

Figure 2.5-129— {RCTS Testing Sample B-404-14, Powerblock Area}



Figure 2.5-130— {RCTS Testing Sample B-401-31, Powerblock Area}



Figure 2.5-131— {RCTS Testing Sample B-401-67, Powerblock Area}



Figure 2.5-132— {RCTS Testing Sample B-401-48, Powerblock Area}



Figure 2.5-133— {RCTS Testing Sample B-301-78, Powerblock Area}



Figure 2.5-134— {RCTS Testing Sample B-306-17, Powerblock Area}



Figure 2.5-135— {RCTS Testing Sample B-409-15, Powerblock Area}



Figure 2.5-136— {RCTS Testing Sample B-404-22, Powerblock Area}



Figure 2.5-137— {RCTS Testing Sample B-401-42, Powerblock Area}



Figure 2.5-138— {RCTS Testing Sample B-409-39, Powerblock Area}



Figure 2.5-139— {RCTS Testing Sample B-773-2, Intake Area}



Figure 2.5-140— {RCTS Testing Sample B-773-3, Intake Area}



Figure 2.5-141— {RCTS Testing Sample B-773-4, Intake Area}



Figure 2.5-142— {RCTS Testing Sample B-773-5, Intake Area}



Figure 2.5-143— {RCTS Testing Sample B-773-6, Intake Area}



Figure 2.5-144— {RCTS Testing Sample B-773-7, Intake Area}



Figure 2.5-145— {RCTS Testing Sample B-773-9, Intake Area}



Figure 2.5-146— {RCTS Testing Sample B-773-11, Intake Area}



Figure 2.5-147— {RCTS Testing Sample B-773-13, Intake Area}



Figure 2.5-148— {RCTS Testing Sample B-773-15, Intake Area}

0.0

0.0000

0.0001

0.0010

0.0100

Shear Strain (%)

0.1000

1.0000



0

0.0000

0.0001

0.0010

0.0100

Shear Strain (%)

0.1000

1.0000

Figure 2.5-149— {RCTS Testing Sample CR6 Blend, Backfill}







Figure 2.5-151— {RCTS Testing Sample CR6 Vulcan Average, Backfill}



Figure 2.5-152— {Proximity of Chester and Lexington Park Sites to CCNPP}

Digitized from Mack (1983) Poisson's Ratio: 0.35 [soil], 0.20 [rock] Poisson's Ratio: 0.40 [soil], 0.25 [rock] 0 Poisson's Ratio: 0.45 [soil], 0.30 [rock] --- Top of Rock [2518 feet] Minimum Hard Rock Velocity Required [9,200 ft/s] **CCNPP** Measurements -500 -1,000 Elevation (feet) -1,500 -2,000 -2,500 -3,000 5,000 10,000 20,000 0 15,000 Shear Wave Velocity [Vs] (feet/sec)





Figure 2.5-154— {Shear Wave Velocity Based on Lexington Park Measurements}

Figure 2.5-155— {Smoothed and Averaged V_s Log for Chester and Lexington Park Measurements}



Figure 2.5-156— {Average V_s, Chester, Lexington Park, Maryland and Deep Measurements in Coastal Plain Soils}









Figure 2.5-158— {Bedrock V_s Log for Lexington Park, Maryland}



Figure 2.5-159— {Interpretation of Bedrock Velocity Gradient for Chester Measurement}











Figure 2.5-163— {Excavation Profile DD', Powerblock Area}

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Figure 2.5-164— {Excavation Profile EE', Powerblock Area}






Figure 2.5-165— {Excavation Profile FF, Intake Area}



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Figure 2.5-167— {Best Estimate Velocity Profiles with Fill Placement, Powerblock Area}

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Figure 2.5-170— {Strain Dependant Properties for Powerblock Area}



Figure 2.5-171— {Strain Dependant Properties for Intake Area}



Figure 2.5-172— {Strain Dependant Properties for Backfill}







Figure 2.5-174— {Elevation Contours of Top of Stratum IIb Cemented Sand}



Figure 2.5-175— {Topography in Powerblock Area}



Figure 2.5-176— {FOS against Liquefaction Based on SPT Data, Powerblock}











Figure 2.5-180— {FOS against liquefaction based on CPT Data, Powerblock Area}







ubsurface Representation}	Image: Sector	Section BB'	Chesapeake Stratum lic Clay/Sit Chesapeake Stratum lic Clay/Sit Chesapeake Stratum lic Sand Incontrols	◆ 2500 ft
Figure 2.5-184— {PLAXIS 3D S		Section AA' EI. 41.5	840 ft	2500 ft

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Figure 2.5-186— {Heave After Excavation}







Figure 2.5-188— {Surface Topography Plan and Cross Section}



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Figure 2.5-190— {NI Settlement Estimate}



Notes:

- Low Elevation: revert to loading modulus at the end of the 2nd load step (140 days)

- Medium Elevation (1): revert to loading modulus at the end of the 3rd load step (300 days)

- Medium Elevation (2): revert to loading modulus at the end of the 4th load step (500 days)

-High Elevation: revert to loading modulus at the end of the 5th load step (800 days)

- Long term settlement estimate due to creep and rewatering offset each other and are not significant



Figure 2.5-191— {Settlement at Center Point of Safety Related Buildings}







Figure 2.5-193— {Foundation Settlement across NI and TB Footprint}

Figure 2.5-194— {Settlement at Center of Facilities After Adjustment for Topography}



Figure 2.5-195— {UHS FEM Model}





Note: Numbers correspond to the settlement and tilt calculation points in the settlement analysis model.

Figure 2.5-196— {Earth Pressure Representative Diagrams}





Figure 2.5-197— {Site Grading Plan with Slope Cross-Sections}

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Figure 2.5-198—{Cross-sections in Powerblock Area}

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Figure 2.5-202— {Static and Pseudo-Static Stability Analyses of Slope Section A - Case a}





Figure 2.5-204— {Static and Pseudo-Static Stability Analyses of Slope Section B - Case a}







Figure 2.5-206— {Static and Pseudo-Static Stability Analyses of Slope Section C}



Figure 2.5-207— {Static and Pseudo-Static Stability Analyses of Slope Section D}



Figure 2.5-208— {Static and Pseudo-Static Stability Analyses of Slope Section E}

Figure 2.5-209— {Static and Pseudo-Static Stability Analyses of Slope Section F (Utility Corridor)}



Figure 2.5-210— {Static and Pseudo-Static Stability Analyses of Slope Section G (Intake Area)}







Figure 2.5-212— {Appalachian Orogen}

Figure 2.5-213— {Laurentian-Margin Subdivision and other Tectonic Elements of the Southeast of the Blue Mountain Front}



Figure 2.5-214— {Schematic Map Showing the Relative Positions of Exotic Terranes}



Figure 2.5-215— {Rifts Formed during the Breakup of Rodinia}





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Figure 2.5-219— {Catskill clastic wedge Structure and Stratigraphy during the Acadian Orogeny}



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Hanging wall identities (in circles): a-Westinster terrane b-Linganore nappe c-Westminster terrane ("Peters Creek" segment) d-Baltimore Mafic Complex e-Brandywine terrane f-Liberty Complex or Baltimore Mafic Complex g-White Clay nappe h-Philadelphia terrane i-Wilmington Complex

A-Antietam Formation	MBR-Black Riveran hiatus CatCatoctin Formation CR-Catoctin rift	F-Fishing Creek metabasalt H-Harpers Formation HB-Honey Brook Upland HK-Hamburg klippe MR-Mine Ridge	Qtz-quartzose siliciclastic rocks RT-Rome trough SC-Sams Creek Formation Sy-Sykesville Formation TP-Trenton prong	um-ultramafic body tectonically emplaced by entrainme W-Weverton (and Loudoun) Formations WC-Wilmington Complex	nodified from Faill 1997a	
					modi	

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SYSTEM	SERIES	Ma OROGENIC EVENT	North Virginia and West Virginia	Maryland-Delaware	West-Central Pennsylvania	Eastern Pennsylvania	Southeastern-Wester	n New York	Northern New Jersey
Permi	6			Dunkard Group Monongahela Formation	Dunkard Group Monongahela Formation	Monogahela Formation			
	Upper			Conemaugh Formation	Genemaugh Group Glenshaw Formation	Group Group Group Glenshaw Formation			
Pennsylvanian				Allegheny Formation	Allegheny Formation	Allegheny Formation	Pottsville Gr	dno	
	Middle	Allegheny		Pottsville Group	Pottsville Group	Pottsville Group			
	_	Orogeny							
	LOW C		Mauch Chunk Formation						
	Upper		Greenbrier Formation	Mauch Chunk Formation	Mauch Chunk Formation	Mauch Chunk Formation			
			Maccrady Formation	Greenbrier Formation	Loyalhanna Formation				
Mississippian			Burgoon/Purslane Sandstone	Purstane Sandstone	Burgoon Sandstone	Burgoon Sandstone Member	Pocono Gro	dn	
	Lower		Price/Pocono Formation Rockwell Formation	Pocono Gro Rockwell Formation	Rockwell Formation	Waverly Group			
					Duncannon Member	Long Run Member	Slide Mountain O Member	Conewango Group	
			Hampshire (Catskill) Formation	Hampshire Formation	Sherman Creek Member Kill Group	Beaverdam Run Member Group	l Group	Canadaway Group	Coto tell Ecomotica
	upper				Cats Irish valiey Member	Mobleville Member	tskill Formation		
			Foreknobs Formation	Foreknobs Formation	Lock Haven Formation	C Walcksville Member	Cal	West Falls Group	
		Acadian Orogeny	Scherr Formation Brallier Formation	Scherr Formation Brallier Formation	Brallier Formation	Tarrenteredian Manufact	Gilboa/Oneonta	Sonyea Group	
			Harrell Shale	Harrell Shale	Harrell Formation	I owamensing Iwember	Formations	Genessee Group	
			Tully Limestone Mahantango Formation	Mahantango Formation	Tully Limestone Mahantango Formation	Trimmers Rock Formation	Croup Manantango Shale Skunnemunk Condonnerate	Moscow Shale Ludlowville Shale	Mahantango Shale
	Middle		Marcellus Shale Had	Co Marcellus Shale	Marcellus Shale	Mahantango Formation Marcellus Shale	Hamilton Betvale Sandstone Mt. Marion Formation Comwall Shale Bakoven Shale	Skaneateles Shale Marcellus Shale Hamilio	skunnemunk Conglomerate Marcellus Shale
Devonian			Huntersville Chert Needmore Shale	Ham Needmore Shale	Selinsarove Limestone	Buttermilk Falls Limestone	Onondaga Li Saugerties Li	mestone	Buttermilk Falls Limestone
					0	Dolmotion Conditions	and Aquetuck Fo	ormation	Schoharie Formation Esopus Formation
			Oriskany/Ridgeley Sandstone	Oriskany Sandstone	Needmore Shale	Schoharie Formation	tates Carlisle Cent Esopus S	ter Shale Group	Ridgeley Sandstone
					di	Ridgeley Sandstone	Glenerie For	rmation skany	Shriver Chert
			Licking creek Limestone	Shriver Chert Mandata Shala	Original Charles Santasone Mandata Shala	0 × Shriver Chert D × Dort Ewen Shale	Connelly Sa	Indictione 0	Glenerie Formation
	Lower		Corriganville Limestone		New Scotland Formation	Minisink Limestone	Becraft Limestone Becraft Limestone Dew Scotland Fo	Alsen Formation	Minisink Limestone New Scotland Formation
			Healing Spring Sandstone	Corriganville Limestone	Kalkberg Limestone 9 Group	იიე მიი	perg Gro	store berg Gro	Kalkberg Limestone
					Ederber Bidderber	Coeymans Formation	Heldert Heldert	stone Helder	Coeymans Limestone
			New Creek Limestone	New Creek Limestone	<u></u>		Manlius Limes Rondout Dolo	stone	Rondout Dolomite
			Keyser Limestone	Keyser Limestone	Bass Island Dolomite	Rondout Formation			Decker Formation
	Upper		Tonoloway Formation	Tonoloway Formation	Salina Formation	Decker Formation	Dovono Ieland Shalo	ap Colmont Group	Bossardville Limestone
					Lockport Dolomite	Poxono Island Formation			
Silurian	Middle		Bloomsburg Formation	Bloomsburg Formation	Lockport Dolomite-Keefer Sandstone	Bloomsburg Red Beds	(redbeds)	Clinton Group	Bloomsburg Red Beds
		Taconic	McKenzie Formation	McKenzie Formation	Clinton Group	خ _ Tammany Member	Crean Dond Groun		Green Pond Group
	Lower	Orogeny	Clinton Group	Clinton Group	Medina Group	Minsi Member			Shawangunk Formation
	4	443	Tuscarora Sandstone	Tuscarora Sandstone	Tuscarora Sandstone	Meiders Member	Shawangunk Conglomerate	Medina Group	Clinton Sandstone Tuscarora Sandstone

Figure 2.5-222— {Silurian through Permian Regional Stratigraphy}

TO SCALE

wezey, 2002, Inners, 1987, Epstein, 1986, Ver Straeten and Brett, 2000, Castle, 2001, Edmunds, 1996, NYDEC accessed on 8/12/2009 coessed on 8/12/2009), Milici and Swezey, 2006, MSS, 2000 (accessed on 8/13/2009),Schmidt, 1983, Ver Straeten, 2007, USGS, 2006, Rader and Evans, 1993

E A A T A CONCEPTION OF CONCEP					, co
	ERATHEM		UPPER PALEOZOIC	NOT DRAWN	modified from Carter. 2007 (;



Lower and Middle Mesozoic Regional Stratigraphic Column

	_		
Ма			248
IEM	Lower	Upper	Middle
SYST	Jurassic	Triassic	
ERATHEM	WESOZOIC	LOWER and MIDDLE	

modified from Froleich and Robinson USGS Bulletin 1776, 1988, USGS, 2003, NJDEP, 1990 Notes:

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			'n	pper Mesoz	zoic (Cre	taceous) and	d Cenozoic Reg	jional Stratigr	aphy .					
				_								_		
U L	Ma		Virginia		M	aryland-Dela	ware	Z	ew Jersey		New York		Pennsylvania	
2								FORM	ATION					
						spit, shorelir	ne, marsh, swamp	Cape May	glacial, lacustrir	ie and			Colluvium	
s ene					pwland	Carolina B	uvial deposits av. dune. upland.	Formation	eolian depo	sits			Alluvium	
cene	Present		Columbia Group	ί δ	eposits	deposits, Cypr upland	ess Swamp Fm. and bog deposits	Pensa	ıken Formatior		Columbia Group		Low terrance deposi	ts
						Columb	re Bay Group ia Formation	Bridget	own Formation					
ene		dne	Yorktown Formati	ion Upla	and depo	osits Bea	averdam Fm.			ä	eacon Hill Formation			
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) 9¥6	St. Marys Formati	ke ion		Eastov	er Fm.	Beac	on Hill Gravel		Cohansey Sand			
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					ΨV		action	Tinton Sand	New	r Egypt	Tinton Formation			
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ver	65			bd	ы. Р	Was	te Gate Fm.	Poton	ac Formation	<u> </u>	^D otomac Formation			
										e e e e e e e e e e e e e e e e e e e				

Figure 2.5-224— {Upper Mesozoic to Cenozoic}

Undifferentiated pre-Cretaceous consolidated-rock basement

recognized by the MGS (personal communication 2006)

modified from Hansen 1984, Achmad, 1997, Otton, 1955, Hansen 1996, and Calis and Drummond 2008 and USGS 2003 and Pickett, 1987, Vogt and Eshelman, 1987, Olsson, 1987, NJDEP, 1990 Achmad and Hansen, 1997, Baltimore Gas & Electric, 1968, Cederstrom, 1957, Glaser, 1971, Hansen, 1978, Hansen and Wilson, 1984, Hansen, 1996, Virginia State Water Control Board, 1974 Root, 1977, USGS accessed on 8/13/2009, DGS, 2007 (accessed on 8/12/2009)

NOT DRAWN TO SCALE Note: Waste Gate Formation is no longer

	SERIES	Holocene a	Pliocene	Miocene	Oligocene	Eocene	Paleocene	Upper	Lower	
	YSTEM	YAANAƏTAUQ	Е	NEOGEN		JOGENE	РАЦЕ	CRETACEOUS		
	S			YЯА	ITA:	31				
	ERATHEM			CENOZOIC				UPPER MESOZOIC		PALEOZOIC