Northern arrowwood
Highbush blueberry
Winterberry
Speckled alder

HERBACEOUS LAYER

Broad-leaved cattail
Lurid sedge
Woolgrass
Eastern burreed
Sedges
Soft rush

WETLAND SOILS DATA

Ossipee ponded, mucky peat, very poorly drained soils

WETLAND HYDROLOGY DATA:

Seasonally flooded to 2' deep. Beaver dams were removed when the new road was constructed.

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

Amphibian habitat, bullfrogs, cavity nesting bird habitat, red-winged blackbird observed.

WETLAND INVENTORY DATA FORM

WETLAND ID: #10a

CLASSIFICATION: PEM1Eb

ACREAGE: 19.0

WEI PROJECT #: 07-069NH

SCIENTIST: Earle Chase

DATE: 4/11/08

WETLAND TYPE:

- | | | | |
|--|--|---|--------------------------------------|
| <input type="checkbox"/> WOODED SWAMP | <input type="checkbox"/> Deciduous | <input type="checkbox"/> Evergreen | <input type="checkbox"/> Scrub-Shrub |
| <input type="checkbox"/> MARSH | <input type="checkbox"/> Freshwater Shallow | <input type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input type="checkbox"/> RIVER | <input type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: |
| <input checked="" type="checkbox"/> STREAM | <input checked="" type="checkbox"/> Perennial (entering & exiting) | <input type="checkbox"/> Intermittent | |
| <input type="checkbox"/> POND | Name: | | |
| <input type="checkbox"/> LAKE | Name: | | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |
| <input checked="" type="checkbox"/> BEAVER FLOWAGE | <input type="checkbox"/> Active | <input checked="" type="checkbox"/> Abandoned | |

WETLAND DESCRIPTION

Until recently, Wetland #10a contained a surface water as indicated by the 3/28/06 aerial photo. It is unclear what happened to the earlier beaver population. Flowage (a perennial) enters this wetland from Wetland #14. Flowage also exits Wetland #10a to the adjacent Wetland #9a.

WETLAND PLANT COMMUNITY DATA

TREE LAYER

Absent (outside perimeter snags)

SAPLING LAYER

Absent

SHRUB LAYER

Absent

HERBACEOUS LAYER

Broad-leaved cattail

Note: as this wetland was recently drained, the plant community is evolving
Noted invasive: purple loosestrife

WETLAND SOILS DATA

- The soils were highly unstable (i.e. soils were very saturated not allowing access into the wetland)
- Recently drained, soils once covered by surface water
- Rockingham County Soil Survey designates the soils in this wetland as a (97) Greenwood & Ossipee soil, ponded, very poorly drained

WETLAND HYDROLOGY DATA:

- Previously occupied by beaver, this wetland is now drained with no standing water
- This wetland is connected hydrologically via a 3' diameter culvert with Wetland #9
- A perennial stream exits this wetland flowing in an easterly direction

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

- Beaver (historical evidence)
- Muskrat (lodge)
- Mallards (male & female)
- Red spotted newts (visual)
- Fairy shrimp (being fed upon by red spotted newts)
- Fish (spp.)

WETLAND INVENTORY DATA FORM

WETLAND ID: #9c

CLASSIFICATION: PFO5/UBHb; PEM1b

ACREAGE: 11

WEI PROJECT #: 07-069NH

SCIENTIST: Mark West

DATE: 7/08

WETLAND TYPE:

- | | | | |
|--|--|---|--|
| <input checked="" type="checkbox"/> WOODED SWAMP | <input type="checkbox"/> Deciduous | <input type="checkbox"/> Evergreen | <input checked="" type="checkbox"/> Scrub-Shrub (dead) |
| <input checked="" type="checkbox"/> MARSH | <input checked="" type="checkbox"/> Freshwater Shallow | <input checked="" type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input type="checkbox"/> RIVER | <input type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: |
| <input type="checkbox"/> STREAM | <input type="checkbox"/> Perennial | <input type="checkbox"/> Intermittent | |
| <input type="checkbox"/> POND | Name: | | |
| <input type="checkbox"/> LAKE | Name: | | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |
| <input checked="" type="checkbox"/> BEAVER FLOWAGE | <input checked="" type="checkbox"/> Active | <input type="checkbox"/> Abandoned | |

WETLAND DESCRIPTION

This isolated beaver pond has 14 great blue heron nests and is drained by an intermittent stream that flows south to Cub Pond. The lower portion of the wetland has grown in with shallow marsh habitat. There is no development around this wetland, which has large buffers.

WETLAND PLANT COMMUNITY DATA

TREE LAYER

Dead standing

SAPLING LAYER

SHRUB LAYER

Red maple
 Highbush blueberry
 Steeplebush
 Winterberry
 Maleberry
 Willow

HERBACEOUS LAYER

Rushes
 Marsh fern
 Eastern burreed
 3-way sedge
 Tussock sedge
 Woolgrass
 Sphagnum moss

Cinnamon fern
 Hop sedge
 Lurid sedge
 Cattail
 Bedstraw
 Fringed sedge

WETLAND SOILS DATA

97 Greenwood and Ossippee ponded mucky peat, very poorly drained

WETLAND HYDROLOGY DATA:

Seasonally flooded to 3' deep

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

Great blue heron rookery, snapping and painted turtles, wood duck, bullfrog, tree swallow, grackle, dragonfly and damselfly observed.

WETLAND INVENTORY DATA FORM

WETLAND ID: #9b

CLASSIFICATION: PFO1E/Fb-PSS1Eb;
PEM1Eb

ACREAGE: 7

WEI PROJECT #: 07-069NH

SCIENTIST: Earle Chase

DATE: 4/11/08

WETLAND TYPE:

- | | | | |
|--|--|--|---|
| <input checked="" type="checkbox"/> WOODED SWAMP | <input checked="" type="checkbox"/> Deciduous | <input type="checkbox"/> Evergreen | <input checked="" type="checkbox"/> Scrub-Shrub |
| <input checked="" type="checkbox"/> MARSH | <input checked="" type="checkbox"/> Freshwater Shallow | <input type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input type="checkbox"/> RIVER | <input type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: |
| <input type="checkbox"/> STREAM | <input checked="" type="checkbox"/> Perennial | <input type="checkbox"/> Intermittent | |
| <input type="checkbox"/> POND | Name: | | |
| <input type="checkbox"/> LAKE | Name: | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input type="checkbox"/> Abandoned | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |
| <input checked="" type="checkbox"/> BEAVER FLOWAGE | <input checked="" type="checkbox"/> Active | | |

WETLAND DESCRIPTION

Wetlands #9a and 9b are separated by a residential driveway. The plant community within #9b is chiefly comprised with trees and shrubs. Beaver activity including a lodge was observed.

WETLAND PLANT COMMUNITY DATA

TREE LAYER

Red maple

SAPLING LAYER

Red maple

SHRUB LAYER

Winterberry
Speckled alder
Highbush blueberry
Northern arrowwood
Sweet pepperbush
Maleberry
Meadowsweet

HERBACEOUS LAYER

Broad-leaved cattail
Royal fern

WETLAND SOILS DATA

The Rockingham County Soil Survey designates the soils within this wetland as both a (97) Greenwood and Ossipee soil, ponded, very poorly drained, and a (295) Greenwood mucky peat, also very poorly drained. Deep mucky peats are characteristic.

WETLAND HYDROLOGY DATA:

- Levels of hydrology range from open water to large areas with standing water
- Wetland #9b drains northerly underneath a residential driveway through (3) 24" diameter culverts to Wetland #9a

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

- Beaver (browse & lodge)

WETLAND INVENTORY DATA FORM

WETLAND ID: #9a

CLASSIFICATION: PEM1E/Fb; PFO1E/Fb-
PSS1Eb; PSS1Eb/PFO5Eb

ACREAGE: 43

WEI PROJECT #: 07-069NH

SCIENTIST: Earle Chase

DATE: 4/11/08

WETLAND TYPE:

- | | | | |
|--|--|--|---|
| <input type="checkbox"/> WOODED SWAMP | <input type="checkbox"/> Deciduous | <input type="checkbox"/> Evergreen | <input checked="" type="checkbox"/> Scrub-Shrub |
| <input checked="" type="checkbox"/> MARSH | <input checked="" type="checkbox"/> Freshwater Shallow | <input type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input type="checkbox"/> RIVER | <input type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: |
| <input checked="" type="checkbox"/> STREAM | <input checked="" type="checkbox"/> Perennial | <input type="checkbox"/> Intermittent | |
| <input type="checkbox"/> POND | Name: | | |
| <input type="checkbox"/> LAKE | Name: | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input type="checkbox"/> Abandoned | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |
| <input checked="" type="checkbox"/> BEAVER FLOWAGE | <input checked="" type="checkbox"/> Active | | |

WETLAND DESCRIPTION

Wetland #9a is the 4th largest wetland in Sandown. This larger wetland system is comprised of many individual wetland components with a variety of plant communities. Beaver are actively utilizing this wetland, accentuating its overall value. Flowage empties through a 3' diameter culvert toward Wetland #10 (underneath Odell Road).

WETLAND PLANT COMMUNITY DATA

PUB3E/Fb (adjacent Odell Road)

TREE LAYER

Absent

SAPLING LAYER

Absent

SHRUB LAYER

Sweet pepperbush*
Maleberry*

HERBACEOUS LAYER

Broad-leaved cattail

*on outside perimeter

WETLAND SOILS DATA

The Rockingham County Soil Survey designates the soils within this wetland as both a (97) Greenwood and Ossipee soil, ponded, very poorly drained, and a (295) Greenwood mucky peat, also very poorly drained. Deep mucky peats are characteristic.

WETLAND HYDROLOGY DATA:

- Levels of hydrology range from open water to large areas with standing water
- A perennial stream enters and exits this wetland
- Wetland #9a is hydrologically connected with Wetland #10a on the west

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

- Fish (spp.) visual
- Pair of mallards (visual)
- Eastern phoebe, belted kingfisher, and rusty blackbird observed
- Beaver (browse)

WETLAND INVENTORY DATA FORM

WETLAND ID: #8

CLASSIFICATION: PSS/EM1E & PFO5/SS1E

ACREAGE: 20

WEI PROJECT #: 07-069NH

SCIENTIST: Mark West

DATE: 7/08

WETLAND TYPE:

- | | | | |
|--|--|---|---|
| <input checked="" type="checkbox"/> WOODED SWAMP | <input checked="" type="checkbox"/> Deciduous | <input type="checkbox"/> Evergreen | <input checked="" type="checkbox"/> Scrub-Shrub |
| <input checked="" type="checkbox"/> MARSH | <input checked="" type="checkbox"/> Freshwater Shallow | <input checked="" type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input type="checkbox"/> RIVER | <input type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: |
| <input type="checkbox"/> STREAM | <input type="checkbox"/> Perennial | <input type="checkbox"/> Intermittent | |
| <input checked="" type="checkbox"/> POND | Name: Cub Pond | | |
| <input type="checkbox"/> LAKE | Name: | | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |
| <input type="checkbox"/> BEAVER FLOWAGE | <input type="checkbox"/> Active | <input type="checkbox"/> Abandoned | |

WETLAND DESCRIPTION

This is a wetland complex at the north end of Cub Pond where the tributary systems enters the pond. This pondside wetland provides high value water fowl and wading bird habitat and helps to protect the water quality of Cub Pond.

WETLAND PLANT COMMUNITY DATA

TREE LAYER
Red maple

SAPLING LAYER

SHRUB LAYER

Winterberry
Highbush blueberry
Glossy buckthorn

Maleberry
Red maple
Speckled alder

HERBACEOUS LAYER

Tussock sedge
Cattail
Royal fern
Goldthread
New York fern
Pickerel weed
White water lily

Blue joint grass
Cinnamon fern
Spatterdock
Marsh fern
Eastern burreed
Arrow arum
Potomegetan

WETLAND SOILS DATA

295 Greenwood mucky peat, very poorly drained

WETLAND HYDROLOGY DATA:

Seasonally flooded by associated pond to 2-3' deep

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

Adjacent Cub Pond with islands; open water areas; aquatic habitat and cavity nesting trees present.

Birds noted include: eastern kingbird, oriole, yellowthroat, tree swallow, flicker, prairie warbler, and great blue heron.

WETLAND INVENTORY DATA FORM

WETLAND ID: #7

CLASSIFICATION: PSS1E, PEM1/SS1E,
PFO1/SS1E

ACREAGE: 41

WEI PROJECT #: 07-069NH

SCIENTIST: Mark West

DATE: 7/08

WETLAND TYPE:

- | | | | |
|--|--|---|---|
| <input checked="" type="checkbox"/> WOODED SWAMP | <input checked="" type="checkbox"/> Deciduous | <input type="checkbox"/> Evergreen | <input checked="" type="checkbox"/> Scrub-Shrub |
| <input checked="" type="checkbox"/> MARSH | <input checked="" type="checkbox"/> Freshwater Shallow | <input checked="" type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input type="checkbox"/> RIVER | <input type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: |
| <input type="checkbox"/> STREAM | <input type="checkbox"/> Perennial | <input type="checkbox"/> Intermittent | |
| <input checked="" type="checkbox"/> POND | Name: Punch Pond | | |
| <input type="checkbox"/> LAKE | Name: | | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |
| <input type="checkbox"/> BEAVER FLOWAGE | <input type="checkbox"/> Active | <input type="checkbox"/> Abandoned | |

WETLAND DESCRIPTION

This is a large diverse wetland complex associated with Punch Pond. It has a long narrow finger to the north along the stream that exits Wetland #6 and is west of the pond. It includes aquatic bed vegetation, leatherleaf dominated shrub habitat, and streamside/speckled alder/marsh habitat.

WETLAND PLANT COMMUNITY DATA

TREE LAYER

Red maple

SAPLING LAYER

SHRUB LAYER

Winterberry
Sweet pepperbush
Highbush blueberry
Tussock sedge

Chokeberry
Leatherleaf
Maleberry
Buttonbush

HERBACEOUS LAYER

Blue joint grass
Broad-leaved cattail
Pickerel weed

Arrow arum
Water lilly
Spatterdock

WETLAND SOILS DATA

295 Greenwood mucky peat, very poorly drained

WETLAND HYDROLOGY DATA:

Semi-permanently inundated, beaver activity noted

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

Provides habitat for dragonflies, water fowl, amphibians and turtles. Grey tree frog, wood frog, and flycatchers were observed. This wetland may provide habitat for spotted and Blanding's turtles.

WETLAND INVENTORY DATA FORM

WETLAND ID: #6

CLASSIFICATION: PSS1/FO1E

ACREAGE: 14

WEI PROJECT #: 07-069NH

SCIENTIST: Mark West

DATE: 7/08

WETLAND TYPE:

- | | | | |
|--|---|---|---|
| <input checked="" type="checkbox"/> WOODED SWAMP | <input checked="" type="checkbox"/> Deciduous | <input type="checkbox"/> Evergreen | <input checked="" type="checkbox"/> Scrub-Shrub |
| <input checked="" type="checkbox"/> MARSH | <input type="checkbox"/> Freshwater Shallow | <input checked="" type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input type="checkbox"/> RIVER | <input type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: |
| <input checked="" type="checkbox"/> STREAM | <input type="checkbox"/> Perennial | <input checked="" type="checkbox"/> Intermittent | |
| <input type="checkbox"/> POND | Name: | (tributary to Punch Pond) | |
| <input type="checkbox"/> LAKE | Name: | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input type="checkbox"/> Abandoned | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |
| <input checked="" type="checkbox"/> BEAVER FLOWAGE | <input checked="" type="checkbox"/> Active | | |

WETLAND DESCRIPTION

This wetland is a beaver flowage with two components that drains north into Wetland #7. The northern component is bordered by a subdivision to the northwest.

WETLAND PLANT COMMUNITY DATA

- | | | | |
|---------------------------|----------------------|--------------------|-------------------------|
| <u>TREE LAYER</u> | <u>SAPLING LAYER</u> | <u>SHRUB LAYER</u> | <u>HERBACEOUS LAYER</u> |
| Red maple (sparse) | | Maleberry | Blue joint grass |
| Dead snags & cavity trees | | Blueberry | Bulrush |
| | | Winterberry | Blue iris |
| | | Meadowsweet | Grasses |
| | | Steeplebush | Sedges |
| | | Sweet pepperbush | Sphagnum moss |
| | | | Cinnamon fern |
| | | | Cattails |

WETLAND SOILS DATA

295 Greenwood mucky peat, very poorly drained

WETLAND HYDROLOGY DATA:

Seasonally to permanently flooded

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

Painted turtles, great blue heron, red-headed woodpecker, red-spotted newts, tree swallows, mallard duck, and kingfisher observed.

Potential fish habitat.

WETLAND INVENTORY DATA FORM

WETLAND ID: #5

CLASSIFICATION: PFO1/4-SS1E

ACREAGE: 16

WEI PROJECT #: 07-069NH

SCIENTIST: Mark West

DATE: 7/08

WETLAND TYPE:

- | | | | |
|--|---|---|---|
| <input checked="" type="checkbox"/> WOODED SWAMP | <input checked="" type="checkbox"/> Deciduous | <input type="checkbox"/> Evergreen | <input checked="" type="checkbox"/> Scrub-Shrub |
| <input type="checkbox"/> MARSH | <input type="checkbox"/> Freshwater Shallow | <input checked="" type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input type="checkbox"/> RIVER | <input type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: |
| <input type="checkbox"/> STREAM | <input type="checkbox"/> Perennial | <input type="checkbox"/> Intermittent | |
| <input type="checkbox"/> POND | Name: | | |
| <input type="checkbox"/> LAKE | Name: | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input type="checkbox"/> Abandoned | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |
| <input type="checkbox"/> BEAVER FLOWAGE | <input type="checkbox"/> Active | | |

WETLAND DESCRIPTION

This linear wooded swamp is bordered to the west and south by residential subdivisions and has a thick shrub layer with aquatic habitat. This basin swamp provides important water quality renovation functions.

WETLAND PLANT COMMUNITY DATA

TREE LAYER

Red maple

SAPLING LAYER

Red maple

SHRUB LAYER

Sweet pepperbush
Highbush blueberry

HERBACEOUS LAYER

Royal fern
Marsh fern
Eastern burreed
Blunt broom sedge

Cinnamon fern
Tussock sedge
Bugleweed
Cattail

WETLAND SOILS DATA

295 Greenwood mucky peat, very poorly drained

WETLAND HYDROLOGY DATA:

Seasonally flooded to 2' deep

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

Green frog, wood frog, black throated green warbler, and red eyed vireo observed.

WETLAND INVENTORY DATA FORM

WETLAND ID: #4

CLASSIFICATION: PSS1E/PEM1E; PSS1E;
PFO1E/PSS1E

ACREAGE: 13

WEI PROJECT #: 07-069NH

SCIENTIST: Earle Chase

DATE: 4/23/08

WETLAND TYPE:

- | | | | |
|--|---|--|---|
| <input checked="" type="checkbox"/> WOODED SWAMP | <input type="checkbox"/> Deciduous | <input type="checkbox"/> Evergreen | <input checked="" type="checkbox"/> Scrub-Shrub |
| <input type="checkbox"/> MARSH | <input type="checkbox"/> Freshwater Shallow | <input type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input type="checkbox"/> RIVER | <input type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: |
| <input checked="" type="checkbox"/> STREAM | <input checked="" type="checkbox"/> Perennial | <input type="checkbox"/> Intermittent | |
| <input type="checkbox"/> POND | Name: | | |
| <input type="checkbox"/> LAKE | Name: | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input type="checkbox"/> Abandoned | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |
| <input type="checkbox"/> BEAVER FLOWAGE | <input type="checkbox"/> Active | | |

WETLAND DESCRIPTION

Wetlands #1, 4, and 11 are hydrologically interconnected. A perennial stream connects the individual wetland systems. The large percentage of scrub-shrub components accentuates this wetland's overall value.

WETLAND PLANT COMMUNITY DATA

PSS1Es/PEM1Ed (Access by Little Mill Road)

<u>TREE LAYER</u>	<u>SAPLING LAYER</u>	<u>SHRUB LAYER (45%)</u>		<u>HERBACEOUS LAYER (55%)</u>	
Absent	Absent	Speckled alder Steplebush	Willow (spp.)	Woolgrass	Tussock sedge

PFO1E (60%)/PSS1E (40%) – Access by Michael Circle

<u>TREE LAYER</u>	<u>SAPLING LAYER</u>	<u>SHRUB LAYER</u>		<u>HERBACEOUS LAYER</u>	
Red maple American elm Yellow birch	Red maple	Winterberry Meadowsweet	Highbush blueberry Maleberry	Tussock sedge Sphagnum moss	Cinnamon fern

WETLAND SOILS DATA

The Rockingham County Soil survey keys the underlying soils within this wetland as a 295 Greenwood mucky peat, very poorly drained. Both the surface layer and subsoil consist of mucky peat.

WETLAND HYDROLOGY DATA:

- Wetland #4 is connected hydrologically via a perennial stream with Wetland #11 on the north
- Wetland #4 is also connected hydrologically with Wetland #1 on the south
- Perennial stream channel is evident within this wetland
- 3-4" of water was noted in the PFO1E/PSS1E component, also pit and mound topography

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

- White-tailed deer (scat in adjacent uplands); tracks

WETLAND INVENTORY DATA FORM

WETLAND ID: #3

CLASSIFICATION: PFO4/1E/PSS1E;
PEM1E/PFO5E

ACREAGE: 38.0

WEI PROJECT #: 07-069NH

SCIENTIST: Earle Chase

DATE: 2/4/08

WETLAND TYPE:

- | | | | |
|--|---|---|---|
| <input checked="" type="checkbox"/> WOODED SWAMP | <input checked="" type="checkbox"/> Deciduous (33%) | <input checked="" type="checkbox"/> Evergreen (33%) | <input checked="" type="checkbox"/> Scrub-Shrub (33%) |
| <input type="checkbox"/> MARSH | <input type="checkbox"/> Freshwater Shallow | <input type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input type="checkbox"/> RIVER | <input type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: 1st |
| <input checked="" type="checkbox"/> STREAM | <input type="checkbox"/> Perennial | <input checked="" type="checkbox"/> Intermittent | |
| <input type="checkbox"/> POND | Name: | | |
| <input type="checkbox"/> LAKE | Name: | | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |
| <input type="checkbox"/> BEAVER FLOWAGE | | | |

WETLAND DESCRIPTION

This wetland is situated just north of the Hampstead-Sandown town line (a section of this wetland extends into Hampstead). At 38.0 acres, the wetland is the 7th largest in Sandown. The large composition of Atlantic white cedar within the tree layer accentuates its overall value.

WETLAND PLANT COMMUNITY DATA

TREE LAYER

Atlantic white cedar
Red maple

SAPLING LAYER

Red maple

SHRUB LAYER

Pepperbush (on perimeter)
Maleberry (on perimeter)

HERBACEOUS LAYER

Noted invasives include common reed & green briar

WETLAND SOILS DATA

The soils are mapped in the Rockingham County Soil Survey as a (295) Greenwood mucky peat. The surface layer, the subsoil, and substratum all consist of mucky peat. These soils are very poorly drained.

WETLAND HYDROLOGY DATA:

- Frozen conditions, saturation to the soil surface
- Adjacent to Snowell Pond
- (3) intermittent drainages flow southwards into Wetland #3
- The flowages consolidate and empty into Snowell Pond
- Aquifer transmissivity occurring

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

A component within this wetland system contains Atlantic white cedar – this deserves closer investigation to determine if a rarer plant community is evident (i.e. Atlantic white cedar/yellow birch/sweet pepperbush/muck peat swamp). Commercial development, residential development, and an adjacent gravel operation compromises overall integrity.

WETLAND INVENTORY DATA FORM

WETLAND ID: #2

CLASSIFICATION: PEM1E/PSS1E

ACREAGE: 8.0

WEI PROJECT #: 07-069NH

SCIENTIST: Earle Chase

DATE: 3/24/08

WETLAND TYPE:

- | | | | |
|---|--|--|---|
| <input type="checkbox"/> WOODED SWAMP | <input type="checkbox"/> Deciduous | <input type="checkbox"/> Evergreen | <input checked="" type="checkbox"/> Scrub-Shrub (50%) |
| <input checked="" type="checkbox"/> MARSH (50%) | <input checked="" type="checkbox"/> Freshwater Shallow | <input type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input type="checkbox"/> RIVER | <input type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: |
| <input checked="" type="checkbox"/> STREAM | <input type="checkbox"/> Perennial | <input checked="" type="checkbox"/> Intermittent | (exits on south, flows to Exeter River) |
| <input type="checkbox"/> POND | Name: | | |
| <input type="checkbox"/> LAKE | Name: | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |
| <input type="checkbox"/> BEAVER FLOWAGE | | | |

WETLAND DESCRIPTION

A large percentage of this wetland is divided equally between emergent and scrub-shrub vegetation. This wetland is contained within the Greenwood-Hooke Conservation Parcel accentuating its overall value. Due to limited adjacent development, much of the wetland's buffer is intact. This flowage drains to the Exeter River.

WETLAND PLANT COMMUNITY DATA

TREE LAYER

Absent

SAPLING LAYER

Absent

SHRUB LAYER

Meadowsweet
Maleberry
Highbush blueberry
Gray birch

Steeplebush
Winterberry
Buckthorn (spp.)
Red maple

HERBACEOUS LAYER

Broad-leaved cattail
Woolgrass
Sphagnum moss
Wetland grasses (spp.)

WETLAND SOILS DATA

The Rockingham County Soil Survey keys out the underlying soils as a (97) Greenwood & Ossipee soil, ponded, very poorly drained. The nearly level soils are situated in either drainageways or basins. Both the surface layer and subsoil consist of mucky peat.

WETLAND HYDROLOGY DATA:

The seasonal water table ranges from 1-4' above the surface layer. The wetland soils are covered with water throughout most of the growing season. A stream exits this wetland system from the south. Aquifer transmissivity does occur.

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

- White-tailed deer – scat
- Detritus noted throughout wetland improving overall structure
- Mayflower, a NH plant of concern, was observed in the adjacent uplands

WETLAND INVENTORY DATA FORM

WETLAND ID: #1

CLASSIFICATION: PEM1Eb/PFO5Eb

ACREAGE: 56

WEI PROJECT #: 07-069NH

SCIENTIST: Earle Chase

DATE: 4/23/08

WETLAND TYPE:

- | | | | |
|--|--|---|---|
| <input checked="" type="checkbox"/> WOODED SWAMP | <input checked="" type="checkbox"/> Deciduous | <input type="checkbox"/> Evergreen | <input checked="" type="checkbox"/> Scrub-Shrub |
| <input checked="" type="checkbox"/> MARSH | <input checked="" type="checkbox"/> Freshwater Shallow | <input type="checkbox"/> Freshwater Deep | <input type="checkbox"/> Tidal |
| <input type="checkbox"/> WET MEADOW | <input type="checkbox"/> Ditched | <input type="checkbox"/> Grazed | |
| <input type="checkbox"/> RIVER | <input type="checkbox"/> Upper Perennial | <input type="checkbox"/> Lower Perennial | Order: |
| <input checked="" type="checkbox"/> STREAM | <input checked="" type="checkbox"/> Perennial | <input type="checkbox"/> Intermittent | |
| <input checked="" type="checkbox"/> POND | Name: Angle Pond | | |
| <input type="checkbox"/> LAKE | Name: | | |
| <input type="checkbox"/> VERNAL POOL | <input type="checkbox"/> Documented | <input type="checkbox"/> Potential | |
| <input type="checkbox"/> HUMAN MADE or OTHER | Description: | | |
| <input checked="" type="checkbox"/> BEAVER FLOWAGE | <input type="checkbox"/> Active | <input checked="" type="checkbox"/> Abandoned | |

WETLAND DESCRIPTION

Wetland #1 is the 3rd largest wetland complex in Sandown. The most northern component (PEM1Eb/PFO5Eb) was previously occupied by beaver. The southern component (PFO1E/PSS1E) is situated adjacent Angle Pond. A perennial stream flows into, through, and exits this wetland.

WETLAND PLANT COMMUNITY DATA

PEM1Eb/PFO5Eb

<u>TREE LAYER</u>	<u>SAPLING LAYER</u>	<u>SHRUB LAYER</u>	<u>HERBACEOUS LAYER</u>
Absent (interspersed snags)	Absent	Speckled alder Steeplebush	Willow (spp.) Winterberry Broad-leaved cattail Common reed

PFO1E/PSS1E

<u>TREE LAYER</u>	<u>SAPLING LAYER</u>	<u>SHRUB LAYER</u>	<u>HERBACEOUS LAYER</u>
Red maple	Red maple	Winterberry Silky dogwood	Sweet pepperbush Maleberry Tussock sedge Royal fern Cinnamon fern

WETLAND SOILS DATA

The Rockingham County Soil survey keys the underlying soils within this wetland as a 295 Greenwood mucky peat, very poorly drained. Both the surface layer and subsoil consist of mucky peat.

WETLAND HYDROLOGY DATA:

- Wetland #4 drains southwards into Wetland #1 via a perennial stream
- Wetland #1 eventually drains into Angle Pond
- 6-8" of water was evident in the southern component of this wetland

WILDLIFE SIGNIFICANCE / ADDITIONAL NOTES:

- Red tailed hawk, red-winged blackbird, and beaver (series of step dams) were observed
- Large snag component in most northern wetland component
- Thick, thick vegetative cover in southern PFO1/PSS1E component
- Adjacent uplands in the north are posted

West Environmental, Inc.
Town of Sandown Inventory Functional/Value Assessment Data Form

Wetland ID: Size: Date: WEI Project # 07-069NH
 Classification: Aerial Photograph #:

Wetland Functions

Groundwater Recharge/Discharge

Geology
 Restrictive layer present y n
 Subsoil type:
 Other geologic features:
Function Present y n

Hydrology
 Groundwater relationship present y n
 Variable water levels observed y n
 Springs or seeps observed y n
 Contains only inlet or outlet y n

Principal Function

Yes No

Floodflow Alteration

Watershed Information
 Land cover in catchment area?
 Watershed position H M L
 Other catchment storage y n
 Watercourse associated y n
 Contains hydric A soils y n
Function Present y n

Topographic Information
 Topography of watershed:
 Topography of wetland:
 Constricted outlet y n
 High degree of impervious
 surfaces in wetland watershed y n
 Provides downstream protection y n

Yes No

Sediment/Toxicant/Pathogen Retention

Soils
 Organic Soils y n
 Broad boundary transition y n
Vegetation
 Herbaceous vegetation y n
 Dense vegetation y n
Function Present y n

Setting & Hydrology
 Upstream sources of pollution y n
 Erosion/sedimentation observed y n
 Diffuse flow/slow moving water y n
 Does wetland flood y n
 Long water retention y n

Yes No

Nutrient Removal/Retention Transformation

Hydrology
 Open water present y n
 Slow moving water y n
 Nutrients upslope y n
Function Present y n

Transformers
 Organic soils y n
 Aquatic vegetation y n
 Abundant vegetation y n

Yes No

Production Export

Vegetation
 Density H M L
 Interspersion H M L
 Diversity H M L
 Food source y n
Function Present y n

Export
 Detritus y n
 Aquatic plants y n
 Berry producing shrubs y n
 Nectar sources y n
 Seed/mast sources y n

Yes No

Sediment/Shoreline Stabilization

Is wetland associated with surface water? (if no, stop), Perennial or intermittent

Characteristics of Stream
 Elevation change present y n
 High seasonal flows y n
 Channelized flow y n
 Open water fetch y n
Function Present y n

Description of Bank
 Bank present y n
 Bank vegetated y n
 Bank eroded y n
 Steep bank y n
 Stabilized Bank y n

Yes No

Wetland ID:

Wildlife Habitat

Existing Critical Habitat y n

Type:

Principal Function

Critical Habitat Features y n

Specific Features:

Diversity Features

Aquatic insect habitat y n
Amphibian habitat y n
Fisheries habitat y n
Cavity trees y n
Food sources y n
Cover y n

Connectivity

Wildlife Corridor (through or adjacent) y n
Wetland connectivity y n
Upland connectivity y n

Strengths of Upland Habitat:

Function Present y n

Yes No

Vegetated Buffer

Type: Width:
Buffer stream or wetland y n
Does buffer provide shade y n
Does buffer adequately safeguard wetland y n
o

Habitat Degradation

Percentage of wetland buffer with encroachment:
Activities that adversely affect wildlife function:
Existing structure(s) that obstruct animal movement y n
Significant disturbance y n
Proximity to beaver, mink, or other habitat y n
Other:

Wetland Values

Recreational Value

Parking available y n
Watercraft access y n
Fishing available y n
Hunting permitted y n
Walking/biking trails y n

Restoration Stabilization Potential

y n
Restoration area size:

H2O Degradation

Present y n

Value H M L

Educational/Scientific Value

Unique habitats/plant species y n
Diverse wildlife habitat y n
Parking/access y n
Value H M L

Invasive Species Present: y n

Type:

Uniqueness/Heritage

Urban upland/proximity y n
Rapid development upland y n
Critical habitat/threatened or endangered species y n
Archaeological sites y n
Stonewalls present y n
Historic sites y n
Ecological health/vigor y n
Value H M L

Comments/Notes

y n



1. This photo shows Wetland #1 looking southeasterly from Mill Road. Beaver previously occupied this wetland.



2. In this section of the wetland, an emergent plant community (PEM1Eb/PFO5Eb) is evident. The dominant plant species is broad-leaved cattails. A pocket of common reed (an invasive species) can be viewed in the back center of the photograph.



3. This photo shows the narrow section of wetland connecting the upper and most southern components. An earlier beaver dam was observed here.



4. This photo shows the most southern wetland component (PFO1E/PSS1E). Here, a chiefly red maple tree layer overtops a thick scrub-shrub layer.



1. A large percentage of Wetland #2 is divided equally between emergent and scrub-shrub vegetation. A stream exits this wetland on its southern end and flows to the Exeter River.



2. Wetland #2 appears contained within/adjacent the Greenwood-Hooke conservation parcel, accentuating this wetland's overall value.



1. Wetland #4 is connected hydrologically with both Wetlands #1 & 11 via a perennial stream. This photo shows the emergent scrub-shrub wetland component adjacent Little Mill Road.



2. The northwestern component of Wetland #4 (access via Michael Circle) was forested with a thick scrub-shrub understory. The large percentage of scrub-shrub within Wetland #4 accentuates this wetland's wildlife value.



1. This is a view of the western portion of this forested/scrub-shrub swamp. The canopy is sparse, allowing for thick shrub growth.



2. Pockets of open water and emergent vegetation are present in this wetland, increasing its value as aquatic habitat.



1. This is a view from the beaver dam at the northern end of Wetland #6. Dead trees and deep marsh dominated this portion of the wetland.



2. This is a photo of the stream that drains from Wetland #6 to Wetland #7.



3. This is a photo of the southern portion of the wetland where a scrub-shrub/shallow marsh is present.



4. This photo shows the steep slope at the end of Snow Lane west of Wetland #6 from across the wetland.



1. The northern end of Wetland #7 includes a thick scrub-shrub marsh system with pockets of open water. This is high value habitat for Blanding's turtle.



2. The southern end of this wetland includes forested components mixed with scrub-shrub marsh.



3. This is a view of Little Cub Pond looking southwest. Wetland #7 borders three sides of the pond.



4. This is a view of the central portion of Wetland #7 from the east side of the pond.



1. This is a view of the northern end of Wetland #8 looking south.



2. The central portion of this wetland includes shallow marsh and scrub-shrub habitat with numerous standing dead trees.



3. This wetland has a transitional forested wetland along its northern boundary.



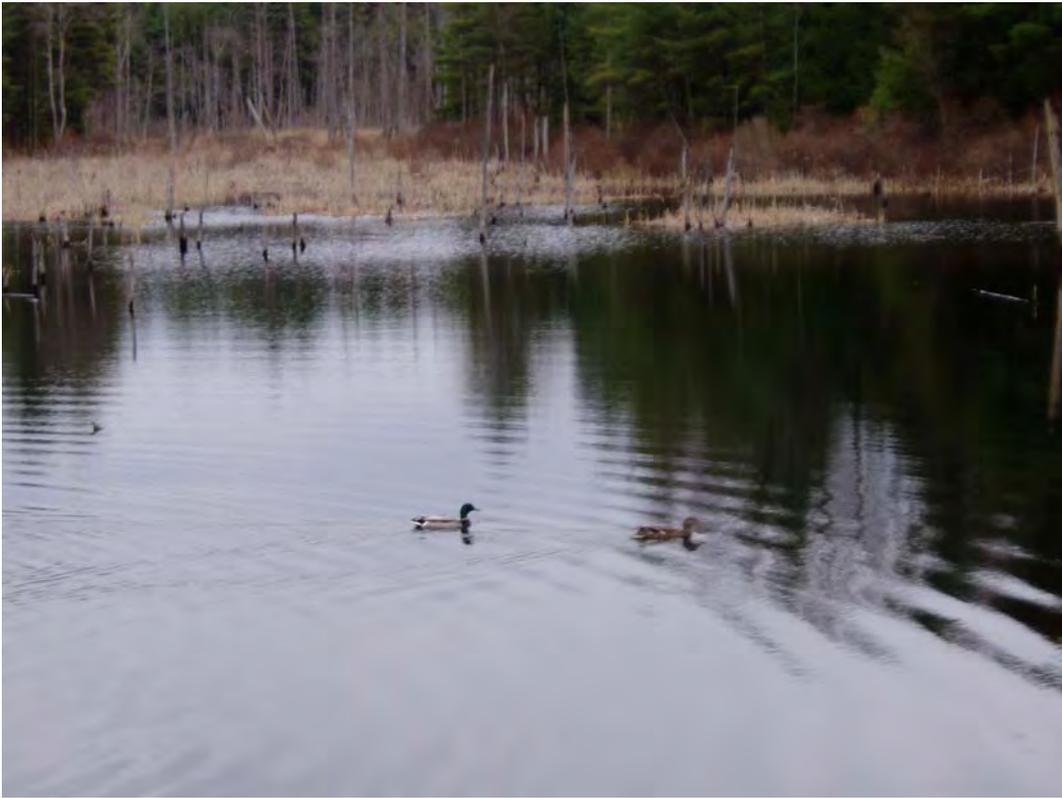
4. This is a view of the southwest portion of the wetland with Cub Pond in the background.



1. This is a view of Wetland #9a from Odell road looking eastwards. Open water and shallow marsh dominate this wetland.



2. This is a view of the central portion of the wetland where shrubs and dead trees mix in with the marsh habitat.



3. This photo shows a pair of mallards utilizing the open water component at Wetland #9a.



4. Snags provide a valuable habitat feature within much of Wetland #9a.



1. A residential driveway separates Wetland #9a and Wetland #9b. This photo shows the forested scrub-shrub plant community within Wetland #9b.



2. A beaver lodge (right, rear) was observed in the thick shrub layer in Wetland #9b. The impoundment of surface water by beaver normally attracts a multitude of other wildlife species.



3. The southeastern finger of Wetland #9b is a shallow marsh that was flooded by beaver activity.



4. Wetland #9b is bisected by this stone ford which provides access into a woodlot off the main residential driveway.



5. This is a view of one of the three 24" diameter culverts which connect Wetland #9b to #9a under the residential driveway.



1. This isolated beaver pond includes 14 great blue heron nests and an active beaver lodge.



2. This is a view of a great blue heron adult returning to the nest to feed its young.



3. This photo is looking north from the southern outlet of this wetland which drains to Wetland #8 and Cub Pond.



4. The southern end of the wetland includes a smaller beaver pond which has developed a thick shallow marsh plant community.



1. Wetland #10a was previously occupied by a colony of beaver. Adjacent development may have required the draining of the earlier beaver flowage and surface water.



2. This photo shows a muskrat lodge (just left of existing channel). Unlike beaver that use sticks to construct their lodges, muskrat utilize herbaceous growth (mostly cattails).



3. This photo shows the emergence of hundreds of fairy shrimp at the existing culvert. Red-spotted newts (right, top) have gathered to feed on these tiny crustaceans.



1. This photo is looking west from Odell Road into Wetland #10, a beaver pond with deep and shallow marsh habitat.



2. The central portion of this wetland has a thick emergent marsh with no shrubs or trees present.



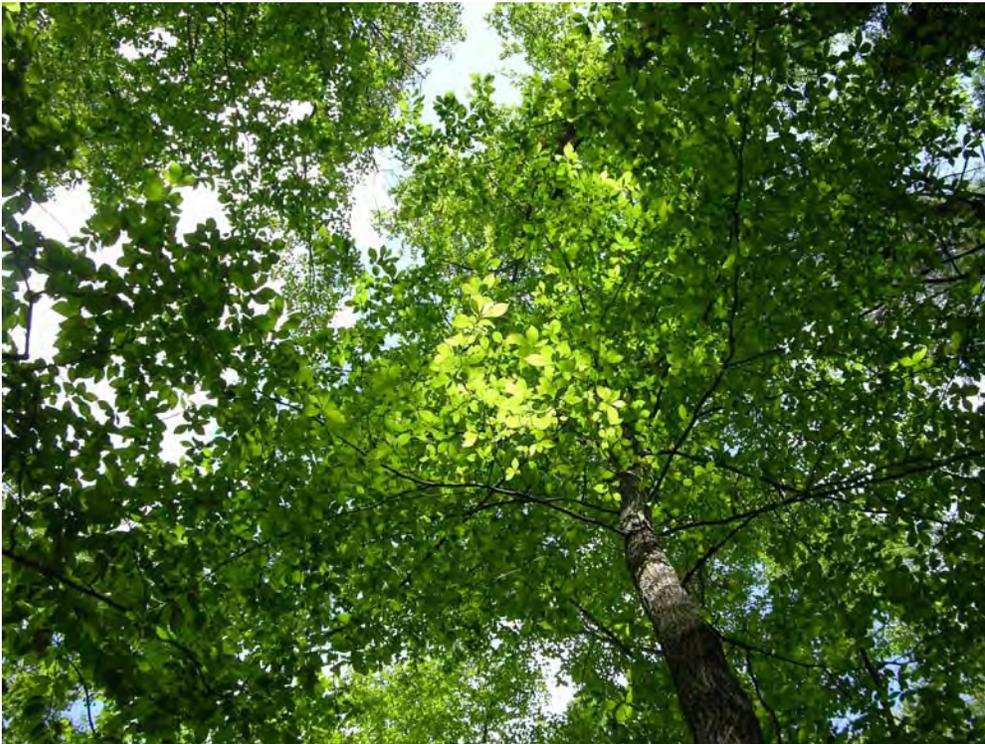
1. This photo is looking south from Meadowbrook Crossing at this small beaver pond. Scrub-shrub, shallow marsh habitat, and deep marsh habitat are present in this wetland.



2. This is a view of the road crossing that separates Wetland 10b from 10a limiting the connectivity between these two wetlands.



1. This is a view of the central portion of this red maple basin swamp which has pit and mound topography.



2. Black gum trees like this one were present as a sub-dominant in the canopy and sapling layers of this wetland.



1. This is a view of the eastern portion of Wetland #12 which is bordered by an eastern hemlock forest.



2. This wetland has a thick shrub layer which includes sweet pepperbush.



1. This is a view of Wetland #13 looking north from Tamworth Road. This is a scrub-shrub wetland with a thin to moderate interspersed sapling layer.



2. This is another view of Wetland #13 looking south from the town's highway shed. Areas within this wetland with standing water may provide important vernal pool habitat.



1. This is a view of the eastern finger of the wetland which is a forested/scrub-shrub beaver flowage.



2. A painted turtle was utilizing a log to sun itself in this wetland.



3. Upland bordering this portion of the wetland includes rock outcrops and surface boulders.



4. This is a view of the northern portion of the wetland which includes a scrub-shrub marsh.



5. A state ATV trail bisects this wetland.



6. The southern portion of the wetland is dominated by a cattail marsh.



1. This photo shows Wetland #15 during mid-winter. A section of a prior beaver dam (center) has been removed and has lowered earlier water levels. It is unclear at this time whether beaver still occupy this wetland.



2. This photo shows Wetland #15 during spring runoff. Flood storage remains a chief function of this wetland.



3. This photo shows the most southern end of Wetland #15. This section of wetland is forested in character.



4. This photo shows the large 4' x 4' concrete culvert that connects the upper and lower reaches of Wetland #15. This existing culvert passes beneath Glastonbury Drive, the road that provides access to Avalon Estates.



1. This photo shows a section of Wetland #16 situated along the southwestern perimeter of Philips Pond. This component of scrub-shrub wetland is semi-permanently flooded.



2. Beaver and muskrat are actively utilizing an emergent marsh component along the pond's edge (center of photo). When comparing the three lodges, the muskrat's is the smallest.



3. A third beaver lodge (left, center) was observed in the northeastern PFO5/4Fb wetland component. Atlantic white cedar (sapling layer) and leatherleaf (shrub layer) are the two dominant plant species here.



4. Beaver activity was also observed further west in the PFO5Eb wetland component. Water impoundment over several years has killed a large percentage of the tree canopy. The remaining dead standing trees now provide potential nesting to several species of songbird.



5. Another indication of songbird usage within the wetland components adjacent Phillips Pond was this bird nest (left, center).



1. This photo shows the permanently flooded component of Wetland #17 adjacent Phillips Pond. Wetland shrubs are the dominant species.



2. This photo is of the same wetland component as above but directed back towards Phillips Pond. Lake/pond-associated wetlands are generally ranked higher in function and value.



3. This photo shows the small open water component (PUB3E) situated at the center of Wetland #17. From this juncture, it appears flowage moves both northwesterly via an intermittent stream and southerly through the connecting wetland system.



4. These wild turkeys were observed moving from a forested component within Wetland #17 to the adjacent uplands. This emphasizes the importance of wetlands even in the winter months to various wildlife species.



1. Wetland #18 is bisected by a large perennial stream that exits Phillips Pond and flows northwards. The photo shows the southwestern end of this wetland. In this section of wetland, an emergent marsh/scrub-shrub wetland (PEM1E/PSS1E) was observed. The dense vegetation and wintertime conditions obscure the existing stream channel.



2. This photo is directed northwards from Shore Drive at the northeastern section of Wetland #18.



1. This photo is directed southwards from Route 121A at Wetland #19. Coyote (possibly fox) tracks are evident (left, center) on the frozen Exeter River channel.



2. This photo provides the same view from Route 121A of the Exeter River, but during the spring months. Wetland #19's association with this river amplifies its function and value.



3. This section of Wetland #19 is occupied by a colony of beaver (the beaver lodge is situated at the center of the photo). Beaver, although troublesome at times, attract a diverse range of wildlife species who utilize the associated valuable habitat.



4. Frequently, songbirds are one of those species utilizing beaver flowage or riparian habitats. Here, a bird's nest was observed in the river's adjacent scrub-shrub plant community.



5. This is a view of the most southern end of Wetland #19 looking north. Here a perennial flows north from Phillips Pond. In a short distance upstream, this perennial merges with the Exeter River.



1. This photo shows the large open water component (Lily Pond) situated within Wetland #20 during the late winter months.



2. This photo (taken about 3 months later from the same camera angle) shows Lily Pond just after ice-out. The pond's associated scrub-shrub plant community (chiefly buttonbush) is evident.



3. This is a view of Wetland #20 looking southwesterly from Phillips Road. The adjacent scrub-shrub plant communities potentially provide turtle species with critical habitat.



4. This is a photo of the crossing structure (center) passing beneath Phillips Road which connects Lily Pond with the Exeter River.



5. This is a photo of the emergent scrub-shrub / open water wetland component situated just east of Phillips Road. This section of wetland is being occupied by beaver (see the beaver lodge in the right center of the photo)



6. This photo shows the earlier historical crossing of the Exeter River. Close observation of the photo's background reveals white-tailed deer tracks. It appears that deer are accessing the open water (created by the strong current) for drinking during the winter months as it exits the wetland.



1. This photo is directed westwards from an adjacent parking area at Wetland #21. This wetland is comprised of three main components: open water, scrub-shrub, and emergent marsh. As indicated on the photo, the local residents are using the open water component at this wetland for skating.



2. This photo shows the emergent marsh component within this wetland.



3. A colony of beaver has constructed two lodges within the scrub-shrub component (chiefly buttonbush and speckled alder).



4. A songbird's nest was also noted in the scrub-shrub component utilizing the thick cover provided by buttonbush.



1. This is a view of the wetland from its southwestern end looking northeast. This is a classic scrub-shrub buttonbush swamp.



2. There are pockets of deep marsh with water lilies and water willow present.



3. This is a view of the outlet of Wetland #22 which drains along the railroad bed to Wetland #14. This area has been recently dredged and a beaver dam may have been removed.



4. It appears that water levels have been lowered in this wetland by maintenance dredging in the ditches along the railroad bed.



1. Wetland #23 is approximately two-thirds emergent marsh and one-third scrub-shrub. Tussock sedge is a dominant wetland plant species.



2. This photo provides another view of the same wetland in early spring 2008. A perennial stream exits this wetland flowing in a northerly direction.



1. This photo was taken from the railroad trail looking north into the northwest portion of this wetland. A subdivision borders the western boundary of this buttonbush swamp.



2. This is a closer view of this portion of Wetland #24. These swamps provide important habitat to waterfowl, especially wood duck.



3. This is a view of the railroad bridge where the Exeter River flows south into the main portion of this wetland.



4. This photo is looking east (downstream) at the Exeter River from the railroad bed. Phragmites (the tall tan reed) has invaded a few small areas of this wetland.



5. The central portion of this wetland is a large scrub-shrub, floodplain swamp. Both deep and shallow marsh are also present.



6. Large hayfields border the southern boundary of the eastern end of this wetland along the Danville town line.



1. Wetland #25 is forested in character with a scrub-shrub understory. Pit and mound topography was evident.



2. Black gum, a wetland tree species (left) was observed within this wetland. A new 40-lot subdivision is located just north of this wetland.



1. Wetland #26 is situated just south of the Chester town line. The larger wetland system extends northward to the Exeter River. Historical ditching was evident throughout this wetland.



2. This photo shows a deer stand at the perimeter of the forested / scrub-shrub component. White-tailed deer often utilize these forested areas to bed-down in as the vegetative cover is thick and difficult to traverse.



1. Wetland #27 was previously occupied by beaver. Its adjacent topography appeared to restrain the further expansion of this beaver flowage.



2. Snags within the wetland still provide a critical habitat feature for nesting songbirds.



1. Wetland #28 is a series of interconnected beaver flowages. This photo shows one of the beaver lodges observed (right center) in the more central portion of the wetland.



2. This photo shows one of the several beaver dams that separated the individual beaver flowages.



3. This photo shows another beaver lodge situated in the southeast section of Wetland #28.



4. Fisher tracks (shown right of clipboard) were observed in the adjacent uplands.



5. Common reed (phragmites), an invasive species, was noted in one of the beaver flowages (the taller vegetation in photo). This invasive often displaces other naturally occurring wetland plants and over time reduces plant diversity.



1. Wetland #29 contains a large open water component with an internal scrub-shrub leatherleaf plant community (PSS3Fb).



2. The wetland is occupied by a large colony of beaver. Six individual beaver lodges were noted. It appears (not confirmed) that a large percentage of their diet is aquatic plants.



3. This photo shows a heavily used snowmobile/ATV crossing at the most southern end of Wetland #29. Efforts should be made to employ an appropriate crossing structure on this power line road to protect surface waters entering Wetland #31.



1. Wetland #30 is largely emergent marsh with a component of overtopping snags.



2. A single great blue heron nest was noted (top, right) in one of the existing snags. Wetlands that are utilized by this particular bird are usually considered very important.



3. Wetland #30's position between a development and active gravel operations may limit its overall protection over time.



1. This photo, directed eastward, shows one of the open water components contained within Wetland #31. In two locations, beaver have constructed dams that have impounded water.



2. Oftentimes, beaver attract other wildlife species that utilize these valuable habitats. This photo reveals a muskrat lodge (center). Muskrat migrate to wetlands with broad-leaved cattail plant communities.



3. This photo provides a view of Wetland #31 looking east from its most western end. Here, a second dam structure was noted.



4. The impoundment of water by beaver often surrounds trees which eventually kill them. This photo shows a component within Wetland #31 where this has happened. These trees later provide surfaces in which birds glean for insects.



1. Wetland #32 is another beaver flowage being actively occupied by beaver. The wetland is situated underneath a large power line.



2. A beaver lodge was noted along this wetland's eastern embankment.



1. Wetland #33 contains a small surface water that has been historically impounded. A perennial stream exits this wetland on the southeast.



2. This photo shows the forested wetland component situated just north of Wetland #33. Flowage here drains northerly to the Exeter River.



3. Coyote trails were observed within the forested wetland component, substantiating usage by a predator species.

ARTICLE X

Shall the Town adopt the Planning Board Article to designate Prime Wetlands, a local option under [RSA 482-A:15](#), as delineated by Town of Sandown Prime Wetlands Study and Mapping by West Environmental, Inc., and dated October 2008, and as recommended by the Sandoen Conservation Commission?

Recommended by the Planning Board