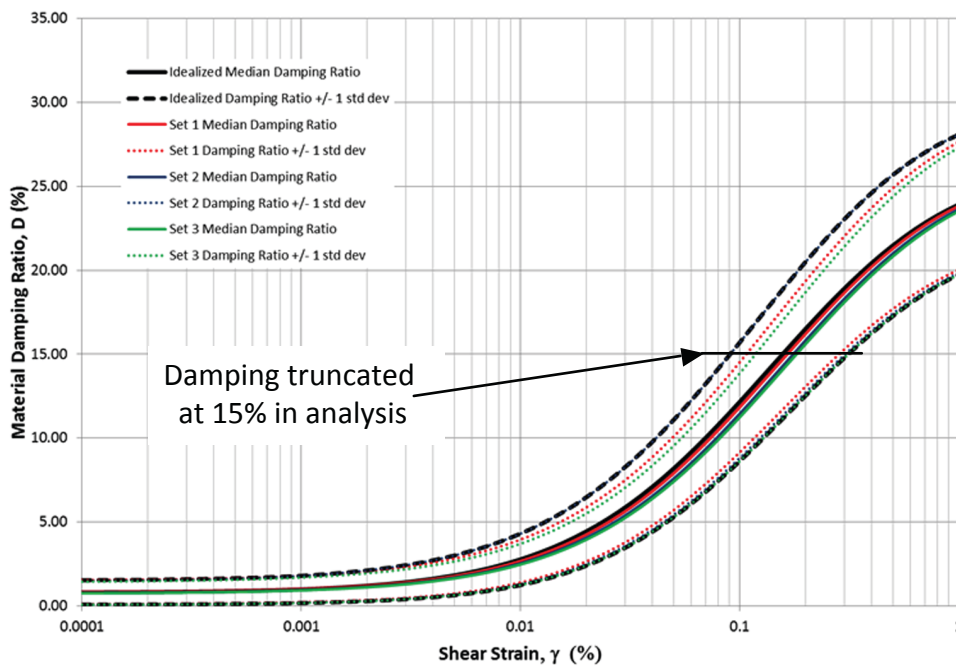
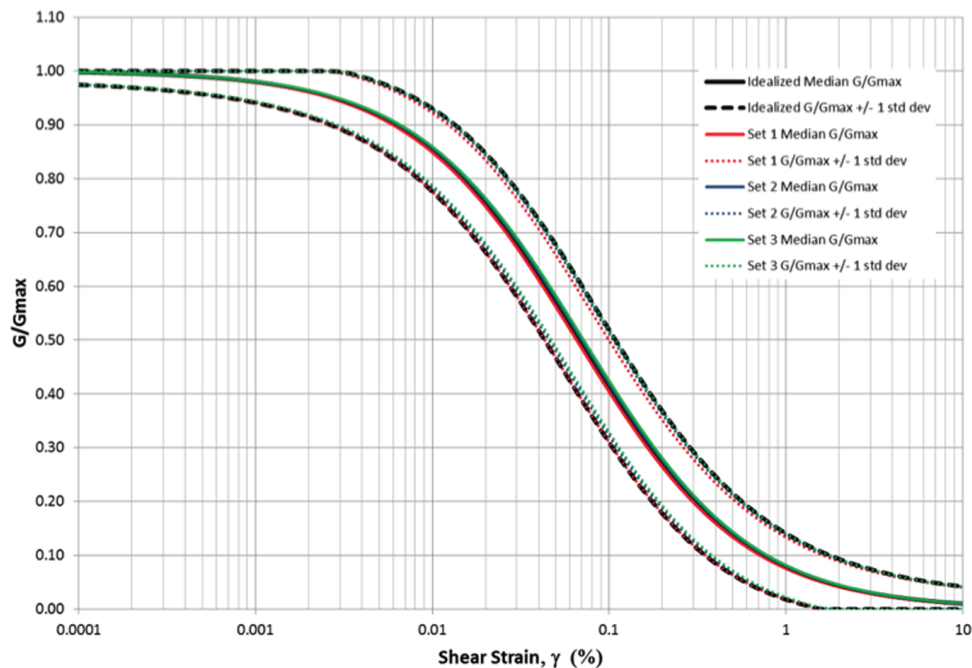




ASLBP #: 15-943-01-ESP-BD01  
Docket #: 05200043  
Exhibit #: PSEG004P-MA-BD01  
Admitted: 03/24/2016  
Rejected:  
Other:

Identified: 03/24/2016  
Withdrawn:  
Stricken:



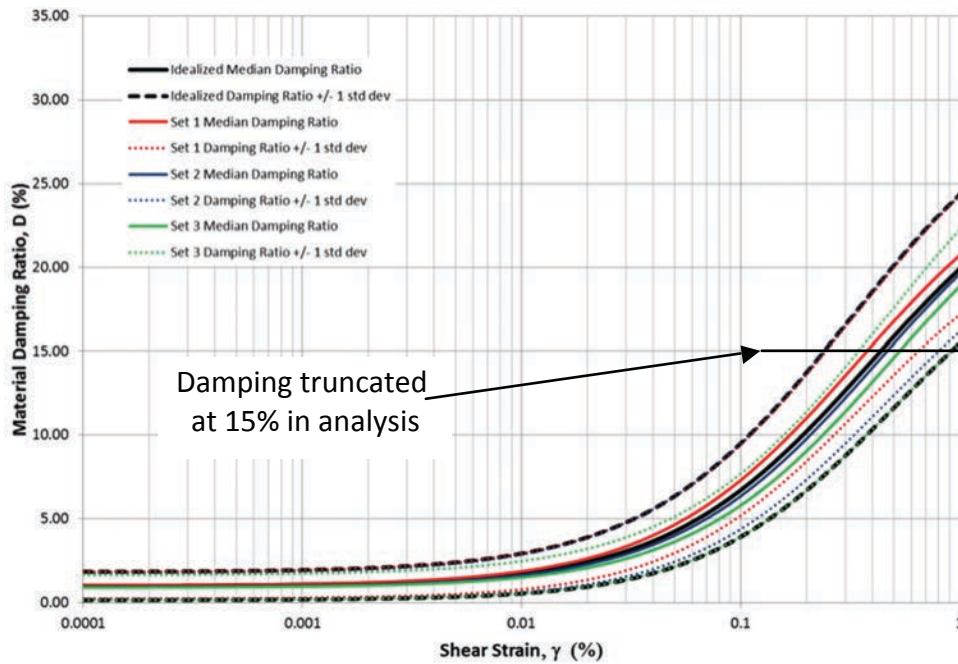
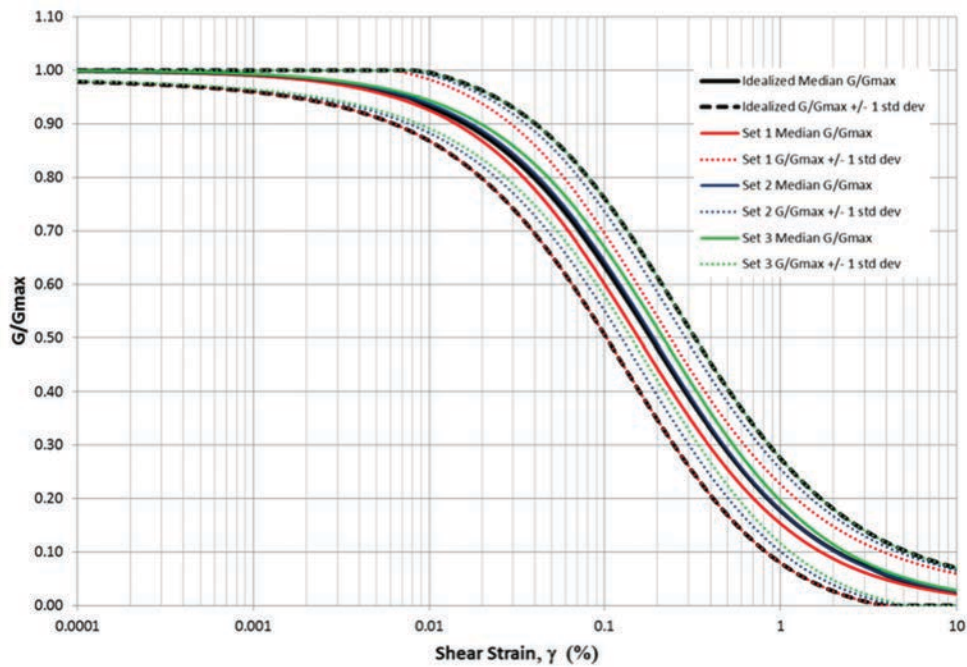
PSEG Power, LLC

PSEG Site ESPA  
Part 2, Site Safety Analysis Report

G/Gmax and Material Damping  
Curves for Soil Layers 2 through 5

FIGURE 2.5.2-78

Rev 0



PSEG Power, LLC

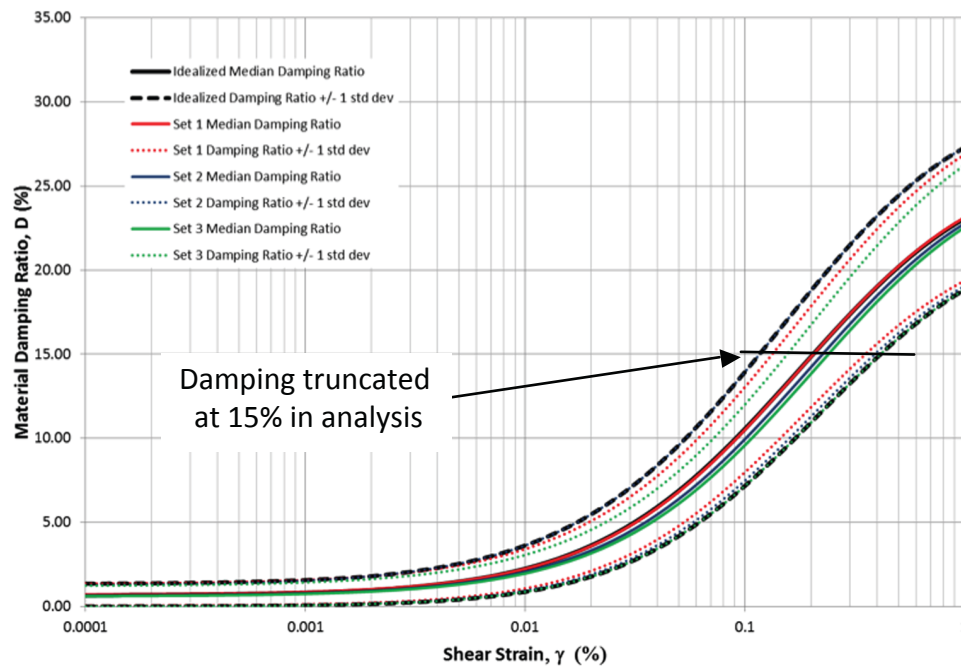
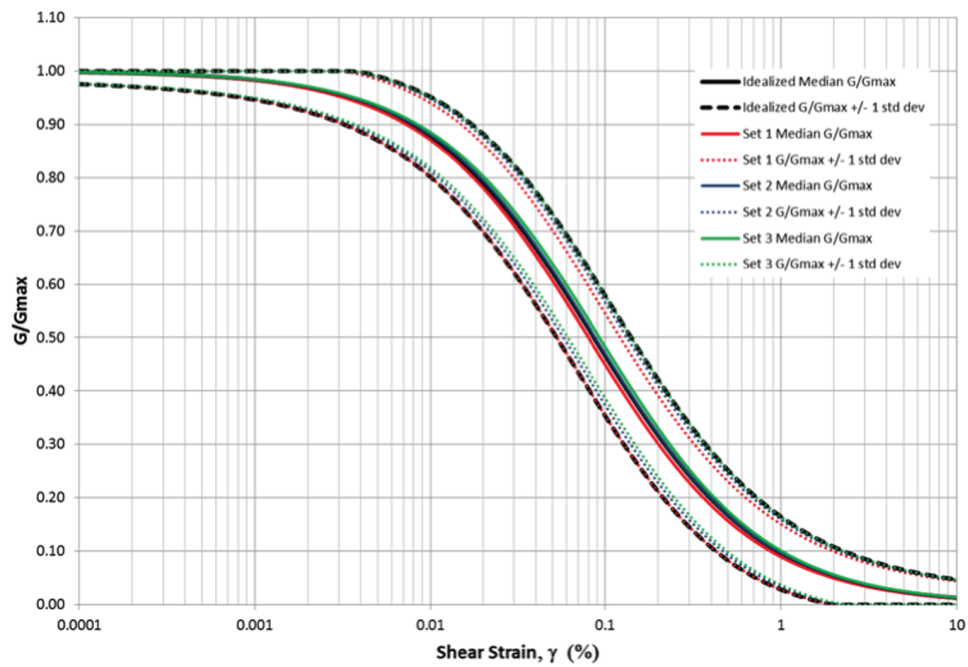
PSEG Site ESPA  
Part 2, Site Safety Analysis Report

G/Gmax and Material Damping  
Curves for Soil Layers 6 through 8

FIGURE 2.5.2-79

Rev 0





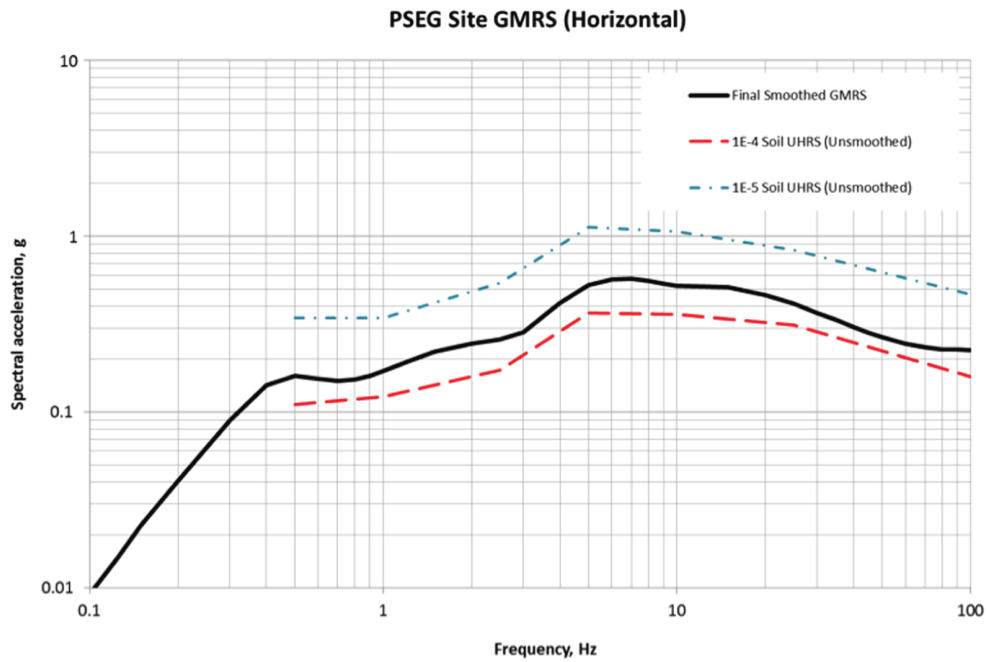
PSEG Power, LLC

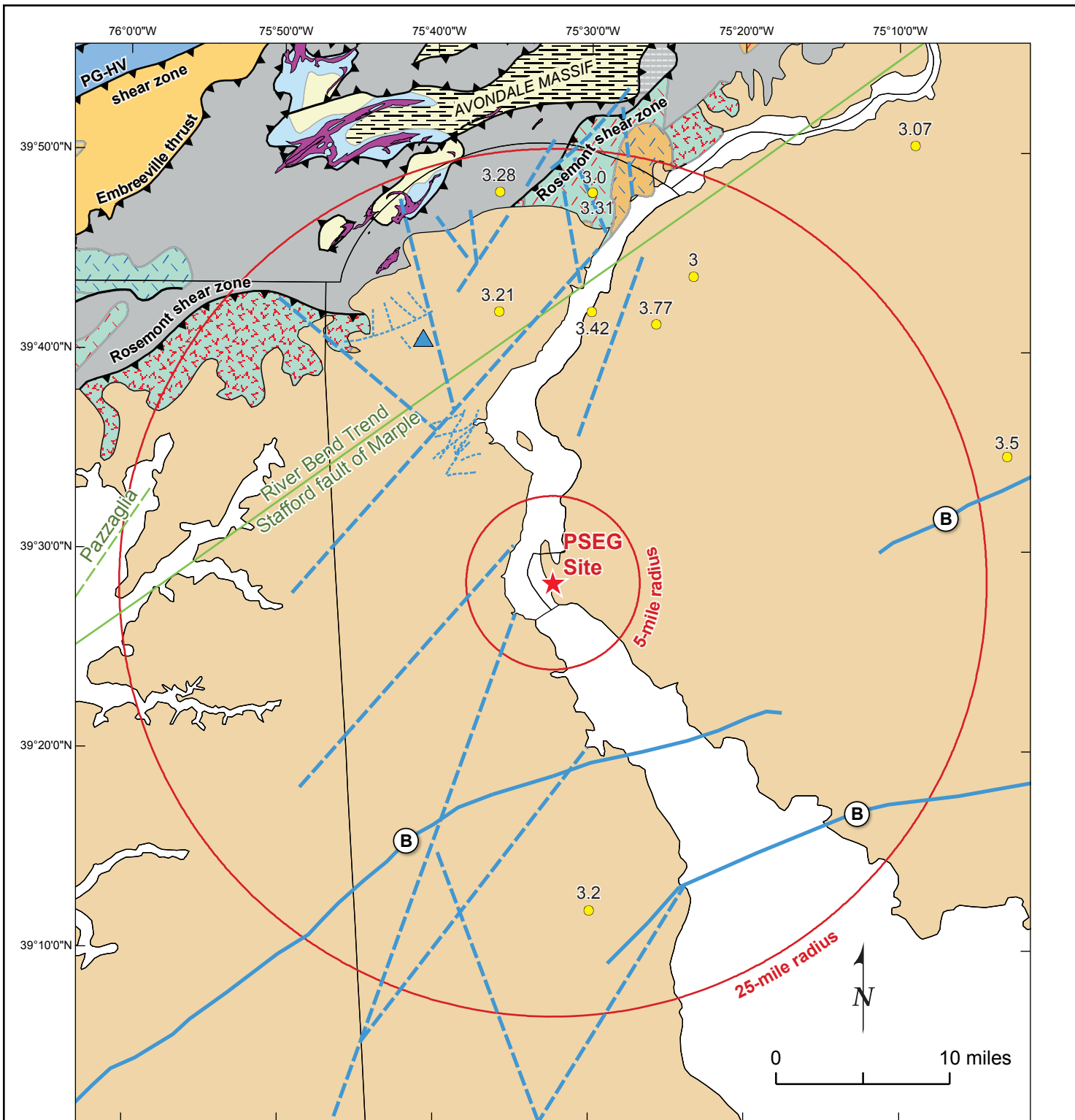
PSEG Site ESPA  
Part 2, Site Safety Analysis Report

G/Gmax and Material Damping  
Curves for Soil Layers 9A and 9B

FIGURE 2.5.2-80

Rev 0





Projection: NAD 1983 UTM Zone 18N

## LEGEND

- Paleozoic Piedmont fault
- Faults buried by coastal plain sediments*
- Offset, from Benson (Reference 2.5.3-2)
- Basin-bounding fault of Benson (Reference 2.5.3-3)
- Basement fault of Spoljaric (Reference 2.5.3-24, Reference 2.5.3-26)
- Lineament of Spoljaric (Reference 2.5.3-27, Reference 2.5.3-25)
- Hypothesized features*
- River bend trend Stafford fault extension of Marple (Reference 2.5.3-12)
- Fault from Pazzaglia (Reference 2.5.3-16)

*PSEG Regional Seismic Catalog, updated from CEUS SSC seismicity catalog (Reference 2.5.3-42)*

- 3.0 - 3.9 magnitude E[M]

Cretaceous–Quaternary coastal plain units

Cockeysville Marble, Karst Unit (Reference 2.5.1-22, Reference 2.5.1-199)

For explanation of geologic units, see Figure 2.5.1-12a and 12b.

PSEG Power, LLC

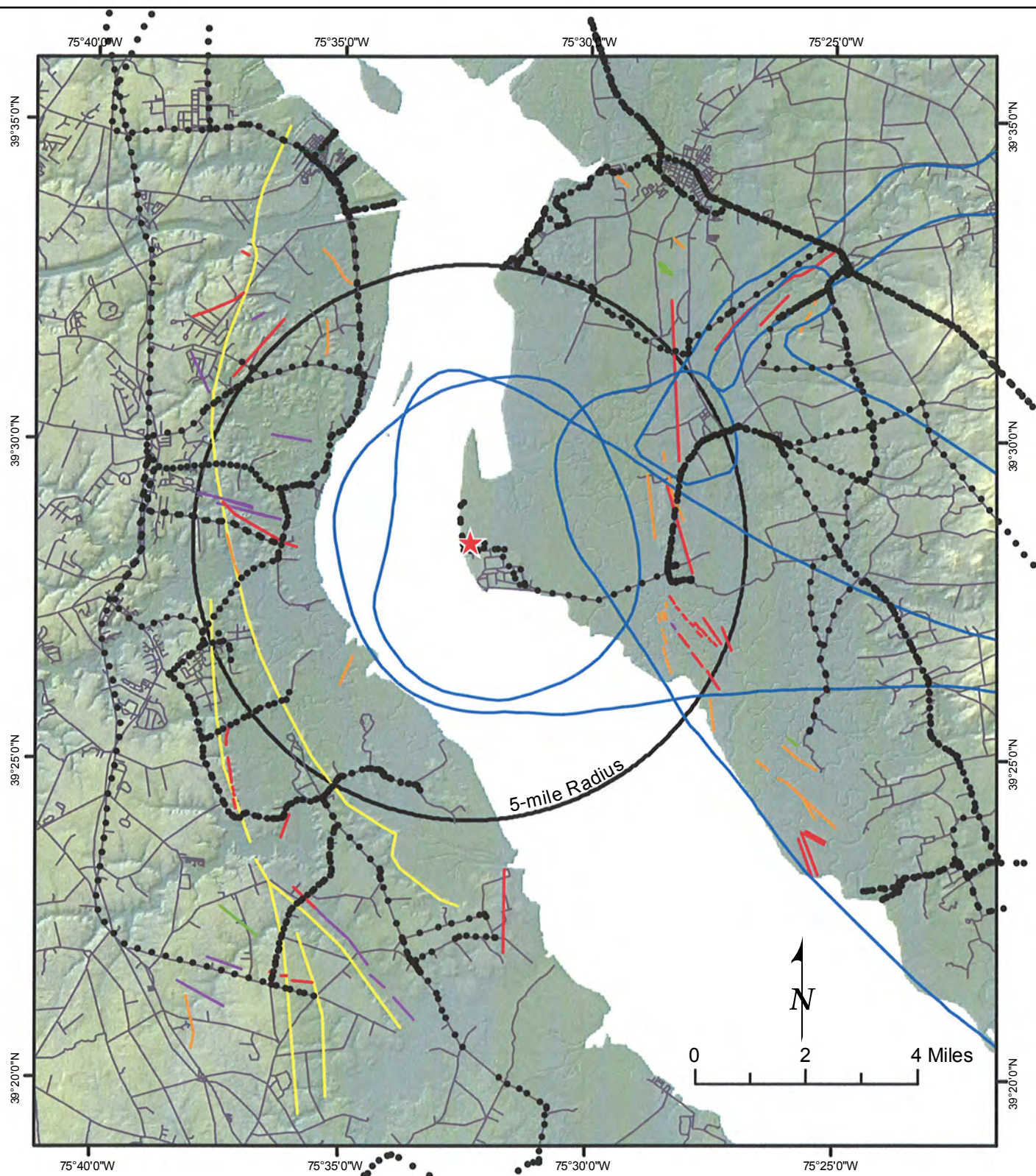
PSEG Site ESPA  
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Site Vicinity Geology and Seismicity

FIGURE 2.5.3-1

Rev 3





### Explanation

★ PSEG Site

#### GPS Tracks

— Flight  
• • • Ground

#### Lineament Analysis

— Potential Shoreline  
— Stream Lineament  
— Tonal Change  
— Tonal Lineament  
— Vegetation Lineament

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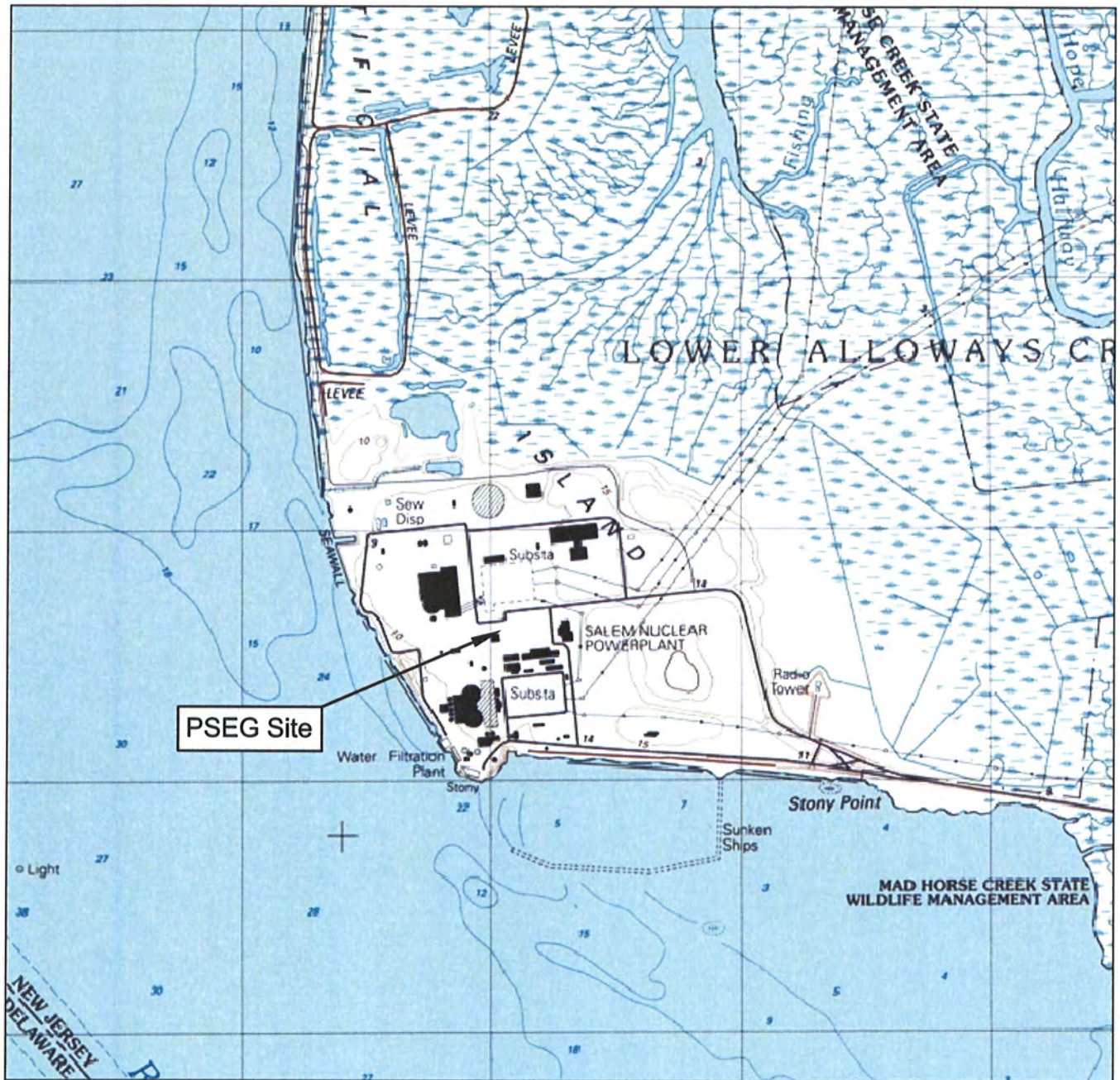
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Lineament Investigation

FIGURE 2.5.3-2

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## LEGEND

U.S. Geological Survey 1:24,000 Topographic  
Quadrangle Map-Taylor's Bridge, DE.-NJ

Contour Interval 5 feet  
National Geodetic Vertical Datum of 1929



0 2000 4000



SCALE IN FEET

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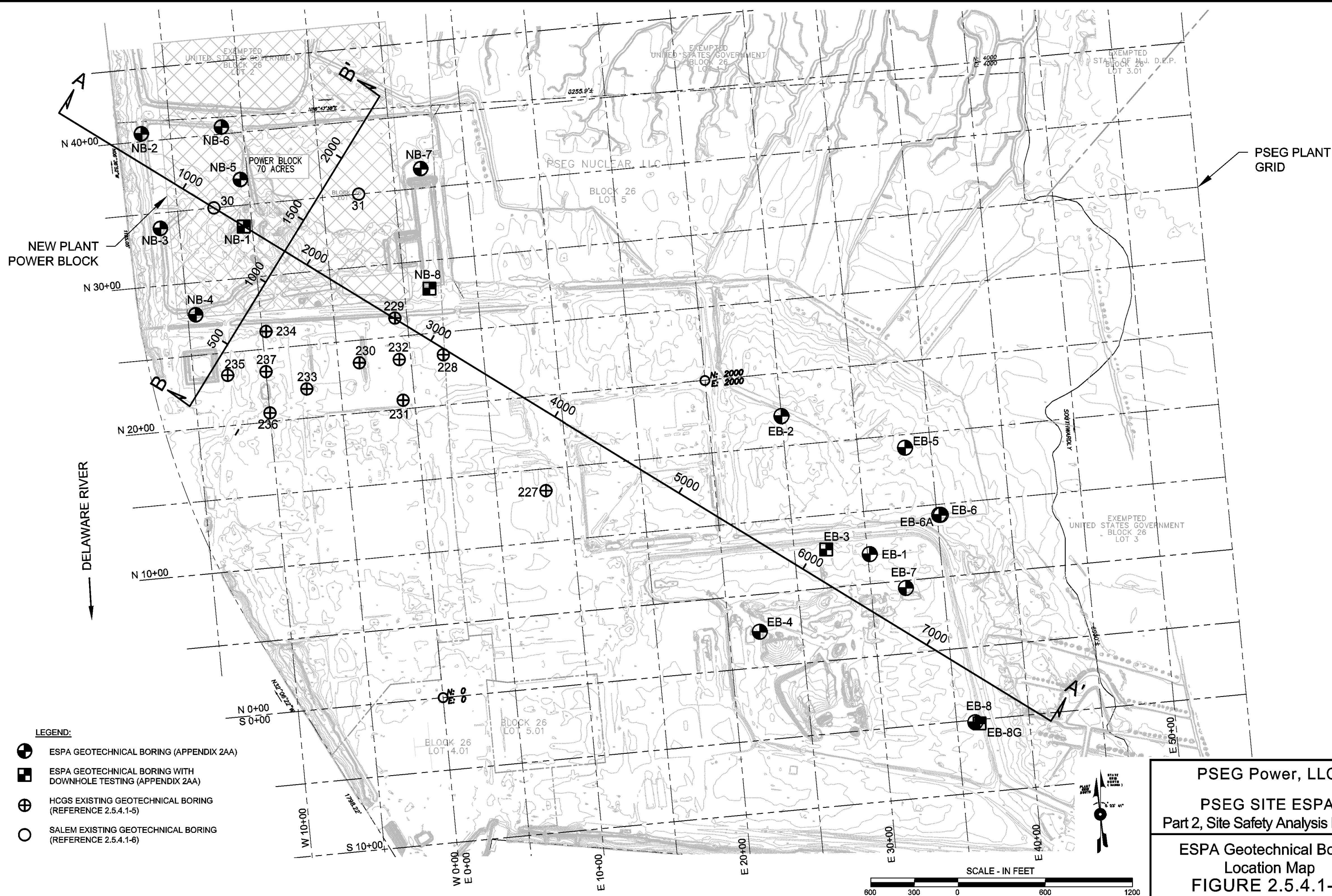
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PSEG Site Location Map

FIGURE 2.5.4.1-1

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LEGEND:

- ESPA GEOTECHNICAL BORING (APPENDIX 2AA)
- ESPA GEOTECHNICAL BORING WITH DOWNHOLE TESTING (APPENDIX 2AA)
- ⊕ HCGS EXISTING GEOTECHNICAL BORING (REFERENCE 2.5.4.1-5)
- SALEM EXISTING GEOTECHNICAL BORING (REFERENCE 2.5.4.1-6)

PSEG Power, LLC  
PSEG SITE ESPA  
Part 2, Site Safety Analysis Report  
ESPA Geotechnical Boring  
Location Map  
FIGURE 2.5.4.1-2

Rev 0

ERA	PERIOD	EPOCH	SITE STRATIGRAPHIC UNIT
CENOZOIC	QUATERNARY	HOLOCENE (RECENT)	ARTIFICIAL & HYDRAULIC FILL
			UNCONFORMITY
		PLEISTOCENE	ALLUVIUM
			UNCONFORMITY
	NEOGENE (UPPER TERTIARY)	MIOCENE	KIRKWOOD FORMATION
			UNCONFORMITY
	PALEOGENE (LOWER TERTIARY)	PALEOCENE	VINCENTOWN FORMATION
			HORNERSTOWN FORMATION
			NAVESINK FORMATION
MESOZOIC	CRETACEOUS	UPPER CRETACEOUS	MOUNT LAUREL FORMATION
			WENONAH FORMATION
			MARSHALLTOWN FORMATION
			ENGLISHTOWN FORMATION
			WOODBURY FORMATION
			MERCHANTVILLE FORMATION
			MAGOTHY FORMATION
			UNCONFORMITY
			POTOMAC FORMATION
		LOWER CRETACEOUS	

PSEG Power, LLC

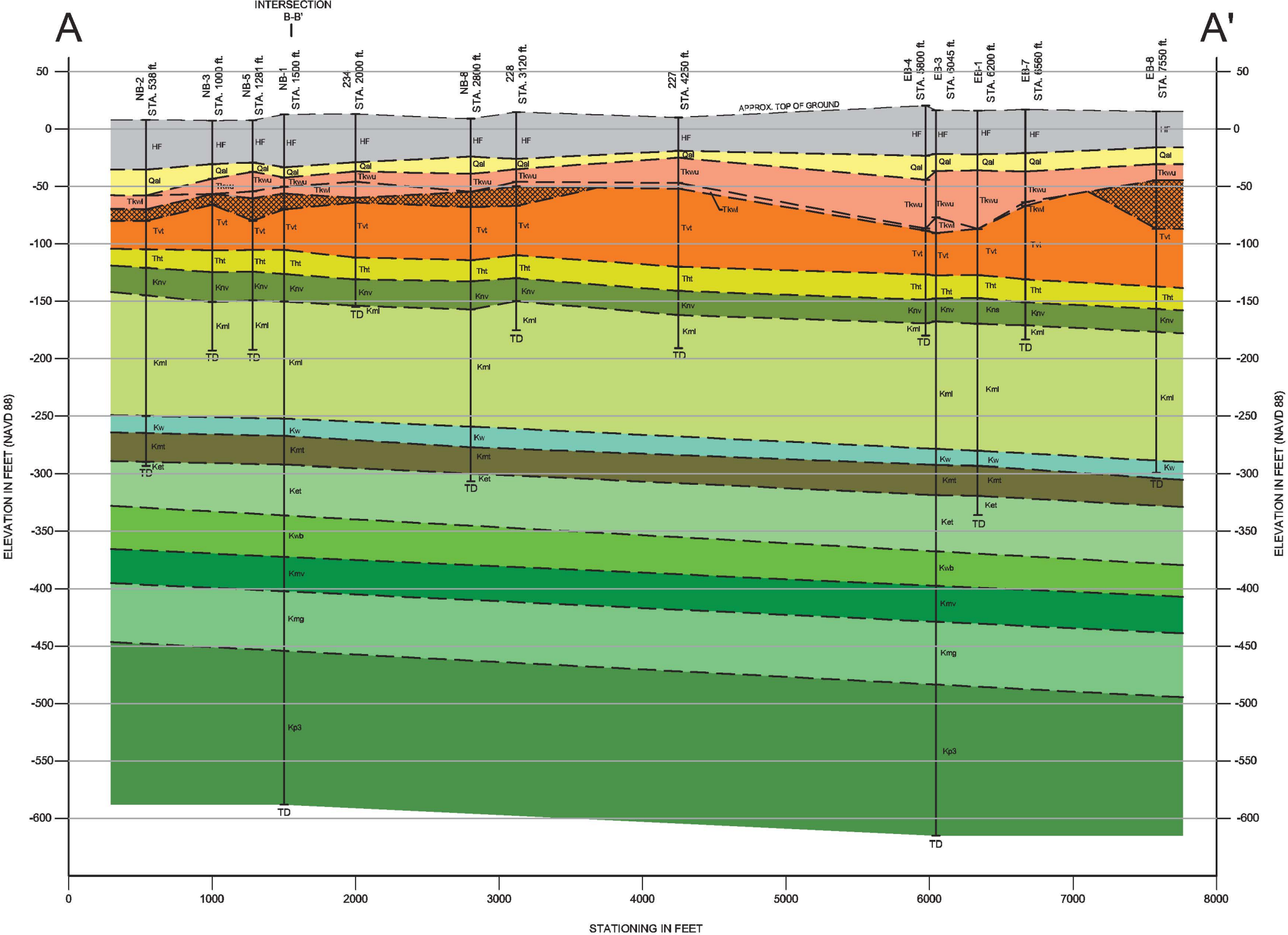
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Site Stratigraphic Column  
FIGURE 2.5.4.1-3

Rev 0

NW

SE

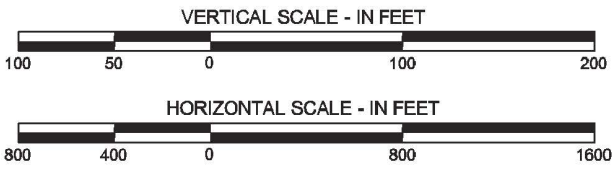


LEGEND:

- HF - Artificial and Hydraulic Fill
- Qal - Alluvium
- Tkqu - Kirkwood Formation (Upper)
- Tkwl - Kirkwood Formation (Lower)
- Tvt - Vincentown Formation (Oxidized)
- Tvt - Vincentown Formation
- Tht - Hornerstown Formation
- Knv - Navesink Formation
- Kml - Mount Laurel Formation
- Kw - Wenonah Formation
- Kmt - Marshalltown Formation
- Ket - Englishtown Formation
- Kwb - Woodbury Formation
- Kmv - Merchantville Formation
- Kmg - Magothy Formation
- Kp3 - Potomac Formation

NOTES:

- BORINGS 227, 228, AND 234 (DAMES & MOORE, 1974) (Reference 2.5.4.1-5)
- EB AND NB SERIES BORINGS COMPLETED FOR ESPA (APPENDIX 2AA)
- TD = TERMINATION DEPTH
- SEE FIGURE 2.5.4.1-1 FOR SECTION LOCATION.
- BORINGS PROJECTED ORTHOGONALLY TO SECTION LINE.
- SOME BORINGS SHOWN ON FIG-2.5.4.1-1 NOT INCLUDED DUE TO SHALLOW DEPTH OR PROXIMITY TO OTHER BORINGS.



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Geologic Cross-Section A-A'

FIGURE 2.5.4.1-4

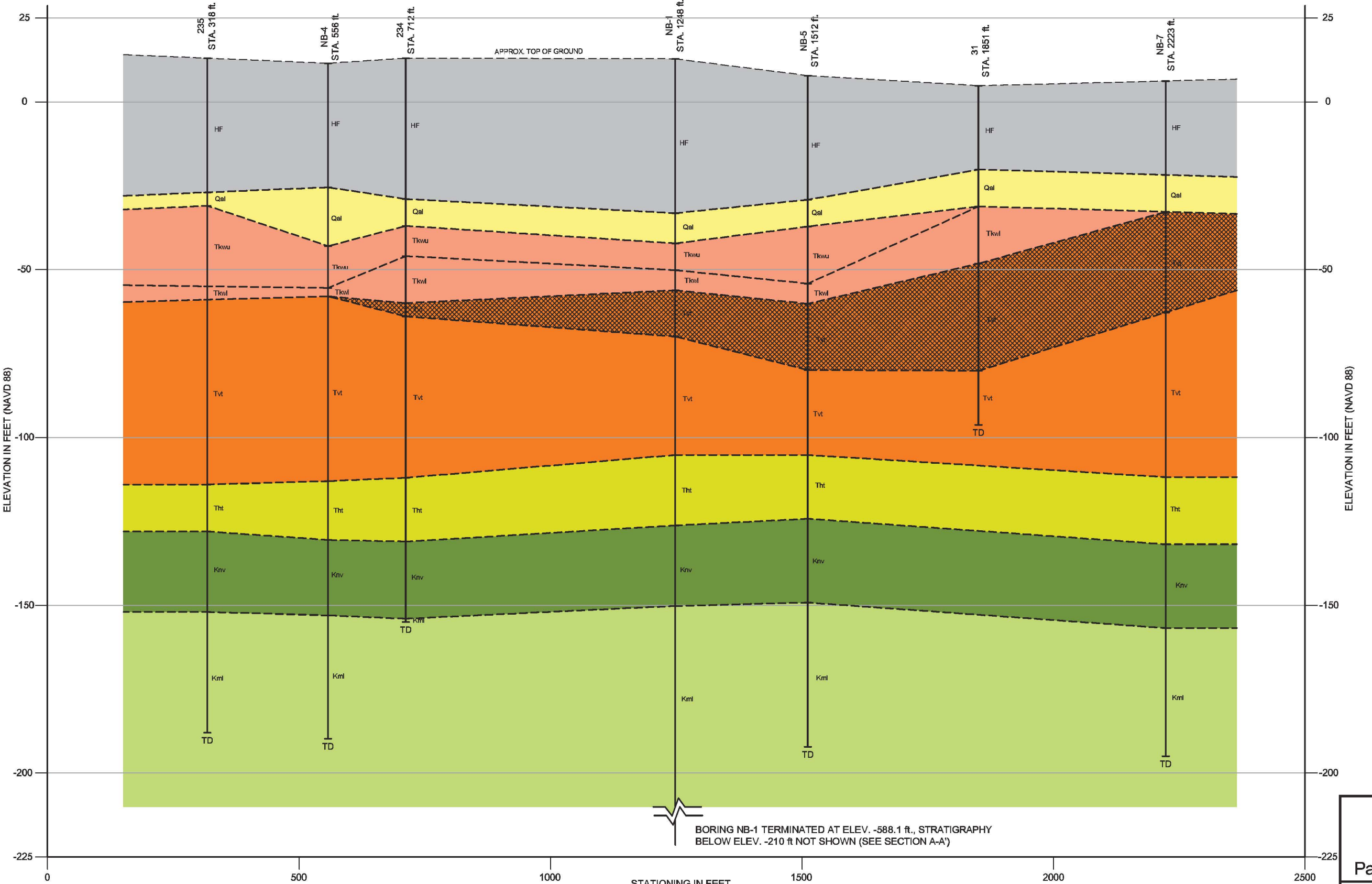
Rev 0



SW  
B

INTERSECTION  
A-A'

NE  
B'



LEGEND:

- HF - Artificial and Hydraulic Fill
- Qal - Alluvium
- Tkuv - Kirkwood Formation (Upper)
- Tkw - Kirkwood Formation (Lower)
- Tvt - Vincentown Formation (Oxidized)
- Tvt - Vincentown Formation
- Tht - Hornerstown Formation
- Knv - Navesink Formation
- Kml - Mount Laurel Formation

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Part 2, Site Safety Analysis Report

Geologic Cross-Section B-B'  
FIGURE 2.5.4.1-5 Rev 0

NOTES:

- BORING 31 (DAMES & MOORE, 1968) (Reference 2.5.4.1-6)
- BORINGS 234 AND 235 (DAMES & MOORE, 1974) (Reference 2.5.4.1-5)
- EB AND NB SERIES BORINGS COMPLETED FOR ESPA (APPENDIX 2AA)
- TD = TERMINATION DEPTH

NOTES (continued):

- SEE FIGURE 2.5.4.1-1 FOR SECTION LOCATION
- BORINGS PROJECTED ORTHOGONALLY TO SECTION LINE.
- SOME BORINGS SHOWN ON FIG-2.5.4.1-1 NOT INCLUDED DUE TO SHALLOW DEPTH OR PROXIMITY TO OTHER BORINGS.



- LEGEND:
- ESPA GEOTECHNICAL BORING (APPENDIX 2AA)
  - ESPA GEOTECHNICAL BORING WITH DOWNHOLE TESTING (APPENDIX 2AA)
  - HCGS EXISTING GEOTECHNICAL BORING (REFERENCE 2.5.4.1-5)
  - SALEM EXISTING GEOTECHNICAL BORING (REFERENCE 2.5.4.1-6)

CONTOUR INTERVAL = 2 FT.

NOTE:

ELEVATIONS ARE REFERENCED TO NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).

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PSEG SITE ESPA

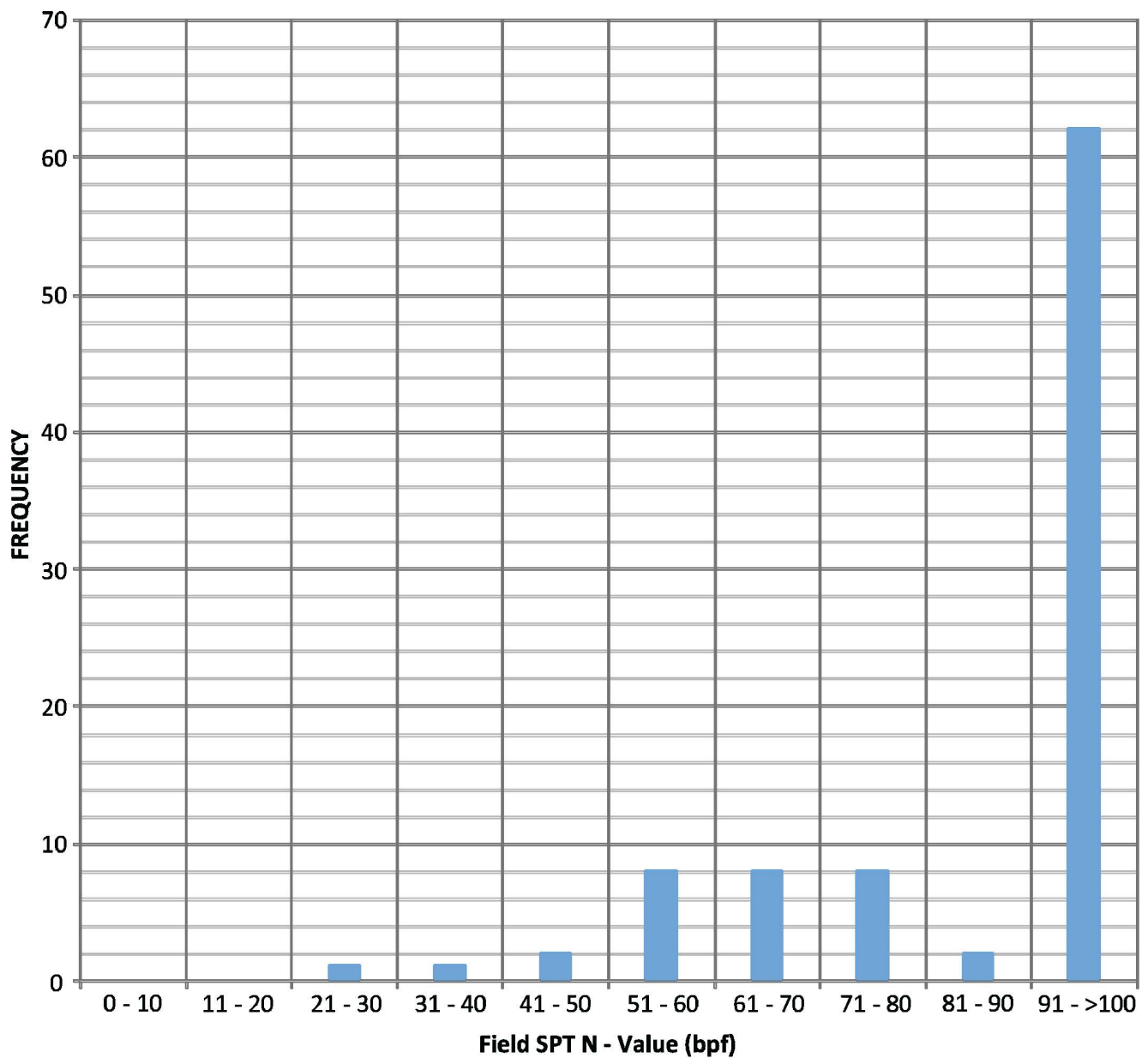
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Structure Contour Map-Top of Vincentown Formation

FIGURE 2.5.4.1-6

Rev 1



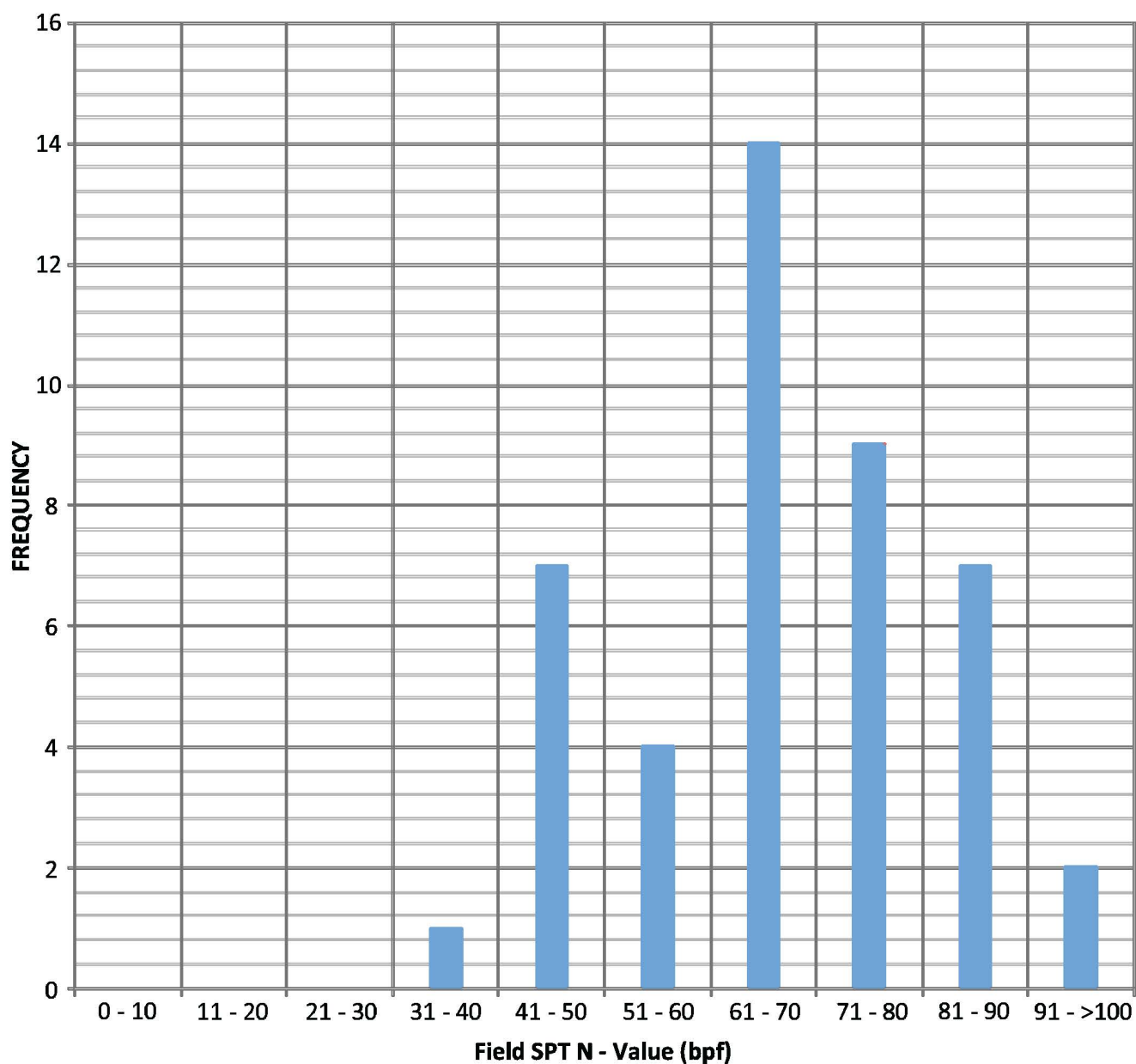


■ NB Series Borings (Appendix 2AA)

**NOTE:**  
SPT N-VALUE = STANDARD PENETRATION  
TEST RESISTANCE, BLOWS PER FOOT (bpf),  
IN ACCORDANCE WITH ASTM D 1586  
(REFERENCE 2.5.4.1-3)

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SPT Histogram-Mount Laurel  
Formation  
FIGURE 2.5.4.1-7

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■ NB Series Borings (Appendix 2AA)

**NOTE:**  
**SPT N-VALUE = STANDARD PENETRATION**  
**TEST RESISTANCE, BLOWS PER FOOT (bpf),**  
**IN ACCORDANCE WITH ASTM D 1586**  
**(REFERENCE 2.5.4.1-3)**

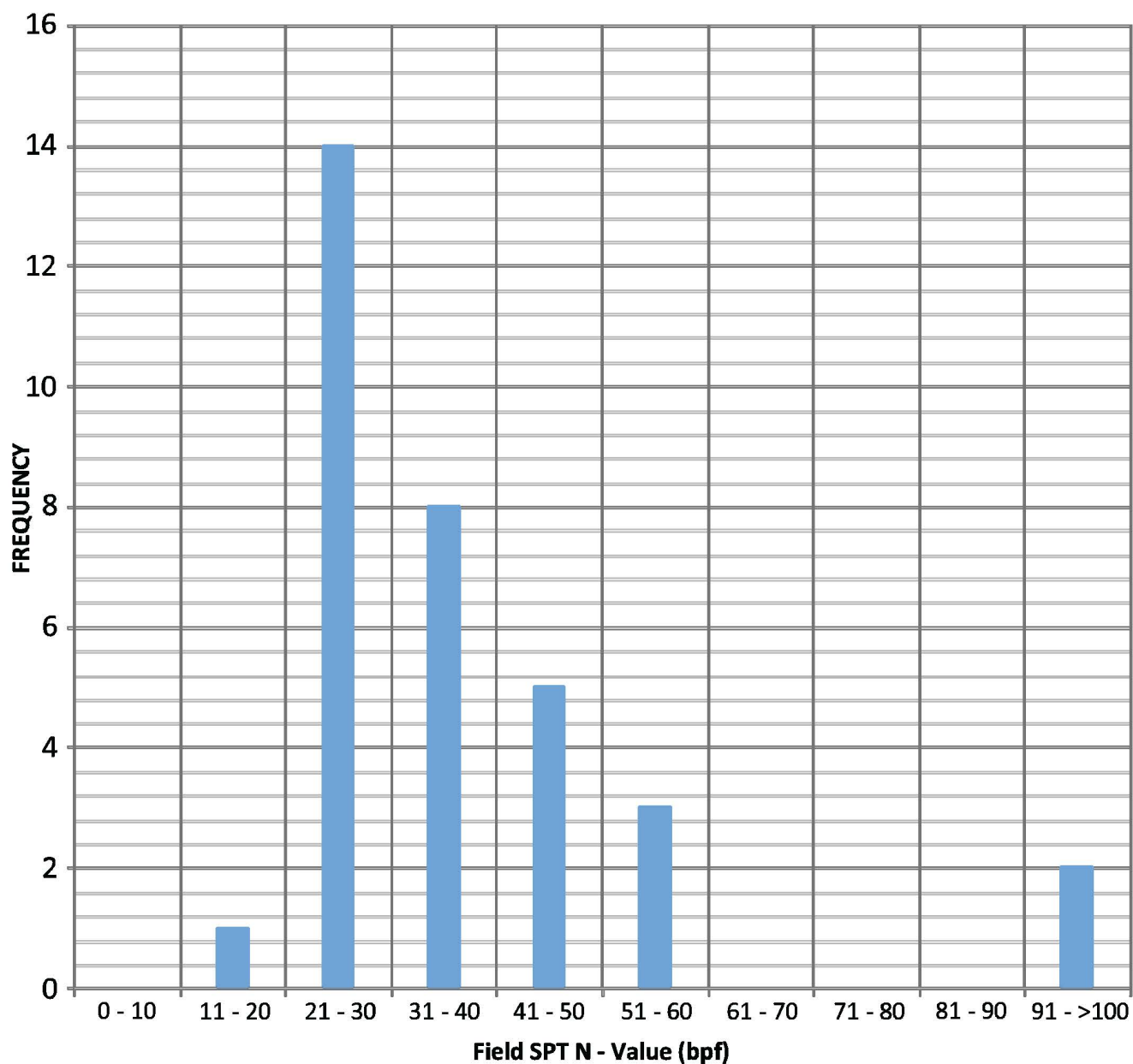
PSEG Power, LLC

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SPT Histogram-Navesink  
Formation

FIGURE 2.5.4.1-8

Rev 0



■ NB Series Borings (Appendix 2AA)

**NOTE:**  
**SPT N-VALUE = STANDARD PENETRATION**  
**TEST RESISTANCE, BLOWS PER FOOT (bpf),**  
**IN ACCORDANCE WITH ASTM D 1586**  
**(REFERENCE 2.5.4.1-3)**

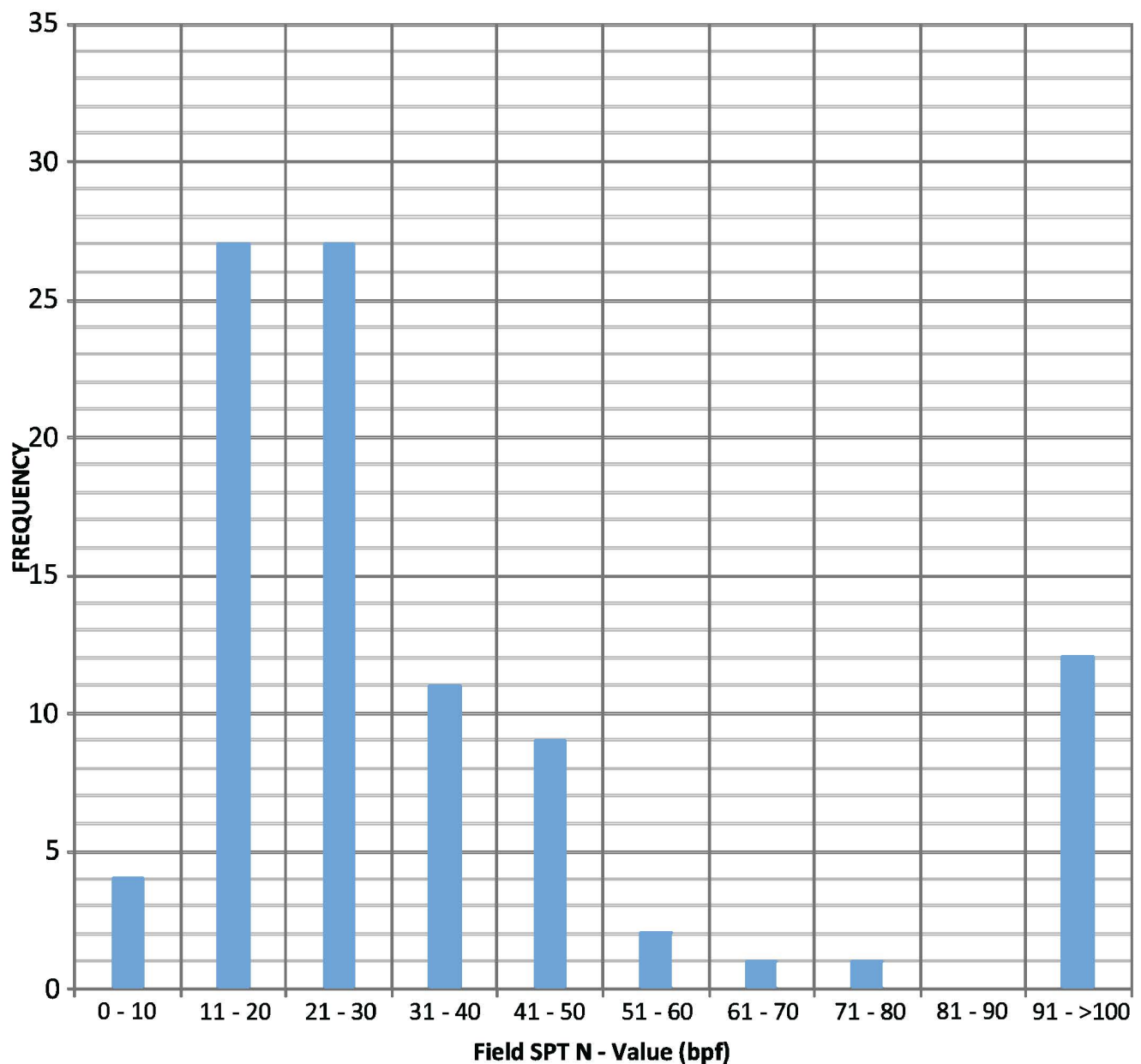
PSEG Power, LLC

PSEG SITE ESPA  
 Part 2, Site Safety Analysis Report

SPT Histogram-Hornerstown  
 Formation

FIGURE 2.5.4.1-9

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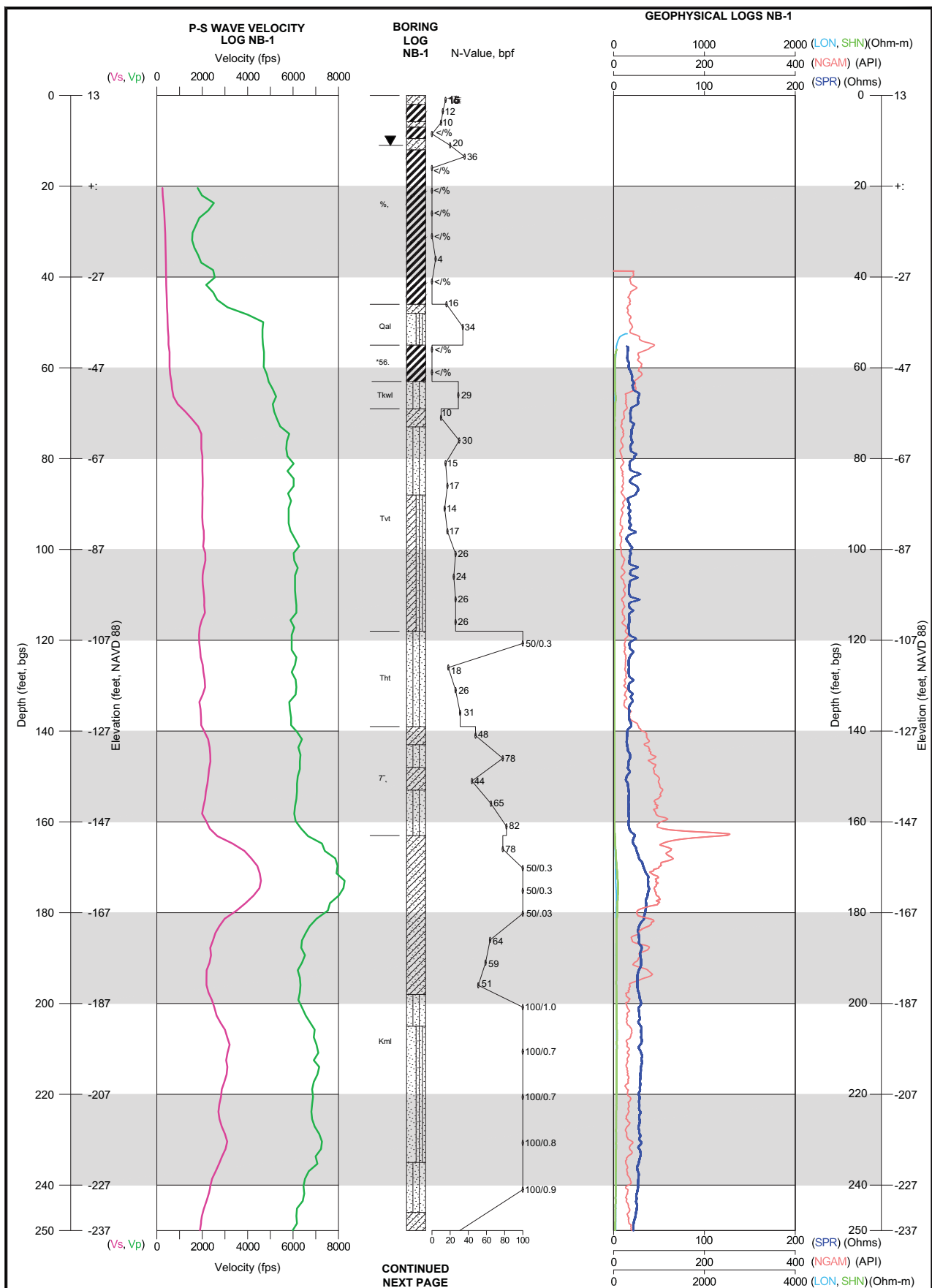


■ NB Series Borings (Appendix 2AA)

**NOTE:**  
**SPT N-VALUE = STANDARD PENETRATION**  
**TEST RESISTANCE, BLOWS PER FOOT (bpf),**  
**IN ACCORDANCE WITH ASTM D 1586**  
**(REFERENCE 2.5.4.1-3)**

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 PSEG SITE ESPA  
 Part 2, Site Safety Analysis Report  
 SPT Histogram-Vincentown  
 Formation  
 FIGURE 2.5.4.1-10

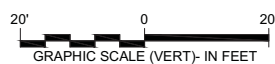
Rev 0



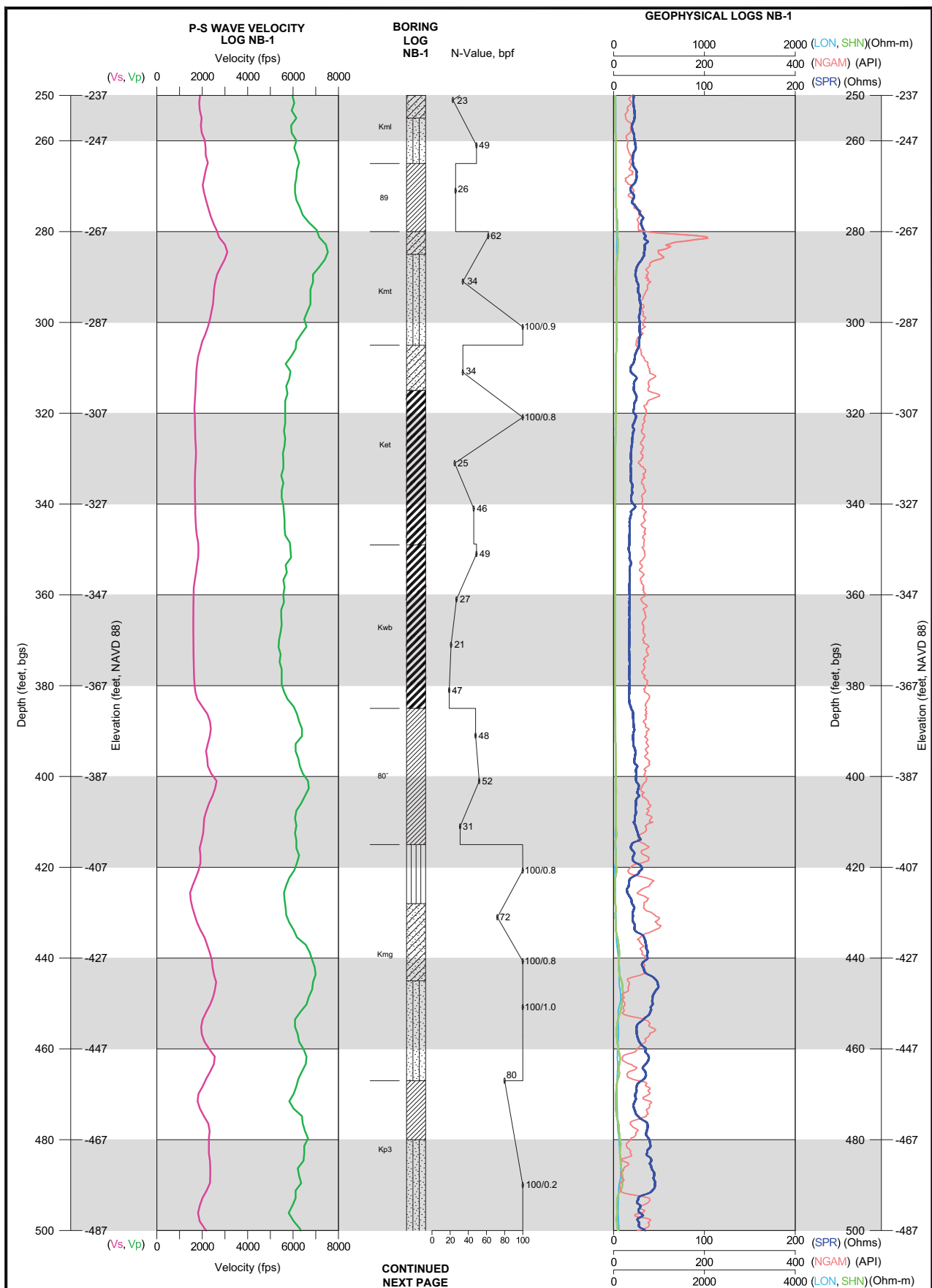
PSEG Power, LLC  
PSEG SITE ESPA  
Part 2, Site Safety Analysis Report

Boring Profile - NB-1  
FIGURE 2.5.4.1-11A

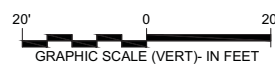
REV 1

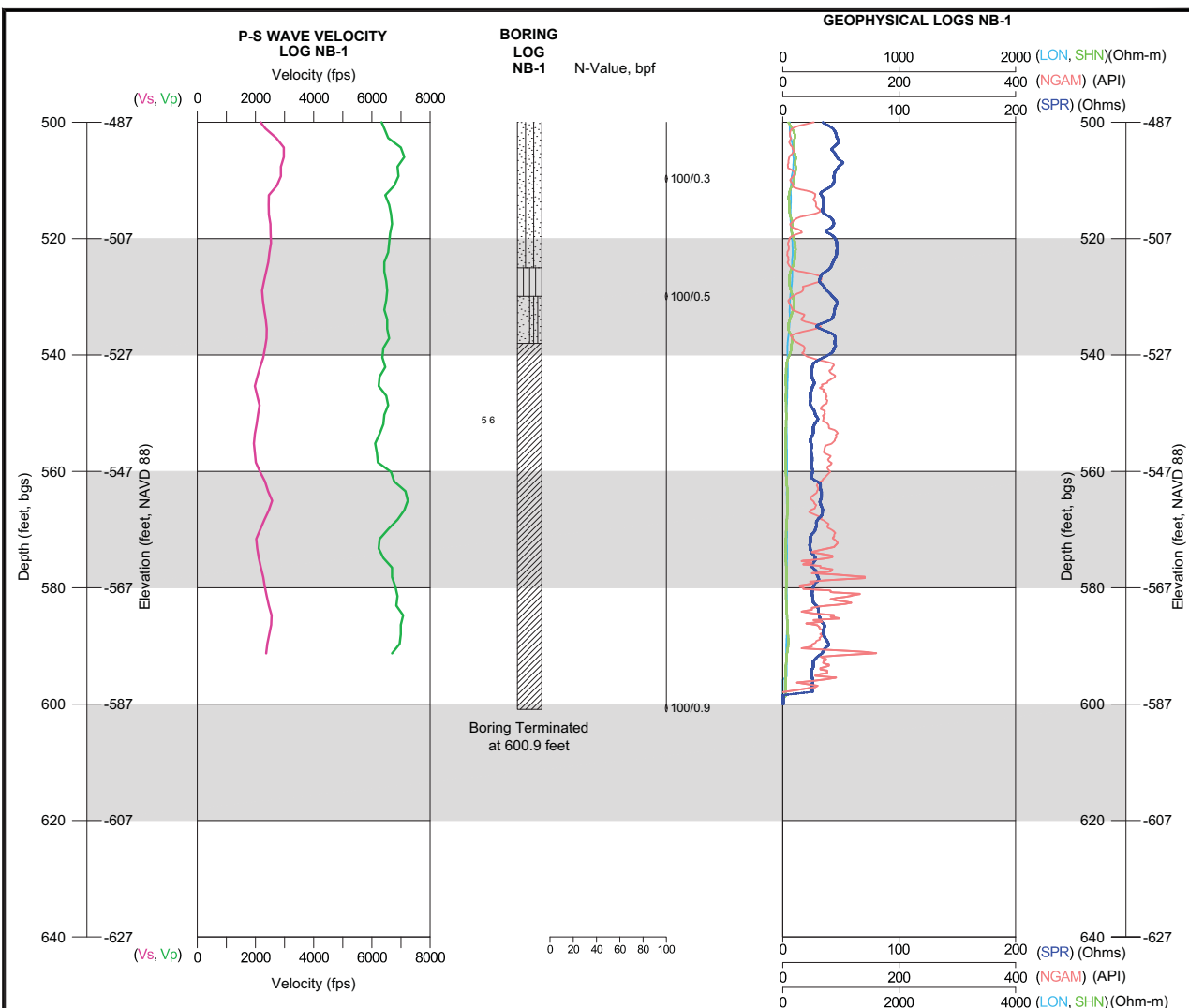





















(Reference: 2.5.4.1-8)





### SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS	
			GRAPH	LETTER		
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS  (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES	
		GRAVELS WITH FINES  (APPRECIABLE AMOUNT OF FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES	
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN SANDS  (LITTLE OR NO FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES	
		SANDS WITH FINES  (APPRECIABLE AMOUNT OF FINES)		GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES	
		SAND AND SANDY SOILS	CLEAN SANDS  (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
			SANDS WITH FINES  (APPRECIABLE AMOUNT OF FINES)		SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		SM	SILTY SANDS, SAND - SILT MIXTURES	
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES	
				ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY	
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
				MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS	
HIGHLY ORGANIC SOILS				CH	INORGANIC CLAYS OF HIGH PLASTICITY	
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS	

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

### LEGEND:

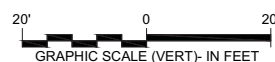
- \$+ - Artificial and Hydraulic Fill
- Qal - Alluvium
- );<- - Kirkwood Formation (upper)
- Tkwl - Kirkwood Formation (lower)
- Tvt - Vincenttown Formation
- Tht - Hornerstown Formation
- Knv - Navesink Formation
- Kml - Mount Laurel Formation
- 5< - Wenonah Formation
- Kmt - Marshalltown Formation
- Ket - Englishtown Formation
- Kwb - Woodbury Formation
- Kmv - Merchantville Formation
- Kmg - Magothy Formation
- 5 6 - Potomac Formation
- >,\$ - Weight of Hammer
- Vs - Shear Wave Velocity
- ° - Compression Wave Velocity
- LON, SHN - Long/Short Normal Transitivity
- γ<sub>i</sub> = - Natural Gamma
- "# - Single Point Resistance
- N-Value - Standard Penetration Resistance, Blows per Foot (bpf)
- ▼ - Stabilized Water Level

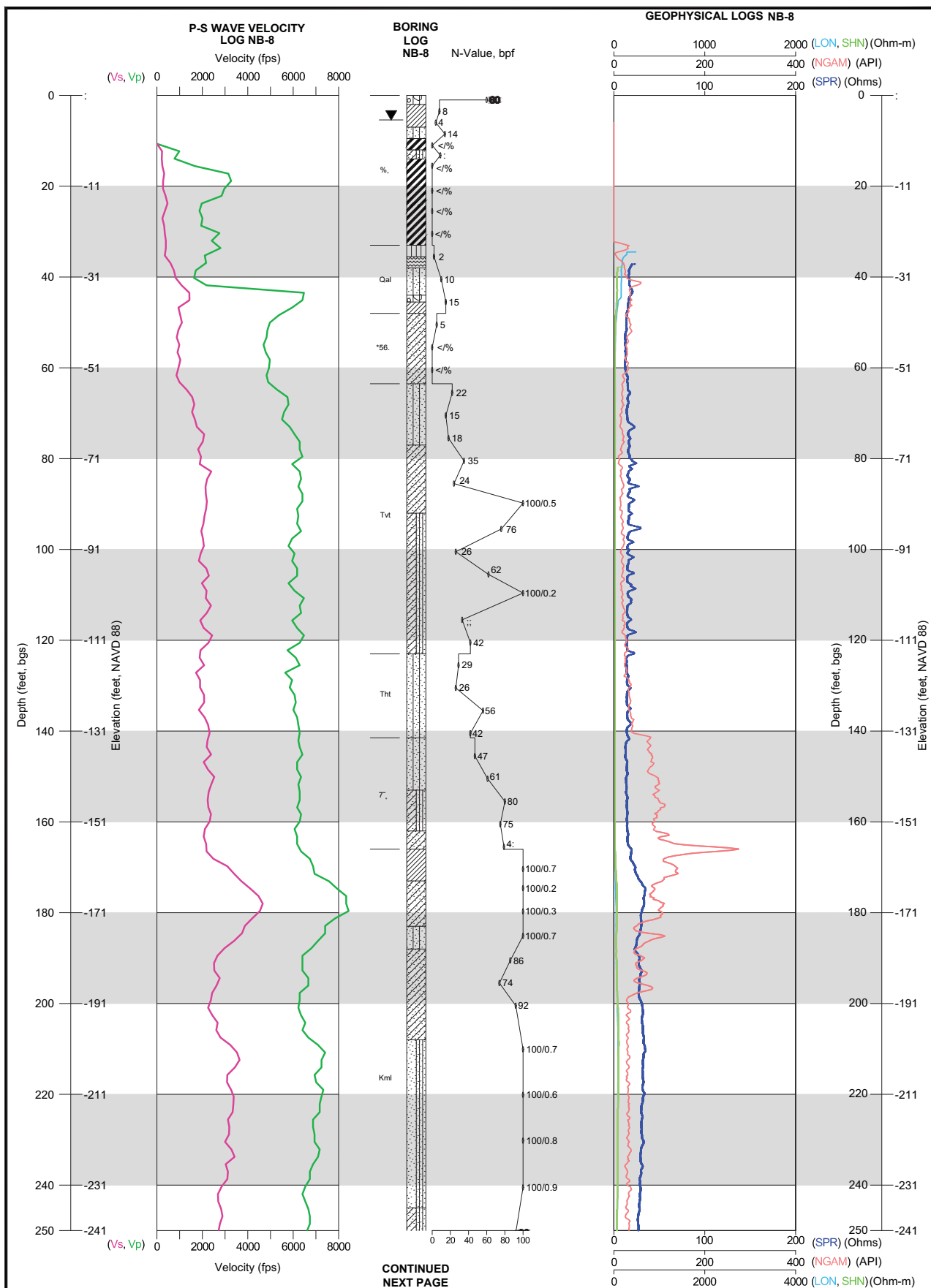
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Part 2, Site Safety Analysis Report

Boring Profile - NB-1  
FIGURE 2.5.4.1-11C

REV 1

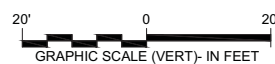


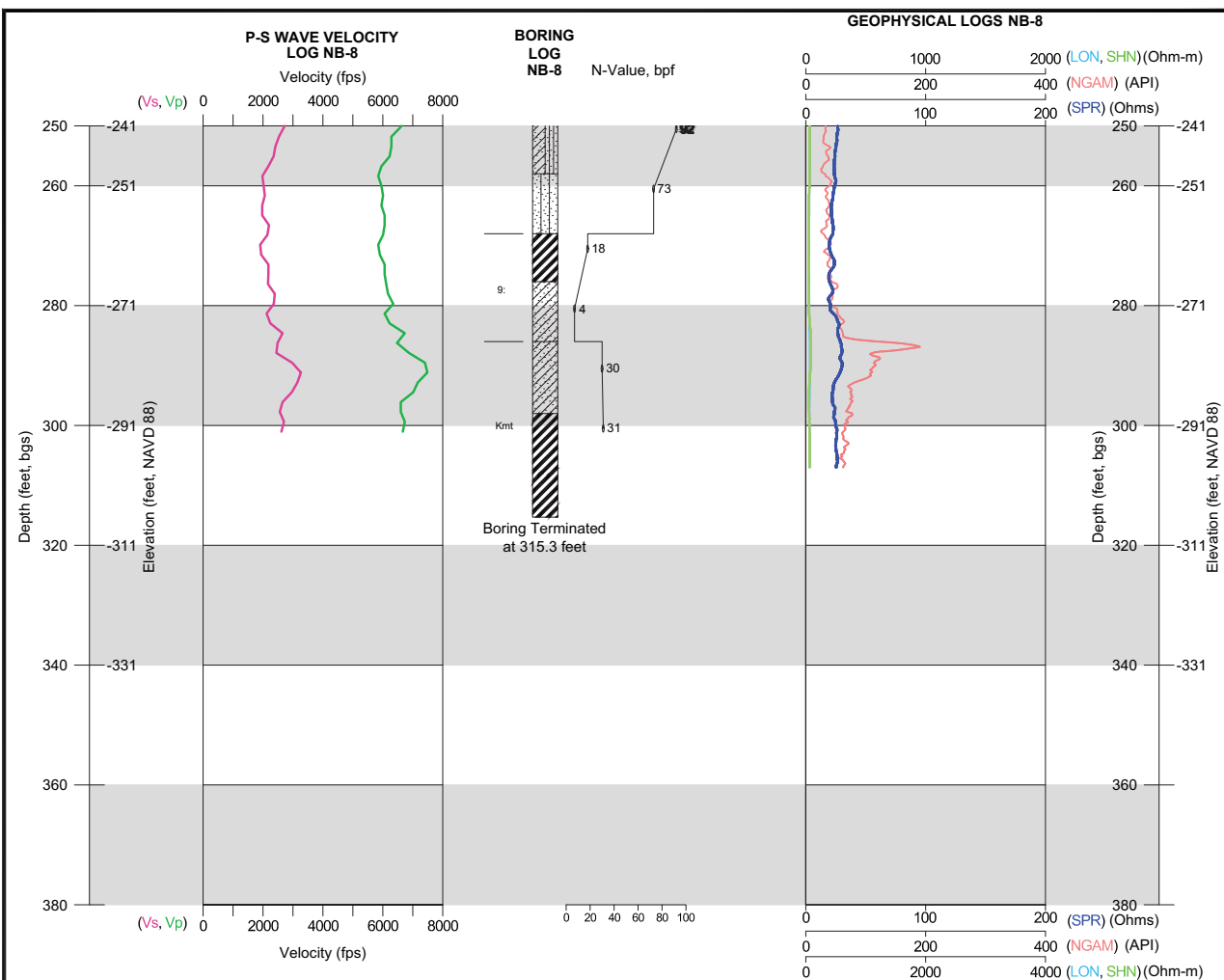


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PSEG SITE ESPA  
Part 2, Site Safety Analysis Report

Boring Profile - NB-8  
FIGURE 2.5.4.1-12A

REV 1





### SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS		
			GRAPH	LETTER			
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS  (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES		
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES		
		GRAVELS WITH FINES  (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES		
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE			GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES		
		SAND AND SANDY SOILS	CLEAN SANDS  (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	
					SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES	
FINE GRAINED SOILS	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	SANDS WITH FINES  (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES		
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES		
	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50			ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY	
					CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
		LIQUID LIMIT GREATER THAN 50			OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
					MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS	
		SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50			CH	INORGANIC CLAYS OF HIGH PLASTICITY
						OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS		

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

### LEGEND:

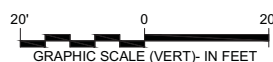
- %, Qal - Artificial and Hydraulic Fill
- Alluvium
- \*<. - Kirkwood Formation (upper)
- Tvt - Vincenttown Formation
- Tht - Hornerstown Formation
- g~ - Navesink Formation
- Kml - Mount Laurel Formation
- 9: - Wenonah Formation
- Kmt - Marshelltown Formation
- >/% - Weight of Hammer
- Vs - Shear Wave Velocity
- Vp - Compression Wave Velocity
- LON, SHN - Long/Short Normal Transitivity
- "o" = - Natural Gamma
- (\$#) - Single Point Resistance
- N-Value - Standard Penetration Resistance, Blows per Foot (bpf)
- Stabilized Water Level

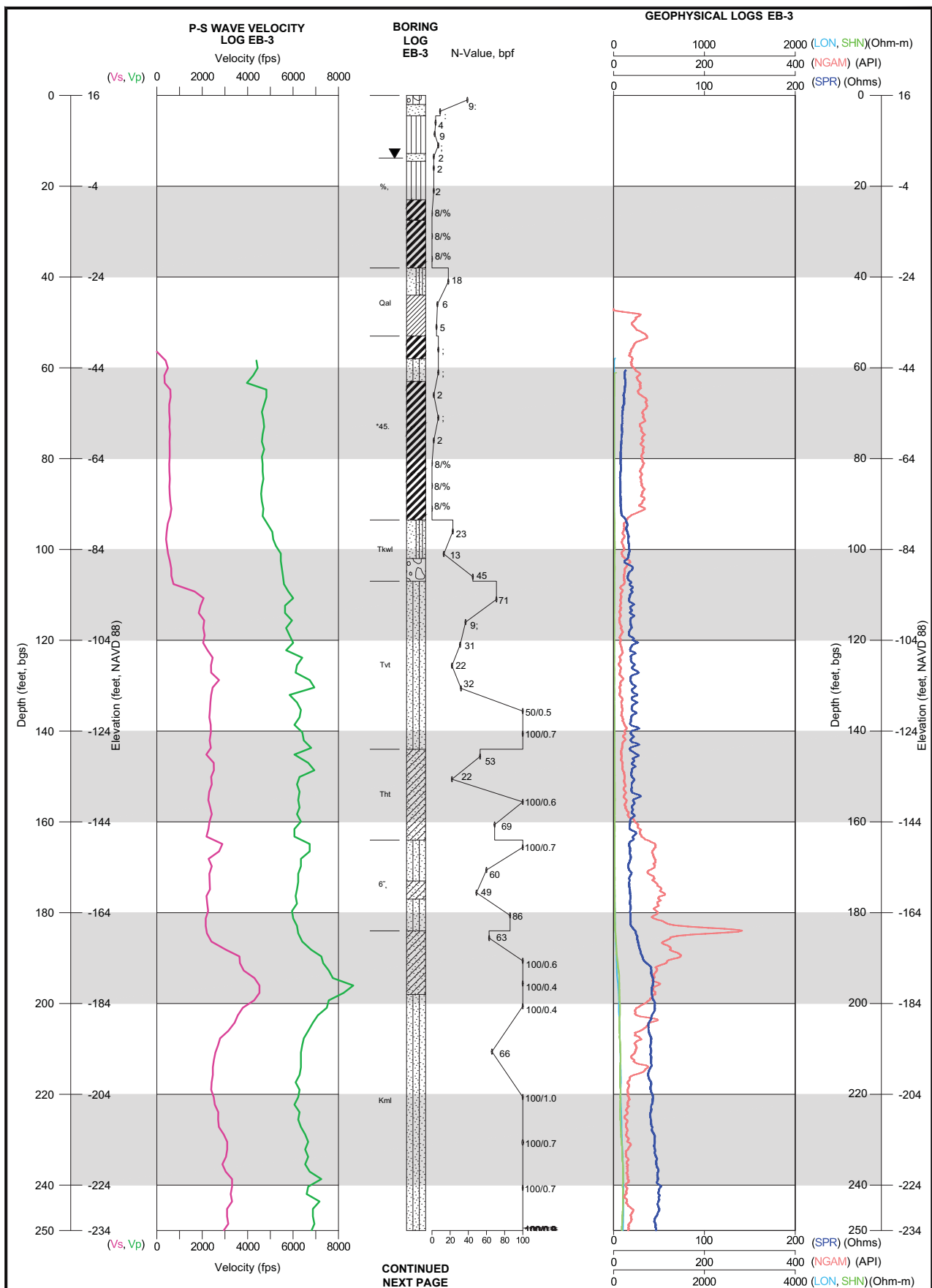
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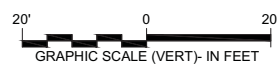
Boring Profile - NB-8  
FIGURE 2.5.4.1-12B

REV 1





(Reference: 2.5.4.1-8)

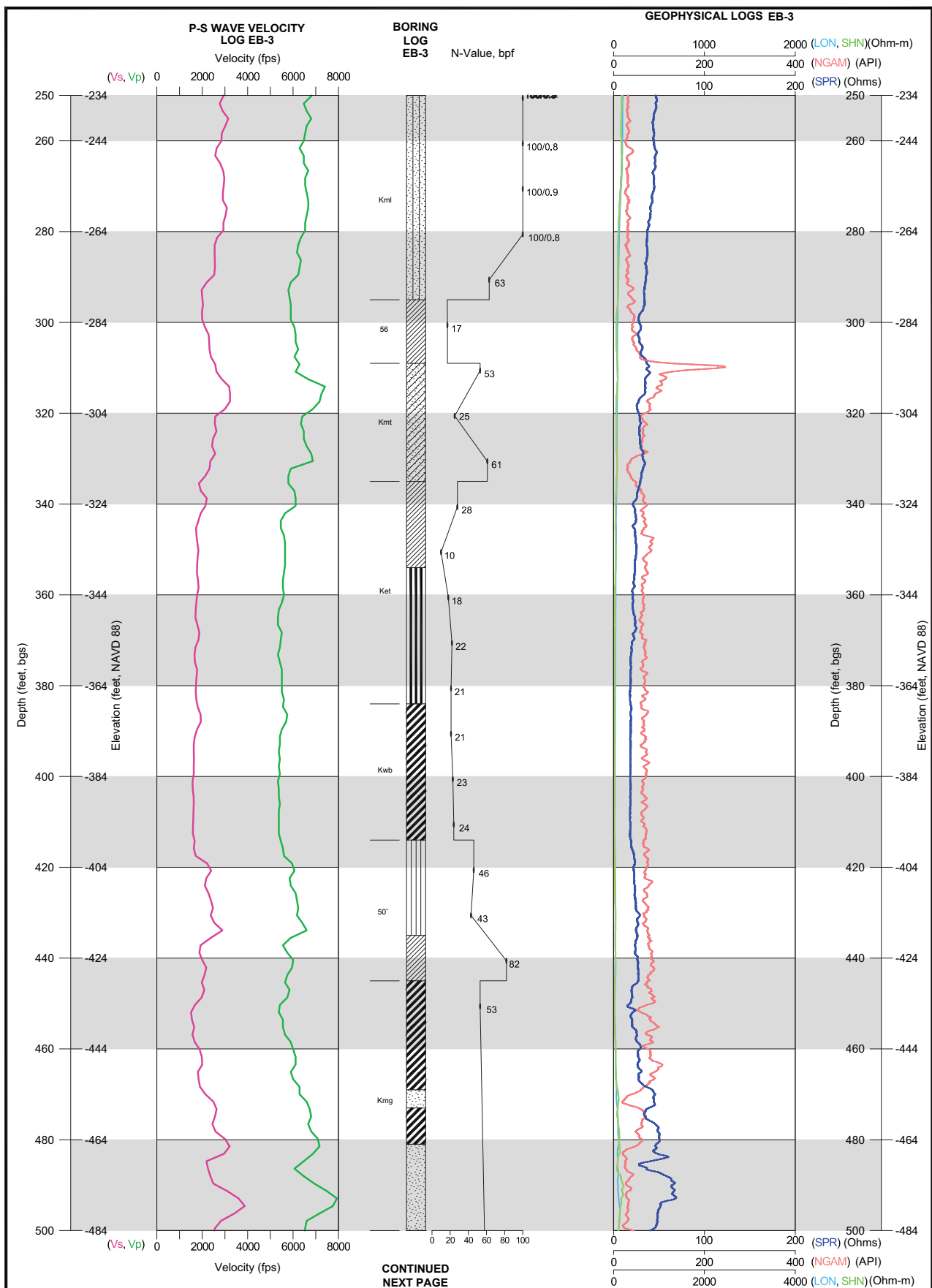


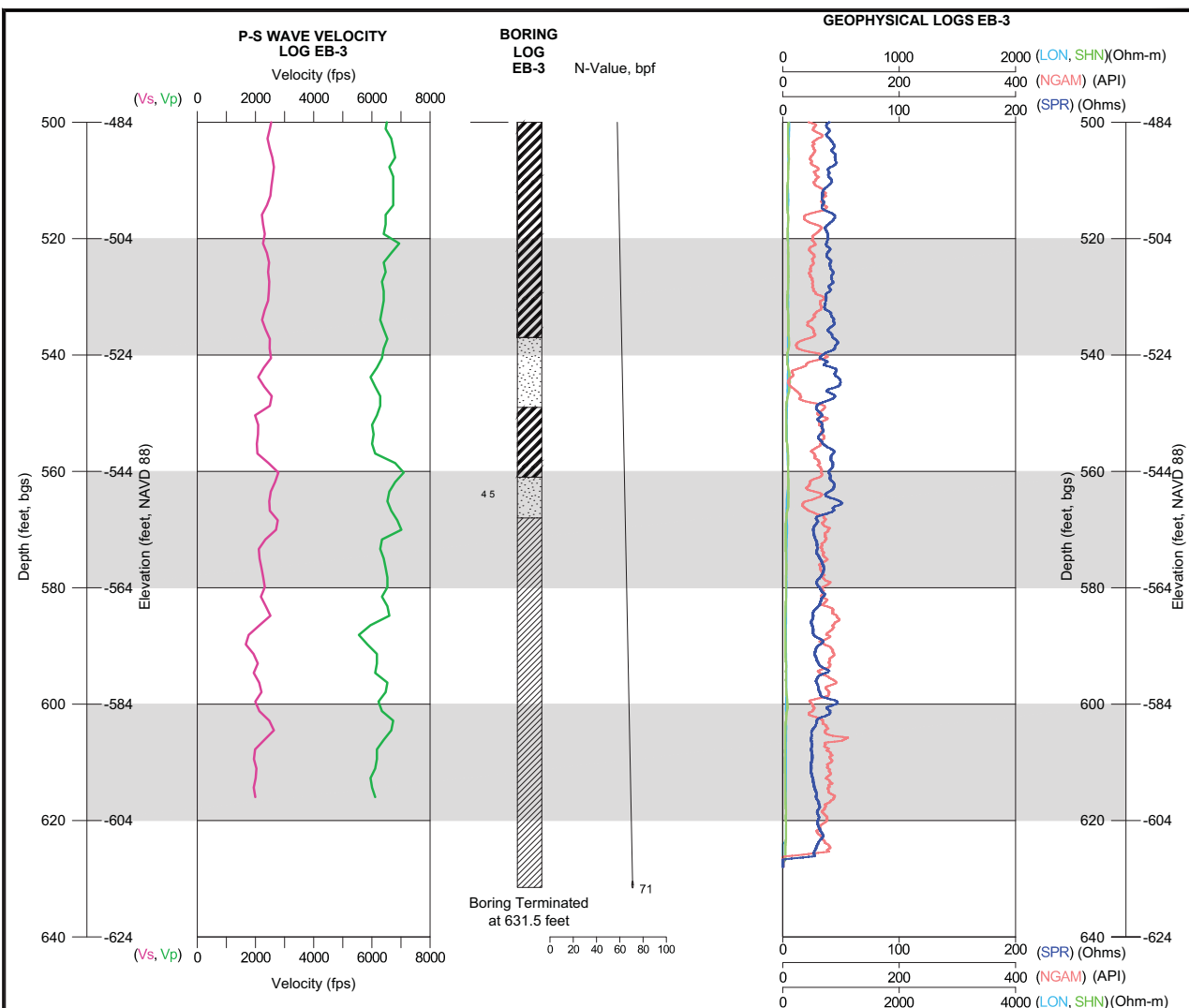
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PSEG SITE ESPA  
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Boring Profile - EB-3  
FIGURE 2.5.4.1-13A

REV 1







### SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
	SAND AND SANDY SOILS	CLEAN SANDS (LITTLE OR NO FINES)		GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
FINE GRAINED SOILS	SILTS AND CLAYS	CLEAN SANDS (LITTLE OR NO FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SC	CLAYEY SANDS, SAND - CLAY MIXTURES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SC	CLAYEY SANDS, SAND - CLAY MIXTURES
	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
		LIQUID LIMIT LESS THAN 50		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		LIQUID LIMIT LESS THAN 50		OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
HIGHLY ORGANIC SOILS	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
		LIQUID LIMIT GREATER THAN 50		CH	INORGANIC CLAYS OF HIGH PLASTICITY
		LIQUID LIMIT GREATER THAN 50		OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
		LIQUID LIMIT GREATER THAN 50		PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

### LEGEND:

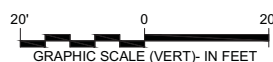
- \$+ - Artificial and Hydraulic Fill
- Qal - Alluvium
- 9:- - Kirkwood Formation (upper)
- Tkwl - Kirkwood Formation (lower)
- Tvt - Vincentown Formation
- Tht - Hornerstown Formation
- Knv - Navesink Formation
- Kml - Mount Laurel Formation
- 4: - Wenonah Formation
- Kmt - Marshalltown Formation
- Ket - Englishtown Formation
- Kwb - Woodbury Formation
- Kmv - Merchantville Formation
- Kmg - Magothy Formation
- 4 5 - Potomac Formation
- <,\$ - Weight of Hammer
- Vs - Shear Wave Velocity
- ° - Compression Wave Velocity
- LON, SHN - Long/Short Normal Transitivity
- γ<sub>i</sub> - Natural Gamma
- # - Single Point Resistance
- N-Value - Standard Penetration Resistance, Blows per Foot (bpf)
- ▼ - Stabilized Water Level

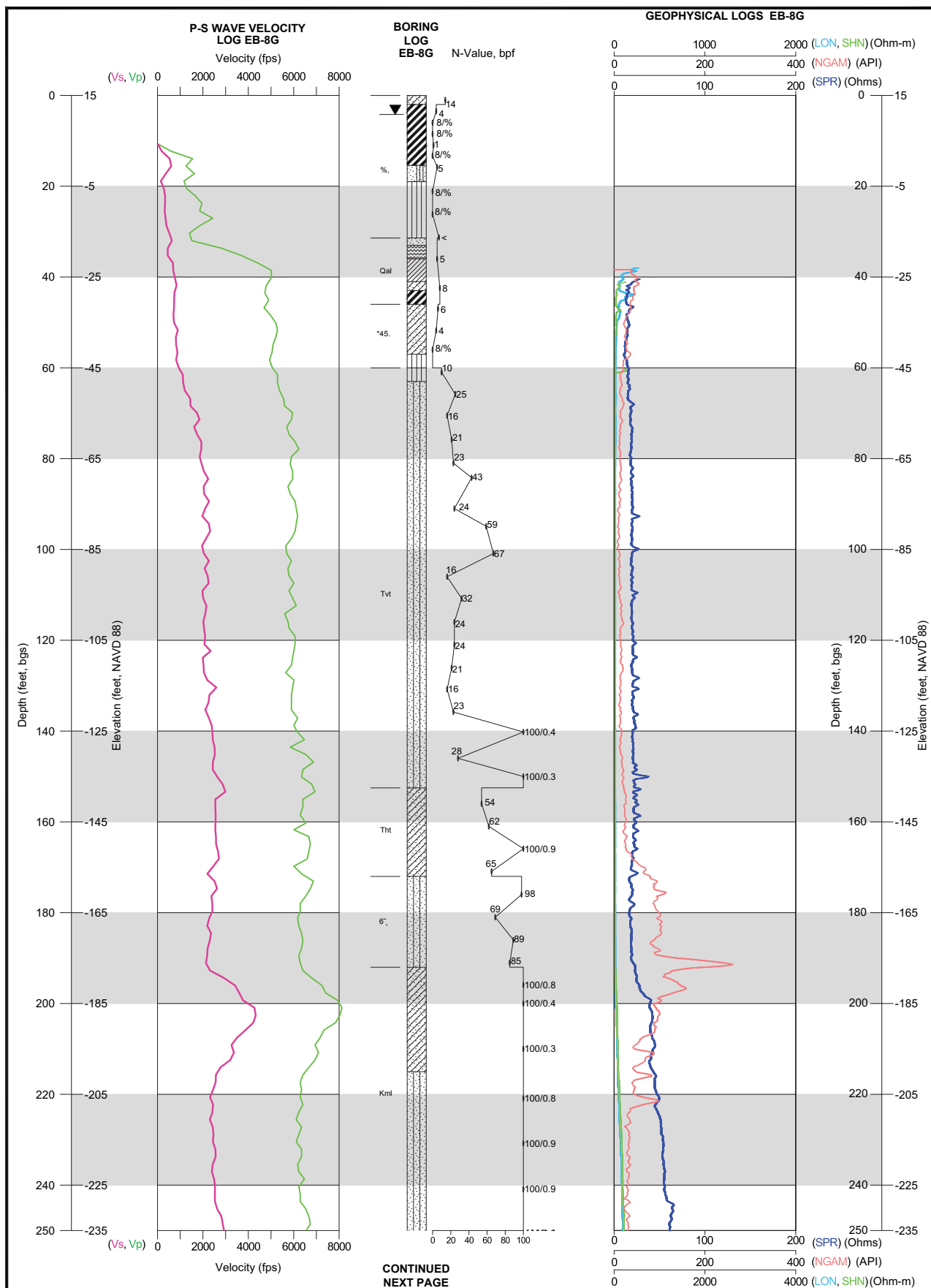
PSEG Power, LLC

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Part 2, Site Safety Analysis Report

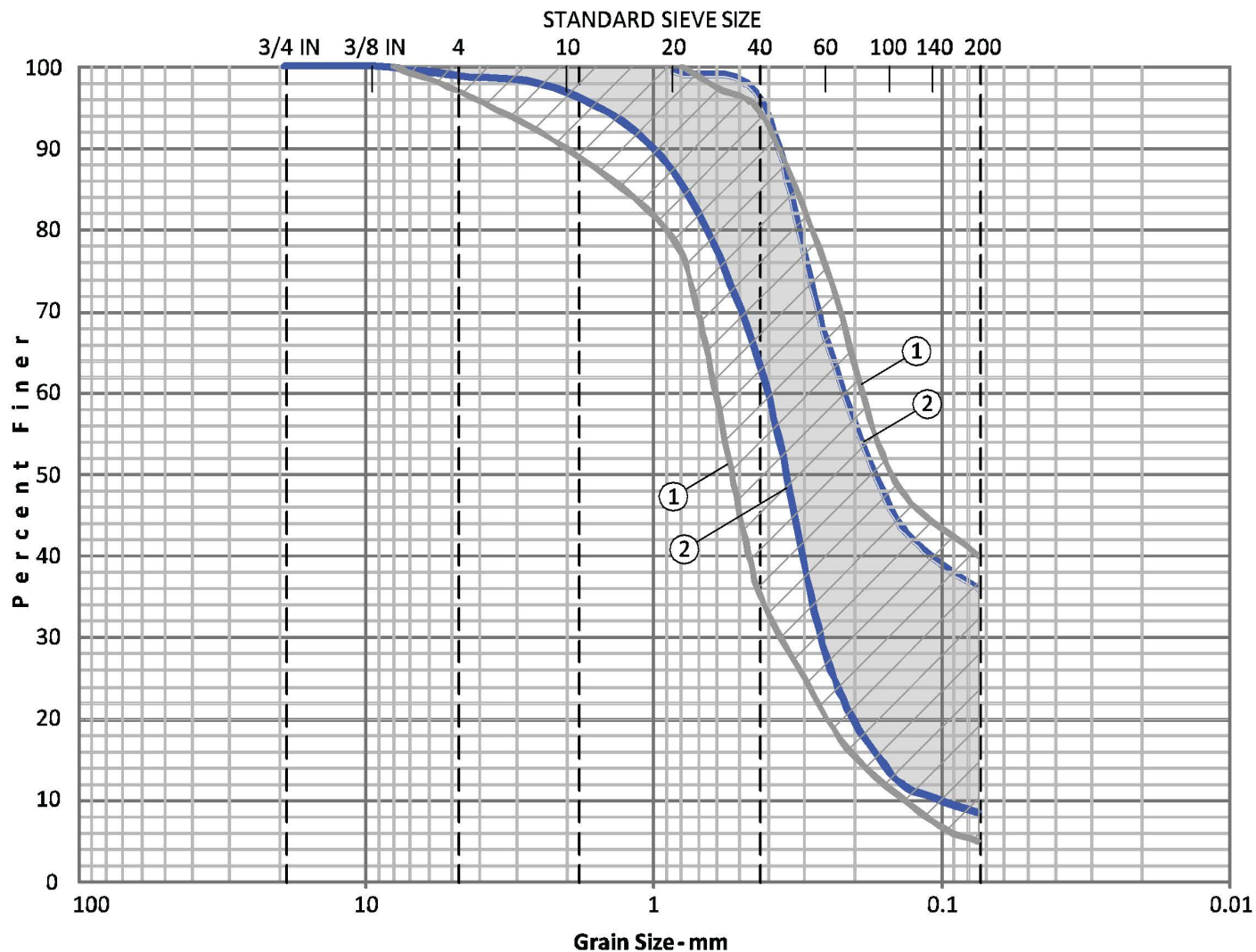
Boring Profile - EB-3  
FIGURE 2.5.4.1-13C

REV 1



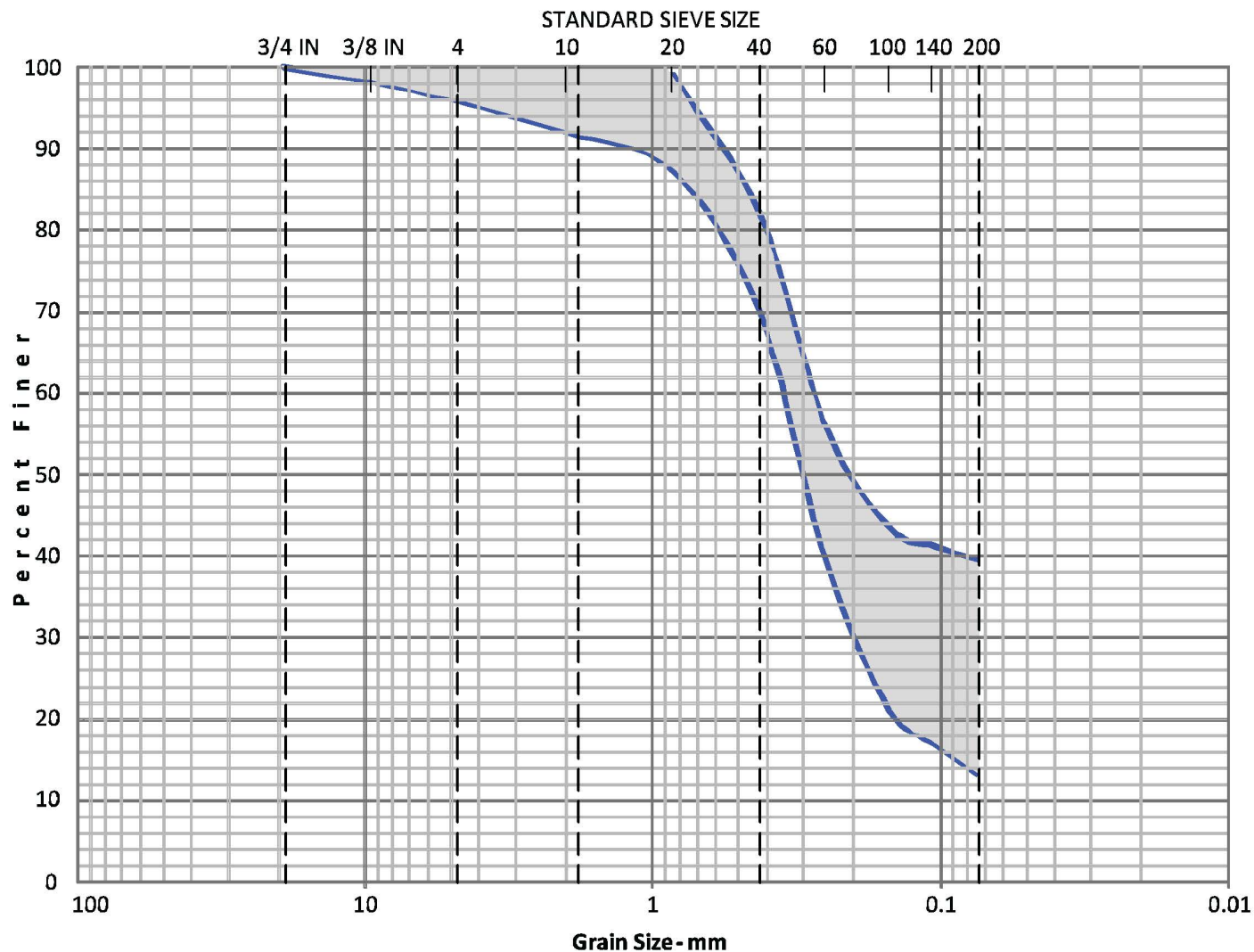






- ① Envelope for Hope Creek tests (Reference 2.5.4.2-16)
- ② Envelope for samples tested from ESPA borings (40 tests) (Reference 2.5.4.2-15)





GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

**Note:**

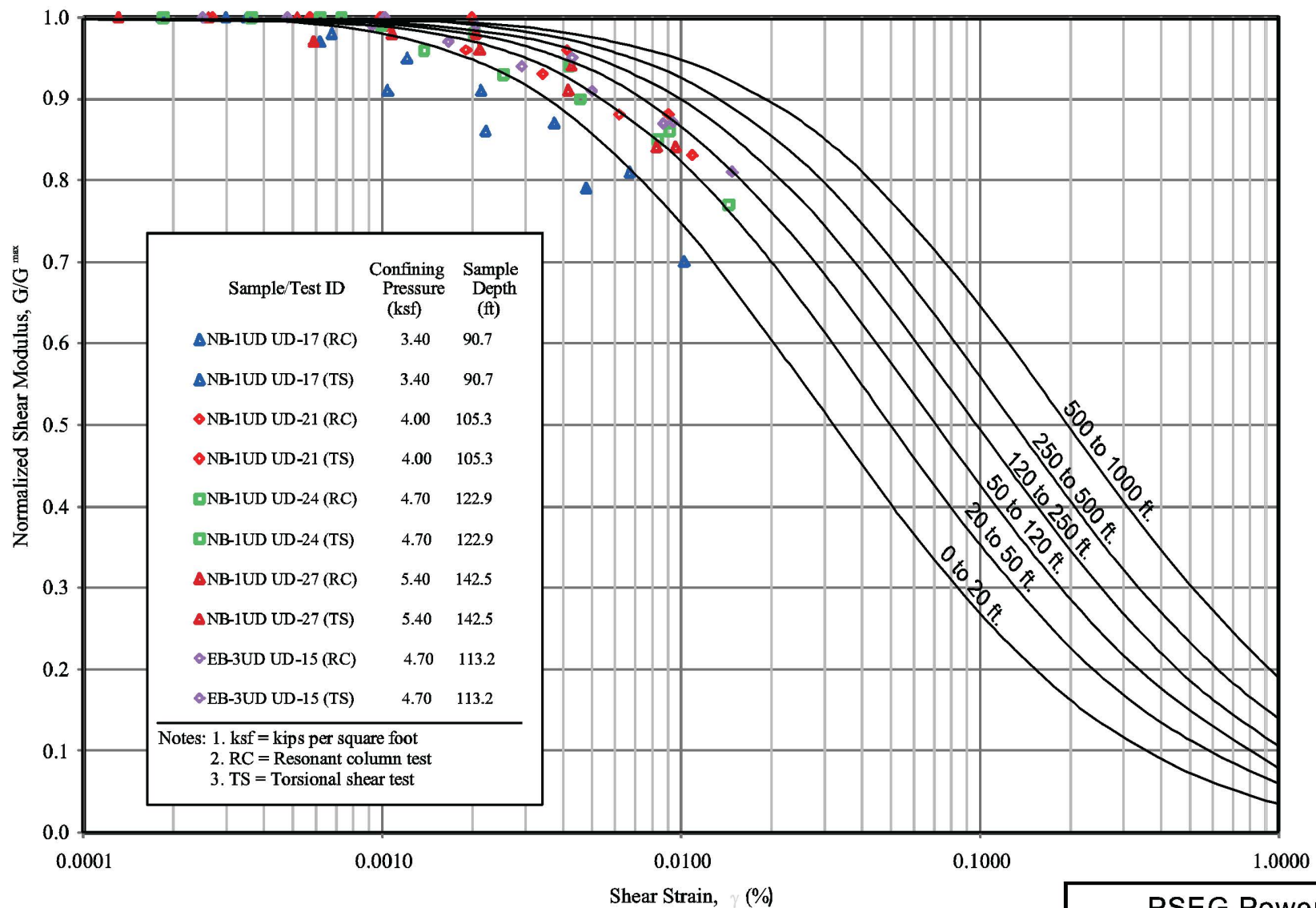
9 Samples from ESPA Borings Tested. (Reference 2.5.4.2-15).  
 No Grain Size Distribution Tests Reported for Navesink  
 Formation in Hope Creek FSAR (Reference 2.5.4.2-16)

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Grain Size Distribution Envelope  
 for Samples Tested from  
 the Navesink Formations

**FIGURE 2.5.4.2-2** Rev 0

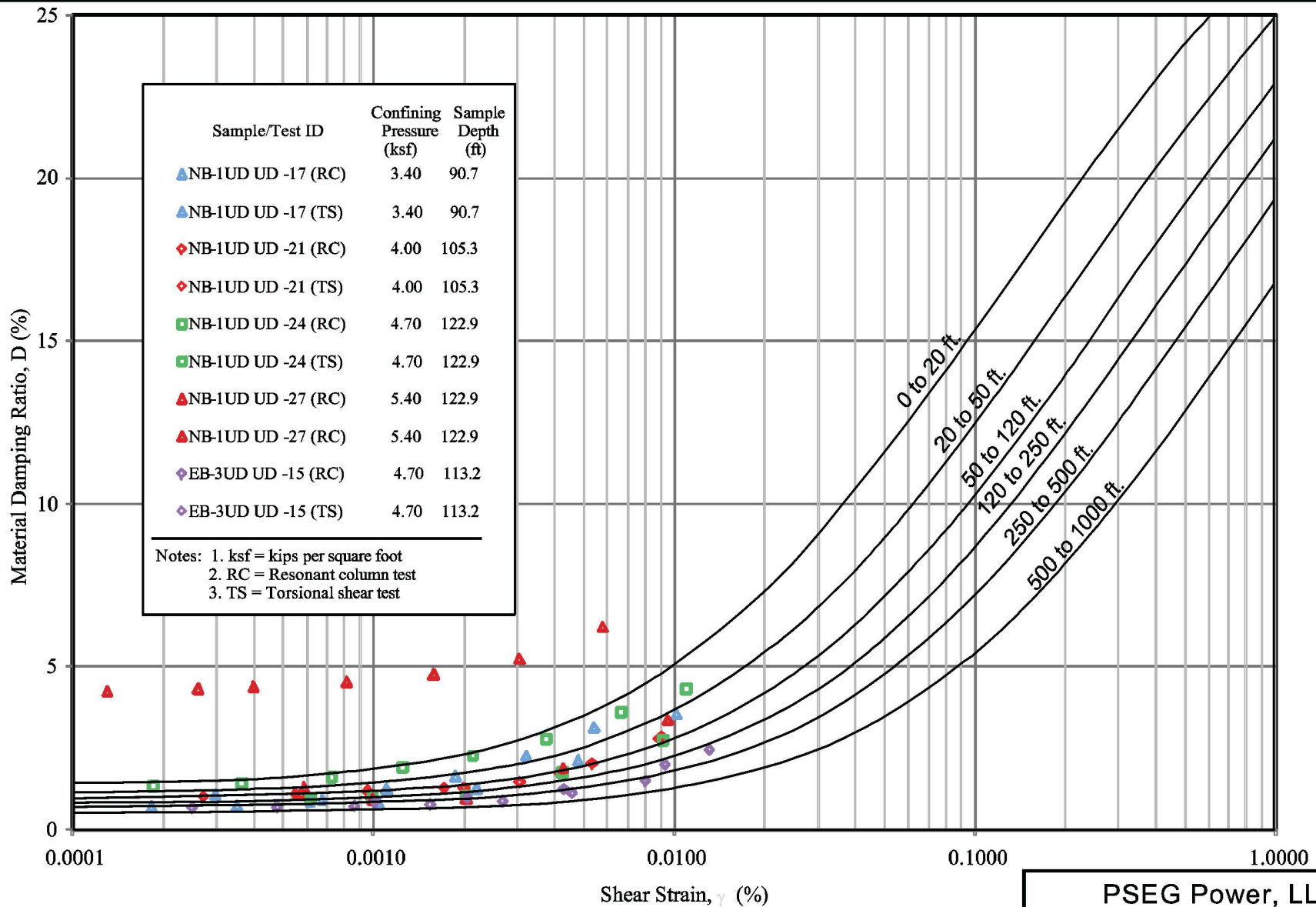




Note:  
Shear Modulus Reduction Curves are Generic Eastern  
North America Curves from EPRI, (Reference 2.5.4.2-14)

PSEG Power, LLC  
PSEG SITE ESPA  
Part 2, Site Safety Analysis Report  
Shear Modulus Reduction Curves and  
RCTS Data at In-Situ Confining Stress

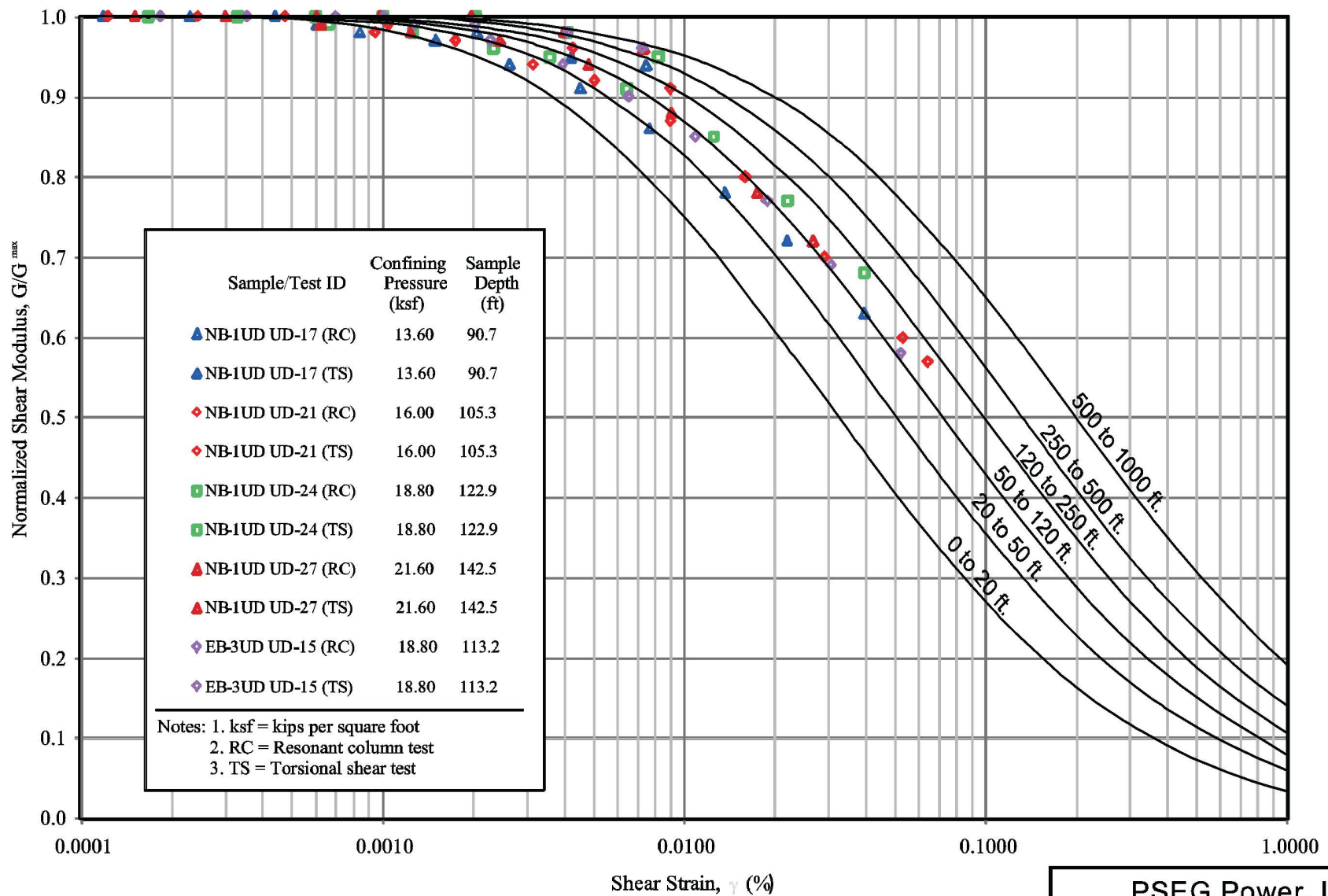
FIGURE 2.5.4.2-4 Rev 0



Note:  
Shear Modulus Reduction Curves are Generic Eastern  
North America Curves from EPRI, (Reference 2.5.4.2-14)

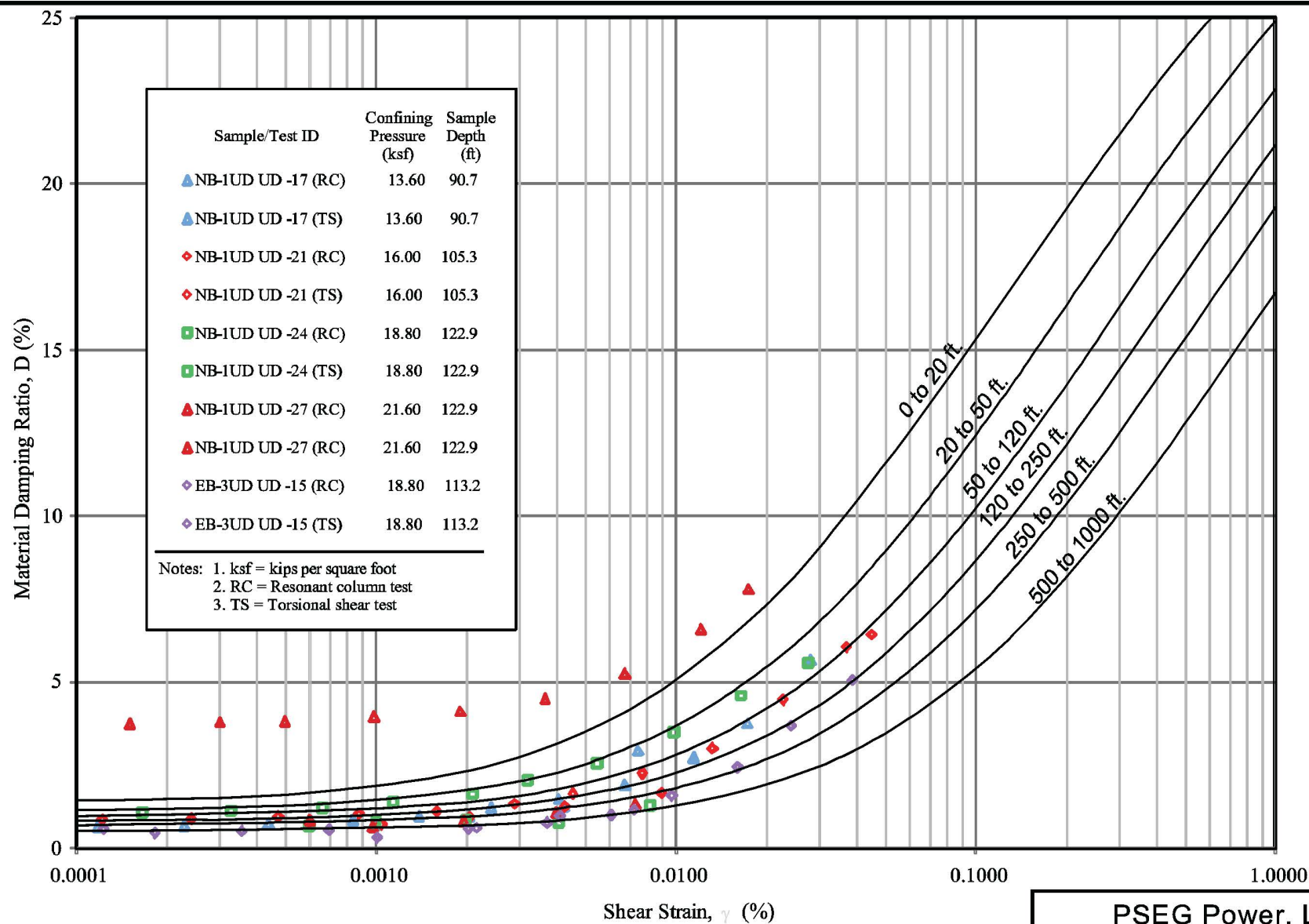
PSEG Power, LLC  
PSEG SITE ESPA  
Part 2, Site Safety Analysis Report  
Damping Ratio Curves and RCTS  
Data at In-Situ Confining Stress

FIGURE 2.5.4.2-5 Rev 0



**Note:**  
Shear Modulus Reduction Curves are Generic Eastern  
North America Curves from EPRI, (Reference 2.5.4.2-14)

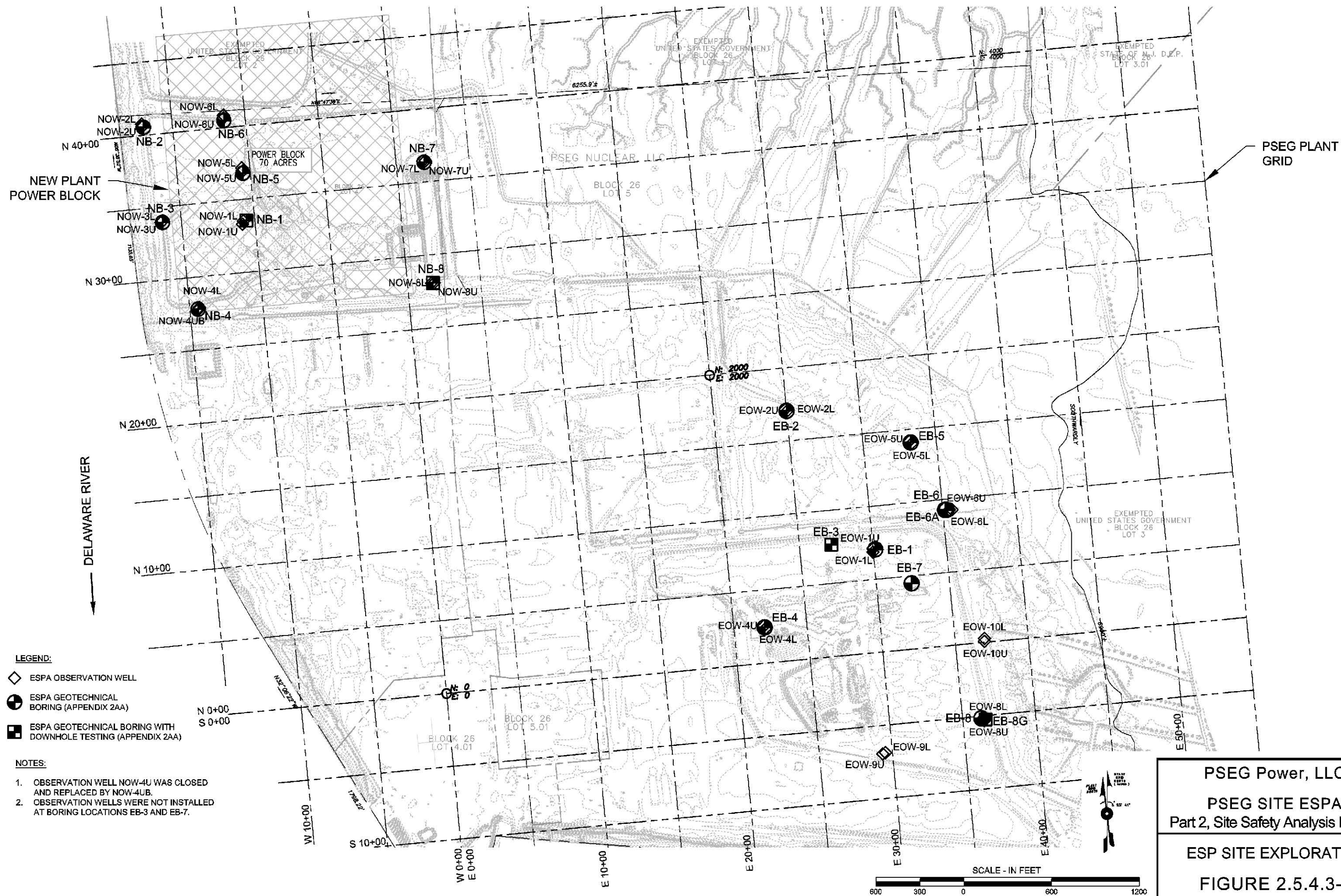




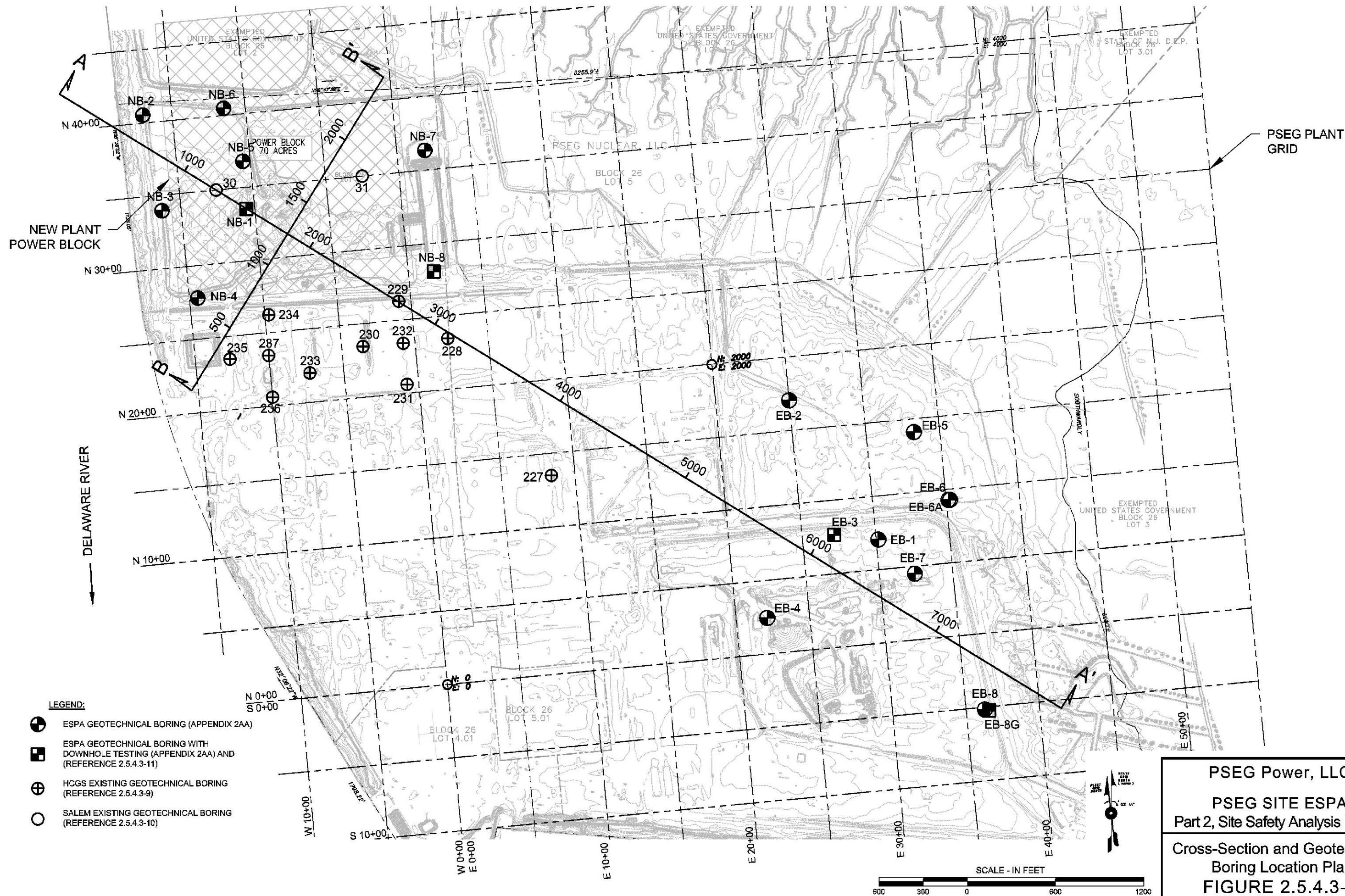
Note:  
Shear Modulus Reduction Curves are Generic Eastern  
North America Curves from EPRI; (Reference 2.5.4.2-14)

PSEG Power, LLC  
PSEG SITE ESPA  
Part 2, Site Safety Analysis Report  
Damping Ratio Curves and RCTS Data at  
Four Times In-Situ Confining Stress

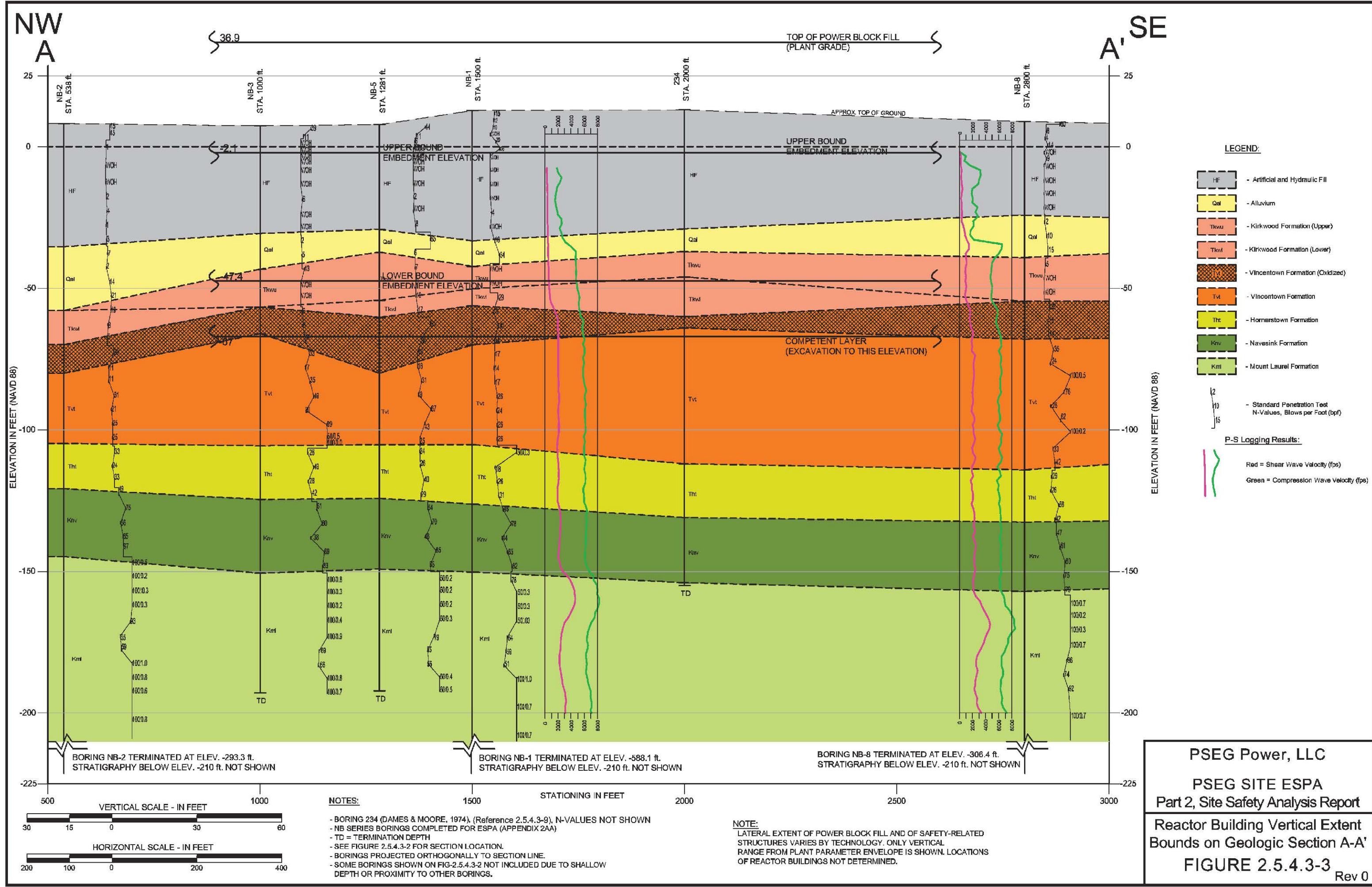
FIGURE 2.5.4.2-7 Rev 0



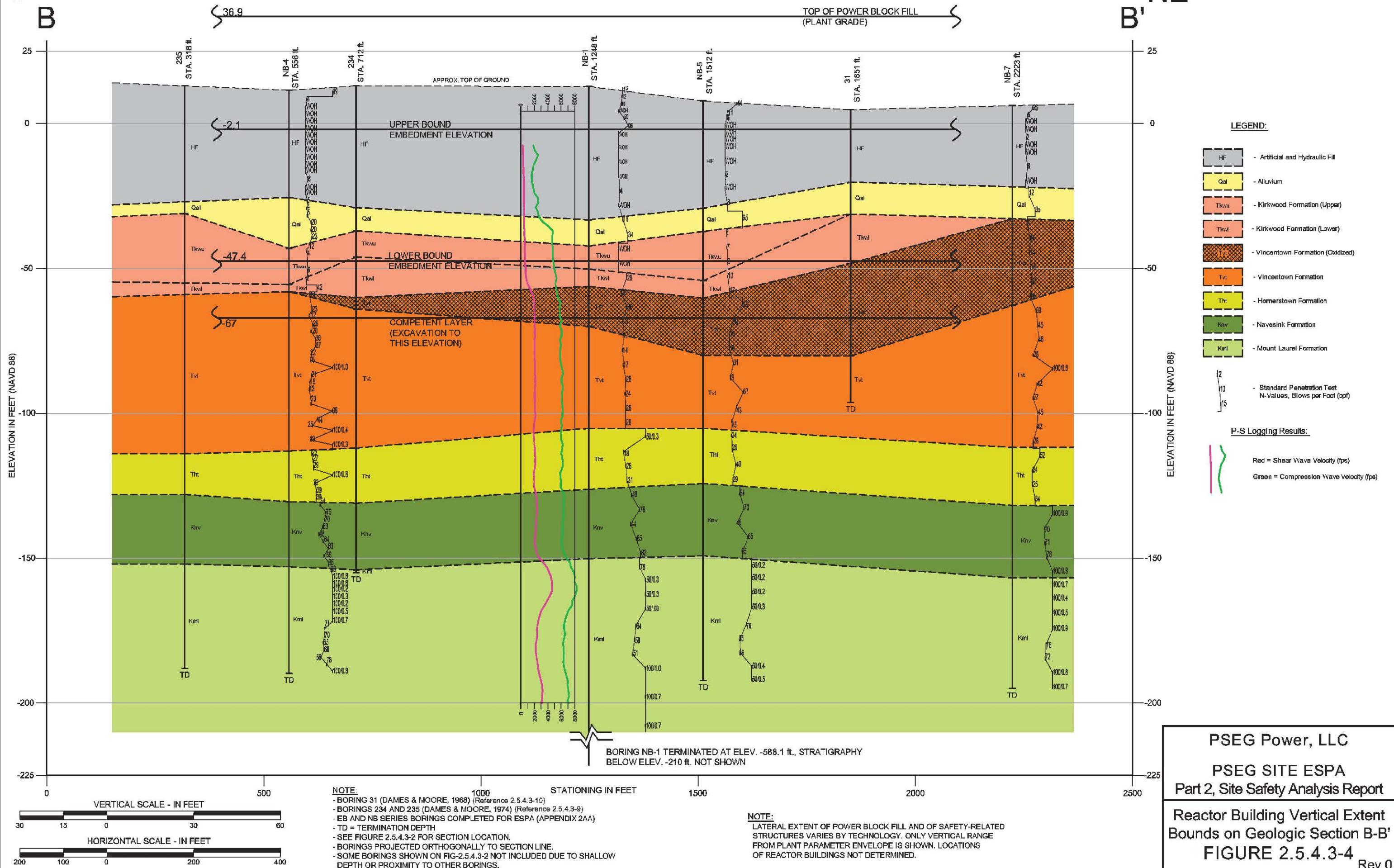


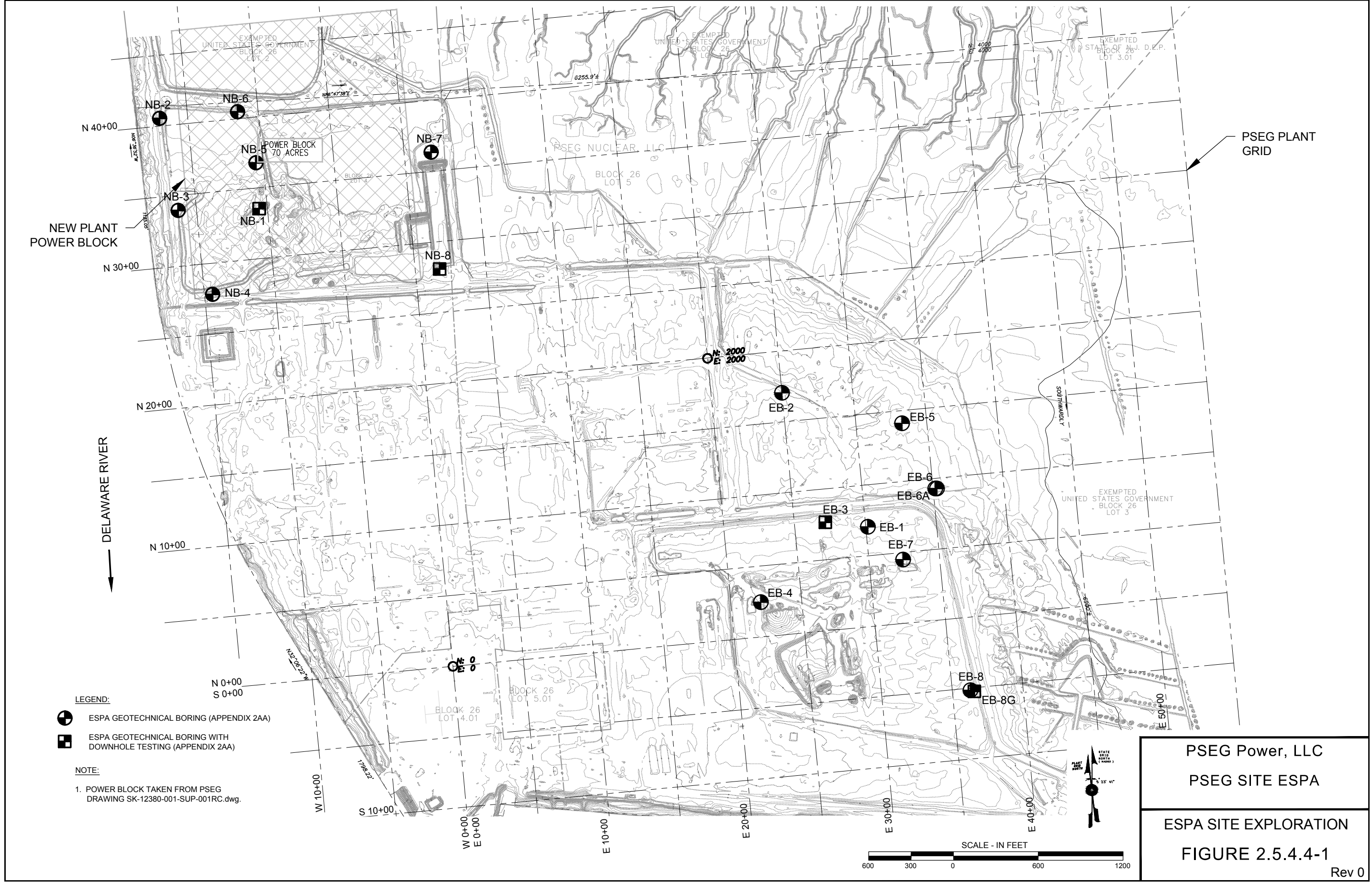


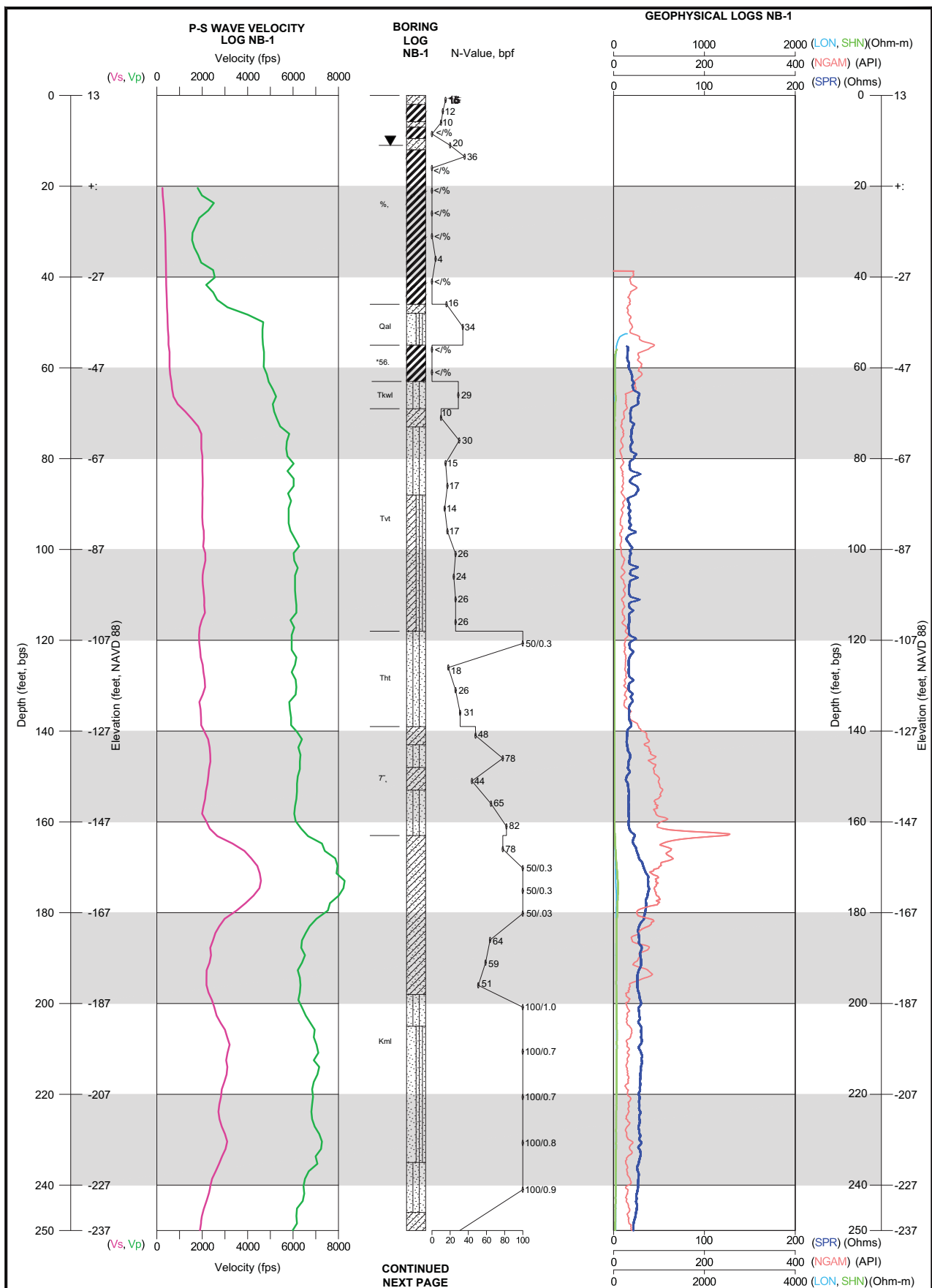






SW  
BNE  
B'

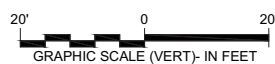




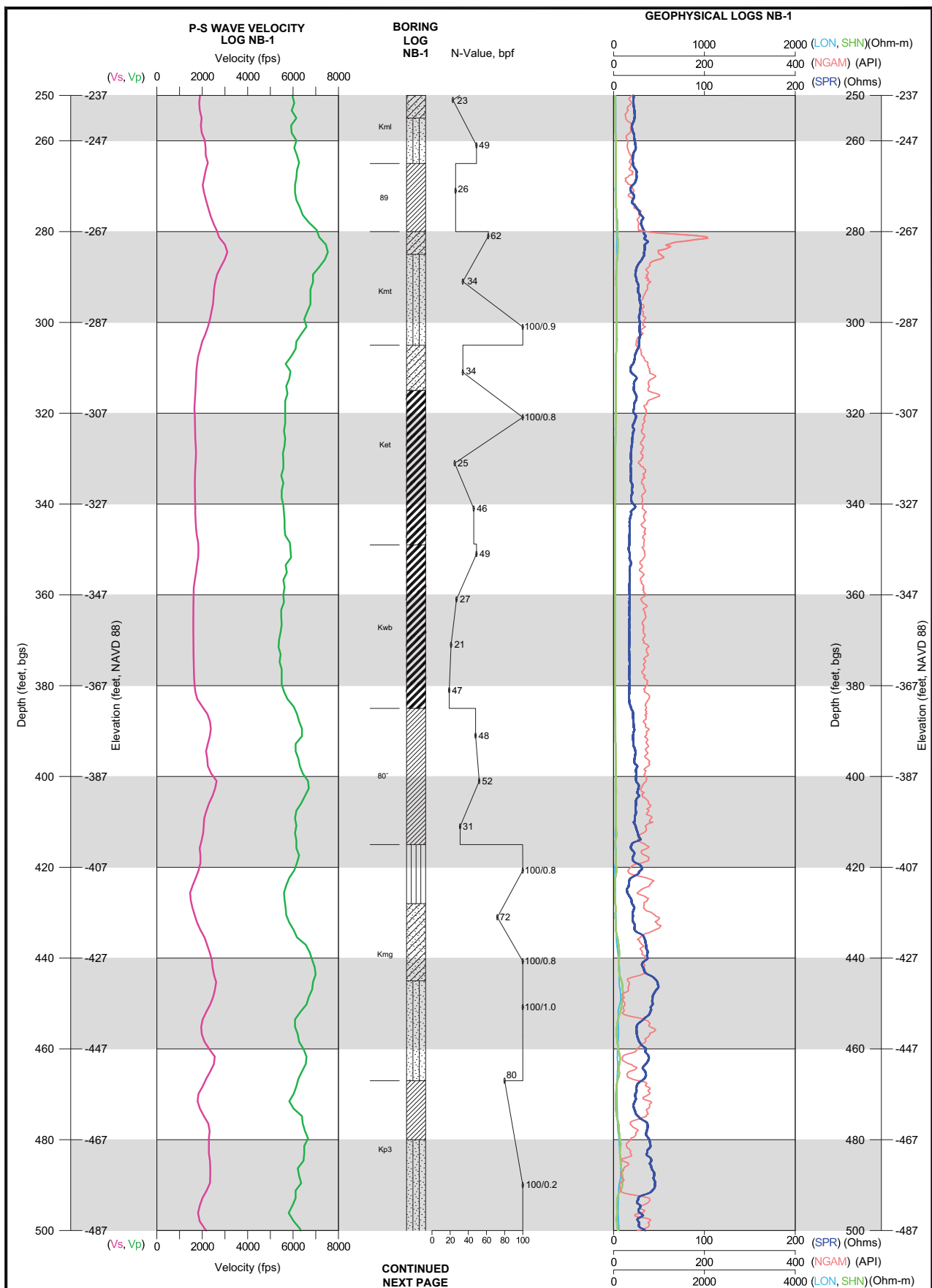
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Boring Profile - NB-1  
FIGURE 2.5.4.4-2A

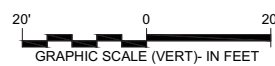
REV 1



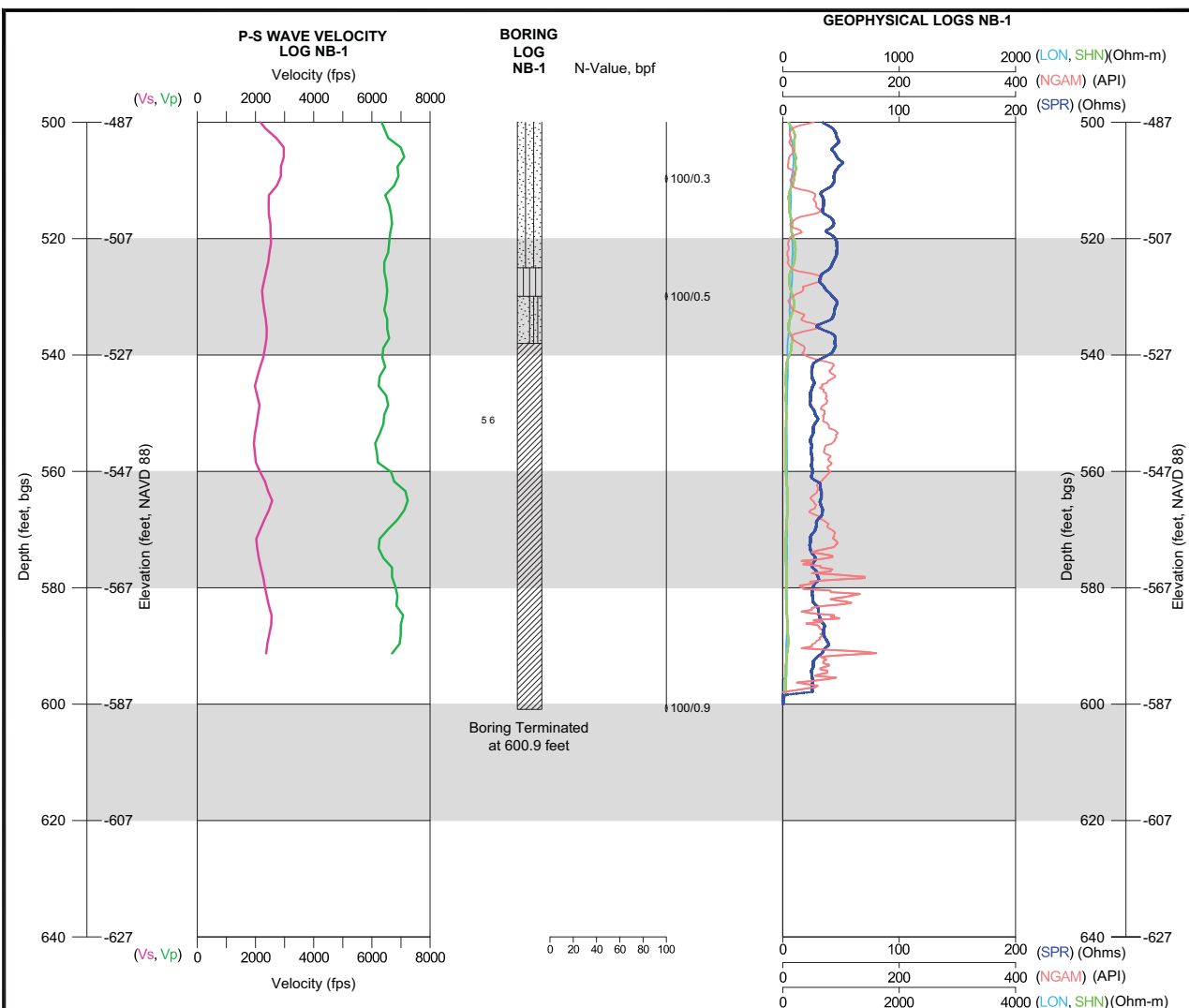




(Reference: 2.5.4.1-8)







### SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
		CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
FINE GRAINED SOILS	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50			SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
				ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
				MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
HIGHLY ORGANIC SOILS				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

### LEGEND:

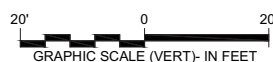
- \$+ - Artificial and Hydraulic Fill
- Qal - Alluvium
- );<- - Kirkwood Formation (upper)
- Tkwl - Kirkwood Formation (lower)
- Tvt - Vincenttown Formation
- Tht - Hornerstown Formation
- Knv - Navesink Formation
- Kml - Mount Laurel Formation
- 5< - Wenonah Formation
- Kmt - Marshalltown Formation
- Ket - Englishtown Formation
- Kwb - Woodbury Formation
- Kmv - Merchantville Formation
- Kmg - Magothy Formation
- 5 6 - Potomac Formation
- >,\$ - Weight of Hammer
- Vs - Shear Wave Velocity
- ° - Compression Wave Velocity
- LON, SHN - Long/Short Normal Transitivity
- γ<sub>t</sub> = - Natural Gamma
- "# - Single Point Resistance
- N-Value - Standard Penetration Resistance, Blows per Foot (bpf)
- ▼ - Stabilized Water Level

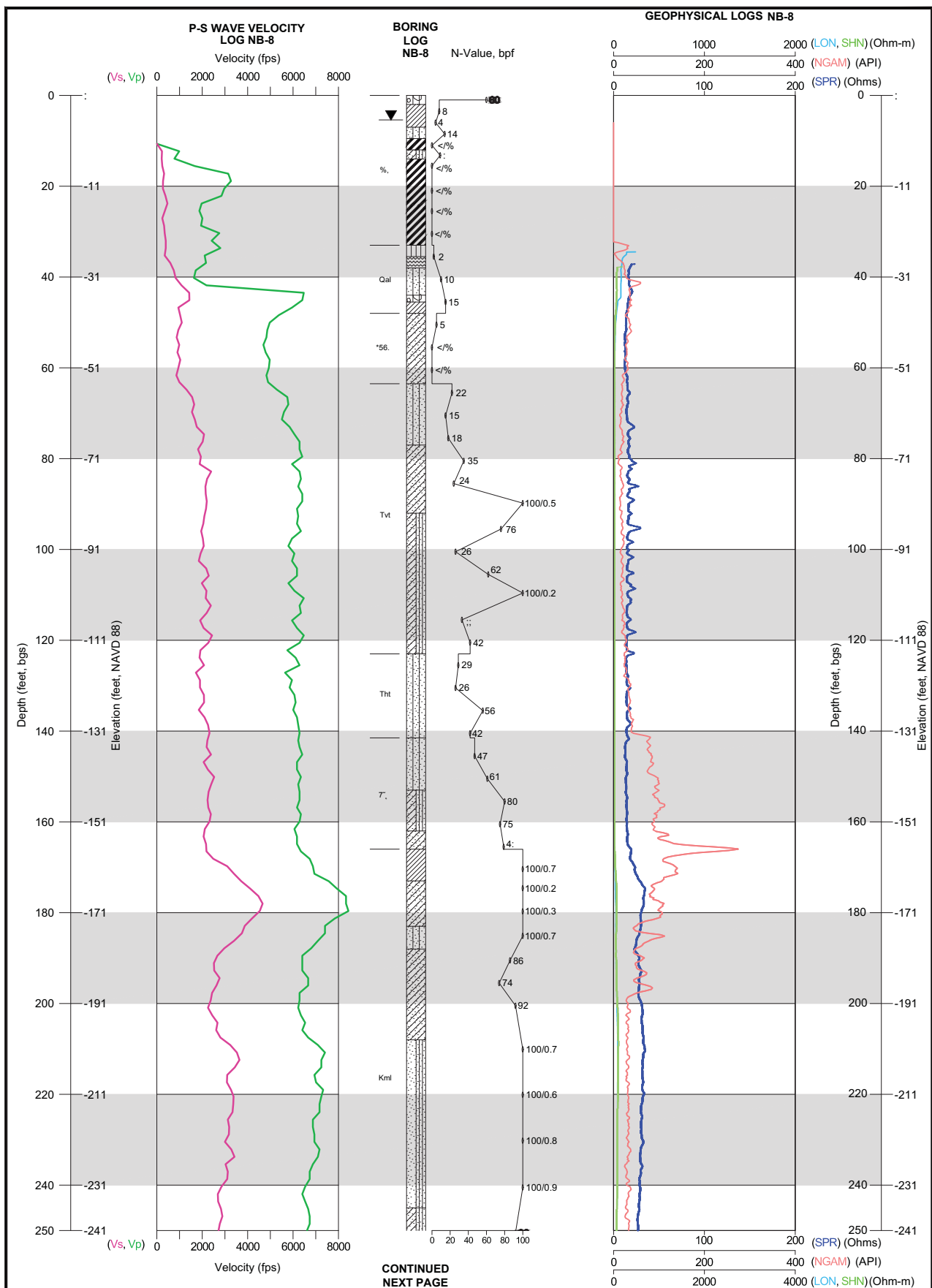
PSEG Power, LLC

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Part 2, Site Safety Analysis Report

Boring Profile - NB-1  
FIGURE 2.5.4.4-2C

REV 1

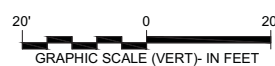


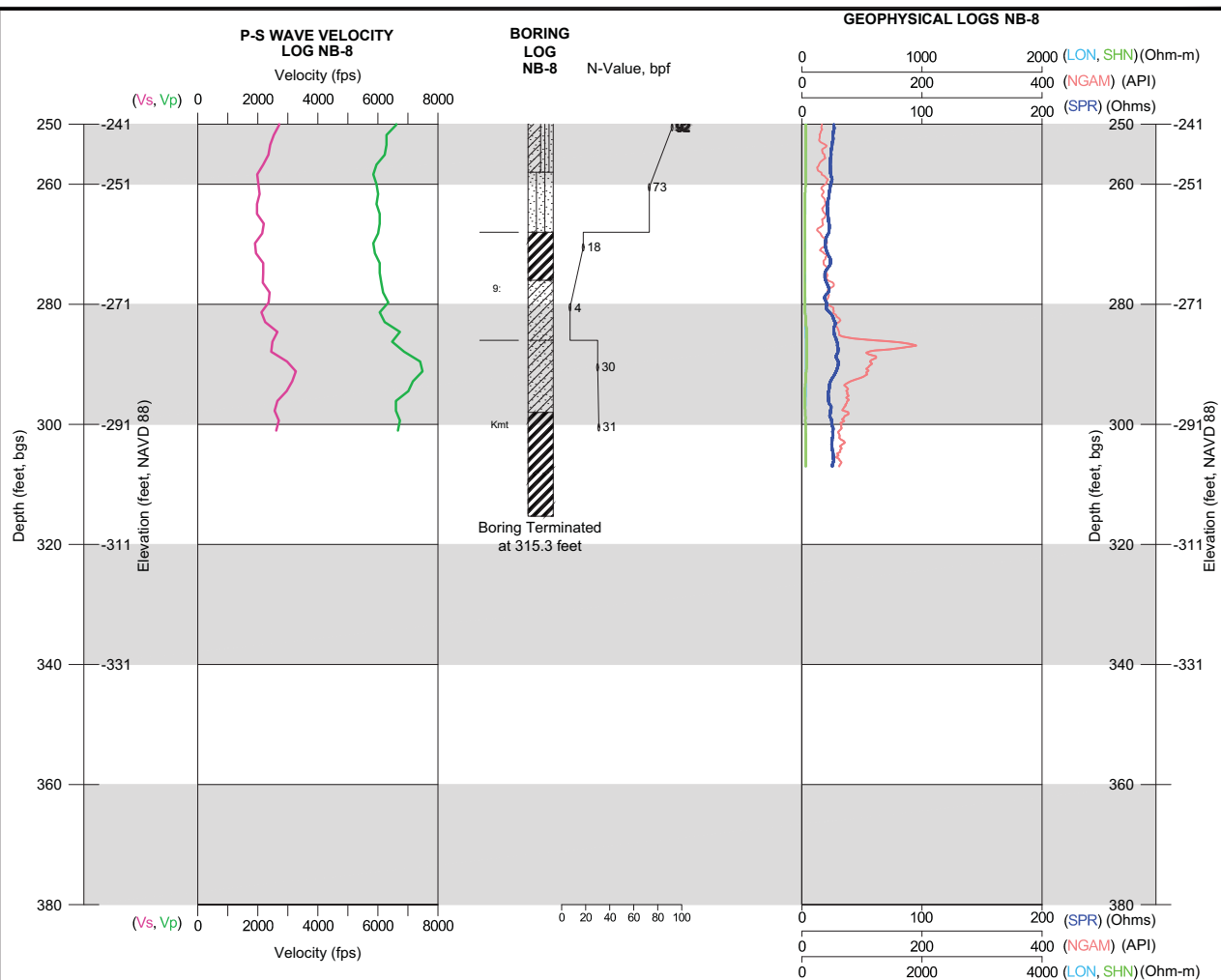


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Boring Profile - NB-8  
FIGURE 2.5.4.4-3A

REV 1





### SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS	
			GRAPH	LETTER		
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES	
		(LITTLE OR NO FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES	
		GRAVELS WITH FINES		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES	
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES	
	SAND AND SANDY SOILS	CLEAN SANDS		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	
		(LITTLE OR NO FINES)		SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES	
		SANDS WITH FINES		SM	SILTY SANDS, SAND - SILT MIXTURES	
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES	
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY	
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
		LIQUID LIMIT GREATER THAN 50		OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
				MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS	
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		CH	INORGANIC CLAYS OF HIGH PLASTICITY	
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
			HIGHLY ORGANIC SOILS			

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

### LEGEND:

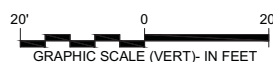
- %, Qal - Artificial and Hydraulic Fill
- Alluvium
- \*<. - Kirkwood Formation (upper)
- Tvt - Vincenttown Formation
- Tht - Hornerstown Formation
- g~ - Navesink Formation
- Kml - Mount Laurel Formation
- 9: - Wenonah Formation
- Kmt - Marshelltown Formation
- >/% - Weight of Hammer
- Vs - Shear Wave Velocity
- Vp - Compression Wave Velocity
- LON, SHN - Long/Short Normal Transitivity
- "o"= - Natural Gamma
- (\$#) - Single Point Resistance
- N-Value - Standard Penetration Resistance, Blows per Foot (bpf)
- Stabilized Water Level

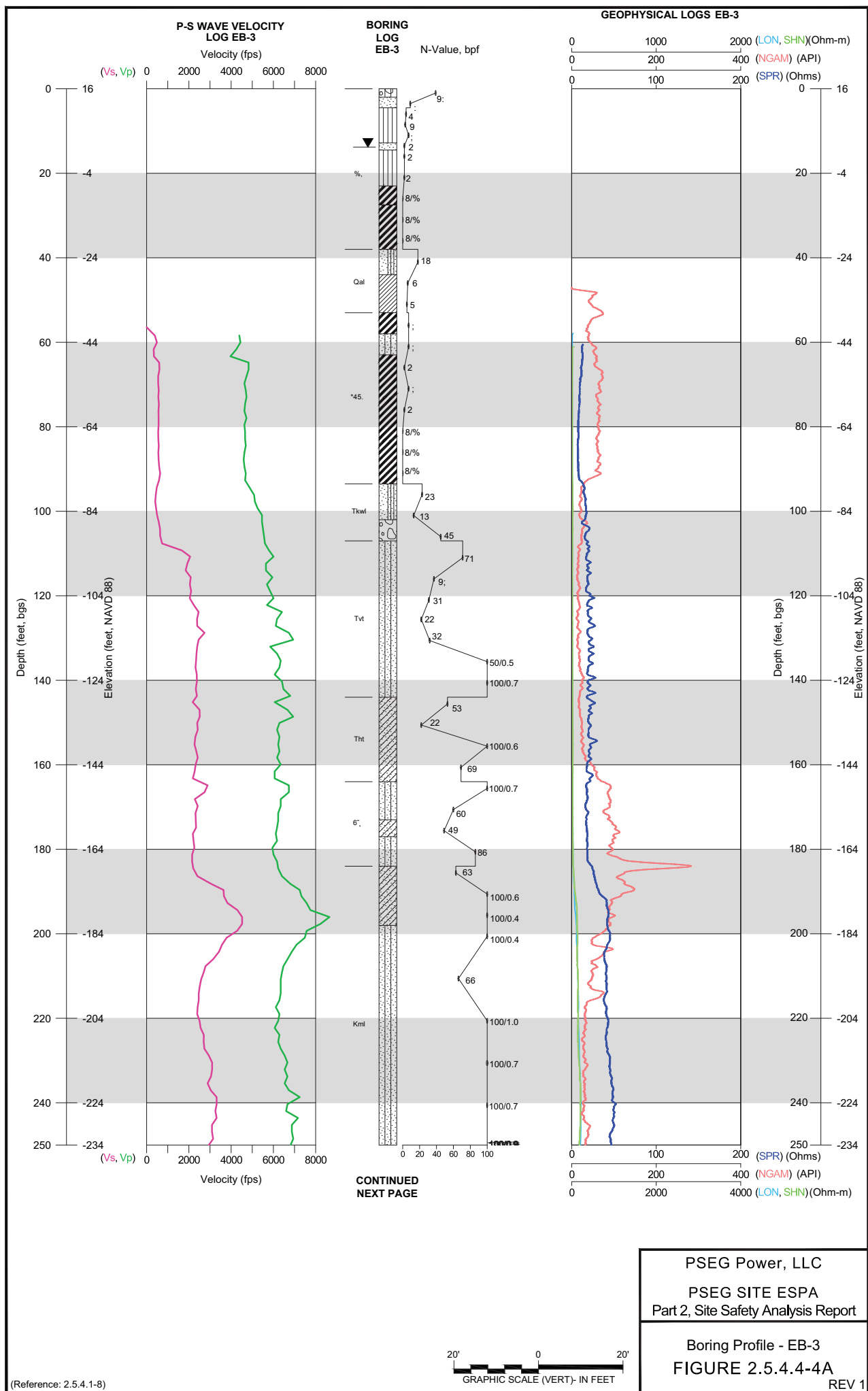
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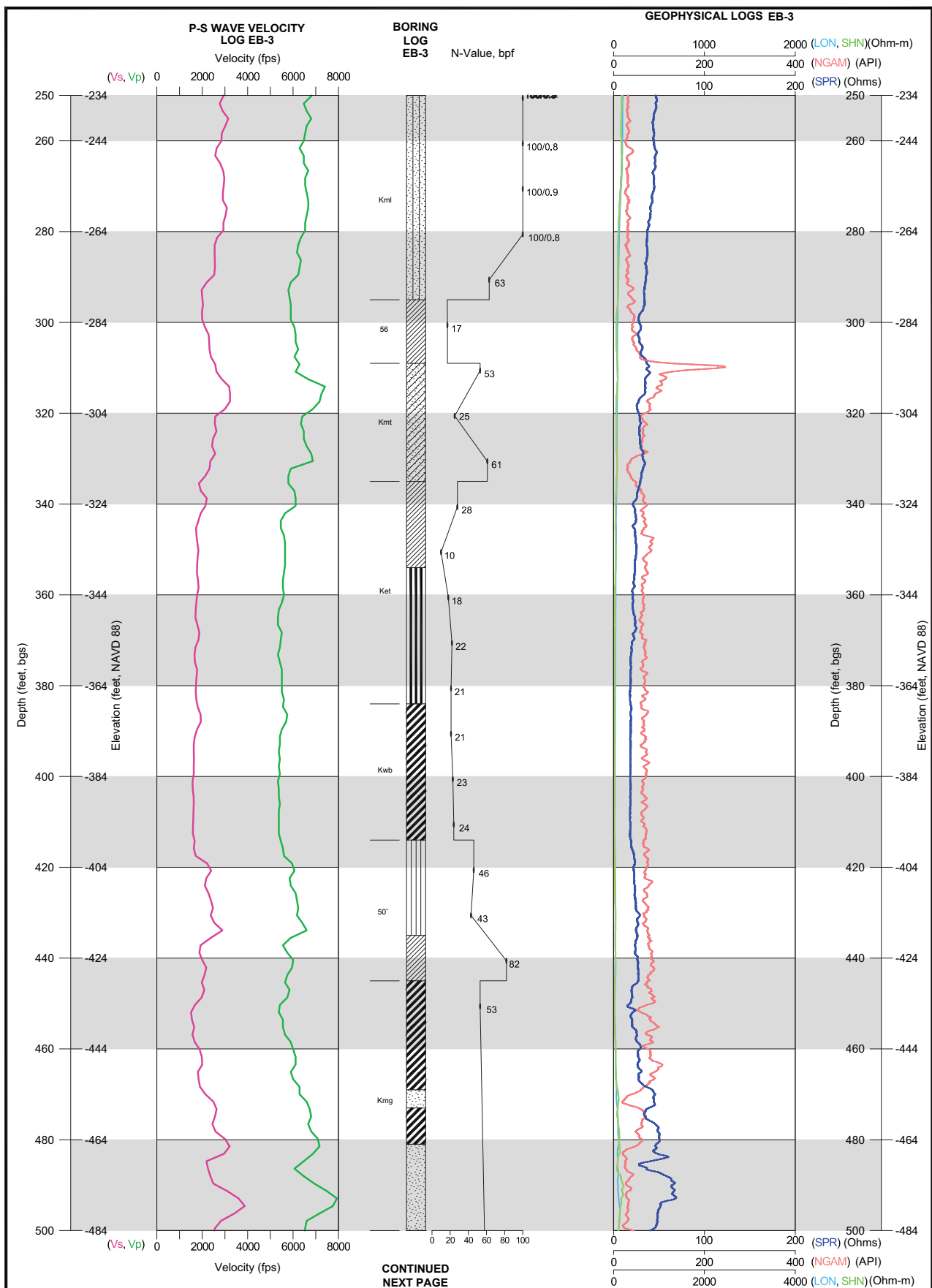
Boring Profile - NB-8  
FIGURE 2.5.4.4-3B

REV 1

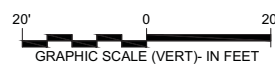








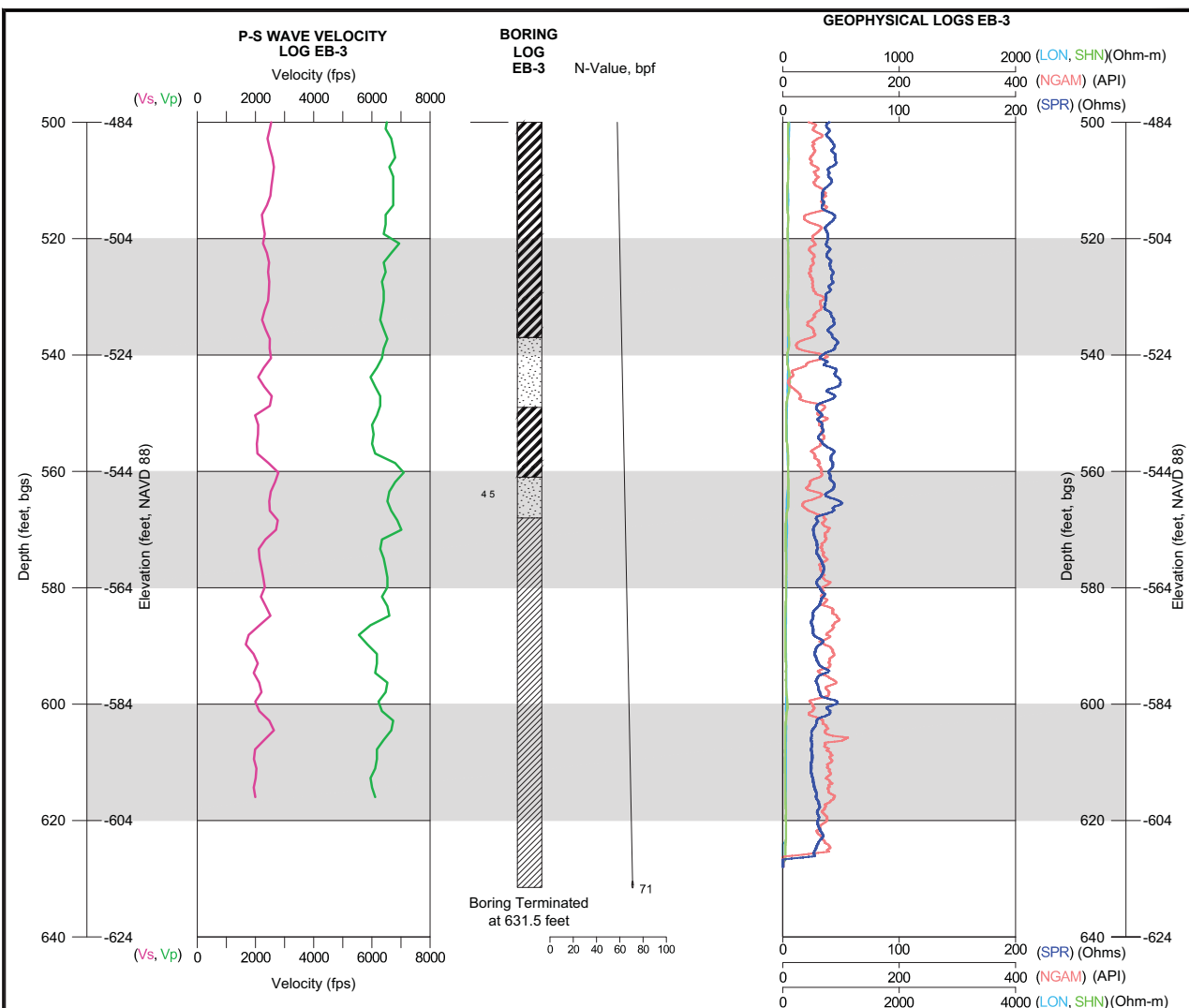
(Reference: 2.5.4.1-8)

















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Boring Profile - EB-3  
FIGURE 2.5.4.4-4B

REV 1



### SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS	
			GRAPH	LETTER		
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS  (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES	
		GRAVELS WITH FINES  (LITTLE OR NO FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES	
		GRAVELS WITH FINES  (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES	
	SAND AND SANDY SOILS	CLEAN SANDS  (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	
		SANDS WITH FINES  (LITTLE OR NO FINES)		SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES	
		SANDS WITH FINES  (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES	
FINE GRAINED SOILS	SAND AND SANDY SOILS	CLEAN SANDS  (LITTLE OR NO FINES)		SC	CLAYEY SANDS, SAND - CLAY MIXTURES	
		SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
					CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SAND CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
	SAND AND SANDY SOILS	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
					CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS	

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

### LEGEND:

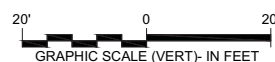
- \$+ - Artificial and Hydraulic Fill
- Qal - Alluvium
- 9:- - Kirkwood Formation (upper)
- Tkwl - Kirkwood Formation (lower)
- Tvt - Vincentown Formation
- Tht - Hornerstown Formation
- Knv - Navesink Formation
- Kml - Mount Laurel Formation
- 4: - Wenonah Formation
- Kmt - Marshalltown Formation
- Ket - Englishtown Formation
- Kwb - Woodbury Formation
- Kmv - Merchantville Formation
- Kmg - Magothy Formation
- 4 5 - Potomac Formation
- <,\$ - Weight of Hammer
- Vs - Shear Wave Velocity
- ° - Compression Wave Velocity
- LON, SHN - Long/Short Normal Transitivity
- γ<sub>i</sub> - Natural Gamma
- # - Single Point Resistance
- N-Value - Standard Penetration Resistance, Blows per Foot (bpf)
- ▼ - Stabilized Water Level

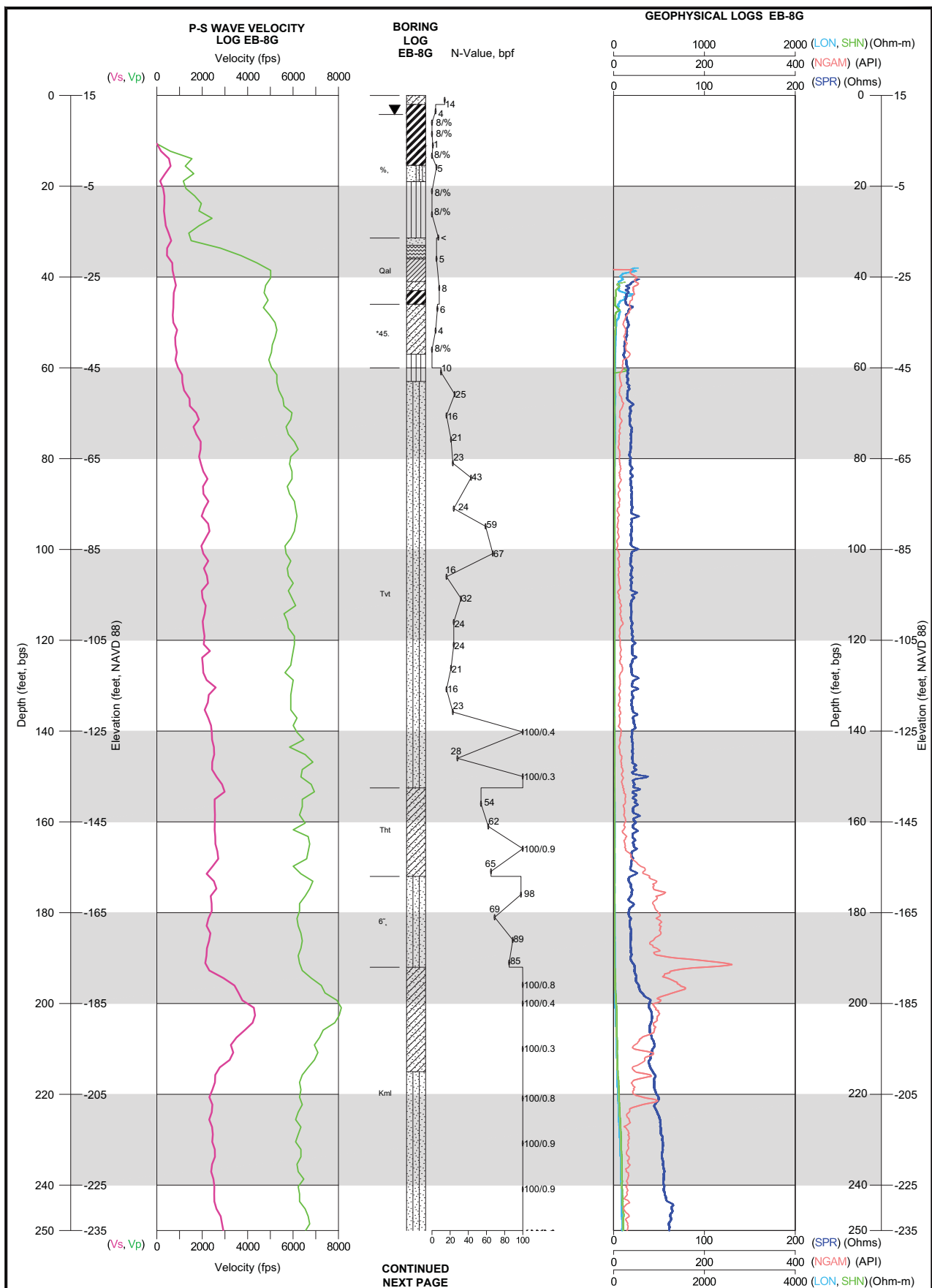
PSEG Power, LLC

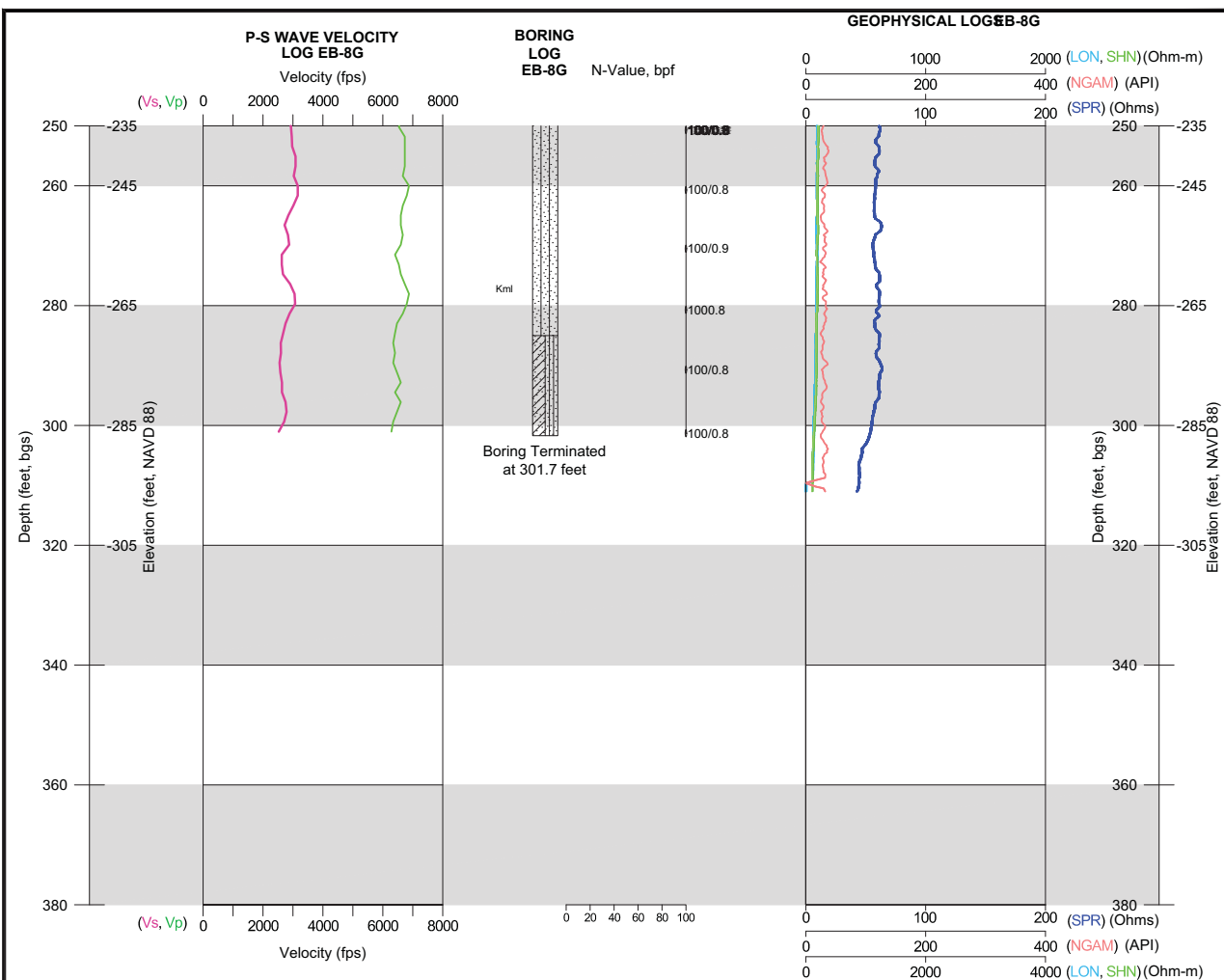
PSEG SITE ESPA  
Part 2, Site Safety Analysis Report

Boring Profile - EB-3  
FIGURE 2.5.4.4-4C

REV 1







### SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS  (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES  (APPRECIABLE AMOUNT OF FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
				GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS	CLEAN SANDS  (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES  (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
				MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS
			HIGHLY ORGANIC SOILS		

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

### LEGEND:

- %, Qal - Artificial and Hydraulic Fill
- \* <= - Alluvium
- Tvt - Kirkwood Formation (upper)
- Tht - Vincenttown Formation
- :~ - Hornerstown Formation
- Kml - Navesink Formation
- ?% - Mount Laurel Formation
- Vs - Weight of Hammer
- Vp - Shear Wave Velocity
- LON, SHN - Compression Wave Velocity
- "> - Long/Short Normal Transitivity
- (\$#) - Natural Gamma
- N-Value - Single Point Resistance
- Blows per Foot (bpf) - Standard Penetration Resistance, Blows per Foot (bpf)
- Stabilized Water Level - Stabilized Water Level

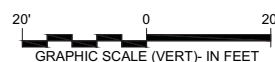
PSEG Power, LLC

PSEG SITE ESPA  
Part 2, Site Safety Analysis Report

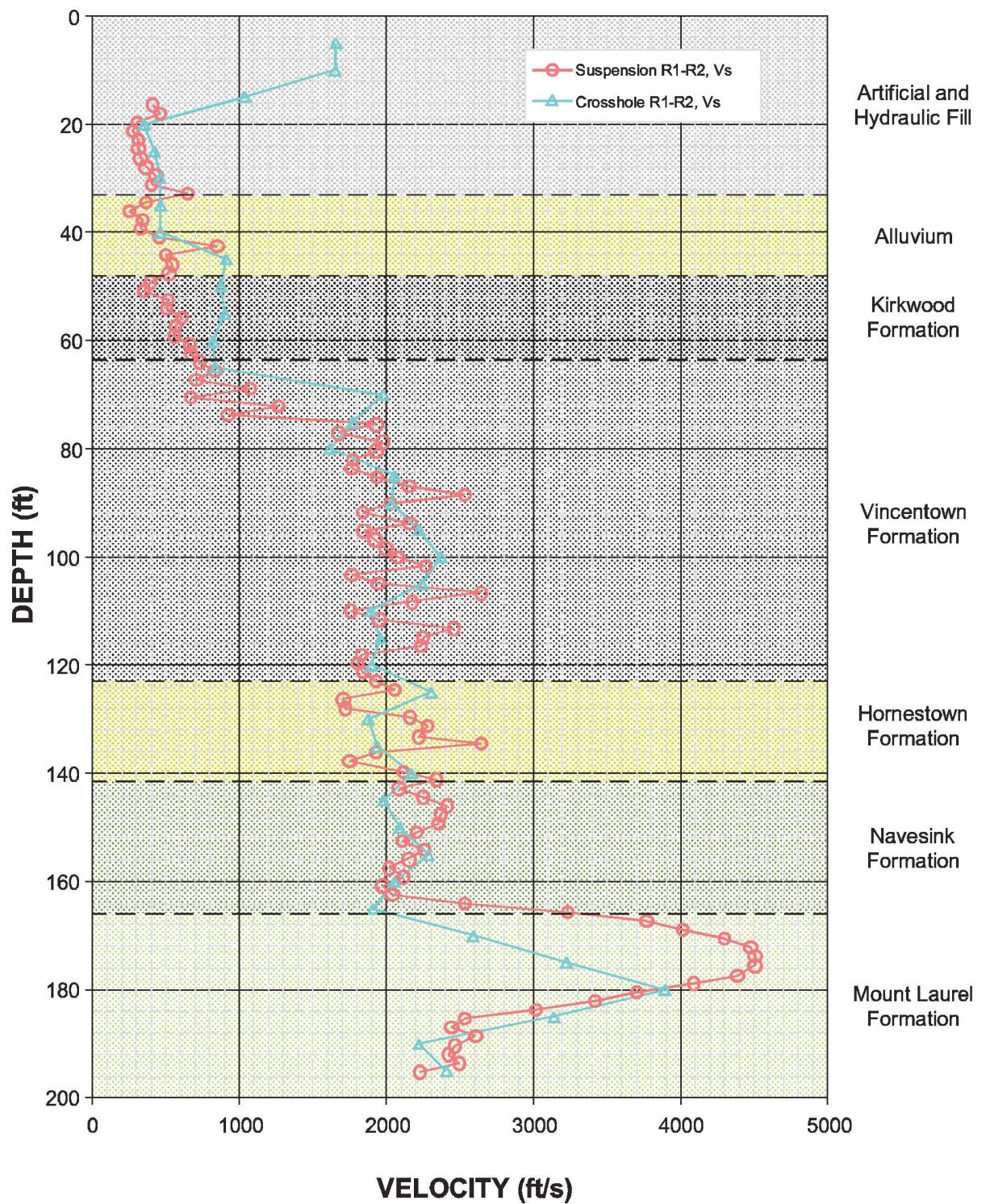
Boring Profile - EB-8/EB-8G

FIGURE 2.5.4.4-5B

REV 1







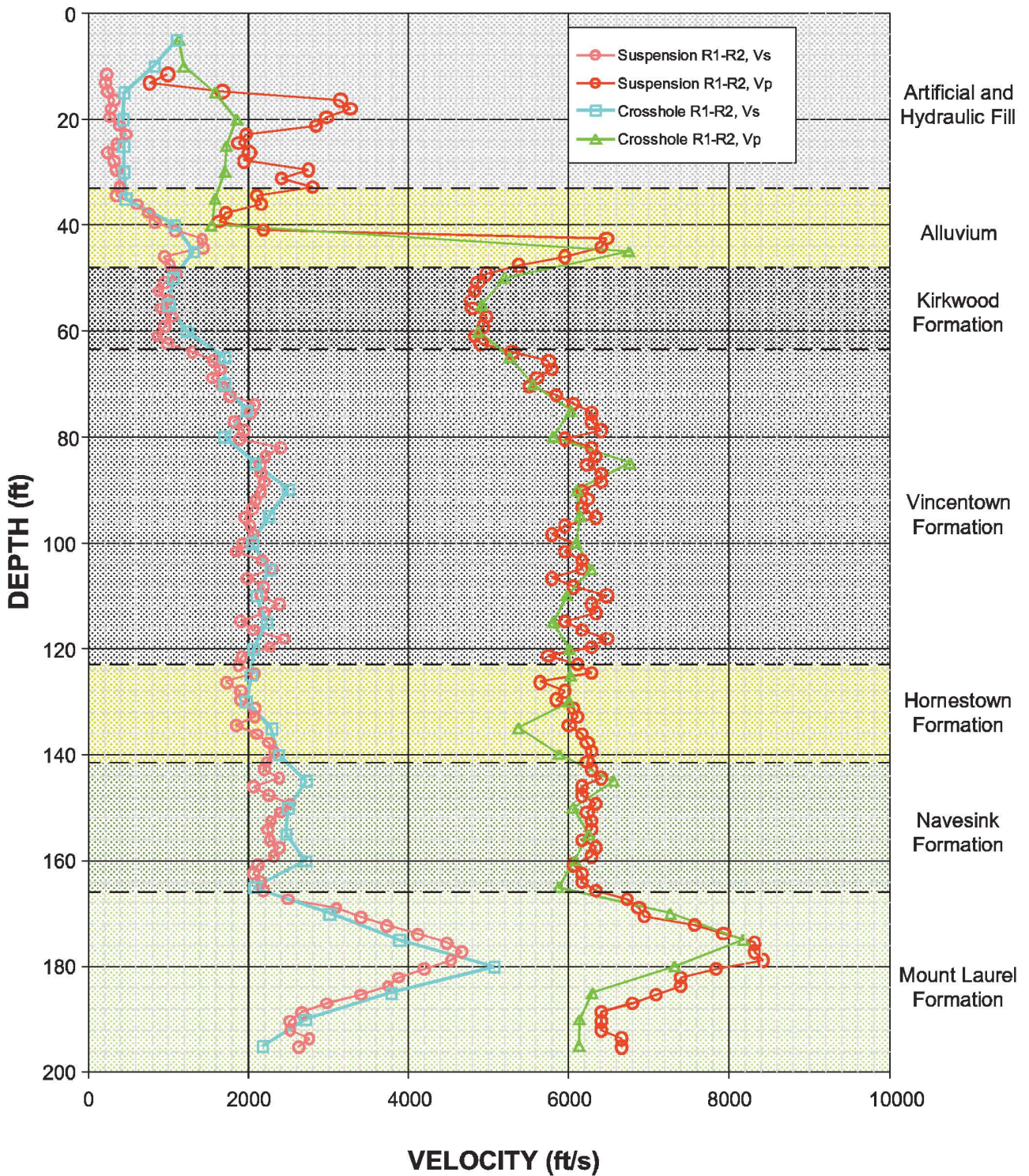
PSEG Power, LLC

PSEG SITE ESPA  
Part 2, Site Safety Analysis Report

Crosshole Vs and P-S Vs  
Comparison, NB-1

FIGURE 2.5.4.4-6 Rev 0





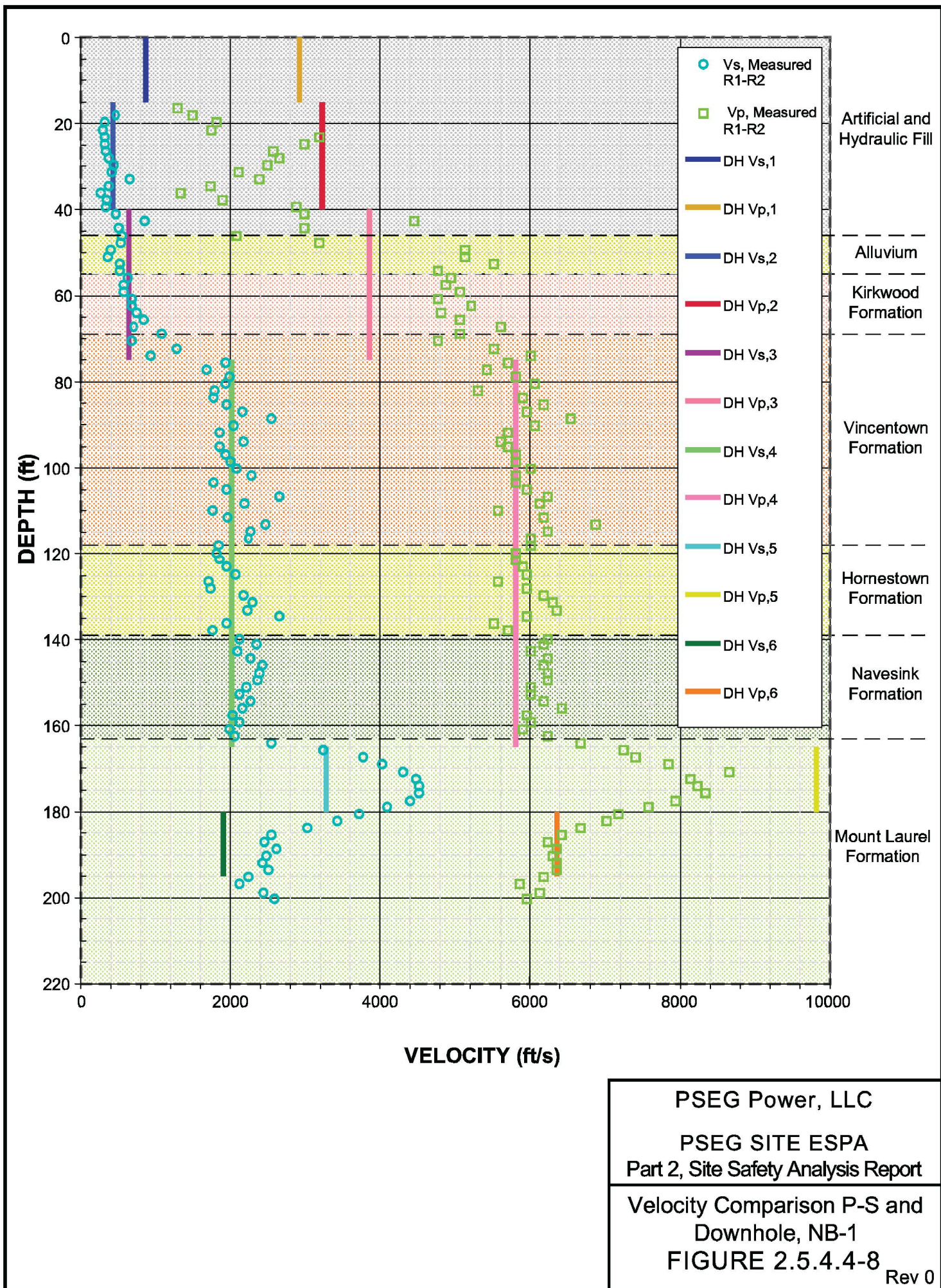
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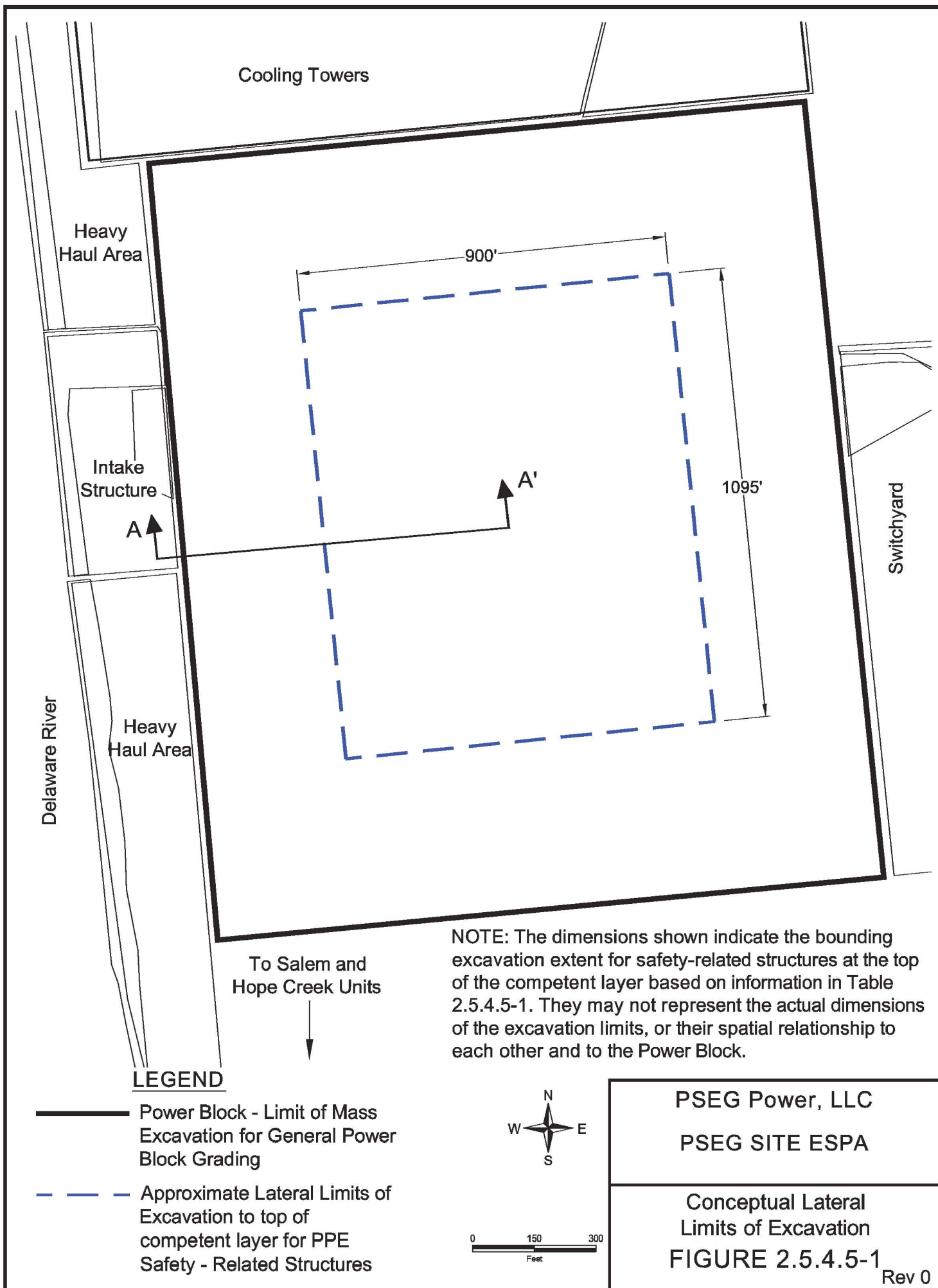
P- and S-Wave Comparison for Crosshole  
and P-S suspension Techniques, NB-8

FIGURE 2.5.4.4-7 Rev 0

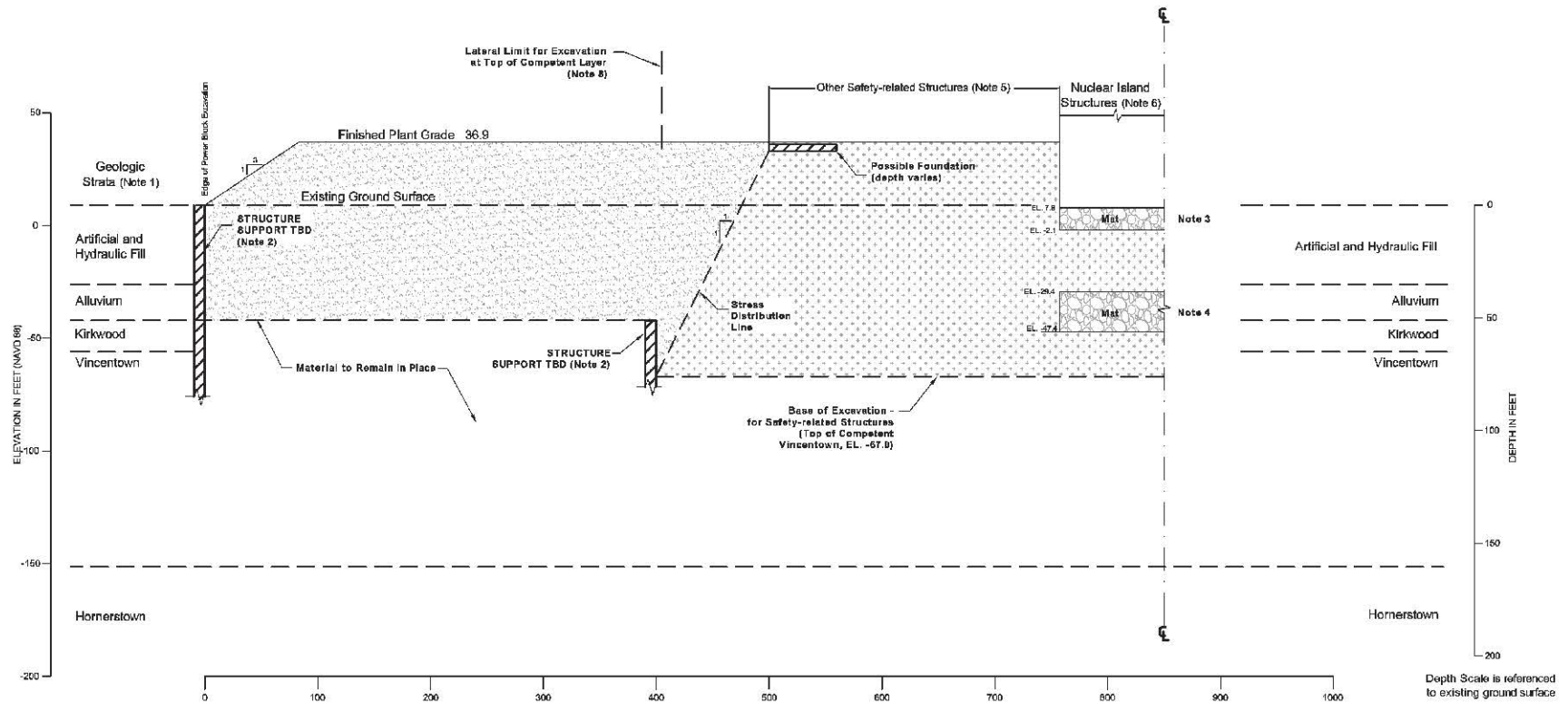




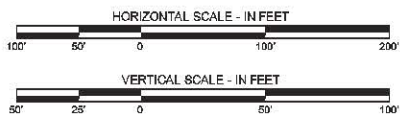
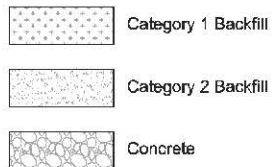








#### Legend:



#### Notes:

1. Geologic Layers Based on Boring NB-1.
2. Structural support for excavation may consist of cellular cofferdams, sheet pile/tie-back walls or other methods as evaluated in the COLA.
3. Upper bound nuclear island mat (category 1 backfill below extends to top of competent Vincentown).
4. Lower bound nuclear island mat (category 1 backfill below extends to top of competent Vincentown).
5. Boundary of lateral extent of safety-related structures considering all technologies.
6. Width of nuclear island varies.
7. Category 1 backfill is placed below and against walls of Safety-Related structures. Category 1 backfill may include concrete fill, roller-compacted concrete or compacted granular material. Category 2 backfill is placed outside Safety-Related structure areas and may consist of Category 1 materials, materials removed from the excavation or other materials meeting engineering requirements.
8. The lateral excavation limit shown is determined at the top of the competent Vincentown formation and encompasses the estimated area of stress distribution below foundations.

PSEG Power, LLC  
PSEG SITE ESPA  
Part 2, Site Safety Analysis Report  
Conceptual Excavation  
Section A-A'  
FIGURE 2.5.4.5-2  
Rev 0