Appendix A

Data Sources

Sources of Data Used for the JLUS Figures and Constraints Model

City of Auburn

-GIS Base Map; parcels layer and zoning layer, May, 2013

Beginning with Habitat Web Site

-State of Maine; Primary Maps 1 through 3 and Supplemental Maps 7 and 8; May, 2013.

Maine Army National Guard

-High resolution aerial photos; May, 2010.

Maine Office of GIS

-Conserved Lands layer; May, 2013.

-Flood Rate Insurance Map layer; May, 2013.

-Significant Vernal Pools layer; May, 2013.

-Inland Waterfowl and Wading Bird Habitat layer; May, 2013.

-USGS 1:24000 7.5' topography maps; May, 2013.

-U.S. Fish and Wildlife Service, National Wetland Inventory Maps; May, 2013.

Normandeau Associates, Inc.

-Field data collected in spring 2013 including vernal pool data, wetland data, GPS location data, and stream data.

Appendix B

Maine State Vernal Pool Assessment Form

Maine State Vernal Pool Assessment Form

5. VERNAL POOL HABITAT INFORMATION ← Pool ID: WI-VP1

a. Habitat survey date (only if different from indicator survey dates on page 3): 4-16-13

b. Wetland habitat characterization

■ Choose the best descriptor for the landscape setting:

- ○ Isolated depression
- ○ Floodplain depression
- ✓ Pool associated with larger wetland complex
- ○ Other: _____

■ Check all wetland types that best apply to this pool:

- ☑ Forested swamp
- ☑ Shrub swamp
- ☐ Peatland (fen or bog)
- ☐ Emergent marsh
- ☐ Wet meadow
- ☐ Lake/Pond
- ☐ Abandoned beaver flowage
- ☐ Active beaver flowage
- ☐ Slow stream
- ☐ Floodplain overflow / oxbow
- ☐ Headwater seepage
- ☐ Other: _____

c. Vernal pool status under the Natural Resources Protection Act (NRPA)

i. Pool Origin: ○ Natural ✓ Natural-Modified ○ Unnatural ○ Unknown

If modified, unnatural or unknown, describe any modern or historic human impacts to the pool (required):

Impounded by adjacent road + parking

ii. Pool Hydrology

■ Select the pool's estimated hydroperiod AND provide rationale for opinion.

- ○ Permanent
- ✓ Semi-permanent (drying partially in all years and completely in drought years)
- ○ Ephemeral (drying out completely in most years)
- ○ Unknown

Explain:

Some deep pools with no vegetation

■ Maximum depth at survey: ○ 0-12" (0-1 ft.) ✓ 12-36" (1-3 ft.) ○ 36-60" (3-5 ft.) ○ >60" (>5 ft.)

■ Approximate size of pool (at spring highwater): Width: 100 ○ m ✓ ft Length: 125 ○ m ✓ ft

■ Predominate substrate in order of increasing hydroperiod:

- ○ Mineral soil (bare, leaf-litter bottom, or upland mosses present)
- ○ Mineral soil (sphagnum moss present)
- ✓ Organic matter (peat/muck) shallow or restricted to deepest portion
- ○ Organic matter (peat/muck) deep and widespread

■ Pool vegetation indicators in order of increasing hydroperiod (check all that apply):

- ☐ Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.)
- ☐ Dry site ferns (e.g. spinulose wood fern, lady fern, bracken fern)
- ☑ Moist site ferns (e.g. sensitive fern, cinnamon fern, interrupted fern, New York fern)
- ☑ Moist site vasculars (e.g. skunk cabbage, jewelweed, blue flag iris, swamp candle)
- ☑ Sphagnum moss (anchored or suspended)
- ☑ Wet site ferns (e.g. royal fern, marsh fern)
- ☑ Wet site shrubs (e.g. highbush blueberry, maleberry, winterberry, mountain holly)
- ☐ Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail, bulrushes)
- ☐ Aquatic vascular spp. (e.g. pickerelweed, arrowhead)
- ☐ Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)
- ☐ No vegetation in pool

■ Faunal indicators (check all that apply):

- ☐ Fish
- ☐ Bullfrog or Green Frog tadpoles
- ☐ Other: —

iii. Inlet/Outlet Flow Permanency

Type of inlet or outlet (a seasonal or permanent channel providing water flowing into or out of the pool):

- ○ No inlet or outlet
- ○ Intermittent inlet or outlet
- ○ Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- ✓ Other or Unknown (explain): ephemeral drain

Maine State Vernal Pool Assessment Form

6. VERNAL POOL INDICATOR INFORMATION

← Pool ID: W1-VP1

a. Indicator survey dates: 4-16-13

b. Indicator abundance criteria

- Was the entire pool surveyed for egg masses? ○ Yes ○ No; what % of pool surveyed?_____
- For each indicator species, indicate the exact number of egg masses, confidence level for species determination, and egg mass maturity. Separate cells are provided for separate survey dates.

INDICATOR SPECIES	Egg Masses (or adult Fairy Shrimp)									Tadpoles/Larvae					
	#			Confidence Level[1]			Egg Mass Maturity[2]			Observed			Confidence Level[1]		
Wood Frog	63			3			F								
Spotted Salamander	1														
Blue-spotted Salamander	1														
Fairy Shrimp[3]	1														

1-Confidence level: 1 = <60%, 2 = 60-95%, 3 = >95%

2-Egg mass maturity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

3-Fairy Shrimp: X = present

c. Rarity criteria

- Note any rare species associated with vernal pools. Check the method(s) of verification and fill in the confidence level (CL) for each species observation. Observations should be accompanied by photographs (labeled with observer name, pool location, and date).

SPECIES	Method of Verification*			CL**	SPECIES	Method of Verification*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	☐	☐	☐		Wood Turtle	☐	☐	☐	
Spotted Turtle	☐	☐	☐		Ribbon Snake	☐	☐	☐	
Ringed Boghaunter	☐	☐	☐		Other:	☐	☐	☐	

*Method of verification: P = Photographed, H = Handled, S = Seen

**CL - Confidence level in species determination: 1= <60%, 2= 60-95%, 3= >95%

d. Optional observer recommendation:

✓ SVP ○ Potential SVP ○ Non Significant VP ○ Indicator Breeding Area

e. General vernal pool comments and/or observations of other wildlife:

Eggs (4/16) very fresh - no red embryos visible

Send completed form and supporting documentation to: Maine Dept. of Inland Fisheries and Wildlife
Attn: Vernal Pools
650 State Street, Bangor, ME 04401

NOTE: Digital submission (to Jason.Czapiga@maine.gov) of vernal pool field forms and photographs is only acceptable for projects with 3 or fewer assessed pools; larger projects must be mailed as hard copies.

For MDIFW use only Reviewed by MDIFW Date:_____ Initials:_____

This pool is: ☐ **Significant** ☐ **Potentially Significant** but lacking critical data ☐ **Not Significant** due to: ○ does not meet biological criteria. ○ does not meet MDEP vernal pool criteria.

Comments:

Maine State Vernal Pool Assessment Form W3-VP3

5. VERNAL POOL HABITAT INFORMATION

a. Habitat survey date (only if different from indicator survey dates on page 3): 4-16-13

b. Wetland habitat characterization

■ Choose the best descriptor for the landscape setting:

- ○ Isolated depression
- ○ Floodplain depression
- ✓ Pool associated with larger wetland complex
- ○ Other: _____

■ Check all wetland types that best apply to this pool:

- ☑ Forested swamp
- ☑ Shrub swamp
- ☐ Peatland (fen or bog)
- ☐ Emergent marsh
- ☐ Wet meadow
- ☐ Lake/Pond
- ☐ Abandoned beaver flowage
- ☐ Active beaver flowage
- ☐ Slow stream
- ☐ Floodplain overflow / oxbow
- ☐ Headwater seepage
- ☐ Other: _____

c. Vernal pool status under the Natural Resources Protection Act (NRPA)

i. Pool Origin: ✓ Natural ○ Natural-Modified ○ Unnatural ○ Unknown

If modified, unnatural or unknown, describe any modern or historic human impacts to the pool (required):

ii. Pool Hydrology

■ Select the pool's estimated hydroperiod AND provide rationale for opinion.

- ○ Permanent
- ✓ Semi-permanent (drying partially in all years and completely in drought years)
- ○ Ephemeral (drying out completely in most years)
- ○ Unknown

Explain:

Some areas without vegetation, but mostly vegetated substrate

■ Maximum depth at survey: ○ 0-12" (0-1 ft.) ✓ 12-36" (1-3 ft.) ○ 36-60" (3-5 ft.) ○ >60" (>5 ft.)

■ Approximate size of pool (at spring highwater): Width: 150 ○ m ✓ ft Length: 200 ○ m ✓ ft

■ Predominate substrate in order of increasing hydroperiod:

- ○ Mineral soil (bare, leaf-litter bottom, or upland mosses present)
- ○ Mineral soil (sphagnum moss present)
- ○ Organic matter (peat/muck) shallow or restricted to deepest portion
- ✓ Organic matter (peat/muck) deep and widespread

■ Pool vegetation indicators in order of increasing hydroperiod (check all that apply):

- ☐ Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.)
- ☐ Dry site ferns (e.g. spinulose wood fern, lady fern, bracken fern)
- ☐ Moist site ferns (e.g. sensitive fern, cinnamon fern, interrupted fern, New York fern)
- ☐ Moist site vasculars (e.g. skunk cabbage, jewelweed, blue flag iris, swamp candle)
- ☑ Sphagnum moss (anchored or suspended)
- ☑ Wet site ferns (e.g. royal fern, marsh fern)
- ☑ Wet site shrubs (e.g. highbush blueberry, maleberry, winterberry, mountain holly)
- ☑ Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail, bulrushes)
- ☐ Aquatic vascular spp. (e.g. pickerelweed, arrowhead)
- ☐ Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)
- ☐ No vegetation in pool

■ Faunal indicators (check all that apply):

- ☐ Fish
- ☐ Bullfrog or Green Frog tadpoles
- ☐ Other: _____

iii. Inlet/Outlet Flow Permanency

Type of inlet or outlet (a seasonal or permanent channel providing water flowing into or out of the pool):

- ○ No inlet or outlet
- ○ Intermittent inlet or outlet
- ○ Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- ✓ Other or Unknown (explain): Surface water connection possible to other part of wetland

Maine State Vernal Pool Assessment Form

6. VERNAL POOL INDICATOR INFORMATION

a. Indicator survey dates: 4-16-13

b. Indicator abundance criteria

- Was the entire pool surveyed for egg masses? ○ Yes ✓ No; what % of pool surveyed? ~50
- For each indicator species, indicate the exact number of egg masses, confidence level for species determination, and egg mass maturity. Separate cells are provided for separate survey dates.

INDICATOR SPECIES	Egg Masses (or adult Fairy Shrimp)			Tadpoles/Larvae	
	#	Confidence Level[1]	Egg Mass Maturity[2]	Observed	Confidence Level[1]
Wood Frog	1000+	3	F	—	—
Spotted Salamander	—	—	—	—	—
Blue-spotted Salamander	—	—	—	—	—
Fairy Shrimp[3]	—	—			

1-Confidence level: 1 = <60%, 2 = 60-95%, 3 = >95%

2-Egg mass maturity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

3-Fairy Shrimp: X = present

c. Rarity criteria

- Note any rare species associated with vernal pools. Check the method(s) of verification and fill in the confidence level (CL) for each species observation. Observations should be accompanied by photographs (labeled with observer name, pool location, and date).

SPECIES	Method of Verification*			CL**	SPECIES	Method of Verification*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	☐	☐	☐		Wood Turtle	☐	☐	☐	
Spotted Turtle	☐	☐	☐		Ribbon Snake	☐	☐	☐	
Ringed Boghaunter	☐	☐	☐		Other:	☐	☐	☐	

*Method of verification: P = Photographed, H = Handled, S = Seen

**CL - Confidence level in species determination: 1= <60%, 2= 60-95%, 3= >95%

d. Optional observer recommendation:

○ SVP ○ Potential SVP ○ Non Significant VP ○ Indicator Breeding Area

e. General vernal pool comments and/or observations of other wildlife:

Large mudded pool. Poor access to interior. Churning wood frogs throughout

Send completed form and supporting documentation to: Maine Dept. of Inland Fisheries and Wildlife
Attn: Vernal Pools
650 State Street, Bangor, ME 04401

NOTE: Digital submission (to Jason.Czapiga@maine.gov) of vernal pool field forms and photographs is only acceptable for projects with 3 or fewer assessed pools; larger projects must be mailed as hard copies.

For MDIFW use only Reviewed by MDIFW Date:_____ Initials:_____

This pool is: ☐ **Significant** ☐ **Potentially Significant** but lacking critical data ☐ **Not Significant** due to: ○ does not meet biological criteria. ○ does not meet MDEP vernal pool criteria.

Comments:

Maine State Vernal Pool Assessment Form

5. VERNAL POOL HABITAT INFORMATION ← Pool ID: W3 VP2

a. Habitat survey date (only if different from indicator survey dates on page 3): _____

b. Wetland habitat characterization

■ Choose the best descriptor for the landscape setting:

- ○ Isolated depression
- ○ Floodplain depression
- ☑ Pool associated with larger wetland complex
- ○ Other: _____

■ Check all wetland types that best apply to this pool:

- ☐ Forested swamp
- ☑ Shrub swamp
- ☐ Peatland (fen or bog)
- ☑ Emergent marsh
- ☐ Wet meadow
- ☐ Lake/Pond
- ☐ Abandoned beaver flowage
- ☐ Active beaver flowage
- ☐ Slow stream
- ☐ Floodplain overflow / oxbow
- ☐ Headwater seepage
- ☐ Other: _____

c. Vernal pool status under the Natural Resources Protection Act (NRPA)

i. Pool Origin: ☑ Natural ○ Natural-Modified ○ Unnatural ○ Unknown

If modified, unnatural or unknown, describe any modern or historic human impacts to the pool (required):

ii. Pool Hydrology

■ Select the pool's estimated hydroperiod AND provide rationale for opinion.

- ☑ Permanent
- ○ Semi-permanent (drying partially in all years and completely in drought years)
- ○ Ephemeral (drying out completely in most years)
- ○ Unknown

Explain:

>2' deep in some areas, no way.

■ Maximum depth at survey: ○ 0-12" (0-1 ft.) ☑ 12-36" (1-3 ft.) ○ 36-60" (3-5 ft.) ○ >60" (>5 ft.)

■ Approximate size of pool (at spring highwater): Width: 60 ○ m ○ ft Length: 80 ○ m ○ ft

■ Predominate substrate in order of increasing hydroperiod:

- ○ Mineral soil (bare, leaf-litter bottom, or upland mosses present)
- ○ Mineral soil (sphagnum moss present)
- ○ Organic matter (peat/muck) shallow or restricted to deepest portion
- ☑ Organic matter (peat/muck) deep and widespread

■ Pool vegetation indicators in order of increasing hydroperiod (check all that apply):

- ☐ Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.)
- ☐ Dry site ferns (e.g. spinulose wood fern, lady fern, bracken fern)
- ☐ Moist site ferns (e.g. sensitive fern, cinnamon fern, interrupted fern, New York fern)
- ☐ Moist site vasculars (e.g. skunk cabbage, jewelweed, blue flag iris, swamp candle)
- ☑ Sphagnum moss (anchored or suspended)
- ☑ Wet site ferns (e.g. royal fern, marsh fern)
- ☑ Wet site shrubs (e.g. highbush blueberry, maleberry, winterberry, mountain holly)
- ☑ Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail, bulrushes)
- ☐ Aquatic vascular spp. (e.g. pickerelweed, arrowhead)
- ☐ Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)
- ☐ No vegetation in pool

■ Faunal indicators (check all that apply):

- ☐ Fish
- ☐ Bullfrog or Green Frog tadpoles
- ☐ Other: _____

iii. Inlet/Outlet Flow Permanency

Type of inlet or outlet (a seasonal or permanent channel providing water flowing into or out of the pool):

- ☑ No inlet or outlet
- ○ Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- ○ Intermittent inlet or outlet
- ○ Other or Unknown (explain): _____

Maine State Vernal Pool Assessment Form

6. VERNAL POOL INDICATOR INFORMATION

Pool ID: W3-VP2

a. Indicator survey dates: 4-16-13

b. Indicator abundance criteria

- Was the entire pool surveyed for egg masses? ○ Yes ○ No; what % of pool surveyed?_____
- For each indicator species, indicate the exact number of egg masses, confidence level for species determination, and egg mass maturity. Separate cells are provided for separate survey dates.

INDICATOR SPECIES	Egg Masses (or adult Fairy Shrimp)						Tadpoles/Larvae					
	#			Confidence Level[1]			Egg Mass Maturity[2]			Observed			Confidence Level[1]		
Wood Frog	475			3			F								
Spotted Salamander	-														
Blue-spotted Salamander	-														
Fairy Shrimp[3]	-														

1-Confidence level: 1 = <60%, 2 = 60-95%, 3 = >95%

2-Egg mass maturity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

3-Fairy Shrimp: X = present

c. Rarity criteria

- Note any rare species associated with vernal pools. Check the method(s) of verification and fill in the confidence level (CL) for each species observation. Observations should be accompanied by photographs (labeled with observer name, pool location, and date).

SPECIES	Method of Verification*			CL**	SPECIES	Method of Verification*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	☐	☐	☐		Wood Turtle	☐	☐	☐	
Spotted Turtle	☐	☐	☐		Ribbon Snake	☐	☐	☐	
Ringed Boghaunter	☐	☐	☐		Other:	☐	☐	☐	

*Method of verification: P = Photographed, H = Handled, S = Seen

**CL - Confidence level in species determination: 1= <60%, 2= 60-95%, 3= >95%

d. Optional observer recommendation:

○ SVP ○ Potential SVP ○ Non Significant VP ○ Indicator Breeding Area

e. General vernal pool comments and/or observations of other wildlife:

Send completed form and supporting documentation to: Maine Dept. of Inland Fisheries and Wildlife
Attn: Vernal Pools
650 State Street, Bangor, ME 04401

NOTE: Digital submission (to Jason.Czapiga@maine.gov) of vernal pool field forms and photographs is only acceptable for projects with 3 or fewer assessed pools; larger projects must be mailed as hard copies.

For MDIFW use only Reviewed by MDIFW Date:_____ Initials:_____

This pool is: ☐ **Significant** ☐ **Potentially Significant** but lacking critical data ☐ **Not Significant** due to: ○ does not meet biological criteria. ○ does not meet MDEP vernal pool criteria.

Comments:

Maine State Vernal Pool Assessment Form

5. VERNAL POOL HABITAT INFORMATION

Pool ID: W3-VP1

a. Habitat survey date (only if different from indicator survey dates on page 3): _____

b. Wetland habitat characterization

■ Choose the best descriptor for the landscape setting:

- ○ Isolated depression
- ○ Floodplain depression
- ✓ Pool associated with larger wetland complex
- ○ Other: _____

■ Check all wetland types that best apply to this pool:

- ☑ Forested swamp
- ☑ Shrub swamp
- ☐ Peatland (fen or bog)
- ☐ Emergent marsh
- ☐ Wet meadow
- ☐ Lake/Pond
- ☐ Abandoned beaver flowage
- ☐ Active beaver flowage
- ☐ Slow stream
- ☐ Floodplain overflow / oxbow
- ☐ Headwater seepage
- ☐ Other: _____

c. Vernal pool status under the Natural Resources Protection Act (NRPA)

i. Pool Origin: ✓ Natural ○ Natural-Modified ○ Unnatural ○ Unknown

If modified, unnatural or unknown, describe any modern or historic human impacts to the pool (required):

ii. Pool Hydrology

■ Select the pool's estimated hydroperiod AND provide rationale for opinion.

- ○ Permanent
- ✓ Semi-permanent (drying partially in all years and completely in drought years)
- ○ Ephemeral (drying out completely in most years)
- ○ Unknown

Explain:

~12" deep b-t emergent veg. throughout

■ Maximum depth at survey: ✓ 0-12" (0-1 ft.) ○ 12-36" (1-3 ft.) ○ 36-60" (3-5 ft.) ○ >60" (>5 ft.)

■ Approximate size of pool (at spring highwater): Width: _____ ○ m ○ ft Length: _____ ○ m ○ ft

■ Predominate substrate in order of increasing hydroperiod:

- ○ Mineral soil (bare, leaf-litter bottom, or upland mosses present)
- ○ Mineral soil (sphagnum moss present)
- ✓ Organic matter (peat/muck) shallow or restricted to deepest portion
- ○ Organic matter (peat/muck) deep and widespread

■ Pool vegetation indicators in order of increasing hydroperiod (check all that apply):

- ☐ Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.)
- ☐ Dry site ferns (e.g. spinulose wood fern, lady fern, bracken fern)
- ☑ Moist site ferns (e.g. sensitive fern, cinnamon fern, interrupted fern, New York fern)
- ☑ Moist site vasculars (e.g. skunk cabbage, jewelweed, blue flag iris, swamp candle)
- ☑ Sphagnum moss (anchored or suspended)
- ☑ Wet site ferns (e.g. royal fern, marsh fern)
- ☑ Wet site shrubs (e.g. highbush blueberry, maleberry, winterberry, mountain holly)
- ☑ Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail, bulrushes)
- ☐ Aquatic vascular spp. (e.g. pickerelweed, arrowhead)
- ☐ Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)
- ☐ No vegetation in pool

■ Faunal indicators (check all that apply):

- ☐ Fish
- ☐ Bullfrog or Green Frog tadpoles
- ☐ Other: _____

iii. Inlet/Outlet Flow Permanency

Type of inlet or outlet (a seasonal or permanent channel providing water flowing into or out of the pool):

- ✓ No inlet or outlet
- ○ Intermittent inlet or outlet
- ○ Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- ○ Other or Unknown (explain): _____

Maine State Vernal Pool Assessment Form

6. VERNAL POOL INDICATOR INFORMATION

← Pool ID: W3-VP1

a. Indicator survey dates: 4-16-13

b. Indicator abundance criteria

- Was the entire pool surveyed for egg masses? ○ Yes ○ No; what % of pool surveyed?_____
- For each indicator species, indicate the exact number of egg masses, confidence level for species determination, and egg mass maturity. Separate cells are provided for separate survey dates.

INDICATOR SPECIES	Egg Masses (or adult Fairy Shrimp)						Tadpoles/Larvae					
	#			Confidence Level[1]			Egg Mass Maturity[2]			Observed			Confidence Level[1]		
Wood Frog	19			3			F			—			—		
Spotted Salamander	—														
Blue-spotted Salamander	—														
Fairy Shrimp[3]	—														

1-Confidence level: 1 = <60%, 2 = 60-95%, 3 = >95%

2-Egg mass maturity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

3-Fairy Shrimp: X = present

c. Rarity criteria

- Note any rare species associated with vernal pools. Check the method(s) of verification and fill in the confidence level (CL) for each species observation. Observations should be accompanied by photographs (labeled with observer name, pool location, and date).

SPECIES	Method of Verification*			CL**	SPECIES	Method of Verification*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	☐	☐	☐		Wood Turtle	☐	☐	☐	
Spotted Turtle	☐	☐	☐		Ribbon Snake	☐	☐	☐	
Ringed Boghaunter	☐	☐	☐		Other:	☐	☐	☐	

*Method of verification: P = Photographed, H = Handled, S = Seen

**CL - Confidence level in species determination: 1= <60%, 2= 60-95%, 3= >95%

d. Optional observer recommendation:

○ SVP ○ Potential SVP ○ Non Significant VP ○ Indicator Breeding Area

e. General vernal pool comments and/or observations of other wildlife:

Send completed form and supporting documentation to: Maine Dept. of Inland Fisheries and Wildlife
Attn: Vernal Pools
650 State Street, Bangor, ME 04401

NOTE: Digital submission (to Jason.Czapiga@maine.gov) of vernal pool field forms and photographs is only acceptable for projects with 3 or fewer assessed pools; larger projects must be mailed as hard copies.

For MDIFW use only Reviewed by MDIFW Date:_____ Initials:_____

This pool is: ☐ **Significant** ☐ **Potentially Significant** but lacking critical data ☐ **Not Significant** due to: ○ does not meet biological criteria. ○ does not meet MDEP vernal pool criteria.

Comments:

Appendix C

Wetland Field Sheet

Wetland Field Sheet *Normandeau Associates*

Wetland ID: W1 **Date:** 9-16-13 **Delineator:** E. Lema

Number of Flags: 16 **Town:** Auburn **Project:** Auburn Nat. Gas.

Wetland: Closed / Open at #s: — **Photos:** Y / N **Direction Facing:** —

Associated Stream(s): — Type: P / I / E

PVP Identified?: ID: W1-PVP1 **GPS Unit:** PAK **GPS'd by:** EL

Cover Class (Dominant (%) others (%)) PFO1C

Water Regime

Permanently Flooded H	Intermittently Exposed G	Semi-Permanently Flooded F	Seasonally Flooded C	Seasonally Flooded/ Saturated E	Saturated B	Temporarily Flooded A	Intermittently Flooded J	Artificially Flooded K	?

Hydroperiod

Special Modifiers

b – Beaver r – Artificial
d – Drained/Ditched s – Spoil
f – Farmed x – Excavated
h – Diked/Impounded

Open water component/aquatic veg. >20,000SF? Y/N **Peatland?** Y/N

Within 250ft of a GPA great Pond? Y/N **Wetland subject to flooding?** Y/N

Comments: PVP is throughout northern portion

Functions & Values (For Survey Area Only): Record Rationale Below	Suitable: Not	Suitable: Capacity	Suitable: Opportunity	Prin.
Groundwater Recharge		✓		
Groundwater Discharge		✓		
Floodflow Alteration		✓	✓	✓
Fish/Shellfish Habitat	✓			
Sed/Tox Retention		✓	✓	✓
Nutrient Removal		✓		
Production Export		✓	✓	
Shore Stabilization	✓			
Wildlife Habitat		✓	✓	✓
Recreation	✓			
Educate/Science Value			✓	
Uniqueness/Heritage	✓			
Visual Qual/Aesthetic	✓			
End/Threatened Species	✓			

Rationale: Areas of deep standing water
- adjacent to roads / lots
- portion of ~~ROW~~ mowed
- too early for VP species

Disturbance Level: high by adjacent roads / mowing

Wildlife Sign: Wood duck

Dominant Plants:

Tree: Acer rub., Pin. Str., ~~Rhus~~ Bet pap.

Sapling/Shrub: Aln inc., Cor. ser., Lyo lig., Salix sp.,

Herb/Seedling/Bryo: Typ lat., Phal. arun., Carex sp., Car stri.,

Woody Vine: —

Invasive Sp: Phal arun

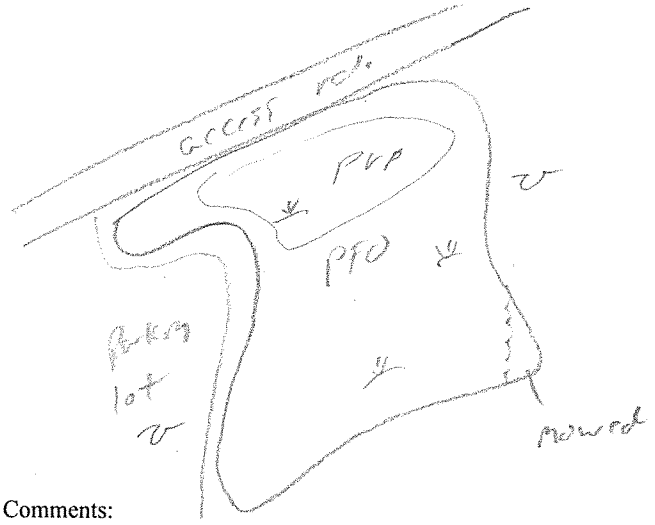
Soils (General): ☑ Redox ☐ Dep/Gleyed B

A/O Horizon: ☐ Histic ≥8" ☐ Drk A to Dep.

B Horizon: ☐ Refusal; Depth (in):

Texture (note horiz): Sandy

Sketch Map (Note wetland cover type if extends off site) direction: ↑



Comments:

Wetland Field Sheet *Normandeau Associates*

Wetland ID: W2 **Date:** 4-16-13 **Delineator:** E. Lema

Number of Flags: 8 **Town:** Auburn **Project:** Auburn Nat'l Grid

Wetland: (Closed) / Open at #s: — **Photos:** (Y) / N **Direction Facing:** —

Associated Stream(s): — Type: P / I / E

PVP Identified?: ID: — **GPS Unit:** Pak **GPS'd by:** EL

Cover Class (Dominant (%) others (%)) PSS1/E

Water Regime

Permanently Flooded H	Intermittently Exposed G	Semi-Permanently Flooded F	Seasonally Flooded C	Seasonally Flooded/ Saturated E	Saturated B	Temporarily Flooded A	Intermittently Flooded J	Artificially Flooded K
←				Hydroperiod	←			?

Special Modifiers

b – Beaver r – Artificial
d – Drained/Ditched s – Spoil
f – Farmed x – Excavated
h – Diked/Impounded

Open water component/aquatic veg. >20,000SF? Y/(N) **Peatland?** Y/(N)

Within 250ft of a GPA great Pond? Y/(N) **Wetland subject to flooding?** Y/(N)

Comments:

Functions & Values (For Survey Area Only): Record Rationale Below	Suitable: Not	Suitable: Capacity	Suitable: Opportunity	Prin.
Groundwater Recharge		✓	■	✓
Groundwater Discharge		✓	■	
Floodflow Alteration		✓	✓	
Fish/Shellfish Habitat	✓			
Sed/Tox Retention			✓	
Nutrient Removal	✓			
Production Export	✓			
Shore Stabilization	✓		■	
Wildlife Habitat		✓		
Recreation	✓	■		
Educate/Science Value	✓	■		
Uniqueness/Heritage	✓	■		
Visual Qual/Aesthetic	✓	■		
End/Threatened Species	✓			

Rationale: Wide swale, partially mown.
- disturbed by adjacent lot

Disturbance Level: mod.

Wildlife Sign: ~

Dominant Plants:

Tree: Ace rub, Pin str.

Sapling/Shrub: Bet pop, Vac cor, Lyo lig, Sal dis, Cor ser

Herb/Seedling/Bryo: Ono sen, Osm reg, Car stric, Phal aru, Jun eff

Woody Vine: —

Invasive Sp: phal. aru.

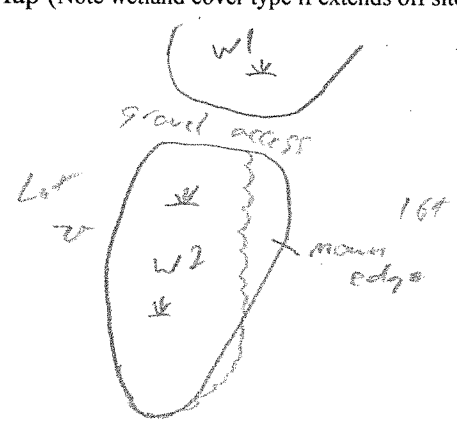
Soils (General): ☒ Redox ☐ Dep/Gleyed B

A/O Horizon: ☐ Histic ≥8" ☐ Drk A to Dep.

B Horizon: ☐ Refusal; Depth (in):

Texture (note horiz): Sandy

Sketch Map (Note wetland cover type if extends off site) direction: ↑



Comments:

Wetland Field Sheet *Normandeau Associates*

Wetland ID: W3 **Date:** 4-16-13 **Delineator:** E. Lema

Number of Flags: 97 **Town:** Auburn **Project:** Auburn ANG

Wetland: (Closed) / Open at #s: — **Photos:** (Y) / N **Direction Facing:** —

Associated Stream(s): — Type: P / I / E

PVP Identified?: ID: VP1, VP2, PVP1, VP3, VP4 **GPS Unit:** Pink **GPS'd by:** E.L.

Cover Class (Dominant (%) others (%)) PFO1/4C, 20% PSS1F, 25% PEM1F, 20% PUB 35%

Water Regime

Permanently Flooded H	Intermittently Exposed G	Semi-Permanently Flooded F	Seasonally Flooded C	Seasonally Flooded/ Saturated E	Saturated B	Temporarily Flooded A	Intermittently Flooded J	Artificially Flooded K

Hydroperiod ← → ?

Special Modifiers

b – Beaver r – Artificial
d – Drained/Ditched s – Spoil
f – Farmed x – Excavated
h – Diked/Impounded

Open water component/aquatic veg. >20,000SF? (Y)/N **Peatland?** Y/(N)

Within 250ft of a GPA great Pond? Y/(N) **Wetland subject to flooding?** Y/N

Comments:

Functions & Values (For Survey Area Only): Record Rationale Below	Suitable: Not	Suitable: Capacity	Suitable: Opportunity	Prin.
Groundwater Recharge		✓		✓
Groundwater Discharge		✓		✓
Floodflow Alteration		✓	✓	✓
Fish/Shellfish Habitat		✓	✓	
Sed/Tox Retention		✓	✓	✓
Nutrient Removal		✓	✓	
Production Export		✓	✓	✓
Shore Stabilization		✓		
Wildlife Habitat		✓	✓	✓
Recreation	✓		✓	
Educate/Science Value			✓	
Uniqueness/Heritage			✓	
Visual Qual/Aesthetic			✓	
End/Threatened Species		✓		

Rationale: Very large wetland with several cover classes.
- Immediately adjacent to development
- Amphibian breeding area

Disturbance Level: High - Allowed by baseball fields

Wildlife Sign:

Dominant Plants:

Tree: Pin. str., Acc. rub., Pin. vir., Bet pap., Pop. trem.

Sapling/Shrub: Rhodora can., Sor. dec., Vac. can., Cha. cal., Lyo lig., Sal. sp., Spi. lat., Spi tom.

Herb/Seedling/Bryo: Ono. sen., Car. sp., Sphag., Tus. off., Ely. str., Phal. arun., Osm. cla. + cin. reg., Cyp. str.,

Woody Vine: —

Invasive Sp: —

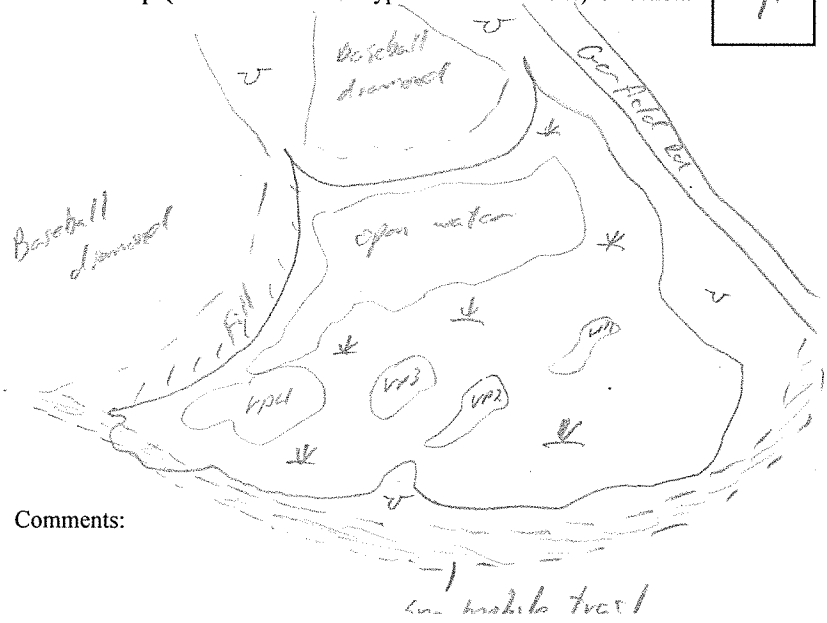
Soils (General): ☐ Redox ☐ Dep/Gleyed B

A/O Horizon: ☑ Histic ≥8" ☐ Drk A to Dep.

B Horizon: ☐ Refusal; Depth (in):

Texture (note horiz): Sandy / mucky (surface)

Sketch Map (Note wetland cover type if extends off site) direction: ↑



Comments:

Wetland Field Sheet *Normandeau Associates*

Wetland ID: W4 **Date:** 4-16-13 **Delineator:** E. Lamm

Number of Flags: 2 **Town:** Auburn **Project:** _____

Wetland: Closed / Open at #s: trail to S1-4 - S1-36 **Photos:** Y / N **Direction Facing:**

Associated Stream(s): S1 Type: P / I / E

PVP Identified?: ID: — **GPS Unit:** Prok **GPS'd by:** EL

Cover Class (Dominant (%) others (%)) PFO1E

Water Regime

Permanently Flooded H	Intermittently Exposed G	Semi-Permanently Flooded F	Seasonally Flooded C	Seasonally Flooded/ Saturated E	Saturated B	Temporarily Flooded A	Intermittently Flooded J	Artificially Flooded K

Hydroperiod ← ?

Special Modifiers

b – Beaver r – Artificial
d – Drained/Ditched s – Spoil
f – Farmed x – Excavated
h – Diked/Impounded

Open water component/aquatic veg. >20,000SF? Y/N **Peatland?** Y/N

Within 250ft of a GPA great Pond? Y/N **Wetland subject to flooding?** Y/N

Comments:

Functions & Values (For Survey Area Only): Record Rationale Below	Suitable: Not	Suitable: Capacity	Suitable: Opportunity	Prin.
Groundwater Recharge		✓		
Groundwater Discharge	✓			
Floodflow Alteration	✓			
Fish/Shellfish Habitat	✓			
Sed/Tox Retention	✓			
Nutrient Removal	✓			
Production Export	✓			
Shore Stabilization		✓		✓
Wildlife Habitat		✓		
Recreation	✓			
Educate/Science Value	✓			
Uniqueness/Heritage	✓			
Visual Qual/Aesthetic	✓			
End/Threatened Species	✓			

Rationale: Small stream frnge. size limits function

Disturbance Level: —

Wildlife Sign: —

Dominant Plants:

Tree: Ace. rub., Fax. pen

Sapling/Shrub: _____

Herb/Seedling/Bryo: Ono sens., Osm cla.

Woody Vine: —

Invasive Sp: —

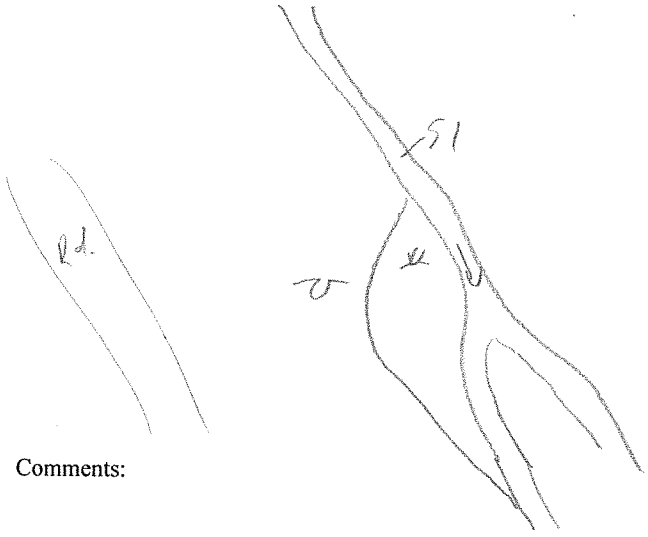
Soils (General): ☐ Redox ☒ Dep/Gleyed B

A/O Horizon: _____ ☐ Histic ≥8" ☐ Drk A to Dep.

B Horizon: _____ ☐ Refusal; Depth (in): _____

Texture (note horiz): Sandy loam

Sketch Map (Note wetland cover type if extends off site) direction: N



Comments:

Wetland Field Sheet — *Normandeau Associates*

Wetland ID: W5 **Date:** 4-16-13 **Delineator:** E. Lana

Number of Flags: 17 **Town:** Auburn **Project:** ANC

Wetland: Closed / Open at #s: 14 +15 **Photos:** (Y) / N **Direction Facing:** —

Associated Stream(s): S1 Type: P / I / E

PVP Identified?: ID: — **GPS Unit:** Pak **GPS'd by:** EL

Cover Class (Dominant (%) others (%)) PFO1/4E

Water Regime

Permanently Flooded H	Intermittently Exposed G	Semi-Permanently Flooded F	Seasonally Flooded C	Seasonally Flooded/ Saturated E	Saturated B	Temporarily Flooded A	Intermittently Flooded J	Artificially Flooded K

← Hydroperiod → ?

Special Modifiers

b – Beaver r – Artificial
d – Drained/Ditched s – Spoil
f – Farmed x – Excavated
h – Diked/Impounded

Open water component/aquatic veg. >20,000SF? Y/(N) **Peatland?** Y/(N)

Within 250ft of a GPA great Pond? Y/(N) **Wetland subject to flooding?** Y/(N)

Comments:

Functions & Values (For Survey Area Only): Record Rationale Below	Suitable: Not	Suitable: Capacity	Suitable: Opportunity	Prin.
Groundwater Recharge		✓		
Groundwater Discharge		✓		✓
Floodflow Alteration			✓	
Fish/Shellfish Habitat	✓			
Sed/Tox Retention			✓	
Nutrient Removal	✓			
Production Export		✓		
Shore Stabilization		✓		
Wildlife Habitat		✓		
Recreation	✓			
Educate/Science Value	✓			
Uniqueness/Heritage	✓			
Visual Qual/Aesthetic	✓			
End/Threatened Species	✓			

Rationale: Slope wetland receives and discharges to stream - extends north off site - well in wetland

Disturbance Level: adjacent lot grading

Wildlife Sign: —

Dominant Plants:

Tree: Acer rub., Fra. pen., Fax pen., Fax nig.

Sapling/Shrub: Aln inc., Spi lat.

Herb/Seedling/Bryo: Onoclea sens., Impatiens sp., Osm cla x cin.

Woody Vine: Celastrus orb.

Invasive Sp: —

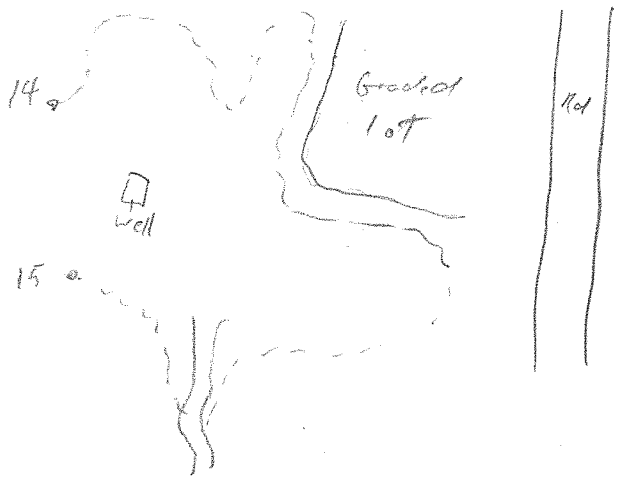
Soils (General): ☐ Redox ☑ Dep/Gleyed B

A/O Horizon: ____ ☐ Histic ≥8" ☐ Drk A to Dep.

B Horizon: ____ ☐ Refusal; Depth (in): ____

Texture (note horiz): Loamy

Sketch Map (Note wetland cover type if extends off site) direction: ←



Comments:

Wetland Field Sheet *Normandeau Associates*

Wetland ID: WG **Date:** 4-17-12 **Delineator:** E. Lamm

Number of Flags: 10 **Town:** Auburn **Project:** Auburn ANG

Wetland: (Closed) / Open at #s: _____ **Photos:** (Y) / N **Direction Facing:**

Associated Stream(s): S2 Type: P / I / (E)

PVP Identified?: ID: — **GPS Unit:** Pak **GPS'd by:** EL

Cover Class (Dominant (%) others (%)) PFO4/B

Water Regime

Permanently Flooded H	Intermittently Exposed G	Semi-Permanently Flooded F	Seasonally Flooded C	Seasonally Flooded/ Saturated E	Saturated B	Temporarily Flooded A	Intermittently Flooded J	Artificially Flooded K

← Hydroperiod →

Special Modifiers

b – Beaver	r – Artificial
d –Drained/Ditched	s – Spoil
f – Farmed	x – Excavated
h – Diked/Impounded	

Open water component/aquatic veg. >20,000SF? Y/(N) **Peatland?** Y/(N?)

Within 250ft of a GPA great Pond? Y/(N) **Wetland subject to flooding?** Y/(N)

Comments:

Functions & Values (For Survey Area Only): Record Rationale Below	Suitable: Not	Suitable: Capa-city	Suitable: Oppor-tunity	Prin.
Groundwater Recharge		✓		
Groundwater Discharge		✓		✓
Floodflow Alteration	✓			
Fish/Shellfish Habitat	✓			
Sed/Tox Retention	✓			
Nutrient Removal	✓			
Production Export		✓		
Shore Stabilization	✓			
Wildlife Habitat		✓		
Recreation	✓			
Educate/Science Value	✓			
Uniqueness/Heritage	✓			
Visual Qual/Aesthetic	✓			
End/Threatened Species	✓			

Rationale: Small seepage flows into stream and into larger wetland

Disturbance Level: Mowed

Wildlife Sign: —

Dominant Plants:

Tree: Tsuga canadensis, Pin. str. Fax pen, Acer rub

Sapling/Shrub: —

Herb/Seedling/Bryo: Dry. mt

Woody Vine: _____

Invasive Sp: _____

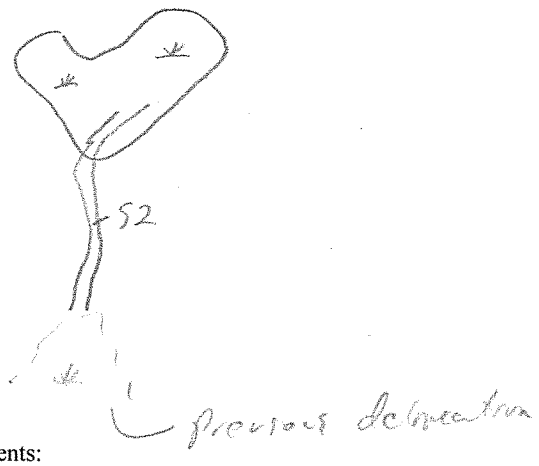
Soils (General): ☐ Redox ☑ Dep/Gleyed B

A/O Horizon: _____ ☐ Histic ≥8" ☐ Drk A to Dep.

B Horizon: _____ ☐ Refusal; Depth (in): _____

Texture (note horiz): Mucky mineral 0-5"

Sketch Map (Note wetland cover type if extends off site) direction: N



Comments:

Appendix D

Wetland Determination Form

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Auburn ANG City/County: Auburn Sampling Date: 4-16-13

Applicant/Owner: Maine Air Nat'l Guard State: ME Sampling Point: W3-UP

Investigator(s): E. Lema Section, Township, Range: —

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Flat Slope (%): 2

Subregion (LRR or MLRA): R Lat: Long: Datum:

Soil Map Unit Name: NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✓	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	If yes, optional Wetland Site ID: ____
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks: (Explain alternative procedures here or in a separate report.)

Forested upland adjacent to Garfield Rd.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ____	No ✓	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No ✓	Depth (inches): ____

Wetland Hydrology Present? Yes ____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Fails to meet criteria for wetland hydrology

VEGETATION – Use scientific names of plants.

Project: _____ Sampling Point: WJ-UP

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus strobus	65	✓	FACU
2. Acer rubrum	15		FAC
3.			
4.			
5.			
6.			
7.			
	80	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15)			
1. Pinus strobus	15	✓	FACU
2. Tsuga canadensis	20	✓	FACU
3.			
4.			
5.			
6.			
7.			
	35	= Total Cover	

Herb Stratum (Plot size: 5)			
1. Gaultheria procumbens	5	✓	FACU
2. Tsuga canadensis	2	✓	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	7	= Total Cover	

Woody Vine Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks: (Include photo numbers here or on a separate sheet.)

Forested upland.

SOIL

Project: → Sampling Point: W3-UP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	7.5YR2.5/1	100	—				organic	OL
1-3	10YR2/2	100	—				SL	
3-5	7.5YR4/4	98	5YR5/6	2	C	M	LS	
5-12	10YR4/4	100	—				LS	
12-18	10YR5/3	95	7.5YR4/4	5	C	M	LS	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: —

Depth (inches): —

Hydric Soil Present? Yes ____ No ✓

Remarks:

Fails to meet criteria for hydric soils

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: MaineANG - City/County: Auburn Sampling Date: 4-16-13

Applicant/Owner: Maine Air National Guard State: ME Sampling Point: WJ-wet

Investigator(s): E. Lorna Section, Township, Range:

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): R Lat: Long: Datum:

Soil Map Unit Name: NWI classification: PSSE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)

Plot taken in a sparse-canopy community. Appears to be a nutrient-poor site.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ✓	No ____	Depth (inches): 3
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 3

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Pit-mound topography - plot taken on average ground/microtopo position

VEGETATION – Use scientific names of plants.

Project: _____ Sampling Point: W3-wet

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Betula populifolia	5	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		

Sapling/Shrub Stratum (Plot size: 15)			
1. Chamaedaphne calyculata	30	✓	OBL
2. Vaccinium corymbosum	15	✓	FACW
3. Pinus strobus	2		FACU
4. Lyonia ligustrina	5		FACW
5. Alnus incana	T		FACW
6. Spiraea tomentosa	10	✓	FACW
7. Salix sp. ?	10	✓	?
Spiraea latifolia 10	82	= Total Cover	FAC

Herb Stratum (Plot size: 5)			
1. Rubus hispidus	15	✓	FAC
2. Scirpus cyperinus	2		OBL
3. Juncus effusus	5		FACW
4. Chamaedaphne calyculata	15	✓	OBL
5. Osmunda regalis	20	✓	OBL
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	57	= Total Cover	

Woody Vine Stratum (Plot size: —)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

Meets criteria for hydrophytic vegetation.

SOIL

Project: → Sampling Point: U3-wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR2/1	100					Mucky	mineral
2-6	10YR3/2	100	—				LS	saturated
6-11	7.5YR5/2	95	10YR5/6	5	C	PL	LS	
11-14+	2.5Y4/2	90	7.5YR5/6	10	C	PL	LS	saturated-difficult to get color

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ✓ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ✓ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: —

Depth (inches): —

Hydric Soil Present? Yes ✓ No ___

Remarks:

Lower layers too saturated to obtain sample.

Appendix E

Stream Data Sheet

NORMANDEAU ASSOCIATES
ENVIRONMENTAL CONSULTANTS

Maine Stream Data Sheet

Stream ID: S1 **Date:** 4-16-12 **Initials:** EL

Project: Auburn ANG **Number of Flags:** 8

Flagging Type: (Stream Center) / Stream Bank **2 Photos: #:** ✓

Flow Regime: Per / (Int) (flows > 6 months per year)/ Eph

Flow Observations: Dry / Low / (Mod) / High / Flood

Predominant Bed Composition: Bedrk / Bldr / Cobl / Gravl / (Sand) / Slt/Clay / Organic

Ave. Bank Ht. (ft): 1.5 **Ave. Depth (in):** 3 **Channel mineral substrate:** (Y)/N

Channel contains aquatic animals: —

Channel Contains aquatic vegetation: —

Associated Wetland: (Y) / N If Yes, ID: W4 + W5 **GPS Complete:** (Y) / N

Comments:
Lacks channel through W5

Stream ID: S2 **Date:** 4-17-12 **Initials:** EL

Project: Auburn ANG **Number of Flags:** 5

Flagging Type: (Stream Center) / Stream Bank **2 Photos: #:** ✓

Flow Regime: Per / Int (flows > 6 months per year) / (Eph)

Flow Observations: Dry / (Low) / Mod / High / Flood

Predominant Bed Composition: Bedrk / Bldr / Cobl / Gravl / (Sand) / Slt/Clay / (Organic)

Ave. Bank Ht. (ft): .5 **Ave. Depth (in):** 1 **Channel mineral substrate:** (Y)/N
4-5 1-3

Channel contains aquatic animals: —

Channel Contains aquatic vegetation: —

Associated Wetland: (Y) / N If Yes, ID: W5 **GPS Complete:** (Y) / N

Comments:

Appendix F

Photographs

Auburn Wetland and Vernal Pool Survey Photolog

Wetland W1	Date: 04-16-2013
	Photographer: E. Lema
	Comments: View of wetland W1 east from flag 1.

Wetland W1	Date: 04-16-2013
	Photographer: E. Lema
	Comments: View of pooled portion of wetland W1.

Wetland W2	Date: 04-16-2013
	Photographer: E. Lema Comments: PSS/PEM component of wetland W2. Standing water too shallow to support vernal pool species.

Wetland W2	Date: 04-16-2013
	Photographer: E. Lema Comments: Wetland W2 facing north. Recreational facilities in background.

Wetland W3	Date: 04-16-2013
	Photographer: E. Lema Comments: Swale leading from wetland W2, included within wetland W3.

Wetland W3	Date: 04-16-2013
	Photographer: E. Lema Comments: Open water portion of wetland W3.

Wetland W3	Date: 04-16-2013
	Photographer: E. Lema Comments: PFO component of wetland W3.

Wetland W4	Date: 04-16-2013
	Photographer: E. Lema Comments: Saturated floodplain surrounding stream S1.

Wetland W5	Date: 04-16-2013
	Photographer: E. Lema Comments: View of PFO within wetland W5.

Wetland W6	Date: 04-17-2013
	Photographer: E. Lema Comments: Seepage slope.

Stream S1	Date: 04-16-2013
	Photographer: E. Lema Comments: Stream S1 flows through the coniferous forest (foreground) into wetland W5 (background).

Stream S2	Date: 04-17-2013
	Photographer: E. Lema Comments: View downstream. Flows into large wetland in background.

Vernal Pool W1-VP1	Date: 04-16-2013
	Photographer: E. Lema Comments: Note the woody vegetation through pooled area.

Vernal Pool W1-VP1	Date: 04-16-2013
	Photographer: E. Lema Comments: Shallow portion of vernal pool. Note the road in the background.

Vernal Pool W3-VP1	Date: 04-16-2013
	Photographer: E. Lema Comments: Vegetated throughout. Garfield Road is in the background.

Vernal Pool W3-VP1	Date: 04-16-2013
	Photographer: E. Lema Comments: Note vegetation throughout pool.

Vernal Pool W3-VP2	Date: 04-16-2013
	Photographer: E. Lema Comments: Note sparse vegetation in pool.

Vernal Pool W3-VP2	Date: 04-16-2013
	Photographer: E. Lema Comments: Unable to survey interior of pool – inaccessible.

Vernal Pool W3-VP3	Date: 04-16-2013
	Photographer: E. Lema Comments: Large pool dominated by shrub species along margins.

Vernal Pool W3-VP3	Date: 04-16-2013
	Photographer: E. Lema Comments: Sparse herbaceous vegetation in pool interior.