

HISTORY OF CONSTRUCTION

40 CFR 257.73(c)

Bottom Ash Pond Complex

Glen Lyn Plant Site

Glen Lyn, Virginia

February 2026

Prepared for: Appalachian Power Company

Prepared by: American Electric Power Service Corporation

1 Riverside Plaza

Columbus, OH 43215



Glen Lyn Plant

Bottom ash pond complex

History of construction

PREPARED BY Dan Murphy Digitally signed by Dan Murphy
DN: cn=Dan Murphy, c=US,
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Date: 2026.02.02 13:58:40 -
05'00' DATE _____
Dan Murphy, P.E.

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Reason: I have reviewed this
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Date: 2026.02.02 14:24:19 -05'00' DATE _____
Justin Jent, P.E.

APPROVED BY David Anthony Miller DATE **02.02.2026**
David Anthony Miller, P.E.
Director – Ash Management Services



I certify to the best of my knowledge, information, and belief the information contained in this report meets the requirements of 40 CFR § 257.73(c).

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1.0 OBJECTIVE

The “Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals From Electric Utilities; Legacy CCR Surface Impoundments”, 89 Fed. Reg. 38950 (May 8, 2024) (amending 40 C.F.R. §257) requires owners and operators of facilities with a legacy coal combustion residual (CCR) surface impoundment to prepare a history of construction document for each legacy CCR surface impoundment at the facility.

The Bottom Ash Pond Complex at Glen Lyn Plant Site is subject to this rule.

2.0 DESCRIPTION OF THE CCR IMPOUNDMENT

The Glen Lyn Plant Site is located adjacent to the New River in Giles County, Virginia, approximately 10 miles east of Princeton, West Virginia. The latitude/longitude of the facility is: 37° 22' 12" N/ 80° 51' 48" W. The facility address is 100 APCO Road, Glen Lyn, VA, 24093. The Bottom Ash Pond Complex is located approximately 500 feet northeast from the Plant site.

The Glen Lyn Plant operated from 1919 to 2015. The Bottom Ash Pond Complex is formed by a perimeter ring dike nearly 2,500 feet long. The Bottom Ash Pond Complex is roughly 7 acres in size. The Bottom Ash Complex contains internal splitter dikes that create 3 internal ponds known as the North Bottom Ash Pond, South Bottom Ash Pond, and the Clearwater Pond.

At the time of writing this History of Construction, Appalachian Power Company has an approved closure plan from the Virginia Department of Environmental Quality (January 2026)

3.0 SUMMARY OF OWNERSHIP 275.73(c)(1)(i)

[The name and address of the person(s) owning or operating the CCR unit: the name associated with the CCR unit: and the identification number of the CCR unit if one has been assigned by the state.]

The name associated with the CCR unit is the Bottom Ash Pond Complex. Appalachian Power Company, a subsidiary of American Electric Power, is the owner of the Bottom Ash Pond Complex at the Glen Lyn Plant Site.

Appalachian Power Company
Attn: Gary Spitznogle
1 Riverside Plaza
Columbus, OH 43215
Phone: 614-716-1774
Email: aepccrhelp@aep.com

The Bottom Ash Pond Complex site has been assigned the following identification numbers:

- VDEQ Solid Waste Management Facility Permit Number: 222 and 621 (formerly)
- Virginia Department of Conservation and Recreation- Dam Safety: 071002

4.0 LOCATION OF THE CCR UNIT 275.73 (c)(1)(ii)

[The location of the CCR unit identified on the most recent U.S. Geological Survey (USGS) 7 ½ minute or 15-minute topographic quadrangle map, or a topographic map of equivalent scale if a USGS map is not available.]

A location map is included in Attachment A.

5.0 STATEMENT OF PURPOSE 275.73 (c)(1)(iii)

[A statement of the purpose for which the CCR unit is being used.]

When the Glen Lyn Plant was operational, the Bottom Ash Pond Complex was a surface impoundment for settling and storing coal ash.

6.0 NAME AND SIZE OF WATERSHED THE CCR UNIT IS LOCATED 275.73(c)(1)(iv)

[The name and size in acres of the watershed within which the CCR unit is located.]

The Bottom Ash Pond Complex is located within the Region 5 - Ohio Region Watershed and is located at the confluence of the East River and the New River.

1. Hydrologic Unit Code = 050500020604 East River watershed area
2. Hydrologic Unit Code = 050500020602 Clendennin Creek-Bluestone Lake watershed area.

The Bottom Ash Pond Complex is formed by a ring dike, and the drainage area is equal to the area of the pond itself. A bridge carrying US Route 460 was built overtop of the Bottom Ash Pond Complex and a portion of the associated bridge scuppers/drainage system discharge into the Bottom Ash Pond Complex.

7.0 DESCRIPTION OF THE FOUNDATION AND ABUTMENT MATERIALS

275.73(c)(1)(v)

[A description of the physical and engineering properties of the foundation and abutment materials on which the CCR unit is located.]

Geotechnical information for the site is included as Attachment B.

The foundation soils are alluvial deposits. The alluvial soils underlying the embankments/fill are generally clayey sand and gravel. In previous engineering analysis, the alluvial foundation soil has been assigned a total unit weight of 110 pcf, a drained friction angle of 28° and a cohesion of 0 psf.

The bedrock underneath the alluvial soil is the Hinton Formation and typically described as gray, green, red shale, siltstone, mudstone, and sandstone. The site is located on the southeast flank of the northeast/southwest trending Hurricane Ridge Syncline. The axis of the syncline is approximately 5,000

feet northwest of the Bottom Ash Pond Complex. The top of bedrock elevation ranges from 1485 to 1488 ft-msl across the Bottom Ash Pond Complex Site.

8.0 DESCRIPTION OF EACH CONSTRUCTED ZONE OR STAGE OF THE CCR UNIT

275.73 (c)(1)(vi)

[A statement of the type, size, range, and physical and engineering properties of the materials used in constructing each zone or stage of the CCR unit; and the approximate dates of construction of each successive stage of construction of the CCR unit.]

The Glen Lyn Plant operated from 1919 to 2015. The Bottom Ash Pond Complex was constructed on a former island site along the New River sometime around 1957. Approximately 600 feet of the backchannel of the former island was filled in, thereby creating the peninsula configuration as the site lays today. The remainder of the backchannel was left open and became the outlet channel for circulating water of Unit 5.

The original embankments are predominantly made from sandy clay, clayey shale, or bottom ash covered with soil. The soil cover is 1 to 3 feet thick based on existing boring records. In previous analysis, the embankment/fill material has been assigned a unit weight of 120 pounds per cubic foot (pcf), a drained friction angle of 28°, and a cohesion of 200 pounds per square foot (psf). The crest of the original perimeter dike was elevation 1515 ft-msl and had side slopes of 1.5 Horizontal: 1 Vertical.

In 1962, the crest of the perimeter dikes was raised to elevation 1524 ft-msl and pond bottom was established as elevation 1500 ft- msl. The dikes were raised with bottom ash.

In 1976, the Bottom Ash Pond Complex was modified by creation of internal splitter dikes to create the North Pond, South Pond, and Clearwater Pond. The interior slope was flattened to a 2 Horizontal: 1 Vertical. With the ponds in this configuration, one pond would be in service while the other pond was being cleaned out.

In the early 1970's, to improve the road alignment, a 4-lane bridge carrying US Route 460 was completed on top of a portion of the Bottom Ash Pond Complex.

In 1996, the crest of the riverward dike was lowered from elevation 1525 ft-msl to elevation 1515 ft-msl. Clayey soil cover was applied to cap any bottom ash that remained in the dike. An inverted filter and riprap buttress was constructed along the downstream toe of the riverward dike section of the Bottom Ash Pond Complex.

In 2020, Virginia House Bill 443 passed and requires the Bottom Ash Pond Complex to be closed by removal. At the time of writing this History of Construction, Appalachian Power Company has an approved closure plan from the Virginia Department of Environmental Quality (January 2026).

A stone revetment was installed on the interior slope of the North Bottom Ash Pond in 2024 to repair erosion following Hurricane Helene.

9.0 ENGINEERING STRUCTURES AND APPURTENANCES, 275.73 (c)(1)(vii)

[At a scale that details engineering structures and appurtenances relevant to the design, construction, operation, and maintenance of the CCR unit, detailed dimensional drawings of the CCR unit, including a plan view and cross sections of the length and width of the CCR unit, showing all zones, foundation improvements, drainage provisions, spillways, diversion ditches, outlets, instrument locations, and slope protection...]

American Electric Power performed an extensive review of historical files, drawings, and other information for the Bottom Ash Pond Complex. All readily available drawings are included in Attachment C.

10.0 SUMMARY OF POOL SURFACE ELEVATIONS, AND MAXIMUM DEPTH OF CCR, 275.73 (c)(1)(vii)

[...in addition to the normal operating pool surface elevation and the maximum pool elevation following peak discharge from the inflow design flood, the expected maximum depth of CCR within the CCR surface impoundment.]

The Glen Lyn Bottom Ash Pond Complex has CCR material roughly 25 feet thick maximum and no longer receives CCR. The Bottom Ash Pond Complex no longer has ponded water; the pool elevation sections are not applicable.

11.0 FEATURES THAT COULD ADVERSELY AFFECT OPERATION DUE TO MALFUNCTION OR MIS-OPERATION (275.73 (c)(1)(vii))

[...and any identifiable natural or manmade features that could adversely affect operations of the CCR unit due to malfunction or mis-operation]

Unit 5 discharge tunnels pass under the facility boundary on the southern edge in the former back channel. There are twin tunnels, each being 7 feet by 6 feet in cross sectional area and made of reinforced concrete. The invert elevation of the outlet at the tunnels is 1490.25 ft msl.

12.0 DESCRIPTION OF THE TYPE, PURPOSE, AND LOCATION OF EXISTING INSTRUMENTATION 275.73 (c)(1)(viii)

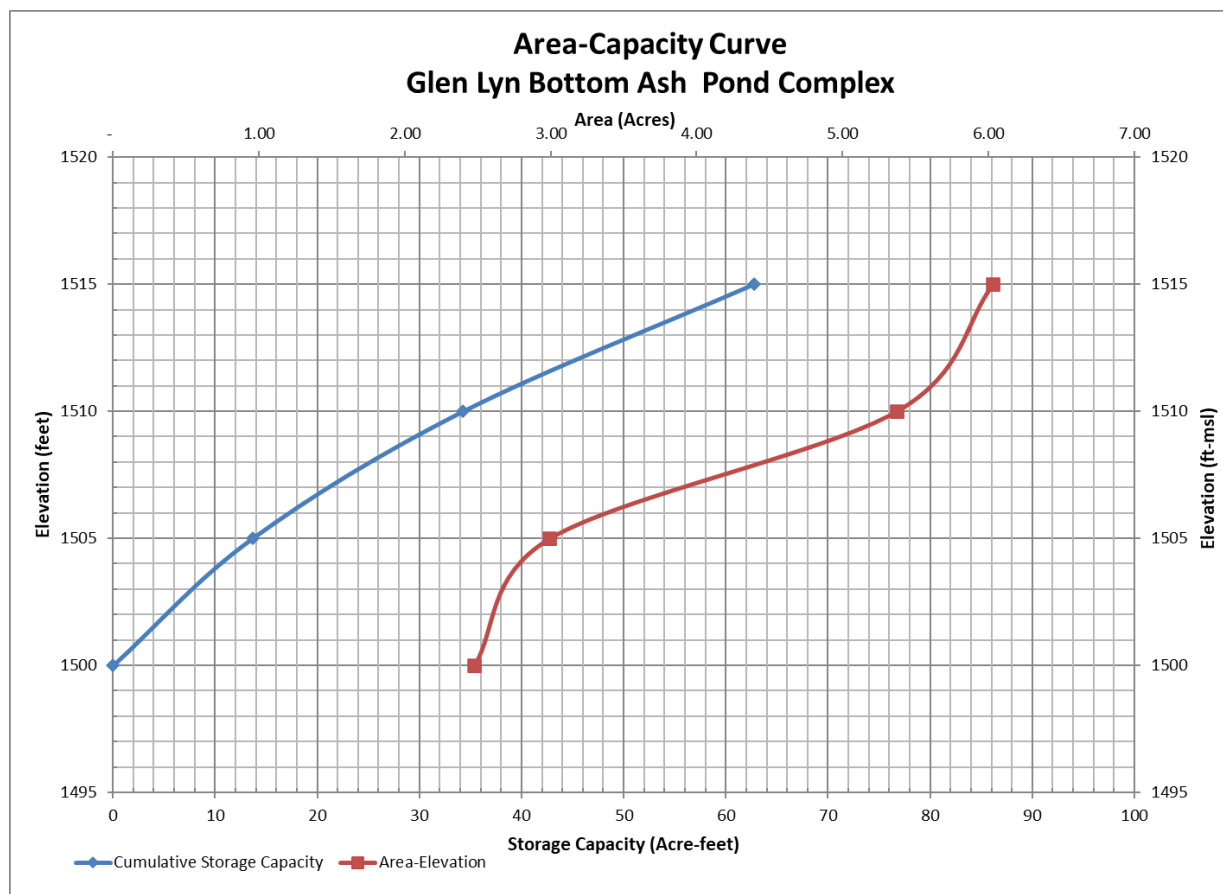
[A description of the type, purpose, and location of existing instrumentation.]

The Bottom Ash Pond Complex does not have any instrumentation.

13.0 AREA – CAPACITY CURVES FOR THE CCR UNIT 275.73 (c)(1)(ix)

[Area-capacity curves for the CCR unit.]

The area-capacity curves shown below are based on measurements taken from AEP drawing 56-30271 -B and should be considered approximate.



14.0 275.73 (c)(1)(x) DESCRIPTION OF EACH SPILLWAY AND DIVERSION

[A description of each spillway and diversion design features and capacities and calculations used in their determination.]

The spillways for the North and South Bottom Ash Ponds consist of a 36-inch-diameter corrugated metal pipe riser connected to an 18-inch-diameter corrugated metal outlet pipe. The riser is surrounded by a skimmer structure. When the pond was operational, the North and South Bottom Ash Ponds discharged into the Clearwater Pond.

The outfall structure of the Clearwater Pond consists of a concrete riser structure with stoplogs and a 30-inch-diameter concrete pipe. At the time this History of Construction was written, the window of the concrete riser in the Clearwater pond has been sealed with metal plates.

The approved closure plans include a trapezoidal emergency spillway designed to pass the probable maximum flood for the post-closure configuration of the Bottom Ash Pond Complex.

15.0 SUMMARY CONSTRUCTION SPECIFICATIONS AND PROVISIONS FOR SURVEILLANCE, MAINTENANCE AND REPAIR 275.73 (c)(1)(xi)

[The construction specifications and provisions for surveillance, maintenance, and repair of the CCR unit.]

There are no readily available portions of the original construction specifications.

As required by the CCR rules the Bottom Ash Pond Complex is inspected at least every 7 days by a qualified person. Also, as a requirement of the CCR rules the impoundment is inspected annually by a qualified professional engineer.

If repairs are found to be necessary during any inspection they will be completed as soon as feasible.

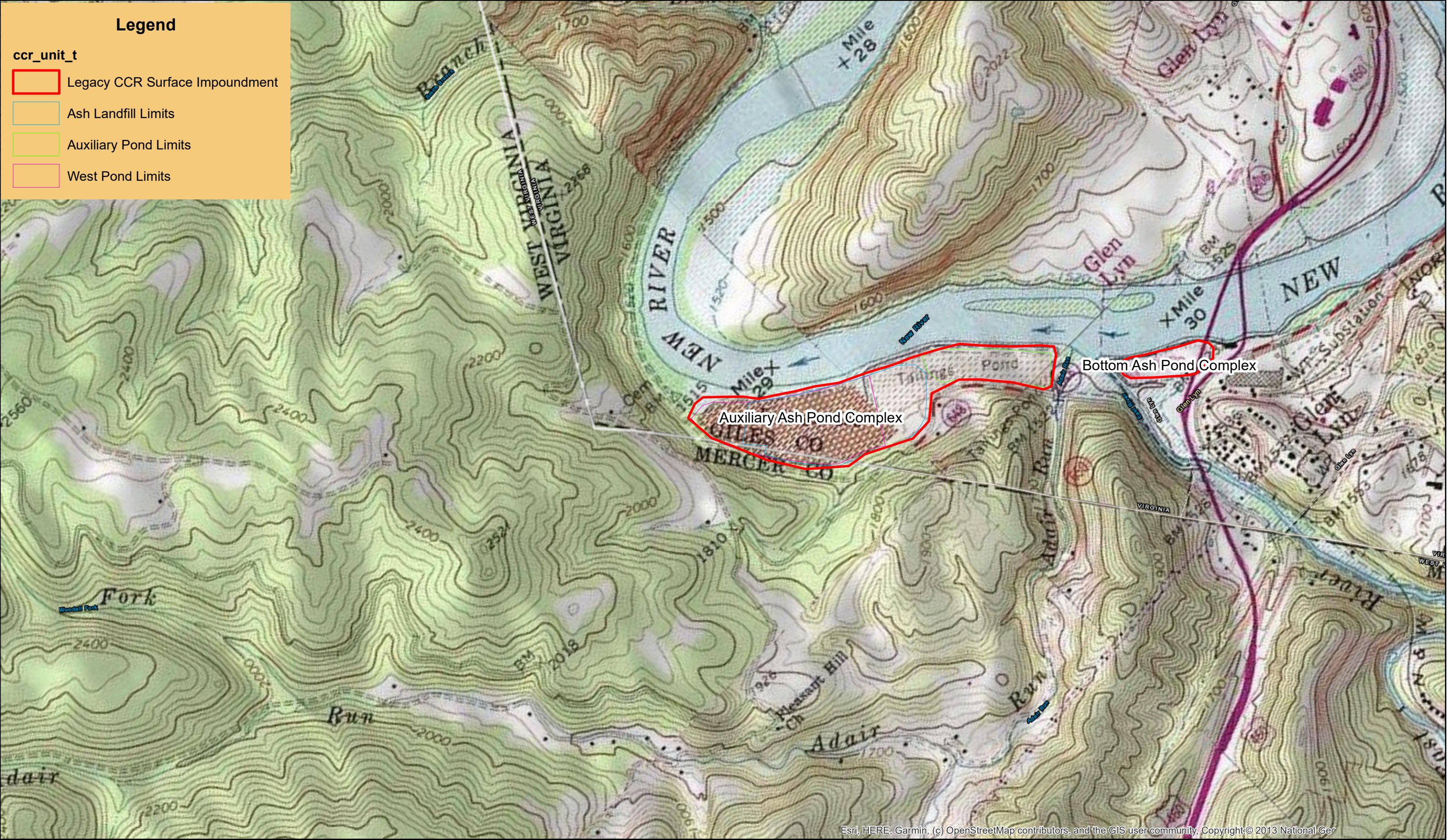
16.0 RECORD OR KNOWLEDGE OF STRUCTURAL INSTABILITY 275.73 (c)(1)(xii)

[Any record or knowledge of the structural instability of the CCR unit.]

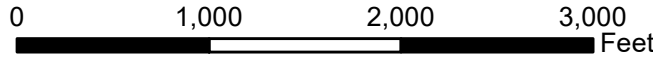
To date, there is no known record or knowledge of structural instability at the Bottom Ash Pond Complex.

ATTACHMENT A

LOCATION MAP

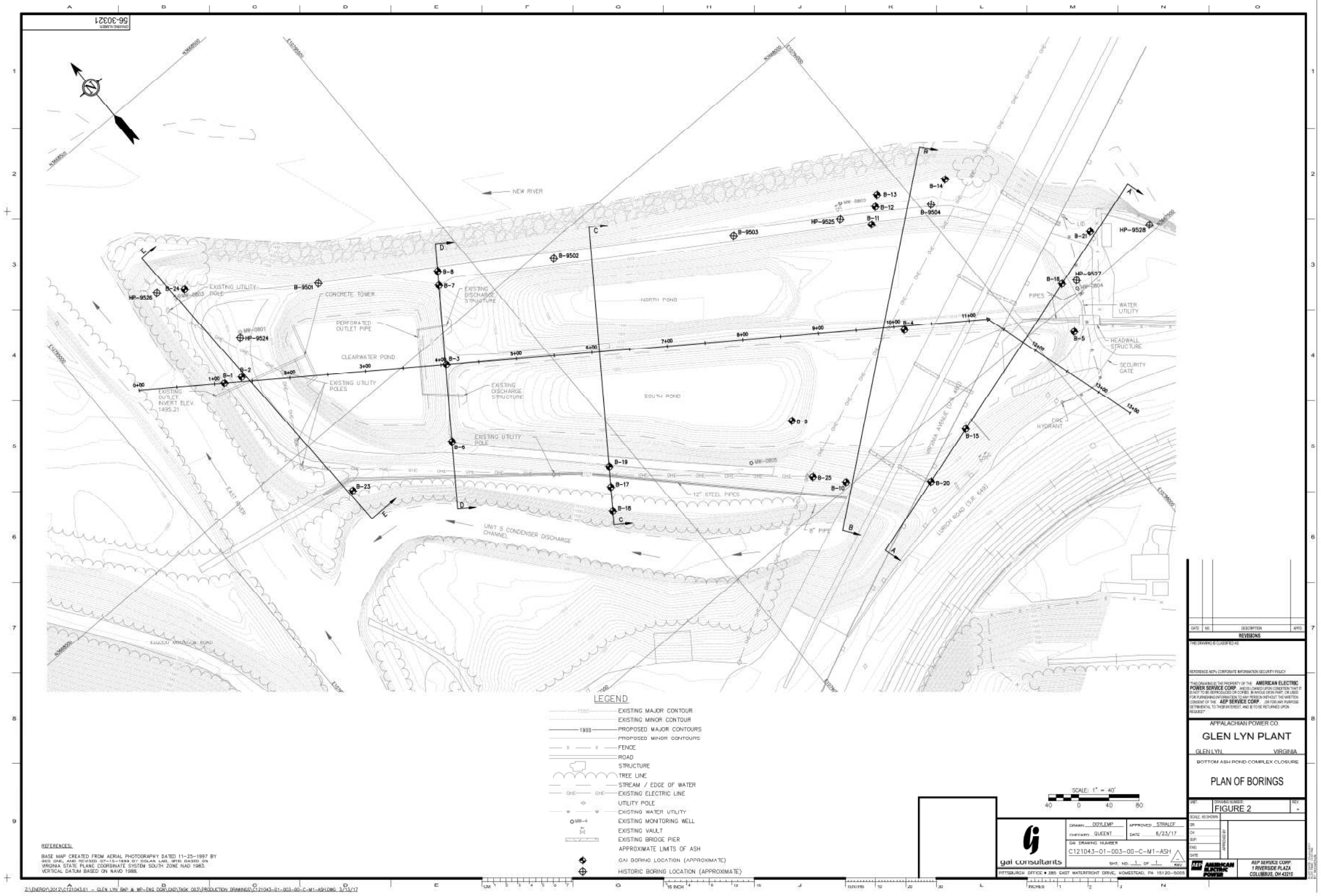


Location Map: Glen Lyn Site Legacy CCR Surface Impoundments
Drawn by: Dan Murphy
Date: December 9, 2025

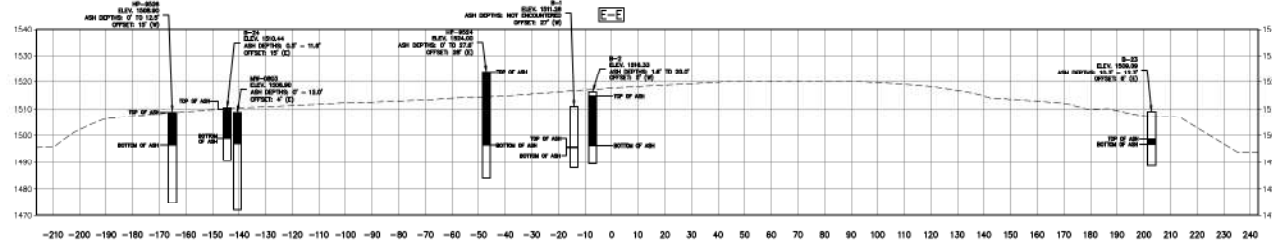
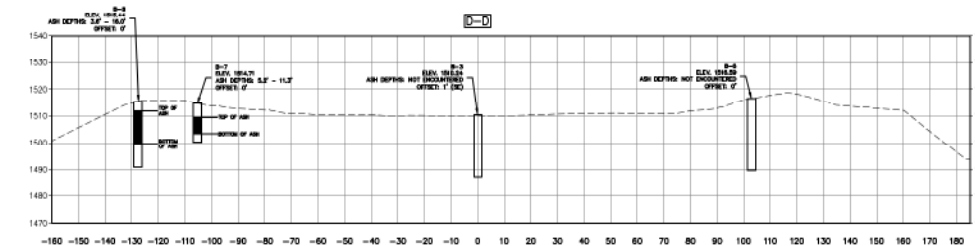
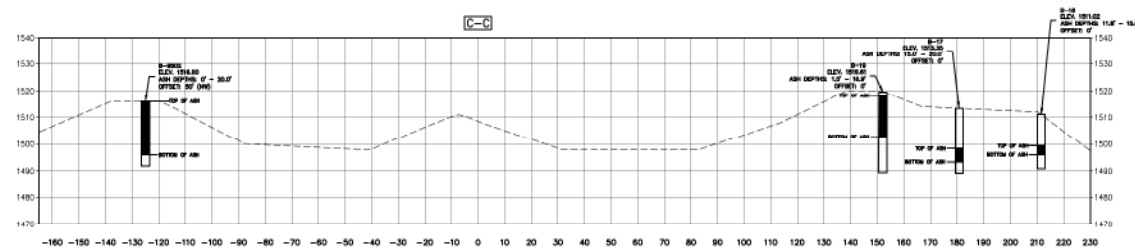
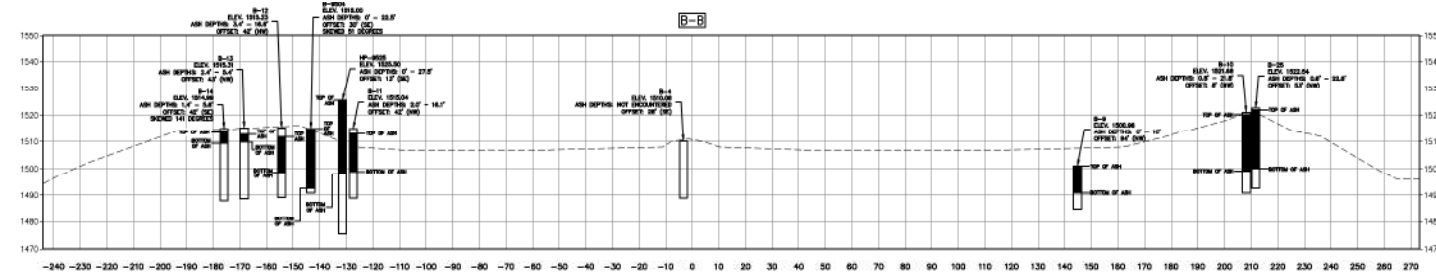
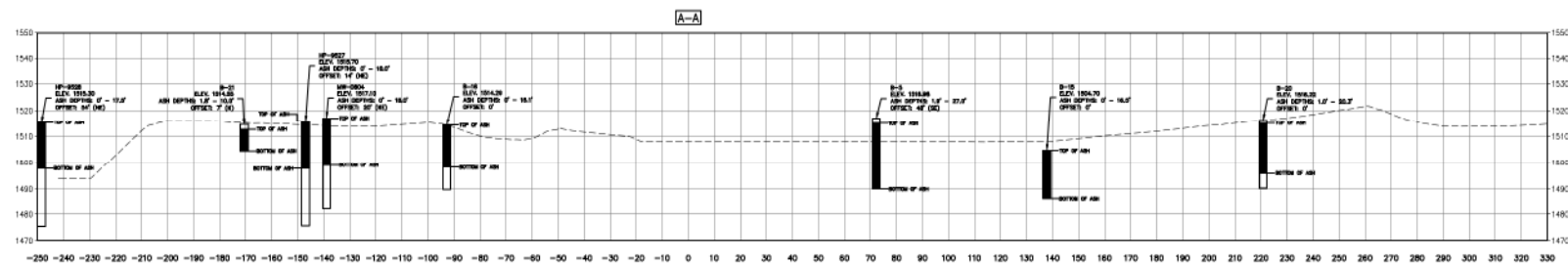


ATTACHMENT B

Geotechnical Information



DATE	NO.	DESCRIPTION	BY
REVISIONS			
THE DRAWING IS CLASSIFIED AS:			
REFERENCE ONLY, CORPORATE INFORMATION SECURITY POLICY			
THIS DRAWING IS THE PROPERTY OF THE AMERICAN ELECTRIC POWER SERVICE CORP. AND IS LOANED TO YOU CONDITION THAT IT BE RETURNED TO THE COMPANY OR DESTROYED WITHOUT THE WRITTEN CONSENT OF THE AEP SERVICE CORP. FOR ANY PURPOSE, REPRODUCTION, TO THE EXTENT, AND IS TO BE RETURNED TO THE COMPANY.			
APPALACHIAN POWER CO.			
GLEN LYN PLANT			
GLEN LYN VIRGINIA			
BOTTOM ASH POND COMPLEX CLOSURE			
PLAN OF BORINGS			
FIGURE 2			
SCALE AS SHOWN			
DRAWN BY: DOLAN, LNO		APPROVED: STRALF, GED	
CHECKED: QUEENT, GED		DATE: 6/25/17	
GAI DRAWING NUMBER: C121043-01-003-00-C-M1-ASH		SHEET NO. 1 OF 1	
PITTSBURGH OFFICE • 3RD EAST WATERFRONT DRIVE, HOMESTEAD, PA 15120-5005		AEP SERVICE CORP. 1 RIVERSIDE PLAZA COLUMBUS, OH 43215	



REFERENCES:

BASE MAP CREATED FROM AERIAL PHOTOGRAPHY DATED 11-25-1997 BY
GEO INC, AND REVISED 07-12-1999 BY DOLAN LAB. GRID BASED ON
VIRGINIA STATE PLANE COORDINATE SYSTEM SOUTH ZONE NAD 1983.
VERTICAL DATUM BASED ON NAVD 1988.

Z:\ENERGY\2012\C121043.01 - GLEN LYN BAP & WP-ENG CGN\CAD\TASK 003\PRODUCTION DRAWINGS\C121043-01-003-00-C-M1-ASH.DWG 3/13/17



DRAWN <u>DOYLEMP</u>	APPROVED <u>STRALC</u>
CHECKED <u>QUEENT</u>	DATE <u>6/23/</u>
GAI DRAWING NUMBER	
<u>C121043-01-DD3-00-C-M1-ASH</u>	
SHT. NO. <u>1</u> OF <u>1</u>	

DATE		NO.	DESCRIPTION		APP.
REVIEWS					
THIS DRAWING IS CLASSIFIED AS:					
REFERENCE: AEP, CORPORATE INFORMATION SECURITY POLICY					
THIS DRAWING IS THE PROPERTY OF THE AMERICAN ELECTRIC POWER SERVICE CORP. AND IS LOANED TO YOU FOR YOUR USE ONLY. IT IS NOT TO BE REPRODUCED OR COPIED, IN WHOLE OR IN PART, OR USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT WAS LOANED. THE WRITTEN CONSENT OF THE AEP SERVICE CORP. IS FOR ALL PURPOSES ESSENTIAL TO YOUR INTERESTS, AND IS TO BE RETURNED UPON REQUEST.					
APPALACHIAN POWER CO. GLENN LYN PLANT					
CROSS SECTION			VIRGINIA		
BOTTOM ASH POND COMPLEX CLOSURE					
CROSS SECTIONS					
REV.	DRAWING NUMBER				REF.
	FIGURE 3				-
SCALE AS SHOWN					
DR.					
CH.					
BY.					
DATE					
 AMERICAN ELECTRIC POWER		AEP SERVICE CORP. 1 RIVERSIDE PLAZA CHICAGO, IL 60601			

OT HAVE CHANGED
of them. 1/11/88

[illegible]

FIELD BORING LOG

BORING NO.	B-1
SHEET	2 OF 2
DATE: START	3/1/17
END	3/1/17
ELEV.	1511.3

PROJECT NAME **AEP - Glen Lyn - Bottom Ash Pond Complex** PROJECT NUMBER **C121043.05**
LOCATION **Giles, Virginia** LAT. _____ LONG _____
INSPECTOR **Terry W. Queen**

DRILLERS COMPANY / NAME **Enviroprone Integrated Solutions**
EQUIPMENT USED **Geoprobe 3230 DT Wireline Trac**

DRILLING METHODS **Direct Push Geotubes**

CASING: SIZE: _____ ; DEPTH: _____ ; WATER: DEPTH: **19.4'** TIME: **8:24 AM** DATE: **3/1/17**
CHECKED BY: **Charles Straley** ; DATE: **5/8/17** DEPTH: **Collapsed** TIME: _____ DATE: **3/3/17**
NOT ENCOUNTERED ☐

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (FL)	RECOVERY(%) RQD (%)	POCKET PENT/ TORVANE (TSF)	USCS	H ₂ O CONTENT	DESCRIPTION	REMARKS
23.0			0.9'	28		NA	Wet	Brown SAND, fine-grained, some Pebbles	
								End of Boring at 23.0	Refusal at 23.0

[illegible]

FIELD BORING LOG

BORING NO.	B-2
SHEET	2 OF 2
DATE: START	2/28/17
END	2/28/17
Approx.ELEV.	1516.3

PROJECT NAME **AEP - Glen Lyn - Bottom Ash Pond Complex** PROJECT NUMBER **C121043.05**
LOCATION **Giles, Virginia** LAT. _____ LONG. _____
INSPECTOR **Terry W. Queen**

DRILLERS COMPANY / NAME **Enviroprone Integrated Solutions**
EQUIPMENT USED **Geoprobe 3230 DT Wireline Trac**

DRILLING METHODS **Direct Push Geotubes**

CASING: SIZE: _____ ; DEPTH: _____ ; WATER: DEPTH: **21.3'** TIME: **3:00 PM** DATE: **3/3/17**
CHECKED BY: **Charles Straley** ; DATE: **5/8/17** DEPTH: **Collapsed** TIME: _____ DATE: **3/3/17**
NOT ENCOUNTERED ☐

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (FL)	RECOVERY(%) RQD (%)	POCKET PENT/ TORVANE (TSF)	USCS OR ROCK BROKENNESS	H ₂ O CONTENT	DESCRIPTION	REMARKS
25.0			2.5'			-	Wet	Brown CLAY, some Rock Fragments, Sand, and Silt	
25.5								1491.3	
26.0			2.0'			-	Wet	Brown SAND, fine grained	
26.5								1490.8	
27.0								1490.3	
27.5								1489.3	
28.0								End of Boring at 27.0	Refusal at 27.0

[illegible]

FIELD BORING LOG

BORING NO.	B-3
SHEET	2 OF 2
DATE: START	3/2/17
END	3/2/17
Approx.ELEV.	1510.2

PROJECT NAME **AEP - Glen Lyn - Bottom Ash Pond Complex** PROJECT NUMBER **C121043.05**

LOCATION **Giles, Virginia** LAT. _____ LONG. _____

INSPECTOR **Terry W. Queen**

DRILLERS COMPANY / NAME **Enviroprone Integrated Solutions**

EQUIPMENT USED **Geoprobe 3230 DT Wireline Trac**

DRILLING METHODS **Direct Push Geotubes**

CASING: SIZE: _____ ; DEPTH: _____ ; WATER: DEPTH: **15.9'** TIME: **5:30 PM** DATE: **3/2/17**

CHECKED BY: **Charles Straley** ; DATE: **5/8/17** DEPTH: **15.8'** TIME: _____ DATE: **3/3/17**

NOT ENCOUNTERED ☐

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (FL)	RECOVERY(%) RQD (%)	POCKET PENT/ TORVANE (TSF)	USCS OR ROCK BROKENNESS	H ₂ O CONTENT	DESCRIPTION	REMARKS
20.2			0.8'			-	Wet	GRAVEL and PEBBLES, some Sand	
22.0								End of Boring at 22.0	Refusal at 22.0 Piezometer installed: Bottom at 22.0, 10.0 Screen, 1" PVC Pipe, Sand to 10.0, Bentonite Chips to 2.0, Flush Mount, Concrete Pad

[illegible]

FIELD BORING LOG

BORING NO.	B-4
SHEET	2 OF 2
DATE: START	3/2/17
END	3/2/17
Approx.ELEV.	1510.1

PROJECT NAME AEP - Glen Lyn - Bottom Ash Pond Complex PROJECT NUMBER C121043.05
LOCATION Giles, Virginia LAT. _____ LONG. _____
INSPECTOR Terry W. Queen

DRILLERS COMPANY / NAME Enviroprone Integrated Solutions
EQUIPMENT USED Geoprobe 3230 DT Wireline Trac

DRILLING METHODS Direct Push Geotubes

CASING: SIZE: _____ ; DEPTH: _____ ; WATER: DEPTH: 15.2' TIME: 3:51 PM DATE: 3/2/17
CHECKED BY: Charles Straley ; DATE: 5/8/17 DEPTH: 15.0' TIME: _____ DATE: 3/3/17

NOT ENCOUNTERED ☐

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (FL)	RECOVERY(%) RQD (%)	POCKET PENT/ TORVANE (TSF)	USCS OR ROCK BROKENNESS	H ₂ O CONTENT	DESCRIPTION	REMARKS
21.0			0.0'			-	-	Brown SAND, coarse to fine grained, some Silt (continued) 21.0 1489.1	No Recovery
								End of Boring at 21.0	Refusal at 21.0
									Piezometer Installed: Bottom at 21.0, 10.0 sScreen, 1" PVC Pipe, Sand to 9.0, Bentonite Chips to 2.0, Flush Mount, Concrete Pad

FIELD BORING LOG

BORING NO.	B-5
SHEET	2 OF 2
DATE: START	2/27/17
END	2/27/17
ELEV.	1517.0

PROJECT NAME **AEP - Glen Lyn - Bottom Ash Pond Complex** PROJECT NUMBER **C121043.05**
LOCATION **Giles, Virginia** LAT. _____ LONG _____
INSPECTOR **Terry W. Queen**

DRILLERS COMPANY / NAME **Enviroprone Integrated Solutions**
EQUIPMENT USED **Geoprobe 3230 DT Wireline Trac**

DRILLING METHODS **Direct Push Geotubes**

CASING: SIZE: _____ ; DEPTH: _____ ; WATER: DEPTH: **24.9'** TIME: **2:20 PM** DATE: **2/27/17**
CHECKED BY: **Charles Straley** ; DATE: **5/8/17** DEPTH: **24.3'** TIME: _____ DATE: **3/3/17**

NOT ENCOUNTERED ☐

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (FL)	RECOVERY(%) RQD (%)	POCKET PENT/ TORVANE (TSF)	USCS	H ₂ O CONTENT	DESCRIPTION	REMARKS
			0.9'	18		NA	Moist	Dark Gray/Black ASH (<i>continued</i>)	
25.0								25.0	
			0.8'	40		NA	Wet	25.6 Brown SAND, some Silt and Pebbles	
								Dark Gray/Black ASH	
27.0								27.0	
								End of Boring at 27.0'	Refusal at 27.0

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (FL.)	RECOVERY(%)	RQD (%)	POCKET PENT/ TORVANE (TSF)	USCS OR ROCK BROKENNESS	H₂O CONTENT		DESCRIPTION	REMARKS
0.0			4.7'	-	-	-	-	Moist	0.3	SANDSTONE Fragments, trace organics Tan CLAY, some Silt and Rock Fragments, trace Sand	
5.0			3.8'	-	-	-	-	Moist	5.6	SANDSTONE Fragments	
									6.6	Tan CLAY, some Sand, Silt, and Rock Fragments	
10.0			3.3'	-	-	-	-	Moist	15.0	Tan CLAY, some Silt and Sand	
15.0			3.2'	-	-	-	-	Moist	15.2	SANDSTONE Fragments	
									15.4	Tan CLAY, some Silt and Sandstone Fragments	
20.0									17.4	Brown SAND, fine grained	

FIELD BORING LOG

BORING NO.	B-6
SHEET	2 OF 2
DATE: START	3/2/17
END	3/2/17
Approx.ELEV.	1516.6

PROJECT NAME **AEP - Glen Lyn - Bottom Ash Pond Complex** PROJECT NUMBER **C121043.05**
LOCATION **Giles, Virginia** LAT. _____ LONG. _____
INSPECTOR **Terry W. Queen**

DRILLERS COMPANY / NAME **Enviroprone Integrated Solutions**
EQUIPMENT USED **Geoprobe 3230 DT Wireline Trac**

DRILLING METHODS **Direct Push Geotubes**

CASING: SIZE: _____ ; DEPTH: _____ ; WATER: DEPTH: **22.1'** TIME: **1:53 PM** DATE: **3/2/17**
CHECKED BY: **Charles Straley** ; DATE: **5/8/17** DEPTH: **22.0'** TIME: _____ DATE: **3/3/17**

NOT ENCOUNTERED ☐

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (FL)	RECOVERY(%) RQD (%)	POCKET PENT/ TORVANE (TSF)	USCS OR ROCK BROKENNESS	H ₂ O CONTENT	DESCRIPTION	REMARKS
								Brown SAND, fine grained (<i>continued</i>)	
			5.0'			-	Wet	22.3 1494.3	
								Brown CLAY, some Sand and Silt	
25.0									
			1.7'			-	Wet	25.9 1490.7	
								GRAVEL, some Pebbles, Sand, and Silt	
27.0								27.0 1489.6	
								End of Boring at 27.0	Refusal at 27.0
									Piezometer installed: Bottom at 26.5, 10.0 Screen, 1" PVC Pipe, Sand placed to 14.5, Bentonite Chips to 2.0, Flush Mount, Concrete Pad

FIELD BORING LOG

BORING NO.	B-7
SHEET	1 OF 1
DATE: START	2/28/17
END	2/28/17
Approx. ELEV.	1514.7

PROJECT NAME **AEP - Glen Lyn - Bottom Ash Pond Complex** PROJECT NUMBER **C121043.05**

LOCATION **Giles, Virginia** LAT. _____ LONG. _____

INSPECTOR **Terry W. Queen**

DRILLERS COMPANY / NAME **Enviroprone Integrated Solutions**

EQUIPMENT USED **Geoprobe 3230 DT Wireline Trac**

DRILLING METHODS **Direct Push Geotubes**

CASING: SIZE: _____ ; DEPTH: _____ ; WATER: DEPTH: **13.2'** TIME: **10:50 AM** DATE: **2/28/17**

CHECKED BY: **Charles Straley** ; DATE: **5/8/17** DEPTH: **13.3'** TIME: _____ DATE: **3/3/17**

NOT ENCOUNTERED ☐

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (FL)	RECOVERY(%) RQD (%)	POCKET PENT/ TORVANE (TSF)	USCS OR ROCK BROKENNESS	H ₂ O CONTENT	DESCRIPTION	REMARKS
0.0								0.3 SAND, fine grained, some Silt 1514.4	
								0.6 Brown CLAY, some Silt and Sand 1514.1	
								Reddish Brown CLAY, some Silt, trace Sand	
			1.6'			-	Dry		
5.0								5.2 1509.5	
								5.8 Dark Gray ASH, some Sand and Rock 1508.9	
								6.2 Fragments 1508.5	
			3.2'			-	Dry	Gray SANDSTONE Fragments	
								Light Gray/Black ASH	
10.0								10.0 1504.7	
								10.8 Reddish Brown CLAY and Dark Gray ASH, 1503.9	
								11.3 some Sandstone Fragments 1503.4	
								Gray Ash	
			3.1'			-	Moist	Brown CLAY, some Sand and Silt	
								12.5 1502.2	
								12.7 SANDSTONE Fragments 1502.0	
								12.9 Gray CLAY, some Rock Fragments 1501.8	
								Red SHALE Fragments and CLAY, some Silt	
14.5								14.5 1500.2	
								End of Boring at 14.5	Refusal at 14.5

[illegible]

DEPTH (FT)	SAMPLE NO. / TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (Fl.)	RECOVERY(%)	RQD (%)	POCKET PENT/ TORVANE (TSF)	USCS OR ROCK BROKENNESS	H ₂ O CONTENT	DESCRIPTION	REMARKS
24.5			1.6'		-		-	Wet	Brown SAND, Some Rock Fragments and Silt	
									24.5 End of Boring at 24.5	1490.9 Refusal at 24.5

FIELD BORING LOG

BORING NO.	B-9
SHEET	1 OF 1
DATE: START	2/27/17
END	2/27/17
Approx. ELEV.	1501.0

PROJECT NAME **AEP - Glen Lyn - Bottom Ash Pond Complex** PROJECT NUMBER **C121043.05**

LOCATION **Giles, Virginia** LAT. _____ LONG. _____

INSPECTOR **Terry W. Queen**

DRILLERS COMPANY / NAME **Enviroprone Integrated Solutions**

EQUIPMENT USED **Geoprobe 3230 DT Wireline Trac**

DRILLING METHODS **Direct Push Geotubes**

CASING: SIZE: _____ ; DEPTH: _____ ; WATER: DEPTH: **6.2'** TIME: **12:20 PM** DATE: **2/27/17**

CHECKED BY: **Charles Straley** ; DATE: **5/8/17** DEPTH: **Collapsed** TIME: _____ DATE: **3/3/17**

NOT ENCOUNTERED ☐

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (FL)	RECOVERY(%) RQD (%)	POCKET PENT/ TORVANE (TSF)	USCS OR ROCK BROKENNESS	H ₂ O CONTENT	DESCRIPTION	REMARKS
0.0								0.5 Dark Gray/Black ASH 1500.5	
								0.7 Brown SAND, coarse grained 1500.3	
			3.2'			-	Moist	Dark Gray/Black ASH	
5.0								5.0 1496.0	
								GRAVEL	
			3.0'			-	Wet	5.9 1495.1	Water Stains at 5.75
								Dark Gray ASH, some Organics	
10.0								10.0 1491.0	
								Gray CLAY, some Red Silt	
			3.0'			-	Wet		
15.0									
			1.0'			-	Wet		
16.0								16.0 1485.0	Refusal at 16.0
								End of Boring at 16.0	

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (FL.)	POCKET PENT/ TORVANE (TSF)	USCS OR ROCK BROKENNESS	H₂O CONTENT			DESCRIPTION	REMARKS
0.0										
0.3					-	Moist		821.4	Brown CLAY, some Organics and Sand, trace Silt	
0.8			2.8'		-	Moist		1520.9	Reddish Brown SAND, fine grained Dark Gray ASH	
5.0					-	Dry		1516.7	Gray SAND, fine grained	
10.0			0.9'		-	Dry		1511.7	Gray ASH, some Sand	
15.0			1.5'		-	Dry				
20.0			2.5'		-	Moist				

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (FL)	RECOVERY(%)	POCKET PENT/ TORVANE (TSF)	USCS OR ROCK BROKENNESS	H ₂ O CONTENT	DESCRIPTION	REMARKS
			2.5'			-	Moist to wet	Gray ASH, some Sand <i>(continued)</i>	
								21.8 1499.9	
								Brown SAND, fine grained	
25.0			4.5'			-	Wet	25.5 1496.2	
								Gray/Brown SAND, fine grained	
								29.4 1492.3	
30.0								30.0 GRAVEL and PEBBLES, some Sand 1491.7	
								End of Boring at 30.0'	

[illegible]

FIELD BORING LOG

BORING NO.	B-11
SHEET	2 OF 2
DATE: START	2/28/17
END	2/28/17
ELEV.	1515.0

PROJECT NAME **AEP - Glen Lyn - Bottom Ash Pond Complex** PROJECT NUMBER **C121043.05**

LOCATION **Giles, Virginia** LAT. _____ LONG _____

INSPECTOR **Terry W. Queen**

DRILLERS COMPANY / NAME **Enviroprone Integrated Solutions**

EQUIPMENT USED **Geoprobe 3230 DT Wireline Trac**

DRILLING METHODS **Direct Push Geotubes**

CASING: SIZE: _____ ; DEPTH: _____ ; WATER: DEPTH: **17.7'** TIME: **9.20 AM** DATE: **2/28/17**

CHECKED BY: **Charles Straley** ; DATE: **5/8/17** DEPTH: **Collapsed** TIME: _____ DATE: **3/3/17**

NOT ENCOUNTERED ☐

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (FL)	RECOVERY(%) RQD (%)	POCKET PENT/ TORVANE (TSF)	USCS	H ₂ O CONTENT	DESCRIPTION	REMARKS
			1.3'	26		NA	Wet	Brown CLAY, some Sand, Silt, and Sandstone Fragments (<i>continued</i>)	
25.0								25.0	
26.0			0.4'	40		NA	Wet	25.2 Brown SAND, fine grained, some Silt 26.0 SANDSTONE Fragments	
								26.0 End of Boring at 26.0	Refusal at 26.0

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (FL.)	RECOVERY(%) RQD (%)	POCKET PENT/ TORVANE (TSF)	USCS OR ROCK BROKENNESS	H ₂ O CONTENT	DESCRIPTION	REMARKS
0.0								0.4 Brown CLAY, some Silt and Rock Fragments 1514.8	
								trace Sand and Organics 1514.3	
								1.3 Reddish Brown CLAY, some Silt 1513.9	
			4.2'	-	-	-	Moist	Brown CLAY, some Silt, trace Organics Reddish Brown CLAY, some Silt and Rock Fragments	
								3.4 1511.8	
								4.0 Dark Gray ASH 1511.2	
								SANDSTONE Rock Fragments	
5.0				-	-	-		5.0 1510.2	
			1.7'	-	-	-	Dry to Moist	Brown CLAY, some Rock Fragments and Silt, trace Sand 6.6 GRAVEL 1508.6	
10.0				-	-	-		10.0 1505.2	
			2.2'	-	-	-	Moist	10.4 Brown CLAY, some Silt, trace Sand 1504.8 10.7 SANDSTONE Rock Fragments 1504.5 Brown CLAY, some Rock Fragments and Silt, Trace Sand 11.8 1503.4 Dark Gray/Black ASH	
15.0				-	-	-		16.4 1498.8	
			4.0'	-	-	-	Wet	16.6 Dark Gray ASH, some Silt 1498.6 Brown CLAY, some Sand and Silt	
20.0				-	-	-		20.0 1495.2	

FIELD BORING LOG

BORING NO.	B-12
SHEET	2 OF 2
DATE: START	2/28/17
END	2/28/17
Approx.ELEV.	1515.2

PROJECT NAME **AEP - Glen Lyn - Bottom Ash Pond Complex** PROJECT NUMBER **C121043.05**
LOCATION **Giles, Virginia** LAT. _____ LONG. _____
INSPECTOR **Terry W. Queen**

DRILLERS COMPANY / NAME **Enviroprone Integrated Solutions**
EQUIPMENT USED **Geoprobe 3230 DT Wireline Trac**

DRILLING METHODS **Direct Push Geotubes**

CASING: SIZE: _____ ; DEPTH: _____ ; WATER: DEPTH: **20.5'** TIME: **8:15 AM** DATE: **2/28/17**
CHECKED BY: **Charles Straley** ; DATE: **5/8/17** DEPTH: **20.6'** TIME: _____ DATE: **3/3/17**

NOT ENCOUNTERED ☐

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (FL)	RECOVERY(%) RQD (%)	POCKET PENT/ TORVANE (TSF)	USCS OR ROCK BROKENNESS	H ₂ O CONTENT	DESCRIPTION	REMARKS
			3.3'			-	Wet	20.4 Brown SAND 1494.8 Brown CLAY, some Sand and Silt	
25.0								25.0 1490.2	
26.0			0.8'			-	Wet	26.0 1489.2 Reddish Brown CLAY, some Rock Fragmetns and Silt, trace Sand	
								End of Boring at 26.0	Refusal at 26.0

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (FL.)	RECOVERY(%)	RQD (%)	POCKET PENT/ TORVANE (TSF)	USCS OR ROCK BROKENNESS	H ₂ O CONTENT		DESCRIPTION	REMARKS
0.0			3.3'	-	-	-	-	Moist	0.6	Brown CLAY, some Organics and Silt, trace Sand	1514.7
									1.3	Orange/Tan CLAY, some Silt, trace Sand	1514.0
									1.6	Red CLAY, some Shale Fragments	1513.7
									2.4	Reddish Brown CLAY, some Silt, trace Sand	1512.9
										Dark Grey/Black ASH	
5.0			1.4'	-	-	-	-	Dry to Moist	5.0		1510.3
									5.4	Brown CLAY, some Rock Fragments and Silt, trace Sand	1509.9
										Light Brown CLAY, some Rock Fragments and Silt, trace Sand	
									6.8		1508.5
										GRAVEL	
10.0			2.5'	-	-	-	-	Dry	10.0		1505.3
										Brown CLAY, some Sand, Silt, Pebbles and Rock Fragments	
									12.3		1503.0
										GRAVEL and SANDSTONE Rock Fragments	
15.0			1.7'	-	-	-	-	Dry	15.5		1499.8
									16.0	Light Gray CLAY, some Silt and Rock Fragments	1499.3
										Light Brown CLAY some Silt and Rock Fragments	
20.0				-	-	-	-				

FIELD BORING LOG

BORING NO.	B-13
SHEET	2 OF 2
DATE: START	2/27/17
END	2/27/17
Approx. ELEV.	1515.3

PROJECT NAME **AEP - Glen Lyn - Bottom Ash Pond Complex** PROJECT NUMBER **C121043.05**
LOCATION **Giles, Virginia** LAT. _____ LONG. _____
INSPECTOR **Terry W. Queen**

DRILLERS COMPANY / NAME **Enviroprone Integrated Solutions**
EQUIPMENT USED **Geoprobe 3230 DT Wireline Trac**

DRILLING METHODS **Direct Push Geotubes**

CASING: SIZE: _____ ; DEPTH: _____ ; WATER: DEPTH: **21.4'** TIME: **4/34 PM** DATE: **2/27/17**
CHECKED BY: **Charles Straley** ; DATE: **5/8/17** DEPTH: **20.8'** TIME: _____ DATE: **3/3/17**

NOT ENCOUNTERED ☐

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (FL)	RECOVERY (%)	POCKET PENT/ TORVANE (TSF)	USCS OR ROCK BROKENNESS	H ₂ O CONTENT	DESCRIPTION	REMARKS
			3.1'			-	Wet	20.5 1494.8 Brown CLAY, some Silt and Sand	
								21.9 1493.4 Gray CLAY, some Silt	
								22.8 1492.5 Brown SAND, coarse grained, some Silt	
25.0								25.0 1490.3	
			0.9'			-	Wet	25.6 1489.7 Brown CLAY, some Rock Fragments, Silt, and Sand	
26.5								26.5 1488.8 Dark Gray CLAY, some Sand, Silt, and Rock Fragments	
								End of Boring at 26.5	Refusal at 26.5

[illegible]

FIELD BORING LOG

BORING NO.	B-14
SHEET	2 OF 2
DATE: START	2/27/17
END	2/27/17
Approx.ELEV.	1515.0

PROJECT NAME **AEP - Glen Lyn - Bottom Ash Pond Complex** PROJECT NUMBER **C121043.05**
LOCATION **Giles, Virginia** LAT. _____ LONG. _____
INSPECTOR **Terry W. Queen**

DRILLERS COMPANY / NAME **Enviroprone Integrated Solutions**
EQUIPMENT USED **Geoprobe 3230 DT Wireline Trac**

DRILLING METHODS **Direct Push Geotubes**

CASING: SIZE: _____ ; DEPTH: _____ ; WATER: DEPTH: **19.7'** TIME: **4:37 PM** DATE: **2/27/17**
CHECKED BY: **Charles Straley** ; DATE: **5/8/17** DEPTH: **19.6'** TIME: _____ DATE: **3/3/17**

NOT ENCOUNTERED ☐

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (FL)	RECOVERY(%) RQD (%)	POCKET PENT/ TORVANE (TSF)	USCS OR ROCK BROKENNESS	H ₂ O CONTENT	DESCRIPTION	REMARKS
								20.4 Gray SILT 1494.6	
								21.1 Brown CLAY, some Silt and Sand 1493.9	
			1.4'			-	Moist to Wet	Dark Brown SAND, some Pebbles	
25.0								25.0 1490.0	
			0.7'			-	Wet	Brown CLAY, some Silt, Sand, and Rock Fragments	
27.0								27.0 1488.0	
								End of Boring at 27.0	Refusal at 27.0

FIELD BORING LOG

BORING NO.	B-15
SHEET	1 OF 1
DATE: START	2/27/17
END	2/27/17
Approx.ELEV.	1504.7

PROJECT NAME **AEP - Glen Lyn - Bottom Ash Pond Complex** PROJECT NUMBER **C121043.05**

LOCATION **Giles, Virginia** LAT. _____ LONG. _____

INSPECTOR **Terry W. Queen**

DRILLERS COMPANY / NAME **Enviroprone Integrated Solutions**

EQUIPMENT USED **Geoprobe 3230 DT Wireline Trac**

DRILLING METHODS **Direct Push Geotubes**

CASING: SIZE: _____ ; DEPTH: _____ ; WATER: DEPTH: **10.5'** TIME: **11/41 AM** DATE: **2/27/17**

CHECKED BY: **Charles Straley** ; DATE: **5/8/17** DEPTH: **9.8'** TIME: _____ DATE: **3/3/17**

NOT ENCOUNTERED ☐

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (FL)	RECOVERY(%) RQD (%)	POCKET PENT/ TORVANE (TSF)	USCS OR ROCK BROKENNESS	H ₂ O CONTENT	DESCRIPTION	REMARKS
0.0			2.5'			-	Moist	Dark Gray/Black ASH, some organics	
5.0								5.0 1499.7	
			1.5'			-	Wet	Brown Silty CLAY, some fine grained Sand	
								7.8 1496.9	
								Brown Silty CLAY, some Sand and Dark Gray Ash	
10.0								10.3 1494.4	
								10.9 GRAVEL 1493.8	
								SAND, some Pebbles 1493.1	
			3.8'			-	Wet	11.6 SAND, fine grained 1492.7	
								12.0 Brown to Gray Silty SAND	
15.0								15.0 1489.7	
			1.1'			-	Wet	Dark Gray/Black ASH, some Rock Fragments	
16.5								16.5 1488.2	
								End of Boring at 16.5	Refusal at 16.5

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (FL)	RECOVERY(%) ROD (%)	POCKET PENT/ TORVANE (TSF)	USCS OR ROCK BROKENNESS	H ₂ O CONTENT	DESCRIPTION	REMARKS	
0.0			3.1'			-	Moist	0.4 GRAVEL 1513.9 Dark Gray ASH		
							2.8 1511.5 Reddish Brown Silty CLAY			
							3.7 1510.6 Dark Gray/Black ASH, some Organics			
5.0			2.1'			-	Moist	5.5 1508.8 5.7 GRAVEL 1508.6 6.4 Brown Silty CLAY and Dark Gray ASH 1507.9 Brown Silty Sandy CLAY		
10.0			2.8'			-	Dry	10.0 1504.3 Black ASH		
15.0			2.3'			-	Wet	15.0 1499.3 Brown Silty SAND 16.1 1498.2 Brown Silty CLAY, some fine grained Sand, Organics and Pebbles		
20.0								20.0 1494.3		Dry at 16.7

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (FL)	RECOVERY(%)	RQD (%)	POCKET PENT/ TORVANE (TSF)	USCS OR ROCK BROKENNESS	H ₂ O CONTENT	DESCRIPTION	REMARKS
24.5			2.2'		-		-	Wet	SAND, some Silt and Pebbles	
									24.5	1489.8
									End of Boring at 24.5	Refusal at 24.5

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (FL.)	RECOVERY(%)	RQD (%)	POCKET PENT/ TORVANE (TSF)	USCS OR ROCK BROKENNESS	H ₂ O CONTENT		DESCRIPTION		REMARKS
0.0												
			2.4'	-	-	-	-	Dry	0.6	Brown CLAY, some Organics and Silt, trace Sand	1512.8	
									1.2	Gray SANDSTONE Rock Fragments, some Silt	1512.2	
									2.2	Brown CLAY, some Silt and Rock Fragments, trace Sand	1511.2	
										Gray SAND, some Rock Fragments		
5.0			1.8'	-	-	-	-	Dry	5.2		1508.2	
									5.5	Brown C LAY, some Silt, Sand and Rock Fragments	1507.9	
									6.2	Gray Sandstone and Red Shale Fragments	1507.2	
									6.4	Brown CLAY, some Silt and Sand Gray SANDSTONE Rock Fragments	1507.0	
10.0			1.1'	-	-	-	-	Moist	10.4	Gray SANDSTONE Rock Fragments	1503.0	
									10.6	Orange/White SAND Brown CLAY, some Sandstone Fragments and Sand, trace Silt	1502.8	
15.0			0.6'	-	-	-	-	Moist	15.0	Black ASH, trace Sand	1498.4	
20.0				-	-	-	-		20.0		1493.4	

FIELD BORING LOG

BORING NO.	B-17
SHEET	2 OF 2
DATE: START	3/1/17
END	3/1/17
Approx. ELEV.	1513.4

PROJECT NAME **AEP - Glen Lyn - Bottom Ash Pond Complex** PROJECT NUMBER **C121043.05**

LOCATION **Giles, Virginia** LAT. _____ LONG. _____

INSPECTOR **Terry W. Queen**

DRILLERS COMPANY / NAME **Enviroprone Integrated Solutions**

EQUIPMENT USED **Geoprobe 3230 DT Wireline Trac**

DRILLING METHODS **Direct Push Geotubes**

CASING: SIZE: _____ ; DEPTH: _____ ; WATER: DEPTH: **18.8'** TIME: **10:27 AM** DATE: **3/1/17**

CHECKED BY: **Charles Straley** ; DATE: **5/8/17** DEPTH: **Collapsed** TIME: _____ DATE: **3/3/17**

NOT ENCOUNTERED ☐

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (FL)	RECOVERY(%) RQD (%)	POCKET PENT/ TORVANE (TSF)	USCS OR ROCK BROKENNESS	H ₂ O CONTENT	DESCRIPTION	REMARKS
20.6			1.3'			-	Wet	Brown CLAY, some Silt and Sand	1492.8
								Brown SAND, fine grained, some Pebbles and Rock Fragments	
24.0								24.0	1489.4
								End of Boring at 24.0	Refusal at 24.0

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (FL)	RECOVERY(%) ROD (%)	POCKET PENT/ TORVANE (TSF)	USCS OR ROCK BROKENNESS	H ₂ O CONTENT		DESCRIPTION	REMARKS
0.0									Brown CLAY, some Organics and Red Shale Fragments	
			3.1'			-	Dry	1.6	1509.4	
								1.9	1509.1	
									Red SHALE Fragments	
									Gray SANDSTONE Fragments	
5.0										
			1.8'			-	Dry	5.7	1505.3	
									Brown CLAY, some Gray Sandstone Fragments	
10.0										
			2.9'			-	Moist to Wet	10.0	1501.0	
								10.7	1500.3	
									Brown CLAY, some Rock Fragments, Sand, and Silt	
								11.8	1499.2	
									CLAY, some Sand, Silt, Pebbles, and Rock Fragments	
									Dark Gray/Black ASH	
15.0										
			4.2'			-	Moist to Wet	15.0	1496.0	
									Brown SAND, fine grained	
20.0										
								20.0	1491.0	

DEPTH (FT)	SAMPLE NO. / TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (Ft.)	RECOVERY(%)	RQD (%)	POCKET PENT/ TORVANE (TSF)	USCS OR ROCK BROKENNESS	H ₂ O CONTENT	DESCRIPTION	REMARKS
									End of Boring at 20.0	Refusal at 20.0

[illegible]

FIELD BORING LOG

BORING NO.	B-19
SHEET	2 OF 2
DATE: START	3/2/17
END	3/2/17
Approx. ELEV.	1519.6

PROJECT NAME **AEP - Glen Lyn - Bottom Ash Pond Complex** PROJECT NUMBER **C121043.05**
LOCATION **Giles, Virginia** LAT. _____ LONG. _____
INSPECTOR **Terry W. Queen**

DRILLERS COMPANY / NAME **Enviroprone Integrated Solutions**
EQUIPMENT USED **Geoprobe 3230 DT Wireline Trac**

DRILLING METHODS **Direct Push Geotubes**

CASING: SIZE: _____ ; DEPTH: _____ ; WATER: DEPTH: **24.8'** TIME: **11:35 AM** DATE: **3/2/17**
CHECKED BY: **Charles Straley** ; DATE: **5/8/17** DEPTH: **24.6'** TIME: _____ DATE: **3/3/17**

NOT ENCOUNTERED ☐

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (FL)	RECOVERY(%) RQD (%)	POCKET PENT/ TORVANE (TSF)	USCS OR ROCK BROKENNESS	H ₂ O CONTENT	DESCRIPTION	REMARKS
25.0			0.3'			-	Dry	Brown SANDSTONE Rock Fragments (continued)	
25.4								1494.2	
25.7			1.7'			-	Wet	Dark Gray SAND, some Rock Fragments and Silt	
								1493.9	
								Brown SAND, some Pebbles, Rock Fragments, and Silt	
30.0								30.0	
								1489.6	
								End of Boring at 30.0'	

[illegible]

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (FL)	RECOVERY(%)	RQD (%)	POCKET PENT/ TORVANE (TSF)	USCS OR ROCK BROKENNESS	H ₂ O CONTENT	DESCRIPTION	REMARKS
			1.7'				-	Wet	20.2 Brown SAND, fine grained 1496.0 20.3 GRAVEL, some Sand 1495.9	
25.0										
			0.6'				-	Wet	25.4 1490.8 26.0 Gray SANDSTONE Fragments, some Sand, 1490.2 End of Boring at 26.0	Refusal at 26.0

FIELD BORING LOG

BORING NO.	B-21
SHEET	1 OF 1
DATE: START	3/3/17
END	3/3/17
Approx. ELEV.	1514.5

PROJECT NAME **AEP - Glen Lyn - Bottom Ash Pond Complex** PROJECT NUMBER **C121043.05**

LOCATION **Giles, Virginia** LAT. _____ LONG. _____

INSPECTOR **Terry W. Queen**

DRILLERS COMPANY / NAME **Enviroprone Integrated Solutions**

EQUIPMENT USED **Geoprobe 3230 DT Wireline Trac**

DRILLING METHODS **Direct Push Geotubes**

CASING: SIZE: _____ ; DEPTH: _____ ; WATER: DEPTH: **Dry** TIME: **11:15 am** DATE: **3/3/17**

CHECKED BY: **Charles Straley** ; DATE: **5/8/17** DEPTH: _____ TIME: _____ DATE: _____

NOT ENCOUNTERED ☐

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (FL)	RECOVERY (%) RQD (%)	POCKET PENT/ TORVANE (TSF)	USCS OR ROCK BROKENNESS	H ₂ O CONTENT	DESCRIPTION	REMARKS
0.0								0.5 Brown CLAY, some Sand and Silt, trace Organics 1514.0	Manmade material at 1.1
								Reddish Brown CLAY, some Silt and Rock Fragments, trace Sand 1512.7	
			2.5'			-	Dry to Moist	1.8 Dark Gray/Black ASH, some Reddish Brown CLAY 1512.2	
								2.3 Gray SAND, some Rock Fragments and Gray Ash	
5.0								5.5 Brown CLAY, some Gray Ash and Silt 1509.0	
								6.9 Red SANDSTONE Fragments 1507.6	
			2.3'			-	Dry	7.0 Brown CLAY, some Sand and Gray/Black Ash 1507.5	
10.0								10.0 Brown SANDSTONE Fragments 1504.5	Refusal at 10.5
10.5			0.5'			-	Dry	10.1 Gray SANDSTONE Fragments 1504.4	
								10.5 End of Boring at 10.5 1504.0	

DEPTH (FT)	SAMPLE NO. / TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (FL)	RECOVERY(%)	POCKET PENT/ TORVANE (TSF)	USCS OR ROCK BROKENNESS	H ₂ O CONTENT	DESCRIPTION	REMARKS
								Ash pond material wet and soft. Drill rig sank on the right side as tramming to the boring location. Dozer was used to free drill rig. Boring not drilled due to wet, soft ash (West Pond)	

[illegible]

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (FL)	RECOVERY(%)	RQD (%)	POCKET PENT/ TORVANE (TSF)	USCS OR ROCK BROKENNESS	H ₂ O CONTENT	DESCRIPTION	REMARKS
20.5			0.0'				-	-	20.5 Brown SAND, fine grained, some Clay and Silt (continued) End of Boring at 20.5	Refusal at 20.5

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (FL.)	RECOVERY(%) ROD (%)	POCKET PENT/ TORVANE (TSF)	USCS OR ROCK BROKENNESS	H ₂ O CONTENT	DESCRIPTION	REMARKS
0.0			2.9'			-	Moist	0.5 Brown CLAY, some Organics, Rock Fragments, and Silt, trace Sand 1509.9	
				1.0 Dark Gray/Black ASH, some Sand 1509.4					
				1.2 Brown CLAY, some Rock Fragments and Sand 1509.2					
				2.0 White SANDSTONE Fragments 1508.4					
5.0			1.7'			-	Moist	5.0 1505.4	
				6.0 Brown CLAY, some Sandstone Fragments, Silt, and Sand 1504.4					
				6.3 White SANDSTONE Fragments 1504.1					
10.0			2.8'			-	Moist	10.0 1500.4	
				10.5 GRAVEL, some Sandstone Fragments 1499.9					
				11.4 1499.0					
				11.6 Dark Gray/Black ASH 1498.8					
15.0			2.7'			-	Moist to Wet	15.0 1495.4	
				16.3 1494.1					
				17.3 1493.1					
20.0								20.0 1490.4	

DEPTH (FT)	SAMPLE NO. / TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (Ft.)	RECOVERY(%)	RQD (%)	POCKET PENT/ TORVANE (TSF)	USCS OR ROCK BROKENNESS	H ₂ O CONTENT	DESCRIPTION	REMARKS
									End of Boring at 20.0	Refusal at 20.0

[illegible]

FIELD BORING LOG

BORING NO.	B-25
SHEET	2 OF 2
DATE: START	3/2/17
END	3/2/17
Approx.ELEV.	1522.5

PROJECT NAME **AEP - Glen Lyn - Bottom Ash Pond Complex** PROJECT NUMBER **C121043.05**
LOCATION **Giles, Virginia** LAT. _____ LONG. _____
INSPECTOR **Terry W. Queen**

DRILLERS COMPANY / NAME **Enviroprone Integrated Solutions**
EQUIPMENT USED **Geoprobe 3230 DT Wireline Trac**

DRILLING METHODS **Direct Push Geotubes**

CASING: SIZE: _____ ; DEPTH: _____ ; WATER: DEPTH: **27.8'** TIME: **9:03 AM** DATE: **3/2/17**
CHECKED BY: **Charles Straley** ; DATE: **5/8/17** DEPTH: **27.7'** TIME: _____ DATE: **3/3/17**

NOT ENCOUNTERED ☐

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (FL)	RECOVERY(%) RQD (%)	POCKET PENT/ TORVANE (TSF)	USCS OR ROCK BROKENNESS	H ₂ O CONTENT	DESCRIPTION	REMARKS
			3.1'			-	Moist	Dark Gray/Black ASH	
25.0								22.6 1499.9 Brown SAND, fine grained	
								25.0 1497.5	
								25.5 1497.0 Gray SAND, fine grained Brown SAND, fine grained, some Silt	
			3.7'			-	Wet		
30.0								30.0 1492.5	
								End of Boring at 30.0'	

APPENDIX B

Historical Borings

FEB 21 1995



Date February 20, 1995

Subject **Glen Lyn Plant**

From J. C. MacKnight

To M. T. Damian - AEPSC

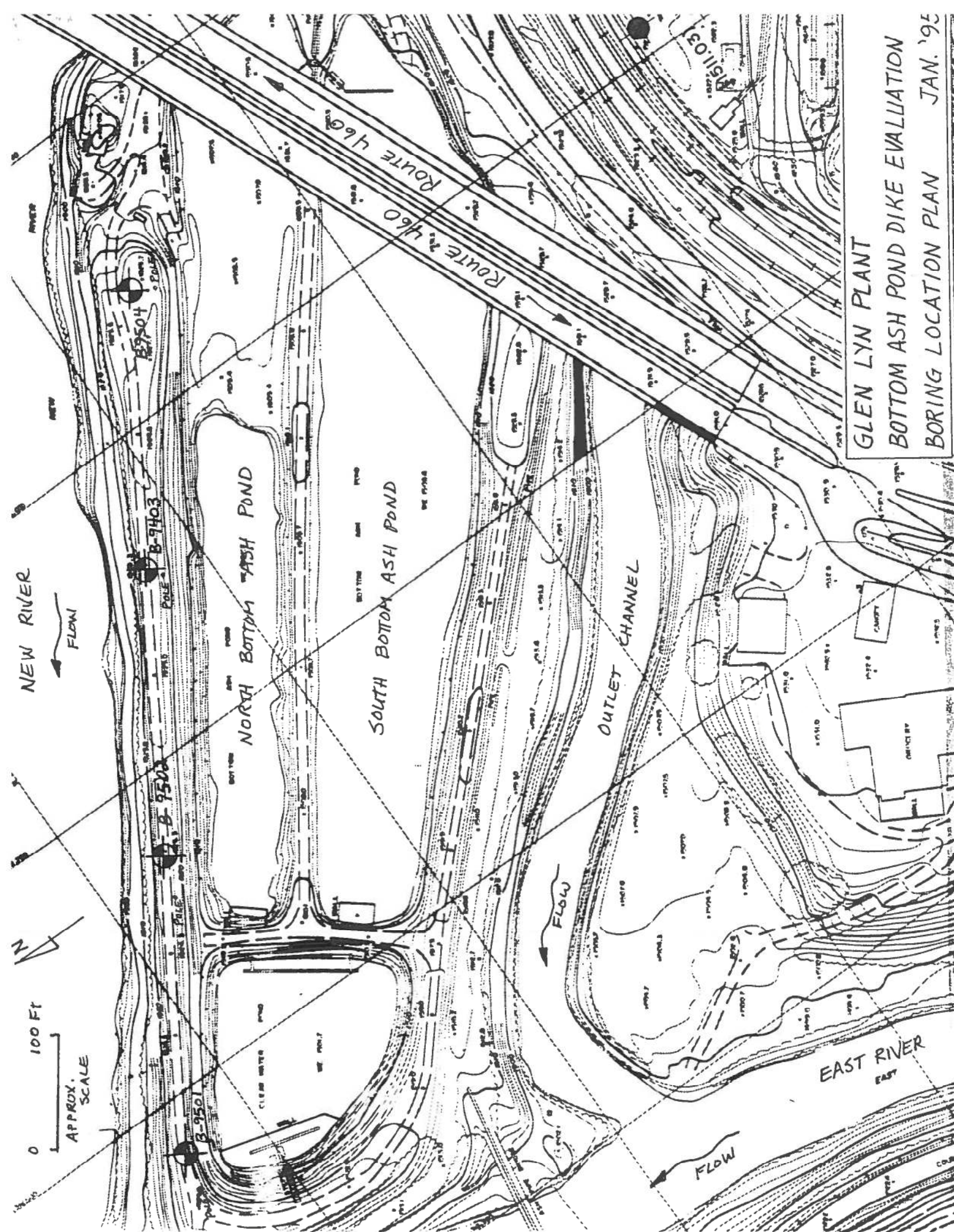
Enclosed, please find boring logs numbered 9501-9504 drilled in the Bottom Ash Dike.

Please call if you have any questions.

J. C. MacKnight
Civil Engineering Laboratory

JCM/eal:damian.mem

xc: C. C. Cassell, Jr./E. E. Booth
J. A. Ryder - Glen Lyn - w/e
S. K. Pennington - Glen Lyn - wo/e



GLEN LYN PLANT

BOTTOM ASH POND DIKE EVALUATION

BORING LOCATION PLAN

JAN. '95

AMERICAN ELECTRIC POWER SERVICE CORPORATION
AEP CIVIL ENGINEERING LABORATORY
LOG OF BORING



JOB NUMBER **3031**

COMPANY **APPALACHIAN POWER COMPANY**

PROJECT **GLEN LYN BOTTOM ASH DIKE**

COORDINATES _____

GROUND ELEVATION _____ SYSTEM **STATE PLANE**

WATER LEVEL	▽	DRY	▽	▽
TIME				
DATE		2-1-95		

BORING NO. **9501** DATE _____ SHEET **1** OF **1**

BORING START **02/01/95** BORING FINISH **02/01/95**

PIEZOMETER TYPE _____ WELL TYPE _____

HGT. RISER ABOVE GROUND _____ DIA _____

DEPTH TO TOP OF WELL SCREEN _____ BOTTOM _____

WELL DEVELOPMENT _____ BACKFILL **CEMENT/BENTON**

FIELD PARTY **TJH=RLY** RIG **CME-75**

SAMPLE NUMBER	SAMPLE	SAMPLE DEPTH IN FEET		STANDARD PENETRATION RESISTANCE BLOWS / 6"	TOTAL LENGTH RECOVERY	RQD %	DEPTH IN FEET	GRAPH LOG	S U C	SOIL / ROCK IDENTIFICATION	WELL	DRILLER'S NOTES
		FROM	TO									
1	SS	0.0	1.5	4-4-4	1.1					BROWN CLAYEY SAND Moist, 100% v-fine grain.		
2	SS	1.5	3.0	3-3-2	.7					BLACK ASH Dry to moist with one limestone gravel.		
3	SS	3.0	4.5	2-3-3	1.1							
4	SS	4.5	6.0	5-6-6	1.2		5					
5	SS	6.0	7.5	3-4-5	1.1							
6	SS	7.5	9.0	5-9-9	.8							
7	SS	9.0	10.5	5-5-8	1.2		10					
8	SS	10.5	12.0	6-7-9	1.1							
9	SS	12.3	13.8	6-6-10	?		15					
10	SS	17.3	18.8	12-16-18	?		20			REDDISH BROWN CLAYEY SANDY GRAVEL Moist, 1/2" max size, angular		17.3 DRILLING THROUGH AREAS.
11	SS	22.3	23.8	3-3-3	?							

TYPE OF CASING USED				
X	NQ-2 ROCK CORE		PIEZOMETER TYPE: PT = OPEN TUBE POROUS TIP, SS = OPEN TUBE SLOTTED SCREEN, G = GEONOR, P = PNEUMATIC	
	6" x 3.25 HSA			
	9" x 6.25 HSA			
	HW CASING ADVANCER 4"		WELL TYPE: OW = OPEN TUBE SLOTTED SCREEN, GM = GEOMON	
	NW CASING 3"			
SW CASING 6"				
			RECORDER	RLY

JOB NUMBER **3031**COMPANY **APPALACHIAN POWER COMPANY**PROJECT **GLEN LYN BOTTOM ASH DIKE**

COORDINATES _____

GROUND ELEVATION _____ SYSTEM **STATE PLANE**

WATER LEVEL	DRY		
TIME			
DATE	2-1-95		

BORING NO. **9502** DATE _____ SHEET **1** OF **1**BORING START **02/01/95** BORING FINISH **02/01/95**

PIEZOMETER TYPE _____ WELL TYPE _____

HGT. RISER ABOVE GROUND _____ DIA _____

DEPTH TO TOP OF WELL SCREEN _____ BOTTOM _____

WELL DEVELOPMENT _____ BACKFILL **CEMENT/BENTON**FIELD PARTY **TJH=RLY** RIG **CME-75**

SAMPLE NUMBER	SAMPLE	SAMPLE DEPTH IN FEET	STANDARD PENETRATION RESISTANCE BLOWS / 6"	TOTAL LENGTH RECOVERY	RQD %	DEPTH IN FEET	GRAPH LOG	SOIL / ROCK IDENTIFICATION	WELL	DRILLER'S NOTES
1	SS	0.0	1.5	12-13-13	1.3			BLACK ASH, LIMESTONE ROAD BASE		
3	SS	3.0	4.5	3-3-3	1.2			BROWN CLAYEY SAND Dry.		
4	SS	4.5	6.0	4-6-6	1.1	5		BLACK ASH Moist to dry.		
5	SS	6.0	7.5	2-2-2	1.2					
6	SS	7.5	9.0	2-2-4	1.1					
7	SS	9.0	10.5	2-3-4	1.3	10				
8	SS	10.5	12.0	4-7-8	1.1			TRACE OF LIMESTONE GRAVEL		
9	SS	12.5	14.0	9-25-20	1.1			BROWN SANDY CLAY Dry.		
2	SS	15.0	16.5	4-5-5	1.1	15				
10	SS	17.5	18.5	17-50	1.0			RED BRICKS GRAY SANDY CLAY BLACK COAL AND WOOD FRAGMENTS		
						20				
11	SS	22.5	24.0	13-7-7	.8			BROWN SAND Dry with trace of limestone gravel size material.		

17.3 DRILLING THROUGH AREAS.

TYPE OF CASING USED

	NQ-2 ROCK CORE	PIEZOMETER TYPE: PT = OPEN TUBE POROUS TIP, SS = OPEN TUBE SLOTTED SCREEN, G = GEONOR, P = PNEUMATIC
X	6" x 3.25 HSA	
	9" x 6.25 HSA	
	HW CASING ADVANCER 4"	WELL TYPE: OW = OPEN TUBE SLOTTED SCREEN, GM = GEOMON
	NW CASING 3"	
	SW CASING 6"	RECORDER RLY

AEP CIVIL ENGINEERING LABORATORY

LOG OF BORING

JOB NUMBER **3031**COMPANY **APPALACHIAN POWER COMPANY**PROJECT **GLEN LYN BOTTOM ASH DIKE**

COORDINATES _____

GROUND ELEVATION _____ SYSTEM **STATE PLANE**

WATER LEVEL	▽	DRY	▽	▽
TIME				
DATE		2-1-95		

BORING NO. **9503** DATE _____ SHEET **1** OF **1**BORING START **02/01/95** BORING FINISH **02/01/95**

PIEZOMETER TYPE _____ WELL TYPE _____

HGT. RISER ABOVE GROUND _____ DIA _____

DEPTH TO TOP OF WELL SCREEN _____ BOTTOM _____

WELL DEVELOPMENT _____ BACKFILL **CEMENT/BENTON**FIELD PARTY **TJH=RLY** RIG **CME-75**

SAMPLE NUMBER	SAMPLE	SAMPLE DEPTH IN FEET		STANDARD PENETRATION RESISTANCE BLOWS / 6"	TOTAL LENGTH RECOVERY	RQD %	DEPTH IN FEET	GRAPH LOG	SOIL / ROCK IDENTIFICATION	WELL	DRILLER'S NOTES
1	SS	0.0	1.5	13-13-16	1.2				LIMESTONE GRAVEL ROAD BASE		
2	SS	1.5	3.0	4-4-4	1.1				BROWN CLAYEY SAND Moist.		
3	SS	3.0	4.5	4-4-3	.9				BLACK ASH Dry to moist.		
4	SS	4.5	6.0	4-3-3	1.2		5				
5	SS	6.0	7.5	2-2-3	1.3						
6	SS	7.5	9.0	2-2-2	.8						
7	SS	9.0	10.5	2-1-1	.3		10				
8	SS	10.5	12.0	2-2-1	.2						
9	SS	12.6	14.1	14-14-12	1.3		15				
10	SS	17.6	18.6	16-50	1.0		20		BLUE GRAY SHALEY SANDSTONE Angular appears to be broken fragments of cobble.		
11	SS	22.6	22.7	50	.1						
TYPE OF CASING USED											
	NQ-2 ROCK CORE					PIEZOMETER TYPE: PT = OPEN TUBE POROUS TIP, SS = OPEN TUBE SLOTTED SCREEN, G = GEONOR, P = PNEUMATIC					
X	6" x 3.25 HSA					WELL TYPE: OW = OPEN TUBE SLOTTED SCREEN, GM = GEOMON					
	9" x 6.25 HSA										
	HW CASING ADVANCER 4"										
	NW CASING 3"										
	SW CASING 6"					RECORDER RLY					

DRILLED THROUGH
INTERMITTANT
BOLDERS,
COBBLES TO 22.6

AEP CIVIL ENGINEERING LABORATORY

LOG OF BORING

JOB NUMBER **3031**COMPANY **APPALACHIAN POWER COMPANY**PROJECT **GLEN LYN BOTTOM ASH DIKE**

COORDINATES _____

GROUND ELEVATION _____ SYSTEM **STATE PLANE**

WATER LEVEL	▽	DRY	▽	▽
TIME				
DATE		2-1-95		

BORING NO. **9504** DATE _____ SHEET **1** OF **1**BORING START **02/01/95** BORING FINISH **02/01/95**

PIEZOMETER TYPE _____ WELL TYPE _____

HGT. RISER ABOVE GROUND _____ DIA _____

DEPTH TO TOP OF WELL SCREEN _____ BOTTOM _____

WELL DEVELOPMENT _____ BACKFILL **CEMENT/BENTON**FIELD PARTY **TJH=RLY** RIG **CME-75**

SAMPLE NUMBER	SAMPLE	SAMPLE DEPTH IN FEET		STANDARD PENETRATION RESISTANCE BLOWS / 6"	TOTAL LENGTH RECOVERY	RQD %	DEPTH IN FEET	GRAPH LOG	J S C S	SOIL / ROCK IDENTIFICATION	WELL	DRILLER'S NOTES
		FROM	TO									
1	SS	0.0	1.5	6-6-7	1.5					BROWN CLAYEY SAND Moist, 100% v-fine grain		
2	SS	1.5	3.0	3-3-3	.8					BLACK ASH Dry to moist.		
3	SS	3.0	4.5	2-2-2	1.1							
4	SS	4.5	6.0	2-2-1	1.1		5					
5	SS	6.0	7.5	1-2-1	1.2							
6	SS	7.5	9.0	2-2-2	1.1							
7	SS	9.0	10.5	2-2-3	1.3		10					
8	SS	10.5	12.0	20-20-21	1.2					LIGHT BROWN SANDY SHALE Broken into gravel and sand size material.		
9	SS	12.5	14.0	7-5-3	1.1		15			BLACK ASH Dry to moist.		
10	SS	17.5	19.0	8-5-4	1.1		20					17.3 DRILLING THROUGH AREAS.
11	SS	22.5	24.0	9-13-4	.7					BROWN SANDY CLAY Moist, 100% v-fine grain with gravel and sand size fragments.		

TYPE OF CASING USED

NQ-2 ROCK CORE

X 6" x 3.25 HSA

9" x 6.25 HSA

HW CASING ADVANCER 4"

NW CASING 3"

SW CASING 6"

PIEZOMETER TYPE: PT = OPEN TUBE POROUS TIP, SS = OPEN TUBE SLOTTED SCREEN, G = GEONOR, P = PNEUMATIC

WELL TYPE: OW = OPEN TUBE SLOTTED SCREEN, GM = GEOMON

RECORDER **RLY**

AMERICAN ELECTRIC POWER SERVICE CORPORATION
AEP CIVIL ENGINEERING LABORATORY
LOG OF BORING



JOB NUMBER **3031**

COMPANY **APPALACHIAN POWER COMPANY**

PROJECT **GLEN LYN BOTTOM ASH DIKE**

COORDINATES _____

GROUND ELEVATION _____ SYSTEM **STATE PLANE**

Water Level, ft	☒ DRY	☐	☐
TIME			
DATE	2-1-95		

BORING NO. **9501** DATE **2/7/11** SHEET **1** OF **2**

BORING START **2/1/95** BORING FINISH **2/1/95**

PIEZOMETER TYPE _____ WELL TYPE _____

HGT. RISER ABOVE GROUND _____ DIA _____

DEPTH TO TOP OF WELL SCREEN _____ BOTTOM _____

WELL DEVELOPMENT _____ BACKFILL **CEMENT/BENTONITE**

FIELD PARTY **TJH=RLY** RIG **CME-75**

SAMPLE NUMBER	SAMPLE	SAMPLE DEPTH IN FEET		STANDARD PENETRATION RESISTANCE BLOWS / 6"	TOTAL LENGTH RECOVERY	RQD %	DEPTH IN FEET	GRAPHIC LOG	USCS	SOIL / ROCK IDENTIFICATION	WELL	DRILLER'S NOTES
		FROM	TO									
1	SS	0.0	1.5	4-4-4	1.1					BROWN CLAYEY SAND Moist, 100% v-fine grain.		
2	SS	1.5	3.0	3-3-2	.7					BLACK ASH Dry to moist with one limestone gravel.		
3	SS	3.0	4.5	2-3-3	1.1							
4	SS	4.5	6.0	5-6-6	1.2		5					
5	SS	6.0	7.5	3-4-5	1.1							
6	SS	7.5	9.0	5-9-9	.8							
7	SS	9.0	10.5	5-5-8	1.2		10					
8	SS	10.5	12.0	6-7-9	1.1							
9	SS	12.3	13.8	6-6-10	?							
10	SS	17.3	18.8	12-16-18	?		15			REDDISH BROWN CLAYEY SANDY GRAVEL Moist, 1/2" max size, angular		17.3 DRILLING THROUGH AREAS.

TYPE OF CASING USED

	NQ-2 ROCK CORE
X	6" x 3.25 HSA
	9" x 6.25 HSA
	HW CASING ADVANCER 4"
	NW CASING 3"
	SW CASING 6"
	AIR HAMMER 8"

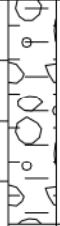
Continued Next Page

PIEZOMETER TYPE: PT = OPEN TUBE POROUS TIP, SS = OPEN TUBE SLOTTED SCREEN, G = GEONOR, P = PNEUMATIC

WELL TYPE: OW = OPEN TUBE SLOTTED SCREEN, GM = GEOMON

RECORDER **RLY**

BORING START 2/1/95 BORING FINISH 2/1/95

SAMPLE NUMBER	SAMPLE	SAMPLE DEPTH IN FEET		STANDARD PENETRATION RESISTANCE BLOWS / 6"	TOTAL LENGTH RECOVERY	RQD	DEPTH IN FEET	GRAPHIC LOG	U S C S	SOIL / ROCK IDENTIFICATION	WELL	DRILLER'S NOTES
		FROM	TO			%						
11	SS	22.3	23.8	3-3-3	?							

AMERICAN ELECTRIC POWER SERVICE CORPORATION
AEP CIVIL ENGINEERING LABORATORY
LOG OF BORING



JOB NUMBER **3031**
COMPANY **APPALACHIAN POWER COMPANY**
PROJECT **GLEN LYN BOTTOM ASH DIKE**
COORDINATES _____
GROUND ELEVATION _____ SYSTEM **STATE PLANE**

BORING NO. **9502** DATE **2/7/11** SHEET **1** OF **2**
BORING START **2/1/95** BORING FINISH **2/1/95**
PIEZOMETER TYPE _____ WELL TYPE _____
HGT. RISER ABOVE GROUND _____ DIA _____
DEPTH TO TOP OF WELL SCREEN _____ BOTTOM _____
WELL DEVELOPMENT _____ BACKFILL **CEMENT/BENTONITE**
FIELD PARTY **TJH=RLY** RIG **CME-75**

Water Level, ft	DRY		
TIME			
DATE	2-1-95		

SAMPLE NUMBER	SAMPLE	SAMPLE DEPTH IN FEET		STANDARD PENETRATION RESISTANCE BLOWS / 6"	TOTAL LENGTH RECOVERY	RQD %	DEPTH IN FEET	GRAPHIC LOG	USCS	SOIL / ROCK IDENTIFICATION	WELL	DRILLER'S NOTES
		FROM	TO									
1	SS	0.0	1.5	12-13-13	1.3					BLACK ASH, LIMESTONE ROAD BASE		
										BROWN CLAYEY SAND Dry.		
										BLACK ASH Moist to dry.		
3	SS	3.0	4.5	3-3-3	1.2							
4	SS	4.5	6.0	4-6-6	1.1		5					
5	SS	6.0	7.5	2-2-2	1.2							
6	SS	7.5	9.0	2-2-4	1.1							
7	SS	9.0	10.5	2-3-4	1.3		10					
8	SS	10.5	12.0	4-7-8	1.1					TRACE OF LIMESTONE GRAVEL		
9	SS	12.5	14.0	9-25-20	1.1					BROWN SANDY CLAY Dry.		
2	SS	15.0	16.5	4-5-5	1.1		15					
10	SS	17.5	18.5	17-50	1.0					RED BRICKS GRAY SANDY CLAY BLACK COAL AND WOOD FRAGMENTS		17.3 DRILLING THROUGH AREAS.

TYPE OF CASING USED						Continued Next Page					
						PIEZOMETER TYPE: PT = OPEN TUBE POROUS TIP, SS = OPEN TUBE SLOTTED SCREEN, G = GEONOR, P = PNEUMATIC					
X											
						WELL TYPE: OW = OPEN TUBE SLOTTED SCREEN, GM = GEOMON					
						RECORDER RLY					

AEP GLEN LYN BA DIKE.GPJ AEP.GDT 2/7/11

AEP

BORING START **2/1/95** BORING FINISH **2/1/95**[illegible]

AMERICAN ELECTRIC POWER SERVICE CORPORATION
AEP CIVIL ENGINEERING LABORATORY
LOG OF BORING



JOB NUMBER **3031**
COMPANY **APPALACHIAN POWER COMPANY**
PROJECT **GLEN LYN BOTTOM ASH DIKE**
COORDINATES _____
GROUND ELEVATION _____ SYSTEM **STATE PLANE**

BORING NO. **9503** DATE **2/7/11** SHEET **1** OF **2**
BORING START **2/1/95** BORING FINISH **2/1/95**
PIEZOMETER TYPE _____ WELL TYPE _____
HGT. RISER ABOVE GROUND _____ DIA _____
DEPTH TO TOP OF WELL SCREEN _____ BOTTOM _____
WELL DEVELOPMENT _____ BACKFILL **CEMENT/BENTONITE**
FIELD PARTY **TJH=RLY** RIG **CME-75**

Water Level, ft	☒ DRY	☐	☐
TIME			
DATE	2-1-95		

SAMPLE NUMBER	SAMPLE	SAMPLE DEPTH IN FEET		STANDARD PENETRATION RESISTANCE BLOWS / 6"	TOTAL LENGTH RECOVERY	RQD %	DEPTH IN FEET	GRAPHIC LOG	USCS	SOIL / ROCK IDENTIFICATION	WELL	DRILLER'S NOTES
		FROM	TO									
1	SS	0.0	1.5	13-13-16	1.2					LIMESTONE GRAVEL ROAD BASE BROWN CLAYEY SAND Moist. BLACK ASH Dry to moist.		
2	SS	1.5	3.0	4-4-4	1.1							
3	SS	3.0	4.5	4-4-3	.9							
4	SS	4.5	6.0	4-3-3	1.2		5					
5	SS	6.0	7.5	2-2-3	1.3							
6	SS	7.5	9.0	2-2-2	.8							
7	SS	9.0	10.5	2-1-1	.3		10					
8	SS	10.5	12.0	2-2-1	.2							
9	SS	12.6	14.1	14-14-12	1.3							
							15					
10	SS	17.6	18.6	16-50	1.0					BLUE GRAY SHALEY SANDSTONE Angular appears to be broken fragments of cobble.		DRILLED THROUGH INTERMITTANT BOLDERS, COBBLES TO 22.6

TYPE OF CASING USED

	NQ-2 ROCK CORE
X	6" x 3.25 HSA
	9" x 6.25 HSA
	HW CASING ADVANCER 4"
	NW CASING 3"
	SW CASING 6"
	AIR HAMMER 8"

Continued Next Page

PIEZOMETER TYPE: PT = OPEN TUBE POROUS TIP, SS = OPEN TUBE SLOTTED SCREEN, G = GEONOR, P = PNEUMATIC
WELL TYPE: OW = OPEN TUBE SLOTTED SCREEN, GM = GEOMON

RECORDER **RLY**

AMERICAN ELECTRIC POWER SERVICE CORPORATION
AEP CIVIL ENGINEERING LABORATORY
LOG OF BORING



JOB NUMBER 3031

COMPANY APPALACHIAN POWER COMPANY

BORING NO. 9503 DATE 2/7/11 SHEET 2 OF 2

PROJECT GLEN LYN BOTTOM ASH DIKE

BORING START 2/1/95 BORING FINISH 2/1/95

SAMPLE NUMBER	SAMPLE	SAMPLE DEPTH IN FEET		STANDARD PENETRATION RESISTANCE BLOWS / 6"	TOTAL LENGTH RECOVERY	RQD	DEPTH IN FEET	GRAPHIC LOG	USCS	SOIL / ROCK IDENTIFICATION	WELL	DRILLER'S NOTES
		FROM	TO			%						
11	SS	22.6	22.7	50	.1							

AMERICAN ELECTRIC POWER SERVICE CORPORATION
AEP CIVIL ENGINEERING LABORATORY
LOG OF BORING



JOB NUMBER **3031**
COMPANY **APPALACHIAN POWER COMPANY**
PROJECT **GLEN LYN BOTTOM ASH DIKE**
COORDINATES _____
GROUND ELEVATION _____ SYSTEM **STATE PLANE**

BORING NO. **9504** DATE **2/7/11** SHEET **1** OF **2**
BORING START **2/1/95** BORING FINISH **2/1/95**
PIEZOMETER TYPE _____ WELL TYPE _____
HGT. RISER ABOVE GROUND _____ DIA _____
DEPTH TO TOP OF WELL SCREEN _____ BOTTOM _____
WELL DEVELOPMENT _____ BACKFILL **CEMENT/BENTONITE**
FIELD PARTY **TJH=RLY** RIG **CME-75**

Water Level, ft	☒ DRY	☐	☐
TIME			
DATE	2-1-95		

SAMPLE NUMBER	SAMPLE	SAMPLE DEPTH IN FEET		STANDARD PENETRATION RESISTANCE BLOWS / 6"	TOTAL LENGTH RECOVERY	RQD %	DEPTH IN FEET	GRAPHIC LOG	USCS	SOIL / ROCK IDENTIFICATION	WELL	DRILLER'S NOTES
		FROM	TO									
1	SS	0.0	1.5	6-6-7	1.5					BROWN CLAYEY SAND Moist, 100% v-fine grain		
2	SS	1.5	3.0	3-3-3	.8					BLACK ASH Dry to moist.		
3	SS	3.0	4.5	2-2-2	1.1							
4	SS	4.5	6.0	2-2-1	1.1		5					
5	SS	6.0	7.5	1-2-1	1.2							
6	SS	7.5	9.0	2-2-2	1.1							
7	SS	9.0	10.5	2-2-3	1.3		10					
8	SS	10.5	12.0	20-20-21	1.2					LIGHT BROWN SANDY SHALE Broken into gravel and sand size material.		
9	SS	12.5	14.0	7-5-3	1.1					BLACK ASH Dry to moist.		
							15					
10	SS	17.5	19.0	8-5-4	1.1							17.3 DRILLING THROUGH AREAS.

TYPE OF CASING USED

	NQ-2 ROCK CORE
☒	6" x 3.25 HSA
	9" x 6.25 HSA
	HW CASING ADVANCER 4"
	NW CASING 3"
	SW CASING 6"
	AIR HAMMER 8"

Continued Next Page

PIEZOMETER TYPE: PT = OPEN TUBE POROUS TIP, SS = OPEN TUBE SLOTTED SCREEN, G = GEONOR, P = PNEUMATIC

WELL TYPE: OW = OPEN TUBE SLOTTED SCREEN, GM = GEOMON

RECORDER **RLY**

BORING START 2/1/95 BORING FINISH 2/1/95

SAMPLE NUMBER	SAMPLE	SAMPLE DEPTH IN FEET		STANDARD PENETRATION RESISTANCE BLOWS / 6"	TOTAL LENGTH RECOVERY	RQD	DEPTH IN FEET	GRAPHIC LOG	USCS	SOIL / ROCK IDENTIFICATION	WELL	DRILLER'S NOTES
		FROM	TO			%						
11	SS	22.5	24.0	9-13-4	.7					BROWN SANDY CLAY Moist, 100% v-fine grain with gravel and sand size fragments.		

AMERICAN ELECTRIC POWER SERVICE CORPORATION
AEP CIVIL ENGINEERING LABORATORY
LOG OF BORING



JOB NUMBER **3031**

COMPANY **APPALACHIAN POWER COMPANY**

PROJECT **GLEN LYN BOTTOM ASH DIKE**

COORDINATES **N 387,329.6 E 1,312,372.4**

GROUND ELEVATION **1524.0** SYSTEM **STATE PLANE**

Water Level, ft	34.0		
TIME			
DATE	11-7-95		

BORING NO. **HP-9524** DATE **2/7/11** SHEET **1** OF **3**

BORING START **11/7/95** BORING FINISH **11/8/95**

PIEZOMETER TYPE **N/A** WELL TYPE **N/A**

HGT. RISER ABOVE GROUND **N/A** DIA

DEPTH TO TOP OF WELL SCREEN **N/A** BOTTOM **N/A**

WELL DEVELOPMENT **SEE NOTE** BACKFILL **QUICK GROUT**

FIELD PARTY **TJH-REB** RIG **CME-75**

SAMPLE NUMBER	SAMPLE	SAMPLE DEPTH IN FEET FROM TO	STANDARD PENETRATION RESISTANCE BLOWS / 6"	TOTAL LENGTH RECOVERY	RQD %	DEPTH IN FEET	GRAPHIC LOG	USCS	SOIL / ROCK IDENTIFICATION	WELL	DRILLER'S NOTES
1	SS	2.6 4.1	9-9-11	.2				CL	TIME Ph COND. REDOX TEMP. 12:46 4.15 222 281 16.15C 12:53 7.20 227 258 16.62C 12:57 7.24 231 251 16.72C 1:02 7.21 234 233 16.98C 1:06 7.23 237 214 16.98C 1:08 SAMPLE TAKEN 1:13 7.18 238 205 17.25C BLACK SILTY CLAY Roots, moist.		Pump test one hour a approximately 5 GPM prior to test by plant personal. Packer set between 38.5 and 49.0'.
2	SS	7.6 9.1	2-3-3	1.1		5			BOTTOM ASH Dry.		Water return at all times.
3	SS	12.6 14.1	1-2-2	1.2		10					Intermittant bolders till futher noted.
4	SS	17.6 19.1	7-9-15	1.2		15		CL GW	BROWN SILTY CLAY Moist. BROKEN FRAGMENT OF GRAVEL DARK GRAY May be concrete.		

TYPE OF CASING USED

X	NQ-2 ROCK CORE
X	6" x 3.25 HSA
	9" x 6.25 HSA
	HW CASING ADVANCER 4"
	NW CASING 3"
	SW CASING 6"
	AIR HAMMER 8"

Continued Next Page

PIEZOMETER TYPE: PT = OPEN TUBE POROUS TIP, SS = OPEN TUBE SLOTTED SCREEN, G = GEONOR, P = PNEUMATIC

WELL TYPE: OW = OPEN TUBE SLOTTED SCREEN, GM = GEOMON

RECORDER **REB**

AMERICAN ELECTRIC POWER SERVICE CORPORATION
AEP CIVIL ENGINEERING LABORATORY
LOG OF BORING



JOB NUMBER **3031**

COMPANY **APPALACHIAN POWER COMPANY**

BORING NO. **HP-9524** DATE **2/7/11** SHEET **2** OF **3**

PROJECT **GLEN LYN BOTTOM ASH DIKE**

BORING START **11/7/95** BORING FINISH **11/8/95**

SAMPLE NUMBER	SAMPLE	SAMPLE DEPTH IN FEET		STANDARD PENETRATION RESISTANCE BLOWS / 6"	TOTAL LENGTH RECOVERY	RQD %	DEPTH IN FEET	GRAPHIC LOG	USCS	SOIL / ROCK IDENTIFICATION	WELL	DRILLER'S NOTES
		FROM	TO									
5	SS	22.6	24.1	5-7-9	1.1				GP	BROKEN SAND AND GRAVEL SIZE FRAGMENT OF SANDSTONE AND SHALE		
6	SS	27.6	29.1	2-3-3	1.2		25		CL	BROWN SANDY CLAY Moist, low plasticity.		Approximately 27.6 natural material.
7	SS	32.6	34.1	7-15-26	1.0		30					
8	SS	36.5	36.9	79/4	.4		35			GRAY BROWN SAND AND GRAVEL Wet to saturated, 20% fines, 1 3/8" max size, rounded to sub-rounded.	▽	
9	NQ	36.9	40.0		3.0	48			GP	SAME AS SAMPLE NO 7 SATURATED, ANGULAR, 40% FINES GRAY SANDSTONE Hard, well cemented, fine grain with shale laminations.		
		40.0	49.5				40					Used 2 15/16 roller bit to advance hole. Augers in a bind.
							45					

Continued Next Page

BORING START 11/7/95 BORING FINISH 11/8/95[illegible]

AMERICAN ELECTRIC POWER SERVICE CORPORATION
AEP CIVIL ENGINEERING LABORATORY
LOG OF BORING



JOB NUMBER **3031**

COMPANY **APPALACHIAN POWER COMPANY**

PROJECT **GLEN LYN BOTTOM ASH DIKE**

COORDINATES **N 386,935.3 E 1,313,076.3**

GROUND ELEVATION **1525.5** SYSTEM **STATE PLANE**

Water Level, ft	32.5		
TIME			
DATE	11-14-95		

BORING NO. **HP-9525** DATE **2/7/11** SHEET **1** OF **3**

BORING START **11/14/95** BORING FINISH **11/14/95**

PIEZOMETER TYPE **N/A** WELL TYPE **N/A**

HGT. RISER ABOVE GROUND **N/A** DIA

DEPTH TO TOP OF WELL SCREEN **N/A** BOTTOM **N/A**

WELL DEVELOPMENT **SEE NOTE** BACKFILL **QUICK GROUT**

FIELD PARTY **TJH-REB** RIG **CME-75**

SAMPLE NUMBER	SAMPLE	SAMPLE DEPTH IN FEET FROM TO	STANDARD PENETRATION RESISTANCE BLOWS / 6"	TOTAL LENGTH RECOVERY	RQD %	DEPTH IN FEET	GRAPHIC LOG	USCS	SOIL / ROCK IDENTIFICATION	WELL	DRILLER'S NOTES
1	SS	2.5 4.0	3-3-3	1.2					11-14-95 TIME Ph COND. REDOX TEMP. 3:34 7.31 234 323 18.26c 3:38 7.50 244 287 17.82C 3:41 7.60 247 255 17.95C 3:44 7.60 249 232 17.99C 3:46 7.61 252 218 17.94C 3:48 SAMPLE TAKEN. 3:50 7.60 256 199 18.02C BLACK BOTTOM ASH Dry.		Pump test one hour at approximately 5 GPM prior to test by plant personal. Packer set between 39.5 and 50'.
2	SS	7.5 9.0	2-2-1	1.1		5					Water return at all times.
3	SS	12.5 14.0	25-27-21	1.2		10					12.5 augered thru boulders, cobbles until further notes.
4	SS	17.5 19.0	4-4-4	.6		15		GP	GRAY CLAY SHALE SAND AND GRAVEL FRAGMENTS Dry.		
									BLACK BOTTOM ASH Wet to saturated.		

TYPE OF CASING USED

X	NQ-2 ROCK CORE
X	6" x 3.25 HSA
	9" x 6.25 HSA
	HW CASING ADVANCER 4"
	NW CASING 3"
	SW CASING 6"
	AIR HAMMER 8"

Continued Next Page

PIEZOMETER TYPE: PT = OPEN TUBE POROUS TIP, SS = OPEN TUBE SLOTTED SCREEN, G = GEONOR, P = PNEUMATIC

WELL TYPE: OW = OPEN TUBE SLOTTED SCREEN, GM = GEOMON

RECORDER **REB**

AMERICAN ELECTRIC POWER SERVICE CORPORATION
AEP CIVIL ENGINEERING LABORATORY
LOG OF BORING



JOB NUMBER **3031**

COMPANY **APPALACHIAN POWER COMPANY**

BORING NO. **HP-9525** DATE **2/7/11** SHEET **2** OF **3**

PROJECT **GLEN LYN BOTTOM ASH DIKE**

BORING START **11/14/95** BORING FINISH **11/14/95**

SAMPLE NUMBER	SAMPLE	SAMPLE DEPTH IN FEET		STANDARD PENETRATION RESISTANCE BLOWS / 6"	TOTAL LENGTH RECOVERY	RQD %	DEPTH IN FEET	GRAPHIC LOG	USCS	SOIL / ROCK IDENTIFICATION	WELL	DRILLER'S NOTES
		FROM	TO									
5	SS	22.5	24.0	2-1-1	.4							
6	SS	27.5	29.0	2-1-1	1.2		25					
									CL	DARK BROWN SANDY CLAY Wet, low plasticity.		
7	SS	32.5	34.0	10-15-21	1.0		30					
									GP	BROWN SAND AND GRAVEL Saturated, 1" max size, angular to sub-angular 20% fine material.		
8	NQ	37.0	39.8		1.2	0	35					
										RED AND GRAY CLAY SHALE Hard, broken with calcite lens.		
9	NQ	39.8	43.0		3.2	0	40					
10	NQ	43.0	45.2		2.1	50				GRAY SANDSTONE Hard, very fine grain, well cemented.		
11	NQ	45.2	50.2		5.0	32	45			GRAY CLAY SHALE Hard, calcite lens, iron stain on joints with high angle fracture.		

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AEP

BORING START 11/14/95 BORING FINISH 11/14/95

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AMERICAN ELECTRIC POWER SERVICE CORPORATION
AEP CIVIL ENGINEERING LABORATORY
LOG OF BORING



JOB NUMBER **3031**

COMPANY **APPALACHIAN POWER COMPANY**

PROJECT **GLEN LYN BOTTOM ASH DIKE**

COORDINATES **N 387,441.9 E 1,312,324.2**

GROUND ELEVATION **1508.9** SYSTEM **STATE PLANE**

Water Level, ft	17.9		
TIME	7:00		
DATE	11-9-95		

BORING NO. **HP-9526** DATE **2/7/11** SHEET **1** OF **2**

BORING START **11/8/95** BORING FINISH **11/9/95**

PIEZOMETER TYPE **N/A** WELL TYPE **N/A**

HGT. RISER ABOVE GROUND **N/A** DIA

DEPTH TO TOP OF WELL SCREEN **N/A** BOTTOM **N/A**

WELL DEVELOPMENT **SEE NOTE** BACKFILL **QUICK GROUT**

FIELD PARTY **TJH-REB** RIG **CME-75**

SAMPLE NUMBER	SAMPLE	SAMPLE DEPTH IN FEET FROM TO		STANDARD PENETRATION RESISTANCE BLOWS / 6"	TOTAL LENGTH RECOVERY	RQD %	DEPTH IN FEET	GRAPHIC LOG	USCS	SOIL / ROCK IDENTIFICATION	WELL	DRILLER'S NOTES
1	SS	2.5	4.0	7-9-15	1.0				CL	11-9-95 TIME Ph COND. REDOX TEMP 11:35 6.65 278 330 17.36C 11:40 6.95 287 285 16.53C 11:42 7.02 286 262 16.45C 11:45 7.03 286 249 16.45C 11:47 SAMPLE TAKEN 11:50 7.03 285 227 16.40C BROWN SANDY CLAY Trace of gravel and brick dry.		Pump test one hour at approximately 5 GPM prior to test by plant personal. Packer set between 23.5 and 34.0'.
2	SS	7.5	9.0	18-22-26	1.1		5		CL	MULTI-COLORED SANDY CLAY Dry, with some sandstone and shale gravel size material.		Water return at all times.
3	SS	12.5	14.0	5-8-10	1.1		10		CL	BROWN SANDY CLAY Moist, low plasticity with trace of wood.		Augered through boulders and hard pan area.
4	SS	17.5	19.0	10-15-19	1.0		15		GP	BROWN SILTY SAND AND GRAVEL Wet to saturated, rounded to sub-rounded, 30% fines.		Approximately 12.5 natural material.

TYPE OF CASING USED

☒	NQ-2 ROCK CORE
☒	6" x 3.25 HSA
	9" x 6.25 HSA
	HW CASING ADVANCER 4"
	NW CASING 3"
	SW CASING 6"
	AIR HAMMER 8"

Continued Next Page

PIEZOMETER TYPE: PT = OPEN TUBE POROUS TIP, SS = OPEN TUBE SLOTTED SCREEN, G = GEONOR, P = PNEUMATIC

WELL TYPE: OW = OPEN TUBE SLOTTED SCREEN, GM = GEOMON

RECORDER **REB**

AMERICAN ELECTRIC POWER SERVICE CORPORATION
AEP CIVIL ENGINEERING LABORATORY
LOG OF BORING



JOB NUMBER 3031

COMPANY APPALACHIAN POWER COMPANY

BORING NO. HP-9526 DATE 2/7/11 SHEET 2 OF 2

PROJECT GLEN LYN BOTTOM ASH DIKE

BORING START 11/8/95 BORING FINISH 11/9/95

SAMPLE NUMBER	SAMPLE	SAMPLE DEPTH IN FEET		STANDARD PENETRATION RESISTANCE BLOWS / 6"	TOTAL LENGTH RECOVERY	RQD	DEPTH IN FEET	GRAPHIC LOG	USCS	SOIL / ROCK IDENTIFICATION	WELL	DRILLER'S NOTES
		FROM	TO			%						
5	NQ	21.1	25.0		3.8	48				<u>GRAY SANDSTONE</u> With shale lens, hard, well cemented, iron stain on joints.		
6	NQ	25.0	30.0		4.9	54	25					
7	NQ	30.0	34.0		3.9	83	30					

AMERICAN ELECTRIC POWER SERVICE CORPORATION
AEP CIVIL ENGINEERING LABORATORY
LOG OF BORING



JOB NUMBER **3031**

COMPANY **APPALACHIAN POWER COMPANY**

PROJECT **GLEN LYN BOTTOM ASH DIKE**

COORDINATES **N 386,671.1 E 1,313,251.0**

GROUND ELEVATION **1515.7** SYSTEM **STATE PLANE**

Water Level, ft	22.5		
TIME			
DATE	11-15-95		

BORING NO. **HP-9527** DATE **2/7/11** SHEET **1** OF **2**

BORING START **11/15/95** BORING FINISH **11/15/95**

PIEZOMETER TYPE **N/A** WELL TYPE **N/A**

HGT. RISER ABOVE GROUND **N/A** DIA

DEPTH TO TOP OF WELL SCREEN **N/A** BOTTOM **N/A**

WELL DEVELOPMENT **SEE NOTE** BACKFILL **QUICK GROUT**

FIELD PARTY **TJH-REB** RIG **CME-75**

SAMPLE NUMBER	SAMPLE	SAMPLE DEPTH IN FEET FROM TO		STANDARD PENETRATION RESISTANCE BLOWS / 6"	TOTAL LENGTH RECOVERY	RQD %	DEPTH IN FEET	GRAPHIC LOG	USCS	SOIL / ROCK IDENTIFICATION	WELL	DRILLER'S NOTES
1	SS	3.0	4.5	5-6-7	1.1					11-15-95 TIME Ph COND. REDOX TEMP. 1:45 6.65 200 360 16.72C 1:49 7.52 207 328 16.36C 1:52 7.70 207 310 16.26 1:54 7.79 207 298 16.36 1:57 SAMPLE TAKEN 1:59 7.82 211 290 16.33C BLACK BOTTOM ASH Dry.		Pump test one hour a approximately 5 GPM prior to test by plant personal. Packers set between 29.5 and 40.0'.
2	SS	8.0	9.5	3-4-4	1.0		5					Water return at all times.
3	SS	13.0	14.5	7-7-7	1.1		10					
4	SS	18.0	19.5	8-8-8	1.0		15		GP	DARK BROWN SILTY SAND AND GRAVEL Saturated, 1 3/8" max size, angular to sub-angular, 20% fines.		Approximately 18.0' natural material.

TYPE OF CASING USED

☒	NQ-2 ROCK CORE
☒	6" x 3.25 HSA
	9" x 6.25 HSA
	HW CASING ADVANCER 4"
	NW CASING 3"
	SW CASING 6"
	AIR HAMMER 8"

Continued Next Page

PIEZOMETER TYPE: PT = OPEN TUBE POROUS TIP, SS = OPEN TUBE SLOTTED SCREEN, G = GEONOR, P = PNEUMATIC

WELL TYPE: OW = OPEN TUBE SLOTTED SCREEN, GM = GEOMON

RECORDER **REB**

AMERICAN ELECTRIC POWER SERVICE CORPORATION
AEP CIVIL ENGINEERING LABORATORY
LOG OF BORING



JOB NUMBER **3031**
 COMPANY **APPALACHIAN POWER COMPANY** BORING NO. **HP-9527** DATE **2/7/11** SHEET **2** OF **2**
 PROJECT **GLEN LYN BOTTOM ASH DIKE** BORING START **11/15/95** BORING FINISH **11/15/95**

SAMPLE NUMBER	SAMPLE	SAMPLE DEPTH IN FEET		STANDARD PENETRATION RESISTANCE BLOWS / 6"	TOTAL LENGTH RECOVERY	RQD	DEPTH IN FEET	GRAPHIC LOG	USCS	SOIL / ROCK IDENTIFICATION	WELL	DRILLER'S NOTES
		FROM	TO			%						
5	SS	23.0	24.5	15-23-31	1.4							
							25		GP	BROWN SILTY SAND AND GRAVEL 3/4" max size, saturated, rounded to sub-rounded.		
6	NQ	26.6	31.7		4.8	74						
							30			BLACK SHALE Hard, calcareous, calcite lens, iron stain on joints, high angle fracture, vertical fracture 28.4 to 30.8'.		
7	NQ	31.7	38.5		6.3	76						
							35			Vertical fracture 36'		
8	NQ	38.5	39.3		.1	0						
9	NQ	39.3	40.0		.1	0						
							40					

AMERICAN ELECTRIC POWER SERVICE CORPORATION
AEP CIVIL ENGINEERING LABORATORY
LOG OF BORING



JOB NUMBER **3031**

COMPANY **APPALACHIAN POWER COMPANY**

PROJECT **GLEN LYN BOTTOM ASH DIKE**

COORDINATES **N 386,682.4 E 1,313,336.1**

GROUND ELEVATION **1515.3** SYSTEM **STATE PLANE**

Water Level, ft			
TIME			
DATE			

BORING NO. **HP-9528** DATE **2/7/11** SHEET **1** OF **2**

BORING START **11/15/95** BORING FINISH **11/15/95**

PIEZOMETER TYPE **N/A** WELL TYPE **N/A**

HGT. RISER ABOVE GROUND **N/A** DIA

DEPTH TO TOP OF WELL SCREEN **N/A** BOTTOM **N/A**

WELL DEVELOPMENT **SEE NOTE** BACKFILL **QUICK GROUT**

FIELD PARTY **TJH-REB** RIG **CME-75**

SAMPLE NUMBER	SAMPLE	SAMPLE DEPTH IN FEET FROM TO		STANDARD PENETRATION RESISTANCE BLOWS / 6"	TOTAL LENGTH RECOVERY	RQD %	DEPTH IN FEET	GRAPHIC LOG	USCS	SOIL / ROCK IDENTIFICATION	WELL	DRILLER'S NOTES
1	SS	2.5	4.0		1.0				CL	11-16-95 TIME Ph COND. REDOX TEMP. 9:42 7.42 276 318 19.81C 9:46 7.57 ? 293 19.67C 9:48 7.60 278 283 19.83C 9:51 7.59 280 270 19.83C 9:54 SAMPLE TAKEN 9:56 7.56 279 260 19.69 DARK BROWN SANDY CLAY Moist to wet with trace of pea size gravel.		Pump test one hour at approximately 5 GPM prior to test by plant personal. Packers set between 29.5 and 40'.
2	SS	7.5	9.0	2-3-5	1.1		5			BLACK MIXTURE OF CLAY AND BOTTOM ASH Moist.		Water return at all times.
3	SS	12.5	14.0	4-5-5	.9		10			BLACK BOTTOM ASH Moist.		
4	SS	17.5	19.0	4-4-6	1.1		15		SC	BROWN CLAYEY SAND Moist to wet, slight to non plasticity.		Approximately 17.5 natural material.

TYPE OF CASING USED

X	NQ-2 ROCK CORE
X	6" x 3.25 HSA
	9" x 6.25 HSA
	HW CASING ADVANCER 4"
	NW CASING 3"
	SW CASING 6"
	AIR HAMMER 8"

Continued Next Page

PIEZOMETER TYPE: PT = OPEN TUBE POROUS TIP, SS = OPEN TUBE SLOTTED SCREEN, G = GEONOR, P = PNEUMATIC

WELL TYPE: OW = OPEN TUBE SLOTTED SCREEN, GM = GEOMON

RECORDER **REB**

AMERICAN ELECTRIC POWER SERVICE CORPORATION
AEP CIVIL ENGINEERING LABORATORY
LOG OF BORING



JOB NUMBER **3031**

COMPANY **APPALACHIAN POWER COMPANY**

BORING NO. **HP-9528** DATE **2/7/11** SHEET **2** OF **2**

PROJECT **GLEN LYN BOTTOM ASH DIKE**

BORING START **11/15/95** BORING FINISH **11/15/95**

SAMPLE NUMBER	SAMPLE	SAMPLE DEPTH IN FEET		STANDARD PENETRATION RESISTANCE BLOWS / 6"	TOTAL LENGTH RECOVERY	RQD	DEPTH IN FEET	GRAPHIC LOG	USCS	SOIL / ROCK IDENTIFICATION	WELL	DRILLER'S NOTES
		FROM	TO			%						
5	SS	22.5	24.0	7-15-17	1.1				GC	BROWN CLAYEY SAND AND GRAVEL Saturated, 30% fines, 1 3/8" max size, rounded to sub-rounded.		
6	NQ	27.0	28.8		1.6	56	25			GRAY SHALE Calcite lens, calcareous, hard.		
7	NQ	28.9	33.9		5.0	52	30			VUGS, WATER SOLUTION DETERIORATION THROUGHOUT		
8	NQ	33.9	38.9		5.0	94	35			VUGS, WATER SOLUTION DETERIORATION THROUGHOUT		
9	NQ	38.9	40.0		.9	89	40			VUGS, WATER SOLUTION DETERIORATION THROUGHOUT		

AMERICAN ELECTRIC POWER SERVICE CORPORATION
AEP CIVIL ENGINEERING LABORATORY
LOG OF BORING



JOB NUMBER **41194953-01**

COMPANY _____

PROJECT **GLEN LYN BOTTOM ASH POND**

COORDINATES **N 387,330.0 E 1,312,375.1**

GROUND ELEVATION **1515.3** SYSTEM **State Plane using NAD27/29**

Water Level, ft			
TIME			
DATE			

BORING NO. **B-0801** DATE **1/23/09** SHEET **1** OF **2**

BORING START **10/13/08** BORING FINISH **10/13/08**

PIEZOMETER TYPE **N/A** WELL TYPE **OW**

HGT. RISER ABOVE GROUND **-0.45** DIA **2"**

DEPTH TO TOP OF WELL SCREEN **31.7** BOTTOM **41.2**

WELL DEVELOPMENT **Yes** BACKFILL **Quick Grout**

FIELD PARTY **ZLR / RMP** RIG **D-120**

SAMPLE NUMBER	SAMPLE	SAMPLE DEPTH IN FEET		STANDARD PENETRATION RESISTANCE BLOWS / 6"	TOTAL LENGTH RECOVERY	RQD %	DEPTH IN FEET	GRAPHIC LOG	USCS	SOIL / ROCK IDENTIFICATION	WELL	DRILLER'S NOTES
		FROM	TO									
							5			-Grounding proecdures not in use on this boring. -Digging permit in hand. -Deconed tools at 11:00 am on 10/12/08 using water from Glen Lyn town. -Blind drilled 6" casing down to bedrock @ 27.7' with 0.2' into bedrock. -Lost water return around 6" casing complete @ 24.5' -Roller bitted w/ 5 15/16" - 0' to 43.1'; SWL @ 14 hrs 13.1' -Pulled NW rods & roller bit. -Built 2" monitoring well.		
							10					
							15					

TYPE OF CASING USED

	NQ-2 ROCK CORE
	6" x 3.25 HSA
	9" x 6.25 HSA
	HW CASING ADVANCER 4"
	NW CASING 3"
	SW CASING 6"
	AIR HAMMER 8"

Continued Next Page

PIEZOMETER TYPE: PT = OPEN TUBE POROUS TIP, SS = OPEN TUBE SLOTTED SCREEN, G = GEONOR, P = PNEUMATIC

WELL TYPE: OW = OPEN TUBE SLOTTED SCREEN, GM = GEOMON

RECORDER _____

AMERICAN ELECTRIC POWER SERVICE CORPORATION
AEP CIVIL ENGINEERING LABORATORY
 LOG OF BORING



JOB NUMBER **41194953-01**

COMPANY _____

BORING NO. **B-0801** DATE **1/23/09** SHEET **2** OF **2**

PROJECT **GLEN LYN BOTTOM ASH POND**

BORING START **10/13/08** BORING FINISH **10/13/08**

SAMPLE NUMBER	SAMPLE	SAMPLE DEPTH IN FEET		STANDARD PENETRATION RESISTANCE BLOWS / 6"	TOTAL LENGTH RECOVERY	RQD	DEPTH IN FEET	GRAPHIC LOG	USCS	SOIL / ROCK IDENTIFICATION	WELL	DRILLER'S NOTES
		FROM	TO			%						
							25					
							30					
							35					
							40					

AMERICAN ELECTRIC POWER SERVICE CORPORATION
AEP CIVIL ENGINEERING LABORATORY
LOG OF BORING



JOB NUMBER **41194953-01**

COMPANY _____

PROJECT **GLEN LYN BOTTOM ASH POND**

COORDINATES **N 386,945.4 E 1,313,083.1**

GROUND ELEVATION **1515.7** SYSTEM **State Plane using NAD27/29**

Water Level, ft			
TIME			
DATE			

BORING NO. **B-0802** DATE **1/23/09** SHEET **1** OF **2**

BORING START **10/6/08** BORING FINISH **10/7/08**

PIEZOMETER TYPE **N/A** WELL TYPE **OW**

HGT. RISER ABOVE GROUND **-0.5** DIA **2"**

DEPTH TO TOP OF WELL SCREEN **32.7** BOTTOM **42.2**

WELL DEVELOPMENT **Yes** BACKFILL **Quick Grout**

FIELD PARTY **ZLR / RMP** RIG **D-120**

SAMPLE NUMBER	SAMPLE	SAMPLE DEPTH IN FEET		STANDARD PENETRATION RESISTANCE BLOWS / 6"	TOTAL LENGTH RECOVERY	RQD	DEPTH IN FEET	GRAPHIC LOG	USCS	SOIL / ROCK IDENTIFICATION	WELL	DRILLER'S NOTES
		FROM	TO			%						
							5			-Grounding procedures not in use on this boring. -Digging Permit in hand. -Deconed tools 10/06/08 @ 11:30 am. -Blind drilled 6" casing to 27.9'. -Seated casing in bedrock .9'. -Lost all water return around 6" casing @ 19.5'. -Cuttings show clay and black bottom ash. -Drilled 5 15/16" roller bit w/water from 27.9' to 43.7'. -Pulled NW rods & roller bit to build 2" well. -Used Glen Lyn town water/potable. -Had 0.2' of plug in 6" casing when started to roller bit. -SWL @ 14 hrs 18.52'		
							10					
							15					

TYPE OF CASING USED

	NQ-2 ROCK CORE
	6" x 3.25 HSA
	9" x 6.25 HSA
	HW CASING ADVANCER 4"
	NW CASING 3"
	SW CASING 6"
	AIR HAMMER 8"

Continued Next Page

PIEZOMETER TYPE: PT = OPEN TUBE POROUS TIP, SS = OPEN TUBE SLOTTED SCREEN, G = GEONOR, P = PNEUMATIC

WELL TYPE: OW = OPEN TUBE SLOTTED SCREEN, GM = GEOMON

RECORDER _____

AMERICAN ELECTRIC POWER SERVICE CORPORATION
AEP CIVIL ENGINEERING LABORATORY
LOG OF BORING



JOB NUMBER **41194953-01**

COMPANY _____

BORING NO. **B-0802** DATE **1/23/09** SHEET **2** OF **2**

PROJECT **GLEN LYN BOTTOM ASH POND**

BORING START **10/6/08** BORING FINISH **10/7/08**

SAMPLE NUMBER	SAMPLE	SAMPLE DEPTH IN FEET		STANDARD PENETRATION RESISTANCE BLOWS / 6"	TOTAL LENGTH RECOVERY	RQD	DEPTH IN FEET	GRAPHIC LOG	USCS	SOIL / ROCK IDENTIFICATION	WELL	DRILLER'S NOTES
		FROM	TO			%						
							25					
							30					
							35					
							40					

AMERICAN ELECTRIC POWER SERVICE CORPORATION
AEP CIVIL ENGINEERING LABORATORY
LOG OF BORING



JOB NUMBER **41194953-01**

COMPANY _____

PROJECT **GLEN LYN BOTTOM ASH POND**

COORDINATES **N 387,416.3 E 1,312,337.6**

GROUND ELEVATION **1508.9** SYSTEM **State Plane using NAD27/29**

Water Level, ft			
TIME			
DATE			

BORING NO. **B-0803** DATE **1/23/09** SHEET **1** OF **2**

BORING START **10/21/08** BORING FINISH **10/23/08**

PIEZOMETER TYPE **N/A** WELL TYPE **OW**

HGT. RISER ABOVE GROUND **-0.43** DIA **2"**

DEPTH TO TOP OF WELL SCREEN **25.4** BOTTOM **34.9**

WELL DEVELOPMENT **Yes - Reclaimers** BACKFILL **Quick Grout**

FIELD PARTY **ZLR / RMP** RIG **D-120**

SAMPLE NUMBER	SAMPLE	SAMPLE DEPTH IN FEET FROM TO	STANDARD PENETRATION RESISTANCE BLOWS / 6"	TOTAL LENGTH RECOVERY %	RQD %	DEPTH IN FEET	GRAPHIC LOG	USCS	SOIL / ROCK IDENTIFICATION	WELL	DRILLER'S NOTES
1	SPT	1.9 3.4	10-13-22	1.4					-Grounding procedures not in use on the boring. -Digging permit in hand. -Deconed tools 10/21/08. -Blind drilled 3 1/4" augers. Took split spoon samples every 5 ft. to bedrock. -used potable water from Glen Lyn town. HARD DARK YELLOWISH ORANGE 10YR 6/6 SILTY SANDY CLAY 2.0 tsf, w/trace of gravel and bottom ash -Used water roller bitted through 3 1/4" augers to go through a boulder 0.7 then began augering again.		
2	SPT	6.9 8.4	23-42-32	1.5		5			VERY DENSE DARK YELLOWISH ORANGE SAND & GRAVEL VERY DENSE N1 BLACK BOTTOM ASH		
3	SPT	11.9 13.4	4-6-5	1.5		10			STIFF DARK YELLOWISH SANDY CLAY W/FINE GRAVEL 0.5 tsf,		
4	SPT	16.9 18.4	4-4-12	1.5		15			VERY STIFF DARK YELLOWISH ORANGE BYR 6/6 SANDY CLAY W/FINE GRAVEL MEDIUM DENSE LIGHT OLIVE GRAY 5Y 5/2 FINE GRAIN SAND		

TYPE OF CASING USED

X	NQ-2 ROCK CORE
	6" x 3.25 HSA
	9" x 6.25 HSA
	HW CASING ADVANCER 4"
	NW CASING 3"
	SW CASING 6"
	AIR HAMMER 8"

Continued Next Page

PIEZOMETER TYPE: PT = OPEN TUBE POROUS TIP, SS = OPEN TUBE SLOTTED SCREEN, G = GEONOR, P = PNEUMATIC

WELL TYPE: OW = OPEN TUBE SLOTTED SCREEN, GM = GEOMON

RECORDER _____

AMERICAN ELECTRIC POWER SERVICE CORPORATION
AEP CIVIL ENGINEERING LABORATORY
LOG OF BORING



JOB NUMBER **41194953-01**

COMPANY _____

BORING NO. **B-0803** DATE **1/23/09** SHEET **2** OF **2**

PROJECT **GLEN LYN BOTTOM ASH POND**

BORING START **10/21/08** BORING FINISH **10/23/08**

SAMPLE NUMBER	SAMPLE	SAMPLE DEPTH IN FEET		STANDARD PENETRATION RESISTANCE BLOWS / 6"	TOTAL LENGTH RECOVERY	RQD %	DEPTH IN FEET	GRAPHIC LOG	USCS	SOIL / ROCK IDENTIFICATION	WELL	DRILLER'S NOTES
		FROM	TO									
5	SPT	21.9	22.0	50/.1	.1							
1	NQ	22.3	23.9		1.6	50						
2	NQ	23.9	33.9		9.8	62						
							25			HARD N5 MEDIUM GRAY SAND STONE -Roller Bitted down 22.3' through the 3 1/4" augers. HARD MEDIUM LIGHT GRAY N6 FINE GRAIN SANDSTONE w/high angle fracture @ 23.0'(73deg) HARD N6 MEDIUM LIGHT GRAY WELL CEMENTED FINE GRAIN SANDSTONE w/high angle fracture @ 24.8'(87deg) & 25.2'(70deg) w/iron staining		
							30					
3	NQ	33.9	36.6		2.5	68				HARD MEDIUM LIGHT GRAY N6 WELL CEMENTED FINE GRAIN SANDSTONE		
							35			-Added 25 gal of EZ Mud. -Pulled 3 1/4" augers. -Drilled down 6 1/4" augers to 21.6' -Pulled 6 1/4" augers and run 6" casing to 22.3' -Began roller bitting w/ 5 15/16" bit to 22.5' -SWL= 14 hr reading is @ top of air hammer -Total depth of air hammer hole = 36.6' -Pulled air hammer and rods -Built 2" monitoring well.		

AMERICAN ELECTRIC POWER SERVICE CORPORATION
AEP CIVIL ENGINEERING LABORATORY
LOG OF BORING



JOB NUMBER **41194953-01**

COMPANY _____

PROJECT **GLEN LYN BOTTOM ASH POND**

COORDINATES **N 386,658.8 E 1,313,251.4**

GROUND ELEVATION **1517.1** SYSTEM **State Plane using NAD27/29**

Water Level, ft			
TIME			
DATE			

BORING NO. **B-0804** DATE **1/23/09** SHEET **1** OF **3**

BORING START **10/8/08** BORING FINISH **10/23/08**

PIEZOMETER TYPE **N/A** WELL TYPE **OW**

HGT. RISER ABOVE GROUND **-0.42** DIA **2"**

DEPTH TO TOP OF WELL SCREEN **34.3** BOTTOM **43.8**

WELL DEVELOPMENT **Yes** BACKFILL **Quick Grout**

FIELD PARTY **ZLR / RMP** RIG **D-120**

SAMPLE NUMBER	SAMPLE	SAMPLE DEPTH IN FEET		STANDARD PENETRATION RESISTANCE BLOWS / 6"	TOTAL LENGTH RECOVERY	RQD %	DEPTH IN FEET	GRAPHIC LOG	USCS	SOIL / ROCK IDENTIFICATION	WELL	DRILLER'S NOTES
		FROM	TO									
1	SPT	2.0	3.5	2-3-2	1.3					-No grounding procedure in use on this boring. -Blind drilled 3 1/4" augers to bedrock.		
2	SPT	7.0	8.5	1-1-1	1.5		5			LOOSE N3 DARK GRAY BOTTOM ASH w/little gravel		
3	SPT	12.0	13.5	5-1-32	1.0		10			VERY LOOSE N4 MEDIUM DARK GRAY BOTTOM ASH		
4	SPT	17.0	18.5	4-4-2	1.5		15			DENSE N4 MEDIUM DARK GRAY BOTTOM ASH moist, bolders in materials		
										LOOSE MEDIUM DARK GRAY BOTTOM ASH moist		
										MEDIUM STIFF LIGHT BROWN 5YR 5/6 SANDY CLAY .5 tsf		

TYPE OF CASING USED

X	NQ-2 ROCK CORE
	6" x 3.25 HSA
	9" x 6.25 HSA
	HW CASING ADVANCER 4"
	NW CASING 3"
	SW CASING 6"
	AIR HAMMER 8"

Continued Next Page

PIEZOMETER TYPE: PT = OPEN TUBE POROUS TIP, SS = OPEN TUBE
SLOTTED SCREEN, G = GEONOR, P = PNEUMATIC

WELL TYPE: OW = OPEN TUBE SLOTTED SCREEN, GM = GEOMON

RECORDER _____

AMERICAN ELECTRIC POWER SERVICE CORPORATION
AEP CIVIL ENGINEERING LABORATORY
LOG OF BORING



JOB NUMBER **41194953-01**

COMPANY _____

BORING NO. **B-0804** DATE **1/23/09** SHEET **2** OF **3**

PROJECT **GLEN LYN BOTTOM ASH POND**

BORING START **10/8/08** BORING FINISH **10/23/08**

SAMPLE NUMBER	SAMPLE	SAMPLE DEPTH IN FEET		STANDARD PENETRATION RESISTANCE BLOWS / 6"	TOTAL LENGTH RECOVERY	RQD %	DEPTH IN FEET	GRAPHIC LOG	USCS	SOIL / ROCK IDENTIFICATION	WELL	DRILLER'S NOTES
5	SPT	22.0	23.5	4-4-3	1.5		25			LOOSE DARK YELLOWISH ORANGE 10YR 6/6 SAND GRAVEL wet		
6	SPT	27.0	28.5	20-15-50	1.4		30			VERY DENSE DARK YELLOWISH ORANGE 10YR 6/6 SAND & GRAVEL wet		
1	NQ	30.5	34.9		4.4	59	30			HARD N5 MEDIUM GRAY CLAYSHALE moist -Bedrock @ 28.4' -Used roller bit to clean out plug in 3 1/4" augers then began coring rock.		
2	NQ	34.9	44.9		10	55	35			HARD N5 MEDIUM GRAY CLAYSHALE badly broken throughout, high angle fractures @ 39.9'(80deg), 40.6'(85deg), 40.9'(82deg), 41.6'87(deg), & 47.8'(85deg)		
							40					
							45			-Pulled 3 1/4" augers. -Put in 6" casing to 26.8'		

Continued Next Page

AMERICAN ELECTRIC POWER SERVICE CORPORATION
AEP CIVIL ENGINEERING LABORATORY
LOG OF BORING



JOB NUMBER **41194953-01**

COMPANY _____

BORING NO. **B-0804** DATE **1/23/09** SHEET **3** OF **3**

PROJECT **GLEN LYN BOTTOM ASH POND**

BORING START **10/8/08** BORING FINISH **10/23/08**

SAMPLE NUMBER	SAMPLE	SAMPLE DEPTH IN FEET		STANDARD PENETRATION RESISTANCE BLOWS / 6"	TOTAL LENGTH RECOVERY	RQD	DEPTH IN FEET	GRAPHIC LOG	USCS	SOIL / ROCK IDENTIFICATION	WELL	DRILLER'S NOTES
		FROM	TO			%						
										-Roller bitted w/ 5 15/16" bit -SWL @ 12 hrs 21.0' -Used drill mud to flush out cuttings (100 gal) 350# hole plug - Lost 6" roller bit and 5' NW rod in hole -Grouted hole w/ 100 gal and abandoned the boring. -Moved to NE 6'. -Drilled 6 1/4" augers to bedrock @ 28.2' -SWL 21.1 @ 75 hrs on 10-20-08 -Roller bitted w/ 5 15/16" on 10-20-08 -SWL 19.4 14 hrs reading on 10-21-08 -Pulled roller bit and 6 1/4" augers to drill 6" casing to seat in bedrock @ 30.5' -Air hammer to 45.4'. -Pulled air hammer tools to build 2" monitoring well		

AMERICAN ELECTRIC POWER SERVICE CORPORATION
AEP CIVIL ENGINEERING LABORATORY
LOG OF BORING



JOB NUMBER **41194953-01**

COMPANY _____

PROJECT **GLEN LYN BOTTOM ASH POND**

COORDINATES **N 386,759.2 E 1,312,775.2**

GROUND ELEVATION **1518.4** SYSTEM **State Plane using NAD27/29**

Water Level, ft			
TIME			
DATE			

BORING NO. **B-0805** DATE **1/23/09** SHEET **1** OF **3**

BORING START **10/8/08** BORING FINISH **10/15/08**

PIEZOMETER TYPE **N/A** WELL TYPE **OW**

HGT. RISER ABOVE GROUND **-0.35** DIA **2"**

DEPTH TO TOP OF WELL SCREEN **35.5** BOTTOM **45.0**

WELL DEVELOPMENT **Yes** BACKFILL **Quick Grout**

FIELD PARTY **ZLR / RMP** RIG **D-120**

SAMPLE NUMBER	SAMPLE	SAMPLE DEPTH IN FEET FROM TO	STANDARD PENETRATION RESISTANCE BLOWS / 6"	TOTAL LENGTH RECOVERY %	RQD %	DEPTH IN FEET	GRAPHIC LOG	USCS	SOIL / ROCK IDENTIFICATION	WELL	DRILLER'S NOTES
1	SPT	1.9 3.4	4-3-3	1.5					-No grounding procedure in use on this boring. -Digging permit in hand. -Decon tools 10/08/08 7:30 am -Blind drilled 3 1/4' augers to bedrock. -Took split spoon samples every five feet. LOOSE DARK YELLOWISH ORANGE 10YR 6/6 SANDY SILTY CLAY LOOSE MEDIUM LIGHT GRAY N6 BOTTOM ASH		
2	SPT	6.9 8.4	2-2-1	1.3		5			VERY LOOSE MEDIUM LIGHT GRAY N6 BOTTOM ASH		
3	SPT	11.9 13.4	2-1-0	1.2		10			VERY LOOSE MEDIUM LIGHT GRAY N6 BOTTOM ASH VERY SOFT MEDIUM DARK GRAY N4 FLY ASH wet		
4	SPT	16.9 18.4	1-1-3	1.0		15			SOFT MEDIUM DARK GRAY N4 FLY ASH saturated		

TYPE OF CASING USED

	NQ-2 ROCK CORE
	6" x 3.25 HSA
	9" x 6.25 HSA
	HW CASING ADVANCER 4"
	NW CASING 3"
	SW CASING 6"
	AIR HAMMER 8"

Continued Next Page

PIEZOMETER TYPE: PT = OPEN TUBE POROUS TIP, SS = OPEN TUBE SLOTTED SCREEN, G = GEONOR, P = PNEUMATIC

WELL TYPE: OW = OPEN TUBE SLOTTED SCREEN, GM = GEOMON

RECORDER _____

AMERICAN ELECTRIC POWER SERVICE CORPORATION
AEP CIVIL ENGINEERING LABORATORY
LOG OF BORING



JOB NUMBER **41194953-01**

COMPANY _____

BORING NO. **B-0805** DATE **1/23/09** SHEET **2** OF **3**

PROJECT **GLEN LYN BOTTOM ASH POND**

BORING START **10/8/08** BORING FINISH **10/15/08**

SAMPLE NUMBER	SAMPLE	SAMPLE DEPTH IN FEET		STANDARD PENETRATION RESISTANCE BLOWS / 6"	TOTAL LENGTH RECOVERY	RQD	DEPTH IN FEET	GRAPHIC LOG	USCS	SOIL / ROCK IDENTIFICATION	WELL	DRILLER'S NOTES
		FROM	TO			%						
5	SPT	21.9	23.4	2-3-5	1.5		25			MEDIUM STIFF MEDIUM DARK GRAY N4 FLY ASH saturated		
6	SPT	26.9	28.4	2-1-2	1.5		30			SOFT MEDIUM GRAY N5 FLY ASH w/little wood, saturated		
7	SPT	31.9	32.1	50/.2	.2					HARD PALE BROWN 5YR 5/2 CLAYSHALE 3.75 tsf, bedrock @ 32.1', moist		
1	NQ	34.0	39.7		5.7	46	35			-Roller bitted out 1 ft plug in 3 1/4" augers using water. -Getting rock core through 3 1/4" augers. -New NQ bit adjusted into tubes for right clearances. -Started rock core @ 34.0'. HARD PALE BROWN 5 YR 5/2 CLAYSHALE badly broken		
										HARD MEDIUM LIGHT GRAY N6 CLAYSHALE w/high angle fracture @ 39.2'(75deg), w/ iron staining		
2	NQ	39.7	46.6		6.8		40			HARD MEDIUM LIGHT GRAY N6 CLAYSHALE		
							45			HARD PALE BROWN 5YR 5/2 CLAYSHALE w/high angle fracture @ 40.9'(67deg)		

Continued Next Page

AMERICAN ELECTRIC POWER SERVICE CORPORATION
AEP CIVIL ENGINEERING LABORATORY
LOG OF BORING



JOB NUMBER **41194953-01**

COMPANY _____

BORING NO. **B-0805** DATE **1/23/09** SHEET **3** OF **3**

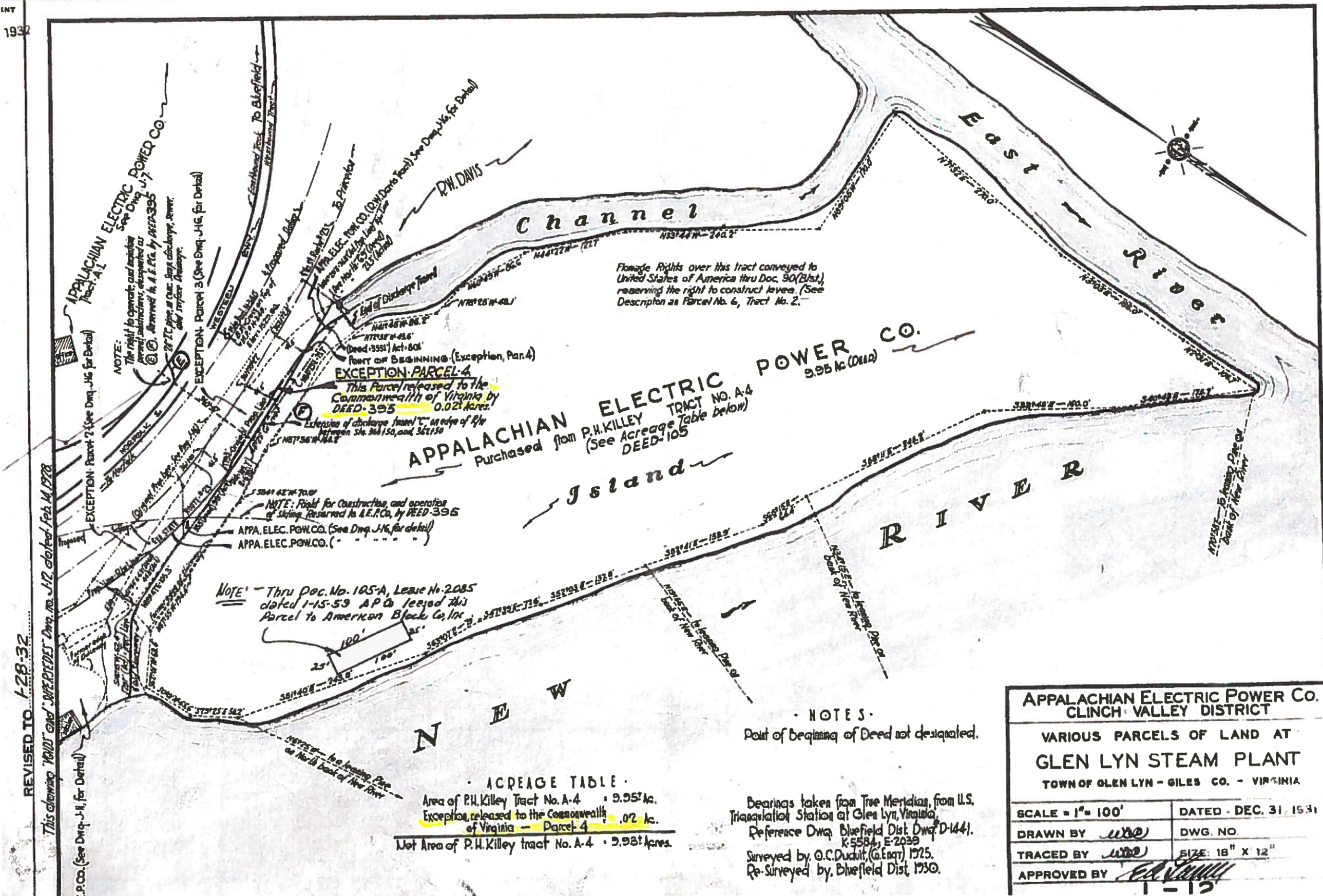
PROJECT **GLEN LYN BOTTOM ASH POND**

BORING START **10/8/08** BORING FINISH **10/15/08**

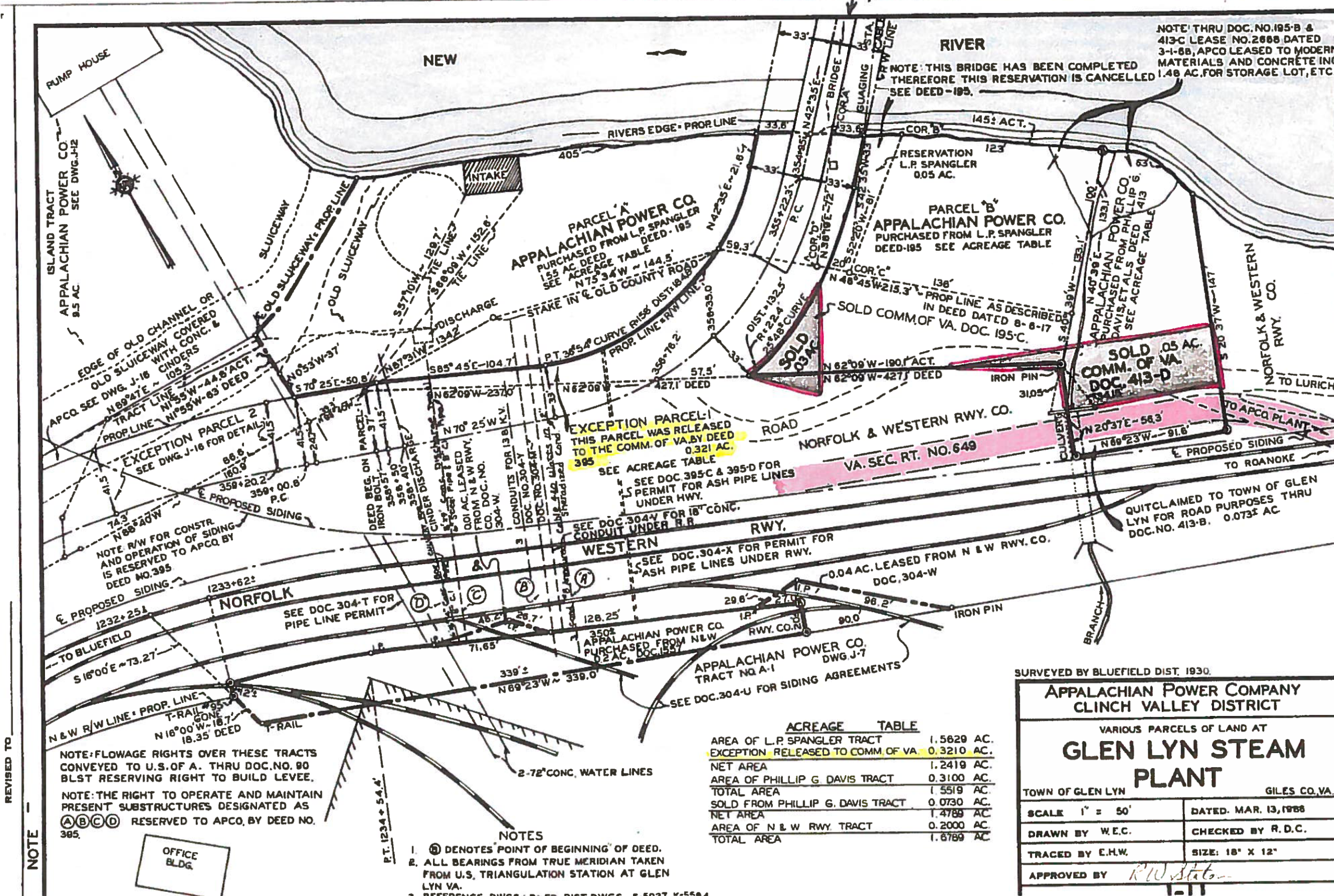
SAMPLE NUMBER	SAMPLE	SAMPLE DEPTH IN FEET		STANDARD PENETRATION RESISTANCE BLOWS / 6"	TOTAL LENGTH RECOVERY	RQD	DEPTH IN FEET	GRAPHIC LOG	USCS	SOIL / ROCK IDENTIFICATION	WELL	DRILLER'S NOTES
		FROM	TO			%						
										-SWL @ 14 hrs 0.6'. -Pulled NQ rods and 3 1/4" augers. -Drilled down 6" casing to 33.4'. -Drilled 5 15/16" roller bit to 47.0'. -Pulled NW rods and 5 15/16" bit. -Built 2" monitoring well.		

ATTACHMENT C

Design Drawings



BRIDGE
↓ REMOVED



<u>ACREAGE</u> <u>TABLE</u>	
AREA OF L.P SPANGLER TRACT	1.5629 AC
EXCEPTION RELEASED TO COMM OF VA	0.3210 AC
NET AREA	1.2419 AC
AREA OF PHILLIP G DAVIS TRACT	0.3100 AC
TOTAL AREA	1.5519 AC
SOLD FROM PHILLIP G. DAVIS TRACT	0.0730 AC
NET AREA	1.4789 AC
AREA OF N E W RWY TRACT	0.2000 AC
TOTAL AREA	1.6789 AC

SURVEYED BY BLUEFIELD DIST. 1930.

APPALACHIAN POWER COMPANY
CLINCH VALLEY DISTRICT

VARIOUS PARCELS OF LAND AT

GLEN LYN STEAM PLANT

TOWN OF GLEN LYN

GILES CO., VA.

SCALE 1" = 50'

DATED. MAR. 13, 1988

DRAWN BY W.E.C.

CHECKED BY R. D.C.

TRACED BY E.H.W.

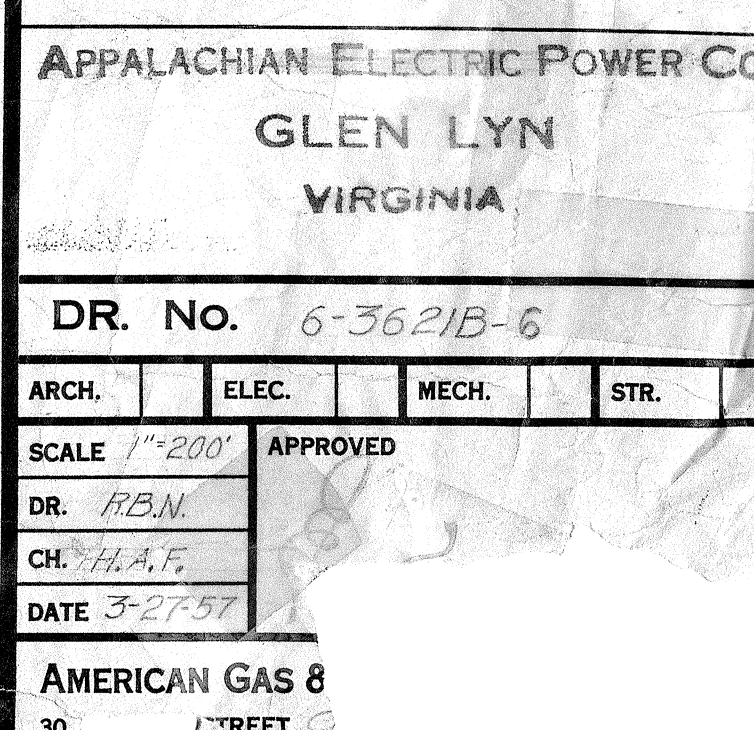
SIZE: 18" X 12"

APPROVED BY

RN 346.

NOTES

REQUIRED FOR UNITS 516 850,000 TONS/YEAR
FLYASH 65%/FT.³
CINDERS 30%FT.³
CONTENT 15 %
30%
% OF COLLECTORS 90%
% OF FLYASH
100,000 TONS/UNIT 100,000 TONS
COST 104,630 CASH/UNIT
CINDERS
COST 37,700 CASH/UNIT
CORPS OF ENGINEERS BLUESTONE
SERVOUR PROJECT REFERENCE
R CONSUMPTION DATA
NEW ASH AREA
OTOM ASH - 2450 GPM APPROX. NUMBER OPERATING
ASH - 1000 GPM 24 HOURS
OTOM ASH - 1000 GPM 24 HOURS
OTOM ASH - 1200 GPM 5 HRS/DAY OPERATING
TOTAL WATER CONSUMPTION
NEW AREA: 3,264,000 GALS/DAY
OLD AREA: 600,000 GALS/DAY
SCHOOL



GENERAL NOTES

1. CLAY SHALE TO BE PLACED IN LOOSE STATE
2. VIBRO COMPACTED 9" IN DIA.
3. COMPACTION TO BE 95% COMPLETE COVERAGES
4. WITH A SHEEPFOOT ROLLER TRAILING A
NOMINAL STATIC WEIGHT OF 10 TONS

REFERENCE DRAWINGS

- 6-3621 CINDER ASH DISPOSAL AREA
6-1202 ASH STORAGE AREA PLAN
6-3622 ASH STORAGE TARD. CHAINAGE SHEET
REVISIONS SHEET FOR BOTTOM ASH STORAGE AREA
REVISIONS SHEET FOR BOTTOM ASH STORAGE AREA
REVISIONS SHEET FOR BOTTOM ASH STORAGE AREA
REVISIONS SHEET FOR BOTTOM ASH STORAGE AREA

DATE	NO.	DESCRIPTION	APPROV.
1/1/64	1	EXTENDED SKIMMER BARRIER	T. L. L.

REVISIONS

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APPALACHIAN POWER CO.
GLEN LYN POWER PLANT
GLEN LYN, VIRGINIA

BOTTOM ASH STORAGE AREA
MODIFICATION

DR. NO. 16-11249-3564-1

ARCH. ☒ ELEC. ☒ MECH. ☒ STR. ☒

SCALE: AS NOTED

DR. J. M.

CH. ☒ ELEC. ☒ MECH. ☒ STR. ☒

SO. LOR. M. E.

DATE: 7/1/62

AMERICAN ELECTRIC POWER SERVICE CORP.

NEW RIVER

PLAN

1" = 40'

SECTION 9-D

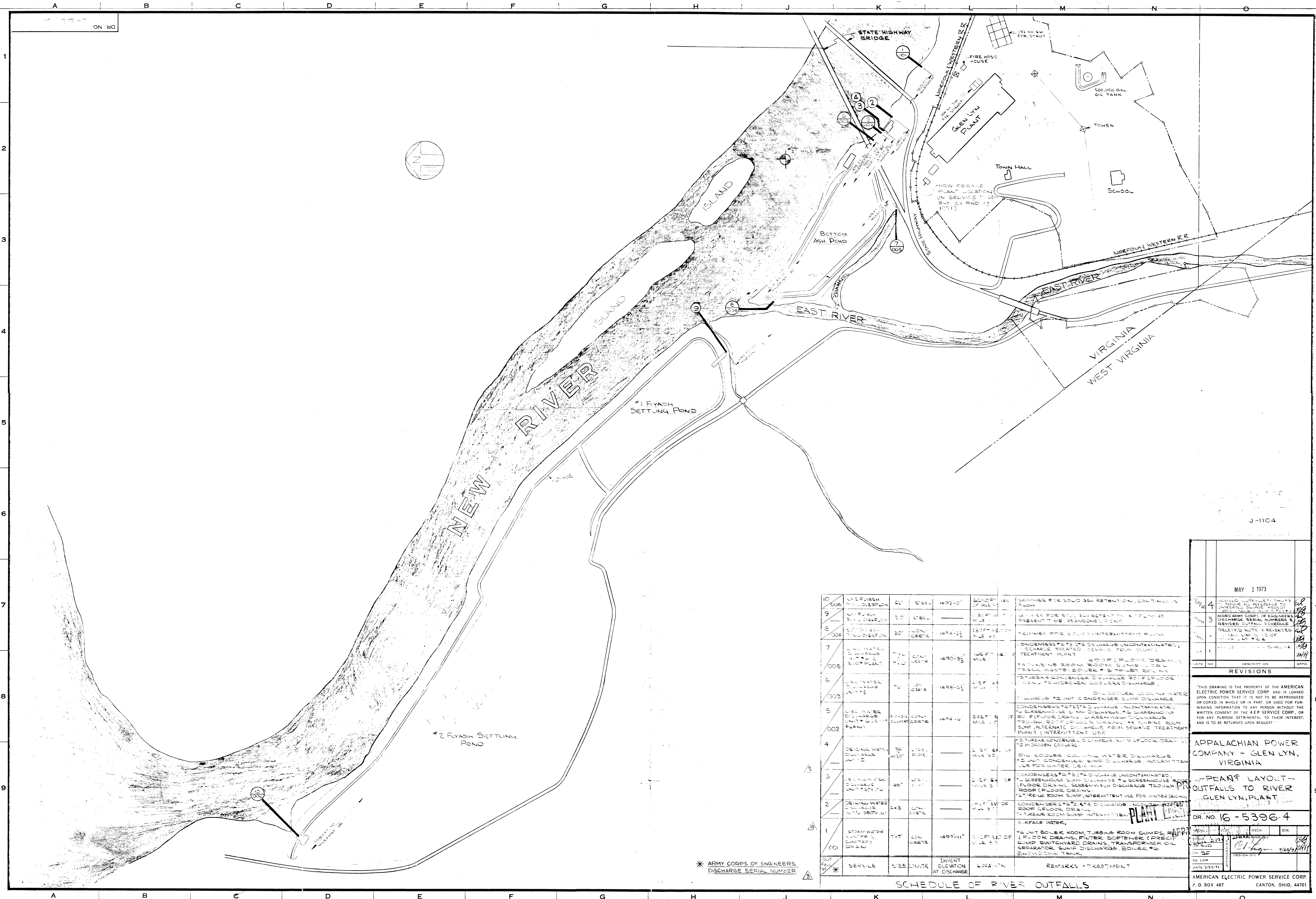
1" = 30'

SECTION 9-H

1" = 10'

SECTION 9-M

1" = 20'



10	006	NEW RIVER	40'	STEEL	1492'-0"	SHORE OF RIVER	CONCRETE FOR SOLID ASH RETENTION, CONTINUOUS FLOW
9	005	NEW RIVER	30'	STEEL	1492'-0"	SHORE OF RIVER	CONCRETE FOR SOLID ASH RETENTION, INTERMITTENT FLOW
8	004	NEW RIVER	30'	CONCRETE	1492'-0"	SHORE OF RIVER	CONCRETE FOR SOLID ASH RETENTION, INTERMITTENT FLOW
7	003	NEW RIVER	30'	CONCRETE	1492'-0"	SHORE OF RIVER	CONCRETE FOR SOLID ASH RETENTION, INTERMITTENT FLOW
6	002	NEW RIVER	30'	CONCRETE	1492'-0"	SHORE OF RIVER	CONCRETE FOR SOLID ASH RETENTION, INTERMITTENT FLOW
5	001	NEW RIVER	30'	CONCRETE	1492'-0"	SHORE OF RIVER	CONCRETE FOR SOLID ASH RETENTION, INTERMITTENT FLOW
4	000	NEW RIVER	30'	CONCRETE	1492'-0"	SHORE OF RIVER	CONCRETE FOR SOLID ASH RETENTION, INTERMITTENT FLOW
3	000	NEW RIVER	30'	CONCRETE	1492'-0"	SHORE OF RIVER	CONCRETE FOR SOLID ASH RETENTION, INTERMITTENT FLOW
2	000	NEW RIVER	30'	CONCRETE	1492'-0"	SHORE OF RIVER	CONCRETE FOR SOLID ASH RETENTION, INTERMITTENT FLOW
1	000	NEW RIVER	30'	CONCRETE	1492'-0"	SHORE OF RIVER	CONCRETE FOR SOLID ASH RETENTION, INTERMITTENT FLOW

MAY 1 1973

4

3

1

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APPALACHIAN POWER COMPANY - GLEN LYN, VIRGINIA

PLANT LAYOUT - OUTFALLS TO RIVER

GLEN LYN, PLANT

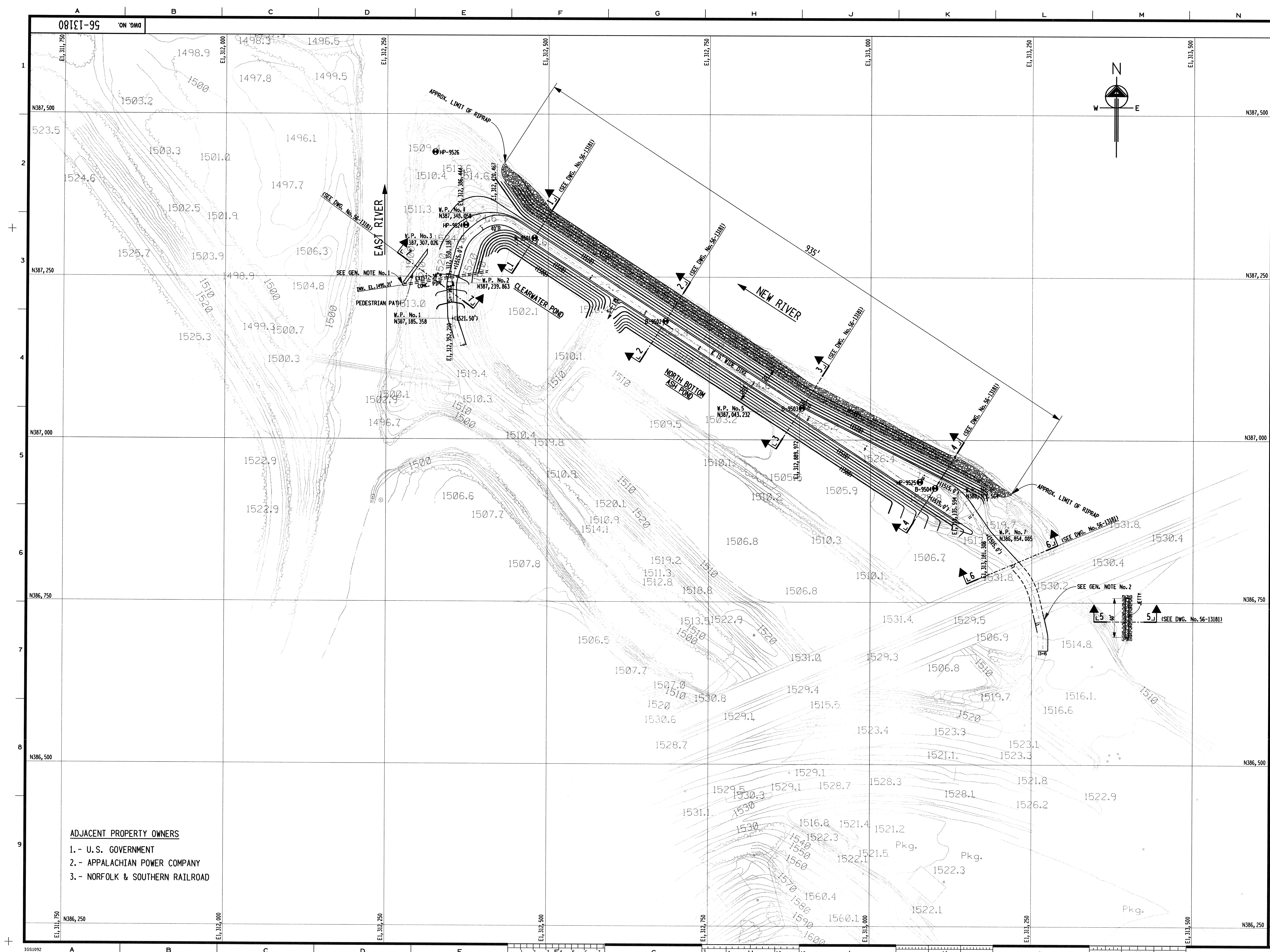
DR. NO. 16-5396-4

DATE 5-12-73

DESIGN DIV.

AMERICAN ELECTRIC POWER SERVICE CORP.

P. O. BOX 487 CANTON, OHIO, 44701



GENERAL NOTES

1. - REMOVE, THEN RESET LAST PIECE OF EXISTING CONCRETE PIPE TO CORRECT VERTICAL MISALIGNMENT.

2. - BUILD A CLAY BERM TO EL. 1515.0' IN LOW AREAS ALONG THE EXISTING ACCESS ROAD AT THE RIVER SIDE BETWEEN STA. 11+25 TO STA. 13+45.

MATERIALS

RIPRAP

3,800 TONS

BEDDING (SAND)

950 TONS

BEDDING (CRUSHED STONE)

950 TONS

EXCAVATION

27,000 C.Y.

FILL

4,000 C.Y.

LEGEND - EXISTING

x1524.6

SPOT ELEVATION

INTERMEDIATE CONTOUR

INDEX CONTOUR

DEPRESSION CONTOUR

TREES AND TREELINE

STRUCTURE AND BUILDING

FENCE

POLE

ROADS

EDGE OF WATER

MANHOLES / CATCH BASIN

POWER POLE

TOWER

LEGEND - PROPOSED

+(1515.0')

SPOT ELEVATION

INDEX CONTOUR

INTERMEDIATE CONTOUR

REFERENCE DRAWINGS

56-13181 - BOTTOM ASH POND RIVER DIKE MODIFICATION PROFILE AND SECTIONS.

16-11249-3564 - BOTTOM ASH STORAGE AREA MODIFICATION.

ISSUED FOR CONSTRUCTION.

ISSUED FOR BIDS.

REVISIONS

igsC - /usr5/stru/glen lyn/u56/13180.560

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APPALACHIAN POWER COMPANY

GLEN LYN PLANT

GLEN LYN, VIRGINIA

BOTTOM ASH POND

RIVER DIKE MODIFICATION

GRADING PLAN

DWG. NO. 56-13180-0

SCALE: 1"=50'

DR: RGD

CHK: MTD

ENGR. PROJ. MTD

DATE: 2/22/96

CIVIL ENGINEERING DIVISION

ORIGINAL SIGNED BY: M. BAHLEDA

AMERICAN ELECTRIC POWER

1 RIVERSIDE PLAZA COLUMBUS, OH 43216

SYSTEM DATE: 28-MAY-1996

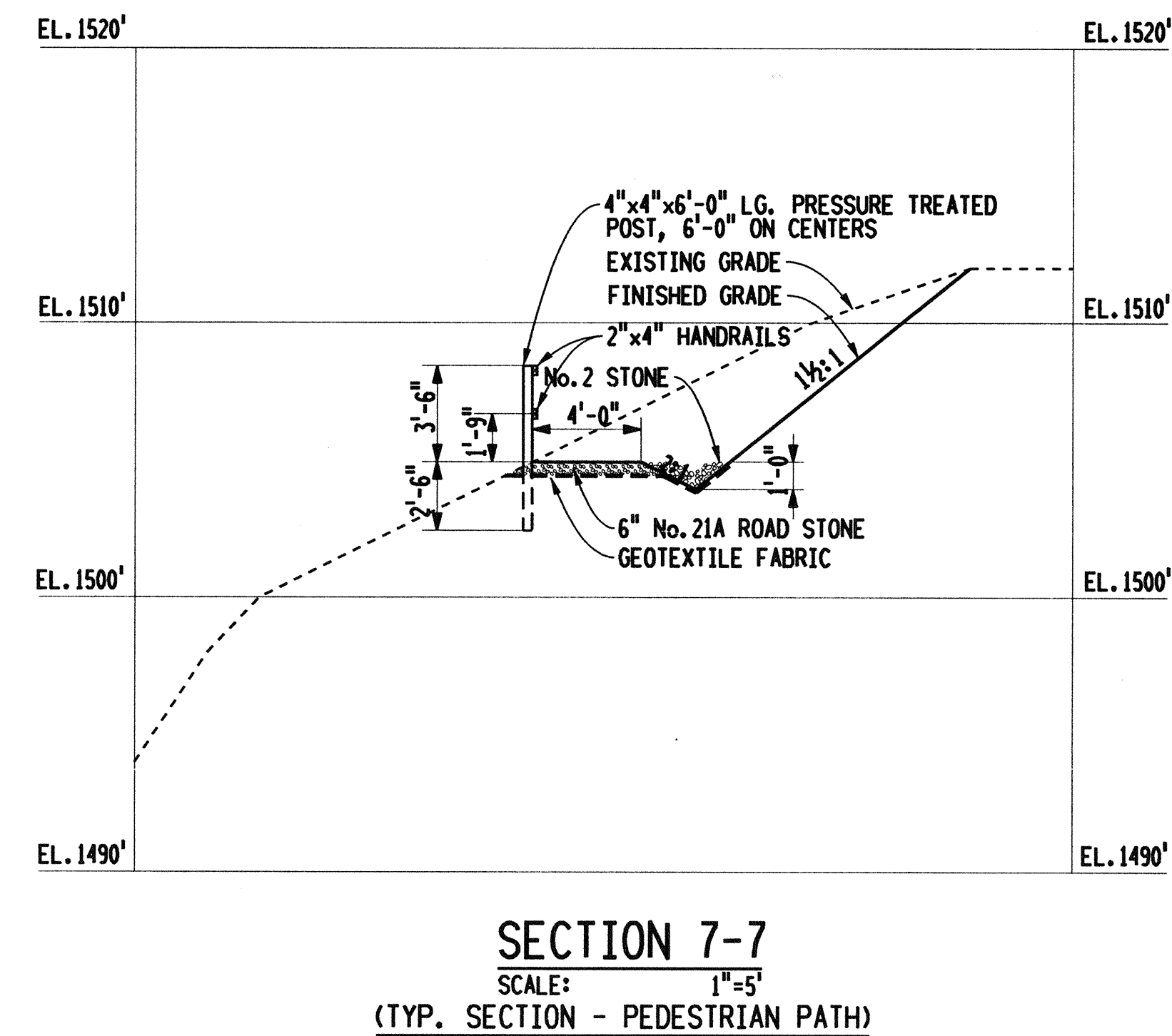
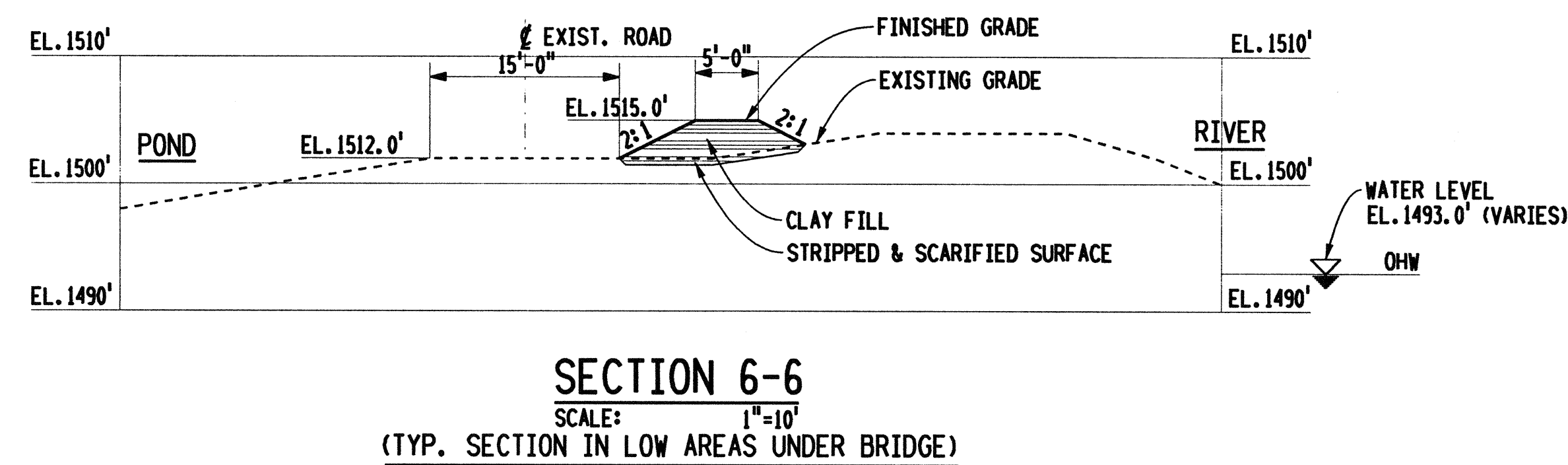
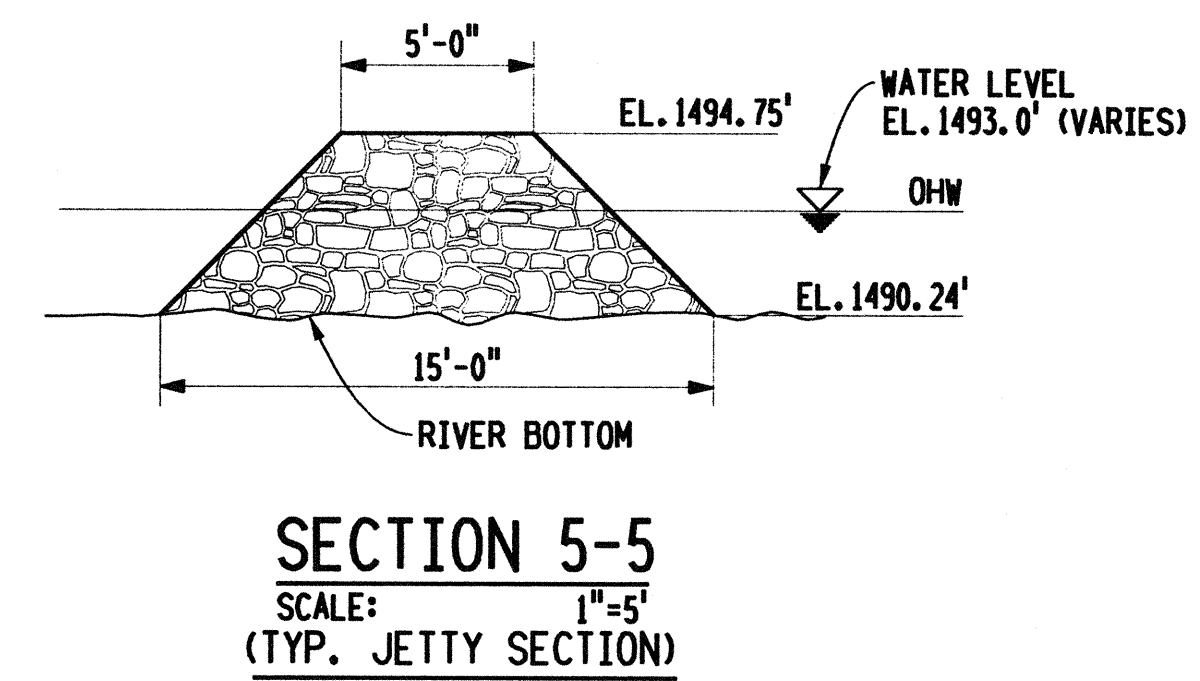
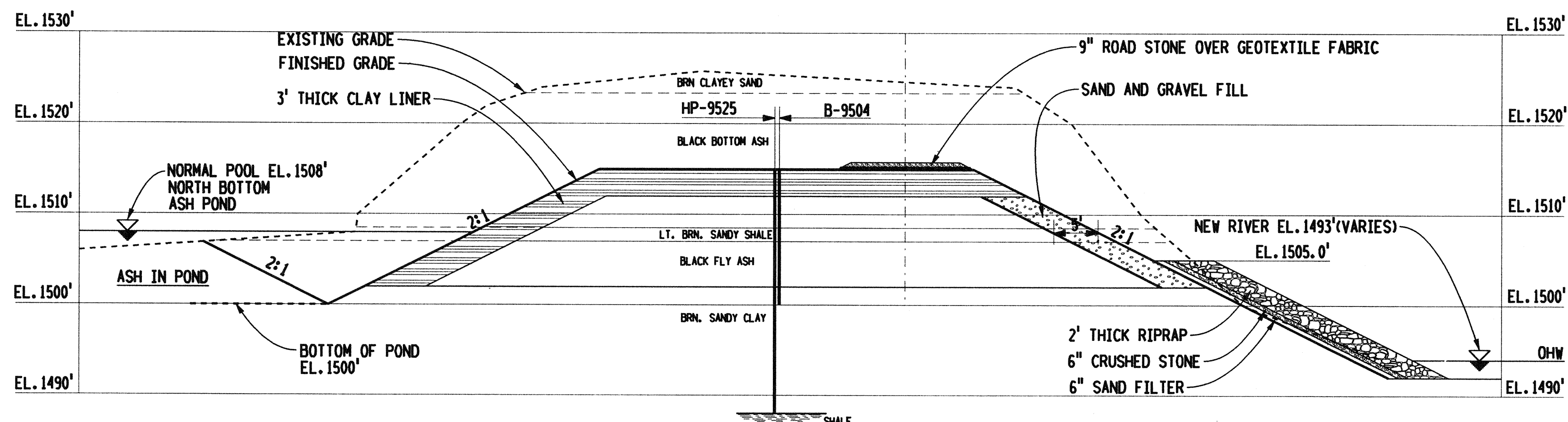
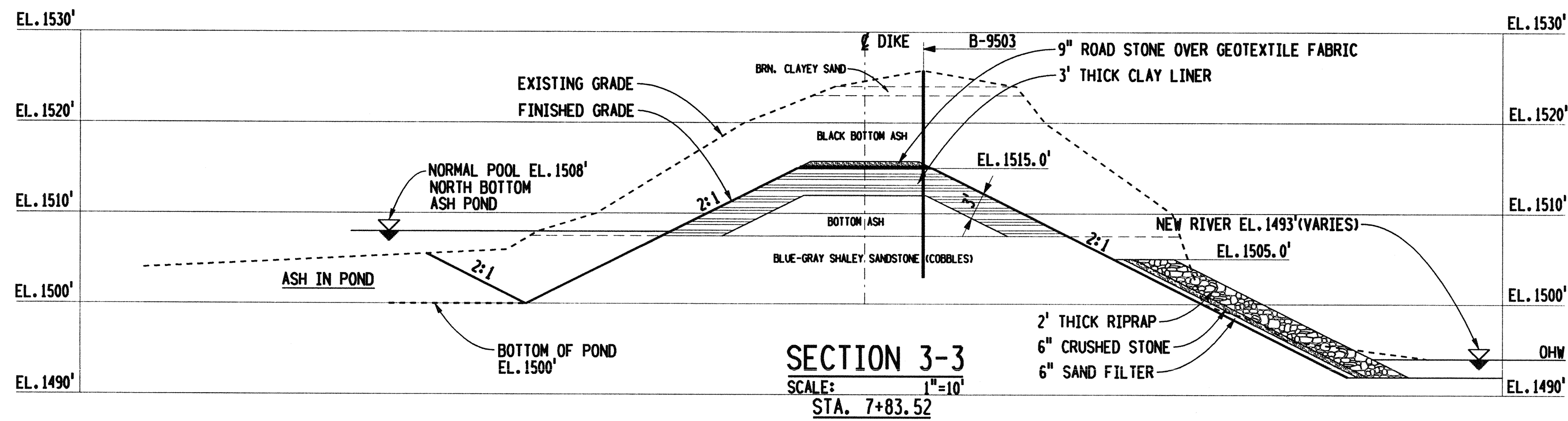
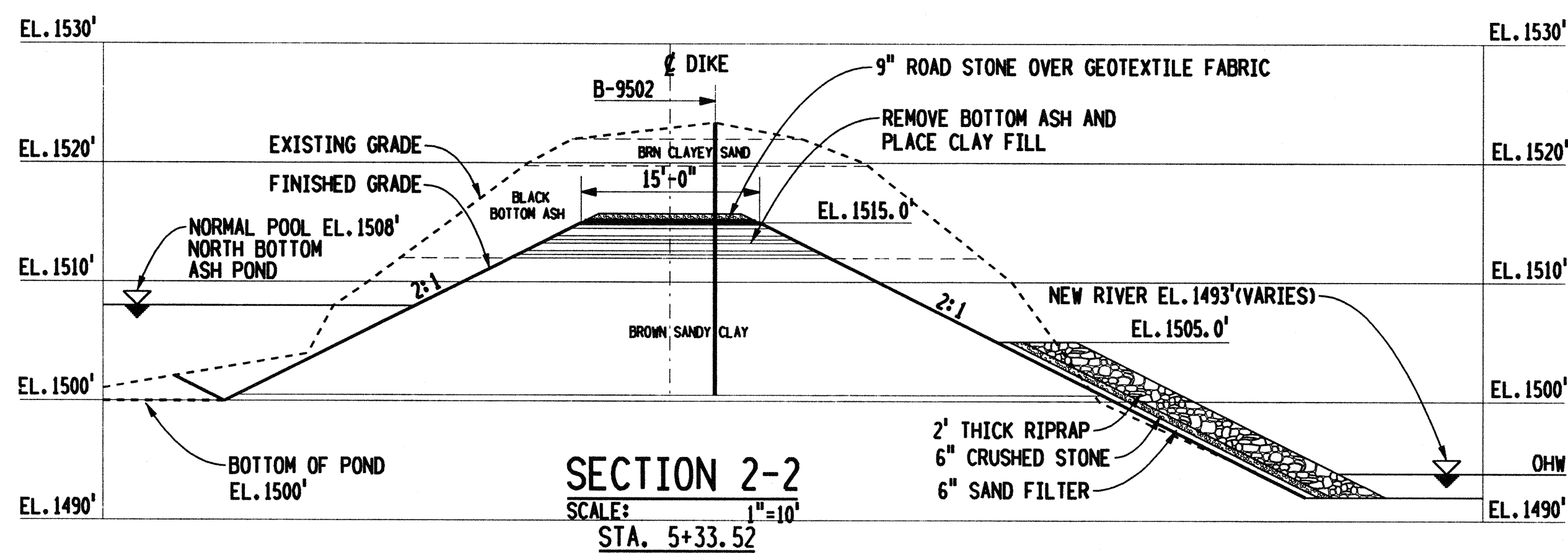
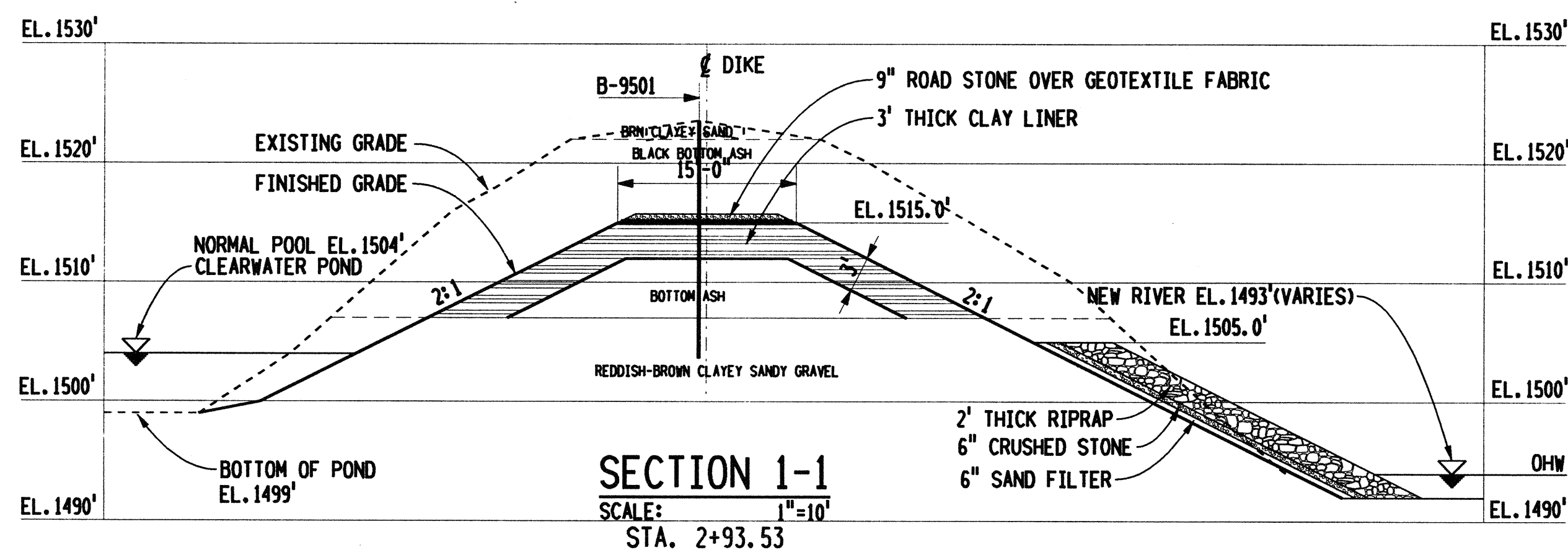
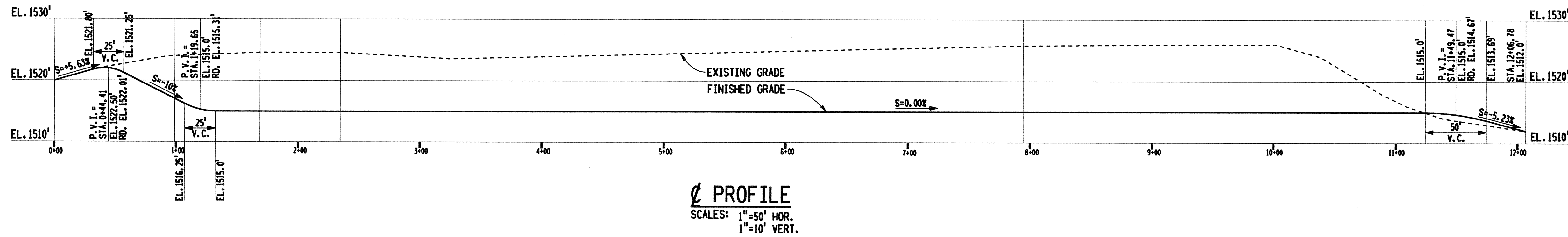
SYSTEM TIME: 00:04

SYSTEM FILE: PCD

3302

ADJACENT PROPERTY OWNERS

- U.S. GOVERNMENT
- APPALACHIAN POWER COMPANY
- NORFOLK & SOUTHERN RAILROAD



GENERAL NOTES

- ALL SURFACES OTHER THAN ROADSTONE OR RIPRAP SHALL RECEIVE 3" OF TOPSOIL AND SEEDED.
- THE 4' WIDE PEDESTRIAN PATH SHALL BE CUT AT 4:1 SLOPE WITH WOODEN HANDRAIL ON THE RIVER SIDE.

OHW = ORDINARY HIGH WATER

REFERENCE DRAWINGS

- 56-13180 - BOTTOM ASH POND RIVER DIKE MODIFICATION GRADING PLAN.
 16-11249-3564 - BOTTOM ASH STORAGE AREA MODIFICATION.

0	ISSUED FOR CONSTRUCTION.	MTD
A	ISSUED FOR BIDS.	MB
DATE	NO.	DESCRIPTION

REVISIONS
 igsC - /usr/5/stru/glen lyn/u56/13180.560

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APPALACHIAN POWER COMPANY
 GLEN LYN PLANT
 GLEN LYN, VIRGINIA

BOTTOM ASH POND
 RIVER DIKE MODIFICATION
 PROFILE & SECTIONS

DWG. NO. 56-13181-0

CIVIL ENGINEERING DIVISION

DR: RGD

CH: MTD

ENGR. MTD

ENGR. MTD

DATE: 2/22/96

APPROVED BY: M. BAILEDA

1 RIVERSIDE PLAZA
 COLUMBUS, OH 43215

SYSTEM DATE: 18-MAY-1996
 SYSTEM TIME: 08:10
 35th FLR, CED