October 14, 2016

Ref: 57818.00



Ms. Julie Follensbee District Wetlands Ecologist Vermont DEC – Watershed Management Division 1 National Life Drive, Main 2 Montpelier, VT 05620-3522

Re: ER Thurston Farm Solar East, LLC Orange, Vermont Application for a Vermont Wetland Individual Permit and Wetland Determination Petition

Dear Julie:

On behalf of ER Thurston Farm Solar East, LLC ("ERTE" or "Applicant"), VHB is submitting the enclosed application form and supporting materials to the Vermont Department of Environmental Conservation ("DEC") requesting a Vermont Individual Wetland Permit per the Vermont Wetland Rules pursuant to 10 V.S.A. § 6025(d)(5), to authorize activities related to the construction and operation of a planned project to install a 500kV solar installation in an agricultural field located in Orange, Vermont (the "Project"). A petition for a wetland determination for the on-site wetlands proposed for impact is also included.

The Applicant is seeking authorization for Permanent Buffer Impacts (2,316 square feet) for activities required as part of the proposed construction of a new solar electric generation facility and associated infrastructure. A check payable to the State of Vermont for the permit fee of \$819.00 is also enclosed.

Thank you for your assistance providing input as this Project was developed, and your timely review of the enclosed materials. Please do not hesitate to contact me if you have any questions, comments, or require further information regarding the enclosed Vermont Wetland Permit Application and Petition for Wetland Determination request and supporting materials.

Engineers | Scientists | Planners | Designers

Sincerely,

Carla A. Fenner Environmental Scientist

CAF/jkw

Enclosures (on CD) Vermont Wetland Permit Application and supporting documents Check cc: Derek Moretz, Encore Redevelopment (electronic only)

\\vhb\proj\Vermont\57818.00 Encore 500 kW Solar\docs\Permits\Thurston (Orange) East\VWP\Encore Thurston East VWP_Cover Letter_Final.doc

40 IDX Drive, Building 100 Suite 200 South Burlington, Vermont 05403 P 802.497.6100 F 802.495.5130 Vermont Wetlands Program

Permit Application Database Form

Under Sections 8 and 9 of the Vermont Wetland Rules



Application Submittal Instructions

- If submitting via US post, include a check in the correct fee amount made payable to the "State of Vermont," and a CD for applications that contain large files (1 MB or greater).
 Mail to: Vermont Wetlands Program
 - Watershed Management Division One National Life Drive, Main 2 Montpelier, VT 05620-3522
- Applications can also be submitted via email to the following address: <u>anr.wsmdwetlands@vermont.gov</u>
 - If submitting via email, please mail a check in the correct fee amount, made payable to the "State of Vermont," and a copy of the Vermont Wetlands Program Application Database Form (this page) to the address provided above. It is not necessary to mail in a copy of the complete application.

Applicant Name. Encore Renewable Ener	licant Name: Encore Renewable Energy Application Preparer Name: Carla A. Fenner (VHB)			
Town where project is located: Orange	wn where project is located: Orange County: Orange			
Span#:		Vermont Wetlands Project (VWP)# if Known:		
Project Location Description: e911.310 VT Route 110, Orange, VT				
911 street address or direction from nearest interse	ection			
Brief Project Summary: Install and operate a 500 kW solar electric generation facility in an existing agricultural field.				
Application Type: Individual Permit (multiple wetlands)				
Individual Permit (single wetland) General Permit Coverage Authorization Permit Amendment: VWP Project #			nit Amendment: VWP Project #	
Existing Land Use Type(s): (Check all that	Existing Land Use Type(s): (Check all that apply) Residential (single family) Residential (subdivision) Undeveloped			ntial (subdivision)
■Agriculture □Transportation □F	orestry DPark	ks/Rec/	Trail Institution	al Industrial/Commercial
Proposed Land Use Type(s): (Check all t	hat apply) 🗌 Resider	ntial (sir	ngle family) □Residen	tial (subdivision)
	Forestry	ks/Rec/	Trail Institution	al Industrial/Commercial
Proposed Impact Type(s): (Check all that	apply) 🗆 Buildings	□Utili	ities 🛛 Parking 🗌	Septic/Well Stormwater
Driveway Park/Path Agriculture	□Pond □Law	/n 🗆	Dry Hydrant Bea	ver Dam Alteration Silviculture
□Road □Aesthetics □No Impact	Other:			
Wetland and Buffer Impact Type: (Check all that apply) Dredge Drain Cut Vegetation Stormwater				
Trench/Fill IOther: Driveway and fence				
Wetland Delineation Date(s): October	<u>14, 2015, Oct</u>	tobe		
Wetland Improvements	Buffer Zo	one Im	e Improvements Reason for Improvements	
Restoration: s.f.			s.f.	
	Restoration:		s.f.	Correction of Violation
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Vermont Individual Wetland Permit Application and Determination Petition

Under Sections 8 and 9 of the Vermont Wetland Rules



ek Moretz, Encore Renewable E	nerav)	
City/Town: Burlington	State VT	Zip: 05401
Email Address: derek@encorere	enewableenergy.com	1 - 1 - 00 10 1
ormation contained within is true	, accurate, and complet	e to the best of
2014	Date:10/11/1	16
	Email Address: derek@encorere	Email Address: derek@encorerenewableenergy.com ormation contained within is true, accurate, and complet

Landowner Information: Landowner must sign the application. If landowner is different from the applicant this section must be filled out
Check this box if landowner is the same as the applicant
Landowner Name: Kathrun Thurston- heith dhe Thurston Family Frame
Address: 5162 Proiley Rd City/Town / Dillign State: 1+ Zip:0517
Phone Number: 802-240-0910 Email Address: Kleithska Baal asm
Landowner Easement: 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:
Landowner Certification:
By signing this application,
knowledge. Original signature is required.
Landowner Signature: Kothryn Thurston-Veith Date: 10-10-110

Application Preparer Information: Consultant, engine the applicant or la	eer, or other representative that is responsible	le for filling out the app	lication, if other than
Application Preparer Name: Carla A. Fenner	Organization/Company: VHB		
Address: 40 IDX Drive, Building 100 Suite 200	City/Town South Burlington	State: VT	Zip: 05403
Phone Number: (802) 497-6144	Email Address: cfenner@vhb.	.com	1 1 00100
Application Preparer Certification: By signing this application you are certifying that all of the your knowledge. Original signature is required.	e information contained within is true, ac	curate, and complet	te to the best of
Application Preparer Signature:	alas	Date:Octob	per 14, 2016

Handwritten signatures are also accepted

1. Location of wetland and project:	Lie leasted on the compass direction of the wotland in	
relation to the road, 911 street address if available, and	any other distinguishing features.	
Project site is located in a mowed agricultural field, fallow field and an existing VELCO right-of-way ("ROW") to the east of Vermont Route 110 ("VT-110") at 911 address 310 VT-110 in the town of		
Urange, vermont.		
2. Site visit date(s) and attendees:		
A site visit is required before the application can be call	ed complete	
Ecologist	Ecologist, landowner, and representatives.	
October 22, 2015 and May 25, 2016	October 22, 2015 Site Visit: Chelsea Martin (VHB), Julie Follensbee (VTDEC) May 25, 2016 Site visit: Carla Fenner (VHB), Julie Follensbee (VTDEC), Karin McNeill (ANR), Brett Ladago (VTFWD), Derek Moretz (Encore)	
3. Wetland Classification: For multiple wetlands fill out the multiple wetlands table for sections 1 and 3 through 1		
3.1. The wetland is a Class II wetland because :		
<choose one=""></choose>		
3.2. Section 4.6 Presumption		
If the wetland meets the Section 4.6 Presumpti	on, it does so primarily because:	
<choose one=""></choose>		
<choose one=""></choose>		
4. Description of the Entire Wetland:	tland which includes all wetland areas connected to the	
wetland proposed for impact. Answers may be estimate	as based on desktop review when the wetland extends past	
the investigation area (parcel boundary). Specific quest	ions about the wetland in the project area will follow. For	
multiple wetlands , fill out the multiple wetlands table.		
4.1. Size of Complex in Acres:	a Watland Inventory Man for manned watlands, or best	
I he size of the complex can be obtained from the Wetland Inventory Map for mapped wetlands, or best		
wetland on the subject property unless the entirety of the wetland is represented in the delineation.		
4.2. Vegetation Cover Types Present:		
List all wetland types in the wetland or wetland complex and their percent cover.		
For example: 50 acres of softwood forested swa	amp; or 30% scrub swamp, 70% emergent wetland	
4.3. Landscape Position:		
Where is the wetland located on the landscape?		
4.4 Hydrology:		
Describe the main source of water for the entire	wetland. List any river, stream, lakes, or ponds	
4.4.1. Direction of Flow:		
For example: Stream flows from north	n to south through the wetland complex, or the wetland	
drains generally to the southwest.		
4.4.2. Influence of Hydrology on the Entir	e Wetland:	
For example: The river provides floor	dwater to the wetland in the spring.	
4.4.3. Relation of Entire Wetland to the Pr	oject Area:	
The distance between the project area	a and any nearby surface waters	

4.4.4. Entire Wetland Hydroperiod: Discuss the frequency and duration of flooding, ponding, and/or soil saturation	
4.5. Surrounding Landuse of the Entire Wetland: For example: Rural residential and forested; Agricultural and undeveloped	
4.6. Relation of the Entire Wetland to Other Nearby Wetlands: Provide any information on wetlands or wetland complexes that are close enough to contribute to the overall function of the wetland in question.	
4.7. Pre-project Cumulative Impacts to the Entire Wetland: Identify any cumulative ongoing impacts outside of the proposed project that may influence the wetland. Examples include but are not limited to: 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.	, ,
5. Description of Subject Wetland and Buffer: 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.	
5.1. Context of Subject Wetland: Describe where the subject wetland is in the context of the entire wetland described in section 4 above. For example: Upslope, narrow eastern "finger", 400 ft. from open water portion.	
5.2. Subject Wetland Land Use: For example: Mowed lawn, old field, naturally vegetated. Describe any previous and ongoing disturbance in the subject wetland.	
5.3. Subject Wetland Vegetation: List dominant wetland vegetation cover type and associated dominant plant species.	
5.4. Subject Wetland Soils: Use the USDA NRCS information where possible and use the ACOE Delineation Manual soil description	
5.5. Subject Wetland Hydrology: Use the description from the ACOE Delineation Manual	

5.6. Buffe	Zone:		
Descri	be the buffer zone of the subject wetland (50 f	oot envelope of land adjacent to wetland boundary).	
5.6.1.	Buffer Land Use:		
	For example: Mowed shoulder, forested, of	d field, paved road, and residential lawns, etc.	
	Describe any previous and ongoing disturba		
5.6.2.	Buffer Vegetation:		
	List the vegetation cover type and dominant	plant species.	
		, ,	
5.6.3.	Buffer Soils:	la and the ACOE Delinestics Menuel seil deservation	
	Use USDA NRCS Information where possib	ie, and the ACOE Delineation Manual soil description.	
6. Entire We	land Function and Value Summary (as def	fined in the Vermont Wetland Rules Section 5):	
Check whi	ch functions are present in the entire wetland		
Flood/S	torm Storage		
Surface	& Groundwater Protection	Education & Research	
🗌 🗌 Fish Ha	bitat		
	Habitat		
	ary Natural Community		
-			
Functions and	Values: For each function and value:		
		II (I a family of the state of	
	1. Evaluate the entire wetland and check a	in that apply. Use Wetland Inventory Maps for offsite area	as
	2. Evaluate now the project will not result in	adverse impacts to the function.	
		auverse impacts to the function.	
	Include any information on specific avoidanc	e and minimization measures.	
	, ,		
	If more than one wetland complex is involved	l, provide a function and value checklist for	
	each wetland complex. In addition fill out the	Multiple Wetlands Table.	
7 Mater Store	and for Flood Water and Storm Dunoff		
7. water Stora	ge for Flood water and Storm Runoff		
	present and likely to be significant: Any of the	following physical and vegetative characteristics	
indicate the	wetland provides this function	Tollowing physical and vegetative characteristics	
🗆 Cor	stricted outlet or no outlet and an unconstruct	ted inlet.	
🗆 Phy	sical space for floodwater expansion and den	se, persistent, emergent vegetation or dense woody	
veg	etation that slows down flood waters or storm	water runoff during peak flows and facilitates water	
rem	oval by evaporation and transpiration.		
	etreens is present it's source is since and t	have in coefficient wood we notation to intercent coefficient	
	stream is present, it's course is sinuous and the	nere is sufficient woody vegetation to intercept surface	
now	s in the portion of the wettand that houds.		
□ Phv	sical evidence of seasonal flooding or pondin	g such as water stained leaves, water marks on trees.	
drift	rows, debris deposits, or standing water.		
-	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
🗆 Hyd	rologic or hydraulic study indicates wetland a	ttenuates flooding	
If any of the	above boxes are checked, the wetland	provides this function. Complete the following	l to
determine if	the wetland provides this function abo	ve or below a moderate level. If none of the	
following ap	ply, the wetland provides this function	at a moderate level.	

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 <u>lower</u> 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.
\Box 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 <u>higher</u> 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
\Box 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.
\Box 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 <u>Water Storage for Flood Water and Storm Runoff</u> :
any avoidance, minimization, and compensation measures relevant to this function.

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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.
\Box 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.
\Box Presence of seeps or springs.
□ Wetland contains a high amount of microtopography that helps slow and filter surface water.
\Box Position in the landscape indicates the wetland is a headwaters area.
\Box 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.
\Box 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 <i>lower</i> 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.
\Box 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 <u>higher</u> level.
\Box 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)
\Box The wetland contributes to the protection or improvement of water quality of any impaired waters.

 $\hfill\square$ The wetland is large in size and naturally vegetated.

8.1. Subject Wetland Contribution to Water Protection:
9.2. Statement of No Undue Adverse Impact to Surface and Cround 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.
\Box Contains woody vegetation that overhands 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.
\Box 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 snawning babitat for porthern nike
\Box 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
lood sources.
9.1. Subject Wetland Contribution to Fish Habitat:
Explain how the subject wetland contributes to the function listed above.
0.2. Statement of No Undue Adverse Impect to Fish Habitat
9.2. Statement of No Undue Adverse impact to <u>FISH Habitat</u> .
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:

1

 \Box 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.
\Box One of the following:
Hydrologically connected to other wetlands of different dominant classes or open water within 1 mile.
\Box 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.
\Box 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 <i>lower</i> 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.
\Box 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 <u>higher</u> level.
\Box The wetland is large in size and high in quality.
\Box The habitat has the potential to support several species based on the assessment above.
\Box 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 <u>Wildlife Habitat</u> : 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;
\Box Forested wetlands displaying very old trees and other old growth characteristics;
\Box A wetland natural community that is at the edge of the normal range for that type;
\Box A wetland mosaic containing examples of several to many wetland community types; or
\Box 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.

Europian 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 creditable documentation that the wetland provides important habitat for any species on the federal or state threatened or endangered species lists;
 There is creditable documentation that threatened or endangered species have been present in past 10 years;
There is creditable 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 creditable 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:
12.2 Statement of No Undue Adverse Impact to <u>Rare, Threatened, or Endangered Species Habitat</u> : 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.	
\Box Owned by or leased to a public entity dedicated to education or research.	
\Box History of use for education or research.	
\Box Has one or more characteristics making it valuable for education or research.	
13.1. Subject Wetland <u>Education and Research Potential</u> : Explain how the subject wetland contributes to the function listed above.	
13.2 Statement of No Undue Adverse Impact to <u>Education and Research in Natural Sciences</u> : Explain how the proposed project will not result in any undue, adverse impact 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.	
\Box Used for, or contributes to, recreational activities.	
Used for, or contributes to, recreational activities. Provides economic benefits.	
 Inis 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, 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. 	
 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: 	
 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: 	
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 <u>Recreational and Economic Value:</u> Explain how the subject wetland contributes to the value listed above.	
It is 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 <u>Recreational and Economic Value</u>: Explain how the subject wetland contributes to the value listed above.	
Inis 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 <u>Recreational and Economic Value:</u> Explain how the subject wetland contributes to the value listed above.	
Inis 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 <u>Recreational and Economic Value</u> : Explain how the subject wetland contributes to the value listed above.	
Inis 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.	
Initial 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.	

 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
\Box Can be readily observed by the public; and
Possesses special or unique aesthetic qualities; or
\Box Has prominence as a distinct feature in the surrounding landscape;
\Box 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 <u>Open Space and Aesthetics:</u>
Explain how the proposed project will not result in any undue, adverse impact 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.
\Box 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.
 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.
 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.
 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?
 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
 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:

t waaran ttantwat Thuaranh Dindina and Otabilizatian Dantingad
Erosion Control Inrough 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 <u>moderate level</u> .
Check box if any of the following conditions apply that may indicate the wetland provides this function at a <u>lower</u> 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 <u>higher</u> 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 <u>Erosion Control:</u> 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.
17.1. 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. The Project would consist of the installation and operation of a 500 kW solar electric generation facility within an agricultural field. The solar array arrangement is proposed to be approximately 12 rows of modules, installed as ground-mounted fixed photovoltate panels. Cher Project would consist of the installation and operation of a 500 kW solar electric generation facility within an agricultural field. The solar array arrangement is proposed to be approximately 12 rows of modules, installed as ground-mounted fixed photovoltate panels. Cher Project would be accessed from the west via VT-110 along the edge of the field and a proposed new access drives. The Project area within the proposed perimeter fence, and with the regressed from the west via VT-110 along the edge of the field and a proposed new access drives. The Project area within the proposed perimeter fence would be anamality mowed or busch-hoged to the science of the array. Otherwise, existing shrubs and trees to the south of the Project and the hedgerow located along VT-110 to the west would remain intact and would provide visual screening for dispert residence. Would transfer power via coeffee and the perimeter fence, and with project and the hedgerow located along VT-110. The west would be notice edge of the array to radiational visual screening for dispert residence. Would transfer power via coeffee and the hedgerow located along VT-110 to the west w
17. The last basis of the basis 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. The Project would onsist of the installation and operation of a 500 kW solar electric generation facility within an agricultural field. The solar array arrangement is proposed to be approximately 12 rows of modules, installed as ground-mounted fixed photoveluic panels. The Project would consist of the installation and operation of a deep of the field and a proposed new access driveway. The Project area within the project and an existing 3-phase distribution in ewhore would be ancessing 3-phase distribution in ewhore would be ancessed in exact and we are the operation of a project state of the installed as ground-mounted fixed photoveluic panels. The Project would be accessed in the west wa T-110 along the edge of the field and a proposed new removes diversary. The Project area within the project and a setsing 3-phase distribution in ewhore edge of the residence of the project area within the project and westing a diversary of the order-housed do transmitten vegetable or an existing and laydown space would consist of the installation of three new utility poles. Including a first adjust project with three pole-mounted transformers owned and portexed by Green Mountain Power (CMMP), extending west towards an existing of a diperturb space source or a mich-field, upand area to the south of the Project area of the array for adjusted the and the construction statige and laydown space would cornis to the installation of three new utility poles. Including a transformation core for project or a mich-field utility decomment will be notable of the array for adjusted project and or the east add of CMMP), extending west towards an existing a dividual metable and and pole additional tree deal adjustown and a construction or the array towards an exis

17.3. Acreage of Parcel(s) or Easements(s):

Acreage of subject property.

Approximately 26.8 acres according to digital tax maps.

17.4. Acreage of Project Area:

Acreage of area involved in the project.

Approximately 3.1 acres within perimeter fence according to Project site plans.

18. Project Details:

Provide details regarding specific impacts to the wetland and buffer zone.

For multiple wetlands fill out the multiple wetland table.

18.1. Specific Impacts to Wetland and Buffer Zone Dimensions:

List portions of the project that will specifically impact the wetland or buffer zone and their dimensions. **For example:** 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

Project access drive, 16 feet wide, will impact wetland buffers;

• Wetland 2015-2: 1,995 square feet of permanent buffer impact

• Wetland 2015-4: 314 square feet of permanent buffer impact

Project perimeter fence posts will be installed in wetland buffers; • Wetland 2015-5: 7 square feet of permanent buffer impact

• Welland 2015-5. 7 Square reet of permanent burler impact

See Multiple Wetland Table for additional information regarding buffer impacts.

18.2. Bridges and Culverts:

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.

Perennial streams are present on the property and are hydrologically connected with the subject wetland 2015-2 and 2015-5, however no Project impacts are proposed to streams. No Stream Alteration Permit or Flood Hazard Area permits are required by the Project.

18.3. Construction Sequence:

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.

The Project is planned for construction following the granting of a CPG with a goal of construction in late 2016 or early 2017. Project impacts to the buffer would occur coincident with the Project construction. The first Project impacts to occur would be the buffer impacts from the access driveway. Buffer areas not proposed for impacts would be demarcated in the field with an uninterrupted band of high visibility flagging or fence prior to construction activities. The limits of disturbance ("LOD") are shown on the Project site plans.

18.4. Stormwater Design**

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

The Project is eligible for coverage under the VT DEC Construction Stormwater National Pollutant Discharge Elimination System ("NPDES") General Permit 3-9020 ("GP 3-9020") due to risk mitigation factors to be undertaken. Although soil disturbance would be minor, construction would be conducted in accordance with the VT DEC Low Risk Site Handbook for Erosion Prevention and Sediment Control (2006, Amended 2008). As of the submittal of this permit, the Project's GP 3-9020 has not been submitted. Compliance with BMPs would prevent undue soil erosion from the areas of minor earth disturbance. Following construction of the Project, all areas of soil disturbance would be restored.

The area of new impervious surface from the Project does not necessitate an operational stormwater permit.

18.5. Permanent Demarcation of Limit of Impacts**

Describe any boulders, fencing, signage, or other memorialization that provides permanent on-the-ground boundaries for the limits of disturbance for ongoing uses. ****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.

Prior to construction all wetland and buffer locations as well as the Project's LOD would be demarcated in the field with silt fencing and/or high visibility net-type fencing (i.e., snow fence). Silt and/or snow fence would remain installed through the duration of Project construction. Perimeter fence around the array would provide permanent demarcation of the Project array boundaries, and the edge of the road fill prism would demarcate the extent of disturbance for the access driveway. Landscaping plantings would provide further visual demarcation for the Project along the northern edge. No additional permanent demarcation is anticipated.

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		s.f.
(this number includes clearing of woody		
vegetation, dredging, and does not include fill)		
Total Wetland Impact:	0	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

No wetland impacts are proposed.

19.2. Buffer Zone Impacts:

Summarize the square footage of impact in the appropriate category.

Temporary Buffer Impact		5	s.f.
Permanent Buffer Impact	2316	5	s.f.
Total Buffer Impact:		2316 \$	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.

Wetland 2015-2: Buffer impacts would result from the placement of fill in the form of gravel for an access drive for the solar array. Buffer impacts have been minimized to the greatest extent practicable, and the access drive has been designed to extend along a narrow area in between two wetland buffer zones. However in the area immediately adjacent to VT-110, the access drive must be wider to accommodate the turning radius for maintenance and emergency vehicles and as such would result in unavoidable buffer impacts are being proposed to wetland 2015-2 as this wetland is recognized as being of lower overall function and value than the partially forested wetland complex that extends south beyond VHB's study area (portion of that wetland within VHB's study area identified as wetland 2015-4).

Wetland 2015-4: Buffer impacts would result from the placement of fill in the form of gravel for an access drive. Buffer impacts have been minimized to the greatest extent practicable, and the access drive has been designed to extend along a narrow area in between two wetland buffer zones (wetland 2015-2 and wetland 2015-4). However, the access drive cannot be narrowed to a dimension smaller than 16 feet for maintenance and emergency vehicle access and as such would result in unavoidable buffer impacts of 314 square feet.

Wetland 2015-5: Buffer impact would result from the construction of a perimeter fence around the solar array. Fence posts would be vertically driven into the ground and therefore would result in minimal soil disturbance. Installation would make use of low-ground pressure equipment or construction on dry/frozen ground conditions and as such there are no temporary impacts from soil disturbance proposed. Fence posts within the wetland buffer have been limited to 7 posts (post spacing of approximately 20 feet).

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.

No proposed additional cumulative and ongoing impacts to wetlands and buffers resulting from the Project other than described in Section 19.2 above.

Existing cumulative and ongoing impacts to wetlands and buffers on the Project parcel include vegetation maintenance from agriculture, trampling and compaction from pastured cows, manipulation of vegetation type and composition for agricultural (hay and pasture) production, nutrient input and increased sedimentation of adjacent surface waters from pastured livestock, toxins, nutrients, salts, and/or sediments in runoff from VT-110 and adjacent agricultural and residential development.

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.
The Applicant conducted a preliminary screening of multiple sites within the GMP service area prior to selecting the Project site. Within the subject property, the Applicant investigated a much larger area than the Project requires in order to determine the proposed site with the least possible impacts to wetland and other resources. Constructing the Project on the subject property and at the selected site was determined to result in the least impacts to wetlands and other natural resources.
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.
The Project design has been revised summersus times, as described in 20.2.2 and 20.2.2 below, in order to synid impacts to significant watened, however expect
practicably be located outside the wetland buffer. Impacts to wetland buffers are unavoidable due to the size of the Project and distribution of wetlands, no site, as well as numerous competing design constraints such as landform, slope and aspect, minimum set-backs from property boundaries, residences, and town roads, required minimum access road dimensions for emergency vehicle access, and the landowner's continued use of surrounding fields for the agriculture. Details of Project design alternatives and measures taken to avoid and minimize impacts are included below. The Project explored access driveway alternatives as well as multiple locations within the agricultural field for the array, however the other alternatives would have resulted in stream impacts and greater impacts to wetlands and buffers.
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? I Yes I No
20.2.2. What design alternatives were examined to avoid impacts to wetland function?
For example: Use of matting, relocation of footprint, etc The Applicant has undertaken multiple design revisions in order to avoid impacts to subject wetland and other natural resources to the extent practicable. Where it was determined the impacts would be unavoidable due to Project site constraints (which are primarily parcel size, orientation of the wetland complex bisecting the site from north to south, access constraints from adjacent landowners), the Project design was durber revised and a DEC Wetlands Program site with was initiated to identify any potential further avoidance measures. From this input, the final proposed design was developed to avoid measures onduced to review this proposed design.
In particular, the Project has avoided impacts to onsite vetlands: Preliminary evaluation of alternative agricultural fields and other sites within the landowner's property in a location that would result in the least amount of impact to wetlands, buffers, and other natural resources; Sing the array within upland areas outside of Class II wetlands and all wetlands buffers: Avoidance all wetlands and the majority of buffers to doesing layout and configuration, including incorporating comments from DEC (Foley) made on May 25, 2016; Avoidance of Class II wetlands and buffers by siting the construction staging and laydown area and the riser pole in uplands: Avoidance of Class II wetlands and buffers by siting the construction staging and laydown area and the riser pole in uplands: Avoidance of Class II wetlands and buffers by siting the construction staging and laydown area and the riser pole in uplands: Avoidance of Class II wetlands and buffers by siting the construction staging and laydown area and the riser pole in uplands: Avoidance of the more instact and higher functioning (i.e., less disturbed) portions of wetland 2015-4 to the south the Project access drive; Avoidance of any forested wetland or buffer clearing
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.
Project size as proposed is necessary in order to meet the minimum solar electricity output needed; Unifying welland buffer impacts to only the upland edge of the buffer, and also limiting buffer impacts to portions of the buffer with low function/value due to existing cumulative ongoing impacts from agriculture are otherwise. The proposed access drive alternative was selected over the original design (i.e. access from howstead) which involved substantially more buffer impacts.
Arary row spacing and solar module layout has been consolidated as much as possible to minimize the footprint of the Project and therefore avoid the need for any solar panel racking in wetlands or buffers; Project's access drive has been narrowed as much as possible while still meeting safety and access needs for operation and emergency access; Projects swithin the buffer are minimized only to what is needed for safety and access needs for operation, to be spaced approximately 20 feet apart;
All staging areas will be located outside of wellands or buffers; EPSC measures will be implemented according to the Low Risk Site Handbook and GP 3-9020; Conducting natural resources screenings and surveys early in the Project process in order to first identify and then avoid impacts to sensitive natural resources within the Project Study Area; Audiance of all clearing in screenings and surveys early in the Unifers; Locating interconnection poles outside of Class II wetlands and buffers; Locating interconnection poles outside of Surveys early in the Project Study Area;
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.
The Project design as proposed represents the design alternative with the least amount of wetland buffer impact and proposes no wetland impacts. In response to discussions with DEC Wetland Ecologist Julie Follensbee during multiple site visits during the planning and VWP pre-application process, the Applicant has revised the Project design to avoid and minimize impacts to wetlands and buffers. The other alternative designs were not chosen because they would result in a greater impact to natural resources, including streams and wetlands.
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.
 The Project will require a construction phase stormwater permit GP 3-9020, and will follow BMPs for EPSC; All wetlands and non-impacted buffers will be demarcated in the field prior to construction with a continuous extent of high visibility flagging and/or fence (ie snow fence), to be left in place for the duration of construction in order to avoid inadvertent unauthorized activity within a wetland or buffer;

The Project consists of a permanent perimeter fence for wildlife exclusion, which will demarcate the area of operational activity and prevent inadvertent unauthorized activity associated with the Project in wetlands or buffers.

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 NA					
Restoration Narrative: For example: Planting along the stream.					
Quantification of Restoration:					
Wetland Buffer Area Functions/Value s Addressed Area (sqft) (sqft)					
20.4. Compensation:					
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.					
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 wetland narrative overview for each section below, and fill out the Multiple Wetland Tables.	ls provide
 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	
Make a determination of class II	
21.2. Determination Narrative: Please provide any narrative to support the petition for a wetland determination here, inclue previous decisions by the Secretary or Water Board.	ding
The wetlands identified by VHB as 2015-2, 2015-4, and 2015-5 meet a VWR section 4.6 and have been field-reviewed by DEC Wetland Ecologist Julie Follensbee. Based on s discussions and electronic mail communication following those site visits, VHB's proposidesignation for wetland 2016-2, 2015-4, and 2015-5 were concurred by DEC.	3 presumption ite visit ed Class II

22. Supporting	g Materials: <u>NAL MATER</u>	IAL REQUIR	RED TO CALL AP	PLICATION COMPLET	Ē		
22.1 . * F T	* Location Ma Provide a loca The Vermont N	ap: tion map tha Natural Reso	t is 8 ½" x 11" and ources Atlas is app	I separate from any site propriate using USGS top	olans. oography map base l	ayer,	
r	oads, and VS	WI wetlands	at a minimum.				
	[Date			Title		
	Octobe	er 10, 2016		ER Thurston	Farm Solar East - Site Lo	ocation Map	
22.2. * L	* Site Plan(s) List as specifie of disturbance	: ed below. Pla , erosion cor	ans must be legibl ntrols, building env	e and include wetland de velopes, and any perman	lineation and buffer ent memorialization	zones, limits	
	Title			Author	Date	Date of Last Revision	
ER Thurston Farm	Solar East Pro	posed Conditio	ns Site Plan Civil	Engineering Associates	8/5/2016		
ER Thurston Far	rm Solar East \	/WP Impact E	xhibit VHE	3	8/26/16		
Orange					-		
22.3. **	*U.S. Army C	corps of Eng	jineer Wetland D	elineation Forms:	led and number of		
	included			ected, cover types samp	ieu, and number of p		
Attachmer	nt #/Title	Range o D	of Collection Dates	Vegetation Cover Types		# of Paired Plots	
USACE Da	ta Forms	10/14/1	16, 10/20/16	PEM, F	PSS	1	
22.4. C F E G	Other Suppor Provide any of Examples inc GIS shapefiles	ting Docum ther docume t lude but are s, additional /	ents: ntation that suppo e not limited to: F ACOE forms.	rts the application. Photographs, easements,	agreements, restor	ation/plan,	
Date	Last Rev	vision	Author		Title		
8/8/16			VHB	N	atural Resources Map		
8/8/16			VHB	Representative Natura	I Resources Site Asses	amont Dhatagrapha	
6/6/16				VHB Summary of Delineated Wet		sment Photographs	
8/4/15		8/4/15 Encore		Summary	Thurston East Lease Option Agreement		
10/13/16	10/13/16 VHB		Encore	Thurston E	ast Lease Option A	ds Table greement	
			Encore VHB	Thurston East	Vermont Wetland Evalu	ds Table greement ation Forms	
			Encore VHB	Thurston East	Vermont Wetland Evalu	ds Table greement ation Forms	
			Encore VHB	Thurston East	Vermont Wetland Evalu	ds Table greement ation Forms	
			Encore VHB	Thurston East	Vermont Wetland Evalu	ds Table greement ation Forms	
			UNB Encore VHB	Thurston East	Vermont Wetland Evalu	ds Table greement ation Forms	

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:	Gerald Booth	16. Name:	James and Hannah Avery		
Street/Road:	PO Box 129	Street/Road:	240 VT Route 11		
City/State/Zip:	East Barre, VT 05649	City/State/Zip:	Orange, VT 05641		
2. Name:	Timothy J. Belden	17. Name:	Hannah Avery		
Street/Road:	2016 VT Route 110	Street/Road:	PO Box 498		
City/State/Zip:	Barre, VT 05641	City/State/Zip:	East Barre, VT 05649		
3. Name:	Thomas E. and Heather V. Comolli	18. Name:	Leon and Joan Tucker		
Street/Road:	1914 VT Route 110	Street/Road:	325 Tucker Road		
City/State/Zip:	Barre, VT 05641	City/State/Zip:	Orange, VT 05641		
4. Name:	Gloria Hanson	19. Name:	Vermont Electric Power Company Inc.		
Street/Road:	1800 VT Route 110, Barre, VT 05641	Street/Road:	366 Pinnacle Ridge Road		
City/State/Zip:		City/State/Zip:	Rutland, VT 05701		
5. Name:	Stephen W. and Jerri L. Howard	20. Name:	Edward K. and Sandra A. Wheaton		
Street/Road:	PO Box 123	Street/Road:	PO Box 444		
City/State/Zip:	Washington, VT 05675	City/State/Zip:	Hancock, MI 49930		
6. Name:	Jesse and Jennifer Lambert	21. Name:			
Street/Road:	1062 Carrier Road	Street/Road:			
City/State/Zip:	Washington, VT 05675	City/State/Zip:			
7. Name:	Frank and Marilyn Johnson	22. Name:			
Street/Road:	408 Lowery Road	Street/Road:			
City/State/Zip:	Barre, VT 05641	City/State/Zip:			
8. Name:	Percy and Betty Lou Smith	23. Name:			
Street/Road:	841 Lambert Road	Street/Road:			
City/State/Zip:	Graniteville, VT 05654	City/State/Zip:			
9. Name:	Thurston Family Farm, LLC	24. Name:			
Street/Road:	569 Baily Road	Street/Road:			
City/State/Zip:	Williamstown, VT 05679	City/State/Zip:			
10. Name:	Christopher A. Watson	25. Name:			
Street/Road:	780 Lambert Road	Street/Road:			
City/State/Zip:	Graniteville, VT 05654	City/State/Zip:			
11. Name:	Gary G. and Jean G. Gosselin	26. Name:			
Street/Road:	28 Prospect Street	Street/Road:			
City/State/Zip:	Barre, VT 05641	City/State/Zip:			
12. Name:	Randolph and Ginette Pickel	27. Name:			
Street/Road:	265 VT Route 110	Street/Road:			
City/State/Zip:	Orange, VT 05641	City/State/Zip:			
13. Name:	Mario Verdon	28. Name:			
Street/Road:	337 VT Route 110	Street/Road:			
City/State/Zip:	Orange, VT 05641	City/State/Zip:			
14. Name:		29. Name:			
Street/Road:		Street/Road:			
City/State/Zip:	East Barre, VI U5649	City/State/Zip:			
15. Name:	107 North Main Street	30. Name:			
Street/Road:		Street/Road:			
City/State/Zip:	Daile, VI 00041	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**

ER Thurston East	2015-2	The wetland is along the east side of VT-110, west of Jail Branch, and south of Tucker Rd.	approximately 44.12872° N	approximately 72.43003° W	5.1, 5.2, 5.10	The wetland is contiguous to VSWI mapped wetland	Same type and size as VSWI wetlands or over 0.5 acres
		east side of VT-110, west				The wetland meets the presumption of	Adjacent to a stream,
ER Thurston		of Jail Branch, and south				significance	lake, pond, or river
East	2015-2	of Tucker Rd.	-	-	-		
		The wetland is east of VT-					
		110 and south of Tucker					
		Rd. and generally					Same type and size as
		extends along the				The wetland meets the presumption of	VSWI wetlands or over
		southern edge of an				significance	0.5 acres
		active agricultural field					
ER Thurston		and under an overhead	approximately	approximately			
East	2015-4	utility line	44.12695° N	72.42590° W	5.1, 5.2		
		The wetland is east of VT-					
		110 and south of Tucker					Same type and size as
		Rd. and generally				The wetland meets the presumption of	VSWI wetlands or over
		extends along the				significance	0.5 acres
ER Thurston		riparian corridor of Jail	approximately	approximately			
East	2015-5	Branch	44.12792° N	72.42591° W	5.1, 5.2, 5.10		
		The wetland is east of VT-					
		110 and south of Tucker					
		Rd. and generally				The wetland meets the presumption of	Adjacent to a stream,
		extends along the				significance	lake, pond, or river
ER Thurston		riparian corridor of Jail					
East	2015-5	Branch	-	-	-		

	4.0 Description of the Entire Wetland or Wetland Complex												
	Wetland Complex ID	Wetland ID	4.1 Size of Wetland Complex in Acres	4.2 Cover Types Present	4.3 Landscape Position	4.4 Wetland Hydrology	4.4.1 Direction of Flow	4.4.2 Influence of Hydrology on Wetland Complex	4.4.3 Relation to the Project Area	4.4.4 Hydroperiod	4.5 Surrounding Landuse of the Wetland Complex	4.6 Relation to Other Nearby Wetlands	4.7 Pre-Project Cummulative Impacts to Wetlands
Example:	A	W4	14	85% hardwood swamp; 10% emergent wetland; 5% open water (dammed)	bottom of a basin and along Great Brook	surface runoff and adjacent to small tributary that flows into Otter Creek	The tributary flows easterly through wetland towards Otter Creek	The wetland is seasonally flooded from Otter Creek	Otter Creek is located approximately 200 feet east of the project site	The wetland is inundated during the spring, and soils stay saturated through the summer and fall	The surrounding landuse is rural with agricultural, forested and undeveloped areas	There is a mapped wetland 1,000 ft to the north east of the subject wetland complex.	The northeastern section of the wetland complex is managed for hay
	ER Thurston East	2015-2	2.4 acres (103,776 sq ft) delineated within VHB's study area	Approximatley 20% scrub-shrub and 80% emergent (emergent portion is active and fallow ag)	Overall terrace landscpe position on the lower portion of slope to the west	Surface water runoff; seasonal water table	No surface water flow within VHB's study area; grade within delineated wetland generally to the south and east	Seasonally saturated by surface water runoff and seasonal high water table	The Project access driveway would extend along the southern edge of the wetland buffer within an agricultural field, but all other areas of the wetland and buffer, including the unnamed tributary to Jail Branch, would be avoided by the Project; the solar array would be installed to the east of the wetland complex	Wetland is estimated to be seasonally saturated in the emergent portion and appears to be permanently saturated in the scrub-shrub portion to the south beyond VHB's study area; indirect indicators of wetland hydrology	Surrounding landscape includes active and inactive agricultural lands, a forest block to the south, and rural residential and agricultural development	VSWI wetland overlaps and extends to the west of Rte. 110; likely additional fringe wetlands associated with the unnamed tributary to Jail Branch to the northeast that would be hydrologically connected to the subject wetland however are beyond VHB's study area	Wetland is currently impacted by agricultural uses including crop (hay) production, nutrient inputs from livestock manure, livestock grazing, sediment discharge from hoof action on streambanks and within the riparian wetland area, impervious surface runoff fom farmstead

ER Thurston East 2	2015-4	0.5 acre (21,707 sq ft) delineated within VHB's study area	Approximately 80% scrub-shrub and 20% emergent (emergent portion is edge of an active ag field); aerial photos indicate forested swamp extends to south within the complex	Overall toe of slope position; topographic depressions and riparian areas of Jail Branch	Surface water runoff, seasonal water table, groundwater discharge (seeps)	Jail Branch flows generally north towards Stevens Brook, a tributary of the Winooski River	Seasonally saturated by surface water runoff and seasonal high water table as well as input form multiple small groundwater seeps	The Project access driveway would extend along the northern edge of the wetland buffer within the agricultural field, but all other areas of the wetland and buffer, including the more naturalized and higher functioning portions to the south, would be avoided by the Project; the solar array would be installed to the northeast of the wetland complex	Wetland is estimated to be seasonally saturated in the emergent portion and to be permanently saturated in the scrub-shrub portion to the south beyond VHB's study area, based on
		2.1 acres (91,800 sq ft) delineated within VHB's study area	Approximately 20% scrub-shrub and 80% emergent (emergent portion is active ag); aerial photos indicate forested swamp extends to south within the complex	Overall toe of slope position; topographic depressions and riparian areas of Jail Branch	Surface water runoff, seasonal water table, groundwater discharge (seeps)	Jail Branch flows generally north towards Stevens Brook, a tributary of the Winooski River	Seasonally saturated by surface water runoff and seasonal high water table as well as input form multiple small groundwater seeps	The Project perimeter fence would extend within the western edge of the wetland buffer within an agricultural field; no other portion of the wetland or buffer would be impacted by the Project including along Jail Branch.	Wetland is saturated during the spring; indirect indicators of wetland hydrology were also observed

ER		
Thurston		
East	2015-5	
0		0
0		0
0		0
0		0
0		0

	Surrounding						
	landscape includes						
n	active and inactive						
11	agricultural lands, a						
	forest block to the						
	south, and rural						
tion	residential and						
	agricultural						
udv	development						
uuy							

Surrounding landscape includes and likely active and inactive additional wetlands grazing, sediment agricultural lands, a associated with Jail discharge from forest block to the Branch to the south, and rural residential and agricultural development

Wetland complex extends to the south along Jail Branch beyond VHB's study area and likely additional wetlands grazing, sediment associated with Jail discharge from Branch to the north; wetland area streambanks and along/associated tributary of Jail Branch to the north wetland outsid would be hydrologically connected

Wetland complex extends to the south along Jail Branch beyond VHB's study area north; wetland area streambanks and along/associated with the unnamed tributary of Jail Branch to the north wetland outsid would be hydrologically connected

Wetland is currently impacted by agricultural uses including hay crop production, nutrient inputs from livestock manure, livestock hoof action on within the riparian with the unnamed wetland area; other portions of the VHB's study area to the south are assumed to be relatively less disturbed Wetland is currently impacted by agricultural uses including hay crop production, nutrient inputs from livestock manure, livestock hoof action on within the riparian wetland area; other portions of the VHB's study area to the south are assumed to be relatively less disturbed

	5.0 Description of Subject Wetland											
	Wetland Complex ID	Wetland	5.1 Context of Subject Wetland	5.2 Wetland Landuse	5.3 Wetland Vegetation	5.4 Wetland Soils	5.5 Wetland Hydrology	5.6.1 Buffer Zone General Landuse	5.6.2 Buffer Vegetation	5.6.3 Buffer Soils		
Example:	A	W4	Subject wetland is in the southwest corner of the wetland complex	The wetland is naturally vegetated with no anthropegenic disturbances.	Forested Swamp. Red maple, green ash, silver maple, cottonwood, sensitive fern, drooping sedge	Georgia and Amenia soils (Depleted Matrix F3)	Primary indicators: watermarks on trees and sediment deposits.	Partially forested, other areas are hayfields in ag use.	Forested- white pine, cottonwood, red maple. Hayfields have clover and reed canary grass.	Covington and Panton Silty Clays		
	ER Thurston East	2015-2	Subject wetland is along the southern edge of the buffer of wetland 2015-2 as delineated by VHB.	The subject wetland is currently used for agriculture (hay and pasture)	PSS: Cornus sericea PEM: Carex crinita, Spiraea alba	Cabot silt loam, Belgrade silt loam; Depleted Matrix (F3)	Saturation (A3); Drainage Patterns (B10), Saturation Visible on Aerial Imagery (C9)	The subject buffer is currently used for agriculture (hay and pasture)	Phalaris arundinaceae, Solidago rugosa, Taraxacum officinale	Cabot silt loam, Belgrade silt loam		
	ER Thurston East	2015-4	Subject wetland is along the northeastern portion of the buffer of wetland 2015-4 as delineated by VHB.	The subject wetland is currently used for agriculture (hay and pasture)	Phalaris arundinacea, Scirpus atrovirens, Lythrum salicaria	Belgrade silt loam, Merrimac silt loam, Winooski very fine sandy loam; Depleted Matrix (F3)	Saturation (A3); Saturation Visible on Aerial Imagery (C9)	The subject buffer is currently used for agriculture (hay and pasture)	Elymus repens, Galium mollugo, Taraxacum officianale, Plantago major	Belgrade silt loam, Merrimac silt loam, Winooski very fine sandy loam		
	ER Thurston Fast	2015-5	Subject wetland is along the northwestern portion of the buffer of wetland 2015-5 as delineated by VHB.	The subject wetland is currently used for agriculture (hay and pasture)	PSS: Cornus sericea PEM: Phalaris arundinacea, Scirpus atrovirens, Solidago rugosa	Belgrade silt loam, Merrimac silt loam, Winooski very fine sandy loam; Depleted Matrix (F3)	Saturation (A3); Oxidized Rhizospheres on Living Roots (C3)	The subject buffer is currently used for agriculture (hay and pasture)	Elymus repens, Galium mollugo, Taraxacum officianale, Plantago major	Belgrade silt loam, Merrimac silt loam, Winooski very fine sandy loam		
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				19.1 Proposed Class II Wetland Impacts					19.2 Proposed Class II Buffer Zone Impacts			
	Wetland Complex ID	Wetland ID	19.1 Subject Wetland Impact Description	Proposed Wetland Fill (sq ft)	Proposed Temporary Impacts (sq ft)	Proposed Other Impacts (sq ft)	Total Wetland Impacts (sq ft)	Proposed Permanent Impact (sq ft)	Proposed Temporary Impact (sq ft)	Proposed Other Permanent Impacts (sq ft)	Total Buffer Impacts (sq ft)	
			TOTALS:	0	0	0	0	0	0	0	2316	
Example:	A	W4	Proposed 10-foot access driveway with 18" culvert	985	2,000	0	2,985	255	1,015	0	1,270	
	ER Thurston East ER Thurston	2015-2	Proposed 16 foot wide access drive to the solar array to provide construciton and operational phase access will occur partially within the buffer. Proposed 16 foot wide access drive to the solar array to provide construciton and operational phase access will occur partially within the				0	1995			1,995	
	East	2015-4	buffer. Proposed perimeter fence for the solar array to consist of vertically driven fence posts will occur				0	314			314	
	Thurston East	2015-5	partially within the buffer.				0	7			7	

	Wetland Complex	Subject Wetland	19.1 Subject Wetland Impact Description	6. Wetland Functions	Subject Wetland Contribution	No Adverse Impact Statement and Avoidance	Functional Checklist		
				5.1	The subject wetland provides this function at a low level. The subject wetland has the physical space for floodwater expansion, but does not have dense vegetation to slow down floodwaters. The subject wetland is currently maintained as an old field and will essentially retain the same characteristics	The physical and vegetative characteristics of the wetland which provide this function, even in a limited capacity, will not be disturbed as a result of the proposed Project. The Project will result in the installation of pilings via helical screws for the solar array and posts for the chain link fence in the wetland meadow with no site grading. There will be no loss of flood water or stormwater runoff storage as a result of the proposed Project. The Project will an undue adverse impact to this function.	Hyperlink		
Example:	A	W4	Proposed 10-foot access driveway with 18" culvert	5.2	The subject wetland provides a potential filter between the upslope residential development/impervious surfaces and the overall wetland complex. Given that the subject wetland is currently maintained as old field, it does not have opportunity to perform this function in a significant way.	The physical and vegetative characteristics of the wetland that provide this function will not be disturbed as a result of the proposed Project. The applicant shall employ standard erosion control measures including silt fence, and seed and mulch as specified in the State of Vermont Handbook for Erosion Prevention and Sediment Control to limit soil erosion on the site. Array installation and decommissioning within the wetland will be conducted on mats to protect wetland soils and vegetation. For these reasons, the proposed Project will not result in an undue adverse impact to this function.			
				5.4	While the broader wetland complex is significant for wildlife habitat, the subject wetland is characterized as an old field and does not contribute to the function of wildlife habitat in a significant way.	The Project as proposed will result in minimal changes to the overall wetland complex. The physical and vegetative characteristics of the wetland which provide this function will not be disturbed as a result of the proposed Project. A woody vegetative management plan has been developed for a wetland area of approximately 200 sq. ft. The use of non-mechanized practices/techniques for all vegetation (shading) management with no removal of material will ensure minimal impact. The result of the vegetation management will be an increase in coarse woody debris (CWO), an integral component of forest nutrient cycling and wildlife habitat. The proposed Project will not result in an undue adverse impact to this function.			
	<u> </u>		Construction of access driveway for a solar array within a portion of		The subject wetland provides this function. However, the current function is diminished by agricultural activities that compact the soil and have modified vegetation	The subject wetland's current function for flood or stormwater storage capacity would not be reduced, and as such there would be no adverse impact from the Project to this criterion. The Project will include construction of an access driveway through an agricultural field and would extend through a portion of the unland buffer of the subject wetland.			
ER Thursto 2015-2		2015-2	wetland buffer5.1Construction of accessThe subject wetland provides this function at a low level, due to driveway for a solar arrayThe subject wetland provides this function at a low level, due to current and historical agricultural land use.The subject wetland's current level of funct adverse impact from the Project to this crit would extend through a portion of the uplawetland buffer5.2		The subject wetland provides this function at a low level, due to current and historical agricultural land use.	The subject wetland's current level of function for surface or groundwater protection would not be reduced, and as such there would be no adverse impact from the Project to this criterion. The Project will include construction of an access driveway through an agricultural field and would extend through a portion of the upland buffer of the subject wetland.			
		2015-2	Construction of access driveway for a solar array within a portion of wetland buffer		An unnamed tributary to Jail Branch flows through the northern portion of the subject wetland. Although the vegetative community along the stream is modified by agriculture, there is thick, dense, herbaceous vegetation which functions to stabilize and bind the soil. However, due to the ongoing agricultural impact, this criterion is functioning at a low level	The subject wetland's current level of function for stabilization and soil binding would not be reduced, and as such there would be no adverse impact from the Project to this criterion. The Project will include construction of an access driveway through an agricultural field and would extend through a portion of the upland buffer of the subject wetland.			
		2013 2	Construction of access driveway for a solar array within a portion of		The subject wetland provides this function. However, the current function is diminished by agricultural activities that compact the soil and have modified vegetation.	The subject wetland's current function for flood or stormwater storage capacity would not be reduced, and as such there would be no adverse impact from the Project to this criterion. The Project will include construction of an access driveway through an agricultural field and would extend through a portion of the upland buffer of the subject wetland.			
	ER Thursto	2015-4	wetland buffer Construction of access driveway for a solar array within a portion of	r 5.1 of access The subject wetland provides this function at a low solar array current and historical agricultural land use. on of		The subject wetland's current level of function for surface or groundwater protection would not be reduced, and as such there would be no adverse impact from the Project to this criterion. The Project will include construction of an access driveway through an agricultural field and would extend through a portion of the upland buffer of the subject wetland.			
ER Thursto 2015-4		2015-4	within a portion ofwetland buffer5.2Vertically driven fenceThe subject wetland provides this function. However, the currentposts installed by low-function is diminished by agricultural activities that compact the soiground pressure orand have modified vegetation.tracked equipment, withinfunction is diminished by agricultural activities that compact the soi		The subject wetland provides this function. However, the current function is diminished by agricultural activities that compact the soil and have modified vegetation.	The subject wetland's current function for flood or stormwater storage capacity would not be reduced, and as such there would be no adverse impact from the Project to this criterion. The Project will include fenceposts being vertically driven into a portion of the wetland buffer in an existing agricultural field, occuring via low ground pressure and/or tracked equipment and/or construction during dry or frozen ground condition			
ER Thursto 2015-5		2015-5	a portion of wetland buffer 5.1 Vertically driven fence posts installed by low- ground pressure or tracked equipment, within a portion of wetland		The subject wetland provides this function at a low level, due to current and historical agricultural land use, combined with the comparatively small portion of the much larger wetland complex along Jail Branch occuring on the property and the relatively small portion of buffer that would be impacted as compared to either the subject wetland area on the property or the complex as a whole.	The subject wetland's current function for surface or groundwater protection would not be reduced, and as such there would be no adverse impact from the Project to this criterion. The Project will include fenceposts being vertically driven into a portion of the wetland buffer in an existing agricultural field, occuring via low ground pressure and/or tracked equipment and/or construction during dry or frozen ground conditions.			
ER Thursto 2015-5 ER Thursto 2015-5		2015-5	Vertically driven fence posts installed by low- ground pressure or tracked equipment, within a portion of wetland buffer	5.2	The subject wetland provides this function. However, the current function within the proposed impact area is diminished by agricultural activities that compact the soil and have modified vegetation.	The subject wetland's current function for stabilization and soil binding would not be reduced, and as such there would be no adverse impact from the Project to this criterion. The Project will include fenceposts being vertically driven into a portion of the wetland buffer in an existing agricultural field, occuring via low ground pressure and/or tracked equipment and/or construction during dry or frozen ground conditions.			

					3. Wetland Classification		21. Wetland Determination		
	Wetland Complex ID	Subject Wetland ID	1. Location of Subject Wetland	4.1 Size of Wetland Complex in Acres	3.1 Why is it Class II?	3.2 Applicable VWR 4.6 Presumption	21.1 Reason for Petition	20.3 Determination Narrative	
Example:	A	W4	The wetland is northwest of 1375 Lime Kiln Road.	14	The wetland meets the presumption of significance	adjacent to a stream, lake, pond, or river	Add a Section 4.6 presumed wetland to the VSWI map	adding a Section 4.6 presumed wetland to the VSWI mapped. Confirmed with District Ecologist.	
	ER Thurston East	2015-2	The wetland is along the east side of VT-110, west of Jail Branch, and south of Tucker Rd.	2.4 acres (103,776 sq ft) delineated within VHB's study area	The wetland meets the presumption of significance	Same type and size as VSWI wetlands or over 0.5 acre	Add a Section 4.6 presumed wetland to the VSWI map	Proposed classification as Class II wetland confirmed in the field by DEC District Ecologist on October 22, 2015.	
	ER Thurston East	2015-4	The wetland is along the east side of VT-110, west of Jail Branch, and south of Tucker Rd.	0.5 acre (21,707 sq ft) delineated within VHB's study area	The wetland meets the presumption of significance	Same type and size as VSWI wetlands or over 0.5 acre	Add a Section 4.6 presumed wetland to the VSWI map	Proposed classification as Class II wetland confirmed in the field by DEC District Ecologist on October 22, 2015.	
	ER Thurston East	2015-5	The wetland is east of VT-110 and south of Tucker Rd. and generally extends along the southern edge of an active agricultural field and under an overhead utility line	2.1 acres (91,800 sq ft) delineated within VHB's study area	The wetland meets the presumption of significance	Same type and size as VSWI wetlands or over 0.5 acre	Add a Section 4.6 presumed wetland to the VSWI map	Proposed classification as Class II wetland confirmed in the field by DEC District Ecologist on October 22, 2015.	

Wetland Description Summary Table

This table for the permit is autopopulated from the previous tables. Please just confirm that the information is correct.

	Wetland Complex ID	Subject Wetland ID	1. Location of Subject Wetland	4.1 Size of Wetland Complex in Acres	4.2 Vegetation Cover Types Present	4.4 Wetland Hydrology
Example:	А	W4	The wetland is northwest of 1375 Lime Kiln Road.	14	80% Deciduous Forest, 20% Shrub Swamp	adjacent to small tributary that flows into Otter Creek
ER Thurston E ER Thurston E		2015-2	The wetland is along the east side of VT- 110, west of Jail Branch, and south of Tucker Rd.	2.4 acres (103,776 s ft) delineated withi VHB's study area	Approximatley 20% scrub- shrub and 80% emergent (emergent portion is active and fallow ag) Approximately 80% scrub-	Surface water runoff; seasonal water table
		2015-4	The wetland is along the east side of VT- 110, west of Jail Branch, and south of Tucker Rd.	0.5 acre (21,707 sc ft) delineated withi VHB's study area	shrub and 20% emergent (emergent portion is edge of an active ag field); aerial photos indicate forested swamp extends to south within the complex	Surface water runoff, seasonal water table
Ef	R Thurston E	2015-5	The wetland is along the east side of VT- 110, west of Jail Branch, and south of Tucker Rd.	2.1 acres (91,800 s ft) delineated withi VHB's study area	Approximately 20% scrub- g shrub and 80% emergent n (emergent portion is active ag); aerial photos indicate forested swamp extends to south within the complex	Surface water runoff, seasonal water table, groundwater discharge (seeps)
				0	0	0
				0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	U	0
	0	0	0	U	0	0
	0	U	0	U	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0

Wetland Impacts Summary Table

This table for the permit is autopopulated from the previous tables. Please just confirm that the information is correct.

				19. Impact Totals For Whole Project	0	2316
	Wetland Complex ID	Subject Wetland ID	6. VWR Section 5 Functions	19.1 Subject Wetland Impact Description	19.1 Total Wetland Impacts (sq ft)	19.2 Total Buffer Impacts (sq ft)
Example:	А	W4	5.1, 5.2, 5.4, 5.10	Proposed acess driveway with culvert	2,985	1,270
ER Thursto 2015-2			5.1, 5.2, 5.10	Proposed 16 foot wide access drive to the solar array to provide construciton and operational phase access will occur partially within the buffer. Proposed 16 foot wide access drive to the solar array to provide construciton and operational phase access will occur partially within the	0	1995 314
	ER Thursto 2015-4		5.1, 5.2	buffer. Proposed perimeter fence for the solar array to consist of vertically driven fence posts will	7	
	ER Thursto	2015-5	5.1, 5.2, 5.10	occur partially within the buffer.		
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0

LEASE OPTION AGREEMENT

THIS AGREEMENT, entered into by and between Thurston Family Farm, LLC of Williamstown

Vermont, hereinafter referred to as the "Owner" and Encore Redevelopment, LLC, of Burlington,

Vermont, hereafter referred to as "Encore".

Dian C

WITNESSETH:

WHEREAS, The Owner is the owner of certain real estate located at 285 VT Route 110 in

Orange, Vermont (the "Property"); and

WHEREAS, the parties have agreed that Encore may lease said real estate from the Owner; and

WHEREAS, the parties wish to reduce their agreement to writing.

NOW THEREFORE, in consideration of One Dollar and other good and valuable consideration

and the mutual benefits accruing to each, the parties hereby covenant and agree as follows:

1. The Owner hereby grants to Encore the right and option to lease from the Owner any portion of the Property, and access thereto, owned by the Owner, located at the Property as shown in Attachment 1, to develop the site for electricity generation (the "Option Agreement").

2. The owner hereby warrants and represents that Owner (1) owns the property in fee simple absolute; b) has the sole and unilateral right and authority to enter into this Option Agreement, (c) has and will maintain good and marketable title to the Premises, free and clear of any encumbrances that could reasonably be expected to have a material adverse affect on development of the Premises for a solar energy generating facility, (d) shall not enter into any lease, option to lease, purchase and sale agreement, option to purchase, or any other similar agreement with any other developer of solar energy generating facilities during the Exclusive Negotiating Period, and (e) shall notify Encore promptly in writing after any transfer or other change in ownership of all or any part of the Premises, including the name and address of the new owner.

3. Encore shall give the Owner written notice of Encore's election to lease the subject Property at the time and date specified by Encore in such notice, which time and date shall not be later than sixty (60) days from the date the Owner receives such notice. The formal Site Lease Agreement, which has been fully negotiated and agreed to by Owner and Encore, and included herein as Attachment 2, shall be executed by both Parties at that time.

4. During the Option Period, Owner shall permit Encore and its authorized agents and representatives to enter upon the Property at reasonable times during normal business hours to inspect the Property and perform surveys. Encore shall notify Owner of its intention, or the intention of its agents or representatives, to enter the Property at least twenty-four (24) hours prior to such intended entry. Encore shall bear the cost of all inspections.

5. In the event Owner fails to perform its obligations under this Agreement for any reason other than Encore's breach, Encore may pursue all remedies available at law and in equity. Owner hereby acknowledges that Encore will incur significant expenses in reliance on this Agreement.

The parties shall execute any and all other documents and take all actions necessary 6. to effectuate the intent of this Option Agreement.

This Option Agreement shall be and remain in full force for a period not to exceed 7. two (2) years from the date of execution of this Option Agreement.

This agreement shall be binding upon the parties hereto and the respective heirs, 8. successors and assigns of each.

DATED at Berlin, VT this 3 day of Quq., 2015. **Thurston Family Farm, LLC** STATE OF VERMONT county of Washington, ss. At Berlin, VT in said County this 3 day of <u>Quarst</u>, 2015, personally appeared, and s/he acknowledged this instrument, by him/her sealed and subscribed, to be his/her free act and deed and the free act and deed of Thurston Family Farm, LLC All Before me, DATED at Brenneton, Vermont this 4 day of AL6, 2015. Encore Redevelopment, LLC

By: Charles R. ("Chad") Farrell, Member

STATE OF VERMONT COUNTY OF CHITTENDEN, SS.

At Burlington, Vermont in said County this 4 day of Avis , 2015, personally appeared Charles R. ("Chad") Farrell, Duly Authorized Agent of Encore Redevelopment, LLC, and he acknowledged this instrument, by him sealed and subscribed, to be his free act and deed and the free act and deed of Encore Redevelopment, LLC.

Before me.

Notary Public

ATTACHMENT 1

MAP OF PROPERTY

Two tracts of land located in Orange, Vermont as indicated below:

Tract 1: PARCEL NUMBER: 110315 / SPAN: 453-143-10518

6° *

Tract 2: PARCEL NUMBER: 110500 / SPAN: 453-143-10053



ATTACHMENT 2 (REDACTED)












Photographs taken by VHB (C. Martin, October 14, October 20, 2015, and April 28, 2016) Page 1 of 2

\\vtnfdata\projects\57818.00 encore 500 kw solar\sitephotos\orange\photodoc_encore_orange_east_nr_memo.docx





Photographs taken by VHB (C. Martin, October 14, October 20, 2015) $$_{Page \; 2 \; of \; 2}$$

\\vtnfdata\projects\57818.00 encore 500 kw solar\sitephotos\orange\photodoc_encore_orange_east_nr_memo.docx







Site Location Map

Sources: USGS Topographic Background from National Geographic Society (2013); Town boundaries by VCGI (2006); Roads from VTrans (2011)

Study Area (VHB) Road (Type)



US Highway



Town Road

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

≪vhb

2010 0 01 1 1100

		Encore Red	levelopment	Orange (East) 500kW	au (a	Orange	e/Orange		10	0/14/2015
Project S	t/Owner	Solar Proje	ct lovelenment		City/County:	State:)/T	Sampling Point:	Samp. Date:	DB 1 Wot
Investiga	tor(s)	C Martin	levelopment		Section	Towns	shin Range	Boyalton	2013-5	-DP-1-Wel
Landforn	n (hillslope, te	rrace. etc.):	Terrace		Local reliet	f (concave.	convex. none):	Concave	Slope (%):	3-8
Subregio	on (LRR or	MLRA):	LLRR	La	t: 44°7'38.64"	N	Long:	72°25'38.618"W	Datum:	NAD 83
Soil Map	Unit:	Merrimac f	ine sandy loa	m, 3 to 8 percent slopes			_ 0		NWI Class:	PEM
Are clima	atic/hydrolc	gic condition	ns on the site	typical for this time of ye	ar?	Yes	(If no, e	xplain in Remarks.)		
Are Vege	etation, Soil	, or Hydrolog	y significantly	disturbed? No			_	Normal Ci	rcumstances?	Yes
Are Vege	etation, Soil	, or Hydrolog	gy naturally pr	oblematic? No				(If needed, e	xplain any answe	ers in Remarks.)
CLINANA			Attach cit	o man chowing can	nnla naint la	ocation	c transact	important foat	uros oto	
Hydroph		tion Present			inple point it		s, transect	.s, important leat	ules, etc.	
Hydric So	oil Present?	tion resent	•	VES			Is This	Sample Area Withir	a Wetland?	YES
Wetland	Hydrology	Present?		VES			13 1113	Sumple Area Within		125
Remark	s:			120						
D	atapoint l	ocated app	roximately 1	8 feet south of wetlar	nd flag 2015-5	-6				
HYDRC	DLOGY									
Wetland	Hydrology	Indicators:		d, abaal, all that analy)				Secondary Indicator	s (minimum of t	wo required)
rimary	iniuicators (I	(A1)	one is require	u, check all that apply)			_	Surrace Soil Cr	acks (BD)	
Si	urface Water	(A1)		Water-Stained Lea	ves (B9)			Drainage Patte	erns (B10)	
н • • •	ign water Ta	bie (AZ)		Aquatic Fauna (B13	3)				es (BID)	
<u> </u>	aturation (AS) P1)		Hudrogon Sulfido C))dor (C1)			Cravifish Burro	(C2)	
	dimont Don	DI) ocite (R2)		A Vidized Phizosphe	oros on Living Por	ote (C2)			ible on Aprial (CQ)	
	rift Denosits	(B3)		Presence of Reduc	ed Iron (CA)	JIS (CS)		Stunted or Str	essed Plants (D1)	
A	Igal Mat or C	rust (B4)		Recent Iron Reduct	tion in Tilled Soils	(C6)		Geomorphic P	osition (D2)	
In	on Deposits (B5)		Thin Muck Surface	(C7)	(00)		Shallow Aquita	ard (D3)	
In	undation Vis	ible on Aerial	(B7)	Other (Explain in R	emarks)			Microtopogra	ohic Relief (D4)	
Sp	oarsely Veget	ated Concave	Surface (B8)					FAC-Neutral T	est (D5)	
Field Ob	servations:									
Surface V	Water Prese	ent?		Depth (inches):					
Water Ta	able Present	t?		Depth (inches):		Wetlan	d Hydrology Present?		YES
Saturatio	on Present?		X	Depth (inches): surface			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
Remarks	:									
CO 11										
SOIL Profile D	escription:	(Describe to	the depth nee	eded to document the ind	dicator or confir	m the ab	osence of indi	cators.)		
Depth	·	Matrix		R	edox Features					
(in)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Re	emarks
0-2	10YF	2/2		5YR 3/4				FINE SANDY LOAM		
2-12	10YF	R 3/2		5YR 4/6				FINE SANDY LOAM		
12+	2.5Y	4/2		5YR 4/6		·		FINE SANDY LOAM		
							·			
1 T		D. Dealer's	A Deduc Las					Zi anatiana Di Di di titi		
iype: C=C	uncentration, I	u=µepletion, RN	n=keauced Matri	x, IVIS=IVIASKED Sand Grains.				Location: PL=Pore Lining	, wi=watrix.	
Hydric So	oil Indicator	s:						Indicators for Proble	ematic Hydric So	ils':
H	istosol (A1)			Polyvalue E	Below Surface (S8	s) (LRR R,		2 cm Muck (A	lo) (LRR K, L, MLRA	149B)
H	istic Epipedo	n (A2)		MLRA 14	19B)			Coast Prairie F	edox (A16) (LRR K	, L, R)
BI	lack Histic (A	3)		Thin Dark S	Surface (S9) (LRR	R, MLRA 1	.49B)	5 cm Mucky P	eat or Peat (S3) (Lf	R K, L, R)
H	ydrogen Sulfi	de (A4)		Loamy Mu	cky Mineral (F1) (LRR K, L)		Dark Surface (S9) (LRR K, L, M)	
St	ratified Laye	rs (A5)	(Loamy Gle	yed Matrix (F2)			Polyvalue Belo	w Surface (S8) (LR	к к, L)
D	epieted Belov	w Dark Surface	e (A11)	Depleted N	viatrix (F3)			Thin Dark Surf	ace (59) (LRR K, L)	
11 	nick Dark Sur	Tace (A12)		X Redox Dari	K SUFFACE (F6)			Iron-Ivlangane	se Masses (F12) (L	KK K, L, K)
	andy Clouds	Matrix (CA)						Mosic Spodie	TAG) (MI DA 144A	1/15 1/001
	andy Reday (5)		Kedox Dep	1 C3310115 (Fð)			Red Parant M	iroj (IVILKA 144A, aterial (F21)	1430)
36	ripped Matri	x (S6)		3	Indicators of bud	ronhutic	egotation and	Very Shallow I	Dark Surface (TE12)
31 	ark Surface (S7) (LRR R MI	RA 149B)	14/6	mulcators of Nydi	must he n	resent unless	Other (Explain	in Remarks)	1
0	and Sundee (3	<i>.,</i> (LINE 17, 1911		We	dis	sturbed or	r problematic.			
Restrictiv	ve Layer (if o	observed):								
	Type:							Hydric	Soil Present?	YES
Dep	th (inches):									
Nemarks	•									
								Northcentral a	nd Northeast Re	gion - Version 2.0

VEGETATION - Use scientific names of plants.



	Absolute	Dom.	Indicator		
Tree Stratum (Plot size: 30' RAD)	% Cover	Sp?	Status	Dominance Test Worksheet:	
1.				# Dominants OBL, FACW, FAC: 1 (A)	
2.					
3.				# Dominants across all strata: 1 (B)	
4.		·		,	
5		·		% Dominants OBL_EACW_EAC: 100% (A/E	B)
6		·		, , , , , , , , , , , , , , , , , , ,	5)
7				Dravalance Index Worksheet:	
7.		- Toto	Course	Tetal % Cover of	
		= 10ta	Cover		
Sapling Stratum (Plot size: 15 KAD)				OBL <u>30</u> XI= <u>30</u>	
1				FACW 63 $x^2 = 126$	
2.				FAC <u>15</u> x 3 = <u>45</u>	
3		. <u> </u>		FACU x 4 =	
4.				UPL x 5 =	
5				Sum: 108 (A) 201 (B)	
6.					
7.				Prevalence Index = B/A = 1.86	
		= Tota	Cover	Hydrophytic Vegetation Indicators:	
Shrub Stratum (Plot size: 15' RAD)				X Dominance Test is > 50%	
1.				\mathbf{X} Prevalence Index is <= 3.0	
2				Problematic Hydrophytic Vegetation ¹ (evolution)	
2		·		Ranid Test for Hydrophytic Vegetation	
۶ ۸		·		Mornhological Adaptations	
4		·			
5		·		¹ Indicators of hydric soil and wetland hydrology must be present,	
7		·		Definitions of Vegetation Strate	
7		- Toto	Course	Deminitions of Vegetation Strata.	
		- 101a	Cover		
1 Declaria amundinassa	63	v		(6m) or more in height and 3in (7.6cm) or larger in diameter at brea	ast
	03			height (DBH).	
2. Scirpus atrovirens	15	·	UBL EAC		
3. Solidago rugosa	15		FAC	Carling on the second second second	
4. Eutrochium maculatum	15	·	OBL	Sapining - woody plants, excluding woody vines, approximately 20 (6m) or more in beight and less than 3in (7.6cm) DBH	Jft
5.				(only of more in height and less than only	
b					
7.					
8				Shrub - Woody plants, excluding woody vines, approximately 3 to)
9				20ft (1 to 6m) in height.	
10					
11.				Herb - All herbaceous (non-woody) plants, including herbaceous	
12.				vines, regardless of size. Includes woody plants, except woody vine	s,
	108	= Tota	Cover	less than approximately 3ft (1m) in height.	
Woody Vines (Plot size:)		•			
1.					
2				Woody vine - All woody vines, regardless of height.	
3		·		, , -, -, -, -, -, -, -, -, -, -,	
4		·		Hydrophytic	
		·		Vegetation	
		= Tota	Cover	Present? VFC	

Remarks: (If observed, list morphological adaptations below).

Symphyotrichum sp. observed at 3%

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

2015-5-DP-1-Up

	Encore Re	development - (Orange (East) 500k	W		Orange	/Orange		1	0/14/2015
Project Site:	Solar Proje	ect			City/County:	orunge,	orange		Samp. Date:	,14,2015
Applicant/Owner:	Encore Re	development			Section	State:	VT	Sampling Point:	2015-5	5-DP-1-Up
Investigator(s).	C. Iviartin	Torraco			Local relief	f (concave (inh' vander	Convor	Slone (%):	2_9
Subregion (IRR or	MIRA):			Lat:	44°7'38.614	1"N	Long:	72°25'39 072"W	Datum:	NAD 83
Soil Map Unit:	Merrimac	fine sandy loam	. 3 to 8 percent slo	opes –	44 7 301014			/2 23 33:0/2 10	NWI Class:	Upland
Are climatic/hydrolo	ogic conditio	ons on the site ty	pical for this time of	of year	?	Yes	(If no, e	xplain in Remarks.)		
Are Vegetation, Soil,	, or Hydrolo	gy significantly o	disturbed?	No			-	Normal Cir	rcumstances?	Yes
Are Vegetation, Soil,	, or Hydrolo	gy naturally pro	blematic?	No				(If needed, ex	kplain any answe	ers in Remarks.)
SUMMARY OF F	-INDINGS	- Attach site	e map showing	samp	ole point lo	cations	, transect	s, important feat	ures, etc.	
Hydrophytic Vegetai	tion Present		NO				Ic Thic	Sample Area Within	a Wotland2	NO
Wetland Hydrology I	Present?	-					15 11115	Sample Area Within		NO
Remarks:	Tresent:		NO			1				
Datapoint lo	ocated app	proximately 23	feet northwest o	of wet	land flag 20	15-5-7				
HYDROLOGY										
Wetland Hydrology	Indicators:							Secondary Indicator	s (minimum of t	wo required)
Primary Indicators (r	minimum of	f one is required	; check all that app	ly)				Surface Soil Cr	acks (B6)	no required)
Surface Water	· (A1)		Water-Stained	d Leaves	s (B9)		-	Drainage Patte	erns (B10)	
High Water Tal	ble (A2)	-	Aquatic Fauna	a (B13)				Moss Trim Line	es (B16)	
Saturation (A3)	5)	-	Marl Deposits	s (B13)				Dry-Season Wa	ater Table (C2)	
Water Marks ((B1)	-	Hydrogen Sulf	fide Odo	or (C1)			Crayfish Burro	ws (C8)	
Sediment Depo	osits (B2)	-	Oxidized Rhizo	osphere	s on Living Roo	ots (C3)		Saturation Visi	ble on Aerial (C9)	
Drift Deposits ((B3)	-	Presence of R	educed	Iron (C4)			Stunted or Stre	essed Plants (D1)	
Algal Mat or Cr	rust (B4)	_	Recent Iron Re	eductior	n in Tilled Soils	(C6)		Geomorphic P	osition (D2)	
Iron Deposits ((B5)		Thin Muck Sur	rface (C	7)			Shallow Aquita	ird (D3)	
Inundation Visi	ible on Aerial	(B7) -	Other (Explain	n in Rem	iarks)			Microtopograp	ohic Relief (D4)	
Sparsely veget	tated Concave	e Surface (B8)						FAC-Neutral Te	est (D5)	
Field Observations:										
	nnt J		Denth (in)							
Surface Water Prese			Deptil (int	cnes):						
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Surface Water Prese Water Table Present Saturation Present? Describe Recorded D 0.99" of precipitat precipitation reco Remarks: SOIL Profile Description: (Depth (in) Color (0-4 10YR 4-14+ 10YR 4-14+ 10YR Type: C=Concentration, I 4ydric Soil Indicator: Histosol (A1) Histic Epipedon Black Histic (A3 Hydrogen Sulfi Stratified Layer Depleted Below Thick Dark Surf Sandy Medox (S Sandy Medox (S Stripped Matri) Dark Surface (S Restrictive Layer (if G Type: Depth (inches): 20marke:	(Describe tc matrix (moist) 3 3/4 4 4/4 D=Depletion, R (A2) 3) ide (A4) rrs (A5) w Dark Surfact face (A12) Mineral (S1) Matrix (S4) S5) ix (S6) S7) (LRR R, M observed): 	n gauge, monito ded during Oct ay of investigat o the depth need % 	bepth (ind Depth (ind Depth (ind Depth (ind ober 2015 up to o tion (NOAA) led to document th Color (moist) 5YR 4/4 5YR 4/4 MS=Masked Sand Grain MS=Masked Sand Grain	ches): ches): ches): otos, pr day of me indic: Red Red ms. alue Bele RA 149B Dark Surf y Mucky y Gleyec ted Mat < Dark Surf y Mucky alue Bele RA 149B Dark Surf y Mucky y Gleyec ted Darl < Depres ³ Ind wetla	ator or confir ox Features % % % % % % % % % % % % % % % % % % %	m the abs Type ¹ (LRR R, R, MLRA 14 LRR K, L) rophytic ve must be pri-	Wetlan available: recorded o sence of indi Loc ²	d Hydrology Present? during 7 days prior to Texture FINE SANDY LOAM FINE SANDY LOAM FINE SANDY LOAM ² Location: PL=Pore Lining Indicators for Proble 2 cm Muck (A1 Coast Prairie R 5 cm Mucky Pe Dark Surface (S Polyvalue Belo Thin Dark Surface (S	o investigation investigation Ref matic Hydric So (IRR K, L, MLR/ edox (A16) (LRR K, L) Soil Clark Surface (S8) (LR seat or Peat (S3) (LI seat or Peat (S	NO

VEGETATION - Use scientific names of plants.



				Absolute	Dom.	Indicator					
Tree S	tratum (Plot size:	30' RAD)	% Cover	Sp?	Status	Domina	nce Test V	/orksheet:		
1.							# Domir	nants OBL,	FACW, FAC:		(A)
2.									·		_``
2					·		# Domir	ants acros	s all strata.	1	(B)
J.					·		# D01111		s an strata.		_(D)
4.											
5.							% Domi	nants OBL,	FACW, FAC:		_(A/B)
6.											
7.							Prevaler	nce Index \	Norksheet:		
					= Tota	Cover	Total %	6 Cover of:	_	Multiply By:	
Saplin	g Stratum (Plot size:	15' RAD)				OBL		x 1 =		
1.							FACW	15	x 2 =	30	
2.					·		FAC		x 3 =		_
3.					·		FACU	99	x 4 =	396	_
4									x5=		_
								114		126	(D)
5. c					·		Sum.	114	(A)	420	_(D)
6.							-		- /-		
7.							Preva	lence Inde	x = B/A =	3.74	_
					= Tota	Cover	Hydroph	nytic Vege	tation Indicato	rs:	
Shrub	Stratum (Plot size:	15' RAD)				0	Dominance	Test is > 50%		
1.							F	Prevalence	Index is <= 3.0	1	
2.							F	roblemati	c Hydrophytic	Vegetation ¹ (exp	olain)
3.							F	Rapid Test	for Hydrophyti	c Vegetation	
4					·			Aornholog	ical Adaptation	ns	
5									ical / laap tatioi		
с. С							¹ Indicator	s of hydric so	il and wetland hyd	rology must be pre	sent,
0. 7					·		Uniess dis				
7.							Definitio	ons of veg	elation Strata:		
					= 10ta	Cover	-				
Herbs	stratum (Plot size:	5 RAD	_)				(fm) or m	oody plants,	excluding woody v	ines, approximatel	/ 20ft
1.	Elymus repens			63	<u> </u>	FACU	height (DE	3H).		larger in diameter	at breast
2.	Taraxacum officinale			15		FACU		,			
3.	Plantago major			15		FACU					
4.	Phalaris arundinacea			15		FACW	Sapling	- Woody plar	nts, excluding wood	dy vines, approxima	ately 20ft
5.	Vicia sativa			3		FACU	(6m) or m	ore in height	and less than 3in (7.6cm) DBH.	
6.	Galium mollugo			3		FACU					
7.											
8							Shrub -	Woody plant	s excluding woody	vines approximat	elv 3 to
0					·		20ft (1 to	6m) in height		·····,	,
10											
10.							L La sela 🛛 🔒				
11.							Herb - A	II herbaceous	(non-woody) plan	nts, including herba	ceous du vinos
12.							less than a	approximatel	y 3ft (1m) in heigh	t.	uy vines,
				114	= Tota	Cover			, , , ,		
Wood	y Vines (Plot size:		_)								
1.											
2.							Woody	vine - All wo	ody vines, regardl	ess of height.	
3.											
4					·		F	lvdronhvti	c		
5					·			Vegetatio	- 1		
					- Tota	Cover		Drocont	2	NO	
					- 1018	COVEI		FIESEIIL	:		_

Remarks: (If observed, list morphological adaptations below).

WETLAND DETERMINATION DATA FORM	- Northcentral and Northeast Region
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2015-DP-1-Up

State VT Sample Inform 2015 DP 3-Up and/orm (News) Latence (News) Terrace Latence (News) Sign (News) <t< th=""><th>Stree VT Sample form 2012 DP 1-Up under metalization: Section: Veron-Up, Raige: May and Veron-</th><th>Applicant/Owner: Fi</th><th>ncore Red</th><th></th><th></th><th></th><th>0.01,000.000</th><th></th><th></th><th></th><th>Samo, Dare,</th><th></th></t<>	Stree VT Sample form 2012 DP 1-Up under metalization: Section: Veron-Up, Raige: May and Veron-	Applicant/Owner: Fi	ncore Red				0.01,000.000				Samo, Dare,	
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ubregion (Unit or Velto): List 4::47:43.306*N Using Velto: Using Velto: Using Velto: Velto	ubergion (Unit or NULP) List der Yes 306 YM Die Yes (Unit or NULP) Die Yes (Unitor NULP) Die Yes (Unitor NULP)	andform (hillslope torrac		Tamaaa			Local relie	f (concovo, cou	p, Range.	Royalton	Slope (%):	2 0
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end match lyndro logic contributions on the charge of the bits time of year / Yes (If no, explain in Remarks) (If needed, explain any answers in Remarks) (If needed, explain any answers) (If needed, explain any answers in Remarks) (I	end matrix light of the special for this time of year? Ves (If no, explain networks) Ves (If needed, explain any answers in Remarks) Ves (If needed, explain any answers in Remarks) Ves (If needed, explain any answers in Remarks) Ves	oil Man Unit:	LNA). Aorrimoo fi				44 / 45.500		LUNG.	72 23 41.442 W	NWI Class:	Unland
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Non-sector No Iteration (If needed, captain any answers in Remarks) UUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc. Iteration in the interaction in the	No No Item (If needed, explain any answers in Remark UUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc. Item and the state of the state	re Vegetation Soil or	r Hydrolog	v significantly	disturbed?	No		163	(11110, 6	Normal	Circumstances?	Voc
Composition Prior Principulase and protein provide point locations, transects, important features, etc.	Level optimized and the final sector of the secto	re Vegetation, Soil, or	r Hydrolog	y naturally nrc	hlematic?	No				(If needed	evolain any answ	ers in Remarks
UMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc. Vipolopic Vegetation Present? NO Is This Sample Area Within a Wetland? NO Batapoint located approximately 175 feet north of wetland 2015-5 Secondary indicators: VDROLOCY Secondary indicators: WORD COCY Secondary indicators: Suffice Work Problem Mark (1) Appact Funce Salf Carlos (1) Suffice Work Problem Mark (1) Appact Funce Salf Carlos (1) Suffice Work Problem Mark (1) High Wear Take (2) Appact Funce Salf Carlos (1) Secondary indicators: (100) Suffice Work Problem (1) Appact Funce Salf Carlos (1) Suffice Work Problem (1) Appact Funce Salf Carlos (1) Suffice Work Problem (2) Carlos (1) Suffice Work Problem (2) Problem (1)	UMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc. Image: transmission Progenty? NO Image: transmissisision Progenty? NO <	re vegetation, son, or	riyurolog	y naturally pro	blematic:	NO				(II needed	, explain any answ	
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Vertand Mydrology Indicators: Secondary Indicators: Surface Water (A1) Water Stand Leaves (69) Surface Water (A1) Water Water (A1) Surface Water (A1) Water Water (B1) Surface Water (A1) Presence of Reduced Inco (C1) Surface Water (A1) Recent Ion Reduction Titled Solis (C0) Iron Deposits (B2) Duter (Explain in Remarks) Surface Water Present? Depth (inches): Water Water Present? Depth (inches): Water Table (F2) Wetland Hydrology Present? By of precipitation recorded Uaring October 2015 up to day of Investigation, 0.92* recorded during 7 days prior to Investigation. 0.00* of recipitation recorded on day of investigation (NOAA) emarks: Color (moist) % Type ¹ Color (moist) Color (moist) % Tope 1 Stand Color (Mather, C1) Depth (inches): Indiclators (F7) Problematic Hydric Solis ¹ : <td>Vetland Hydrology Indicators: (imary Indicators: (iminum of one is required; check all that apply) Surface Sol Crack (SiG) Surface Water (A1) Water Stated Caves (69) Danage Hattern (810) High Water Toble (A2) Appate Faure (813) Donage Hattern (810) Surface Water (A1) Water Marks (813) Donage Hattern (810) Surface Water (A1) Muter Marks (813) Donage Hattern (810) Surface Water (A1) Muter Marks (813) Donage Marks (813) Oth Deposits (82) Doubled Minspheres on Living Roots (C1) Saturet of Stress of Hast (02) Surface Vater (A1) Recent forn Meduction IT Net Solis (C6) Saturet of Stress of Hast (02) Inno Deposits (85) Total Mucks Surface (7) Mod Mode Marks (7) Intel Generation (C2) Depth (inches): Wetland Hydrology Present? Mode Aiter Vater Marks (Mark (C1) Depth (inches): Wetland Hydrology Present? Mode Aiter Vater Marks Color (moist) Sing Type A Color (moist) Sing Type A Sof Generation corded during October 2015 up to day of Investigation, 0.92* recorded during 7 days prior to Investigation. 0.00* of recipitation recorded on day of investigation (NOAA) Remarks OIL Color (moist) Sing Color (moist)</td> <td>IYDROLOGY</td> <td></td>	Vetland Hydrology Indicators: (imary Indicators: (iminum of one is required; check all that apply) Surface Sol Crack (SiG) Surface Water (A1) Water Stated Caves (69) Danage Hattern (810) High Water Toble (A2) Appate Faure (813) Donage Hattern (810) Surface Water (A1) Water Marks (813) Donage Hattern (810) Surface Water (A1) Muter Marks (813) Donage Hattern (810) Surface Water (A1) Muter Marks (813) Donage Marks (813) Oth Deposits (82) Doubled Minspheres on Living Roots (C1) Saturet of Stress of Hast (02) Surface Vater (A1) Recent forn Meduction IT Net Solis (C6) Saturet of Stress of Hast (02) Inno Deposits (85) Total Mucks Surface (7) Mod Mode Marks (7) Intel Generation (C2) Depth (inches): Wetland Hydrology Present? Mode Aiter Vater Marks (Mark (C1) Depth (inches): Wetland Hydrology Present? Mode Aiter Vater Marks Color (moist) Sing Type A Color (moist) Sing Type A Sof Generation corded during October 2015 up to day of Investigation, 0.92* recorded during 7 days prior to Investigation. 0.00* of recipitation recorded on day of investigation (NOAA) Remarks OIL Color (moist) Sing Color (moist)	IYDROLOGY										
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		urface Water Present? daturation Present? escribe Recorded Dat .99" of precipitation recipitation recorded emarks: OIL rofile Description: (Defined epth (in) Color (mcc 0-4 10YR 4/ -14+ 2.5Y 5/ ype: C=Concentration, D=D ype: C=Concentration, D=D ydric Soil Indicators: Histosol (A1) Histic Epipedon (A Black Histic (A3) Hydrogen Sulfide Stratified Layers (A Depleted Below D Thick Dark Surface Sandy Mucky Min Sandy Gleyed Mat Sandy Gleyed Mat Sandy Redox (S5) Stripped Matrix (S Dark Surface (S7) estrictive Layer (if obs Type: Depth (inches): Depth (inches):	a (stream n recorde ed on day escribe to 1 Matrix Dist) /1 2 Depletion, RW A2) (A4) A5) Dark Surface e (A12) heral (S1) trix (S4) S6) (LRR R, MLI Served): Served):	gauge, monito ed during Oct y of investiga the depth need % 	Depth Depth Dring well, aerial tober 2015 up Ition (NOAA) ded to documen Color (mo 10YR 3/ 	(inches): photos, pi to day of to day of to day of action ist) 6 Grains. Srai	ator or confir investigation investin investigation investigation investigation investigation invest	Type ¹ Type ¹ (LRR R, R, MLRA 149) LRR K, L)	etation and sent, unless roblematic.	during 7 days prio	r to investigatio	n. 0.00" of emarks oils ³ : A 149B) (, L, R) RR K, L, R) RR K, L, R) (MLRA 149B) , 145, 149B) 2) NO
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Dark Surface (S7) (LRR R, MLRA 149B) wetland hydrology must be present, unlessOther (Explain in Remarks)disturbed or problematic	Dark Surface (S7) (LRR R, MLRA 149B) wetland hydrology must be present, unlessOther (Explain in Remarks)disturbed or problematicdisturbed or problematicdisturbed or problematic	Aurrace Water Present? Vater Table Present? Saturation Present? Describe Recorded Dat Describe Recorded Dat Describe Recorded Dat Description recorded Remarks: SOIL Profile Description: (De Depth (in) Color (mc 0-4 10YR 4/ 14+ 2.5Y 5/ Type: C=Concentration, D=D Hydric Soil Indicators: Histosol (A1) Histic Epipedon (A Black Histic (A3) Hydrogen Sulfide Stratified Layers (Depleted Below D	escribe to f Matrix oist) /1 Depletion, RM A2) (A4) A5) Dark Surface	gauge, monito ed during Oct y of investiga the depth need %	Depth Depth Dring well, aerial tober 2015 up Ition (NOAA) ded to documen Color (mo 10YR 3/	(inches): photos, pi to day of to day of t the indic Red ist) 6 5 G G G G G G G G G G G G G G G G G G	ator or confir lox Features % ow Surface (S8 s) face (S9) (LRR r Mineral (F1) (d Matrix (F2) trix (F3)	rm the abse	ence of indi	during 7 days prio	r to investigatio	emarks emarks bils ³ : A 149B) (, L, R) RR K, L, R)
Sandy Redox (S5) Red Parent Material (F21) Stripped Matrix (S6) ³ Indicators of hydrophytic vegetation and Very Shallow Dark Surface (TF12) Dark Surface (S7) (LRR R, MLRA 149B) wetland hydrology must be present, unless disturbed or problematic. estrictive Layer (if observed): Type: Depth (inches): emarks:	Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR R, MLRA 149B) Wetland hydrology must be present, unless disturbed or problematic. estrictive Layer (if observed): Type: Depth (inches): emarks:	Aurface Water Present? Vater Table Present? Saturation Present? Describe Recorded Dat Describe Recorded Dat Describe Recorded Dat Describe Recorded Dat Description recorded Temperation recorded Depth Color (mc 0-4 10YR 4/ F-14+ 2.5Y 5/ Solid Fype: C=Concentration, D=D lydric Soil Indicators: Histosol (A1) Histic Epipedon (A Black Histic (A3) Hydrogen Sulfide Stratified Layers (A Depleted Below D Thick Dark Surface Sandy Mucky Min	escribe to 1 Astrix Dist) A2) A2) (A4) A5) Dark Surface e (A12) eral (S1)	gauge, monito ed during Oct y of investiga the depth need % 	Depth Depth pring well, aerial tober 2015 up tition (NOAA) ded to documen Color (mo 10YR 3/ 	(inches): photos, pi to day of to day of to day of agains.	ator or confir lox Features % ow Surface (S8 s) face (S9) (LRR / Mineral (F1) (d Matrix (F2) trix (F3) urface (F6) k Surface (F7)	ctions), if av on, 0.92" r m the abse Type ¹ 	vailable: recorded of ence of indi Loc ²	during 7 days prio	r to investigatio	emarks emarks oils ³ : A 149B) (, L, R) RR K, L, R) RR K, L, R) (MLRA 149B)
Surped Matrix (30) Indicators of hydrophytic vegetation and very Shallow Dark Surface (F12) Dark Surface (S7) (LRR R, MLRA 149B) wetland hydrology must be present, unless disturbed or problematic. estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? emarks: NO	Supped Wath (30) "Indicators of hydrophytic vegetation and very Shallow Dark Surface (F12) Dark Surface (S7) (LRR R, MLRA 149B) wetland hydrology must be present, unless disturbed or problematic. estrictive Layer (if observed):	Vater Present? vater Table Present? escribe Recorded Dat .99" of precipitation recipitation recorde emarks: OIL rofile Description: (De epth (in) Color (mc 0-4 10YR 4/ -14+ 2.5Y 5/ ype: C=Concentration, D=D ydric Soil Indicators: Histosol (A1) Histic Epipedon (A Black Histic (A3) Hydrogen Sulfide Stratified Layers (A Depleted Below D Thick Dark Surface Sandy Mecky (SE) Sandy Gleyed Mat Sandy Gleyed Mat	escribe to 1 Matrix Dist) /1 /2 Depletion, RM A2) (A4) (A5) Dark Surface e (A12) heral (S1) trix (S4)	gauge, monito ed during Oct y of investiga the depth need %	Depth Depth Dring well, aerial tober 2015 up Ition (NOAA) ded to documen Color (mo 10YR 3/ 	(inches): photos, pi to day of to day of to day of action ist) 6 Grains. Srains.	ator or confir ator or confir lox Features % % % % % % % % % % % % % % % % % % %	ctions), if av on, 0.92" r m the abse Type ¹ 	ence of indi	during 7 days prio	r to investigatio	n. 0.00" of emarks oils ³ : A 149B) (, L, R) RR K, L, R) RR K, L, R) RR K, L, R) (MLRA 149B) , 145, 149B)
Dark Surface (S7) (LRR R, MLRA 149B) wetland hydrology must be present, unlessOther (Explain in Remarks) disturbed or problematic. estrictive Layer (if observed):Type:Hydric Soil Present? NONO	Dark Surface (S7) (LRR R, MLRA 149B) wetland hydrology must be present, unlessOther (Explain in Remarks)	Vater Present? Vater Table Present? escribe Recorded Dat escribe Recorded Dat escribe Recorded Dat escribe Recorded Dat recipitation record emarks: OIL OIL Tofile Description: (De epth (in) Color (mc 0-4 10YR 4/ 14+ 2.5Y 5/ ydric Soil Indicators: Histosol (A1) Histic Epipedon (A Black Histic (A3) Hydrogen Sulfide Stratified Layers (, Depleted Below D Thick Dark Surface Sandy Mucky Min Sandy Gleyed Mat Sandy Redox (S5) Strained Mathematic	escribe to 1 Attrix Dist) Attrix Depletion, RM A2) (A4) A5) Dark Surface e (A12) heral (S1) trix (S4) S5)	gauge, monito ed during Oct y of investiga the depth need %	Depth Depth Dring well, aerial tober 2015 up tition (NOAA) ded to documen Color (mo 10YR 3/ 0 	(inches): photos, pi to day of to day of to day of Gains.	ator or confir investigation ator or confir lox Features % % % % % % % % % % % % % % % % % % %	ctions), if av on, 0.92" r m the abse <u>Type¹</u> 	vailable: recorded (ince of indi Loc ²	during 7 days prio	r to investigatio	n. 0.00" of emarks Dils ³ : A 149B) C, L, R) RR K, L, R) RR K, L, R) (MLRA 149B) , 145, 149B)
disturbed or problematic. estrictive Layer (if observed): Type: Depth (inches): Present? NO	disturbed or problematic.	Atter Table Present? Atter Table Present? escribe Recorded Dat escribe Recorded Dat escribe Recorded Dat escribe Recorded Dat escribe Recorded Dat escribe Recorded Dat Precipitation recorded emarks: OIL offile Description: (De epth (in) Color (mcc 0-4 10YR 4/ -14+ 2.5Y 5/ (in) Pre: C=Concentration, D=D ydric Soil Indicators: Histosol (A1) Histic Epipedon (A Black Histic (A3) Hydrogen Sulfide Stratified Layers (, Depleted Below D Thick Dark Surface Sandy Mucky Min Sandy Gleyed Matrix (S	escribe to f Matrix oist) /1 Depletion, RM A2) (A4) (A4) (A5) Dark Surface e (A12) eral (S1) trix (S4) S6)	gauge, monito ed during Oct y of investiga the depth need %	Depth Depth Dring well, aerial tober 2015 up tition (NOAA) ded to documen Color (mo 10YR 3/	(inches): photos, pi to day of to day of t the indic Red ist) 6 5 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	ator or confir lox Features % % % % % % % % % % % % % % % % % % %	ctions), if av on, 0.92" r m the abse <u>Type¹</u> 	ence of indi	during 7 days prio	r to investigatio	emarks emarks bils ³ : A 149B) C, L, R) RR K, L, R) RR K, L, R) RR K, L, R) (MLRA 149B) , 145, 149B) 2)
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temarks:	Remarks:	Aufrace Water Present? Vater Table Present? Saturation Present? Describe Recorded Dat Describe Recorded Dat Describe Recorded Dat Description recorded Remarks: SOIL Profile Description: (De Depth (in) Color (mc 0-4 10YR 4/ 4-14+ 2.5Y 5/ Type: C=Concentration, D=D Hydric Soil Indicators: Histosol (A1) Histic Epipedon (A Black Histic (A3) Hydrogen Sulfide Stratified Layers (C Depleted Below D Thick Dark Surface Sandy Medox (S5) Stripped Matrix (S Dark Surface (S7) Restrictive Layer (if obs Type:	a (stream n recorde ed on day escribe to 1 Matrix Dist) /1 2 Depletion, RW A2) (A4) A5) Dark Surface e (A12) heral (S1) trix (S4) S56) (LRR R, MLI Sserved):	gauge, monito ed during Oct y of investiga the depth need % 	Depth Depth Dring well, aerial tober 2015 up Ition (NOAA) ded to documen Color (mo 10YR 3/ 	(inches): photos, pi to day of to day of to day of active ist) 6 Grains. Srain	ator or confir investigation investin investigation investigation investigation investigation invest	ctions), if av on, 0.92" r m the abse Type ¹ 	etation and sent, unless roblematic.	during 7 days prio	r to investigatio	n. 0.00" of emarks oils ³ : A 149B) (, L, R) RR K, L, R) RR K, L, R) (MLRA 149B) , 145, 149B) 2) NO
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VEGETATION - Use scientific names of plants.



		Absolute	Dom.	Indicator			
Tree S	Stratum (Plot size: 30' RAD)	% Cover	Sp?	Status	Dominance Test Worksheet:		
1.					# Dominants OBL, FACW, FAC:	1	(A)
2.					-		
3.					# Dominants across all strata:	2	(B)
4.							_
5.					% Dominants OBL, FACW, FAC:	50%	(A/B)
6.							_```
7.		· · · · · · · · · · · · · · · · · · ·	·		Prevalence Index Worksheet:		
			= Total	Cover	Total % Cover of:	Multiply By	
Sanlin	ng Stratum (Plot size: 15' RAD)				OBI 3 x1=	3	<u> </u>
1					$\frac{1}{1} = \frac{1}{1} = \frac{1}$	76	
2			·	·	FAC 6 $x^3 =$	18	_
2.		· · · · · · · · · · · · · · · · · · ·				72	_
J.			·			72	_
4. r			·			160	(D)
5. C		·	·		Sum: 03 (A)	109	_(B)
6. -							
7.			·		Prevalence Index = B/A =	2.60	_
	_		= Total	Cover	Hydrophytic Vegetation Indicators	:	
Shrub	Stratum (Plot size: 15' RAD)				Dominance Test is > 50%		
1.					X Prevalence Index is <= 3.0	1	
2.					Problematic Hydrophytic Vo	egetation ¹ (ex	plain)
3.					Rapid Test for Hydrophytic	Vegetation	
4.					Morphological Adaptations		
5.					¹ Indicators of hydric soil and wetland hydro	logy must be pr	esent,
6.					unless disturbed or problematic.		
7.					Definitions of Vegetation Strata:		
			= Total	Cover			
Herb	Stratum (Plot size: 5' RAD)				Tree - Woody plants, excluding woody vin	es, approximate	ly 20ft
1.	Phalaris arundinacea	38	х	FACW	(6m) or more in height and 3in (7.6cm) or la	arger in diamete	r at breast
2.	Taraxacum officinale	15	х	FACU	neight (DBH).		
3.	Solidago rugosa	3		FAC			
4.	Ranunculus acris	3		FAC	Sapling - Woody plants, excluding woody	vines, approxim	ately 20ft
5.	Vicia sativa	3		FACU	(6m) or more in height and less than 3in (7.	6cm) DBH.	
6.	Scirpus atrovirens	3	·	OBL			
7.	•	· · · · · · · · · · · · · · · · · · ·	·				
8.					Shrub - Woody plants, excluding woody y	ines, approxima	telv 3 to
9		· · · · · · · · · · · · · · · · · · ·	·		20ft (1 to 6m) in height.		,
10			·	·			
10.			·		Herb - All berbaceous (pop-woody) plants	including berb	
11.		· · · · · · · · · · · · · · · · · · ·			vines, regardless of size. Includes woody plants	ants, except woo	ody vines,
12.		65			less than approximately 3ft (1m) in height.		
14/22-	hullings (Diet size)	60	= 10tal	Cover			
VV 000	iy vines (Plot size:)						
1.							
2.					Woody vine - All woody vines, regardles	is of height.	
3.							
4.					Hydrophytic		
5.					Vegetation		
			= Total	Cover	Present?	YES	

Remarks: (If observed, list morphological adaptations below).

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

2015-DP-2-Up

Applicant/Owner: Investigator(s): Landform (hillslope, ter	Solar Proj	-		c'' /c ·	Urange/	Orange		C D 1 10	/14/2015
Investigator(s): Landform (hillslope, ter	Encore Do	ect		City/County:	Stato	VT	Sampling Doint:	Samp. Date:	
Landform (hillslope, ter	Encore Re	development		Section	n Towns	VI nin Range	Boyalton	2015-1	рь-2-ор
	rrace. etc.):	Terrace		Local relie	f (concave. o	onvex. none):	Conved	Slope (%):	3-8
Subregion (LRR or	MLRA):	LLRR	Lat:	44°7'40.533	5"N	Long:	72°25'37.074"W	Datum:	NAD 83
Soil Map Unit:	Merrimac	fine sandy loan	n, 3 to 8 percent slopes			·		NWI Class:	Upland
Are climatic/hydrolo	gic condition	ons on the site t	ypical for this time of year	r?	Yes	(If no, e	xplain in Remarks.)		
Are Vegetation, Soil,	, or Hydrolc	gy significantly	disturbed? No				Normal Cir	rcumstances?	Yes
Are Vegetation, Soil,	, or Hydrolc	ogy naturally pro	blematic? <u>No</u>				(If needed, ex	xplain any answe	rs in Remarks.)
		Attach city	a man chowing cam	nla naint le	ocations	trancoct	important foat	uras ats	
SUIVIIVIANT OF F	tion Brocon	+2		pie point it		, transect	s, important leat	ules, etc.	
Hydric Soil Present?	uon Presen		NO			ls This	Sample Area Within	a Wetland?	NO
Wetland Hydrology	Present?		NO			15 11115	Sumple Area Within		
Remarks:									
Datapoint le	ocated in	northern porti	on of the Study Area, a	approximate	ly 320 fe	et north of	wetland 2015-6		
HYDROLOGY									
Wetland Hydrology	Indicators:						Secondary Indicator	s (minimum of tw	vo required)
Primary Indicators (r	minimum o	f one is required	l; check all that apply)				Surface Soil Cr	acks (B6)	
Surface Water	(A1)		Water-Stained Leave	es (B9)			Drainage Patte	erns (B10)	
High Water Ta	ble (A2)		Aquatic Fauna (B13)				Moss Trim Line	es (B16)	
Saturation (A3))	-	Marl Deposits (B13)				Dry-Season Wa	ater Table (C2)	
Water Marks (B1)		Hydrogen Sulfide Od	ior (C1)	- +- (C2)		Craytish Burro	ws (C8)	
Sediment Depo	DSITS (B2)	-	Uxidized Rhizosphere	es on Living Roo	ots (C3)		Saturation Visi	Die on Aerial (C9)	
	(B3) ruct (B4)	-	Presence of Reduced	1 Iron (C4) on in Tillod Soils			Stunted or Stre	essed Plants (D1)	
Iron Denosits (B5)	-	Thin Muck Surface (~7)	(CO)		Shallow Aquita	osition (D2) ard (D3)	
Inundation Vis	ible on Aeria	I (B7)	Other (Explain in Rer	marks)			Microtopogram	hic Relief (D4)	
Sparsely Veget	ated Concav	e Surface (B8)		nanay			FAC-Neutral Te	est (D5)	
Field Observations:									
Surface Water Press	nt?		Denth (inches):						
Water Table Present	+?	·	Depth (inches):	. <u></u>	•	Wetlan	d Hydrology Present?		NO
Saturation Present?			Depth (inches):		•	wettan	a riyarology i resent:		
0.99 OF DIECIDILA	cion record	aed during Oc	lober 2015 up to day o	i mvesugau					
	ام مرم ام م ام ر		tion (NOAA)		0.52	recorded d	during 7 days prior t	o investigation.	. 0.00" of
precipitation reco	rded on d	ay of investiga	tion (NOAA)		011, 0.52	recorded c	auring 7 days prior t	o investigation.	. 0.00 ¹¹ of
precipitation reco	rded on d	ay of investiga	ntion (NOAA)			recorded c	auring 7 days prior t	o investigation.	. U.UU [*] of
precipitation reco Remarks:	rded on d	ay of investiga	ntion (NOAA)				auring 7 days prior t	o investigation.	. U.UU ^{**} Of
precipitation reco	rded on d	ay of investiga	ition (NOAA)			recorded c	auring 7 days prior t	o investigation.	. 0.00" of
precipitation reco Remarks:	rded on d	ay of investiga	ntion (NOAA)				auring 7 days prior t	o investigation.	. 0.00" of
Precipitation reco Remarks: SOIL Profile Description: (rded on d	ay of investiga	ition (NOAA)	cator or confir	rm the abs	recorded c	cators.)	o investigation.	. 0.00* of
precipitation reco Remarks: SOIL Profile Description: (Depth	rded on d (Describe to Matrix	ay of investiga	ation (NOAA) ded to document the indic Rec	cator or confir dox Features	rm the abs	ence of indi	cators.)		. 0.00* of
SOIL Profile Description: (Depth (in) Color (rded on d (Describe to Matrix moist)	b the depth need	ded to document the india Color (moist)	cator or confir dox Features %	rm the abs	Hence of india	cators.)	Rei	marks
Precipitation reco Remarks: SOIL Profile Description: (Depth (in) Color (0-4 10YR	(Describe to Matrix moist) 2 4/1	b the depth need	ded to document the india Rec Color (moist) 10YR 5/6	cator or confir dox Features	rm the abs	recorded c	cators.) Texture CLAY LOAM		marks
SOIL Profile Description: (Depth (in) Color (0-4 10YR 4-14 2.5Y	(Describe to Matrix moist) 2 4/1 5/2	o the depth need	ded to document the india Rec Color (moist) 10YR 5/6	cator or confir dox Features %	rm the abs	ence of india	cators.) Texture CLAY LOAM		marks
SOIL Profile Description: (Depth (in) 0-4 4-14 Color (i 0-4 2.5Y	(Describe to Matrix moist) 2 4/1 5/2	b the depth need	ded to document the india Rec Color (moist) 10YR 5/6	cator or confir dox Features %	rm the abs 	ence of india	cators.) Texture CLAY LOAM		marks
SOIL Profile Description: (Depth (in) 0-4 4-14 Color (i 0-4 2.5Y	(Describe to Matrix moist) 2 4/1 5/2	o the depth need	ded to document the india Rec Color (moist) 10YR 5/6	cator or confir dox Features %	rm the abs 	ence of indi	cators.) Texture CLAY LOAM SILT LOAM		marks
SOIL Profile Description: (Depth (in) Color (0-4 10YR 4-14 2.5Y	(Describe to Matrix moist) 2 4/1 5/2	b the depth need	ded to document the india Rec Color (moist) 10YR 5/6	cator or confir dox Features	m the abs	ence of indi	cators.) Texture CLAY LOAM SILT LOAM		marks
SOIL Profile Description: (Depth (in) Color (0-4 10YR 4-14 2.5Y Type: C=Concentration, I	(Describe to Matrix moist) 2 4/1 5/2 D=Depletion, F	b the depth need %	ded to document the india Rea Color (moist) 10YR 5/6	cator or confir dox Features %	тт the abs 	Loc ²	cators.) Texture CLAY LOAM SILT LOAM		marks
SOIL Profile Description: (Depth (in) Color (0-4 10YR 4-14 2.5Y Type: C=Concentration, I Hydric Soil Indicator.	(Describe to Matrix moist) 8 4/1 5/2 D=Depletion, F s:	b the depth need %	ded to document the india Rea Color (moist) 10YR 5/6	cator or confir dox Features %	тт the abs 	Loc ²	cators.) Texture CLAY LOAM SILT LOAM	Rei	marks
Precipitation reco Remarks: SOIL Profile Description: (Depth (in) Color (0-4 10YR 4-14 2.5Y Type: C=Concentration, I Hydric Soil Indicator	(Describe to Matrix moist) 8 4/1 5/2 D=Depletion, F s:	b the depth need %	ded to document the india Rec Color (moist) 10YR 5/6	cator or confir dox Features %	тт the abs 	Loc ²	cators.) Texture CLAY LOAM SILT LOAM	Rei	marks
SOIL Profile Description: (Depth (in) Color (0-4 10YR 4-14 2.5Y Type: C=Concentration, I Hydric Soil Indicator Histosol (A1) Histosol (A1)	(Describe to Matrix moist) X 4/1 5/2 D=Depletion, F S:	b the depth need %	ded to document the india Rec Color (moist) 10YR 5/6 , MS=Masked Sand Grains.	cator or confir dox Features %	Type ¹	ence of indi	cators.) Texture CLAY LOAM SILT LOAM ² Location: PL=Pore Lining Indicators for Proble <u>2 cm Muck (A1</u>		marks
Profile Description: (Depth (in) Color (0-4 10YR 4-14 2.5Y Type: C=Concentration, I Hydric Soil Indicator: Histosol (A1) Histic Epipedor Black Histir (A2)	(Describe to Matrix moist) X 4/1 5/2 D=Depletion, F s: n (A2) a)	b the depth need %	ded to document the india Rec Color (moist) 10YR 5/6 , MS=Masked Sand Grains.	cator or confir dox Features % 	Type ¹ Type ¹	ence of india	cators.) Texture CLAY LOAM SILT LOAM ² Location: PL=Pore Lining Indicators for Proble 2 cm Muck (A1 Coast Prairie R 5 cm Muck VP	Rei 	marks
SOIL Profile Description: (Depth (in) Color (0-4 10YR 4-14 2.5Y Type: C=Concentration, I Hydric Soil Indicator: Histosol (A1) Histic Epipedor Black Histic (A3 Hydrogen Sulf)	(Describe to Matrix moist) X 4/1 5/2 D=Depletion, F S: (A2) (de (A4)	b the depth need %	ded to document the india Rec Color (moist) 10YR 5/6 , MS=Masked Sand Grains.	cator or confir dox Features % 	rm the abs Type ¹ 	ence of india	cators.) Texture CLAY LOAM SILT LOAM ² Location: PL=Pore Lining Indicators for Proble 2 cm Muck (A1Coast Prairie R5 cm Mucky Pe Dark Surface (5)	Rei 	marks
SOIL Profile Description: 1 Depth (in) Color (0-4 10YR 4-14 2.5Y Type: C=Concentration, I Hydric Soil Indicator: Histosol (A1) Histic Epipedor Black Histic (A2 Hydrogen Sulfi Stratified Lave	(Describe to Matrix moist) X 4/1 5/2 D=Depletion, F (A2) (de (A4) rs (A5)	b the depth need %	ded to document the india Color (moist) 10YR 5/6 , MS=Masked Sand Grains. Polyvalue Be MLRA 1499 Thin Dark Su Loamy Muck Loamy Gleve	cator or confir dox Features % 	rm the abs Type ¹ 	ence of india	cators.) Texture CLAY LOAM SILT LOAM ² Location: PL=Pore Lining Indicators for Proble Coast Prairie R S cm Muck (A1 Coast Prairie R S cm Mucky Pe Dark Surface (Polyvalue Belo	Rei 	marks is ³ : 149B) L, R) R K, L, R) R K, L)
SOIL Profile Description: I Depth (in) O-4 10YR 4-14 2.5Y Type: C=Concentration, E Hydric Soil Indicator: Histosol (A1) Histic Epipedor Black Histic (A2 Hydrogen Sulfi Stratified Laye Depleted Belov	(Describe to Matrix moist) X 4/1 5/2 D=Depletion, F (A2) (de (A4) rs (A5) w Dark Surfa	by the depth need %	ded to document the india Color (moist) 10YR 5/6	cator or confir dox Features % elow Surface (S8 B) rface (S9) (LRR cy Mineral (F1) (ed Matrix (F2)	rm the abs Type ¹ 	ence of india	cators.) Texture CLAY LOAM SILT LOAM ² Location: PL=Pore Lining Indicators for Proble 2 cm Muck (A1 Coast Prairie R 5 cm Mucky Pe Dark Surface (5 Polyvalue Belo Thin Dark Surface (5)	Rei 	marks
SOIL Profile Description: I Depth (in) Color (0-4 100F 4-14 2.5Y ' Type: C=Concentration, E Hydric Soil Indicator: Histosol (A1) Histic Epipedor Black Histic (A2 Hydrogen Sulfi Stratified Layer Depleted Below Thick Dark Surf	(Describe to Matrix moist) 3 4/1 5/2 D=Depletion, F (A2) (de (A4) rs (A5) w Dark Surfa face (A12)	by the depth need %	ded to document the india Rec Color (moist) 10YR 5/6 ,MS=Masked Sand Grains. ,MS=Masked Sand Grains. ,MS=Masked Sand Grains.	cator or confir dox Features % clow Surface (S8 B) rface (S9) (LRR cy Mineral (F1) (d Matrix (F2) atrix (F3) Surface (F6)	rm the abs Type ¹ 	ence of india	Cators.) Texture CLAY LOAM SILT LOAM CLAY LOAM	Rei 	marks is ³ : 149B) L, R) R K, L, R) R K, L, R)
SOIL Profile Description: (Depth (in) O-4 10VR 4-14 2.5Y Type: C=Concentration, I Hydric Soil Indicator: Histosol (A1) Histic Epipedor Black Histic (A2 Hydrogen Sulfi Stratified Layer Depleted Beloo Thick Dark Surf Sandy Mucky M	(Describe to Matrix moist) 24/1 5/2 D=Depletion, F s: n (A2) 3) (de (A4) rs (A5) w Dark Surfa face (A12) Vineral (S1)	by the depth need % 	ded to document the india Rec Color (moist) 10YR 5/6 ,MS=Masked Sand Grains. MS=Masked Sand Grains. MLRA 149 Thin Dark Su Depleted Ma Depleted Dark Su Depleted Dark Su	cator or confir dox Features % elow Surface (S8 B) rface (S9) (LRR cy Mineral (F1) (dd Matrix (F2) strrix (F3) Surface (F6) rk Surface (F7)	rm the abs 	ence of india	cators.) Texture CLAY LOAM SILT LOAM CLAY LOAM	Rei 	marks is ³ : 149B) L, R) R K, L, R) R K, L, R) R K, L, R) MILRA 149B)
SOIL Profile Description: (Depth (in) Color (0-4 10YR 4-14 2.5Y Government of the second of the se	(Describe to Matrix moist) 2 4/1 5/2 D=Depletion, F 's: n (A2) 3) ide (A4) rs (A5) w Dark Surfa face (A12) Mineral (S1) Matrix (S4)	o the depth need % 	ded to document the india Rea Color (moist) 10YR 5/6 , MS=Masked Sand Grains. , MS=Masked Sand Grains. MLRA 149 	cator or confir dox Features % clow Surface (S8 B) rface (S9) (LRR cy Mineral (F1) (cd Matrix (F2) atrix (F3) Surface (F6) rk Surface (F6)	rm the abs 	Perce of india	Cators.) Texture CLAY LOAM SILT LOAM CLAY LOAM CLAY LOAM CLAY LOAM CLAY LOAM CLAY LOAM COast Prairie R Coast Prairie R S cm Mucky Pe Dark Surface (S Polyvalue Belo Thin Dark Surfa Iron-Mangane Piedmont Floo Mesic Spodic (Rei M=Matrix. matic Hydric Soil (0) (LRR K, L, MLRA edox (A16) (LRR K, patic Peat (S3) (LR S9) (LRR K, L, M) w Surface (S8) (LRF acce (S9) (LR K, L) se Masses (F12) (LR dplain Soils (F19) (I TA6) (MLRA 144A, 2)	marks [15 ³ : 149B) L, R) R K, L, R) R K, L, R) R K, L, R) MLRA 149B) 145, 149B)
SOIL Profile Description: (Depth (in) Color (0-4 10YR 4-14 2.5Y Government of the second of the se	(Describe to Matrix moist) 2 4/1 5/2 D=Depletion, F S: D=Depletion, F (A2) (de (A4) rs (A5) w Dark Surfa face (A12) Mineral (S1) Matrix (S4) S5)	o the depth need % 	ded to document the india Rea Color (moist) 10YR 5/6 , MS=Masked Sand Grains. MS=Masked Sand Grains. Polyvalue Be MLRA 149 MLRA	cator or confir dox Features % clow Surface (S8 B) rface (S9) (LRR cy Mineral (F1) (cd Matrix (F2) atrix (F3) Surface (F6) rk Surface (F6) rk Surface (F8)	rm the abs 	Perce of india	Cators.) Texture CLAY LOAM SILT LOAM CLAY LOAM CLAY LOAM CLAY LOAM CLAY LOAM CLAY LOAM Coast Prairie R Coast Prairie R S cm Mucky Pe Dark Surface (S Polyvalue Belo Thin Dark Surfa Iron-Mangane Piedmont Floo Mesic Spodic (Red Parent Ma	Rei M=Matrix. matic Hydric Soil (0) (LRR K, L, MLRA edox (A16) (LRR K, patic Peat (S3) (LR S9) (LRR K, L, M) w Surface (S8) (LRF acce (S9) (LRR K, L) se Masses (F12) (LR dplain Soils (F19) (I TA6) (MLRA 144A, : tterial (F21)	marks [15 ³ : 149B) L, R) R K, L, R) R K, L, R) R K, L, R) MLRA 149B) 145, 149B)
SOIL Profile Description: (Depth (in) Color (0-4 10YR 4-14 2.5Y (in) Color (10/7 4-	(Describe to Matrix moist) 2 4/1 5/2 D=Depletion, F (A2) (de (A4) rs (A5) w Dark Surfa face (A12) Mineral (S1) Matrix (S4) (S5) x (S6)	o the depth need % 	ded to document the india Color (moist) 10YR 5/6 , MS=Masked Sand Grains. MS=Masked Sand Grains. Polyvalue Be MLRA 149 Thin Dark Su Coamy Muck Loamy Muck Loamy Muck Depleted Ma Redox Dark S Depleted Dai Redox Depre	cator or confir dox Features % clow Surface (S8 B) rface (S9) (LRR cy Mineral (F1) (cd Matrix (F2) Surface (F6) rk Surface (F6) rk Surface (F8) dicators of hyde	rm the abs Type ¹ 	Pecoraea c	Cators.) Texture CLAY LOAM SILT LOAM ² Location: PL=Pore Lining Indicators for Proble 2 cm Mucky Pe Dark Surface (S Polyvalue Belo Thin Dark Surfac Iron-Mangane: Piedmont Floo Mesic Spodic (Red Parent Ma Very Shallow D	Rei M=Matrix. matic Hydric Soil 0) (LRR K, L, MLRA edox (A16) (LRR K, patic Peat (S3) (LRI S9) (LRR K, L, M) w Surface (S8) (LRF ace (S9) (LRR K, L) se Masses (F12) (LR dplain Soils (F19) (I TA6) (MLRA 144A, 2) tterial (F21) Park Surface (TF12)	marks marks [15 ³ : 149B) L, R) R K, L, R) R K, L, R) R K, L, R) R K, L, R) MLRA 149B) 145, 149B)
SOIL Profile Description: (Depth (in) Color (0-4 10YR 4-14 2.5Y ' 'Type: C=Concentration, I Hydric Soil Indicator: Histosol (A1) Histic Epipedor Black Histic (A2 Hydrogen Sulfi Stratified Layer Depleted Belov Thick Dark Surface (S Stripped Matri Dark Surface (S	(Describe to Matrix moist) 24/1 5/2 D=Depletion, F S: n (A2) 3) de (A4) rs (A5) w Dark Surfa face (A12) Wineral (S1) Matrix (S4) S5) x (S6) S7) (LRR R, M	b the depth need % % 	ded to document the india Rea Color (moist) 10YR 5/6 , MS=Masked Sand Grains. MS=Masked Sand Grains. MLRA 149 Thin Dark Su Loamy Muck Loamy Gleye Depleted Ma Redox Dark S Depleted Dai Redox Dark S Depleted Dai Redox Dere 3 ¹ In wetl	cator or confir dox Features % 	rm the abs Type ¹ Type ¹	Pecoraea c ence of india Loc ²	cators.) Texture CLAY LOAM SILT LOAM ² Location: PL=Pore Lining Indicators for Proble 2 cm Muck (A1 Coast Prairie R 5 cm Mucky Pe Dark Surface (S Polyvalue Belo Thin Dark Surfa Iron-Mangane: Piedmont Floo Mesic Spodic (Red Parent Ma Very Shallow E Other (Explain	Ren Ren M=Matrix. ematic Hydric Soil .0) (LRR K, L, MLRA edox (A16) (LRR K, eat or Peat (S3) (LRI S9) (LRR K, L, M) w Surface (S8) (LRR Act or Peat (S3) (LRI S9) (LRR K, L, M) w Surface (S8) (LRR At or Peat (S3) (LRI S9) (LRR K, L) se Masses (F12) (LR dplain Soils (F19) (L TA6) (MLRA 144A, : iterial (F21) aark Surface (TF12) in Remarks)	marks
Precipitation reco Remarks: SOIL Profile Description: Depth (in) Color (0-4 100 r 4-14 2.5 Y 	(Describe to Matrix moist) X 4/1 5/2 D=Depletion, F 5 : n (A2) 3) ide (A4) rs (A5) w Dark Surfa face (A12) Mineral (S1) Matrix (S4) S5) x (S6) S7) (LRR R, M observed):	b the depth need % M=Reduced Matrix (M=Reduced Matrix) (M=Reduced Matrix)	ded to document the india Color (moist) 10YR 5/6 MS=Masked Sand Grains. Polyvalue Be MLRA 149 Thin Dark Su Loamy Muck Loamy Muck Depleted Ma Redox Dark S Depleted Dai Redox Derk S Depleted Dai Redox Derk S	cator or confir dox Features % 	rm the abs Type ¹ Type ¹	Pecoraea c ience of india Loc ²	cators.) Texture CLAY LOAM SILT LOAM ² Location: PL=Pore Lining Indicators for Proble 2 cm Muck (A1 Coast Prairie R 5 cm Mucky Pe Dark Surface (5 Polyvalue Belo Thin Dark Surfa Iron-Manganes Piedmont Floo Mesic Spodic (Red Parent Ma Very Shallow D Other (Explain	Ren M=Matrix. ematic Hydric Soil (0) (LRR K, L, MLRA redox (A16) (LRR K, eat or Peat (S3) (LRI S9) (LRR K, L, M) w Surface (S8) (LRI S9) (LRR K, L, M) se Masses (F12) (LR dplain Soils (F19) (I TA6) (MLRA 144A, : hterial (F21) Dark Surface (TF12) in Remarks) Soil Decemt2	marks
SOIL Profile Description: Depth (in) Color (0-4 1007R 4-14 2.5Y ' 'Type: C=Concentration, I Hydric Soil Indicator: Histosol (A1) Histic Epipedor Black Histic (A2 Hydrogen Sulfi Stratified Layer Depleted Belox Thick Dark Surface (S Sandy Mucky I Sandy Mucky I Sandy Mucky I Sandy Redox (S Stripped Matri Dark Surface (S Restrictive Layer (if C Type: Depth (inches):	(Describe to Matrix moist) X 4/1 5/2 D=Depletion, F S: n (A2) 3) ide (A4) rs (A5) w Dark Surfa face (A12) Mineral (S1) Matrix (S4) S5) x (S6) S7) (LRR R, M observed):	b the depth need % M=Reduced Matrix (M=Reduced Matrix) (LRA 149B)	ded to document the india Color (moist) 10YR 5/6 , MS=Masked Sand Grains. Polyvalue Be MLRA 149 Thin Dark Su Loamy Muck Loamy Gleye Depleted Ma Redox Dark S Depleted Dai Redox Derk S Depleted Dai Redox Derk S	cator or confir dox Features % 	rm the abs Type ¹ Type ¹	Pecoraea c	cators.) Texture CLAY LOAM SILT LOAM ² Location: PL=Pore Lining Indicators for Proble 2 cm Muck (A1 Coast Prairie R 5 cm Mucky Pe Dark Surface (5 Polyvalue Belo Thin Dark Surfa Iron-Manganes Piedmont Floo Mesic Spodic (Red Parent Ma Very Shallow D Other (Explain Hydric	Rem M=Matrix. ematic Hydric Soil (I) (LRR K, L, MLRA redox (A16) (LRR K, eat or Peat (S3) (LRI S9) (LRR K, L, M) w Surface (S8) (LRI (S9) (LRR K, L, M) w Surface (S8) (LRI (Jplain Soils (F19) (I) TA6) (MLRA 144A, : hterial (F21) Dark Surface (TF12) in Remarks) Soil Present?	marks [s ³ : 149B) L, R) R K, L, R) R K, L, R) R K, L, R) MLRA 149B) 145, 149B)
SOIL Profile Description: Depth (in) Color (0-4 1007R 4-14 2.5Y ' 'Type: C=Concentration, I Hydric Soil Indicator: Histosol (A1) Histic Epipedor Black Histic (A2 Hydrogen Sulfi Stratified Layer Depleted Belox Thick Dark Surf Sandy Mucky M Sandy Gleyed H Sandy Redox (S Stripped Matri Dark Surface (S Restrictive Layer (if C Type: Depth (inches): Remarks:	(Describe to Matrix moist) 2 4/1 5/2 D=Depletion, F TS: n (A2) 3) ide (A4) rs (A5) w Dark Surfa face (A12) Mineral (S1) Matrix (S4) S5) x (S6) S7) (LRR R, M Dbserved):	b the depth need % M=Reduced Matrix (ce (A11) LRA 149B)	ded to document the india Color (moist) 10YR 5/6	cator or confir dox Features % 	rm the abs Type ¹ Type ¹	Percorded of indicent of indicent of indicent of indicent of indicent of indicent of the second of t	cators.) Texture CLAY LOAM SILT LOAM ² Location: PL=Pore Lining Indicators for Proble 2 cm Muck (A1 Coast Prairie R 5 cm Mucky Pe Dark Surface (5 Polyvalue Belo Thin Dark Surfa Iron-Manganes Piedmont Floo Mesic Spodic (Red Parent Ma Very Shallow D Other (Explain Hydric	Ren M=Matrix. ematic Hydric Soil (0) (LRR K, L, MLRA redox (A16) (LRR K, eat or Peat (S3) (LRI S9) (LRR K, L, M) w Surface (S8) (LRI (S9) (LRR K, L, M) w Surface (S8) (LRI (Jplain Soils (F19) (I TA6) (MLRA 144A, : hterial (F21) Dark Surface (TF12) in Remarks) Soil Present?	marks

VEGETATION - Use scientific names of plants.



		Absolute	Dom.	Indicator		
Tree S	Stratum (Plot size: 30' RAD)	% Cover	Sp?	Status	Dominance Test Worksheet:	
1.					# Dominants OBL, FACW, FAC: 1	(A)
2.						
3.					# Dominants across all strata: 1	(B)
4.						_
5.					% Dominants OBL, FACW, FAC: 100%	(A/B)
6.			·			_
7.					Prevalence Index Worksheet:	
			= Tota	l Cover	Total % Cover of: Multiply By	
Saplir	g Stratum (Plot size: 15' RAD)		•		OBL x1=	_
1.	- · · · · · · · · · · · · · · · · · · ·				FACW 63 x 2 = 126	_
2.					FAC 6 x 3 = 18	
3.			·		FACU 3 x 4 = 12	_
4.			·		UPL x 5 =	_
5.		<u> </u>	·		Sum: 72 (A) 156	(B)
6.			·			_(=)
7.			·		Prevalence Index = $B/A = 2.17$	
			·			_
			= Tota	l Cover	Hydrophytic Vegetation Indicators:	
Shrub	Stratum (Plot size: 15' RAD)				X Dominance Test is > 50%	
1.					\mathbf{X} Prevalence Index is <= 3.0	
2			·		Problematic Hydrophytic Vegetation ¹ (ex	olain)
2. 3			·		Banid Test for Hydrophytic Vegetation	, and the second s
۵. ۲			·		Morphological Adaptations	
5			·			
5. 6			·		Indicators of hydric soil and wetland hydrology must be pre	esent,
7			·		Definitions of Vegetation Strata:	
7.			= Tota	Cover	Demittons of Vegetation Strata.	
Herh	Stratum (Plot size: 5' RAD)		- 1010		Tree - Woody plants, excluding woody vines, approximate	v 20ft
1	Phalaris arundinacea	63	x	FACW	(6m) or more in height and 3in (7.6cm) or larger in diameter	at breast
2	Solidago rugosa	3	<u> </u>	FAC	height (DBH).	
2.	Banunculus acris		·	FAC		
J. 1	Tarayacum officinale		·	FACIL	Sanling - Woody plants, excluding woody vines, approxim	ately 20ft
4. 5			·	1400	(6m) or more in height and less than 3in (7.6cm) DBH.	acciy 2010
6			·			
7			·			
γ. α			·		Shruh - Woody plants, avoluting woody vings, approxima	oly 2 to
0.		<u> </u>	·		20ft (1 to 6m) in height.	ely 5 to
9. 10		<u> </u>	·			
10.		<u> </u>	·		Horb All borbassaus (non-woods) plants, including borb	
11.		<u> </u>	·		vines, regardless of size. Includes woody plants, including herba	dv vines.
12.					less than approximately 3ft (1m) in height.	.,,
			= 10ta	Cover		
vvooc	iy vines (Plot size:)					
1.			·		Warduning the line of the	
2.		<u> </u>	·		WOODY VINE - All woody vines, regardless of height.	
3.						
4.					Hydrophytic	
5.					Vegetation	
			= Tota	l Cover	Present? YES	_

Remarks: (If observed, list morphological adaptations below).



VCGI (Vermont Center for Geographic Information - Various Dates) CEA (Civil Engineering Associates, Inc. - Prog. Plans, 08/05/16) VHB - 2015-2016



Delineated Stream (VHB)

Temporary Laydown (CEA)

VCGI (Vermont Center for Geographic Information - Various Dates) CEA (Civil Engineering Associates, Inc. - Prog. Plans, 08/05/16) VHB - 2015-2016



VERMONT WETLAND EVALUATION FORM

Project Name: ER Thurston Farm Solar East, Orange, VT Project #: 57818.00

Date: 10/14/2015 and 10/20/2015 Investigator: C. Martin

<u>SUMMARY OF FUNCTIONAL EVALUATION: Wetland 2015-2</u> Each function gets a score of 0= not present; L = Low; P = Present; or H = High.



Note:

- When to use this form: This is a field form to help you compile data needed to evaluate the 10 possible functions and values of a wetland as described in the Vermont Wetland Rules. All information in this form is replicated in the applications for both wetland determinations and wetland permits.
- Both a desktop review and field examination should be employed to accurately determine surrounding land use, hydrology, hydroperiod, vegetation, position in the landscape, and physical attributes.
- The entire wetland or wetland complex in question must be evaluated to determine the level of function in all ten (10) categories for accurate classification. A wetland complex can be defined as a series of interconnected wetland types.
- The surrounding upland and outflow area of the wetland should be examined to determine land use, development, nearby natural resources, and hydrology. The surrounding land use, previous development, and cumulative impacts may play a role in the current function of the wetland. For best results please read all descriptions prior to scoring activity.
- *Evaluation*: The first portion in each section determines whether the wetland does or does not provide the function. If none of the conditions listed in the first section are met, proceed

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to the next section. If any of these conditions are met, determine if the wetland provides this function at a higher or lower level based on the information listed in the subsequent sections.

- **Presumptions:** Please note that many wetlands are already presumed to be significant under the Vermont Wetland Rules. A wetland is presumed to be significant if:
 - o The wetland is mapped on the VSWI map
 - The wetland is contiguous to a VSWI mapped wetland
 - The wetland meets the presumptions of significance under Section 4.6
 - o The wetland has a preliminary determination that it is Class II

1. Water Storage for Flood Water and Storm Runoff

\square	Fund char	ction is pr acteristic	esent and likely to be significant: Any of the following physical and vegetative s indicate the wetland provides this function.
	\square	Constric	ted outlet or no outlet and an unconstricted inlet.
		Physical or dense peak flo	I space for floodwater expansion and dense, persistent, emergent vegetation e woody vegetation that slows down flood waters or stormwater runoff during ws and facilitates water removal by evaporation and transpiration.
		If a streat intercep	am is present, its course is sinuous and there is sufficient woody vegetation to t surface flows in the portion of the wetland that floods.
		Physical water m	l evidence of seasonal flooding or ponding such as water stained leaves, arks on trees, drift rows, debris deposits, or standing water.
		Hydrolog	gic or hydraulic study indicates wetland attenuates flooding.
	lf an follo [,] level	y of the a wing to de l:	bove boxes are checked, the wetland provides this function. Complete the etermine if the wetland provides this function above or below a moderate
	Cheo this t	ck box if a function a	iny of the following conditions apply that may indicate the wetland provides at a <i>lower</i> level.
		Significa questior (unless	ant flood storage capacity upstream of the wetland, and the wetland in a provides this function at a negligible level in comparison to upstream storage the upstream storage is temporary such as a beaver impoundment).
		Wetland indepen	is contiguous to a major lake or pond that provides storage benefits dently of the wetland.
		Wetland tempora	's storage capacity is created primarily by recent beaver dams or other ary structures.
		Wetland of small	is very small in size, not contiguous to a stream, and not part of a collection wetlands in the landscape that provide this function cumulatively.
	Cheo this t	ck box if a function a	any of the following conditions apply that may indicate the wetland provides at a <i>higher</i> level.
		History	of downstream flood damage to public or private property.
		Any of t major la function	he following conditions present downstream of the wetland, but upstream of a ke or pond, could be impacted by a loss or reduction of the water storage .
		1.	Developed public or private property.
		2.	Stream banks susceptible to scouring and erosion.
		3.	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.
 - 1. A large amount of impervious surface in urbanized areas.
 - 2. Relatively impervious soils.
 - \boxtimes 3. Steep slopes in the adjacent areas.

2. 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.

Check box if any of the following conditions apply that may indicate the wetland provides

this 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.	
	\boxtimes	Current use in the wetland results in disturbance that compromises this function.	
	Check box if any of the following conditions apply that may indicate the wetland provides this function at a <i>higher</i> 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 waters.	
		The wetland contributes to the protection or improvement of water quality of any impaired waters.	
		The wetland is large in size and naturally vegetated.	

3. Fish Habitat

Fur	nction is present and likely to be significant: Any of the following physical and vegetative racteristics 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.
streams and rivers.

Documented or professionally judged spawning habitat for northern pike.
Provides cold spring discharge that lowers the temperature of receiving v

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.

4. Wildlife Habitat

Fun	ction is present and likely to be significant: Any of the following physical and vegetative acteristics 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 these species include softwood swamps. Evidence of use includes deer 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.

2. Northern Dusky Salamander and the Spring Salamander. Habitat for these species includes headwater seeps, springs, and streams.
3. 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 significant 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 includes 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:
1. Three or more wetland vegetation classes (greater than 1/2 acre) present including but not limited to: open water contiguous to, but not necessarily part of, the wetland, deep marsh, shallow marsh, shrub swamp, forested swamp, fen, or bog;
 2. The dominant vegetation class is one of the following types: deep marsh, shallow marsh, shrub swamp or, forested swamp;
\boxtimes 3. Located adjacent to a lake, pond, river or stream;
4. Fifty percent or more of surrounding habitat type is one or more of the following: forest, agricultural land, old field or open land;
5. Emergent or woody vegetation occupies 26 to 75 percent of wetland, the rest is open water;
\boxtimes 6. One of the following:
 i. hydrologically connected to other wetlands of different dominant classes or open water within 1 mile;
 ii. hydrologically connected to other wetlands of same dominant class within 1/2 mile;
iii. 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; and
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

follo [.] Ievel	wing to determine if the wetland provides this function above or below a moderate
Check box if any of the following conditions apply that may indicate the wetland provides this function at a <i>lower</i> 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.
Che this t	ck box if any of the following conditions apply that may indicate the wetland provides function at a <i>higher</i> level.
	The wetland complex 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 by ANR-F&W as important habitat.

5. 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 with examples of several wetland community types.

6. 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 creditable documentation that the wetland provides important habitat for any
species on the federal or state threatened or endangered species lists;

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

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

List name of species and ranking:

7. Education and Research in Natural Sciences

	Func the w	tion is present and likely to be significant: Any of the following characteristics indicate vetland provides this function.	
		Dwned by or leased to a public entity dedicated to education or research.	
	ŀ	listory of use for education or research.	
	l F	las one or more characteristics making it valuable for education or research.	
8.	R	ecreational 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.	

9. 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.



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.

10. Erosion Control through Binding and Stabilizing the Soil

\boxtimes	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:			
	\square	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 a important for erosion control.			
	What typ	e of erosive forces are present?		
	Lake fetch and waves			
	\boxtimes	High current velocities		
		Water level influenced by upstream impoundment		
	If any of t following level.	the above boxes are checked, the wetland provides this function. Complete the to determine if the wetland provides this function above or below a moderate		
\boxtimes	Check box if any of the following conditions apply that may indicate the wetland provides this function at a <i>lower</i> level.			
	The con	e stream is artificially channelized and/or lacks vegetation that contributes to trolling the erosive force.		
	Check bo this funct	ox if any of the following conditions apply that may indicate the wetland provides ion at a <i>higher</i> level.		
	The	stream contains high sinuosity.		
	Has maintair	been identified through fluvial geomorphic assessment to be important in ning the natural condition of the stream or river corridor.		

VERMONT WETLAND EVALUATION FORM

Project Name: ER Thurston Farm Solar East Orange, VT Project #: 57818.00

Date: 10/14/2015 and 10/20/2015 Investigator: C. Martin

<u>SUMMARY OF FUNCTIONAL EVALUATION: Wetland 2015-4</u> Each function gets a score of 0= not present; L = Low; P = Present; or H = High.



Note:

- When to use this form: This is a field form to help you compile data needed to evaluate the 10 possible functions and values of a wetland as described in the Vermont Wetland Rules. All information in this form is replicated in the applications for both wetland determinations and wetland permits.
- Both a desktop review and field examination should be employed to accurately determine surrounding land use, hydrology, hydroperiod, vegetation, position in the landscape, and physical attributes.
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- **Presumptions:** Please note that many wetlands are already presumed to be significant under the Vermont Wetland Rules. A wetland is presumed to be significant if:
 - The wetland is mapped on the VSWI map
 - The wetland is contiguous to a VSWI mapped wetland
 - The wetland meets the presumptions of significance under Section 4.6
 - The wetland has a preliminary determination that it is Class II

1. Water Storage for Flood Water and Storm Runoff

\square	Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.						
	\square	Constricted outlet or no outlet and an unconstricted inlet.					
		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.					
		If a strea	am is present, its course is sinuous and there is sufficient woody vegetation to t surface flows in the portion of the wetland that floods.				
		Physical water ma	evidence of seasonal flooding or ponding such as water stained leaves, arks on trees, drift rows, debris deposits, or standing water.				
		Hydrolog	gic or hydraulic study indicates wetland attenuates flooding.				
	lf an follo [,] level	y of the a wing to de :	bove boxes are checked, the wetland provides this function. Complete the etermine if the wetland provides this function above or below a moderate				
	Check box if any of the following conditions apply that may indicate the wetland provid this function at a <i>lower</i> level.						
		Significa question (unless t	nt flood storage capacity upstream of the wetland, and the wetland in provides this function at a negligible level in comparison to upstream storage the upstream storage is temporary such as a beaver impoundment).				
		Wetland indepen	is contiguous to a major lake or pond that provides storage benefits dently of the wetland.				
		Wetland tempora	's storage capacity is created primarily by recent beaver dams or other ry structures.				
		Wetland of small	is very small in size, not contiguous to a stream, and not part of a collection wetlands in the landscape that provide this function cumulatively.				
	Cheo this t	k box if a function a	ny of the following conditions apply that may indicate the wetland provides t a <i>higher</i> level.				
		History	of downstream flood damage to public or private property.				
		Any of ti major lal function.	he following conditions present downstream of the wetland, but upstream of a ke or pond, could be impacted by a loss or reduction of the water storage				
		1.	Developed public or private property.				
		2.	Stream banks susceptible to scouring and erosion.				
		3.	Important habitat for aquatic life.				

\boxtimes	The wetland i	is large in	size and	naturally	vegetated.
<u> </u>					

Any of the following conditions present upstream of the wetland may indicate a large volume of runoff may reach the wetland.

- 1. A large amount of impervious surface in urbanized areas.
 - 2. Relatively impervious soils.
 - 3. Steep slopes in the adjacent areas.

2. 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.

\boxtimes	Constricted or no outlets.		
\square	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.		
\square	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 an	If any of the above boxes are checked, the wetland provides this function. Complete the		

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.

Check box if any of the following conditions apply that may indicate the wetland provides

this 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.		
\boxtimes	Check box if any of the following conditions apply that may indicate the wetland provides this function at a <i>higher</i> 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 waters.		
		The wetland contributes to the protection or improvement of water quality of any impaired waters.		
	\boxtimes	The wetland is large in size and naturally vegetated.		

3. Fish Habitat

Function is present and likely to be significant: Any of the following physical and vegetative	a
	<u> </u>
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
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 v

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.

4. Wildlife Habitat

Fun Fun Char	ction is present and likely to be significant: Any of the following physical and vegetative acteristics 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 these species include softwood swamps. Evidence of use includes deer 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:
	1. Wood Frog, Jefferson Salamander, Blue-spotted Salamander, or Spotted Salamander. Breeding habitat for these species includes vernal pools and small ponds.

2. Northern Dusky Salamander and the Sp species includes headwater seeps, sprir	oring Salamander. Habitat for these ngs, and streams.
3. The Four-toed salamander; Fowler's Toa other amphibians found in Vermont of si	ad; Western or Boreal Chorus frog, or milar significance.
Supports or has the habitat to support significan species including, but not limited to Pickerel Fro and others found in Vermont of similar significan species includes large marsh systems with oper	t populations of Vermont amphibian og, Northern Leopard Frog, Mink Frog, nce. Good habitat for these types of n water components.
Supports or has the habitat to support populations pecies including: Wood Turtle, Northern Map Turtle, Spiny Softshell, Eastern Ribbonsnake, Northern of similar significance.	ns of uncommon Vermont reptile Turtle, Eastern Musk Turtle, Spotted lorthern Watersnake, and others found
Supports or has the habitat to support significan species, including Smooth Greensnake, DeKay common wetland-associated species.	t populations of Vermont reptile 's Brownsnake, or other more
Meets four or more of the following conditions in	ndicative of wildlife habitat diversity:
1. Three or more wetland vegetation classe including but not limited to: open water of of, the wetland, deep marsh, shallow ma fen, or bog;	es (greater than 1/2 acre) present contiguous to, but not necessarily part arsh, shrub swamp, forested swamp,
2. The dominant vegetation class is one of shallow marsh, shrub swamp or, foreste	the following types: deep marsh, d swamp;
3. Located adjacent to a lake, pond, river o	r stream;
4. Fifty percent or more of surrounding hab following: forest, agricultural land, old fie	itat type is one or more of the Id or open land;
 5. Emergent or woody vegetation occupies is open water; 	26 to 75 percent of wetland, the rest
6. One of the following:	
i. hydrologically connected to other classes or open water within 1 m	^r wetlands of different dominant ille;
ii. hydrologically connected to othe within 1/2 mile;	r wetlands of same dominant class
iii. within 1/4 mile of other wetlands o water, but not hydrologically con	of different dominant classes or open nected;
Wetland or wetland complex is owned in whole government and managed for wildlife and habita	or in part by state or federal at conservation; and
Contains evidence that it is used by wetland dep	endent wildlife species.
If any of the above boxes are checked, the wetland p	rovides this function. Complete the

follo leve	wing to determine if the wetland provides this function above or below a moderate l.
Cheo this	ck box if any of the following conditions apply that may indicate the wetland provides function at a <i>lower</i> 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.
Che this	ck box if any of the following conditions apply that may indicate the wetland provides function at a <i>higher</i> level.
	The wetland complex 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 by ANR-F&W as important habitat.

5. 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 with examples of several wetland community types.

6. 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 creditable documentation that the wetland provides important habitat for any species on the federal or state threatened or endangered species lists;

Th	ere is creditable documentation	that threatened	or endangered	species have b	been
pro	esent in past 10 years;				

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

List name of species and ranking:

7. Education and Research in Natural Sciences

	Func the w	tion is present and likely to be significant: Any of the following characteristics indicate retland provides this function.			
		Dwned by or leased to a public entity dedicated to education or research.			
	ŀ] History of use for education or research.			
	ŀ	Has one or more characteristics making it valuable for education or research.			
8. 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.			

9. 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.



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.
10. Erosion Control through Binding and Stabilizing the Soil

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
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.
Check box if any of the following conditions apply that may indicate the wetland provides this function at a <i>lower</i> 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 <i>higher</i> 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.

VERMONT WETLAND EVALUATION FORM

Project Name: ER Thurston Farm Solar East, Orange, VT Project #: 57818.00

Date: 10/14/2015 and 10/20/2015 and 4/28/16 Investigator: C. Martin

<u>SUMMARY OF FUNCTIONAL EVALUATION: Wetland 2015-5</u> Each function gets a score of 0= not present; L = Low; P = Present; or H = High.



Note:

- When to use this form: This is a field form to help you compile data needed to evaluate the 10 possible functions and values of a wetland as described in the Vermont Wetland Rules. All information in this form is replicated in the applications for both wetland determinations and wetland permits.
- Both a desktop review and field examination should be employed to accurately determine surrounding land use, hydrology, hydroperiod, vegetation, position in the landscape, and physical attributes.
- The entire wetland or wetland complex in question must be evaluated to determine the level of function in all ten (10) categories for accurate classification. A wetland complex can be defined as a series of interconnected wetland types.
- The surrounding upland and outflow area of the wetland should be examined to determine land use, development, nearby natural resources, and hydrology. The surrounding land use, previous development, and cumulative impacts may play a role in the current function of the wetland. For best results please read all descriptions prior to scoring activity.
- *Evaluation*: The first portion in each section determines whether the wetland does or does not provide the function. If none of the conditions listed in the first section are met, proceed

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to the next section. If any of these conditions are met, determine if the wetland provides this function at a higher or lower level based on the information listed in the subsequent sections.

- **Presumptions:** Please note that many wetlands are already presumed to be significant under the Vermont Wetland Rules. A wetland is presumed to be significant if:
 - o The wetland is mapped on the VSWI map
 - The wetland is contiguous to a VSWI mapped wetland
 - The wetland meets the presumptions of significance under Section 4.6
 - o The wetland has a preliminary determination that it is Class II

1. Water Storage for Flood Water and Storm Runoff

	\square	Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.	
		Constricted outlet or no outlet and an unconstricted inlet.	
		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.	
Complex (not within		If a stream is present, its course is sinuous and there is sufficient woody vegetation to intercept surface flows in the portion of the wetland that floods.	
VHB delin area)		Physical evidence of seasonal flooding or ponding such as water stained leaves, water marks on trees, drift rows, debris deposits, or standing water.	
	J	Hydrologic or hydraulic study indicates wetland attenuates flooding.	
		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:	
		Check box if any of the following conditions apply that may indicate the wetland provides this function at a <i>lower</i> 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.	
	\square	Check box if any of the following conditions apply that may indicate the wetland provides this function at a <i>higher</i> 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 a loss or reduction of the water storage function.	
		 Developed public or private property. 	
		\boxtimes 2. Stream banks susceptible to scouring and erosion.	
		3. Important habitat for aquatic life.	

Complex (not within VHB delin area)	
area)	

- 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.
 - 1. A large amount of impervious surface in urbanized areas.
 - 2. Relatively impervious soils.
 - 3. Steep slopes in the adjacent areas.

2. 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.

\square	Constricted or no outlets.
\square	Low water velocity through dense, persistent vegetation.
	Hydroperiod permanently flooded or saturated.
\square	Wetlands in depositional environments with persistent vegetation wider than 20 feet.
	Wetlands with persistent vegetation comprising a defined delta, island, bar or peninsula.
\boxtimes	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.
\square	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 an	v of the above boxes are checked, the wetland provides this function. Complete the

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.

Check box if any of the following conditions apply that may indicate the wetland provides

this	function	at a	lower	level.

Complex (not within VHB delin area)

		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.
\square	Cheo this f	k box if any of the following conditions apply that may indicate the wetland provides function at a <i>higher</i> 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 waters.
		The wetland contributes to the protection or improvement of water quality of any impaired waters.
	\square	The wetland is large in size and naturally vegetated.
3.	Fi	ish Habitat
3.	F i Fund chara	ish Habitat ction is present and likely to be significant: Any of the following physical and vegetative acteristics indicate the wetland provides this function.
3.	Fi Fund chara	ish Habitat ction is present and likely to be significant: Any of the following physical and vegetative acteristics 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.
3.	Find chara	 ish Habitat ction is present and likely to be significant: Any of the following physical and vegetative acteristics 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.

- 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.

4. Wildlife Habitat

\boxtimes	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 hab	itat for white-tailed deer. Good habitats for these species include
softwood swamps.	Evidence of use includes deer 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:

1.	Wood Frog, Jefferson Salamander, Blue-spotted Salamander, or Spotted
	Salamander. Breeding habitat for these species includes vernal pools and
	small ponds.

	2. Northern Dusky Salamander and the Spring Salamander. Habitat for these species includes headwater seeps, springs, and streams.
	3. 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 significant 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 includes 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.
\square	Meets four or more of the following conditions indicative of wildlife habitat diversity:
	1. Three or more wetland vegetation classes (greater than 1/2 acre) present including but not limited to: open water contiguous to, but not necessarily part of, the wetland, deep marsh, shallow marsh, shrub swamp, forested swamp, fen, or bog;
	\boxtimes 2. The dominant vegetation class is one of the following types: deep marsh, shallow marsh, shrub swamp or, forested swamp;
	3. Located adjacent to a lake, pond, river or stream;
	4. Fifty percent or more of surrounding habitat type is one or more of the following: forest, agricultural land, old field or open land;
	5. Emergent or woody vegetation occupies 26 to 75 percent of wetland, the rest is open water;
	\boxtimes 6. One of the following:
	 i. hydrologically connected to other wetlands of different dominant classes or open water within 1 mile;
	ii. hydrologically connected to other wetlands of same dominant class within 1/2 mile;
	iii. 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; and
	Contains evidence that it is used by wetland dependent wildlife species.

Complex (not within VHB delin area)

If any of the above boxes are checked, the wetland provides this function. Complete the

	level								
\square	Check box if any of the following conditions apply that may indicate the wetland provides this function at a <i>lower</i> 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.							
	\square	The current use in the wetland results in frequent cutting, mowing or other disturbance.							

following to determine if the wetland provides this function above or below a moderate

- 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 complex 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 by ANR-F&W as important habitat.

5. 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.

Con but r	tains ecological features that contribute to Vermont's natural heritage, including, 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 with examples of several wetland community types.

6. 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 creditable documentation that the wetland provides important habitat for any
species on the federal or state threatened or endangered species lists;

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

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

List name of species and ranking:

7. Education and Research in Natural Sciences

	Function is present and likely to be significant: Any of the following characteristics indica the wetland provides this function.									
		Dwned by or leased to a public entity dedicated to education or research.								
	ŀ	History of use for education or research.								
	las one or more characteristics making it valuable for education or research.									
8.	R	ecreational Value and Economic Benefits								
Function is present and likely to be significant: Any of the following characteristics ind 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.								

9. 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.



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.

10. Erosion Control through Binding and Stabilizing the Soil

\square	Function is present and likely to be significant: Any of the following physical and vegeta 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							
	f 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 evel.							
	Check box if any of the following conditions apply that may indicate the wetland provides his function at a <i>lower</i> level.							
	The stream is artificially channelized and/or lacks vegetation that contributes to controlling the erosive force.							
	heck box if any of the following conditions apply that may indicate the wetland provides is function at a <i>higher</i> 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.							



Summary of Delineated Wetlands

Encore Renewable Energy - Ed Thurston Farm Solar East 500 kW Solar Project Orange, VT Prepared by VHB (O. McEnroe)

June 6, 2016

VHB Delineated Wetlands												
							Vermont Wetla	and Rules Classifica	ation			
					Contiguous	Riparian		VWR Section 5 Functional Criteria			í l	
Wotland ID	Delineated Area	Cowardin	Hydrology	Hydric Soil	to a VSWI	Wetland	VWR Section	Presence/	Significance	VHB Proposed	Typical Vegetation	Comments
wedalid 10	(Square Feet) ¹	Classification ²	nyarology	Indicator		Contiguous to	4.6		VHB-Proposed	VWR	Typical vegetation	comments
					mapped	Stream Channel?	Presumptions ⁴	Type⁵	Significant?	Classification ⁶		
					wetland?	(Flow Regime) ³	-		Significant:			
2015-2	103,776	PEM, PSS	Saturation (A3); Drainage Patterns (B10)	Depleted Matrix (F3)	Yes	Yes (Perennial)	a,c	5.1, 5.2, 5.10	Yes	п	Cornus alba, Carex crinita, Spiraea alba	Associated with 2015-SC-1; Extends outside of study area; majority of wetland mowed and in maintained field
2015-4	21,707	PEM, PSS	Saturation (A3); Drainage Patterns (B10)	Depleted Matrix (F3)	No	No	а	5.1, 5.2	Yes	п	Cornus alba, Carex crinita, Spiraea alba	Wetland located in VELCO ROW; existing trails bisects wetland; slight topographical depression
2015-5	91,800	PEM, PSS	Saturation (A3); Oxidized Rhizospheres on Living Roots (C3)	Depleted Matrix (F3)	No	Yes (Perennial)	a,c	5.1, 5.2, 5.10	Yes	п	Phalaris arundinacea, Scirpus atrovirens, Solidago rugosa	Associated with 2015-TB-2; Extends outside of study area ; along VELCO ROW; floodplain feature
2015-6	1,366	PEM	Saturation (A3); Oxidized Rhizospheres on Living Roots (C3)	Depleted Matrix (F3)	No	No	-	5.1	No	ш	Phalaris arundinacea	Small isolated wetland feature; located in slight topographical depression in field

¹All wetlands field-delineated per the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northeast and North Central Region. U.S. Army Corps of Engineers. 2011; Italics indicate wetland continues outside of study area.

²Classification follows Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitat of the United States. U.S. Fish and Wildlife Service. FWS/OBD-79/31. 103pp.

³Wetland contiguity to streams as defined in the Vermont ANR 12/9/05 *Guidance for Agency Act 250 and Section 248 Comments Regarding Riparian Buffers* and confirmed if a delineated perennial or intermittent stream channel inflows, through flows, and outflows from a delineated wetland (ephemeral channels not typically being subject to ANR Riparian Buffers Guidance). The vegetative assemblage or natural community type is used when determining riparian vegetation function. Flow regime determined based on qualitative observations of instream hydrology indicators and geomorphic characteristic and are subject to professional judgment (P=perennial, I=intermittent, E=ephemeral).

⁴Alpha-numeric codes correspond with Section 4.6 Presumptions , of the 2010 Vermont Wetland Rules.

⁵VWR Section 5: Functional Criteria for Evaluating a Wetland's Significance: 5.1=Water Storage for Flood Water and Storm Runoff, 5.2=Surface and Groundwater Protection, 5.3=Fish Habitat, 5.5=Exemplary Wetland Natural Community, 5.6=Rare, Threatened or Endangered Species Habitat, 5.7=Education and Research in Natural Sciences, 5.8=Recreational Value and Economic Benefits, 5.9=Open Space and Aesthetics, 5.10=Erosion Control Through Binding and Stabilizing the Soil. (P)= Present, (H)=High, (L)=Low; Correspond to observed level of functionality

⁶VHB-Proposed VWR Classification is based on review and application of the VWR, particularly VHB's interpretation of Section 4.6 Presumptions and and VWR Section 5 Functional Analysis.