

# Vermont Wetlands Program Permit Application Database Form

Under Sections 8 and 9  
of the Vermont Wetland Rules



Application Submittal Instructions
<ul style="list-style-type: none"> <li>■ If submitting via US post, include a check in the correct fee amount made payable to the “<b>State of Vermont,</b>” and a CD for applications that contain large files (1 MB or greater).  <div style="margin-left: 40px;"> <b>Mail to:</b> Vermont Wetlands Program                      Watershed Management Division                      One National Life Drive, Main 2                      Montpelier, VT 05620-3522                 </div> </li>   <li>■ Applications can also be submitted via email to the following address: <a href="mailto:anr.wsmdwetlands@vermont.gov">anr.wsmdwetlands@vermont.gov</a> <ul style="list-style-type: none"> <li>■ If submitting via email, please mail a check in the correct fee amount, made payable to the “<b>State of Vermont,</b>” and a copy of the Vermont Wetlands Program Application Database Form (this page) to the address provided above. <b><i>It is not necessary to mail in a copy of the complete application.</i></b></li> </ul> </li> </ul>

<b>Applicant Name:</b>	<b>Application Preparer Name:</b>
<b>Town where project is located:</b>	<b>County:</b>
<b>Span#:</b>	<b>Vermont Wetlands Project (VWP)# if Known:</b>
<b>Project Location Description:</b> <i>911 street address or direction from nearest intersection</i>	
<b>Brief Project Summary:</b>	
<b>Application Type:</b> <input type="checkbox"/> Individual Permit (multiple wetlands) <input type="checkbox"/> After the Fact Permit <input type="checkbox"/> Wetland Determination <input type="checkbox"/> Individual Permit (single wetland) <input type="checkbox"/> General Permit Coverage Authorization <input type="checkbox"/> Permit Amendment: VWP Project # _____	
<b>Existing Land Use Type(s):</b> <i>(Check all that apply)</i> <input type="checkbox"/> Residential (single family) <input type="checkbox"/> Residential (subdivision) <input type="checkbox"/> Undeveloped <input type="checkbox"/> Agriculture <input type="checkbox"/> Transportation <input type="checkbox"/> Forestry <input type="checkbox"/> Parks/Rec/Trail <input type="checkbox"/> Institutional <input type="checkbox"/> Industrial/Commercial	
<b>Proposed Land Use Type(s):</b> <i>(Check all that apply)</i> <input type="checkbox"/> Residential (single family) <input type="checkbox"/> Residential (subdivision) <input type="checkbox"/> Undeveloped <input type="checkbox"/> Agriculture <input type="checkbox"/> Transportation <input type="checkbox"/> Forestry <input type="checkbox"/> Parks/Rec/Trail <input type="checkbox"/> Institutional <input type="checkbox"/> Industrial/Commercial	
<b>Proposed Impact Type(s):</b> <i>(Check all that apply)</i> <input type="checkbox"/> Buildings <input type="checkbox"/> Utilities <input type="checkbox"/> Parking <input type="checkbox"/> Septic/Well <input type="checkbox"/> Stormwater <input type="checkbox"/> Driveway <input type="checkbox"/> Park/Path <input type="checkbox"/> Agriculture <input type="checkbox"/> Pond <input type="checkbox"/> Lawn <input type="checkbox"/> Dry Hydrant <input type="checkbox"/> Beaver Dam Alteration <input type="checkbox"/> Silviculture <input type="checkbox"/> Road <input type="checkbox"/> Aesthetics <input type="checkbox"/> No Impact <input type="checkbox"/> Other: _____	
<b>Wetland and Buffer Impact Type:</b> <i>(Check all that apply)</i> <input type="checkbox"/> Dredge <input type="checkbox"/> Drain <input type="checkbox"/> Cut Vegetation <input type="checkbox"/> Stormwater <input type="checkbox"/> Trench/Fill <input type="checkbox"/> Other: _____	
<b>Wetland Delineation Date(s):</b>	

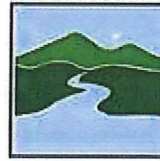
Wetland Improvements	Buffer Zone Improvements	Reason for Improvements
Restoration: s.f.	Restoration: s.f.	<input type="checkbox"/> Correction of Violation
Creation: s.f.	Creation: s.f.	<input type="checkbox"/> To offset permit impacts
Enhancement: s.f.	Enhancement: s.f.	<input type="checkbox"/> Voluntary
Conservation: s.f.	Conservation: s.f.	

<b>Wetland Impact Fee Calculations: Round to the nearest square foot. Fees will auto-calculate.</b>			
Total Wetland Impact <i>(minus linear clear, including ATF)</i>	square feet (s.f.)	Wetland Impact Fee: (\$0.75/sf)	\$
Total Wetland Clearing <i>(qualified linear projects only)</i>	square feet (s.f.)	Wetland Clearing Fee: (\$0.25/sf)	\$
After The Fact Wetland Impact <i>(to correct a violation)</i>	square feet (s.f.)	After the Fact Wetland Fee: (0.75/sf) <i>(Required for after the fact permit applications)</i>	\$
<b>Total Buffer Zone Impacts and Calculations: Round to the nearest square foot</b>			
Total Buffer Zone Impact	square feet (s.f.)	Buffer Impact Fee: (\$0.25/sf)	\$

Additional Fees	
	Agricultural Crop Conversion <i>Check here:</i> <i>(Flat fee of \$200.00)</i> \$
	Minimum Application Fee: (\$50.00) <i>Required when total impact fee is less than \$50.00</i> \$
	Administrative Fee: \$

<b>Make Checks Payable to: State of Vermont</b>	<b>Total Check Amount: \$</b>
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**Vermont Individual Wetland  
Permit Application and  
Determination Petition**  
Under Sections 8 and 9  
of the Vermont Wetland Rules



**VERMONT DEPARTMENT OF  
ENVIRONMENTAL CONSERVATION**  
**WATERSHED  
MANAGEMENT DIVISION**  
**WETLANDS PROGRAM**

<b>Applicant Information:</b> <i>If the applicant is someone other than the landowner, the landowner information must be included below</i>			
Applicant Name: TransCanada/ Tim Harty			
Address: 2 Killeen Street	City/Town: North Walpole	State: NH	Zip: 03609
Phone Number: 603-986-1156	Email Address: timothy_harty@transcanada.com		
<b>Applicant Certification:</b> By signing this application you are certifying that all of the information contained within is true, accurate, and complete to the best of your knowledge. Original signature is required.			
Applicant Signature: <u>Timothy Harty</u>	Digitally signed by Timothy Harty DN: cn=Timothy Harty, o, ou, email=timothy_harty@transcanada.com, c=US Date: 2016.08.05 14:09:19 -04'00'		Date: _____

<b>Landowner Information:</b> <i>Landowner must sign the application. If landowner is different from the applicant this section must be filled out</i>			
<input checked="" type="checkbox"/> <b>Check this box if landowner is the same as the applicant</b>			
Landowner Name: _____			
Address: _____	City/Town: _____	State: _____	Zip: _____
Phone Number: _____	Email Address: _____		
Landowner Easement: <i>Attach copies of any easements, agreements, or other documents conveying permission, and agreement with the landowner stating who will be responsible for meeting the terms and conditions of the permit. List the attachment for this information in this section. Describe the nature of the agreement or easement in the space provided below:</i>			
<b>Landowner Certification:</b> By signing this application you are certifying that all the information contained within is true, accurate, and complete to the best of your knowledge. Original signature is required.			
Landowner Signature: _____			Date: _____

<b>Application Preparer Information:</b> <i>Consultant, engineer, or other representative that is responsible for filling out the application, if other than the applicant or landowner.</i>			
Application Preparer Name: _____		Organization/Company: _____	
Address: _____	City/Town: _____	State: _____	Zip: _____
Phone Number: _____	Email Address: _____		
<b>Application Preparer Certification:</b> By signing this application you are certifying that all of the information contained within is true, accurate, and complete to the best of your knowledge. Original signature is required.			
Application Preparer Signature: _____			Date: _____

*Handwritten signatures are also accepted*

<p><b>1. Location of wetland and project:</b>  <i>Location description should include the road the wetland is located on, the compass direction of the wetland in relation to the road, 911 street address if available, and any other distinguishing features.</i></p>

<p><b>2. Site visit date(s) and attendees:</b>  <i>A site visit is <b>required</b> before the application can be called complete</i></p>	
<p><b>2.1 Date of Visit(s) with State District Wetland Ecologist</b></p>	<p><b>2.2. List of people present for site visit(s) including Ecologist, landowner, and representatives.</b></p>

<p><b>3. Wetland Classification:</b>  <i>For multiple wetlands fill out the multiple wetlands table for sections 1 and 3 through 1</i></p>
<p><b>3.1. The wetland is a Class II wetland because :</b></p>
<p><b>3.2. Section 4.6 Presumption</b>  <i>If the wetland meets the Section 4.6 Presumption, it does so primarily because:</i></p>

<p><b>4. Description of the Entire Wetland:</b>  <i>Answer the following questions regarding the entire wetland, which includes all wetland areas connected to the wetland proposed for impact. Answers may be estimates based on desktop review when the wetland extends past the investigation area (parcel boundary). Specific questions about the wetland in the project area will follow. For multiple wetlands , fill out the multiple wetlands table.</i></p>
<p><b>4.1. Size of Complex in Acres:</b>  <i>The size of the complex can be obtained from the Wetland Inventory Map for mapped wetlands, or best estimation based on review of aerial photography or site visit. This is not the size of the of the delineated wetland on the subject property unless the entirety of the wetland is represented in the delineation.</i></p>
<p><b>4.2. Vegetation Cover Types Present:</b>  <i>List all wetland types in the wetland or wetland complex and their percent cover.  <b>For example:</b> 50 acres of softwood forested swamp; or 30% scrub swamp, 70% emergent wetland</i></p>
<p><b>4.3. Landscape Position:</b>  <i>Where is the wetland located on the landscape?  <b>For example:</b> Bottom of a basin, edge of a stream, shore of a lake, etc.</i></p>
<p><b>4.4. Hydrology:</b>  <i>Describe the main source of water for the entire wetland. List any river, stream, lakes, or ponds</i></p>
<p><b>4.4.1. Direction of Flow:</b>  <i><b>For example:</b> Stream flows from north to south through the wetland complex, or the wetland drains generally to the southwest.</i></p>
<p><b>4.4.2. Influence of Hydrology on the Entire Wetland:</b>  <i><b>For example:</b> The river provides floodwater to the wetland in the spring.</i></p>
<p><b>4.4.3. Relation of Entire Wetland to the Project Area:</b>  <i>The distance between the project area and any nearby surface waters</i></p>

<p><b>4.4.4. Entire Wetland Hydroperiod:</b>  <i>Discuss the frequency and duration of flooding, ponding, and/or soil saturation</i></p>
<p><b>4.5. Surrounding Landuse of the Entire Wetland:</b>  <i>For example: Rural residential and forested; Agricultural and undeveloped</i></p>
<p><b>4.6. Relation of the Entire Wetland to Other Nearby Wetlands:</b>  <i>Provide any information on wetlands or wetland complexes that are close enough to contribute to the overall function of the wetland in question.</i></p>
<p><b>4.7. Pre-project Cumulative Impacts to the Entire Wetland:</b>  <i>Identify any cumulative ongoing impacts outside of the proposed project that may influence the wetland. <b>Examples include but are not limited to:</b> Wetland encroachments on and off the subject property, land use management in or surrounding the wetland, or development that influences hydrology or water quality. List any past Vermont Wetland Permits or CUD's related to this property.</i></p>
<p><b>5. Description of Subject Wetland and Buffer:</b>  <i>Subject wetland is defined as the area of wetland in the project vicinity, but not limited to the portion of the wetland to be directly impacted by the project. For the purposes of this application, the subject wetland should encompass any portion of the wetland that could either be directly or indirectly impacted by the project, as defined by chemical, physical, or biological characteristics. This may include the entire wetland area, or wetland area off property. For multiple wetlands, fill out the multiple wetlands table.</i></p>
<p><b>5.1. Context of Subject Wetland:</b>  <i>Describe where the subject wetland is in the context of the entire wetland described in section 4 above. <b>For example:</b> Upslope, narrow eastern "finger", 400 ft. from open water portion.</i></p>
<p><b>5.2. Subject Wetland Land Use:</b>  <i><b>For example:</b> Mowed lawn, old field, naturally vegetated. Describe any previous and ongoing disturbance in the subject wetland.</i></p>
<p><b>5.3. Subject Wetland Vegetation:</b>  <i>List dominant wetland vegetation cover type and associated dominant plant species.</i></p>
<p><b>5.4. Subject Wetland Soils:</b>  <i>Use the USDA NRCS information where possible and use the ACOE Delineation Manual soil description</i></p>
<p><b>5.5. Subject Wetland Hydrology:</b>  <i>Use the description from the ACOE Delineation Manual</i></p>

<b>5.6. Buffer Zone:</b> <i>Describe the buffer zone of the subject wetland (50 foot envelope of land adjacent to wetland boundary).</i>
<b>5.6.1. Buffer Land Use:</b> <i><b>For example:</b> Mowed shoulder, forested, old field, paved road, and residential lawns, etc.                  Describe any previous and ongoing disturbance in the buffer zone.</i>
<b>5.6.2. Buffer Vegetation:</b> <i>List the vegetation cover type and dominant plant species.</i>
<b>5.6.3. Buffer Soils:</b> <i>Use USDA NRCS information where possible, and the ACOE Delineation Manual soil description.</i>

<b>6. Entire Wetland Function and Value Summary (as defined in the Vermont Wetland Rules Section 5):</b> <i>Check which functions are present in the entire wetland</i>	
<input type="checkbox"/> Flood/Storm Storage	<input type="checkbox"/> RTE Species
<input type="checkbox"/> Surface & Groundwater Protection	<input type="checkbox"/> Education & Research
<input type="checkbox"/> Fish Habitat	<input type="checkbox"/> Recreation/Economic
<input type="checkbox"/> Wildlife Habitat	<input type="checkbox"/> Open Space/Aesthetics
<input type="checkbox"/> Exemplary Natural Community	<input type="checkbox"/> Erosion Control

<p><b>Functions and Values:</b> <i>For each function and value:</i></p> <ol style="list-style-type: none"> <li>1. <i>Evaluate the entire wetland and check all that apply. Use Wetland Inventory Maps for offsite areas</i></li> <li>2. <i>Evaluate how the wetland in the project area contributes to the function.</i></li> <li>3. <i>Explain how the project will not result in adverse impacts to the function.</i></li> </ol> <p><i>Include any information on specific avoidance and minimization measures.</i></p> <p><i>If more than one wetland complex is involved, provide a function and value checklist for each wetland complex. In addition fill out the Multiple Wetlands Table.</i></p>
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<b>7. Water Storage for Flood Water and Storm Runoff</b>
<p><input type="checkbox"/> Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Constricted outlet or no outlet and an unconstructed inlet.</li> <li><input type="checkbox"/> Physical space for floodwater expansion and dense, persistent, emergent vegetation or dense woody vegetation that slows down flood waters or stormwater runoff during peak flows and facilitates water removal by evaporation and transpiration.</li> <li><input type="checkbox"/> If a stream is present, it's course is sinuous and there is sufficient woody vegetation to intercept surface flows in the portion of the wetland that floods.</li> <li><input type="checkbox"/> Physical evidence of seasonal flooding or ponding such as water stained leaves, water marks on trees, drift rows, debris deposits, or standing water.</li> <li><input type="checkbox"/> Hydrologic or hydraulic study indicates wetland attenuates flooding</li> </ul> <p><b>If any of the above boxes are checked, the wetland provides this function. Complete the following to determine if the wetland provides this function above or below a moderate level. If none of the following apply, the wetland provides this function at a moderate level.</b></p>

**Water Storage for Flood Water and Storm Runoff Continued...**

Check this box if any of the following conditions apply that may indicate the wetland provides this function at a **lower** level.

- Significant flood storage capacity upstream of the wetland, and the wetland in question provides this function at a negligible level in comparison to upstream storage (unless the upstream storage is temporary such as a beaver impoundment).
- Wetland is contiguous to a major lake or pond that provides storage benefits independently of the wetland.
- Wetland's storage capacity is created primarily by recent beaver dams or other temporary structures.
- Wetland is very small in size, not contiguous to a stream, and not part of a collection of small wetlands in the landscape that provide this function cumulatively.

Check this box if any of the following conditions apply that may indicate the wetland provides this function at a **higher** level.

- History of downstream flood damage to public or private property.
- Any of the following conditions present downstream of the wetland, but upstream of a major lake or pond, could be impacted by loss or reduction of the water storage function.
  - Developed public or private property
  - Stream banks susceptible to scouring and erosion
  - Important habitat for aquatic life
- The wetland is large in size and naturally vegetated.
- Any of the following conditions present downstream of the wetland, but upstream of a major lake or pond, could be impacted by a loss or reduction of the water storage function.
  - Developed public or private property.
  - Stream banks susceptible to scouring and erosion.
  - Important habitat for aquatic life.
- The wetland is large in size and naturally vegetated
- Any of the following conditions present upstream of the wetland may indicate a large volume of runoff may reach the wetland.
  - A large amount of impervious surface in urbanized areas.
  - Relatively impervious soils.
  - Steep slopes in the adjacent areas.

**7.1 Subject Wetland Contribution to Water Storage:**

*Explain how the subject wetland contributes to the function listed above*

**7.2 Statement of No Undue Adverse Impact to Water Storage for Flood Water and Storm Runoff:**

*Explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance, minimization, and compensation measures relevant to this function.*

**8. Surface and Ground Water Protection:**

- Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.
- Constricted or no outlets.
  - Low water velocity through dense, persistent vegetation.
  - Hydroperiod permanently flooded or saturated.
  - Wetlands in depositional environments with persistent vegetation wider than 20 feet.
  - Wetlands with persistent vegetation comprising a defined delta, island, bar or peninsula.
  - Presence of seeps or springs.
  - Wetland contains a high amount of microtopography that helps slow and filter surface water.
  - Position in the landscape indicates the wetland is a headwaters area.
  - Wetland is adjacent to surface waters.
  - Wetland recharges a drinking water source.
  - Water sampling indicates removal of pollutants or nutrients.
  - Water sampling indicates retention of sediments or organic matter.
  - Fine mineral soils and alkalinity not low.
  - The wetland provides an obvious filter between surface water or ground water and land uses that may contribute point or nonpoint sources of sediments, toxic substances or nutrients to the wetland, such as: steep erodible slopes; row crops; dumps; areas of pesticide, herbicide or fertilizer application; feed lots; parking lots or heavily traveled road; and septic systems.

**If any of the above boxes are checked, the wetland provides this function. Complete the following to determine if the wetland provides this function above or below a moderate level. If none of the following apply, the wetland provides this function at a moderate level.**

- Check this box if any of the following conditions apply that may indicate the wetland provides function at a **lower** level.
- Presence of dead forest or shrub areas in sufficient amounts to result in diminished nutrient uptake.
  - Presence of ditches or channels that confine water and restrict contact of water with vegetation.
  - Wetland is very small in size, not contiguous to a stream, and not part of a collection of small wetlands in the landscape that provide this function cumulatively.
  - Current use in the wetland results in disturbance that compromises this function.
- Check this box if any of the following conditions apply that may indicate the wetland provides function at a **higher** level.
- The wetland is adjacent to a well head or source protection area, and provides ground water recharge.
  - The wetland provides flows to Class A surface water. (Check ANR Atlas)
  - The wetland contributes to the protection or improvement of water quality of any impaired waters.
  - The wetland is large in size and naturally vegetated.

**8.1. Subject Wetland Contribution to Water Protection:**

*Explain how the subject wetland contributes to the function listed above.*

**8.2. Statement of No Undue Adverse Impact to Surface and Ground Water Protection:**

*Explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance, minimization, or compensation measures relevant to this function.*

**9. Fish Habitat:**

- Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.
  - Contains woody vegetation that overhangs the banks of a stream or river and provides any of the following: shading that controls summer water temperature; cover including refuges created by overhanging branches or undercut banks; source of terrestrial insects as fish food; or streambank stability.
  - Provides spawning, nursery, feeding or cover habitat for fish (documented or professionally judged). Common habitat includes deep marsh and shallow marsh associates with lakes and streams, and seasonally flooded wetlands associated with streams and rivers.
  - Documented or professionally judged spawning habitat for northern pike.
  - Provides cold spring discharge that lowers the temperature of receiving waters and creates summer habitat for salmonoid species.
  - The wetland is located along a tributary that does not support fish, but contributes to a larger body of water that does support fish. The tributary supports downstream fish by providing cooler water and food sources.

**9.1. Subject Wetland Contribution to Fish Habitat:**

*Explain how the subject wetland contributes to the function listed above.*

**9.2. Statement of No Undue Adverse Impact to Fish Habitat:**

*Explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance, minimization, or compensation measures relevant to this function.*



**10. Wildlife Habitat**

- Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.
- Provides resting, feeding staging or roosting habitat to support waterfowl migration, and feeding habitat for wading birds. Good habitats for these species include open water wetlands.
  - Habitat to support one or more breeding pairs or broods of waterfowl including all species of ducks, geese, and swans. Good habitats for these species include open water habitats adjacent shallow marsh, deep marsh, shrub wetland, forested wetland, or naturally vegetated buffer zone.
  - Provides a nest site, a buffer for a nest site or feeding habitat for wading birds including but not limited to: great blue heron, black-crowned night heron, green-backed heron, cattle egret, or snowy egret. Good habitats for these species include open water or deep marsh adjacent to forested wetlands, or standing dead trees.
  - Supports or has the habitat to support one or more breeding pairs of any migratory bird that requires wetland habitat for breeding, nesting, rearing of young, feeding, staging roosting, or migration, including: Virginia rail, common snipe, marsh wren, American bittern, northern water thrush, northern harrier, spruce grouse, Cerulean warbler, and common loon.
  - Supports winter habitat for white-tailed deer. Good habitats for this species include softwood swamps. Evidence of use includes browsing, bark stripping, worn trails, or pellet piles.
  - Provides important feeding habitat for black bear, bobcat, or moose based on an assessment of use. Good habitat for these types of species includes wetlands located in a forested mosaic.
  - Has the habitat to support muskrat, otter, or mink. Good habitats for these species include deep marshes, wetlands adjacent to bodies of water including lakes, ponds, rivers, and streams.
  - Supports an active beaver dam, one or more lodges, or evidence of use in two or more consecutive years by an adult beaver population.
  - Provides the following habitats that support the reproduction of uncommon Vermont amphibian species including:
    - Wood frog, Jefferson salamander, blue-spotted salamander, or spotted salamander. Breeding habitat for these species includes vernal pools and small ponds.
    - Northern dusky salamander and the spring salamander. Habitat for these species includes headwater seeps, springs, and streams.
    - The four-toed salamander, Fowler's toad, western or boreal chorus frog, or other amphibians, found in Vermont of similar significance.
  - Supports or has the habitat to support populations of Vermont amphibian species including, but not limited to, pickerel frog, northern leopard frog, mink frog, and others found in Vermont of similar significance. Good habitat for these types of species include large marsh systems with open water components.
  - Supports or has the habitat to support populations of uncommon Vermont reptile species including: wood turtle, northern map turtle, eastern musk turtle, spotted turtle, spiny softshell, eastern ribbonsnake, northern watersnake, and others found in Vermont of similar significance.
  - Supports or has the habitat to support significant populations of Vermont reptile species, including smooth greensnake, DeKay's brownsnake, or other more common wetland-associated species.
  - Meets four or more of the following conditions indicative of wildlife habitat diversity:
    - Three or more wetland vegetation classes (greater than 1/2 acre) present including but not

**Wildlife Habitat Continued...**

limited to: open water contiguous to, but not necessarily part of, the wetland, deep marsh, shallow marsh, shrub swamp, forested swamp, fen, or bog.

- The dominant vegetation class is one of the following types: deep marsh, shallow marsh, shrub swamp or, forested swamp.
- Located adjacent to a lake, pond, river or stream.
- Fifty percent or more of surrounding habitat type is one or more of the following: forest, agricultural land, old field or open land.
- Emergent or woody vegetation occupies 26 to 75 percent of wetland, the rest is open water.
- One of the following:
  - Hydrologically connected to other wetlands of different dominant classes or open water within 1 mile.
  - Hydrologically connected to other wetlands of same dominant class within 1/2 mile.
  - Within 1/4 mile of other wetlands of different dominant classes or open water, but not hydrologically connected.

Wetland or wetland complex is owned in whole or in part by state or federal government and managed for wildlife and habitat conservation.

Contains evidence that it is used by wetland dependent wildlife species

**If any of the above boxes are checked, the wetland provides this function. Complete the following to determine if the wetland provides this function above or below a moderate level. If none of the following apply, the wetland provides this function at a moderate level.**

Check box if any of the following conditions apply that may indicate the wetland provides this function at a **lower** level.

- The wetland is small in size for its type and does not represent fugitive habitat in developed areas (vernal pools and seeps are generally small in size, so this does not apply).
- The surrounding land use is densely developed enough to limit use by wildlife species (with the exception of wetlands with open water habitat). Can be negated by evidence of use.
- The current use in the wetland results in frequent cutting, mowing or other disturbance.
- The wetland hydrology and character is at a drier end of the scale and does not support wetland dependent species.

Check box if any of the following conditions apply that may indicate the wetland provides this function at a **higher** level.

- The wetland is large in size and high in quality.
- The habitat has the potential to support several species based on the assessment above.
- Wetland is associated with an important wildlife corridor.
- The wetland has been identified as a locally important wildlife habitat by an ANR Wildlife Biologist.

**10.1. Subject Wetland Contribution to Wildlife Habitat Functions:**

*Explain how the subject wetland contributes to the function listed above.*

**10.2. Statement of No Undue Adverse Impact to Wildlife Habitat:**

*Explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance, minimization, or compensation measures relevant to this function.*

**11. Exemplary Wetland Natural Community**

Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.

Wetlands that are identified as high quality examples of Vermont's natural community types recognized by the Natural Heritage Information Project of the Vermont Fish and Wildlife Department, including rare types such as dwarf shrub bogs, rich fens, alpine peatlands, red maple-black gum swamps and the more common types including deep bulrush marshes, cattail marshes, northern white cedar swamps, spruce-fir-tamarack swamps, and red maple-black ash seepage swamps are automatically significant for this function

**The wetland is also likely to be significant if any of the following conditions are met:**

Is an example of a wetland natural community type that has been identified and mapped by, or meets the ranking and mapping standards of, the Natural Heritage Information Project of the Vermont Fish and Wildlife Department.

Contains ecological features that contribute to Vermont's natural heritage, including, but not limited to:

Deep peat accumulation reflecting a long history of wetland formation;

Forested wetlands displaying very old trees and other old growth characteristics;

A wetland natural community that is at the edge of the normal range for that type;

A wetland mosaic containing examples of several to many wetland community types; or

A large wetland complex containing examples of several wetland community types.

**List species or communities of concern:**

**11.1. Subject Wetland Proximity to Exemplary Natural Communities**

**11.2. Statement of No Undue Adverse Impact to Exemplary Wetland Natural Community:**

*Explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance, minimization, or compensation measures relevant to this function.*

**12. Rare, Threatened, and Endangered Species Habitat:**

Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.

Wetlands that contain one or more species on the federal or state threatened or endangered lists, as well as species that are rare in Vermont, are automatically significant for this function.

**The wetland is also likely to be significant if any of the following apply:**

There is credible documentation that the wetland provides important habitat for any species on the federal or state threatened or endangered species lists;

There is credible documentation that threatened or endangered species have been present in past 10 years;

There is credible documentation that the wetland provides important habitat for any species listed as rare in Vermont (S1 or S2 ranks), state historic (SH rank), or rare to uncommon globally (G1, G2, or G3 ranks) by the Natural Heritage Information Project of the Vermont Fish and Wildlife Department;

There is credible documentation that the wetland provides habitat for multiple uncommon species of plants or animals (S3 rank).

**List name of species and ranking:**

**12.1. Subject Wetland Contribution to RTE Habitat:**

*Explain how the subject wetland contributes to the function listed above.*

**12.2 Statement of No Undue Adverse Impact to Rare, Threatened, or Endangered Species Habitat:**

*Explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance, minimization, or compensation measures relevant to this function.*

**13. Education and Research in Natural Sciences:**

- Function is present and likely to be significant: Any of the following characteristics indicate the wetland provides this function.
  - Owned by or leased to a public entity dedicated to education or research.
  - History of use for education or research.
  - Has one or more characteristics making it valuable for education or research.

**13.1. Subject Wetland Education and Research Potential:**

*Explain how the subject wetland contributes to the function listed above.*

**13.2 Statement of No Undue Adverse Impact to Education and Research in Natural Sciences:**

*Explain how the proposed project will not result in any undue, adverse impact to this value. Include any avoidance, minimization, or compensation measures relevant to this value.*

**14. Recreational Value and Economic Benefits:**

- Function is present and likely to be significant: Any of the following characteristics indicate the wetland provides this function.
  - Used for, or contributes to, recreational activities.
  - Provides economic benefits.
  - Provides important habitat for fish or wildlife which can be fished, hunted or trapped under applicable state law.
  - Used for harvesting of wild foods.

**Comments:**

**14.1. Subject Wetland Recreational and Economic Value:**

*Explain how the subject wetland contributes to the value listed above.*

**14.2. Statement of No Undue Adverse Impact to Recreational Value and Economic Benefits:**

*Explain how the proposed project will not result in any undue, adverse impact to this value. Include any avoidance, minimization, or compensation measures relevant to this value.*

**15. Open Space and Aesthetics:**

Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.

- Can be readily observed by the public; and
  - Possesses special or unique aesthetic qualities; or
  - Has prominence as a distinct feature in the surrounding landscape;
- Has been identified as important open space in a municipal, regional or state plan.

**Comments:**

**15.1. Subject Wetland Aesthetic Value:**

*Explain how the subject wetland contributes to the value listed above.*

**15.2. Statement of No Undue Adverse Impact to Open Space and Aesthetics:**

*Explain how the proposed project will not result in any undue, adverse impact to this value. Include any avoidance, minimization, or compensation measures relevant to this value.*

**16. Erosion Control Through Binding and Stabilizing**

Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.

- Erosive forces such as wave or current energy are present and any of the following are present as well:
  - Dense, persistent vegetation along a shoreline or stream bank that reduces an adjacent erosive force.
  - Good interspersion of persistent emergent vegetation and water along course of water flow.
  - Studies show that wetlands of similar size, vegetation type, and hydrology are important for erosion control.

**What type of erosive forces are present?**

- Lake fetch and waves
- High current velocities:
- Water level influenced by upstream impoundment

**Erosion Control Through Binding and Stabilization Continued...**

**If any of the above boxes are checked, the wetland provides this function. Complete the following to determine if the wetland provides this function above or below a moderate level. If none of the following apply, the wetland provides this function at a moderate level.**

Check box if any of the following conditions apply that may indicate the wetland provides this function at a **lower** level.

The stream is artificially channelized and/or lacks vegetation that contributes to controlling the erosive force.

Check box if any of the following conditions apply that may indicate the wetland provides this function at a **higher** level.

The stream contains high sinuosity.

Has been identified through fluvial geomorphic assessment to be important in maintaining the natural condition of the stream or river corridor.

**16.1. Subject Wetland Contribution to Erosion Control:**

*Explain how the subject wetland contributes to the function listed above.*

**16.2. Statement of No Undue Adverse Impact to Erosion Control:**

*Explain how the proposed project will not result in any undue, adverse impact to this function. include any avoidance, minimization, or compensation measures relevant to this function.*

**17. Project Description:**

**17.1. Overall Project Purpose:**

*Description of the basic project and why it is needed. Partial projects with no clear purpose will not be accepted.*

**For example:** six-lot residential subdivision; expansion of an existing commercial building, building a single family residence.

**17.2. Description of Project Component Impacting Wetland or Buffer:**

*Explain in general terms which portions of the project will impact wetlands or buffer zones.*

**For example:** Cross the wetland with a driveway to construct a residential subdivision, upgrade existing road through buffer to improve access, extend a trail system.

<b>17.3. Acreage of Parcel(s) or Easements(s):</b> <i>Acreage of subject property.</i>
<b>17.4. Acreage of Project Area:</b> <i>Acreage of area involved in the project.</i>

<b>18. Project Details:</b> <i>Provide details regarding specific impacts to the wetland and buffer zone.</i>  <b>For multiple wetlands fill out the multiple wetland table.</b>
---

<b>18.1. Specific Impacts to Wetland and Buffer Zone Dimensions:</b> <i>List portions of the project that will specifically impact the wetland or buffer zone and their dimensions. <b>For example:</b> driveway crossing with 16' wide fill; installation of buried sewer force main with 5' trench including fill footprint; addition of Stormwater outfall which directs flow to northern portion of wetland</i>
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<b>18.2. Bridges and Culverts:</b> <i>Culvert circumference, length, placement and shapes, or bridge details. List any stream alteration permits that are required or obtained where perennial streams or rivers are involved.</i>
---

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<b>18.3. Construction Sequence:</b> <i>Describe any details pertaining to the work planned in the wetland and buffer in terms of sequence or phasing that is relevant. Describe the construction limits of disturbance, how those will be marked, and check to ensure these are shown on the site plans as well.</i>
---

--

<b>18.4. Stormwater Design**</b> <i>List any stormwater permits obtained or applied for. Describe stormwater and/or erosion controls proposed. <b>** Erosion prevention is <u>required</u> in order to prevent sediment from entering the wetland.</b></i>
---

--

<b>18.5. Permanent Demarcation of Limit of Impacts**</b> <i>Describe any boulders, fencing, signage, or other memorialization that provides permanent on-the-ground boundaries for the limits of disturbance for ongoing uses. <b>**Permanent demarcations are <u>required</u> for projects with ongoing activities in or near wetlands or buffer zones such as houses, yards, woody clearing or parking areas, and needs to be depicted on the site plans.</b></i>
--

--



**19. Wetland and Buffer Zone Impacts:**

*For multiple wetlands provide narrative overview for each section below, and fill out the Multiple Wetland Tables*

**19.1. Wetland Impacts:**

*Summarize the square footage of impact in the appropriate category. Add After-the-Fact impacts here too. **Round to the nearest square foot***

Permanent Wetland Fill	s.f.
Temporary Wetland Impact	s.f.
Other Permanent Wetland Impact <i>(this number includes clearing of woody vegetation, dredging, and does not include fill)</i>	s.f.
Total Wetland Impact:	s.f.

*Describe in detail the proposed impact to wetlands*

**For example:** Fill for road crossing, temporary impacts for trench and fill related to utility installation.

**General narrative required here even for projects with multiple wetlands and impacts**

**19.2. Buffer Zone Impacts:**

*Summarize the square footage of impact in the appropriate category.*

Temporary Buffer Impact	s.f.
Permanent Buffer Impact	s.f.
Total Buffer Impact:	s.f.

*Describe in detail the proposed impact to buffer zones*

**For example:** Addition of fill along roadway embankment extending into buffer zone.

**General narrative required here even for projects with multiple wetlands and impacts.**

**19.3. Cumulative Impacts:**

*List any potential cumulative or ongoing, direct and indirect impacts on the functions of the wetland.*

**For example:** Increased noise from parking lot, vegetation management, inputs from stormwater pond outlet, reduction in flood storage volume from the addition of fill from the project.

**20. Mitigation Sequence:**

*Before you begin, please read all of Section 20 to respond most appropriately to specific questions. Questions specifically related to Section 9.5b of the Vermont Wetland Rules.*

**20.1. Avoidance of Wetland Impacts:**

**20.1.1. Can the activity be located on another site owned or controlled by the applicant, or reasonably available to satisfy the basic project purpose? If not, indicate why. Cite any alternative sites and explain why they were not chosen.**

**20.1.2. Can the proposed activity be practicably located outside the wetland/buffer zone? If not, indicate why. Explain the alternatives you have explored for avoiding the wetland and buffer onsite, And why they are not feasible.**

**20.2. Avoidance to the Impact to Functions and Values:**

**20.2.1. If the proposed activity cannot be practicably located outside the wetland/buffer zone, have all practicable measures been taken to avoid adverse impacts on protected functions?  Yes  No**

**20.2.2. What design alternatives were examined to avoid impacts to wetland function? *For example: Use of matting, relocation of footprint, etc.***

**20.2.3. What steps have been taken to minimize the size and scope of the project to avoid impacts to wetland functions and values? Include information on project size reduction and relocation.**

**20.2.4. Explain how the proposed project represents the least impact alternative design. Explain why other alternatives, which you described above, were not chosen.**

**20.3. Minimization and Restoration:**

**20.3.1. If avoidance of adverse effects on protected functions cannot be practically achieved, has the proposed activity been planned to minimize adverse impacts on the protected function?  Yes  No  N/A**

**20.3.2. What measures will be used during construction and on an ongoing basis to protect the wetland and buffer zone? *For example: Stormwater treatment, signs, fencing, etc.***

**Minimization and Restoration Continued...**

**20.3.3. Has a plan been developed for the prompt restoration of any adverse impacts on protected functions?**  Yes  No  N/A

**Restoration Narrative:**

*For example: Planting along the stream.*

**Quantification of Restoration:**

Wetland Area (sqft)	Buffer Area (sqft)	Functions/Value s Addressed

**20.4. Compensation:**

*Please refer to Section 9.5c of the Vermont Wetland Rules for compensation, which is required when the project will result in net adverse impact to wetland function. Not all functions are presumed to be compensable. **All projects requiring compensation need prior consultation with the Vermont Wetlands Program.***

*If compensation is proposed please include a summary here. Also list any supporting documents you may have attached to the application including In-Lieu-Fee proposal or detailed compensation plan.*

**21. Wetland Determination:**

*If the application involves a wetland determination please answer the following. For multiple wetlands provide narrative overview for each section below, and fill out the Multiple Wetland Tables.*

- Wetland is mapped or contiguous to the Vermont Significant Wetland Inventory Map
- Wetland is not mapped on or contiguous to the Vermont Significant Wetland Inventory Map

**21.1. Reason for Petition:**

*Please choose one from the dropdown menu.*

**21.2. Determination Narrative:**

*Please provide any narrative to support the petition for a wetland determination here, including previous decisions by the Secretary or Water Board.*

**22. Supporting Materials:**

**\*\*ADDITIONAL MATERIAL REQUIRED TO CALL APPLICATION COMPLETE**

**22.1. \*\*Location Map:**

Provide a location map that is 8 ½” x 11” and separate from any site plans.  
 The Vermont Natural Resources Atlas is appropriate using USGS topography map base layer, roads, and VSWI wetlands at a minimum.

Date	Title

**22.2. \*\*Site Plan(s):**

List as specified below. Plans must be legible and include wetland delineation and buffer zones, limits of disturbance, erosion controls, building envelopes, and any permanent memorialization.

Title	Author	Date	Date of Last Revision

**22.3. \*\*U.S. Army Corps of Engineer Wetland Delineation Forms:**

List attachment names, dates data was collected, cover types sampled, and number of paired plots included

Attachment #/Title	Range of Collection Dates	Vegetation Cover Types	# of Paired Plots

**22.4. Other Supporting Documents:**

Provide any other documentation that supports the application.  
**Examples include but are not limited to:** Photographs, easements, agreements, restoration/plan, GIS shapefiles, additional ACOE forms.

Date	Last Revision	Author	Title

**23. Abutting Landowners**

Please provide abutting landowner information so that all persons owning property within, or adjacent to, the affected wetland area of buffer zone can be notified during the public notice period. **Please use additional sheets if necessary.**

**23.1. Abutting Land Owner Information:** Please list as first names first followed by last name

1. Name: Street/Road: City/State/Zip:	16. Name: Street/Road: City/State/Zip:
2. Name: Street/Road: City/State/Zip:	17. Name: Street/Road: City/State/Zip:
3. Name: Street/Road: City/State/Zip:	18. Name: Street/Road: City/State/Zip:
4. Name: Street/Road: City/State/Zip:	19. Name: Street/Road: City/State/Zip:
5. Name: Street/Road: City/State/Zip:	20. Name: Street/Road: City/State/Zip:
6. Name: Street/Road: City/State/Zip:	21. Name: Street/Road: City/State/Zip:
7. Name: Street/Road: City/State/Zip:	22. Name: Street/Road: City/State/Zip:
8. Name: Street/Road: City/State/Zip:	23. Name: Street/Road: City/State/Zip:
9. Name: Street/Road: City/State/Zip:	24. Name: Street/Road: City/State/Zip:
10. Name: Street/Road: City/State/Zip:	25. Name: Street/Road: City/State/Zip:
11. Name: Street/Road: City/State/Zip:	26. Name: Street/Road: City/State/Zip:
12. Name: Street/Road: City/State/Zip:	27. Name: Street/Road: City/State/Zip:
13. Name: Street/Road: City/State/Zip:	28. Name: Street/Road: City/State/Zip:
14. Name: Street/Road: City/State/Zip:	29. Name: Street/Road: City/State/Zip:
15. Name: Street/Road: City/State/Zip:	30. Name: Street/Road: City/State/Zip:

**24. Modified Distribution (Newspaper Notification):** In situations where there is an application within a large wetland or buffer zone that has a large number of landowners, applicants can choose to limit the distribution list with a supplemental newspaper notification. At a minimum the applicant must 1) provide notice to immediate abutters, 2) provide notice to all persons owning property containing the wetland or buffer within 500 ft. of the project area, and 3) shall have the VWP publish notice of the application in a local newspaper generally circulating in the area where the wetland is located. ***\*\*The applicant will be billed directly by the newspaper listed. Use of newspaper notification may extend the notice period, depending on when the notice posts in the newspaper\*\****

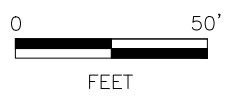
Name of Newspaper(s)




Notes  
 1. Proposed maintenance dredge feature locations are approximate. Actual locations shall be determined in the field prior to construction.  
 2. 2014 Aerial imagery provided by ArcGIS Online Bing Maps web mapping service.  
 (<http://www.esri.com/software/arcgis/arcgisonline/bing-maps.html>).



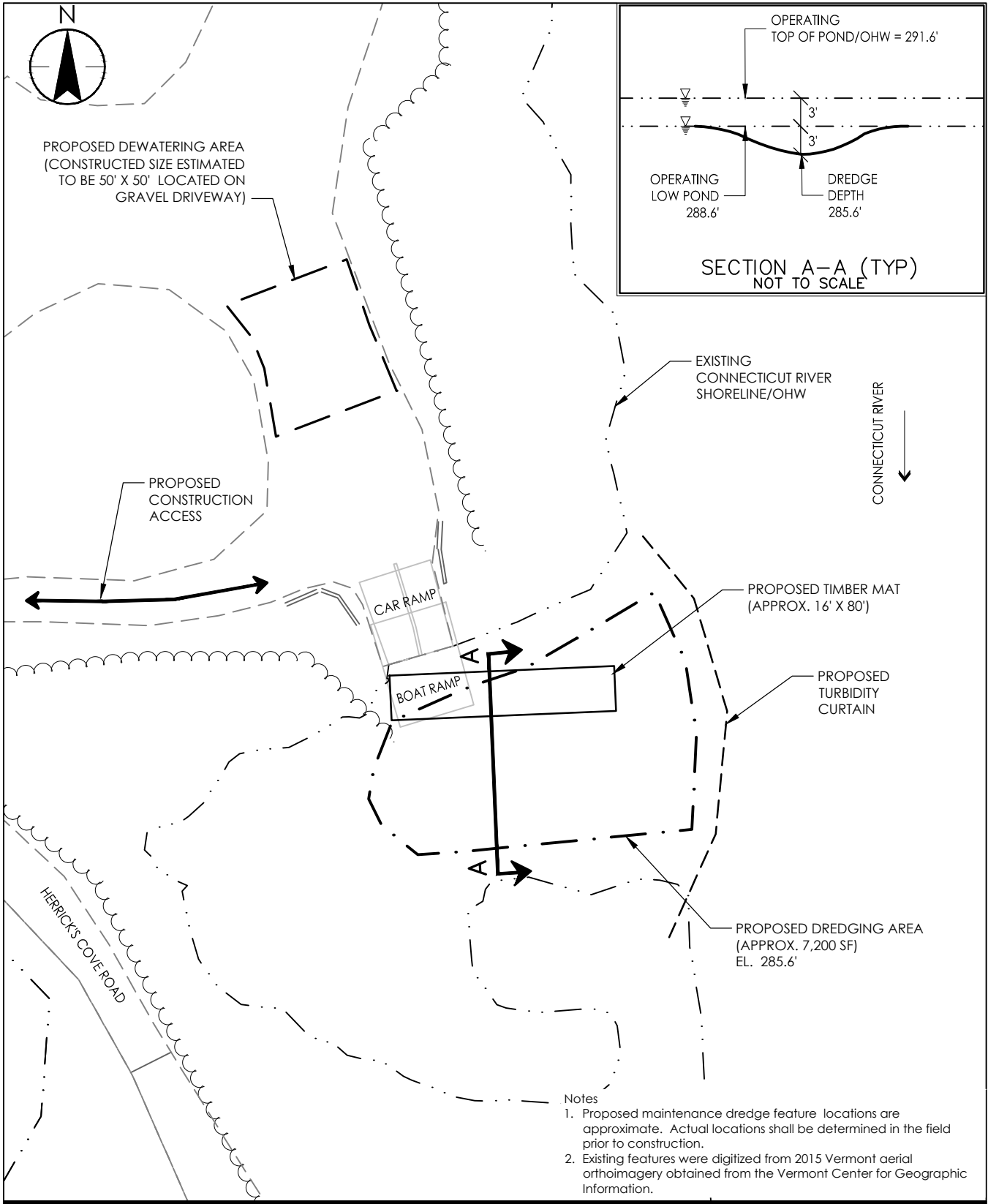
55 Green Mountain Drive  
 South Burlington, VT 05403  
 Tel. (802) 864-0223



Client/Project 195601175  
 TransCanada Hydro NE  
 Herrick's Cove Boat Launch  
 Maintenance Dredge Project  
 Rockingham, VT

Figure No. 2  
 Title Site Location

April, 2016



55 Green Mountain Drive  
South Burlington, VT 05403  
Tel. (802) 864-0223



Client/Project 195601175  
TransCanada Hydro NE  
Herrick's Cove Boat Launch  
Maintenance Dredge Project  
Rockingham, VT

Figure No.

3

Title

Cross Section and  
Impact Area Sketch

April, 2016





**Notes:**

1. Wetland boundaries delineated in accordance with USACE Wetland Delineation Manual (1987) or subsequent versions.
2. Wetland boundaries were located by Matt Arsenaault of Stantec, Oct. 6, 2015 utilizing a Trimble Geo-XH GeoExplorer 6000 Series Receiver. Expected accuracy of GPS data is within 1 meter of actual

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195601175



55 Green Mountain Drive  
South Burlington, VT 05403  
Tel. (802) 864-0223

**Legend**

- Delineated Wetland (19,022 SF)
- Open Wetland Line
- 50' Wetland Buffer Zone Boundary

**Data Source:**

1. Aerial imagery provided by ArcGIS Online World Imagery Mapping Service ([http://server.arcgisonline.com/arcgis/services/World\\_Imagery/MapServer](http://server.arcgisonline.com/arcgis/services/World_Imagery/MapServer)).

**Client/Project**

TransCanada Hydro NE  
Herrick's Cove Boat Launch  
Maintenance Dredge Project  
Rockingham, VT

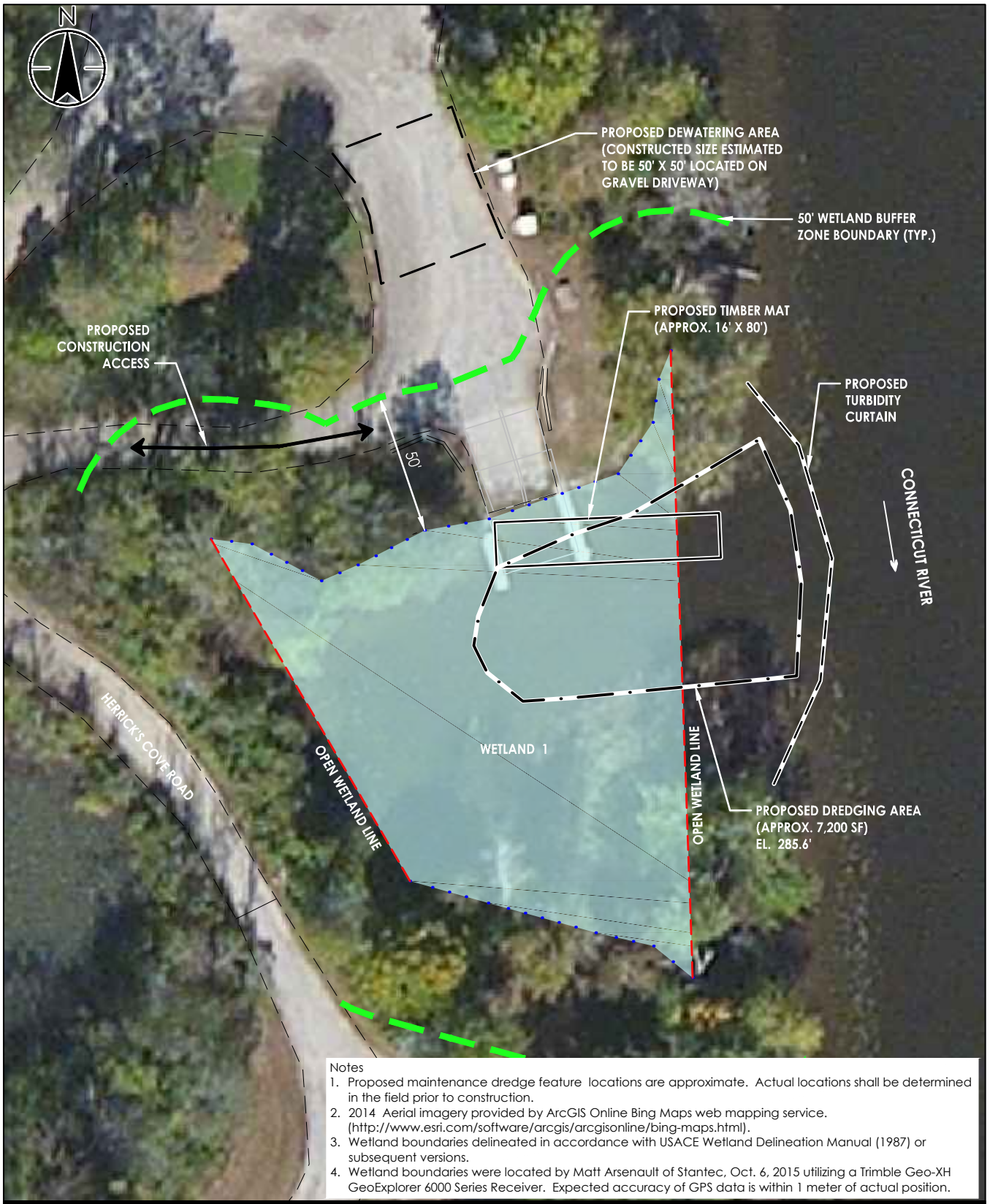
**Figure No.**

4

**Title**

Wetland Delineation Map  
7/6/2016

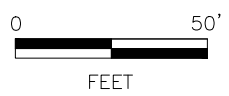




- Notes
1. Proposed maintenance dredge feature locations are approximate. Actual locations shall be determined in the field prior to construction.
  2. 2014 Aerial imagery provided by ArcGIS Online Bing Maps web mapping service. (<http://www.esri.com/software/arcgis/arcgisonline/bing-maps.html>).
  3. Wetland boundaries delineated in accordance with USACE Wetland Delineation Manual (1987) or subsequent versions.
  4. Wetland boundaries were located by Matt Arsenault of Stantec, Oct. 6, 2015 utilizing a Trimble Geo-XH GeoExplorer 6000 Series Receiver. Expected accuracy of GPS data is within 1 meter of actual position.



55 Green Mountain Drive  
 South Burlington, VT 05403  
 Tel. (802) 864-0223



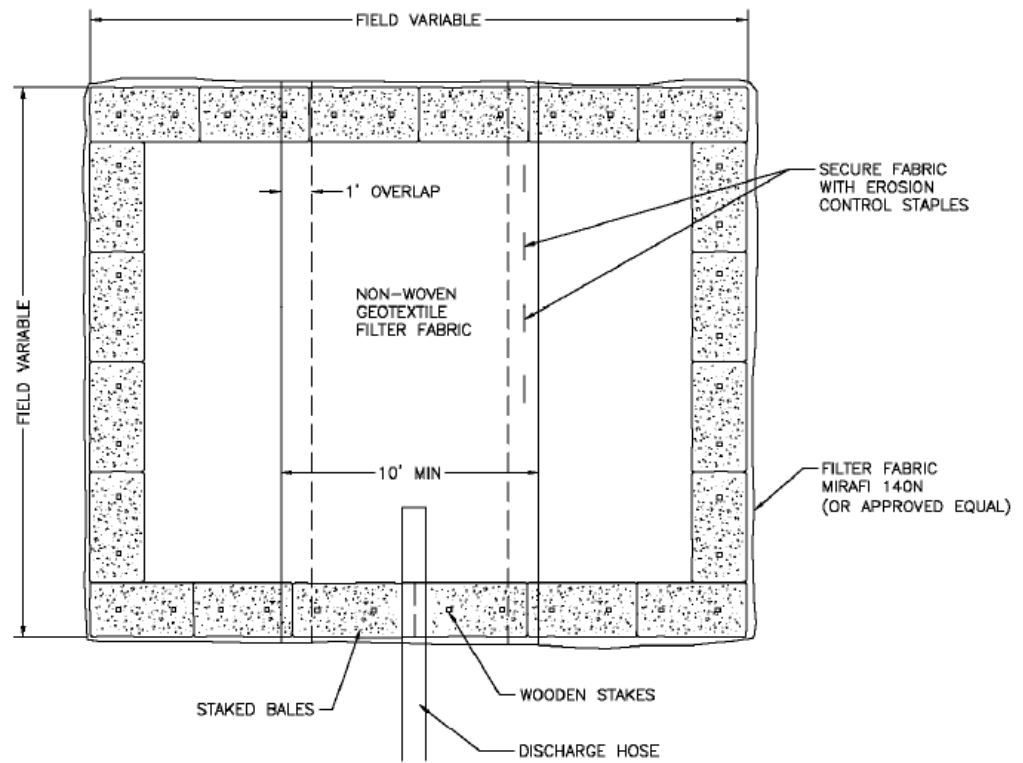
Client/Project 195601175  
 TransCanada Hydro NE  
 Herrick's Cove Boat Launch  
 Maintenance Dredge Project  
 Rockingham, VT

Figure No. 5

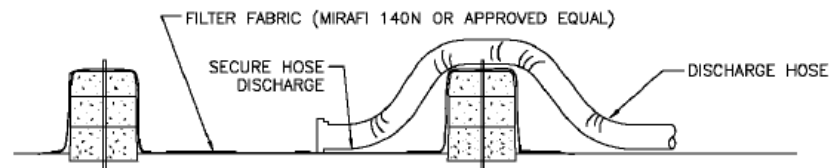
Title Existing and Proposed Conditions

July, 2016

# Dewatering



PLAN VIEW



CROSS-SECTION

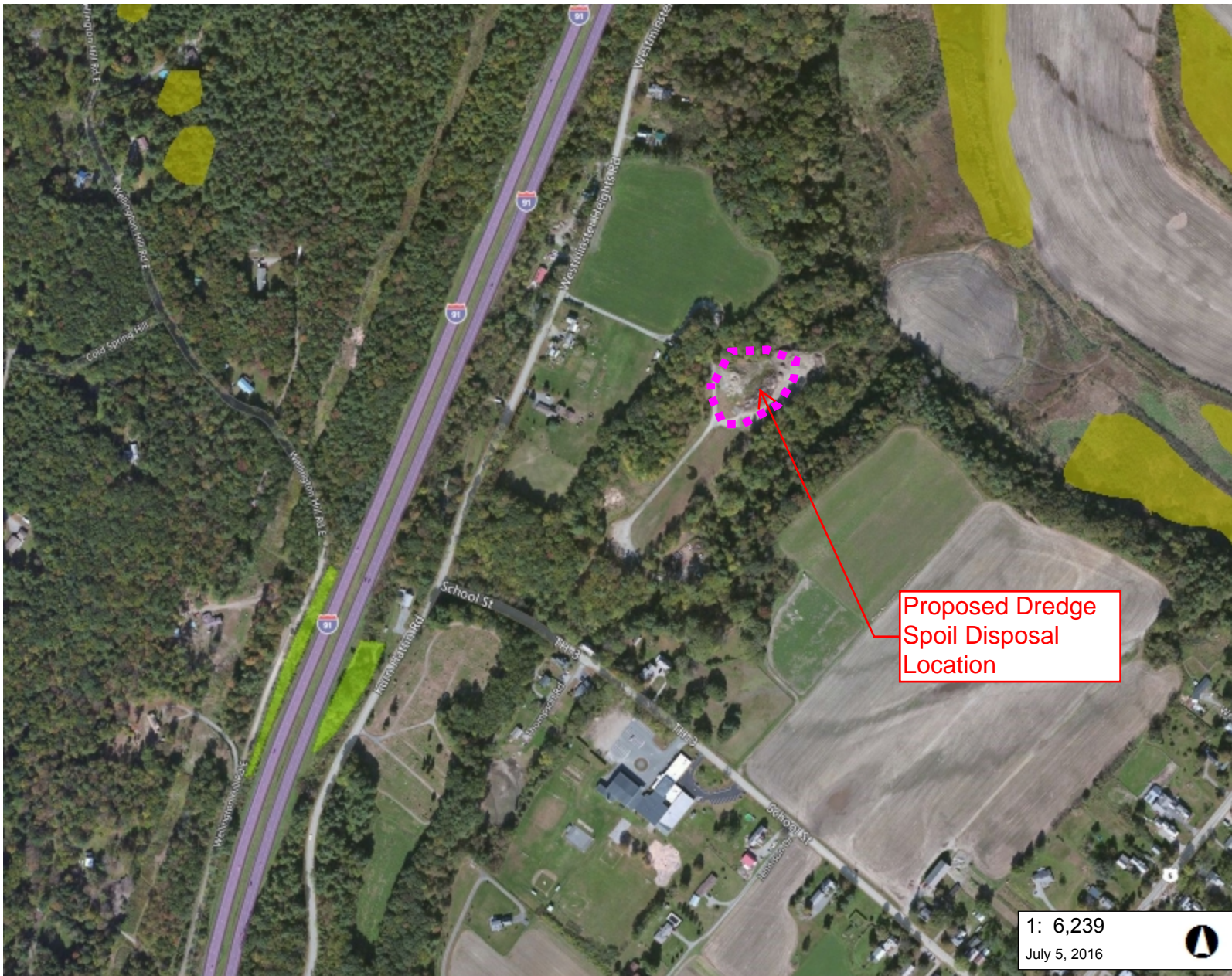
NOTES:

1. NUMBER OF BALES MAY VARY DEPENDING ON SITE CONDITIONS.
2. THE BASIN TO BE SIZED TO PREVENT DISCHARGE WATER FROM OVERTOPPING BASIN.
3. KEEP AS FAR FROM WETLANDS AS PRACTICAL.
4. CLEAN AND REMOVE AS SOON AS DEWATERING IS COMPLETE.

## TYPICAL DEWATERING HAYBALE BASIN

LS-6831-0





**Proposed Dredge  
Spoil Disposal  
Location**

### LEGEND

- Wetlands - VSWI
  - Class 1 Wetland
  - Class 2 Wetland
- Wetlands Advisory Layer
- Rare Threatened Endangered
  - Threatened or Endangered
  - Rare
- Significant Natural Community
- Town Boundary

1: 6,239  
July 5, 2016

### NOTES

Map created using ANR's Natural Resources Atlas



WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere      1" = 520 Ft.      1cm = 62 Meters  
© Vermont Agency of Natural Resources      THIS MAP IS NOT TO BE USED FOR NAVIGATION

**DISCLAIMER:** This map is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. ANR and the State of Vermont make no representations of any kind, including but not limited to, the warranties of merchantability, or fitness for a particular use, nor are any such warranties to be implied with respect to the data on this map.





Stantec Consulting Services Inc.  
30 Park Drive, Topsham ME 04086-1737

October 19, 2015  
File: 195600819

**Attention: Tim Harty**  
Compliance Specialist  
TransCanada Hydro Northeast Inc.  
2 Killeen Street  
North Walpole, NH 03609  
timothy\_harty@transcanada.com

**Reference: Wetland Delineation Report, Herrick's Cove Road Boat Launch, Rockingham, Vermont**

Dear Tim,

At the request of TransCanada Hydro Northeast, Inc., Stantec Consulting Services Inc. (Stantec) completed a delineation of wetland boundaries at the Herrick's Cove Road boat launch site in Rockingham, Vermont (Figure 1) on October 6, 2015. The wetland delineation was completed within the vicinity of a proposed maintenance dredge site at the boat launch area. This report summarizes the results of the wetland delineation field work.

## **METHODOLOGY**

The wetland boundary was identified using the technical criteria described in the *Corps of Engineers Wetlands Delineation Manual*<sup>1</sup> and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)*.<sup>2</sup> Data were collected on dominant vegetation, soils, and hydrology using U.S. Army Corps of Engineers (USACE) Wetland Determination Data Forms. Wetland boundaries were marked with pink, numbered flagging tied to standing vegetation and located using a Trimble® GeoExplorer Global Positioning System (GPS) receiver. Representative photographs were taken as appropriate.

## **RESULTS**

Based on the wetland delineation, one wetland complex was identified in the vicinity of the Herrick's Cove Road boat launch site. The wetland is associated with the shoreline of the Connecticut River and includes portions of palustrine emergent, palustrine scrub-shrub, and open water with emergent and submergent aquatic vegetation (e.g., unconsolidated bottom). The wetland boundaries are shown on Figure 1. Completed Wetland Determination Data Forms are included in Attachment A. Table 1 summarizes the results of the wetland delineation. Representative photographs of the site are included in Attachment B.

---

<sup>1</sup> Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

<sup>2</sup> U.S. Army Corps of Engineers. 2011. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)*, ed. J.S. Wakeley, R.W. Lichvar, C.V. Noble, and J.F. Berkowitz, ERDC/EL TR-12, Vicksburg, MS: U.S. Army Engineer Research and Development Center.



October 19, 2015

Page 2

Reference: Herrick's Cove Road Boat Launch Wetland Delineation Report, Rockingham, Vermont

Table 1. Summary of 2015 Wetland Delineation

Wetland Name	Wetland Type <sup>3,4</sup>	Dominant Vegetation	Hydric Soil Characteristics	Evidence of Hydrology	Comments
Wetland 1	PEM/ PSS/R2UB	<p><u>PEM</u>: narrow-leaf cat-tail (<i>Typha angustifolia</i>), purple loosestrife (<i>Lythrum salicaria</i>), bearded sedge (<i>Carex comosa</i>), jewelweed (<i>Impatiens capensis</i>), pale-yellow iris (<i>Iris pseudacorus</i>), three-petal bedstraw (<i>Galium trifidum</i>), lamp rush (<i>Juncus effusus</i>), cottongrass bulrush (<i>Scirpus cyperinus</i>), green arrow-arum (<i>Peltandra virginica</i>), duck-potato (<i>Sagittaria latifolia</i>), soft-stem club-rush (<i>Schoenoplectus tabernaemontani</i>)</p> <p><u>PSS</u>: glossy false buckthorn (<i>Frangula alnus</i>), Morrow's honeysuckle (<i>Lonicera morrowii</i>), speckled alder (<i>Alnus incana</i>), European alder (<i>Alnus glutinosa</i>), red osier (<i>Cornus alba</i>)</p> <p><u>R2UB</u>: American white water-lily (<i>Nymphaea odorata</i>), soft-stem club-rush, American eel-grass (<i>Vallisneria americana</i>)</p>	Depleted matrix	Water marks, sediment deposits, water-stained leaves	Wetlands are associated with shoreline of Connecticut River

<sup>3</sup> Wetland classification follows Cowardin et al. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. U.S. Department of the Interior Fish and Wildlife Service. FWS/OBS-79/31

<sup>4</sup> PEM = Palustrine Emergent; PSS = Palustrine Scrub-Shrub; R2UB = Riverine Lower Perennial Unconsolidated Bottom



October 19, 2015

Page 3

**Reference: Herrick's Cove Road Boat Launch Wetland Delineation Report, Rockingham, Vermont**

Please contact me at your earliest convenience if you have any questions or require further information.

Regards,

**STANTEC CONSULTING SERVICES INC.**

Matt Arsenault  
Ecologist / Botanist  
Phone: 207-406-5488  
Fax: 207-729-2715  
matt.arsenault@stantec.com

Attachment:

Figure 1 –Wetland Delineation Map  
Attachment A – Wetland Determination Data Forms  
Attachment B – Representative Photographs

CC. Polly Harris, Stantec Consulting Services Inc.



October 19, 2015

**Reference: Herrick's Cove Road Boat Launch Wetland Delineation Report, Rockingham, Vermont**

## **Figure 1**





**Notes:**  
 1. Wetland boundaries delineated in accordance with USACE Wetland Delineation Manual (1987) or subsequent versions.  
 2. Wetland boundaries were located utilizing a Trimble Geo-XH GeoExplorer 6000 Series Receiver. Expected accuracy of GPS data is within 1 meter of actual position.

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

**Stantec**  
 30 Park Drive  
 Topsham, ME USA 04086  
 Phone (207) 729-1199  
 Prepared by DLJ on 2015-10-12  
 Quality Review by KWH on 2015-10-15  
 Independent Review by MPA on 2015-10-16  
 00819\_01\_WetMap.mxd

**Legend**  
 ■■■ Delineated Wetland  
 - - - Open Wetland Line  
**Data Source:**  
 1. Aerial imagery provided by ArcGIS Online World Imagery Mapping Service ([http://server.arcgisonline.com/arcgis/services/World\\_Imagery/MapServer](http://server.arcgisonline.com/arcgis/services/World_Imagery/MapServer)).

195600819  
**Client/Project**  
 Herrick's Cove Road Boat Launch  
 Maintenance Dredge Project  
 Rockingham, Vermont  
**Figure No.**  
 1  
**Title**  
 Wetland Delineation Map  
 10/16/2015



October 19, 2015

**Reference:** Herrick's Cove Road Boat Launch Wetland Delineation Report, Rockingham, Vermont

## **Attachment A – Wetland Determination Data Forms**



Project/Site: <b>Herrick's Cove Road Boat Launch</b>	Stantec Project #: <b>195600819</b>	Date: <b>10/06/15</b>
Applicant: <b>TransCanada Hydro Northeast Inc.</b>	Investigator #2: <b>Eben Baker</b>	County: <b>Windham</b>
Investigator #1: <b>Matt Arsenault</b>	NWI/WWI Classification: <b>PSS</b>	State: <b>Vermont</b>
Soil Unit: <b>Hadley silt loam</b>	Local Relief: <b>Concave</b>	Wetland ID: <b>Wetland 1</b>
Landform: <b>Floodplain</b>	Latitude: <b>43.181174</b> Longitude: <b>-72.444042</b> Datum: <b>--</b>	Sample Point: <b>W1</b>
Slope (%): <b>0</b>		Community ID: <b>PSS</b>
Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Section: <b>--</b>
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> or Hydrology <input type="checkbox"/> significantly disturbed?	Are normal circumstances present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Township: <b>--</b>
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> or Hydrology <input type="checkbox"/> naturally problematic?		Range: <b>--</b> Dir: <b>--</b>

**SUMMARY OF FINDINGS**

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Is This Sampling Point Within A Wetland?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators (Check here if indicators are not present):

<p><u>Primary:</u></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> A1 - Surface Water</li> <li><input type="checkbox"/> A2 - High Water Table</li> <li><input type="checkbox"/> A3 - Saturation</li> <li><input checked="" type="checkbox"/> B1 - Water Marks</li> <li><input checked="" type="checkbox"/> B2 - Sediment Deposits</li> <li><input type="checkbox"/> B3 - Drift Deposits</li> <li><input type="checkbox"/> B4 - Algal Mat or Crust</li> <li><input type="checkbox"/> B5 - Iron Deposits</li> <li><input type="checkbox"/> B7 - Inundation Visible on Aerial Imagery</li> <li><input type="checkbox"/> B8 - Sparsely Vegetated Concave Surface</li> </ul>	<p><u>Secondary:</u></p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> B9 - Water-Stained Leaves</li> <li><input type="checkbox"/> B13 - Aquatic Fauna</li> <li><input type="checkbox"/> B15 - Marl Deposits</li> <li><input type="checkbox"/> C1 - Hydrogen Sulfide Odor</li> <li><input type="checkbox"/> C3 - Oxidized Rhizospheres on Living Roots</li> <li><input type="checkbox"/> C4 - Presence of Reduced Iron</li> <li><input type="checkbox"/> C6 - Recent Iron Reduction in Tilled Soils</li> <li><input type="checkbox"/> C7 - Thin Muck Surface</li> <li><input type="checkbox"/> Other (Explain in Remarks)</li> </ul>
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<p><b>Field Observations:</b></p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No      Depth: - (in.)</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No      Depth: - (in.)</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No      Depth: - (in.)</p>	<p><b>Wetland Hydrology Present?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks:

**SOILS**

Map Unit Name: **Hadley silt loam**      Series Drainage Class: **Well drained**

Taxonomy (Subgroup):

**Profile Description** (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix			Mottles				Texture (e.g. clay, sand, loam)	
			Color (Moist)		%	Color (Moist)	%	Type	Location		
0	6	1	2.5Y	3/2	100	--	--	--	--	--	silt loam
6	14	2	2.5Y	4/2	95	10YR	5/6	5	C	M	sandy loam
14	20	3	2.5Y	4/1	90	10YR	5/6	10	C	M	silt loam
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--

<p><b>NRCS Hydric Soil Field Indicators</b> (check here if indicators are not present): <input type="checkbox"/></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> A1- Histosol</li> <li><input type="checkbox"/> A2 - Histic Epipedon</li> <li><input type="checkbox"/> A3 - Black Histic</li> <li><input type="checkbox"/> A4 - Hydrogen Sulfide</li> <li><input type="checkbox"/> A5 - Stratified Layers</li> <li><input type="checkbox"/> A11 - Depleted Below Dark Surface</li> <li><input type="checkbox"/> A12 - Thick Dark Surface</li> <li><input type="checkbox"/> S1 - Sandy Muck Mineral</li> <li><input type="checkbox"/> S4 - Sandy Gleyed Matrix</li> <li><input type="checkbox"/> S5 - Sandy Redox</li> <li><input type="checkbox"/> S6 - Stripped Matrix</li> <li><input type="checkbox"/> S7 - Dark Surface (LRR R, MLRA 149B)</li> </ul>	<p><b>Indicators for Problematic Soils<sup>1</sup></b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> S8 - Polyvalue Below Surface (LRR R, MLRA 149B)</li> <li><input type="checkbox"/> S9 - Thin Dark Surface (LRR R, MLRA 149B)</li> <li><input type="checkbox"/> F1 - Loamy Mucky Mineral (LRR K, L)</li> <li><input type="checkbox"/> F2 - Loamy Gleyed Matrix</li> <li><input checked="" type="checkbox"/> F3 - Depleted Matrix</li> <li><input type="checkbox"/> F6 - Redox Dark Surface</li> <li><input type="checkbox"/> F7 - Depleted Dark Surface</li> <li><input type="checkbox"/> F8 - Redox Depressions</li> <li><input type="checkbox"/> A10 - 2 cm Muck (LRR K, L, MLRA 149B)</li> <li><input type="checkbox"/> A16 - Coast Prairie Redox (LRR K, L, R)</li> <li><input type="checkbox"/> S3 - 5cm Mucky Peat of Peat (LRR K, L, R)</li> <li><input type="checkbox"/> S7 - Dark Surface (LRR K, L, M)</li> <li><input type="checkbox"/> S8 - Polyvalue Below Surface (LRR K, L)</li> <li><input type="checkbox"/> S9 - Thin Dark Surface (LRR K, L)</li> <li><input type="checkbox"/> F12 - Iron-Manganese Masses (LRR K, L, R)</li> <li><input type="checkbox"/> F19 - Piedmont Floodplain Soils (MLRA 149B)</li> <li><input type="checkbox"/> TA6 - Mescic Spodic (MLRA 144A, 145, 149B)</li> <li><input type="checkbox"/> TF2 - Red Parent Material</li> <li><input type="checkbox"/> TF12 - Very Shallow Dark Surface</li> <li><input type="checkbox"/> Other (Explain in Remarks)</li> </ul>
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<sup>1</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed) Type: <b>None</b> Depth: <b>N/A</b>	<b>Hydric Soil Present?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Project/Site: **Herrick's Cove Road Boat Launch**

 Wetland ID: **Wetland 1** Sample Point **W1**

VEGETATION (Species identified in all uppercase are non-native species.)				
Tree Stratum (Plot size: 10 meter radius)				
	<u>Species Name</u>	<u>% Cover</u>	<u>Dominant</u>	<u>Ind. Status</u>
1.	<i>Acer saccharinum</i>	60	Y	FACW
2.				
3.				
4.	--			
5.	--			
6.	--			
7.	--			
8.	--			
9.	--			
10.	--			
Total Cover =		60		
Sapling/Shrub Stratum (Plot size: 5 meter radius)				
1.	<i>Frangula alnus</i>	50	Y	FAC
2.	<i>Cornus alba</i>	5	N	FACW
3.	<i>Alnus incana</i>	10	N	FACW
4.	<i>Quercus rubra</i>	3	N	FACU
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
Total Cover =		68		
Herb Stratum (Plot size: 2 meter radius)				
1.	<i>Onoclea sensibilis</i>	60	Y	FACW
2.	<i>Solidago flexicaulis</i>	3	N	FACU
3.	<i>Frangula alnus</i>	2	N	FAC
4.	<i>Equisetum arvense</i>	5	N	FAC
5.	<i>Equisetum hyemale</i>	10	N	FAC
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
Total Cover =		80		
Woody Vine Stratum (Plot size: 10 meter radius)				
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
Total Cover =		0		
Remarks:				

**Additional Remarks:**

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

**Prevalence Index Worksheet**

<u>Total % Cover of:</u>	<u>Multiply by:</u>
OBL spp. <u>0</u>	x 1 = <u>0</u>
FACW spp. <u>135</u>	x 2 = <u>270</u>
FAC spp. <u>67</u>	x 3 = <u>201</u>
FACU spp. <u>6</u>	x 4 = <u>24</u>
UPL spp. <u>0</u>	x 5 = <u>0</u>
<b>Total</b> <u>208</u> (A)	<u>495</u> (B)
Prevalence Index = B/A = <u>2.380</u>	

**Hydrophytic Vegetation Indicators:**

<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Rapid Test for Hydrophytic Vegetation
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Dominance Test is > 50%
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Prevalence Index is ≤ 3.0 *
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Morphological Adaptations (Explain) *
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Problem Hydrophytic Vegetation (Explain) *

\* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Definitions of Vegetation Strata:**

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

**Sapling/Shrub** - Woody plants less than 3 in. DBH and greater than 3.28 ft. 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



Project/Site: <b>Herrick's Cove Road Boat Launch</b>	Stantec Project #: <b>195600819</b>	Date: <b>10/06/15</b>
Applicant: <b>TransCanada Hydro Northeast Inc.</b>	Investigator #2: <b>Eben Baker</b>	County: <b>Windham</b>
Investigator #1: <b>Matt Arsenault</b>	NWI/WWI Classification: <b>Upland</b>	State: <b>Vermont</b>
Soil Unit: <b>Hadley silt loam</b>	Local Relief: <b>Concave</b>	Wetland ID: <b>Wetland 1</b>
Landform: <b>Terrace</b>	Latitude: <b>43.181052</b> Longitude: <b>-72.444138</b> Datum: <b>--</b>	Sample Point: <b>U1</b>
Slope (%): <b>0</b>		Community ID: <b>Upland</b>
Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks)		Section: <b>--</b>
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Township: <b>--</b>
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> or Hydrology <input type="checkbox"/> significantly disturbed?	Are normal circumstances present?	Range: <b>--</b> Dir: <b>--</b>
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> or Hydrology <input type="checkbox"/> naturally problematic?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

<b>SUMMARY OF FINDINGS</b>			
Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Hydric Soils Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is This Sampling Point Within A Wetland?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Remarks:			

<b>HYDROLOGY</b>	
Wetland Hydrology Indicators (Check here if indicators are not present): <input checked="" type="checkbox"/>	
<u>Primary:</u> <input type="checkbox"/> A1 - Surface Water <input type="checkbox"/> A2 - High Water Table <input type="checkbox"/> A3 - Saturation <input type="checkbox"/> B1 - Water Marks <input type="checkbox"/> B2 - Sediment Deposits <input type="checkbox"/> B3 - Drift Deposits <input type="checkbox"/> B4 - Algal Mat or Crust <input type="checkbox"/> B5 - Iron Deposits <input type="checkbox"/> B7 - Inundation Visible on Aerial Imagery <input type="checkbox"/> B8 - Sparsely Vegetated Concave Surface	<u>Secondary:</u> <input type="checkbox"/> B6 - Surface Soil Cracks <input type="checkbox"/> B10 - Drainage Patterns <input type="checkbox"/> B13 - Aquatic Fauna <input type="checkbox"/> B15 - Marl Deposits <input type="checkbox"/> B16 - Moss Trim Lines <input type="checkbox"/> C1 - Hydrogen Sulfide Odor <input type="checkbox"/> C2 - Dry-Season Water Table <input type="checkbox"/> C3 - Oxidized Rhizospheres on Living Roots <input type="checkbox"/> C4 - Presence of Reduced Iron <input type="checkbox"/> C6 - Recent Iron Reduction in Tilled Soils <input type="checkbox"/> C7 - Thin Muck Surface <input type="checkbox"/> Other (Explain in Remarks)

<b>Field Observations:</b> Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No      Depth: - (in.) Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No      Depth: - (in.) Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No      Depth: - (in.)	<b>Wetland Hydrology Present?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks:

<b>SOILS</b>	
Map Unit Name: <b>Hadley silt loam</b>	Series Drainage Class: <b>Well drained</b>
Taxonomy (Subgroup):	

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)											
Top Depth	Bottom Depth	Horizon	Matrix			Mottles			Texture (e.g. clay, sand, loam)		
			Color (Moist)		%	Color (Moist)	%	Type	Location		
0	4	1	10YR	3/3	100	--	--	--	--	--	sandy loam
4	18	2	2.5Y	4/3	100	--	--	--	--	--	sandy loam
18	20	3	2.5Y	4/4	100	--	--	--	--	--	sandy loam
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--

<b>NRCS Hydric Soil Field Indicators (check here if indicators are not present):</b> <input checked="" type="checkbox"/> <input type="checkbox"/> A1 - Histosol <input type="checkbox"/> A2 - Histic Epipedon <input type="checkbox"/> A3 - Black Histic <input type="checkbox"/> A4 - Hydrogen Sulfide <input type="checkbox"/> A5 - Stratified Layers <input type="checkbox"/> A11 - Depleted Below Dark Surface <input type="checkbox"/> A12 - Thick Dark Surface <input type="checkbox"/> S1 - Sandy Muck Mineral <input type="checkbox"/> S4 - Sandy Gleyed Matrix <input type="checkbox"/> S5 - Sandy Redox <input type="checkbox"/> S6 - Stripped Matrix <input type="checkbox"/> S7 - Dark Surface (LRR R, MLRA 149B)	<input type="checkbox"/> S8 - Polyvalue Below Surface (LRR R, MLRA 149B) <input type="checkbox"/> S9 - Thin Dark Surface (LRR R, MLRA 149B) <input type="checkbox"/> F1 - Loamy Mucky Mineral (LRR K, L) <input type="checkbox"/> F2 - Loamy Gleyed Matrix <input type="checkbox"/> F3 - Depleted Matrix <input type="checkbox"/> F6 - Redox Dark Surface <input type="checkbox"/> F7 - Depleted Dark Surface <input type="checkbox"/> F8 - Redox Depressions
<b>Indicators for Problematic Soils<sup>1</sup></b> <input type="checkbox"/> A10 - 2 cm Muck (LRR K, L, MLRA 149B) <input type="checkbox"/> A16 - Coast Prairie Redox (LRR K, L, R) <input type="checkbox"/> S3 - 5cm Mucky Peat of Peat (LRR K, L, R) <input type="checkbox"/> S7 - Dark Surface (LRR K, L, M) <input type="checkbox"/> S8 - Polyvalue Below Surface (LRR K, L) <input type="checkbox"/> S9 - Thin Dark Surface (LRR K, L) <input type="checkbox"/> F12 - Iron-Manganese Masses (LRR K, L, R) <input type="checkbox"/> F19 - Piedmont Floodplain Soils (MLRA 149B) <input type="checkbox"/> TA6 - Mesic Spodic (MLRA 144A, 145, 149B) <input type="checkbox"/> TF2 - Red Parent Material <input type="checkbox"/> TF12 - Very Shallow Dark Surface <input type="checkbox"/> Other (Explain in Remarks)	

<sup>1</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed) Type: <b>None</b> Depth: <b>N/A</b>	<b>Hydric Soil Present?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Remarks:	

Project/Site: **Herrick's Cove Road Boat Launch**

 Wetland ID: **Wetland 1**

 Sample Point **U1**
**VEGETATION** (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 10 meter radius)				
	Species Name	% Cover	Dominant	Ind. Status
1.	<i>Acer saccharum</i>	10	N	FACU
2.	<i>Fagus grandifolia</i>	15	N	FACU
3.	<i>Quercus rubra</i>	50	Y	FACU
4.	<i>Carya ovata</i>	5	N	FACU
5.	<i>Prunus serotina</i>	5	N	FACU
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
Total Cover =		<b>85</b>		
Sapling/Shrub Stratum (Plot size: 5 meter radius)				
	Species Name	% Cover	Dominant	Ind. Status
1.	<i>Lonicera morrowii</i>	40	Y	FACU
2.	<i>Frangula alnus</i>	25	Y	FAC
3.	<i>Cornus alternifolia</i>	3	N	FACU
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
Total Cover =		<b>68</b>		
Herb Stratum (Plot size: 2 meter radius)				
	Species Name	% Cover	Dominant	Ind. Status
1.	<i>Vitis riparia</i>	3	N	FAC
2.	<i>Parthenocissus quinquefolia</i>	1	N	FACU
3.	<i>Fraxinus americana</i>	15	Y	FACU
4.	<i>Amphicarpaea bracteata</i>	3	N	FAC
5.	<i>Equisetum hyemale</i>	50	Y	FAC
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
Total Cover =		<b>72</b>		
Woody Vine Stratum (Plot size: 10 meter radius)				
	Species Name	% Cover	Dominant	Ind. Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
Total Cover =		<b>0</b>		

**Dominance Test Worksheet**

 Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

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

 Percent of Dominant Species That Are OBL, FACW, or FAC: 40.0% (A/B)

**Prevalence Index Worksheet**

Total % Cover of:

Multiply by:

OBL spp.	<u>0</u>	x 1 =	<u>0</u>
FACW spp.	<u>0</u>	x 2 =	<u>0</u>
FAC spp.	<u>81</u>	x 3 =	<u>243</u>
FACU spp.	<u>144</u>	x 4 =	<u>576</u>
UPL spp.	<u>0</u>	x 5 =	<u>0</u>

 Total 225 (A) 819 (B)

 Prevalence Index = B/A = 3.640
**Hydrophytic Vegetation Indicators:**

- Yes     No    Rapid Test for Hydrophytic Vegetation  
 Yes     No    Dominance Test is > 50%  
 Yes     No    Prevalence Index is ≤ 3.0 \*  
 Yes     No    Morphological Adaptations (Explain) \*  
 Yes     No    Problem Hydrophytic Vegetation (Explain) \*

\* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Definitions of Vegetation Strata:**
**Tree** - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/Shrub** - Woody plants less than 3 in. DBH and greater than 3.28 ft. 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:

Additional Remarks:



October 19, 2015

**Reference:** Herrick's Cove Road Boat Launch Wetland Delineation Report, Rockingham, Vermont

## **Attachment B – Representative Photographs**





October 19, 2015

Reference: Herrick's Cove Road Boat Launch Wetland Delineation Report, Rockingham, Vermont



**Photo 1.** PEM portion of Wetland 1 at Herrick's Cove Road boat launch. Stantec. October 6, 2015.



**Photo 2.** Herrick's Cove Road boat launch. Stantec. October 6, 2015.

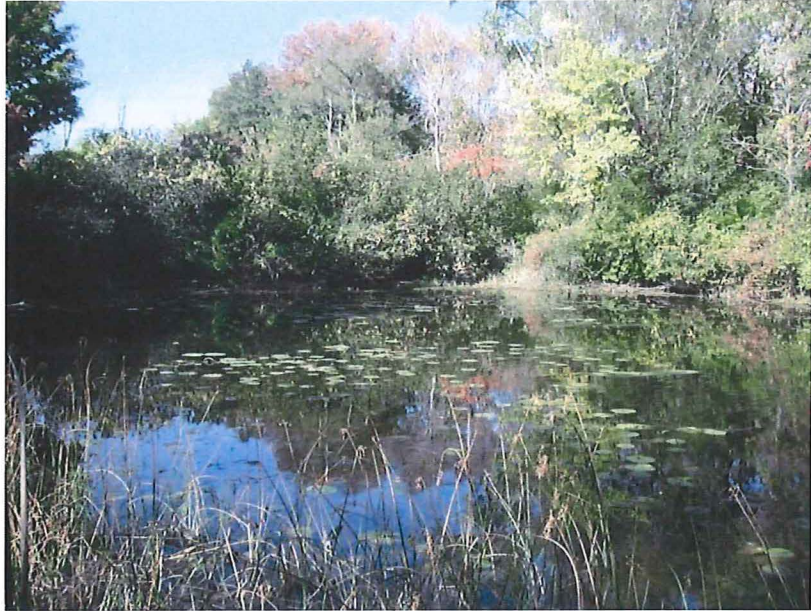
Design with community in mind



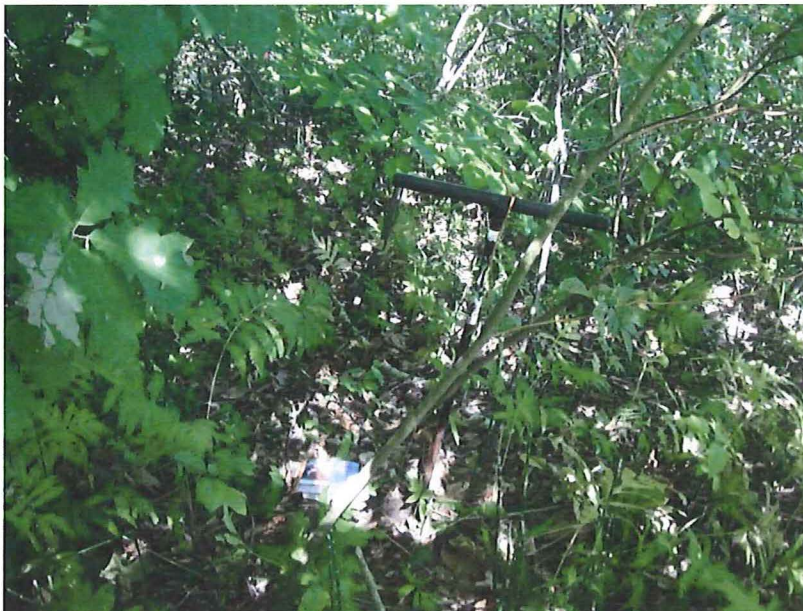


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Reference: Herrick's Cove Road Boat Launch Wetland Delineation Report, Rockingham, Vermont



**Photo 3.** Aquatic vegetation in cove at Herrick's Cove Road boat launch. Stantec. October 6, 2015.



**Photo 4.** Wetland sample plot in scrub-shrub wetland. Stantec. October 6, 2015.