NORMANDEAU ASSOCIATES
Environmental Consultants

January 25, 2017

Mr. John Petrofsky
Via E-mail

Re: Wetland File SEC 2015-02817

Dear Mr. Petrofsky:

On behalf of Northern Pass Transmission LLC ("NPT"), we are responding below to the comments you sent to Rene Pelletier of the New Hampshire Department of Environmental Services ("NHDES") on July 26, 2016 related to the Northern Pass Project ("Project"). We are providing this response to complete the wetlands permit record. Your email expressed concern about what you characterize as omissions in the wetland permit application plan set for this project. We are providing the following information in response to these concerns.

Normandeau conducted complete natural resource field surveys within the road ROW, and not beyond it, as we had no permission to trespass on private property. Therefore, the wetland permitting maps do not show wetlands beyond the road ROW. Since the underground cable is being installed in the previously disturbed road bed and/or road shoulder, and the Project will be using BMPs to control sedimentation and erosion during construction, impacts to wetlands outside of the road ROW are not expected. In an effort to comply with the new SEC rules adopted after Northern Pass filed its applications, maps identifying wetlands outside of the road and transmission ROWs based on aerial photos and other remote sensing sources were submitted to the SEC in February of 2016 and are available on the SEC website. We are well aware of the streams, wetlands, and other natural resources in the vicinity of Bear Rock Road, and in fact, we have proposed preserving a portion of nearby Cedar Brook and the high quality balsam fir-northern white cedar swamp surrounding the brook and marsh as part of the wetland mitigation plan.

Archeological sites are not shown on publicly available maps in compliance with the requirements of the NH Division of Historical Resources, as these are sensitive and confidential. As you know, a thorough cultural resource investigation is being completed within the agency-designated "Area of Potential Effect", and archeologists have been in touch with a local resident regarding possible unmarked graves in the area. There are also plans for handling any unexpected finds during construction, as required by NH Division of Historical Resources. The process for complying with Section 106 of the Historic Preservation Act is coordinated between the Department of Energy as lead federal agency, the applicant, and state and federal cultural resource agencies. The process includes many opportunities for public input, as well as full participation by "Consulting Parties", individuals

and entities who have a direct relationship with historical resources that may be affected by the Project.

Flood zones mapped on the permitting plans were those identified as 100-year flood zones from the FEMA program, which are the official flood maps used across the United States. The FEMA flood zone maps for this area do not show a mapped flood zone in this location. FEMA maps also do not identify wetlands. Normandeau Associates did map the wetlands along the road in this area, and it is clear that they are associated with the West Branch of the Mohawk River. Seasonal standing water in these wetlands in spring or after heavy rains is likely, as your observations confirm. The cable will be directionally drilled well under the streams and wetlands in this area, which will protect the resources and also minimize the chance that flooding will delay construction. The cable is designed to function regardless of flood conditions. A link to the on-line FEMA mapping tool follows: http://www.arcgis.com/home/webmap/viewer.html?webmap=cbe088e7c8704464aa0fc34eb99e7f30&extent=-71.3933,44.9346,-71.3555,44.9492

A screen shot of the FEMA mapping for the Bear Rock area is set forth below.

NPT is mindful of potential impacts to groundwater that may occur as a result of blasting activities. There are particular best management practices that must be followed, and this involves pre and post blasting surveys. We appreciate information about the Bear Rock springs and wells in this area, and did pass along this information to the project engineers for consideration during final design, construction, and post construction monitoring of the project.

For the purposes of this Project, all perennial streams greater than 1 foot in width from the Pemigewasset River north were assumed to be cold water streams capable of supporting brook

trout, which would include the West Branch of the Mohawk River. Therefore, fisheries surveys were not conducted in these streams and rivers. The stream temperature evaluation in the permitting documents focused on the effects of tree canopy clearing along the overhead route. All streams over 1-ft wide were evaluated for potential temperature increases from vegetation clearing. This evaluation found that four streams in Dixville (and none in the Bear Rock Road area) could potentially experience significant maximum July stream temperature increases, and three of those would still be within the tolerance range of brook trout. Only one could episodically experience a temperature higher than brook trout tolerance, which might cause the fish to temporarily avoid that portion of the stream for short periods of time, assuming no shrubby vegetation cover becomes established. Planting of live stakes of shrubs along cleared streams is part of the restoration plans, so even this small impact may be completely mitigated. All four streams were in Dixville along the overhead route. No clearing is expected to affect streams along the underground route, since the lines will be in the road. The underground cable will pass well beneath larger streams such as the West Branch of the Mohawk River by directional drilling. Other potential erosion or sedimentation concerns will be addressed with BMPs and careful construction monitoring.

Fisheries scientists have now also reviewed information about the thermal conditions generated by the underground cable to determine the potential for increases in water temperature in nearby streams. The available information included thermal output provided by the cable supplier (ABB), and an assessment from the engineers regarding expected thermal effects on roads. The cable suppliers concluded that there would be "no perceptible impact on surface or subsurface conditions relative to cable installation" for the worst-case scenario, which included four feet of fill over the cable. The engineers also concluded that temperature changes in the road surface are expected to be minimal. Most streams cross the underground cable in a perpendicular culvert, and there will be a minimum of two feet of fill separating the stream culvert from the transmission line cable. Water has a much higher thermal inertia than air or soil, so it would require more energy input to raise the water temperature in a stream compared to raising the temp of the soil. In addition, stream water is not stationary, and would move quickly past any cable section. If the cable has a minimal effect on ground surface temperatures, there would also be no perceptible impacts to stream water.

We believe the foregoing information addresses the comments raised in your letter.

Sincerely,

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As agent for Northern Pass Transmission, LLC.
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