STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
ENERGY FACILITY SITING BOARD

In re The Narragansett Electric Company	:	
d/b/a National Grid	:	Docket No. SB-2016-01
(Aquidneck Island Reliability Project)	:	

Pre-Filed Rebuttal Testimony of

Renee L. Codega, P.E.

March 24, 2017

Q. Please state your full name and business address.

A. Renee Codega, Vanasse Hangen Brustlin, Inc. ("VHB"), 1 Cedar Street, Suite 400, Providence, Rhode Island.

Q. By whom are you employed and in what position?

A. I am employed by VHB as a licensed professional engineer and specifically as a Senior Project Engineer and Chief Reviewer for the Providence office.

Q. What are your responsibilities as Senior Project Engineer and Chief Reviewer?

A. As a Senior Project Engineer my design responsibilities include civil/site design, utility design, and stormwater design. Applying for and securing various permits for the projects are also within my scope of responsibilities. As Chief Reviewer, my responsibilities include providing quality assurance reviews for VHB land development projects designed by other VHB staff members.

Q. Please describe your education, training and experience.

A. I received a Bachelor of Science Degree in Civil Engineering from the University of Rhode Island. I am a Registered Professional Engineer in Rhode Island and Massachusetts. I have been a Professional Mentor for the University of Rhode Island Senior Capstone Projects and am a member of the Rhode Island Healthcare Engineers Society.

I have over 30 years of experience in civil and environmental engineering working for private and public clients. Some of my past projects include National Grid substations, Fidelity Regional Campus, various projects for Lifespan and Care New England, Navigant Credit Union, and various Rhode Island College projects. These projects have

included stormwater design components complying with the Rhode Island Stormwater Design and Installations Standards Manual ("RISDISM"). I have also provided on-call engineering services for the Town of Portsmouth as a peer reviewer for projects subject to various Town regulations and ordinances, providing compliance reviews and testimonies at the Planning Board's public hearings. A copy of my vitae is attached as Attachment RC-1.

Q. Are you familiar with National Grid's Aquidneck Island Reliability Project (the "Project")?

A. Yes, I have prepared the stormwater analysis and stormwater management design for its proposed new Jepson Substation and presented the design on behalf of National Grid in proceedings before the Town of Middletown.

Q. What is the scope of your testimony in this proceeding?

A. In my testimony, I will respond to the prefiled testimony of Steven M. Cabral that was filed on behalf of the Town of Middletown.

Q. In his prefiled testimony, Mr. Cabral refers to the RISDISM on page 5 Line 141 and the Town of Middletown Section 153 - Stormwater Management on page 8 line 312 through 313, are you familiar with these documents?

A. Yes.

Q. What are the differences between the RISDISM and the Town of Middletown Section 153 - Stormwater Management?

A. From a stormwater design perspective, the Town's Code requires a project's stormwater analysis to include the evaluation and mitigation of the 2-year and 25-year 24-hour storm

events, where the RISDISM requires the evaluation and mitigation of the 1-year, 10-year and 100-year, 24-hour storm events.

Q. Are any of these differences relevant to the proposed Project?

A. Yes. The Project's stormwater analysis includes the additional evaluation and mitigation required by the local ordinance.

Q. Are you familiar with Mr. Cabral's statement that the "compacted gravel", as defined in RISDISM, is considered impervious?

A. Yes.

Q. Is the proposed fill for the substation "compacted gravel" as defined in RISDISM?

A. No. In the Glossary of Terms Section of the RISDISM, impervious cover is defined as follows: IMPERVIOUS COVER (I) - Those surfaces that cannot effectively infiltrate rainfall consisting of surfaces such as building rooftops, pavement, sidewalks, driveways, compacted gravel (e.g., driveways and parking lots).

Q. Please explain the difference.

A. Within the upper 24-inches of gravel of the substation yard, electrical conduits and grounding grid are installed. Due to these conduits, grounding grid and the overhead conductors throughout the substation yard, vehicle travel is limited to the paved driveways. Therefore, the gravel within the substation yard is not subject to the consolidation from constant wheel loading that can affect permeability of gravel driveways. Additionally, the lower gravel fill material, compacted to 95% will have a hydraulic conductivity of 2 inches per hour, a rate that allows for filtering of rainfall. In fact, the RIDEM's specifications for the various media within a pervious pavement

section requires compaction to 95% for those materials. Testing during construction will ensure conformance with the required specification.

Q. Is Mr. Cabral correct in stating that National Grid is seeking waivers from the RISDISM?

A. No. The Project is providing technical justifications for using a different method of achieving water quality treatment. This is not considered a waiver.

Q. Do you agree with Mr. Cabral's statement on page 5 lines 175 through 177 that the proposed underdrain will prevent the recharge of groundwater?

A. No. There are several underdrains within the substation yard. There are three in the upper area of the yard that intercepts the groundwater in this area and provides a separation to groundwater from the yard development during seasonal high groundwater conditions. The lower half of the yard also has one underdrain at the base of the wall to provide discharge of the stormwater runoff that drains through the substation yard. This is common practice in the structural design of retaining walls. This underdrain is elevated slightly from the bottom of the yard fill and the outlet pipe is sized to meter the flow, thereby allowing for recharge of the required recharge volume

Q. Are you familiar with the Soil Erosion and Sediment Control Plan ("SESC") for the proposed substation?

A. Yes.

Q. Was this plan submitted to the Town of Middletown?

A. Yes. The original draft of the plan was submitted to the Town of Middletown on November 8, 2016 in connection with applications to the Planning Board and Zoning Board of Review.

Q. Does National Grid propose to use sediment controls during the construction phase of the Project?

A. Yes.

Q. Were these controls described in the plan submitted to the Town of Middletown?

A. Yes.

Q. What is the status of the plan?

A. The SESC Plan was submitted and has been reviewed by the RIDEM. Their comment letter requires the use of temporary sediment traps on the site in addition to the compost filter socks, erosion control blankets, and stabilized construction exit that were part of the original plan. The SESC Plan will be modified and resubmitted to the RIDEM and will include the use of temporary sediment traps during construction.

Q. Do you agree with Mr. Cabral's statement on page 6 line 189 through 194 of his prefiled testimony that there would be a net loss of water recharge from the use of 16 feet of highly compacted gravel?

A. No. Section 153.25C. of the Town's Stormwater Ordinance requires "all receiving waters will be recharged in a manner closely resembling predevelopment conditions."

Q. Please explain.

A. First, Mr. Cabral's use of the term highly compacted gravel is inaccurate. As discussed previously, the fill will be compacted, but will have a hydraulic conductivity of 2 inches per hour. Second, the lodgement till soils present on the site function poorly in terms of deep infiltration and groundwater recharge. For example, the Newport Series that is mapped in the well-drained position at the proposed substation has a reported saturated

permeability of 10.25 um/sec (1.5 inch per hour) in the upper two feet of the solum, the upper layers of the soil profile, and only 0.71 um/sec (0.1 inch per hour) in the dense till substratum which is typically encountered within three feet of the surface. This difference in permeability rates creates a situation where a seasonal "perched" water table forms above the dense till layer. In response to the gravitational gradient (slope) of the till deposit, saturated flow occurs within the lower part of the solum. This lateral flow above a confining layer is termed "through-flow" by soil scientists. In landscapes underlain by dense till, such as the substation site, this through-flow is transpired or eventually re-emerges at the ground surface as seeps at slope breaks. Once on the surface of the ground this seepage is termed "reflow". This existing hydrologic setting will be mimicked by the constructed substation where water can travel through the thick compacted fill layer at rates greater than the compacted underlying substratum. Reflow will leak from the toe of the fill slope and provide hydrologic support to wetlands in the head waters of Mother of Hope Brook.

Q. Does this complete your testimony?

A. Yes.

ATTACHMENT

RC-1 Curriculum Vitae of Renee L. Codega, P.E.