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**Memorandum**

To: NECPL Project File

Date: December 2, 2014

Project No.: 57666.00

From: Chelsea Martin, Environmental  
Scientist; and Adam R. Crary,  
PWS, PWD

Re: Preliminary Wetland Impact  
Analysis

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At the request of Champlain, VT LLC d/b/a TDI New England ("TDI-NE") VHB has prepared this memorandum to summarize anticipated wetland permitting requirements for the proposed New England Clean Power Link ("NECPL" or "Project"), under Section 401 and 404 of the Clean Water Act ("CWA") and the Vermont Wetland Rules ("VWR"), in connection with review of the NECPL under 30 V.S.A. Section 248(b)(5). Section 248(b)(5) includes review of VWR significant wetlands under 10 V.S.A. Section 6086 (a)(1)(G), as well as other wetlands which are considered more broadly as part of the natural environment. This memorandum also serves to describe the preliminary impact analysis process used by VHB, as well as the avoidance and minimization efforts measures employed by TDI-NE to minimize overall impacts to Class II and III wetlands and Class II buffers.

The Project is described in some more detail in VHB's Section 248 Natural Resources Report ("NRR") (Exhibit TDI-JAN-2), but in general the terrestrial (or "overland") portion of the proposed NECPL transmission line involves the installation of a high-voltage, direct current ("HVDC") transmission line through portions of thirteen towns in Rutland and Windsor Counties and one town in Grand Isle County, Vermont.

Project authorization from the Department of the Army, U.S. Army Corps of Engineers ("USACE") under CWA Section 404 is required for any unavoidable and cumulative impacts resulting from the discharge of dredged or fill material to "Waters of the U.S." (which includes wetlands) that are subject to federal jurisdiction. As part of the Section 404 review process, a Water Quality Certification ("WQC") under CWA Section 401 will be required from the Vermont Department of Environmental Conservation Watershed Management Division ("DEC-WMD"). Due to the large area of the Project and the anticipated level of impact to jurisdictional waters of the state (including buffer zones) and U.S., the Section 404, 401 WQC, and the Vermont Wetland Permit ("VWP") will be in the Individual Permit review category. The

Project will also be required to obtain federal authorization under Section 10 of the Rivers and Harbors Act for activities associated with federal navigable waters, which are limited to Lake Champlain.

#### **PROJECT ASSESSMENTS AND POTENTIAL IMPACTS**

From May to early November 2014, VHB and TRC Environmental (“VHB/TRC”) conducted detailed natural resources studies, including wetland delineations, assessments, and proposed VWR classifications, within the “Project study area” for the overland component of the proposed Project. Prior to conducting wetland and waters delineations, VHB/TRC developed a field delineation protocol for the Project which was presented to and reviewed by staff with both the Vermont Agency of Natural Resources (“ANR”) and the USACE prior to the initiation of fieldwork in the Spring 2014. In addition to study areas VHB/TRC had access to for detailed field delineations, mapping also included an Approximate Study Area of an additional 50 feet on either side of the road or railroad right-of-way, which was visually surveyed in order to approximate the boundaries of potential wetlands and potential Class II wetland buffers. The “approximate study area,” was evaluated through desktop review to approximate the boundaries of potential wetland resources, in part to be able to approximate the location of wetland buffers under the VWR for wetland features. VHB/TRC utilized a combination of off-site review (including aerial photography, available topography, soil survey maps, VSWI-mapping, previous delineations etc.), and mapping, to conservatively assess the extent of any wetland features within such approximate study areas. The results of VHB’s review of Project wetlands are presented in more detail in the Section 248 Natural Resources Report and appendices (Exhibits TDI-JAN-2 through TDI-JAN-6).

Utilizing the results of the wetland studies, TDI-NE undertook measures during planning, design, and federal/state agency outreach to avoid (where possible) and then minimize impacts to jurisdictional wetlands. This process is described in more detail in the section below. The remaining wetland impacts that would result from the Project are unavoidable, and a preliminary analysis of wetland and regulated buffer activity areas was completed using the Project Plans – Overland Route (Exhibit TDI-AW-2) and the VHB/TRC wetland and buffer zone data. The preliminary impacts have been calculated using ArcGIS software from Project plans developed by the Project engineers.

Preliminary impact areas have been calculated by VHB based on the delineated and approximated wetland areas (Class II and III) and potential Class II wetland buffers within the Permanent Project Corridor. From this, wetlands and buffers which intersect the proposed Permanent Project Corridor areas were included as potential impact. Activities within the various types of features included for review have been divided based on cover type (forested versus non-forested), and further sub-divided based on what part of the Project would result in

the impacts, generally characterized as: Permanent Project Corridor or Temporary Construction Workspace. The proposed forested area was derived from LIDAR data and provided by TRC to calculate the approximate impacts by tree clearing type (Forested and Non-Forested).

It is important to note that none of the proposed Project activities include the placement of fill material within wetlands that would be considered a permanent fill impact. Flowable fill and/or cable armoring may be required for cable thermal resistivity backfill or protection within the sub-grade of the trench, but the surface contour and condition will be restored with the replacement of native topsoils and as such would not be considered a permanent fill impact. By also employing avoidance and minimization measures, there would be no permanent fill impacts as a result of construction. In summary, as presented in Table 1, the Project would involve the following activities within federal jurisdictional wetlands, Vermont Significant Wetlands (Class II), and associated 50-foot Class II wetland buffer zone areas, as approximated based on current information available:

<b>Table 1. NECPL– Approximate Wetland and Class II Buffer Activity Summary Table</b>				
<b>Feature Type</b>	<b>Project Area Type</b>	<b>Wetlands/ Buffers Within Project Area (Acres)</b>		<b>Total (acres)</b>
		<b>Forested</b>	<b>Non-Forested</b>	
Class II Wetlands (VWP)	Temporary Construction Workspace	1.23	1.45	2.68
	Project Corridor	0.47	0.55	1.02
	<i>Total Class II Wetland Area</i>	<i>1.70</i>	<i>2.00</i>	<i>3.70</i>
Class II Buffers (VWP)	Temporary Construction Workspace	2.48	7.60	10.1
	Project Corridor	1.08	6.21	7.29
	<i>Total Class II Buffer Area</i>	<i>3.56</i>	<i>13.8</i>	<i>17.4</i>
All Wetlands (Class II & III; 404/401)	Temporary Construction Workspace	1.72	1.92	3.64

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		<b>Forested</b>	<b>Non-Forested</b>	
	Project Corridor	0.68	0.97	1.65
	<i>Total Wetland Area</i>	2.40	2.89	5.29

Table 1 above does not represent a detailed analysis of impacts by specific federal and state regulatory definitions, but rather reports the area of resources within the Proposed Permanent Project Corridor Alignment. As such, when collateral permit applications are filed, detailed impact analyses will be conducted, taking into account each regulatory program’s jurisdiction over specific project activities.

**AVOIDANCE, MINIMIZATION, AND COMPENSATION**

As required by the USACE under Section 404/401, projects are required to demonstrate that the impacts to jurisdictional resources are unavoidable based on a thorough and complete consideration of alternatives that would meet the project purpose. Under the VWR, a project must demonstrate to the satisfaction of VT ANR that no undue adverse effect would occur to protected wetland functions and values. A permit applicant must show that impacts have been minimized through implementation of design considerations or construction/maintenance Best Management Practices (“BMPs”). As stated above, by using avoidance and minimization as part of the Project design phase, TDI-NE was able to avoid impacts from the permanent placement of fill within wetlands. The following is a general summary of wetland area and function impact avoidance and minimization measures that TDI-NE has or will take for the NECPL:

- Completion of a general alternative route analysis to determine, in light of the Project propose, the preferred practicable route with the least environmental impact;
- Proposed below-ground installation to, among other things, avoid extensive forest clearing impacts to wetlands/buffers that would be necessary for overhead transmission line construction/operation;

- Proposed siting of the overland transmission alignment following existing developed road and railroad corridors;
- More detailed study of alternative designs for specific elements of the Project, including but not limited to Lake Champlain entry/exit points, public roadway, railroad, and existing utility corridor options, temporary workspace/staging areas, converter station siting options, etc.;
- Early public/regulatory stakeholder engagement and natural resource identification;
- Incorporation of approximated wetland/buffer mapping outside of areas of direct project activity;
- Development of a site-specific EPSC plan which will include wetland protection measures during construction;
- Use of construction mats within wetlands during construction;
- Limiting tree clearing along roadways to branch trimming where possible;
- Adherence to an operational vegetation management plan which incorporates specific measures for minimizing impact to wetland from maintenance of the Permanent Project Corridor;
- Adherence to a non-native invasive plant species monitoring and control plan.

Compensation may be required by the USACE for unavoidable impacts to wetlands and waters and would likely be proposed by TDI-NE to occur through a payment to the Vermont *In-lieu* Fee (“ILF”) program, which, in Vermont, is administered by Ducks Unlimited, Inc. The final calculation of required mitigation credits and resulting fee will be completed as part of the subsequent 404 permit application, and will be subject to review and approval by the USACE.

#### **SUMMARY**

It is expected that the permit applications under CWA Sections 404,<sup>1</sup> Vermont 401 WQC, and VWP would include similar components, including:

- Required application forms (signed by TDI-NE)

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<sup>1</sup> Rivers and Harbors Act Section 10 application material would be included within material provided to the USACE as part of the Section 404 permit application.

- Supporting narrative documentation
- Location mapping
- Site Plans
- Natural resource assessment documentation
- Impact analyses (summary tables, exhibits)
- Alternatives analysis (as required)
- Project abutters information (as required)
- Supplemental information (as required) – e.g. functional assessment forms, endangered species, flood hazard areas, historic resources, etc.).

As each application is anticipated to require Individual Permit review, there will be public notice requirements applicable to these regulatory programs.<sup>2</sup> Issuance of the 404 permit is typically contingent on receipt or waiver of the 401 WQC, but it can be conditionally issued prior to the issuance of the 401 WQC, although the 404 permit would not be valid until the 401 WQC is issued.

Therefore, based on the results of our field investigations, project design criteria, and the evaluation of anticipated temporary and permanent impacts, VHB concludes that the Project will not result in undue adverse effects to wetlands protected under the Vermont Wetland Rules, and would therefore conform with the requirements of the VWR. The additional documentation supporting this conclusion will be provided in the forthcoming wetland permit applications. Issuance of the applicable federal and state wetland impact permits, which will include a review of alternatives, documentation of impact avoidance/minimization, and if necessary – compensation, will confirm VHB’s conclusion that the Project will not have an undue adverse effect on the function of wetlands, significant or otherwise.

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<sup>2</sup> The Project will also require other environmental permits, including but not limited to the Vermont Lake Encroachment Permit, construction and operation phase stormwater permits, etc., but such requirements are not included in this review of wetland impact activities.