

## Vermont Wetland Section Wetland Application Database Form (AFFIX TO THE FRONT OF THE APPLICATION)

<b>Applicant Name:</b> Vermont Army National Guard c/o SGT John Medenwald		<b>Representative Name:</b> Oakledge Environmental Services, Inc.	
<b>Town where project is located:</b> Underhill		<b>County:</b> Chittenden	
<b>Project Location Description:</b> East side of Beartown Trail at the Ethan Allen Firing Range, Underhill, VT <i>911 Street Address or direction from nearest intersection</i>			
<b>Project Summary:</b> Upgrade an existing road to improve access and safety.			
<b>Permit Type Requested</b> (check all that apply)			
<input type="checkbox"/> Vermont General Permit Coverage		<input type="checkbox"/> Wetland Determination	<input checked="" type="checkbox"/> Vermont Wetland Permit
<b>Impact Calculations:</b> Total up proposed impacts from wetland tables listed below			
Total Wetland Impact		665square feet (s.f.)	Total Buffer Zone Impact
			10,725square feet (s.f.)
Total Wetland Clearing (qualified linear projects only)		square feet (s.f.)	Total Buffer Zone Clearing (qualified linear projects only)
			square feet (s.f.)
<b>Permit Fees: Make check payable to - State of Vermont</b>			
Wetland Impact Fee: (\$0.75/sf)		\$498.75	Administrative Fee: \$240
Buffer Impact Fee: (\$0.25/sf)		\$2,681.25	Total Check Amount: \$3,420.00
Clearing Fee: (\$0.25/sf)		\$	
<b>Existing Land Use Type:</b> (check all that apply)			
<input type="checkbox"/> Forestry		<input type="checkbox"/> Residential (Subdivision)	<input type="checkbox"/> Industrial/ commercial
<input type="checkbox"/> Agriculture		<input checked="" type="checkbox"/> Transportation	<input type="checkbox"/> Parks/Rec/Trail
		<input type="checkbox"/> Residential (Single Family)	<input type="checkbox"/> Institutional
		<input type="checkbox"/> Undeveloped	
<b>Proposed Land Use Type:</b> (check all that apply)			
<input type="checkbox"/> Forestry		<input type="checkbox"/> Residential (Subdivision)	<input type="checkbox"/> Industrial/ commercial
<input type="checkbox"/> Agriculture		<input checked="" type="checkbox"/> Transportation	<input type="checkbox"/> Parks/Rec/Trail
		<input type="checkbox"/> Residential (Single Family)	<input type="checkbox"/> Institutional
		<input type="checkbox"/> No Change	
<b>Proposed Impact Type:</b> (check all that apply)			
<input type="checkbox"/> Buildings		<input type="checkbox"/> Utilities	<input type="checkbox"/> Parking
<input type="checkbox"/> Driveway		<input checked="" type="checkbox"/> Road	<input type="checkbox"/> Septic/Well
<input type="checkbox"/> Dry Hydrant		<input type="checkbox"/> Beaver dam alteration	<input type="checkbox"/> Stormwater
		<input type="checkbox"/> Parks/Path	<input type="checkbox"/> Agriculture
		<input type="checkbox"/> Silviculture	<input type="checkbox"/> Pond
		<input type="checkbox"/> Aesthetics	<input type="checkbox"/> Lawn
		<input type="checkbox"/> Other	<input type="checkbox"/> No Impact
<b>Wetland 1:</b> (Label using Wetland ID from application if applicable, use supplemental sheets if more than one wetland is being impacted)			
Wetland Type: <b>PEM/PSS/PFO</b>		WL Size Class :	<b>1-5 acres</b>
<b>Proposed Alterations</b>			
<b>Wetland Alteration:</b>		<b>Buffer Zone Alteration:</b>	<b>Wetland Alteration Type (check all that apply)</b>
Wetland Fill: 665 s.f.		Temporary: s.f.	<input type="checkbox"/> Dredge
Temporary: s.f.		Permanent: : s.f.	<input type="checkbox"/> Drain
Permanent: : s.f.		Permanent: : 10,725 s.f.	<input type="checkbox"/> Cut Vegetation
			<input checked="" type="checkbox"/> Trench/Fill
			<input type="checkbox"/> Stormwater
			<input type="checkbox"/> Other
<b>Mitigation</b>			
<b>Avoidance and Minimization</b> (s.f. of wetland NOT impacted):			
Wetland:		60,842 s.f.	Buffer Zone 112,775 s.f.
<b>Wetland Mitigation: (s.f. Gained)</b>			
Restoration s.f.		Enhancement s.f.	
Creation s.f.		Conservation s.f..	
<b>Reason for Mitigation:</b>			
<input type="checkbox"/> Correction of Violation		<input type="checkbox"/> Mitigation to offset permit impacts	<input type="checkbox"/> Voluntary

## Vermont Wetland Permit Application/Determination Petition

QUESTION	INSTRUCTIONS AND APPLICANT ANSWER	STAFF NOTE
1. Applicant	If the applicant is someone other than the landowner, the landowner information must also be included below.	
1.1. Applicant Name	Vermont Army National Guard c/o SGT John Medenwald	
1.2. Applicant Address	State of Vermont Military Department 789 Army National Guard Road Building 5 Camp Johnson, Colchester, VT 05446	
1.3. Applicant Phone Number	(802) 338-3853	
1.4. Applicant Email	John.medenwald@partner.vermont.gov	
1.5. Applicant Signature (original signature required)	<p>By signing this application you are certifying that all the information contained within is true, accurate, and complete to the best of your knowledge.</p> <div style="display: flex; justify-content: space-between; align-items: flex-end;"> <div style="border: 1px solid black; padding: 2px;"> <p>MEDENWALD.JOHN.STUART X .1099745602</p> <p style="font-size: 8px;"><small>Digitally signed by MEDENWALD.JOHN.STUART 1639745602 DN: c=US, o=U.S. Government, ou=DOD, ou=PKI, ou=USA, email=MEDENWALD.JOHN.STUART.1099745602 Date: 2016.01.15 15:15:45-0500</small></p> </div> <div style="border: 1px solid black; padding: 2px;"> <p>Date: 1/15/2016</p> </div> </div>	
2. Representative	Consultant, engineer, or other representative that is responsible for filling out this application, if other than the applicant or landowner	
2.1. Representative Name	Jeffrey Severson, Principal Ecologist, Oakledge Environmental Services, Inc.	
2.2. Representative Address	P.O. Box 4065, Burlington, Vermont 05406	
2.3. Representative Phone Number	802-660-8312	
2.4. Applicant Email	jeff.severson@burlingtontelecom.net	
2.5. Representative Signature (original signature required)	<p>By signing this application you are certifying that all the information contained within is true, accurate, and complete to the best of your knowledge.</p> <div style="display: flex; justify-content: space-between; align-items: flex-end;"> <div style="border: 1px solid black; padding: 2px;"> <p>X <i>Jeffrey Severson</i></p> </div> <div style="border: 1px solid black; padding: 2px;"> <p>Date: 1/22/16</p> </div> </div>	
3. Landowner	Landowner must sign the application. Use this space if landowner is different from the applicant	
3.1. Landowner Name	Same as Applicant	
3.2. Landowner Address		
3.3. Landowner Phone Number		
3.4. Landowner Email		
3.5. 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.	
3.6. Landowner Signature (original signature required)	<p>By signing this application you are certifying that all the information contained within is true, accurate, and complete to the best of your knowledge.</p> <div style="display: flex; justify-content: space-between; align-items: flex-end;"> <div style="border: 1px solid black; padding: 2px;"> <p>X</p> </div> <div style="border: 1px solid black; padding: 2px;"> <p>Date:</p> </div> </div>	
4. Location of Wetland and	Location description should include the road the wetland is located on, the compass direction of the wetland in relation to the road, 911 street address if	

4. Location of Wetland and Project	<p>Location description should include the road the wetland is located on, the compass direction of the wetland in relation to the road, 911 street address if available, and any other distinguishing geographic features.</p> <p>The Project is located on the east side of the Beartown Trail at the Ethan Allen Firing Range in Underhill, VT. Center of wetland coordinates are: UTM N 728226 E1539887.</p>		
5. Site Visit Date and Attendees	Date of visit with District Wetlands Ecologist	List people present for site visits including Ecologist, landowner, and representatives.	
	09-28-15	Tina Heath, Jeffrey Severson, Mike O'Hara, Clarke Elliot	
6. Wetland Classification	<p>The wetland is a Class II wetland because (Choose one):</p> <p>The wetland meets the presumption of significance</p>		
7. Description of Entire Wetland or Wetland Complex	<p>Answer the following questions regarding the entire wetland or wetland complex. A wetland complex is generally defined as two or more wetland types that are contiguous and interrelated. Specific questions about the wetland in the project area will follow.</p>		
7.1. Size of Wetland Complex in Acres	<p>Can be obtained from the Environmental Interest Locator Map for mapped wetlands</p> <p>±1.4 acres</p>		
7.2. Natural Community Types Present	<p>List all wetland types in the wetland or wetland complex and their abundance or relative abundance. For example: 50 acres of softwood forested swamp; or 30% scrub swamp, 70% emergent wetland</p> <p>60 percent shrub swamp, 30 percent emergent wetland, 10 percent hardwood forested swamp</p>		
7.3. Landscape Position	<p>Where is the wetland located on the landscape? Examples: bottom of a basin, edge of a stream, shore of a lake, etc.</p> <p>The main body of the wetland is located in a low area between a hillside, a small hill, and bedrock ledge, as shown on Sheet B: C1.2W.</p>		
7.4. Wetland Hydrology	<p>Describe the main source of wetland hydrology for the wetland complex. List any river, streams, lakes and ponds.</p> <p>The wetland complex is located in a topographical low area with a restricted outlet that receives surface runoff from adjacent upland areas. The wetland has a shallow water table and potentially receives groundwater discharge.</p> <p>Include answers to the following where appropriate:</p>		
7.4.1. Direction of flow	<p>For example: stream flows from north to south through the wetland complex. There is no obvious surface water channel within the wetland. Based on topography, surface water and shallow groundwater move southwesterly through the wetland.</p>		
7.4.2. Influence of hydrology on wetland complex	<p>For example: The river provides flood water to the wetland in the spring.</p> <p>Wetland soils remain saturated in much of the wetland for extended periods of time, due to its relatively flat topography, restricted outlet, and the potential influence of groundwater discharge</p>		
7.4.3. Relation to the project area	<p>Distance between the project area and any nearby surface waters.</p> <p>At its closest point, the project area is located approximately 540 south of an unnamed tributary to the Brown's River, and approximately 820 feet east of an unnamed pond.</p>		
7.4.4. Hydroperiod	<p>Discuss frequency and duration of flooding, ponding, and/or soil saturation.</p> <p>The main body of the wetland is relatively flat and soils appear to be saturated for prolonged periods.</p>		

7.5. Surrounding Landuse of the Wetland Complex	<p>For example: rural residential and forested; agricultural and undeveloped,</p> <p>The surrounding area is mostly forested, however, an area directly adjacent to the wetland is currently used as a bivouac site by the VTARNG. An existing, rough road, used by VTARNG vehicles, currently runs along the northerly side of the main body of the wetland. The Beartown Trail, an improved road on the Ethan Allen Firing Range property, is located at the western tip of the wetland.</p>	
7.6. Relation to Other Nearby Wetlands	<p>Provide any information on wetlands or wetland complexes that are close enough to contribute to the overall function of the wetland in question.</p> <p>There do not appear to be any other wetlands or wetland complexes in the general vicinity of the wetland in question.</p>	
7.7. Pre-project Cumulative Impacts to the Wetland	<p>Identify any cumulative ongoing impacts outside of the project that may influence the wetland. Examples include but are not limited to wetland encroachments off the subject property, land management in or surrounding the wetland, or development that influences hydrology or water quality.</p> <p>An existing road that is used by bivouac transport vehicles forms a loop that partially runs through a section of the wetland buffer zone. The road crosses the wetland (See Sheet B:C1.2W), and the unimproved wetland crossing is heavily rutted. In addition, the bed of the Beartown Trail road acts as a berm that restricts hydrolgical flow to the southwest.</p>	
8. Description of Subject Wetland	<p>Subject Wetland is defined as the area of wetland in the project area, 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 larger wetland or wetland complex that could be directly or indirectly impacted by the project, as defined by hydrology, vegetation and/or physical characteristics.</p>	
8.1. Context of Subject Wetland	<p>Describe where the subject wetland is in the context of the larger wetland or wetland complex described above.</p> <p>The subject wetland is located between the main body of the wetland near its western end, and a smaller lobe of the wetland to the north. The proposed road realignment will cross the wetland at its narrowest point between the main wetland and the northern lobe (See Sheet B:C1.2W),</p>	
8.2. Wetland Landuse	<p>For example: mowed lawn; old field; naturally vegetated. Describe any previous and ongoing disturbance in the subject wetland.</p> <p>This subject wetland consists of an old field area within the existing Beartown Bivouace site. The subject wetland most likely is subject to foot traffic and potential occasional vehicle traffic associated with VTARNG training activities.</p>	
8.3. Wetland Vegetation	<p>List dominant wetland community type and associated dominant plant species.</p> <p>The subject wetland is comprised of an unmaintained wet meadow that does not include a natural community. Characteristic herbaceous species include Onoclea sensibilis and Osmunda cinnamomea.</p>	
8.4. Wetland Soils	<p>Use USDA NRCS information where possible and use the ACOE Delineation Manual soil description</p> <p>Wetland soils are mapped as Au Gres fine sandy loams by the NRCS.</p>	
8.5. Wetland Hydrology	<p>Use descriptions from the ACOE Delineation Manual.</p> <p>Soil conditions within the subject wetland range from permanent to prolonged saturation during the growing season.</p>	

8.6. Buffer Zone	Describe the buffer zone of the subject wetland including:	
8.6.1. General landuse	<p>For example: mowed road shoulder; forested; old field; paved road and residential lawns etc. Describe any previous and ongoing disturbance in the buffer zone.</p> <p>The buffer zone is characterized by old field and a young forest within the existing Beartown Bivouace site. The buffer zone of the subject wetland includes an existing road used by vehicles and activities associated with VTARNG training activities.</p>	
8.6.2. Buffer vegetation	<p>List community type and dominant plant species</p> <p>The young forest in the buffer zone forest is characterized by species such as Pinus strobus, Fagus grandifolia, Betula papyrifera, Betula alleghaniensis, and Acer rubrum.</p>	
8.6.3. Buffer soils	<p>Use USDA NRCS information where possible, and the ACOE Delineation Manual soil description</p> <p>Buffer zone soils are mapped as Stetson gravelly fine sandy loams by the NRCS.</p>	

<b>9. Wetland Determination</b>	If the application involves a wetland determination please answer the following. <b>If not, skip to Section 10.</b>	
9.1. Reason for Petition	<p>Please choose one from the dropdown menu:</p> <p>Add a Section 4.6 presumed wetland to the VSWI map</p>	
9.2. Previous Decisions	Please list all determinations and decisions, if any, issued by the Secretary, Panel or former Water Resources Board, pertaining to the wetland or buffer at issue:	
9.3. Narrative	Please provide any narrative to support the petition for a wetland determination here. This section is not required for petitions to add a Section 4.6 presumed wetland to the VSWI map, but is required for all other petitions.	

**If the application is only for a Wetland Determination only, skip to Section 13**

10. Project Description		
10.1. Overall Project	<p>Description of the project. For example: six-lot residential subdivision; expansion of an existing commercial building, access drive to a single family residence.</p> <p>The overall project consists of improvements to the existing Beartown Bivouac site, including the upgrade of an existing road to improve access and safety, and the construction of a pedestrian path and tent pad.</p>	
10.2. Project Purpose	<p>For example: To construct a residential subdivision, upgrade existing road to improve access, extend a trail system</p> <p>The project purpose consists of the upgrade of an existing road to improve access and safety for VTARNG training and bivouac activities.</p>	
10.3. Acres Owned by Applicant	<p>Acreage of subject property.</p> <p>The subject property is ±11,219 acres.</p>	
10.4. Acres Involved in the Project	<p>Acreage of area involved in the project.</p> <p>The project area is ±1.4 acres.</p>	

<p>11. Project Details</p>	<p>Provide details regarding specific impacts to the wetland and buffer zone</p>	
<p>11.1. Specific Impacts to Wetland and Buffer Zone</p>	<p>List portions of the project that will specifically impact the wetland or buffer zone. A ±655-foot section of an existing road will be improved or re-routed, as shown on the Wetlands Plan (Sheet B C1.2W).</p>	
<p>11.2. Dimension Details</p>	<p>Square footage of buildings, dimension of roads including fill footprint. The road footprint will vary from 15-18 feet wide, and will have a 12-foot wide driving surface. The road will have either one or two 3-foot wide road shoulders with 2:1 side slopes, depending on the location and topography.</p>	
<p>11.3. Bridges and Culverts</p>	<p>Culvert circumference, length, placement and shapes, or bridge details. A ±18-foot section of a 18-inch diameter HDPE culvert will be installed at the wetland crossing, as shown on located in the buffer zone, as shown on the Proposed Conditions Plan (Sheet B C1.2). The culvert inverts will be matched to the existing grade.</p>	
<p>11.4. Construction Sequence</p>	<p>Describe any details pertaining to the worked planned in the wetland and buffer in terms of sequence or phasing that is relevant Prior to construction, construction fencing and silt fencing will be installed through the wetland and buffer areas, in the locations shown on the Wetland Plan (Sheet B C1.2W). Construction fencing will be utilized to define the work areas for the project per the Construction Fence Detail included on the Erosion Control Notes and Details (Sheet C2.1W). Silt fencing will be installed to prevent the movement of sediments into adjacent sections of the wetland and buffer zone, per the Silt Fence and Silt Fence Constuction Detaisl included on the Erosion Control Notes and Details (Sheet C2.1W).</p> <p>Road improvements and construction will be per the details on Sheet C2.0W through the wetland/buffer area. The road construction sequence within the wetland will consist of installing separation/stabilization geogextile fabric atop the existing ground surface, placing 12 inches of type I stone fill for the road base, and capping this with 6 inches of crushed gravel.</p> <p>Any exposed soils will be covered with topsoil as needed, seeded with a conservation mix, and mulched with straw. Seeding and mulching of all disturbed areas will be completed per the specifications onsheet C2.0W.</p>	
<p>11.5. Stormwater Design</p>	<p>List any stormwater permits obtained or applied for. Describe any stormwater and/or erosion controls proposed to prevent discharges to the wetland and buffer zone. A state stormwater permit is not required for this project.</p> <p>Erosion control measures are described on the shown on the Erosion Control Notes and Details (Sheet C2.1W) and Erosion Control Details (Sheet 2.2W). Prior to construction, silt fencing, construction fencing, and erosion control matting will be installed in the locations shown on the Wetland Plan (Sheet B C1.2W). The contractor is to implement erosion control practices in strict conformity with the latest revision of the "Low Risk Site Handbook for Erosion Prevention and Sediment Control" published by the VT DEC.</p>	
<p>11.6. Permanent Demarcation of Limits of Impact</p>	<p>Describe any plantings, fencing, signage, or other memorialization that provides permanent on-the-ground boundaries for the limits of disturbance for ongoing uses. No permanent memorialization is proposed to mark the limits of disturbance for ongoing uses. The road will be used by vehicles and the road footprint will permanently define the limits of disturbance for on-going uses.</p>	

<p>12. Wetland and Buffer Zone Impacts</p>								
<p>12.1. Wetland Impacts</p>	<p>Summarize the square footage of impact in the appropriate category. If more than one wetland is impacted, provide that information and use the supplemental wetland sheets.</p> <p><b>Totals</b></p> <table border="1" data-bbox="561 411 1383 508"> <tr> <td>Wetland Fill</td> <td>665 s.f.</td> </tr> <tr> <td>Temporary Wetland Impact</td> <td>0 s.f.</td> </tr> <tr> <td>Other Permanent Wetland Impact</td> <td>0 s.f.</td> </tr> </table> <p>Describe in detail the proposed impact.</p> <p>Stone and gravel road sections totalling ±665 SF will be constructed in the wetland, at the wetland crossing, and within a small narrow strip of the road shoulder, as shown on the Wetland Plan.</p>	Wetland Fill	665 s.f.	Temporary Wetland Impact	0 s.f.	Other Permanent Wetland Impact	0 s.f.	
Wetland Fill	665 s.f.							
Temporary Wetland Impact	0 s.f.							
Other Permanent Wetland Impact	0 s.f.							
<p>12.2. Buffer Zone Impacts</p>	<p>Summarize the square footage of impact in the appropriate category. If more than one wetland is impacted, provide that information and use the supplemental wetland sheets.</p> <p><b>Totals</b></p> <table border="1" data-bbox="561 898 1383 961"> <tr> <td>Temporary Buffer Impact</td> <td>0 s.f.</td> </tr> <tr> <td>Permanent Buffer Impact</td> <td>10,725 s.f.</td> </tr> </table> <p>Describe in detail the proposed impact.</p> <p>Stone and gravel road sections totalling ±6,400 SF will be constructed in the buffer zone, to the northeast and southwest of the wetland crossing, as shown on the Wetland Plan.</p>	Temporary Buffer Impact	0 s.f.	Permanent Buffer Impact	10,725 s.f.			
Temporary Buffer Impact	0 s.f.							
Permanent Buffer Impact	10,725 s.f.							
<p>12.3. Cumulative Impacts</p>	<p>List any potential cumulative or ongoing, direct and indirect impacts on the functions of the wetland that could result from the proposed project.</p> <p>The overall project site is an existing bivouac training area that is utilized by military vehicles and personnel for training exercises. The project will improve the current situation where military vehicles are driven along a section of the roadway through the wetland that has no road improvements. The improved road will route all vehicular traffic along a defined road bed with a raised surface through the wetland and buffer zone, which will prevent eliminate erosion caused by vehicles. No other cumulative or ongoing, direct or indirect impacts on wetland functions are not anticipated.</p>							
<p>12.4. Avoidance and Minimization</p>	<p>Please refer to Section 9.5b of the rules on Mitigation Sequencing for this section.</p>							
<p>12.4.1. Avoidance</p>	<p>Can the proposed activity be practicably located outside the wetland/buffer zone, or on another site owned or controlled by the applicant or reasonably available to satisfy the basic project purpose? If not, indicate why. This answer should include any examination of alternatives that you have explored including using other properties, requesting easements, and altering the project design.</p> <p>There is no practicable route for the road that avoids the wetland entirely due to site topography limitations and the wetland location. The site is used as a bivouac site for military training exercises, and safety requirements dictate one way vehicular travel on this road section, which currently crosses the wetland. The southwestern-most road section will be re-aligned to cross the wetland at its narrowest location, as shown on the Wetlands Plan. The project has been designed to avoid all other wetland impacts apart from the ±665 SF areas shown on the Wetlands Plan (Sheet B C1.2W).</p>							

<p>12.4.2.      <b>Minimization</b></p>	<p>If the proposed activity cannot practicably be located outside the wetland/buffer zone, have all practicable measures have been taken to avoid adverse impacts on protected functions? Please include any information on on-site alternatives that have been examined; minimizing the size and scope of the project to avoid impacts; or relocating portions of the project to avoid impacts</p> <p>The project has been designed to avoid adverse impacts to protected wetland functions. Wetland and buffer zone impacts have been minimized to the greatest extent practicable. The existing road will be improved in its current location for much of its length. The wetland crossing, however, will be realigned from its current location where military vehicles currently drive along a rutted, unimproved road section through the wetland.</p> <p>The proposed wetland crossing, recommended by the District Wetland Ecologist, will realign the road to cross the wetland at its narrowest location. The road realignment will reduce the wetland crossing distance from ±125 linear feet to ±25 linear feet, and will reduce wetland impacts from ±2,015 SF to ±665 SF, as shown on the Wetlands Plan (Sheet B C1.2W).</p> <p>A ±375-foot section of the existing road will be improved in its current location within the wetland buffer, which will restrict additional buffer zone impacts to a relatively narrow strip along the northwestern side of the road .</p> <p>The road will be built to the minimum specifications necessary to accommodate one way traffic for military vehicles. The total road width will range from 15 feet to 18 feet, with a 12-foot wide driving surface, and one or two 3-foot wide shoulders, depending on location. The road bed will be elevated and constructed to provide a stabilized driving surface, which will eliminate the current rutting and erosion that characterizes the existing unimproved wetland crossing. Road cross sections are shown on the Site Details (Sheet C2.0W).</p> <p>A “rock sandwich” is proposed for the entire wetland crossing to maintain wetland hydrology. A cross section of the rock sandwich is shown in the Typical Section – Low Area/Wetland Crossing on the Site Details Plan (Sheet C2.0W). The rock sandwich will consist of a 12-inch thick layer of Type 1 Stone Fill, underlain and overlain with geotextile fabric. The 18-inch diameter culvert will provide an additional measure to preserve the integrity of the wetland’s hydrology.</p> <p>As noted on the Wetlands Plan, clearing requirements for the road corridor have been revised to avoid additional wetland impacts and to minimize buffer zone impacts. No trees will be removed as part of the project. Clearing will not be performed on the south side of the road adjacent to the wetland.</p> <p>Cleaing within the wetland buffer will be restricted to the road improvement area and a five-foot wide zone along the north side of the road, where woody vegetation three inches in diameter or less will be cleared and grubbed. The five-foot wide zone represents a conservative estimate of disturbance during road construction.</p>	
<p>12.4.3.      <b>Mitigation</b></p>	<p>If avoidance of adverse effects on protected functions cannot be practically achieved, has the proposed activity has been planned to minimize adverse impacts on the protected functions and a plan has been developed for the prompt restoration of any adverse impacts on protected functions? Include any information on best management practices to be used for the project both for the initial construction and ongoing use. Also include any proposed restoration of temporary impacts, previously disturbed wetland or buffer zones or proposed conservation that are being used to offset the proposed impacts.</p>	



	<p>The project has been designed to avoid adverse impacts on protected wetland functions.</p> <p>Best management practices and restoration measures include the following:</p> <ul style="list-style-type: none"> <li>• Prior to construction, construction fencing is to be installed in the locations shown on the Wetland Plan to define the work area and maximum limits of disturbance in the wetland and buffer zone.</li> <li>• Silt fencing is to be installed where necessary in the locations shown on the Wetlands Plan, per the details included on the Erosion Control Notes and Details (Sheet C2.1W).</li> <li>• The contractor is to refer to the latest edition of the Low Risk Site Handbook for Erosion Prevention and Sediment Control, published by VT DEC.</li> <li>• Equipment required to improve and construct the road is to operate within the corridor defined by construction fencing and silt fencing along the sides of the wetland crossing and along the wetland side of the existing road section within the buffer zone.</li> <li>• Exposed soils are to be topsoiled as necessary, seeded with a conservation mix, and mulched with straw.</li> </ul>	
<p>12.4.4. Compensation</p>	<p>Please refer to Section 9.5c of the rules for compensation, which is appropriate when the project will result in an undue adverse impact. If compensation is proposed please include a summary here.</p> <p>Compensation is not proposed for this project under the Vermont Wetland Rules, as the project will not result in an undue adverse impact to significant wetland functions and values.</p>	
<p>13. Supporting materials</p>	<p>Where appropriate list the accompanying material by title, author, date and last revision date. Submit these documents and plans with the application.</p>	
<p>13.1. Location map</p>	<p>Provide a project location map that is 8 ½" x 11" and reproducible in black and white. An Environmental Interest Locator Map is appropriate using the USGS topography map base layer, roads, and VSWI wetlands at minimum.</p> <p>See attached map</p>	
<p>13.2. Site Plans</p>	<p>List by title, author, date and last revision date. Plans should include wetland delineation and buffer zones, limits of disturbance, erosion controls, building envelopes and permanent memorialization.</p> <p>The following plans, developed Civil Engineering Associates, Inc., are included with the Vermont Wetland Permit application:</p> <ul style="list-style-type: none"> <li>• Project Location Plan (Sheet B L-1); date and last revision: 1/15/16</li> <li>• Wetlands Plan (Sheet B C1.2W); date: 1/15/16; last revision: 3/2/16</li> <li>• Site Details (Sheet C2.0W); date and last revision: 1/15/16</li> <li>• Erosion Control Notes and Details (Sheet C2,1W); date and last revision: 1/15/16</li> <li>• Erosion Control Details (Sheet C2.2W); date and last revision: 1/15/16</li> </ul>	
<p>13.3. ACOE Delineation Forms</p>	<p>List by author, location, and date. Required only for Individual Permits.</p> <p>Jeffrey Severson; transect location shown on Wetlands Plan; 10/16/15</p>	
<p>13.4. Other Supporting Documents</p>	<p>Provide any other documentation that supports the application. List photographs; easements; agreements; may include a GIS-compatible wetland submittal for determinations; etc.</p>	

<p>13.5. List of Abutters (Neighbors with land adjoining wetland or buffer zone)</p>	<p>Attach list of names and mailing addresses or submit as word mailing document.</p> <p>There are no abutters for this project.</p>																																					
<p>13.5.1. Newspaper Notification</p>	<p>If choosing the option to fulfill the notice requirement with a newspaper notice, list the newspaper to be used here. A list of names and addresses for immediately adjacent landowners (500 foot radius) of the project area is required for the List of Abutters. <b>***NOTE: The applicant will be billed directly by the newspaper you list here. Use of newspaper notification may extend the notice period, depending on when the notice posts in the newspaper.</b></p>																																					
<p>14. Check Which Functions are Present in the Subject Wetland and in the Wetland Complex.</p>	<p><b>Wetland Function Summary:</b> (if more than one wetland use supplemental wetland sheets)</p> <table border="1"> <thead> <tr> <th>Functions &amp; Values</th> <th>Subject Wetland</th> <th>Wetland Complex</th> <th>Functions &amp; Values</th> <th>Subject Wetland</th> <th>Wetland Complex</th> </tr> </thead> <tbody> <tr> <td>Flood/Storm Storage</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td>RTE Species</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Surface &amp; Groundwater Protection</td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td>Education &amp; Research</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Fish Habitat</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>Recreation/Economic</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Wildlife Habitat</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>Open Space/Aesthetics</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Exemplary Natural Community</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>Erosion Control</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </tbody> </table>	Functions & Values	Subject Wetland	Wetland Complex	Functions & Values	Subject Wetland	Wetland Complex	Flood/Storm Storage	<input type="checkbox"/>	<input checked="" type="checkbox"/>	RTE Species	<input type="checkbox"/>	<input type="checkbox"/>	Surface & Groundwater Protection	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Education & Research	<input type="checkbox"/>	<input type="checkbox"/>	Fish Habitat	<input type="checkbox"/>	<input type="checkbox"/>	Recreation/Economic	<input type="checkbox"/>	<input type="checkbox"/>	Wildlife Habitat	<input type="checkbox"/>	<input type="checkbox"/>	Open Space/Aesthetics	<input type="checkbox"/>	<input type="checkbox"/>	Exemplary Natural Community	<input type="checkbox"/>	<input type="checkbox"/>	Erosion Control	<input type="checkbox"/>	<input type="checkbox"/>	
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<p>15. Coverage under Vermont General Wetland Permit</p>	<p><b>If applying for an Individual Vermont Wetland Permit or Determination, please proceed to number 16 and answer the remaining application questions.</b></p> <p><b>If applying for Coverage under the Vermont General Wetland Permit, please complete question 15.1 prior to submitting application.</b></p>																																					
<p>15.1. VWP Vermont General Permit eligibility checklist</p>	<p>If applying for coverage under the Vermont General Wetland Permit, please verify the following to complete the application:</p> <p><input type="checkbox"/> The activity qualifies as an eligible activity for coverage under the Vermont General Wetland Permit</p> <p><input type="checkbox"/> The proposed project will meet the conditions applicable to the proposed project in the Vermont Wetland General Permit</p> <p><input type="checkbox"/> The activity does not qualify as an Allowed Use under Section 6 of the Vermont Wetland Rules.</p> <p><input type="checkbox"/> The activity will not result in an undue adverse impact on protected wetland functions and values, nor does it need additional conditions to protect functions and values.</p> <p><input type="checkbox"/> All impacts have been avoided and minimized to the greatest extent possible.</p> <p><input type="checkbox"/> The wetland complex is not significant for Function 5.5 Exemplary Wetland Natural Community or 5.6 Rare, Threatened and Endangered Species Habitat.</p>																																					

	<input type="checkbox"/> The activity is not located in or adjacent to a vernal pool, fen, or bog. <input type="checkbox"/> The wetland is not at or above 2,500' in elevation (headwaters wetland). <input type="checkbox"/> The project is not located in a Class I wetland or associated buffer zone. <input type="checkbox"/> The activity is not an as-built project that constitutes a violation of the Vermont Wetland Rules.	
<p><b>Stop here if applying for Coverage under the Vermont General Wetland Permit</b></p>		

<p><b>Complete the following Functions and Values checklist if applying for an Individual Wetland Permit and/or a Wetland Determination</b></p>		
<p>Functions and Values</p>	<p>For each Function and Value, first evaluate the entire wetland or <b>wetland complex</b> and check all that apply. Secondly, evaluate how the wetland in the project area contributes to that function. Thirdly explain how the project will not result in adverse impacts to this function. Include any information on specific avoidance and minimization measures.</p> <p>If more than one wetland complex is involved, use the Supplemental Wetland Forms.</p>	
<p>16. Storage for Flood Water and Storm Runoff</p>	<p><input checked="" type="checkbox"/> Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Constricted outlet or no outlet and an unconstricted inlet.</li> <li><input checked="" type="checkbox"/> Physical space for floodwater expansion and dense, persistent, emergent vegetation or dense woody vegetation that slows down flood waters or stormwater runoff during peak flows and facilitates water removal by evaporation and transpiration.</li> <li><input type="checkbox"/> If a stream is present, its course is sinuous and there is sufficient woody vegetation to intercept surface flows in the portion of the wetland that floods.</li> <li><input type="checkbox"/> Physical evidence of seasonal flooding or ponding such as water stained leaves, water marks on trees, drift rows, debris deposits, or standing water.</li> <li><input type="checkbox"/> Hydrologic or hydraulic study indicates wetland attenuates flooding.</li> </ul> <p>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.</p> <p><input checked="" type="checkbox"/> Check box if any of the following conditions apply that may indicate the wetland provides this function at a <i>lower</i> level.</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> 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).</li> </ul>	

	<ul style="list-style-type: none"> <li><input type="checkbox"/> Wetland is contiguous to a major lake or pond that provides storage benefits independently of the wetland.</li> <li><input type="checkbox"/> Wetland's storage capacity is created primarily by recent beaver dams or other temporary structures.</li> <li><input checked="" type="checkbox"/> 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.</li> <li><input type="checkbox"/> Check box if any of the following conditions apply that may indicate the wetland provides this function at a <i>higher</i> level.             <ul style="list-style-type: none"> <li><input type="checkbox"/> History of downstream flood damage to public or private property.</li> <li><input type="checkbox"/> 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.                 <ul style="list-style-type: none"> <li><input type="checkbox"/> 1. Developed public or private property.</li> <li><input type="checkbox"/> 2. Stream banks susceptible to scouring and erosion.</li> <li><input type="checkbox"/> 3. Important habitat for aquatic life.</li> </ul> </li> <li><input type="checkbox"/> The wetland is large in size and naturally vegetated.</li> <li><input type="checkbox"/> Any of the following conditions present upstream of the wetland may indicate a large volume of runoff may reach the wetland.                 <ul style="list-style-type: none"> <li><input type="checkbox"/> 1. A large amount of impervious surface in urbanized areas.</li> <li><input type="checkbox"/> 2. Relatively impervious soils.</li> <li><input type="checkbox"/> 3. Steep slopes in the adjacent areas.</li> </ul> </li> </ul> </li> </ul>	
<p>16.1. Subject Wetland</p>	<p>Please explain how the subject wetland contributes to the function listed above</p> <p>The subject wetland comprises less one percent of the entire wetland, and does not contribute significantly to the wetland's storage capacity for flood water and storm runoff. Adjacent upland areas within the topographic basin where the wetland is located provide additional surface water storage capacity.</p>	
<p>16.2. Statement of no undue adverse impact</p>	<p>Please explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance and minimization measures relevant to this function.</p> <p>The project will impact less than one percent of the wetland, and will not significantly alter the storage capacity of the wetland for flood water and storm runoff. There is no practicable route for the road that would avoid the wetland entirely. Wetland impacts have been minimized by shifting the road route to a location where it crosses the wetland at its narrowest point. This project revision reduced wetland impacts from 2,015 SF to 665 SF.</p>	
<p>17. Surface and Ground Water Protection</p>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.             <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Constricted or no outlets.</li> </ul> </li> </ul>	

- Low water velocity through dense, persistent vegetation.
- Hydroperiod permanently flooded or saturated.
- Wetlands in depositional environments with persistent vegetation wider than 20 feet.
- Wetlands with persistent vegetation comprising a defined delta, island, bar or peninsula.
- Presence of seeps or springs.
- Wetland contains a high amount of microtopography that helps slow and filter surface water.
- Position in the landscape indicates the wetland is a headwaters area.
- Wetland is adjacent to surface waters.
- Wetland recharges a drinking water source.
- Water sampling indicates removal of pollutants or nutrients.
- Water sampling indicates retention of sediments or organic matter.
- Fine mineral soils and alkalinity not low.
- The wetland provides an obvious filter between surface water or ground water and land uses that may contribute point or nonpoint sources of sediments, toxic substances or nutrients to the wetland, such as: steep erodible slopes; row crops; dumps; areas of pesticide, herbicide or fertilizer application; feed lots; parking lots or heavily traveled road; and septic systems.

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

- Check 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.
- Check box if any of the following conditions apply that may indicate the wetland provides this function at a *higher* level.
  - The wetland is adjacent to a well head or source protection area, and provides ground water recharge.

	<ul style="list-style-type: none"> <li><input type="checkbox"/> The wetland provides flows to Class A surface waters.</li> <li><input type="checkbox"/> The wetland contributes to the protection or improvement of water quality of any impaired waters.</li> <li><input type="checkbox"/> The wetland is large in size and naturally vegetated.</li> </ul>	
<p>17.1. Subject Wetland</p>	<p>Please explain how the subject wetland contributes to the function listed above</p> <p>While the subject wetland comprises less one percent of the entire wetland, it is characterized by relatively flat topography, dense herbaceous vegetation. There is no evidence of significant erosion at the site, however, tire ruts from military vehicles were observed in the general vicinity of the subject wetland, and the subject wetland potentially provides a limited depositional environment for sediment.</p>	
<p>17.2. Statement of no undue adverse impact</p>	<p>Please explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance and minimization measures relevant to this function.</p> <p>The project will impact less than one percent of the wetland, and will not significantly reduce the overall capacity of the wetland to provide surface and ground water protection. The wetland is located in a topographic basin that lacks an outlet, and the relatively small project footprint within the wetland will not significantly alter the capacity of the wetland to retain sediments or other pollutants in surface water runoff.</p> <p>There is no practicable route for the road that would avoid the wetland entirely. The proposed road crossing has been located to minimize wetland impacts, and will eliminate the current pattern of use, where military vehicles cross the wetland via an unimproved route. Wetland impacts have been further minimized by shifting the road route to a location where it crosses the wetland at its narrowest point. This project revision reduced wetland impacts from 2,015 SF to 665 SF.</p>	
<p>18. Fish Habitat</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.             <ul style="list-style-type: none"> <li><input type="checkbox"/> 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.</li> <li><input type="checkbox"/> 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.</li> <li><input type="checkbox"/> Documented or professionally judged spawning habitat for northern pike.</li> <li><input type="checkbox"/> Provides cold spring discharge that lowers the temperature of receiving waters and creates summer habitat for salmonoid species.</li> <li><input type="checkbox"/> 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</li> </ul> </li> </ul>	

	<p>by providing cooler water, and food sources.</p>	
<p>18.1. Subject Wetland</p>	<p>Please explain how the subject wetland contributes to the function listed above                  The subject wetland does not provide fish habitat.</p>	
<p>18.2. Statement of no undue adverse impact</p>	<p>Please explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance and minimization measures relevant to this function.                  The entire wetland does not include a stream, river or waterbody that could potentially provide fish habitat</p>	
<p>19. Wildlife Habitat</p>	<p><input type="checkbox"/> Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> 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.</li> <li><input type="checkbox"/> 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.</li> <li><input type="checkbox"/> 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.</li> <li><input type="checkbox"/> 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.</li> <li><input type="checkbox"/> 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.</li> <li><input type="checkbox"/> 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.</li> <li><input type="checkbox"/> 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.</li> <li><input type="checkbox"/> Supports an active beaver dam, one or more lodges, or evidence of use in two or more consecutive years by an</li> </ul>	

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.
- 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;
  - 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;
  - 6. One of the following:
    - i. hydrologically connected to other wetlands of different dominant classes or open water



	<p>within 1 mile;</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> ii. hydrologically connected to other wetlands of same dominant class within 1/2 mile;</li> <li><input type="checkbox"/> iii. within 1/4 mile of other wetlands of different dominant classes or open water, but not hydrologically connected;</li> </ul> <ul style="list-style-type: none"> <li><input type="checkbox"/> Wetland or wetland complex is owned in whole or in part by state or federal government and managed for wildlife and habitat conservation; and</li> <li><input type="checkbox"/> Contains evidence that it is used by wetland dependent wildlife species.</li> </ul> <p>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.</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Check box if any of the following conditions apply that may indicate the wetland provides this function at a <i>lower</i> level.             <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> 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).</li> <li><input type="checkbox"/> 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.</li> <li><input type="checkbox"/> The current use in the wetland results in frequent cutting, mowing or other disturbance.</li> <li><input type="checkbox"/> The wetland hydrology and character is at a drier end of the scale and does not support wetland dependent species.</li> </ul> </li> <li><input type="checkbox"/> Check box if any of the following conditions apply that may indicate the wetland provides this function at a <i>higher</i> level.             <ul style="list-style-type: none"> <li><input type="checkbox"/> The wetland complex is large in size and high in quality.</li> <li><input type="checkbox"/> The habitat has the potential to support several species based on the assessment above.</li> <li><input type="checkbox"/> Wetland is associated with an important wildlife corridor.</li> <li><input type="checkbox"/> The wetland has been identified as a locally important wildlife habitat by an ANR Wildlife Biologist.</li> </ul> </li> </ul>	
<p>19.1. Subject Wetland</p>	<p>Please explain how the subject wetland contributes to the function listed above</p> <p>The subject wetland comprises less one percent of the entire wetland and does not contribute significantly to this function.</p>	
<p>19.2. Statement of no undue adverse impact</p>	<p>Please explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance and minimization measures relevant to this function.</p> <p>The wetland is not characterized by features indicative of significant wildlife habitat. There is no practicable route for the road that would avoid the</p>	

wetland entirely. The proposed road crossing has been located to minimize wetland impacts, and will eliminate the current pattern of use, where military vehicles cross the wetland via an unimproved route. Wetland impacts have been further minimized by shifting the road route to a location where it crosses the wetland at its narrowest point. This project revision reduced wetland impacts from 2,015 SF to 665 SF.

- Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.
- Wetlands that are identified as high quality examples of Vermont's natural community types recognized by the Natural Heritage Information Project of the Vermont Fish and Wildlife Department, including rare types such as dwarf shrub bogs, rich fens, alpine peatlands, red maple-black gum swamps and the more common types including deep bulrush marshes, cattail marshes, northern white cedar swamps, spruce-fir-tamarack swamps, and red maple-black ash seepage swamps are automatically significant for this function.
- The wetland is also likely to be significant if any of the following conditions are met:
- Is an example of a wetland natural community type that has been identified and mapped by, or meets the ranking and mapping standards of, the Natural Heritage Information Project of the Vermont Fish and Wildlife Department.
- Contains ecological features that contribute to Vermont's natural heritage, including, but not limited to:
- Deep peat accumulation reflecting a long history of wetland formation;
  - Forested wetlands displaying very old trees and other old growth characteristics;
  - A wetland natural community that is at the edge of the normal range for that type;
  - A wetland mosaic containing examples of several to many wetland community types; or
  - A large wetland complex containing examples of several wetland community types.
- List species or communities of concern:

20. Exemplary Wetland Natural Community

20.1. Subject Wetland

20.2. Statement of no undue adverse impact

Please explain how the subject wetland contributes to the function listed above  
The subject wetland does not contribute significantly to this function.

Please explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance and minimization measures relevant to this function.  
The wetland is not characterized by an exemplary natural community. The existing road will be rerouted to cross a relatively small section of the wetland characterized by old field conditions.

<p>21. Rare, Threatened, and Endangered Species Habitat</p>	<p><input type="checkbox"/> Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.</p> <p><input type="checkbox"/> 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.</p> <p>The wetland is also likely to be significant if any of the following apply:</p> <p><input type="checkbox"/> There is credible documentation that the wetland provides important habitat for any species on the federal or state threatened or endangered species lists;</p> <p><input type="checkbox"/> There is credible documentation that threatened or endangered species have been present in past 10 years;</p> <p><input type="checkbox"/> There is credible documentation that the wetland provides important habitat for any species listed as rare in Vermont (S1 or S2 ranks), state historic (SH rank), or rare to uncommon globally (G1, G2, or G3 ranks) by the Natural Heritage Information Project of the Vermont Fish and Wildlife Department;</p> <p><input type="checkbox"/> There is credible documentation that the wetland provides habitat for multiple uncommon species of plants or animals (S3 rank).</p> <p>List name of species and ranking:</p>	
<p>21.1. Subject Wetland</p>	<p>Please explain how the subject wetland contributes to the function listed above</p> <p>The subject wetland does not contribute significantly to this function.</p>	
<p>21.2. Statement of no adverse impact</p>	<p>Please explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance and minimization measures relevant to this function.</p> <p>There are no records of any rare, threatened and endangered species in the vicinity of the wetland. The nearest RT&amp;E record is from a forested upland hill, approximately 0.5 miles from the wetland.</p>	
<p>22. Education and Research in Natural Sciences</p>	<p><input type="checkbox"/> Function is present and likely to be significant: Any of the following characteristics indicate the wetland provides this function.</p> <p><input type="checkbox"/> Owned by or leased to a public entity dedicated to education or research.</p> <p><input type="checkbox"/> History of use for education or research.</p> <p><input type="checkbox"/> Has one or more characteristics making it valuable for education or research.</p>	
<p>22.1. Subject Wetland</p>	<p>Please explain how the subject wetland contributes to the function listed above</p> <p>The subject wetland does not contribute significantly to this function.</p>	
<p>22.2. Statement of no undue adverse impact</p>	<p>Please explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance and minimization measures relevant to this function.</p>	

	<p>The project will improve and reroute an existing roadway section located in a military training area of the Ethan Allen Firing Range that had no public access. The wetland is not used for education or research.</p>	
<p>23. Recreational Value and Economic Benefits</p>	<p><input type="checkbox"/> Function is present and likely to be significant: Any of the following characteristics indicate the wetland provides this function.</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Used for, or contributes to, recreational activities.</li> <li><input type="checkbox"/> Provides economic benefits.</li> <li><input type="checkbox"/> Provides important habitat for fish or wildlife which can be fished, hunted or trapped under applicable state law.</li> <li><input type="checkbox"/> Used for harvesting of wild foods.</li> </ul> <p>Comments:</p>	
<p>23.1. Subject Wetland</p>	<p>Please explain how the subject wetland contributes to the function listed above</p> <p>The subject wetland does not contribute significantly to this function.</p>	
<p>23.2. Statement of no undue adverse impact</p>	<p>Please explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance and minimization measures relevant to this function.</p> <p>The project will improve and reroute an existing roadway section located in a military training area of the Ethan Allen Firing Range that had no public access. Recreational use is prohibited.</p>	
<p>24. Open Space and Aesthetics</p>	<p><input type="checkbox"/> Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Can be readily observed by the public; and             <ul style="list-style-type: none"> <li><input type="checkbox"/> Possesses special or unique aesthetic qualities; or</li> <li><input type="checkbox"/> Has prominence as a distinct feature in the surrounding landscape;</li> </ul> </li> <li><input type="checkbox"/> Has been identified as important open space in a municipal, regional or state plan.</li> </ul> <p>Comments:</p>	
<p>24.1. Subject Wetland</p>	<p>Please explain how the subject wetland contributes to the function listed above</p> <p>The subject wetland does not contribute significantly to this function.</p>	
<p>24.2. Statement of no undue adverse impact</p>	<p>Please explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance and minimization measures relevant to this function.</p> <p>The project will improve and reroute an existing roadway section located in a military training area of the Ethan Allen Firing Range that had no public access. The wetland cannot readily be observed by the public.</p>	
<p>25. Erosion Control through</p>	<p><input type="checkbox"/> Function is present and likely to be significant: Any of the</p>	

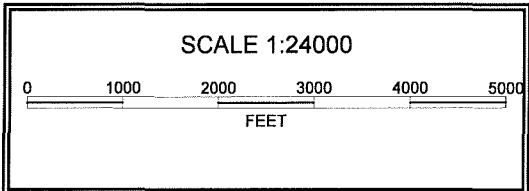
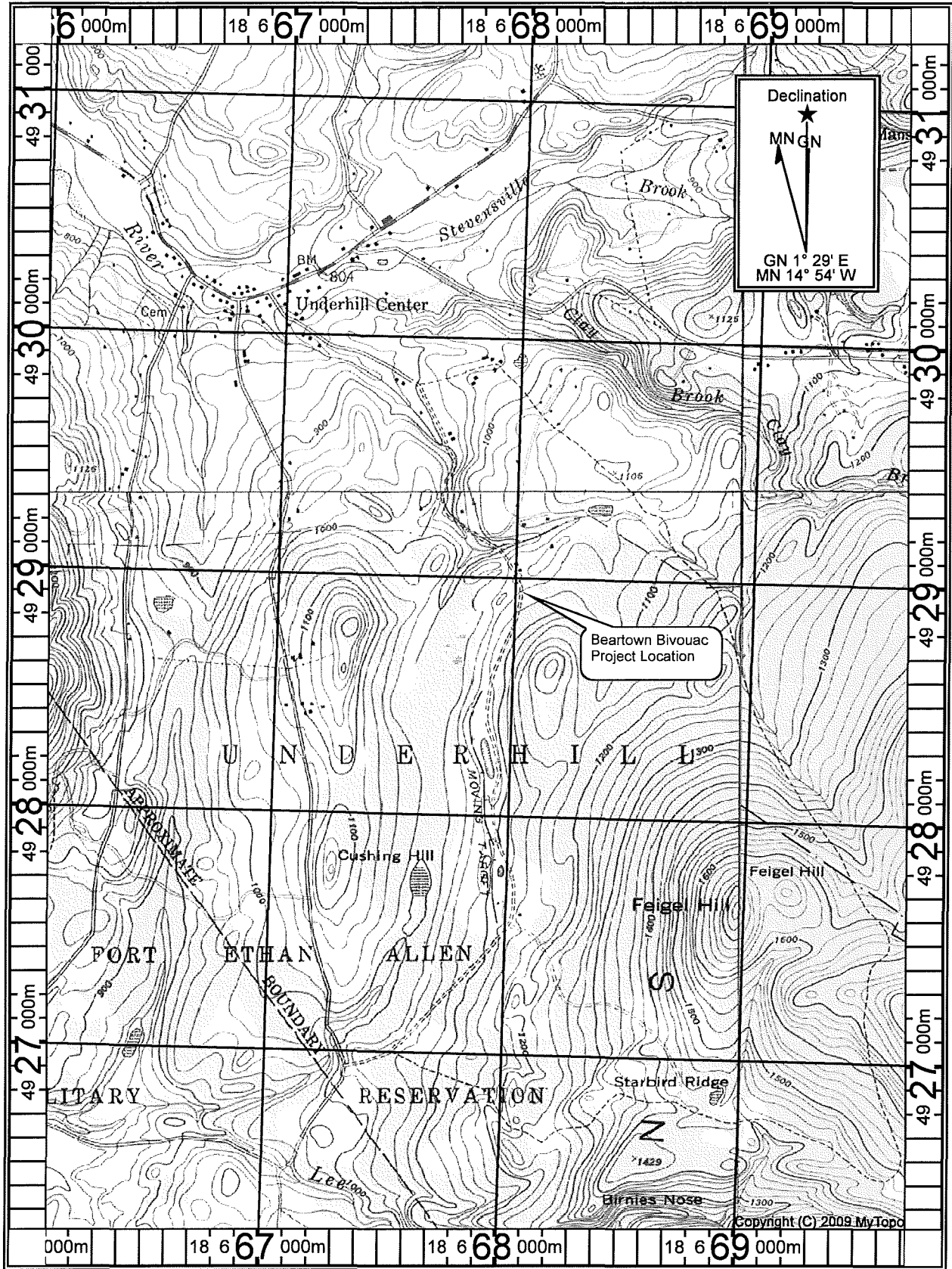
<p><b>Binding and Stabilizing the Soil</b></p>	<p>following physical and vegetative characteristics indicate the wetland provides this function.</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Erosive forces such as wave or current energy are present and any of the following are present as well:             <ul style="list-style-type: none"> <li><input type="checkbox"/> Dense, persistent vegetation along a shoreline or stream bank that reduces an adjacent erosive force.</li> <li><input type="checkbox"/> Good interspersion of persistent emergent vegetation and water along course of water flow.</li> <li><input type="checkbox"/> Studies show that wetlands of similar size, vegetation type, and hydrology are important for erosion control.</li> </ul> </li> </ul> <p>What type of erosive forces are present:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Lake fetch and waves</li> <li><input type="checkbox"/> High current velocities:</li> <li><input type="checkbox"/> Water level influenced by upstream impoundment</li> </ul> <p>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.</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Check box if any of the following conditions apply that may indicate the wetland provides this function at a <i>lower</i> level.             <ul style="list-style-type: none"> <li><input type="checkbox"/> The stream is artificially channelized and/or lacks vegetation that contributes to controlling the erosive force.</li> </ul> </li> <li><input type="checkbox"/> Check box if any of the following conditions apply that may indicate the wetland provides this function at a <i>higher</i> level.             <ul style="list-style-type: none"> <li><input type="checkbox"/> The stream contains high sinuosity.</li> <li><input type="checkbox"/> Has been identified through fluvial geomorphic assessment to be important in maintaining the natural condition of the stream or river corridor.</li> </ul> </li> </ul>	
<p>25.1. Subject Wetland</p>	<p>Please explain how the subject wetland contributes to the function listed above</p> <p>The 665-SF subject wetland comprises less one percent of the entire wetland and does not contribute significantly to this function.</p>	
<p>25.2. Statement of no undue adverse impact</p>	<p>Please explain how the proposed project will not result in any undue adverse impact to this function. Include any avoidance and minimization measures relevant to this function.</p> <p>There is no visible evidence of erosional forces within the entire wetland. The relatively small amount of wetland impacts will not alter the capacity of the entire wetland to control erosion by binding and stabilizing the soil.</p>	

**All Applications Should be Mailed To:**

**Vermont Wetlands Program  
 Watershed Management Division  
 One National Life Drive, Main 2  
 Montpelier, VT 05620-3522**

**Staff To Complete**

<b>Wetland Project Number:</b>			
<b>Wetland Project Name:</b>		<b>DEC ID#:</b>	
<b>Date Application Received:</b>			
<b>Request for Information Date:</b>		<b>Information Received Date:</b>	
<b>Request for Information Date:</b>		<b>Information Received Date:</b>	
<b>Date Application Complete:</b>		<b>Distribution Complete Date:</b>	
<b>Notice Begin Date:</b>		<b>Notice End Date:</b>	
<b>Final Action Date:</b>		<b>Public Meeting Date:</b>	
<b>Check#</b>	<b>Check Amount</b>	<b>Date Check Received</b>	
<b>Check#</b>	<b>Check Amount</b>	<b>Date Check Received</b>	



Beartown Bivouac Project  
 Location Map  
 Ethan Allen Firing Range  
 Underhill, VT

**WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region**

Project/Site: Beartown Bivouac / Ethan Allen Firing Range City/County: Underhill / Chittenden Sampling Date: 10/15/15  
 Applicant/Owner: Vermont Army National Guard State: VT Sampling Point: T1-WET  
 Investigator(s): Jeffrey Severson, Oakledge Env. Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): toe of slope Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR or MLRA): \_\_\_\_\_ Lat: N4928914 Long: E 180668058 Datum: NAD 1927  
 Soil Map Unit Name: Augres fine sandy loams NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.)   	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1) _____ Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) _____ Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) _____ Marl Deposits (B15) _____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
<b>Field Observations:</b> Surface Water Present? * Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>0" bgs</u> Water Table Present? * Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>0" bgs</u> Saturation Present? * Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>0" bgs</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  	
Remarks: <u>* Soil was unsaturated on 10/15/15, with depth to saturation and water table greater than 18" bgs. However, surface water was present for extended period earlier in the growing season, so wetland hydrology is presumed to be present.</u>	



**SOIL**

Sampling Point: T1-WET

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR 2/2	90	7.5YR 4/4	5	C	M	silt loam	moist, friable
			10YR 4/4	5	C	M		
4-12	10YR 3/2	40	10YR 2/2	35	C	M	silt loam	moist, firm
			7.5YR 4/4	15	C	M		
			10YR 4/2	10	D	M		
12-18+	10YR 4/2	60	7.5YR 4/4	20	C	M	silt loam	moist, firm
			10YR 2/2	10	C	M		
			10YR 4/4	10	C	M		

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: Dense layer  
 Depth (inches): 12" bgs

Hydric Soil Present? Yes  No

Remarks:

**WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region**

Project/Site: Beartown Bivouac/Ethan Allen Firing Range City/County: Underhill/Chittenden Sampling Date: 10/15/15  
 Applicant/Owner: Vermont Army National Guard State: VT Sampling Point: T1-UP  
 Investigator(s): Jeffrey Severson Oakledge Env. Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): Hill slope Local relief (concave, convex, none): Concave Slope (%): 30  
 Subregion (LRR or MLRA): \_\_\_\_\_ Lat: N 49 28 914 Long: E 1806 68 058 Datum: NAD1927  
 Soil Map Unit Name: Stetson gravelly fine sandy loams NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.)   	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1)                      ___ Water-Stained Leaves (B9) ___ High Water Table (A2)                ___ Aquatic Fauna (B13) ___ Saturation (A3)                            ___ Marl Deposits (B15) ___ Water Marks (B1)                        ___ Hydrogen Sulfide Odor (C1) ___ Sediment Deposits (B2)                ___ Oxidized Rhizospheres on Living Roots (C3) ___ Drift Deposits (B3)                      ___ Presence of Reduced Iron (C4) ___ Algal Mat or Crust (B4)                 ___ Recent Iron Reduction in Tilled Soils (C6) ___ Iron Deposits (B5)                        ___ Thin Muck Surface (C7) ___ Inundation Visible on Aerial Imagery (B7)    ___ Other (Explain in Remarks) ___ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
<b>Field Observations:</b> Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): <u>&gt;18" bgs</u> Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): <u>&gt;18" bgs</u> (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  	
Remarks:	

**SOIL**

Sampling Point: T1-0P

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2	5YR 3/3	100					silt loam	moist, friable
2-4	10YR 2/2	100					silt loam	moist, friable
4-7	7.5YR 3/2	100					silt loam	moist, firm
7-181	10YR 3/2	100					silt loam	moist, firm

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

**VEGETATION** – Use scientific names of plants.

Sampling Point: T1-Up

Tree Stratum (Plot size: <u>30-ft radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Acer saccharum</u>	<u>38</u>	<u>Y</u>	<u>FACU</u>
2. <u>Acer rubrum</u>	<u>38</u>	<u>Y</u>	<u>FAC</u>
3. <u>Betula populifolia</u>	<u>10.5</u>	<u>N</u>	<u>FAC</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
<u>86.5</u> = Total Cover			
Sapling/Shrub Stratum (Plot size: <u>15-ft. radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Quercus rubra</u>	<u>20.5</u>	<u>Y</u>	<u>FACU</u>
2. <u>Fagus grandifolia</u>	<u>20.5</u>	<u>Y</u>	<u>FACU</u>
3. <u>Carpinus caroliniana</u>	<u>10.5</u>	<u>Y</u>	<u>FAC</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
<u>51.5</u> = Total Cover			
Herb Stratum (Plot size: <u>5-ft. radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Osmunda claytoniana</u>	<u>38</u>	<u>Y</u>	<u>FAC</u>
2. <u>Athyrium filix-femina</u>	<u>10.5</u>	<u>N</u>	<u>FAC</u>
3. <u>Diphasiastrium complanatum</u>	<u>10.5</u>	<u>N</u>	<u>FACU</u>
4. <u>Parathelypteris noveboracensis</u>	<u>3</u>	<u>N</u>	<u>FAC</u>
5. <u>Lysimachia borealis</u>	<u>TR</u>	<u>N</u>	<u>FAC</u>
6. <u>Dendrolycopodium obscurum</u>	<u>TR</u>	<u>N</u>	<u>FACU</u>
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
<u>62</u> = Total Cover			
Woody Vine Stratum (Plot size: <u>30-ft. radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
<u>0</u> = Total Cover			

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>72.5</u>	x 3 = <u>217.50</u>
FACU species <u>127.5</u>	x 4 = <u>510.00</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>200</u> (A)	<u>727.50</u> (B)

Prevalence Index = B/A = 3.6

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
  - 2 - Dominance Test is >50%
  - 3 - Prevalence Index is ≤3.0<sup>1</sup>
  - 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
  - Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)
- <sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Definitions of Vegetation Strata:**

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

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

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

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

**Hydrophytic Vegetation Present?** Yes \_\_\_\_\_ No X

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

**VEGETATION** – Use scientific names of plants.

Sampling Point: TI-WET

Tree Stratum (Plot size: <u>30-ft radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

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

Sapling/Shrub Stratum (Plot size: <u>15-ft radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____

**Prevalence Index worksheet:**

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

Prevalence Index = B/A = \_\_\_\_\_

Herb Stratum (Plot size: <u>5-ft radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Osmunda claytoniana</u>	<u>38</u>	<u>Y</u>	<u>FAC</u>
2. <u>Parathelypteris noveboracensis</u>	<u>38</u>	<u>Y</u>	<u>FAC</u>
3. <u>Dryopteris intermedia</u>	<u>TR</u>	<u>N</u>	<u>FAC</u>
4. <u>Calystegia sepium</u>	<u>TR</u>	<u>N</u>	<u>FAC</u>
5. <u>Quercus rubra</u>	<u>TR</u>	<u>N</u>	<u>FACU</u>
6. <u>Viola sp.</u>	<u>TR</u>	<u>N</u>	<u>?</u>
7. <u>Carex sp.</u>	<u>TR</u>	<u>N</u>	<u>?</u>
8. <u>Populus grandidentata</u>	<u>TR</u>	<u>N</u>	<u>FACU</u>
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____

**Hydrophytic Vegetation Indicators:**

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤3.0<sup>1</sup>

4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

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

Woody Vine Stratum (Plot size: <u>30-ft radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____

**Definitions of Vegetation Strata:**

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

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

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

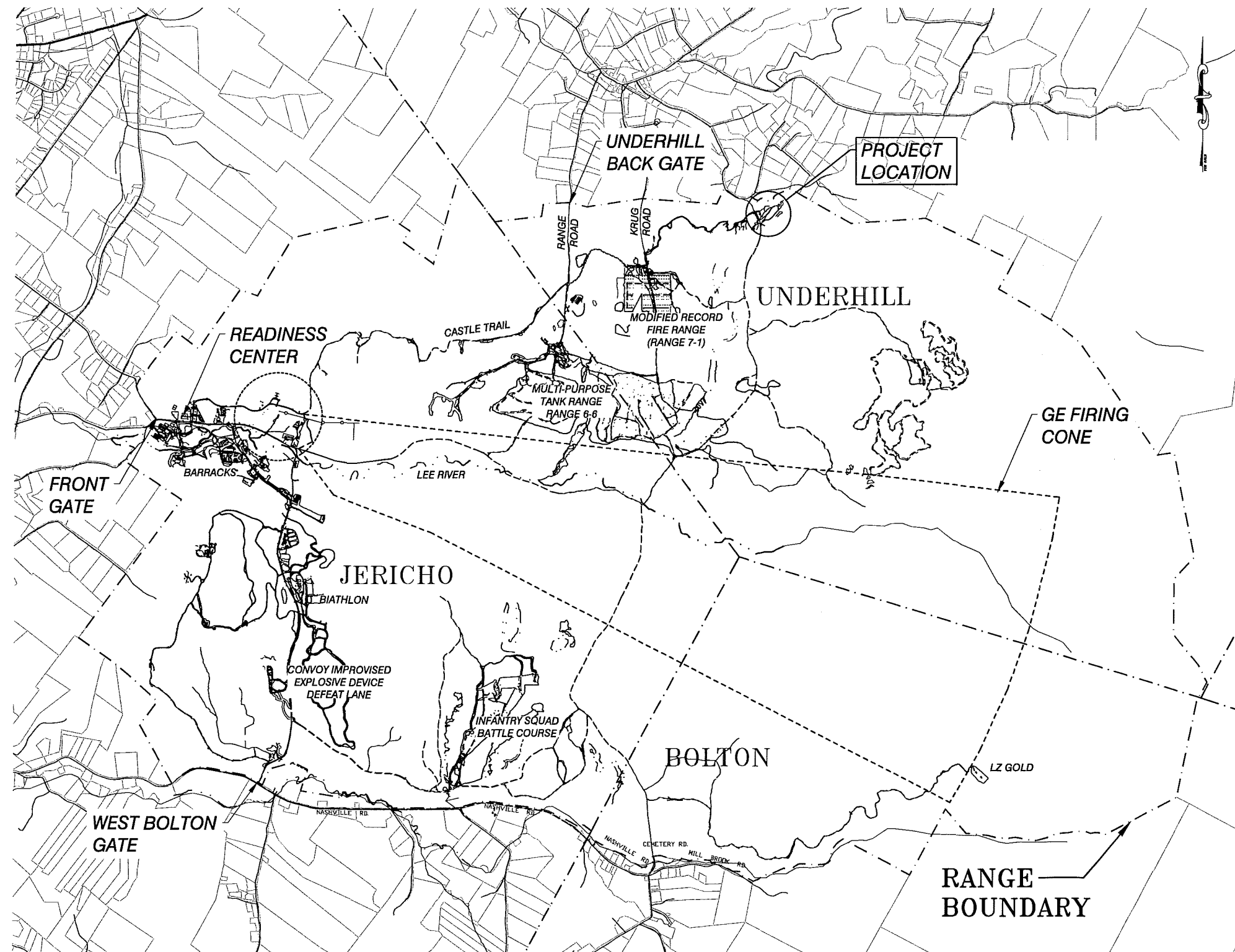
**Woody vines** – All woody vines greater than 3.28 ft in height.

**Hydrophytic Vegetation Present?** Yes  No

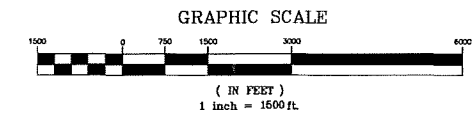
Remarks: (Include photo numbers here or on a separate sheet.)

**GENERAL NOTES:**

1. Underground utilities shown hereon are based on utility evidence visible at ground surface and are subject to field verification by excavation. Utilities shown do not purport to constitute or represent all utilities located upon or adjacent to the surveyed premises. All discrepancies shall be reported to the Engineer. The Contractor shall contact Dig Safe (888-344-7233) prior to any construction. In addition, the Contractor shall hire a private utility locating firm to locate Owner owned underground utilities prior to start of any excavation.
2. The Contractor shall be responsible for conforming to all OSHA (State/Federal) regulations including trenching and confined space requirements.
3. The Contractor shall submit shop drawings for all items and materials incorporated into the site work. Work shall not begin on any item until shop drawing approval is granted.
4. All existing utilities not incorporated into the final design shall be removed or abandoned as indicated on the plans or directed by the Engineer.
5. The Contractor shall maintain as-built plans (with ties) for all underground utilities. Those plans shall be submitted to the Owner at the completion of the project.
6. The Contractor shall repair/restore all disturbed areas (on or off the site) as a direct or indirect result of the construction.
7. All grassed areas shall be maintained until full vegetation is established.
8. Maintain all trees outside the construction limits.
9. The Contractor shall be responsible for all work necessary for complete and operable facilities and utilities.
10. In addition to the requirements set in these plans and specifications, the Contractor shall complete the work in accordance with all permit conditions.
11. The tolerance for finish grades for all gravel surfaces shall be 0.1 feet.
12. Any dewatering necessary for the completion of the sitework shall be considered as part of the contract and shall be the Contractor's responsibility.
13. Existing pavement to be removed shall be disposed of at an approved off-site location. Existing excavated material to be removed shall be disposed of at a designated on-site location. Contractor is responsible for stockpiling excavated material from trucks at the designated waste area.
14. If there are any conflicts or inconsistencies with the plans or specifications, the Contractor shall contact the Engineer for verification before work continues on the item in question.
15. Horizontal and vertical datum based on VCS NAD 83 and NAVD 88 respectively and are calculated based upon GPS observations performed on site during the time of survey.
16. Existing stone walls and foundations shall not be disturbed except as shown on the plans.
17. All construction personnel will be required to attend an orientation and ordnance identification session that the EOD unit will provide, prior to entering the project site. Subsequent new field employees are also required to attend the safety course. The ordnance session will cover identification of various ordnance which may be encountered and procedures for notification of EOD personnel.
18. The Contractor is responsible for obtaining testing and inspection services indicated in the Contract documents, typical for concrete and soil testing.
19. The Contractor is responsible for all layout and Field Engineering required for completion of the project. Civil Engineering Associates will provide an AutoCAD file where applicable.



**LOCATION PLAN**  
1" = 1500'



SITE ENGINEER:



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STATE OF VERMONT  
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NATIONAL  
GUARD  
CAMP JOHNSON  
COLCHESTER, VERMONT

PROJECT:

BEARTOWN  
BIVOUC  
IMPROVEMENTS

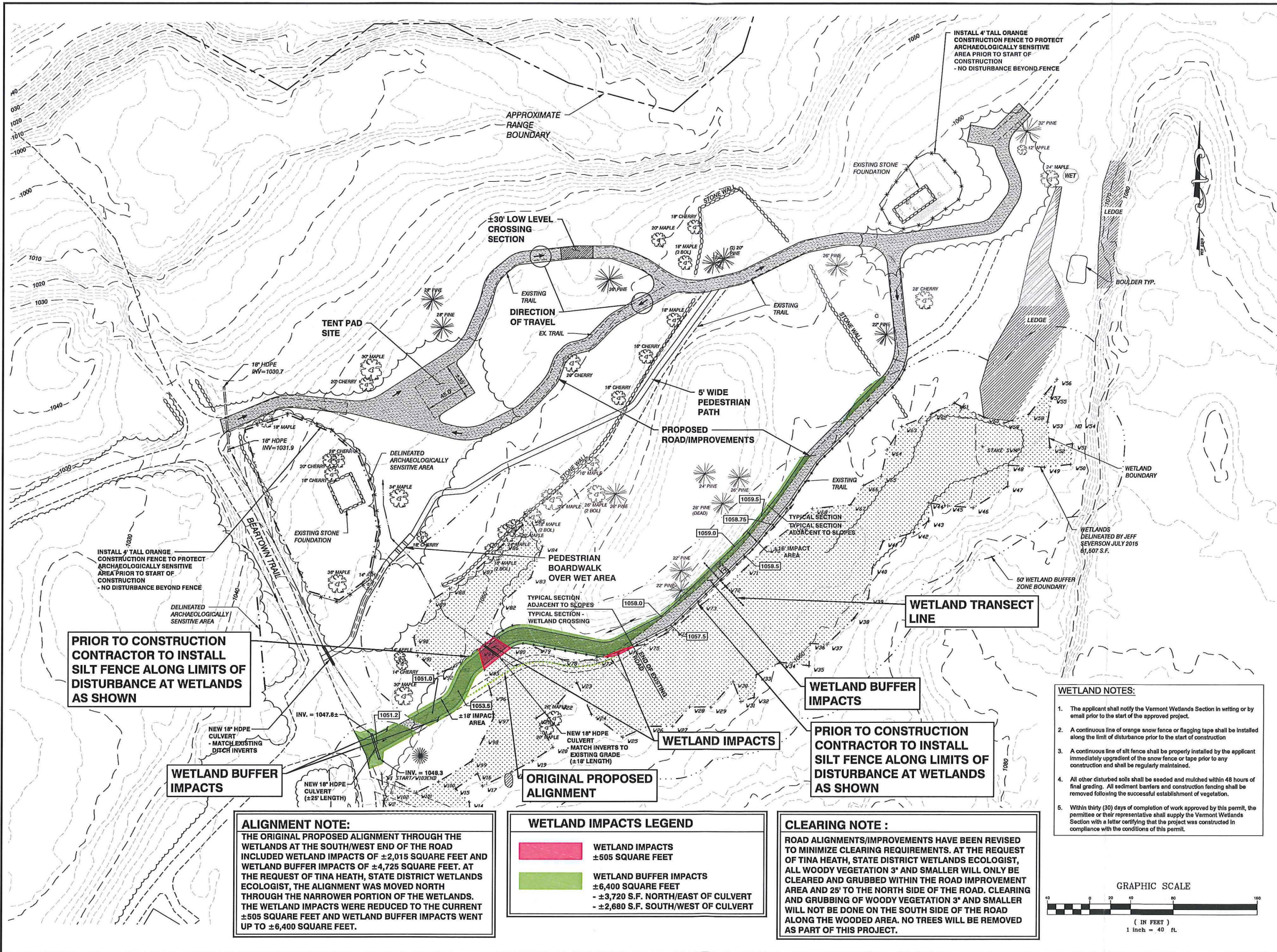
CAMP ETHAN ALLEN  
TRAINING SITE  
JERICHO, VT

DATE	CHECKED	REVISION
1/15/2016	BCE	WETLAND PERMIT PLANS

**PROJECT  
LOCATION PLAN**


DATE  
1/15/2016  
SCALE  
1" = 1500'  
PROJ. NO.  
14100.17

DRAWING NUMBER  
**B  
L-1**



SITE ENGINEER:  
  
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PROJECT:  
 BEARTOWN BIVOUC IMPROVEMENTS  
 CAMP ETHAN ALLEN TRAINING SITE  
 JERICHO, VT



DATE	CHECKED	REVISION
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WETLANDS PLAN

DATE: 1/15/2016  
 SCALE: 1" = 40'  
 PROJ. NO.: 14100.16  
 DRAWING NUMBER: B C1.2W

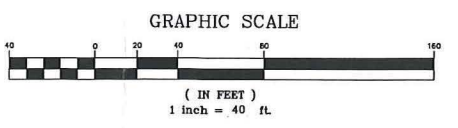
**ALIGNMENT NOTE:**  
 THE ORIGINAL PROPOSED ALIGNMENT THROUGH THE WETLANDS AT THE SOUTH/WEST END OF THE ROAD INCLUDED WETLAND IMPACTS OF ±2,015 SQUARE FEET AND WETLAND BUFFER IMPACTS OF ±4,725 SQUARE FEET. AT THE REQUEST OF TINA HEATH, STATE DISTRICT WETLANDS ECOLOGIST, THE ALIGNMENT WAS MOVED NORTH THROUGH THE NARROWER PORTION OF THE WETLANDS. THE WETLAND IMPACTS WERE REDUCED TO THE CURRENT ±505 SQUARE FEET AND WETLAND BUFFER IMPACTS WENT UP TO ±6,400 SQUARE FEET.

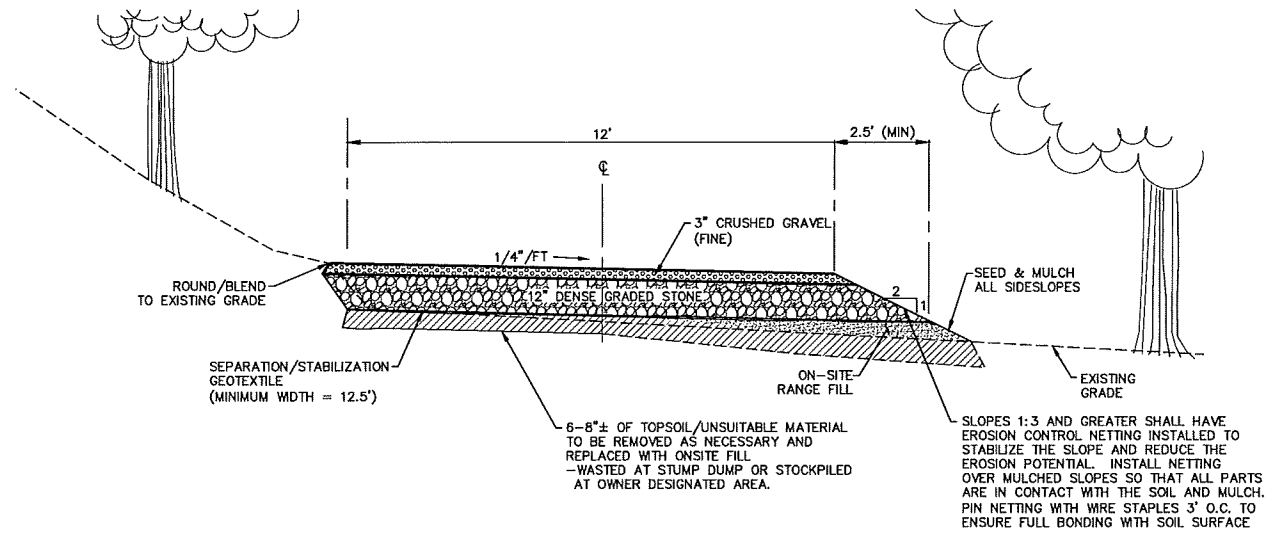
**WETLAND IMPACTS LEGEND**

	WETLAND IMPACTS ±505 SQUARE FEET
	WETLAND BUFFER IMPACTS ±6,400 SQUARE FEET - ±3,720 S.F. NORTH/EAST OF CULVERT - ±2,680 S.F. SOUTH/WEST OF CULVERT

**CLEARING NOTE:**  
 ROAD ALIGNMENTS/IMPROVEMENTS HAVE BEEN REVISED TO MINIMIZE CLEARING REQUIREMENTS. AT THE REQUEST OF TINA HEATH, STATE DISTRICT WETLANDS ECOLOGIST, ALL WOODY VEGETATION 3" AND SMALLER WILL ONLY BE CLEARED AND GRUBBED WITHIN THE ROAD IMPROVEMENT AREA AND 25' TO THE NORTH SIDE OF THE ROAD. CLEARING AND GRUBBING OF WOODY VEGETATION 3" AND SMALLER WILL NOT BE DONE ON THE SOUTH SIDE OF THE ROAD ALONG THE WOODED AREA. NO TREES WILL BE REMOVED AS PART OF THIS PROJECT.

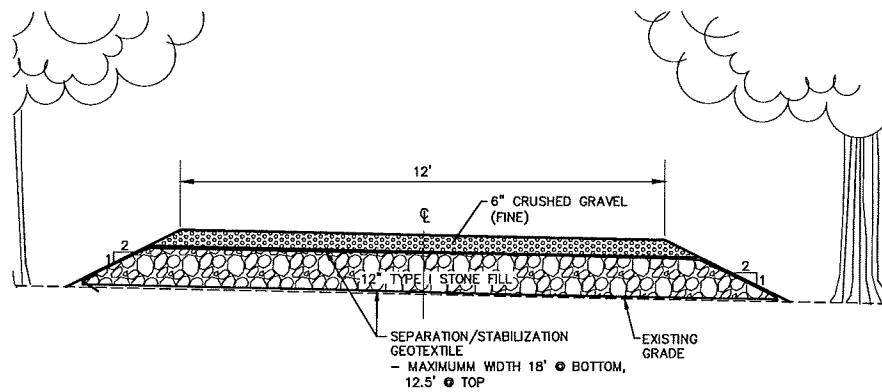
- WETLAND NOTES:**
- The applicant shall notify the Vermont Wetlands Section in writing or by email prior to the start of the approved project.
  - A continuous line of orange snow fence or flagging tape shall be installed along the limit of disturbance prior to the start of construction.
  - A continuous line of silt fence shall be properly installed by the applicant immediately upgradient of the snow fence or tape prior to any construction and shall be regularly maintained.
  - All other disturbed soils shall be seeded and mulched within 48 hours of final grading. All sediment barriers and construction fencing shall be removed following the successful establishment of vegetation.
  - Within thirty (30) days of completion of work approved by this permit, the permittee or their representative shall supply the Vermont Wetlands Section with a letter certifying that the project was constructed in compliance with the conditions of this permit.





**TYPICAL SECTION - ROAD IMPROVEMENTS  
ADJACENT TO EXISTING SLOPES**

BEARTOWN SCALE: 1/2" = 1'



**TYPICAL SECTION - LOW AREA/WETLAND CROSSING**

SCALE: 1/2" = 1'

**SEEDING**

**PART 1 - GENERAL**

**1.1 Section Includes:**

- A. Seeding.
  1. Furnish all labor, materials and equipment to complete all seeding work as shown on the drawings and specified herein.
  2. Except where otherwise shown or specified, the Contractor shall seed all areas where new contours are shown on the drawings and all areas where existing ground cover has been disturbed by the Contractor's operations.

**1.2 SUBMITTALS**

- A. Product Data: For each type of product indicated.

**1.3 PROJECT CONDITIONS**

Planting Restrictions: Seeding and initial fertilizing shall be done between May 1st and September 15th unless otherwise authorized. Seeding shall not be done during windy weather or when the ground is frozen, excessively wet, or otherwise unfillable. If seeding is done during July or August, additional mulch material may be required. Coordinate planting periods with initial maintenance periods to provide required maintenance from date of Substantial Completion.

**PART 2 - PRODUCTS**

**2.1 SEED**

- A. Conservation Seed Mix:

Kind of Seed	Minimum Purity	Minimum Germination	Lbs./Acre
Creeping Red Fescue	98%	85%	22.5
Tall Fescue	95%	95%	22.5
Red Top	95%	90%	3
Birdsfoot Trefoil	98%	85%	9
Annual Ryegrass	95%	85%	3
		TOTAL =	60

**2.2 INORGANIC SOIL AMENDMENTS**

- A. Lime: ASTM C 602, agricultural limestone containing a minimum of 85 percent calcium carbonate equivalent and as follows:
  1. Class: T, with a minimum of 99 percent passing through No. 8 sieve and a minimum of 75 percent passing through No. 60 sieve.

**2.3 FERTILIZER**

- A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium.
- B. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium.

**2.4 MULCHES**

- A. Mulch: Provide air-dry, clean, mildew- and seed-free, hay or threshed straw of wheat, rye, oats, or barley.
- B. Compost Mulch: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1-inch sieve; soluble salt content of 2 to 5 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:
  1. Organic Matter Content: 50 to 60 percent of dry weight.

**PART 3 - EXECUTION**

**3.1 PREPARATION**

- A. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations.
  1. Protect adjacent and adjoining areas from hydroseeding and hydromulching overspray.
  2. Protect grade stakes set by others until directed to remove them.
- B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- C. Newly Graded Subgrades: Loosen subgrade to a minimum depth of 4 inches. Remove stones larger than 2 inches in dry dimension and sticks, roots, rubbish, and other extraneous matter.
  1. Apply fertilizer directly to subgrade before loosening.
    - a. Delay mixing fertilizer with planting soil if planting will not proceed within a few days.
    - b. Mix lime with dry soil before mixing fertilizer.
- D. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus 1 inch of finish elevation. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit finish grading to areas that can be planted in the immediate future.
- E. Moistened prepared areas before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
- F. Before planting, restore areas if eroded or otherwise disturbed after finish grading.

**3.2 APPLICATION RATES**

- A. When a soil test is not available, the following minimum amounts should be applied:
  1. Agricultural limestone: 2 tons/acre.

- 2. Nitrogen (N): 50 lbs./acre.
- 3. Phosphate: 100 lbs./acre.
- 4. Potash: 100 lbs./acre.
  - a. This is the equivalent of 500 lbs./acre of 10-20-20 fertilizer or 1,000 lbs./acre of 5-10-10.
- 5. Hay mulch: 2 tons/acre.

**3.3 SEEDING**

- A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
  1. Do not use wet seed or seed that is moldy or otherwise damaged.
  2. Do not seed against existing trees. Limit extent of seed to outside edge of planting saucer.
- B. Rake seed lightly into top 1/8 inch of soil, roll lightly, and water with fine spray.
- C. Protect seeded areas with slopes exceeding 1:3 with erosion-control blankets installed and stapled according to manufacturer's written instructions.
- D. Protect seeded areas from hot, dry weather or drying winds by applying mulch within 24 hours after completing seeding operations. Soak areas, scatter mulch uniformly to a depth of 3/16 inch, and roll surface smooth.

**3.4 HYDROSEEDING**

- A. Hydroseeding: Mix specified seed, fertilizer, and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.
  1. Mix slurry with fiber-mulch manufacturer's recommended tackifier.
  2. Apply slurry uniformly to all areas to be seeded in a one-step process. Apply slurry at a rate so that mulch component is deposited at not less than 1500-lb/acre dry weight, and seed component is deposited at not less than the specified seed-sowing rate.

**3.5 MAINTENANCE**

- A. Maintain and establish seeding by watering, fertilizing, weeding, mowing, trimming, replanting, and other operations. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth lawn. Provide materials and installation the same as those used in the original installation.
  1. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch and anchor as required to prevent displacement.
  2. Begin maintenance immediately after each area is planted and continue until acceptable lawn is established, but for not less than the following periods:
    - a. Seeded Areas: 90 days from date of Substantial Completion.
    - b. When initial maintenance period has not elapsed before end of planting season, or if seeding is not fully established, continue maintenance during next planting season.

**3.6 SATISFACTORY CONDITIONS**

- A. Installations shall meet the following criteria as determined by Engineer/Owner:
  1. Satisfactory Seeded Area: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. and bare spots not exceeding 5 by 5 inches.
  2. Use specified materials to reestablish area that do not comply with requirements and continue maintenance until areas are satisfactory.

**3.7 CLEANUP AND PROTECTION**

- A. Promptly remove soil and debris, created by work. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.
- B. Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic. Maintain fencing and barricades throughout initial maintenance period and remove after lawn is established.
- C. Remove nondegradable erosion-control measures after grass establishment period.

SITE ENGINEER:



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COLCHESTER, VERMONT

PROJECT:

BEARTOWN  
BIVOUAC  
IMPROVEMENTS

CAMP ETHAN ALLEN  
TRAINING SITE  
JERICHO, VT

DATE	CHECKED	REVISION
1/15/2016	BCE	WETLAND PERMIT PLANS

**SITE DETAILS**

DATE

1/15/2016

SCALE

AS SHOWN

PROJ. NO.

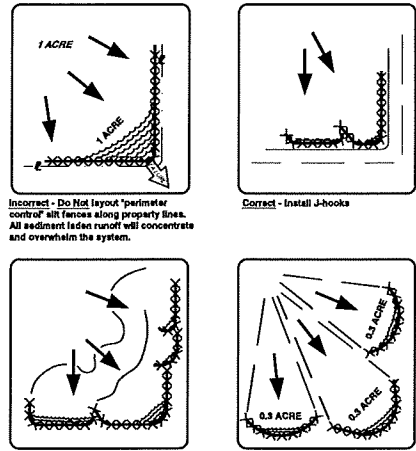
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DRAWING NUMBER

**C2.0W**



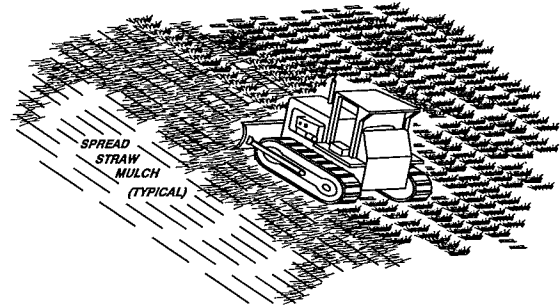




**SILT FENCE PLACEMENT FOR PERIMETER CONTROL**

N.T.S.

E-010 REVISED 12/19/2014



'TRACKING' WITH MACHINERY ON SANDY SOIL PROVIDES ROUGHENING WITHOUT UNDUE COMPACTION.

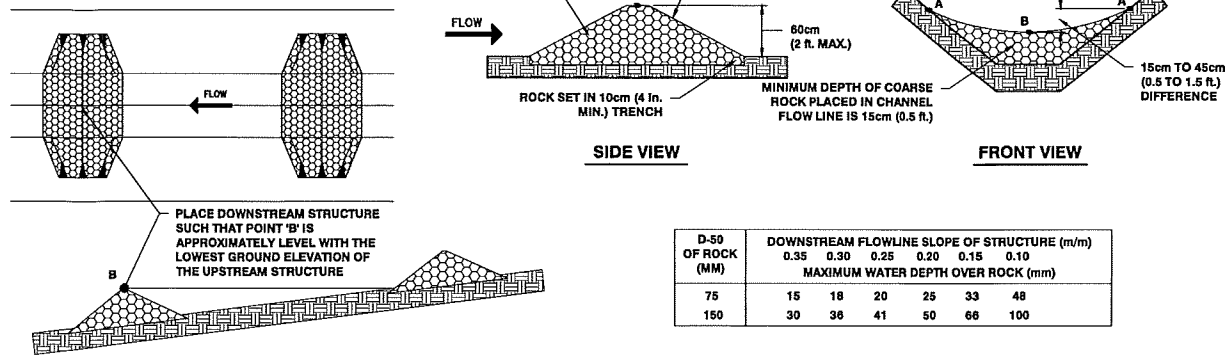
**NOTES:**

1. ROUGHEN SLOPE WITH BULLDOZER.
2. BROADCAST SEED AND FERTILIZER.
3. SPREAD STRAW MULCH 3" (2 1/2 TONS PER ACRE)
4. PUNCH STRAW MULCH INTO SLOPE BY RUNNING BULLDOZER UP AND DOWN SLOPE.

**STRAW ANCHORING**

N.T.S.

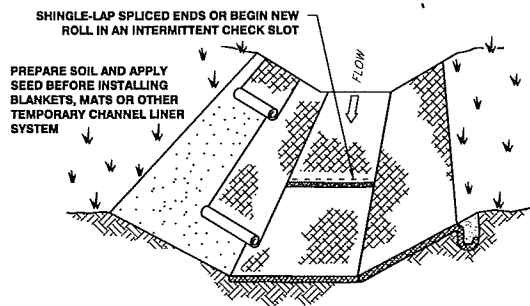
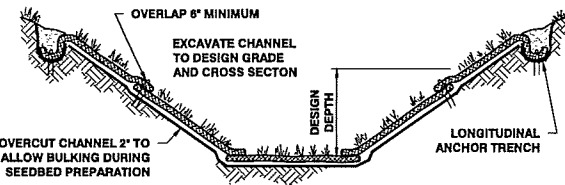
E-012 REVISED 12/19/2014



**STONE CHECK DAM STRUCTURE**

N.T.S.

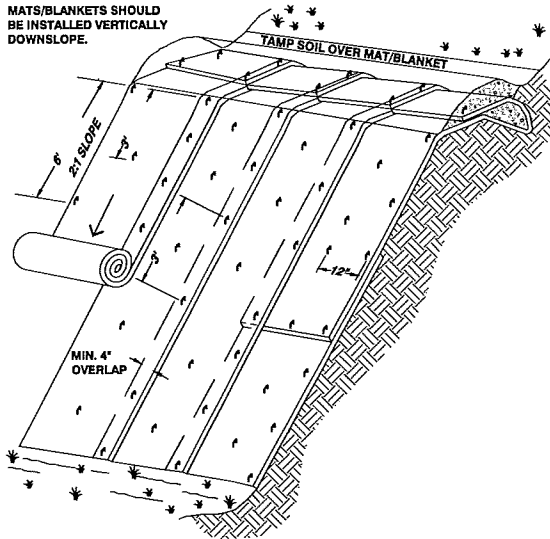
E-006 REVISED 06/01/2014



**GRASS-LINED CHANNEL TYPICAL INSTALLATION**

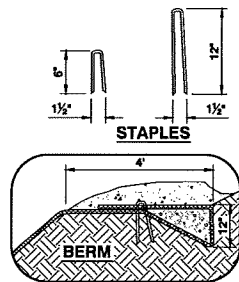
N.T.S.

E-011 REVISED 12/19/2014



**ISOMETRIC VIEW**

**TYPICAL SLOPE SOIL STABILIZATION**



**NOTES:**

1. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.
2. APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS.
3. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.

**EROSION BLANKETS & TURF REINFORCEMENT MATS SLOPE INSTALLATION**

N.T.S.

E-009 REVISED 06/01/2014

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PROJECT:  
 BEARTOWN BIVOUAC IMPROVEMENTS  
 CAMP ETHAN ALLEN TRAINING SITE  
 JERICO, VT

DATE	CHECKED	REVISION
1/15/2016	BCE	WETLAND PERMIT PLANS

**EROSION CONTROL DETAILS**

DATE: 1/15/2016  
 SCALE: AS SHOWN  
 PROJ. NO.: 14100.16  
 DRAWING NUMBER: C2.2W