STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
PUBLIC UTILITIES COMMISSION

THE NARRAGANSETT ELECTRIC COMPANY d/b/a NATIONAL GRID, Plaintiff,	:	
v.	:	
THE TOWN OF HOPKINTON; THOMAS E. BUCK; SYLVIA THOMPSON; BARBARA CAPALBO; BEVERLY KENNEY; and WILLIAM FELKNER, in their official capacities as members of the Hopkinton Town Council, Defendants.	:	
and	:	Docket No. 4076
THE NARRAGANSETT ELECTRIC COMPANY d/b/a NATIONAL GRID, Plaintiff,	:	
v.	:	
THE TOWN OF HOPKINTON and BRAD R. WARD, in his official capacity as the Building and Zoning Official of the Town of Hopkinton, Defendants.	:	

PREFILED TESTIMONY OF MICHAEL ROOK, P.E.
ON BEHALF OF THE NARRAGANSETT ELECTRIC COMPANY
D/B/A NATIONAL GRID

September 24, 2009

Q. Please state your name and business address.

A. My name is Michael Rook. My business address is 176 Worcester-Providence Turnpike Suite 102, Sutton, MA 01590.

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

A. I am employed by Energy Initiatives Group, LLC as Consulting Engineer.

Q. What is Energy Initiatives Group?

A. Energy Initiatives Group, LLC is an energy consulting company that provides project development, planning, strategy, execution, management, engineering, and operations consulting in the areas of electric transmission, generation, distribution, transportation, and renewable energy services.

Q. What are your responsibilities?

A. I serve as project manager for public utility infrastructure development projects.

Q. Please describe your education, training and experience.

A. I have a Bachelor of Science Degree in Civil Engineering from Syracuse University. I am a Registered Professional Engineer in the states of Massachusetts, Rhode Island Vermont, New Hampshire and New York. I have been working for the Energy Initiatives Group for the last two years. Prior to this I was with National Grid and its predecessor New England Electric System for 26 years. The time spent with National Grid was comprised of heading up all Facility Capital Projects (4 years), Property Assets & Real Estate (5 years), and 15 years performing various special projects in the fossil and hydroelectric stations. Previous to National Grid, I worked for four years with the Massachusetts Wholesale Electric Company in power supply planning and the civil

engineering department and five years with the engineering consulting firm of O'Brien & Gere Engineers on various civil projects.

Q. Are you familiar with National Grid's proposed new substation in Hopkinton, Rhode Island (the "Project")?

A. Yes, I am the Project Manager for the Project. I was retained by National Grid to oversee the planning, preliminary engineering, design, permitting and construction of the Project.

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

A. I will explain the design of the Project, including the context of the Project to surrounding sites, as well as the safety precautions and design constraints. I will also explain why alternative sites for the Project are not viable.

Q. Please describe the Project location and design.

A. The Project site is located in Hopkinton and will serve the southwestern Rhode Island area encompassing the Towns of Charlestown, Hopkinton, Westerly and a section of South Kingstown. A map of the southern Rhode Island area showing the 115 kV right-of-way (ROW) and substations is attached at Att. MR-1. The proposed site for this Project is located where the existing 115 kV transmission line (1870S) crosses Route 3 (Main Street) in Ashaway (Hopkinton.) National Grid owns the site proposed for construction of the substation which is immediately adjacent to the 1870S line. The site, including the transmission line ROW, consists of about 12 acres. The new 115kV substation will be connected to and supplied by the 1870S line. The substation will include a 115 kV/13.2 kV transformer and switches, controls, and other electrical equipment which will be contained within a metal building. Initially the substation will

be configured with three 13.2 kV distribution feeders which will supply electricity to National Grid customers in the area. The three feeders will run underground from the substation and rise overhead on Main Street. One feeder will head south on Main Street and two will go north on Main Street.

Q. After the Project is completed, what will happen to the existing Ashaway substation?

A. After the new Hopkinton Substation is commissioned and energized, the Ashaway Substation will be retired and dismantled.

Q. Has National Grid designed the Substation?

A. We are still in the preliminary design stage but have developed a proposed site plan which is attached as Att. MR-2.

Q. What measures will National Grid undertake to protect the environment on the Project site?

A. There is an isolated wetland on the site which does not require a buffer zone under state wetlands regulations. However, in an effort to minimize any potential impact to the area, National Grid will establish a 100 foot buffer zone between the wetland and the substation fence. Furthermore, in an effort to provide a low impact or "greener" solution to storm water drainage, we are developing a plan to capture storm water runoff utilizing a rain garden for treatment of runoff from the proposed paved driveway, using permeable material for the substation driveway and yard where possible, and cluster planting of native plant species within the buffer zone to offer further protection to the wetland.

Q. What steps does National Grid take in designing its substations to protect public health and safety?

A. National Grid will comply with all federal, state, and local regulations, and industry standards and guidelines established for protection of the public. Specifically, the proposed project will be designed, built, and maintained in accordance with the National Electric Safety Code (NESC). The facilities will be designed in accordance with sound engineering practices using established design codes and guides published by, among others, the Institute of Electrical and Electronic Engineers (IEEE), the American Society of Civil Engineers (ASCE), the American Concrete Institute (ACI), and the American National Standards Institute (ANSI). Practices which will be used to protect the public during construction will include, but not be limited to, establishing traffic control plans for construction traffic on busy streets to maintain safe driving conditions. The substation will be enclosed in a 7 foot chain link fence topped with one foot (3 strands) of barbed wire. The fence will also be marked with signage to discourage unauthorized entry.

Q. How will the Project be located on the site?

A. The substation has been designed so that it is located in the central portion of the site. The fence will be 100 feet or more from abutting property lines. In constructing the substation, National Grid plans to preserve the wooded buffer on the site to the maximum extent possible. National Grid will also develop a landscaping plan which will include the construction of a berm and landscape plantings for increased screening.

Q. What impacts will the Project have on surrounding properties?

A. The placement of the substation in the approximate center of the twelve acre parcel will provide an opportunity with the balance of the parcel to create a significant visual barrier

utilizing the existing natural screening as well as room to augment this screening with selected vegetation where needed. The substation will be equipped with lighting, which will only be used for emergencies. On the site itself, an archeological survey performed by the Public Archaeological Laboratory concluded that no archaeological resources exist within the Project area and therefore the Project will have no effect on any significant archeological resources. The Rhode Island Historical Preservation and Heritage Commission issued a letter on August 18, 2009 concurring with this conclusion (Att. MR-3.) National Grid has engaged a consultant to conduct a noise study on the site assuring one of three transformer types (a standard transformer, low noise and very low noise), any of which will meet the electrical needs of the community. Based on the preliminary findings and the ambient noise sampling performed by TRC Solutions, a background noise level was established. This background noise level was then compared to modeled levels produced by the two transformers based on the manufacturer's information and the site conditions. The standard transformer has been rejected due to noise impacts on adjacent properties. Results indicate that the low and very low noise transformers are expected to produce no more than a 9 dBA and 5 dBA increase at the nearest abutter's property line, respectively, and a 8 dBA and 3 dBA increase at nearest residence. To put these numbers in perspective, an increase of 3 dBA is considered to be barely perceptible to the average person. The State of Rhode Island and the Town of Hopkinton do not have a specific limit on the increase in noise levels. The Town limits noise by prohibiting "unreasonably loud, disturbing and unnecessary noise." National Grid will use the very low noise transformer for the Hopkinton substation.

Q. Please explain the alternatives to the Project that National Grid considered.

A. In addition to the electrical alternative which is discussed in Mr. LaBarre's testimony, we considered use of the site of Narragansett Electric's former diesel generating station on Narragansett Way in the southern part of Hopkinton on the north bank of the Pawcatuck River (the "Diesel Site"). We also have considered parcels zoned manufacturing of more than 12 acres following the amendment of the Zoning Ordinance. I will discuss this subsequently in my testimony. All of these sites are shown on the map entitled "Hopkinton Substation – Site Alternatives" which is attached as Att. MR-4.

Q. Please address the feasibility of the Diesel Site.

A. There are several major considerations that have led us to conclude that the Diesel Site is not a viable site for the construction of the proposed Hopkinton substation. First, as Mr. Ryder explains in his testimony, this site would require the construction of a new 8,260 foot 115 kV transmission tap line on an existing but unused 34.5 kV ROW. The ROW is overgrown with mature trees and would have to be cleared.

Q. Would it be necessary to widen the 34.5 KV ROW?

A. The existing ROW from the 1870S ROW to the Diesel Site is 125 feet wide. The Hopkinton substation is designed to accommodate two transformers, two 115 kV tap lines and 8 distribution feeders. Initially we thought that it would be necessary to widen the 34.5 kV ROW to accommodate the tap lines and feeders. However, upon further study, we determined that we could accommodate the 115 kV tap lines and 4 feeders on the ROW and place the other 4 feeders underground within the substation driveway.

Q. Does National Grid find the Diesel Site to be an acceptable alternative?

A. No. Ms. Moberg has evaluated the site from an environmental standpoint and has concluded that the use of the Diesel Site "appears to be impractical from an environmental and regulatory perspective." I note that the Diesel Site is also zoned RFR-80 so National Grid could not build on this site under the existing Hopkinton Zoning Ordinance. Given the potential environmental impacts and the disruption of abutting property owners by clearing the overgrown ROW in order to build the new transmission tap line and feeders, National Grid has rejected this alternative.

Q. Are you familiar with the amendment to the zoning ordinance that was approved by the Town Council on July 20, 2009?

A. Yes, I testified before the Council in support of National Grid's petition for an amendment to the Zoning Ordinance.

Q. What did National Grid seek from the Hopkinton Town Council?

A. At the time we filed our petition, the land use table of the Hopkinton Zoning Ordinance did not mention electric substations. We petitioned for an amendment to the zoning use table to permit electric substations in the RFR-80, Neighborhood Business, Commercial and Manufacturing zones by way of a special use permit. We also proposed a 6 acre minimum lot size in the RFR-80 zone.

Q. What is the zoning of National Grid's proposed site?

A. The proposed site is in the RFR-80 district.

Q. What relief did the Council grant?

A. The Council amended the use table to allow electric substations only in the manufacturing zone, with a 12 acre minimum lot size and with a 200 foot setback from residential uses.

Q. How many sites in Hopkinton would satisfy the requirements of the Zoning Ordinance amendment?

A. Nineteen.

Q. Have you reviewed those sites?

A. Yes, I have personally viewed all of those sites.

Q. Please explain the advantages and disadvantages of each of those sites as potential alternative sites for the Project.

A. A table entitled "Town of Hopkinton – Manufacturing Zoned Parcels > 12 Acres" listing the parcels and the characteristics of each is attached as Att. MR-5. As indicated above, the locations of the sites are shown on Att. MR-4. Fourteen of the 19 sites presently have commercial, industrial or private homes occupying the property. Five are vacant/wooded parcels, one of which is owned by The Nature Conservancy. Presently, only one of the vacant parcels, which is located in the northeast quadrant of the Route 3/Interstate 95 intersection (Exit 1), is posted with a "For Sale" sign. The closest parcels (25-1 and 1-13) are occupied by active industrial/commercial businesses and are each about 0.8 miles from the nearest point of the transmission line. The balance of the parcels (except for the parcel owned by The Nature Conservancy) are located around two Interstate 95 exits, with nine at Exit 1 and seven at Exit 2. Exits 1 and 2 are approximately 2.5 and 4.3 miles, respectively, from the transmission line ROW. Obtaining a 125 to 150 foot wide

transmission right-of-way to any of these sites would be very difficult, costly and disruptive to property owners along the route. In contrast, with the parcel currently owned by National Grid immediately adjacent to the 1870S transmission line, a tap of less than 200 feet in length is needed to connect to the proposed substation. The tap could be constructed entirely within the National Grid property.

Q. Why does National Grid prefer the proposed site on Route 3 to all the alternatives?

A. The proposed site is located immediately adjacent to the 115 kV transmission line ROW. As a result, the substation can be connected to the transmission line with a short tap line. Any of the other sites would require acquisition of new ROW by purchase or condemnation, and the construction of substantial new transmission and distribution facilities to the site. The proposed site can be developed without impacting freshwater wetlands while development of the Diesel Site would cause significant impacts. The proposed site is not located in a Flood Zone; the Diesel Site is. Finally, because the proposed site is wooded, it can be screened from abutting neighbors. Abutters to a newly developed ROW to a new site would have clear, unobstructed views of the new transmission lines. For all of these reasons we believe that the proposed site is the best location for the new substation.

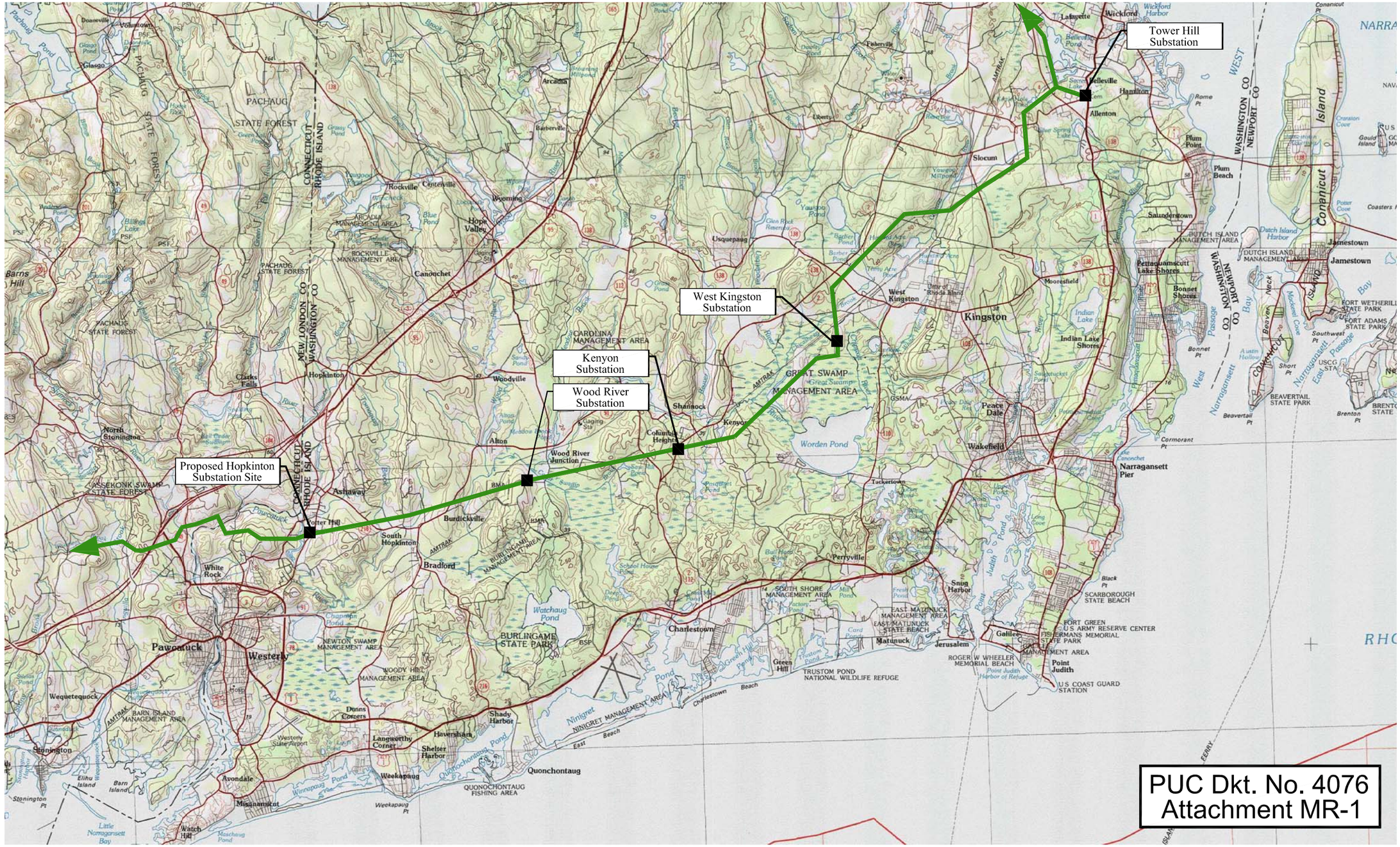
Q. Does this complete your testimony?

A. Yes, it does.

ATTACHMENTS

MR-1	"Southern Rhode Island Area (115 kV ROW and Substations)"
MR-2	"The Narragansett Electric Company; Hopkinton Substation; Proposed Site Plan" (undated)
MR-3	Letter from Rhode Island Historical Preservation and Heritage Commission (August 18, 2009)
MR-4	"Hopkinton Substation – Site Alternatives"
MR-5	Table – "Town of Hopkinton – Manufacturing Zoned Parcels > 12 Acres"

Southern Rhode Island Area (115kV ROW and Substations)



Sources:
USGS Mapping, 2009.

Vanasse Hangen Brustlin, Inc.

N
0 1 2 Miles

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REVISIONS								
REV.	DATE	DESCRIPTION	MADE	CHKD	INSP	REVD	APVD	APVD
1								
2								
3								
4								
5								
6								
7								
8								

ORIGINAL DATE	
DRAWN	
DESIGNED	
CHECKED	
INSPECTED	
REVIEWED	
APPROVED	
APPROVED	

"0" ISSUE ON #

NOTED

A.P. 22 LOT 19
540,766± SQ. FT
12.41427± ACRES

RIVER ROAD
(PUBLIC - VARIABLE WIDTH)

MAIN STREET R.I. ROUTE 3
(PUBLIC - VARIABLE WIDTH)

AMELIA STREET

3-WAY M.H.

VEGETATED DEPRESSION

SIGN (TYP.) "DO NOT DISTURB WITHIN 50' BUFFER"

SWITCHGEAR BLDG'S
PROPOSED
FUTURE

F.G.=42.5

3-WAY M.H.

INLET
I=38.0

WATER GARDEN

9-5" CONDUITS

9-5"CONDUITS (FUTURE)

2-WAY M.H.

RELOCATED POLE #72

PAVED DRIVE

NEW POLE STRUCT.

RELOCATED STRUCT. #25

RELOCATED POLE #71

FUTURE

APPROXIMATE LOCATION OF AQUIFER BOUNDARY LINE

APPROXIMATE LOCATION OF RIGHT OF WAY PLAN NO. L-648 PLAN BOOK 1 PAGE 4

WETLAND 1
FORESTED WETLAND

APPROXIMATE WETLAND EDGE BASED ON FIELD OBSERVATIONS PERFORMED BY V.H.B. ON MARCH 18, 2009.

OPEN WATER

GROUNDWATER AND WELLHEAD PROTECTION PRIMARY PROTECTION ZONE

GROUNDWATER AND WELLHEAD PROTECTION PRIMARY PROTECTION ZONE3 AND AQUIFER AREA

APPROXIMATE LOCATION OF AQUIFER BOUNDARY LINE

RURAL FARMING RESIDENTIAL DISTRICT (RFR-80) FEMA ZONE C

RESIDENTIAL DISTRICT (R-1) FEMA ZONE C

RESIDENTIAL DISTRICT (RFR-80) FEMA ZONE C

APPROXIMATE ZONE LINE

A.P. 22 LOT 10
N/F ROGER EDWIN KENYON & MARILYN NORA KENYON
DEED BOOK 51 PAGE 2

A.P. 22 LOT 11
N/F ALBERT J. MARTIN & VALERIE K. MARTIN
DEED BOOK 54 PAGE 586

A.P. 22 LOT 19
N/F THE NARRAGANSETT ELECTRIC COMPANY
DEED BOOK 54 PAGE 329
DEED BOOK 54 PAGE 1
DEED BOOK 53 PAGE 607
DEED BOOK 35 PAGE 147
DEED BOOK PAGE 153

A.P. 22 LOT 13
N/F DONALD J. PATENAUDE
DEED BOOK 422 PAGE 341

A.P. 22 LOT 17A
N/F LLOYD E. PECKHAM & PATRICIA McGUINNESS
DEED BOOK 421 PAGE 85

A.P. 22 LOT 17
N/F JAMES H. SMITH, JR.
DEED BOOK 332 PAGE 485

A.P. 22 LOT 18
N/F DAVIS GEORGE TAMARE, III & SIMONE THERESA EZERNIECZ
DEED BOOK 430 PAGE 174

A.P. 24 LOT 154B
N/F WAYNE E. PALMER, JR. & JANICE L. PALMER
DEED BOOK 353 PAGE 18

A.P. 24 LOT 68
N/F NELSON D. BURDICK & MARY L. BURDICK
DEED BOOK 252 PAGE 3

A.P. 22 LOT 25
N/F CHRISTINE M. BREWSTER
DEED BOOK 456 PAGE 141

A.P. 22 LOT 24
N/F WILLIAM CHAMPAGNE & PATRICIA CARREIRA
DEED BOOK 304 PAGE 86

A.P. 22 LOT 23
N/F WILLIAM J. LILLIBRIDGE, JR.
DEED BOOK 425 PAGE 489

A.P. 22 LOT 22
N/F PAUL A. COULET & MARIA T. COULET
DEED BOOK 365 PAGE 351

A.P. 22 LOT 21
N/F JAMES T. MANAHAN & JANE F. MANAHAN
DEED BOOK 404 PAGE 630

A.P. 22 LOT 20
N/F KEVIN N. McDONALD & SUSAN L. McDONALD
DEED BOOK 360 PAGE 641

A.P. 22 LOT 19
N/F THE NARRAGANSETT ELECTRIC COMPANY
DEED BOOK 54 PAGE 329
DEED BOOK 54 PAGE 1
DEED BOOK 53 PAGE 607
DEED BOOK 35 PAGE 147
DEED BOOK PAGE 153

GROUNDWATER AND WELLHEAD PROTECTION PRIMARY PROTECTION ZONE3 AND AQUIFER AREA

GROUNDWATER AND WELLHEAD PROTECTION PRIMARY PROTECTION ZONE

RURAL FARMING RESIDENTIAL DISTRICT (RFR-80) FEMA ZONE C

RESIDENTIAL DISTRICT (R-1) FEMA ZONE C

APPROXIMATE ZONE LINE

APPROXIMATE AREA OF WASTE DISPOSAL OBSERVED BY V.H.B. ON MARCH 18, 2009.

18"CMP SILTED AT 40.40'

18"CMP I=40.33'

CONFIDENTIALITY STATEMENT

This document contains confidential and proprietary information of the company(s) named in the title block, d/b/a National Grid ("National Grid"). It is to be used by authorized contractors for National Grid solely in connection with the specific project for which it has been transmitted. Any other use, its transmittal to third parties, or its reproduction without prior express written authorization of National Grid is strictly prohibited.

PUC Dkt. No. 4076
Attachment MR-2

0 50 100 150 200
Scale in Feet

nationalgrid

THE NARRAGANSETT ELECTRIC COMPANY
XXXXXXXXXXXX
HOPKINTON SUBSTATION
HOPKINTON, RHODE ISLAND

PROPOSED SITE PLAN

SCALE 1"=50'

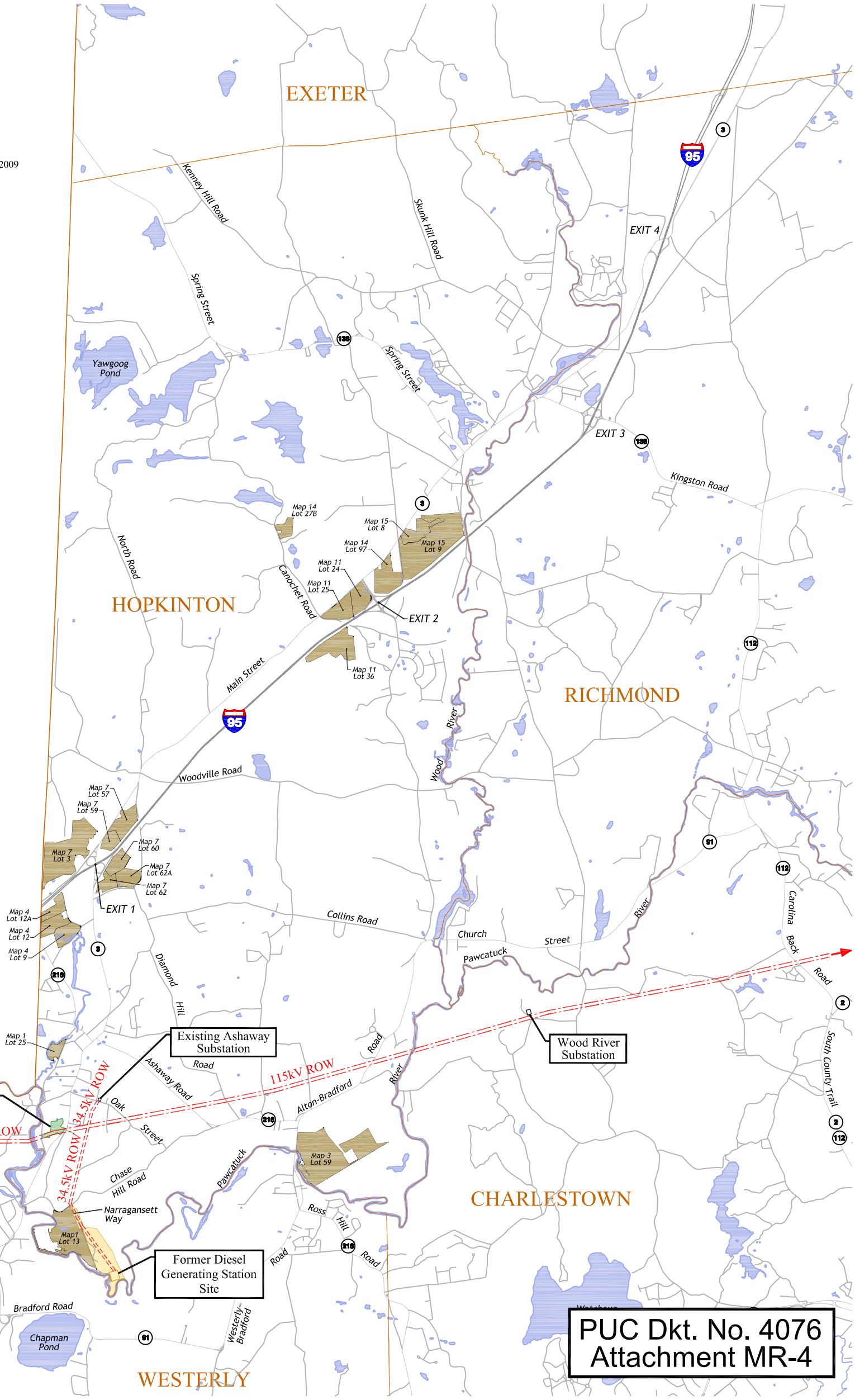
Hopkinton Substation - Site Alternatives

Hopkinton, Rhode Island

Legend

- 12+ Acre Manufacturing Zoned Parcels
- Proposed Hopkinton Substation Site
- Former Diesel Generating Station Site
- Town Boundary
- 115kV ROW
- 34.5kV ROW

Sources:
Land Features (GIS Data) Obtained from RIGIS, 2009
Town of Hopkinton Parcel Data, 2009
National Grid ROW Information, 2009



Vanasse Hangen Brustlin, Inc.

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Town of Hopkinton
Manufacturing Zoned Parcels > 12 Acres

Map No.	Lot No.	Area (acres)	General Location	Vacant?	Present General Use	Distance from Transmission Line
1	13	83	Chase Hill Rd.	No	Business - Office Space Available	1.0 mi.
3	59	158	Alton-Bradford Rd.	Yes	Wooded - Nature Conservatory	0.6 mi.
4	9	25	Grey Ln. & Wellstown Rd.	No	Industrial (Exit 1)	2.0 mi.
4	12	23	Grey Ln. & Wellstown Rd.	No	Industrial (Exit 1)	2.0 mi.
4	12A	20	Grey Ln. & Wellstown Rd.	No	Business (Exit 1)	2.2 mi.
7	3	109	Wichway Rd.	No	Residence (Exit 1)	2.5 mi.
7	57	31	Townhouse Rd.	Yes	Residence (Exit 1)	2.9 mi.
7	59	17	Main St.	Yes	Wooded (Exit 1) - For Sale	2.7 mi.
7	60	22	Main St. Frontier Rd.	No	Business (Exit 1)	2.3 mi.
7	62	16	Main St. Frontier Rd.	No	Business (Exit 1)	2.3 mi.
7	62A	24	Main St. Frontier Rd.	No	Business (Exit 1)	2.3 mi.
11	24	28	Woodville-Alton Rd. & Route 3	No	Residence (Exit 2)	4.3 mi.
11	25	29	Reynold Circle & Route 3	Yes	Wooded (Exit 2)	4.3 mi.
11	36	54	Palmer Circle	Yes	Wooded (Exit 2)	4.1 mi.
14	27B	15	Canonchet Rd. & Marshal Driftway	No	Business (Exit 2)	5.3 mi.
14	97	42	Woodville-Alton Rd. & Route 3	No	Residence (Exit 2)	4.3 mi.
15	8	29	Wheeler Rd. & Route 3	No	Residence (Exit 2) - Multiple	4.9 mi.
15	9	136	Fenner Hill Rd. & Route 3	No	Business (Exit2)	4.5 mi.
25	1	13	Laural St. & Palmer St.	No	Business	0.8 mi.

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
HISTORICAL PRESERVATION & HERITAGE COMMISSION
Old State House • 150 Benefit Street • Providence, R.I. 02903-1209
TEL (401) 222-2678 FAX (401) 222-2968
TTY (401) 222-3700 Website www.preservation.ri.gov

18 August, 2009

Deborah Cox
PAL Inc.
210 Lonsdale Ave
Pawtucket RI 02860

RE: Phase I(c) Archaeological Survey
NGRID Hopkinton Substation

Dear Ms. Cox:

The Rhode Island Historical Preservation and Heritage Commission has reviewed the results of the above-referenced archaeological survey. We concur with your conclusion that the project will have no effect on any significant archaeological resources (those listed on or eligible for listing on the National Register of Historic Places).

These comments are provided in accordance with Section 106 of the National Historic Preservation Act. If you have any questions please contact Charlotte Taylor, Staff Archaeologist, or Jeffrey Emidy, Project Review Coordinator of this office.

Very truly yours,

Charlotte Taylor for

Edward Sanderson,
Executive Director
Deputy State Historic
Preservation Officer

Cc: Anemone Mars, NTHPO

090818.08

PUC Dkt. No. 4076
Attachment MR-3