

**Appendix C - SUMMARY TABLE**

6-inch Removal Certification					
Reference Number	Approx. Area (ac) +/-	Golder Inspection	DEQ Inspection	6-inch Survey	Misc. Notes
101	7.0	10/21/19	N/A	10/24/19	Northeastern Portion
		10/24/19	N/A		Reinspection
102	4.2	11/14/19	N/A	11/14/19	Southeastern Portion
103	0.5	12/06/19	N/A	12/12/19	Bottom of eastern portion
104	2.8	12/12/19	N/A	12/12/19	Southwest Portion
105	0.2	01/09/20	N/A	01/15/20	Area adjacent to access ramp
106	1.7	01/15/20	N/A	01/15/20	Bottom of western portion
107	0.6	01/30/20	N/A	01/30/20	NE Slope (Access Ramp)
<b>TOTAL</b>	17.0 (per survey)				



## CLOSURE BY REMOVAL 6-INCH SUBGRADE REMOVAL

Date: October 24, 2019

Project No. 15-20347QA

Dominion Energy  
Bremo Power Station  
1038 Bremo Road  
Bremo Bluff, VA 23022

**RE: BREMO CLOSURE BY REMOVAL 6-INCH SUBGRADE INSPECTION AND ACCEPTANCE  
MEMORANDUM FOR RECORD – AREA 101**

On October 21, 2019, Golder Associates performed an inspection of the West Ash Pond at the Bremo Power Station to verify the removal of Coal Combustion Residuals (CCR) plus an additional 6 inches of subgrade from within the inspected area (Area 101). The inspected area consisted of portions of Phases 1, 2, 3 and 5 with an approximate size of 7.0 +/- acres, as shown in the attached Area Sketch Map. The weather conditions during the inspection were cloudy with temperatures in the mid-fifties. On the day of inspection, portions of the area had accumulated water and could not be inspected. On October 24, 2019, Golder Associates performed a reinspection of the West Ash Pond to inspect the areas that could not be inspected due to water accumulation on October 21, 2019. The weather conditions during the inspection were sunny with temperatures in the low fifties. Please find attached the photographs taken during the inspection to document the 6-inch subgrade removal from the inspected area.

Golder Associates presents this acceptance statement for visual closure by removal of 6 inches of subgrade at the Bremo Power Station. This acceptance applies to the area in the West Ash Pond as described above. The area has been visually inspected and documented through field survey in accordance with the Bremo Power Station Inactive CCR Surface Impoundments Closure by Removal Plan (SWP #618). Based on visual inspection, I certify the area described above has had at least 6-inches of subgrade material removed.

The use of the word “certify” in this document shall be interpreted and construed as a Statement of Professional Opinion and is not and shall not be interpreted or construed as a guarantee, warranty, or legal opinion.

Sincerely,

**GOLDER ASSOCIATES INC.**

Andrew T. North, P.E.  
Project Engineer

Attachments:

- ☒ 1 – “6-inch Subgrade Removal” Inspection Photos
- ☒ 2 – “6-inch Subgrade Removal” Area Sketch Map





Photo #1  
Observation:

Bottom of Subject Area looking northwest, showing area where 6 inches of subgrade has been removed.



Photo #2  
Observation:

Bottom of Subject Area looking west, showing area where 6 inches of subgrade has been removed.







Photo #3  
Observation:

Bottom of Subject Area looking east, showing area that could not be inspected due to accumulation of water.



Photo #4  
Observation:

Bottom of Subject Area showing test pit.







Photo #5  
Observation:

Bottom of Subject  
Area showing  
location of test pit.



Photo #6  
Reinspection:

Bottom of Subject  
Area free of  
standing water  
encountered  
during first  
inspection.





**Photo #7**  
**Reinspection:**

Bottom of Subject  
Area free of  
standing water  
encountered  
during first  
inspection.





## CLOSURE BY REMOVAL 6-INCH SUBGRADE REMOVAL

Date: November 15, 2019

Project No. 15-20347QA

Dominion Energy  
Bremo Power Station  
1038 Bremo Road  
Bremo Bluff, VA 23022

**RE: BREMO CLOSURE BY REMOVAL 6-INCH SUBGRADE INSPECTION AND ACCEPTANCE  
MEMORANDUM FOR RECORD – AREA 102**

On November 14, 2019, Golder Associates performed an inspection of the West Ash Pond at the Bremo Power Station to verify the removal of Coal Combustion Residuals (CCR) plus an additional 6 inches of subgrade from within the inspected area (Area 102). The inspected area consisted of portions of Phases 1, 2, and 3 with an approximate size of 4.2 +/- acres, as shown in the attached Area Sketch Map. The weather conditions during the inspection were cloudy with temperatures in the low forties. Please find attached the photographs taken during the inspection to document the 6-inch subgrade removal from the inspected area.

Golder Associates presents this acceptance statement for visual closure by removal of 6 inches of subgrade at the Bremo Power Station. This acceptance applies to the area in the West Ash Pond as described above. The area has been visually inspected and documented through field survey in accordance with the Bremo Power Station Inactive CCR Surface Impoundments Closure by Removal Plan (SWP #618). Based on visual inspection, I certify the area described above has had at least 6-inches of subgrade material removed.

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Sincerely,

**GOLDER ASSOCIATES INC.**

Andrew T. North, P.E.  
Project Engineer

Attachments:

- ☒ 1 – “6-inch Subgrade Removal” Inspection Photos
- ☒ 2 – “6-inch Subgrade Removal” Area Sketch Map





Photo #1  
Observation:

Bottom of Subject Area looking south, showing area where 6 inches of subgrade has been removed.



Photo #2  
Observation:

Bottom of Subject Area looking southeast, showing area where 6 inches of subgrade has been removed.







Photo #3  
Observation:

Bottom of Subject Area looking southeast, showing area where 6 inches of subgrade has been removed.



Photo #4  
Observation:

Bottom of Subject Area looking east, showing area where 6 inches of subgrade has been removed.







Photo #5  
Observation:

Bottom of Subject Area looking northeast, showing area where 6 inches of subgrade has been removed.

Note: Stockpile is excluded from Area 102.



Photo #6  
Reinspection:

Bottom of Subject Area showing area where 6 inches of subgrade has been removed.







Photo #7  
Reinspection:

Bottom of Subject Area showing test pit.



Photo #8  
Reinspection:

Bottom of Subject Area looking north, showing area where 6 inches of subgrade has been removed.





Date: December 11, 2019

Project No. 15-20347QA

Dominion Energy  
Bremo Power Station  
1038 Bremo Road  
Bremo Bluff, VA 23022

**RE: BREMO CLOSURE BY REMOVAL 6-INCH SUBGRADE INSPECTION AND ACCEPTANCE**  
**MEMORANDUM FOR RECORD – AREA 103**

On December 6, 2019, Golder Associates performed an inspection of the West Ash Pond at the Bremo Power Station to verify the removal of Coal Combustion Residuals (CCR) plus an additional 6 inches of subgrade from within the inspected area (Area 103). The inspected area consisted largely of a portion of Phase 1, with a small portion of Phase 2, totaling an approximate size of 0.4 +/- acre as shown in the attached Area Sketch Map. The weather conditions during the inspection were cloudy with temperatures in the high forties. Please find attached the photographs taken during the inspection to document the 6-inch subgrade removal from the inspected area.

Golder Associates presents this acceptance statement for visual closure by removal of 6 inches of subgrade at the Bremo Power Station. This acceptance applies to the area in the West Ash Pond as described above. The area has been visually inspected and documented through field survey in accordance with the Bremo Power Station Inactive CCR Surface Impoundments Closure by Removal Plan (SWP #618). Based on visual inspection, I certify the area described above has had at least 6-inches of subgrade material removed.

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Sincerely,

**GOLDER ASSOCIATES INC.**



Andrew T. North, P.E.  
Project Engineer

Attachments:

- ☒ 1 – “6-inch Subgrade Removal” Inspection Photos
- ☒ 2 – “6-inch Subgrade Removal” Area Sketch Map



Photo #1  
Observation:

Bottom of Subject Area looking south, showing area where 6 inches of subgrade has been removed.



Photo #2  
Observation:

Bottom of Subject Area looking west, showing area where 6 inches of subgrade has been removed.







Photo #3  
Observation:

Bottom of Subject Area looking north, showing area where 6 inches of subgrade has been removed.



Photo #4  
Observation:

Bottom of Subject Area looking south, showing area where 6 inches of subgrade has been removed.



Date: December 13, 2019

Project No. 15-20347QA

Dominion Energy  
Bremo Power Station  
1038 Bremo Road  
Bremo Bluff, VA 23022

**RE: BREMO CLOSURE BY REMOVAL 6-INCH SUBGRADE INSPECTION AND ACCEPTANCE**  
**MEMORANDUM FOR RECORD – AREA 104**

On December 12, 2019, Golder Associates performed an inspection of the West Ash Pond at the Bremo Power Station to verify the removal of Coal Combustion Residuals (CCR) plus an additional 6 inches of subgrade from within the inspected area (Area 104). The inspected area consisted of the majority of Phase 4, as well as portions of Phases 3 and 5, totaling an approximate size of 2.8 +/- acres as shown in the attached Area Sketch Map. The weather conditions during the inspection were sunny with temperatures in the low forties. Please find attached the photographs taken during the inspection to document the 6-inch subgrade removal from the inspected area.

Golder Associates presents this acceptance statement for visual closure by removal of 6 inches of subgrade at the Bremo Power Station. This acceptance applies to the area in the West Ash Pond as described above. The area has been visually inspected and documented through field survey in accordance with the Bremo Power Station Inactive CCR Surface Impoundments Closure by Removal Plan (SWP #618). Based on visual inspection, I certify the area described above has had at least 6-inches of subgrade material removed.

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Sincerely,

**GOLDER ASSOCIATES INC.**



Andrew T. North, P.E.  
Project Engineer

Attachments:

- ☒ 1 – “6-inch Subgrade Removal” Inspection Photos
- ☒ 2 – “6-inch Subgrade Removal” Area Sketch Map





Photo #1  
Observation:

Bottom of Subject Area looking east, showing area where 6 inches of subgrade has been removed.



Photo #2  
Observation:

Bottom of Subject Area looking southeast, showing area where 6 inches of subgrade has been removed.







Photo #3  
Observation:

Bottom of Subject  
showing test pit.



Photo #4  
Observation:

Bottom of Subject  
Area looking  
north, showing  
area where 6  
inches of  
subgrade has  
been removed.







## CLOSURE BY REMOVAL 6-INCH SUBGRADE REMOVAL

Date: January 9, 2020

Project No. 15-20347QA

Dominion Energy  
Bremo Power Station  
1038 Bremo Road  
Bremo Bluff, VA 23022

**RE: BREMO CLOSURE BY REMOVAL 6-INCH SUBGRADE INSPECTION AND ACCEPTANCE  
MEMORANDUM FOR RECORD – AREA 105**

On January 9, 2020, Golder Associates performed an inspection of the West Ash Pond at the Bremo Power Station to verify the removal of Coal Combustion Residuals (CCR) plus an additional 6 inches of subgrade from within the inspected area (Area 105). The inspected area consisted of a small portion of Phase 5 with an approximate size of 0.19 +/- acre as shown in the attached Area Sketch Map. The weather conditions during the inspection were sunny with temperatures in the high thirties. Please find attached the photographs taken during the inspection to document the 6-inch subgrade removal from the inspected area.

Golder Associates presents this acceptance statement for visual closure by removal of 6 inches of subgrade at the Bremo Power Station. This acceptance applies to the area in the West Ash Pond as described above. The area has been visually inspected and documented through field survey in accordance with the Bremo Power Station Inactive CCR Surface Impoundments Closure by Removal Plan (SWP #618). Based on visual inspection, I certify the area described above has had at least 6-inches of subgrade material removed.

The use of the word “certify” in this document shall be interpreted and construed as a Statement of Professional Opinion and is not and shall not be interpreted or construed as a guarantee, warranty, or legal opinion.

Sincerely,

**GOLDER ASSOCIATES INC.**

Andrew T. North, P.E.  
Project Engineer

Attachments:

- ☒ 1 – “6-inch Subgrade Removal” Inspection Photos
- ☒ 2 – “6-inch Subgrade Removal” Area Sketch Map





Photo #1  
Observation:

Bottom of Subject Area looking west, showing area where 6 inches of subgrade has been removed.



Photo #2  
Observation:

Bottom of Subject Area looking northwest, showing area where 6 inches of subgrade has been removed.





Date: January 15, 2020

Project No. 15-20347QA

Dominion Energy  
Bremo Power Station  
1038 Bremo Road  
Bremo Bluff, VA 23022

**RE: BREMO CLOSURE BY REMOVAL 6-INCH SUBGRADE INSPECTION AND ACCEPTANCE**  
**MEMORANDUM FOR RECORD – AREA 106**

On January 15, 2020, Golder Associates performed an inspection of the West Ash Pond at the Bremo Power Station to verify the removal of Coal Combustion Residuals (CCR) plus an additional 6 inches of subgrade from within the inspected area (Area 106). The inspected area consisted of a portion of Phase 5, as well as small portions of phases 3 and 4, with an approximate size of 1.65 +/- acres as shown in the attached Area Sketch Map. The weather conditions during the inspection were overcast with temperatures in the high fifties. Please find attached the photographs taken during the inspection to document the 6-inch subgrade removal from the inspected area.

Golder Associates presents this acceptance statement for visual closure by removal of 6 inches of subgrade at the Bremo Power Station. This acceptance applies to the area in the West Ash Pond as described above. The area has been visually inspected and documented through field survey in accordance with the Bremo Power Station Inactive CCR Surface Impoundments Closure by Removal Plan (SWP #618). Based on visual inspection, I certify the area described above has had at least 6-inches of subgrade material removed.

The use of the word “certify” in this document shall be interpreted and construed as a Statement of Professional Opinion and is not and shall not be interpreted or construed as a guarantee, warranty, or legal opinion.

Sincerely,

**GOLDER ASSOCIATES INC.**



Andrew T. North, P.E.  
Project Engineer

Attachments:

- ☒ 1 – “6-inch Subgrade Removal” Inspection Photos
- ☒ 2 – “6-inch Subgrade Removal” Area Sketch Map



Photo #1  
Observation:

Bottom of Subject Area looking north, showing area where 6 inches of subgrade has been removed.



Photo #2  
Observation:

Bottom of Subject Area, showing location of test pit 17.







Photo #3  
Observation:

Bottom of Subject Area looking northeast, showing area where 6 inches of subgrade has been removed.



Photo #4  
Observation:

Northern edge of Subject Area looking south, showing area where 6 inches of subgrade has been removed.



Date: January 31, 2020

Project No. 15-20347QA

Dominion Energy  
Bremo Power Station  
1038 Bremo Road  
Bremo Bluff, VA 23022

**RE: BREMO CLOSURE BY REMOVAL 6-INCH SUBGRADE INSPECTION AND ACCEPTANCE**  
**MEMORANDUM FOR RECORD – AREA 107**

On January 30, 2020, Golder Associates performed an inspection of the West Ash Pond at the Bremo Power Station to verify the removal of Coal Combustion Residuals (CCR) plus an additional 6 inches of subgrade from within the inspected area (Area 107). The inspected area consisted of a portion of Phase 5, as well as small portions of phases 3 and 4, with an approximate size of 0.57 +/- acres as shown in the attached Area Sketch Map. The weather conditions during the inspection were cloudy with temperatures in the low forties. Please find attached the photographs taken during the inspection to document the 6-inch subgrade removal from the inspected area.

Golder Associates presents this acceptance statement for visual closure by removal of 6 inches of subgrade at the Bremo Power Station. This acceptance applies to the area in the West Ash Pond as described above. The area has been visually inspected and documented through field survey in accordance with the Bremo Power Station Inactive CCR Surface Impoundments Closure by Removal Plan (SWP #618). Based on visual inspection, I certify the area described above has had at least 6-inches of subgrade material removed.

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Sincerely,

**GOLDER ASSOCIATES INC.**



Andrew T. North, P.E.  
Project Engineer

Attachments:

- ☒ 1 – “6-inch Subgrade Removal” Inspection Photos
- ☒ 2 – “6-inch Subgrade Removal” Area Sketch Map





Photo #1  
Observation:

Bottom of Subject Area looking south, showing area where 6 inches of subgrade has been removed.



Photo #2  
Observation:

Bottom of Subject Area looking north, showing area where 6 inches of subgrade has been removed.







Photo #3  
Observation:

Bottom of Subject Area looking north, showing location of test pit.



Photo #4  
Observation:

Northern edge of Subject Area, showing area location of test pit.





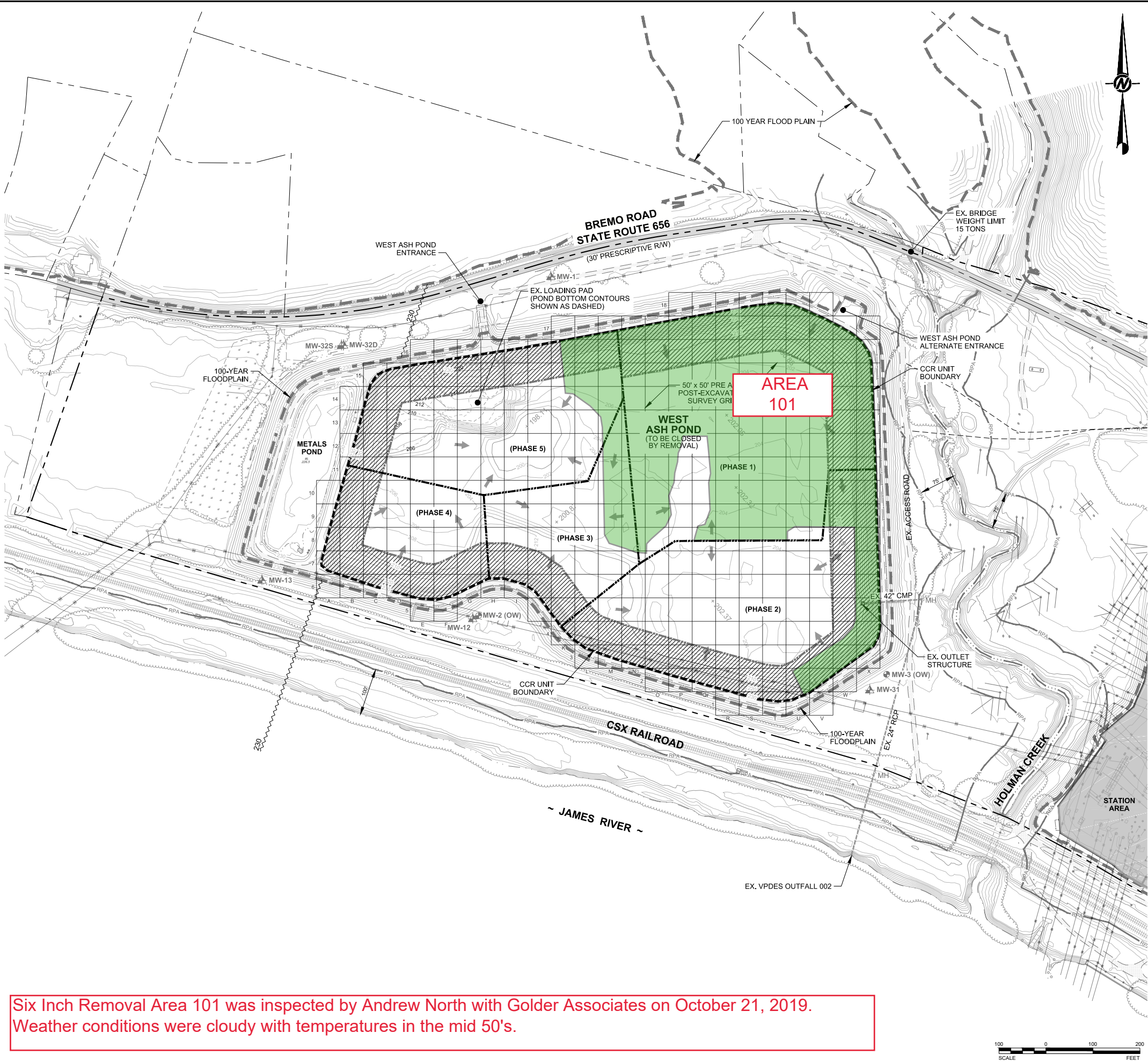
**Photo #5**  
**Observation:**

Bottom of Subject Area, showing area where 6 inches of subgrade has been removed.





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## LEGEND

	DOMINION PROPERTY BOUNDARY
	ADJACENT PROPERTY BOUNDARY
	CCR UNIT BOUNDARY
	EXISTING TOPOGRAPHIC CONTOURS (2' INTERVALS)
	EXISTING PAVED ROAD
	EXISTING UNPAVED ROAD
	EXISTING RAILROAD
	WETLANDS
	CREEK/STREAM CENTERLINE
	LIMITS OF RIPARIAN PROTECTION AREA (PER FLUVANNA COUNTY ORDINANCE)
	APPROXIMATE EDGE OF SURFACE WATER
	LIMITS OF 100-YR FLOOD PLAIN
	BASE FLOOD ELEVATION (100-YEAR, SEE NOTE 4)
	EXISTING TREE LINE
	EXISTING FENCE
	EXISTING OVERHEAD UTILITY LINE
	EXISTING MONITORING WELL LOCATION AND IDENTIFICATION (CCR RULE)
	EXISTING OBSERVATION WELL LOCATION AND IDENTIFICATION
	EXISTING MANHOLE
	EXISTING SURFACE WATER FLOW DIRECTION
	APPROXIMATE CLEAN CLOSURE PHASE LIMITS (SUBJECT TO CHANGE BASED ON FIELD CONDITIONS DURING EXCAVATION AND MAY INCLUDE SUB-PHASES)
	DENOTES APPROXIMATE LIMITS OF CRITICAL AREAS SUBJECT TO BACKFILL FOR ACCESS AND SLOPE STABILITY

## GENERAL NOTES

- EXISTING CONDITIONS COMPILED FROM:
  - AERIAL TOPOGRAPHIC SURVEY PREPARED BY MCKENZIE SNYDER, INC., DATE OF AERIAL PHOTO: 1/16/15 [CONTROL PREPARED BY H&B SURVEYING & MAPPING (H&B)]
  - BOUNDARY SURVEY PREPARED BY H&B SURVEYING AND MAPPING, LLC DATED 04/27/15.
  - EXISTING TOPOGRAPHY WITHIN THE LIMITS OF THE WEST ASH POND BASED ON FIELD SURVEY BY H&B SURVEYING AND MAPPING DATED 07/06/17. TOPO REPRESENTS THE BOTTOM OF POND.
- SITE DATUM: NAD83 / NAVD88
- WETLAND DELINEATION BY DOMINION ENVIRONMENTAL SERVICES ON 01/30/15 & 02/05/15 AND BY GOLDER ASSOCIATES ON 03/16/15 & 03/25/15. WATERS OF THE U.S. CONFIRMED BY THE USACE DURING JUNE 4, 2015 SITE VISIT.
- 100 YEAR FLOOD PLAIN DELINEATION BASED ON FLOOD ELEVATION DATA REPRESENTED ON FEMA FLOOD INSURANCE RATE MAP (FIRM), MAP NUMBER 51065C0260C, EFFECTIVE DATE: 05/16/2008.

## CLOSURE BY REMOVAL NOTES

- TOPOGRAPHY SHOWN WITHIN LIMITS OF THE WEST ASH POND, REPRESENTS THE POND BOTTOM BASED ON FIELD SURVEY BY H&B SURVEYING AND MAPPING DATED 07/06/17.
- PHASED CLOSURE OF THE WEST POND MAY BE SEQUENCED AS NECESSARY TO ADDRESS ISSUES RELATED TO ACCESS AND SLOPE STABILITY, AND TO MINIMIZE CONTACT STORMWATER AREAS. SUB-PHASES MAY BE REQUIRED FOR REGULATORY APPROVAL.
- ANY AREA CERTIFIED AS ACHIEVING CLOSURE BY REMOVAL IS TO BE PROTECTED FROM CCR AND CONTACT STORMWATER, AND MAY BE FILLED AND/OR RESHAPED AS NEEDED PRIOR TO ACHIEVING FINAL GRADES.
- ACCUMULATED CCR SHALL BE REMOVED FROM SURFACES WITHIN THE POND LIMITS SUCH THAT NO CCR REMAINS VISIBLE.
- FOLLOWING VISUAL-CLEAN CONDITIONS, OVER-EXCAVATE THE REMOVAL FOOTPRINT BY AT LEAST SIX INCHES.
- VISUAL INSPECTION AND TARGETED SUBGRADE VISUAL SAMPLING TO BE OVERSEEN BY OWNER'S ENGINEER REPRESENTATIVE. SAMPLING TO BE PERFORMED AT A FREQUENCY OF AT LEAST ONE TEST PER ACRE. TARGETED SAMPLING TO CONSIST OF HAND-DUG HOLES AT LEAST SIX INCHES DEEP.
- EXCAVATION OF SLOPES STEEPER THAN 2:1 SHALL BE SEQUENCED SUCH THAT THE SLOPES CAN BE EXCAVATED, INSPECTED, AND BACKFILLED IN THE SHORTEST TIME POSSIBLE. BACKFILL SLOPES WITH CLEAN SOIL FILL AT NO STEEPER THAN 2:1.
- EXCAVATED CCR AND SOIL-CCR MIXTURES SHALL BE CONSOLIDATED IN NORTH ASH POND OR TAKEN TO AN OFF-SITE DISPOSAL FACILITY AS DIRECTED BY DOMINION.

Six Inch Removal Area 101 was inspected by Andrew North with Golder Associates on October 21, 2019. Weather conditions were cloudy with temperatures in the mid 50's.

PROJECT	CLIENT				CONSULTANT			
	DOMINION ENERGY				GOLDER ASSOCIATES INC.			
	BREMO POWER STATION				2108 WEST LABURNUM AVENUE			
DRAWING	FLUVANNA COUNTY, VIRGINIA				SUITE 200			
					RICHMOND, VA 23227			
					(804) 358-7900			
REV.	1				09/14/18			
					RESPONSE TO DEQ TR COMMENTS			
					JRD			
REV.	0				05/07/18			
					ISSUED FOR PERMIT			
					JRD			
REV.	15-20347				MMDDYY			
					DESCRIPTION			
					DESIGN			
REV.	1				3 of 9			
					DRAWING			
					CBR-3			

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN ADJUSTED FROM: ARCH D

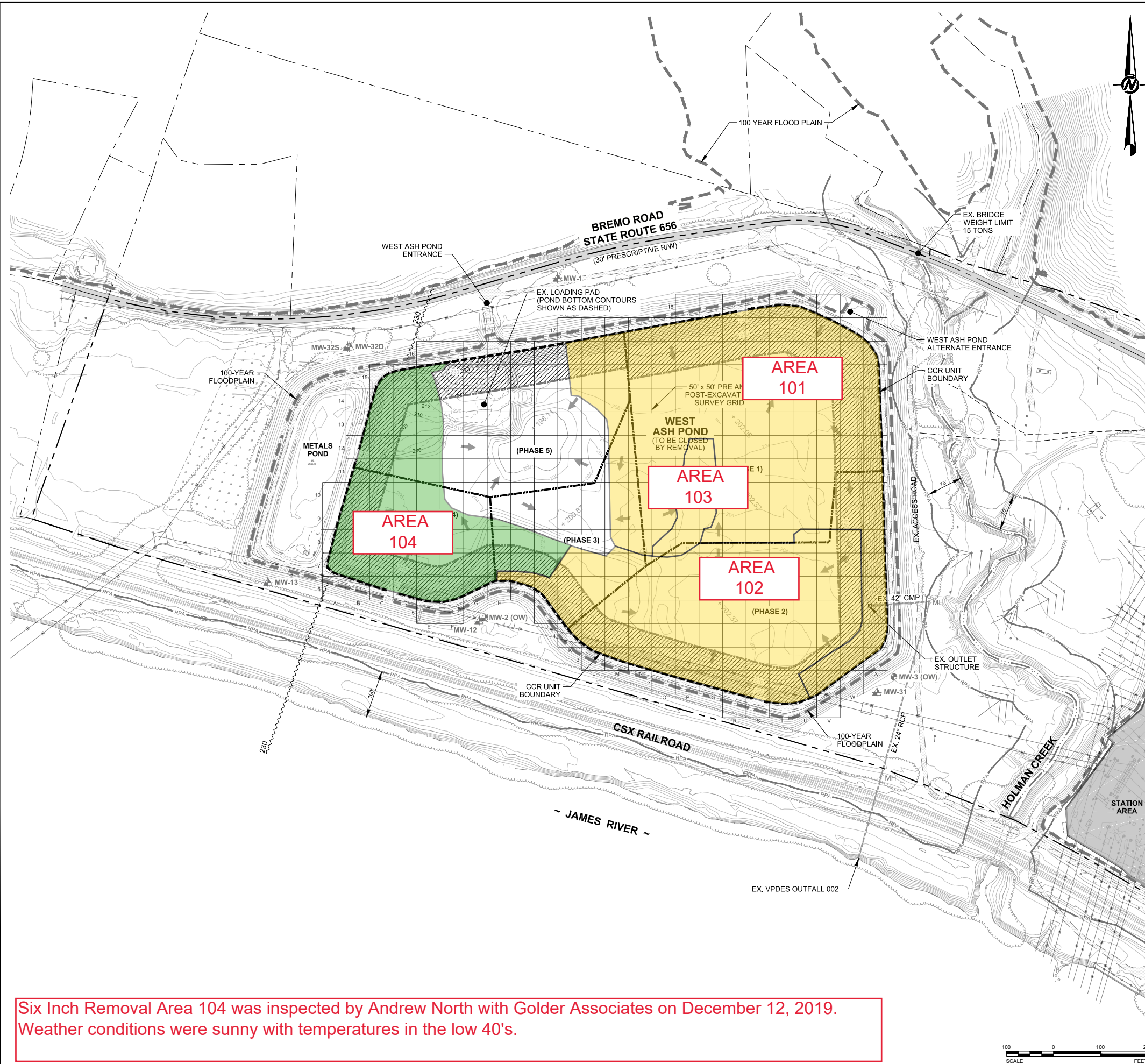






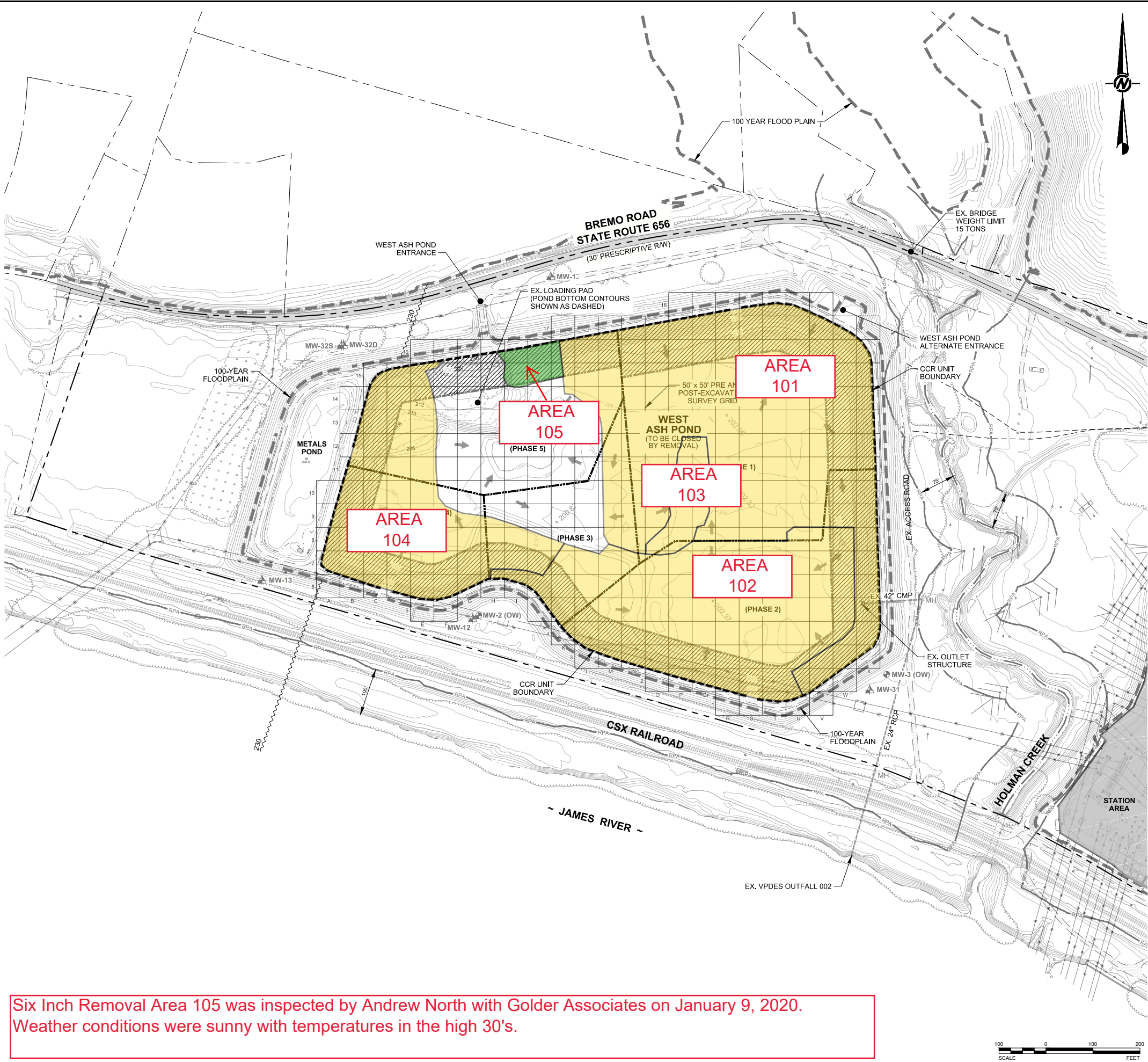








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Six Inch Removal Area 105 was inspected by Andrew North with Golder Associates on January 9, 2020. Weather conditions were sunny with temperatures in the high 30's.

LEGEND	
	DOMINION PROPERTY BOUNDARY
	ADJACENT PROPERTY BOUNDARY
	CCR UNIT BOUNDARY
	EXISTING TOPOGRAPHIC CONTOURS (2' INTERVALS)
	EXISTING PAVED ROAD
	EXISTING UNPAVED ROAD
	EXISTING RAILROAD
	WETLANDS
	CREEK/STREAM CENTERLINE
	LIMITS OF RIPARIAN PROTECTION AREA (PER FLUVANNA COUNTY ORDINANCE)
	APPROXIMATE EDGE OF SURFACE WATER
	LIMITS OF 100-YR FLOOD PLAIN
	BASE FLOOD ELEVATION (100-YEAR, SEE NOTE 4)
	EXISTING TREE LINE
	EXISTING FENCE
	EXISTING OVERHEAD UTILITY LINE
	EXISTING MONITORING WELL LOCATION AND IDENTIFICATION (CCR RULE)
	EXISTING OBSERVATION WELL LOCATION AND IDENTIFICATION
	EXISTING MANHOLE
	EXISTING SURFACE WATER FLOW DIRECTION
	APPROXIMATE CLEAN CLOSURE PHASE LIMITS (SUBJECT TO CHANGE BASED ON FIELD CONDITIONS DURING EXCAVATION AND MAY INCLUDE SUB-PHASES)
	DENOTES APPROXIMATE LIMITS OF CRITICAL AREAS SUBJECT TO BACKFILL FOR ACCESS AND SLOPE STABILITY

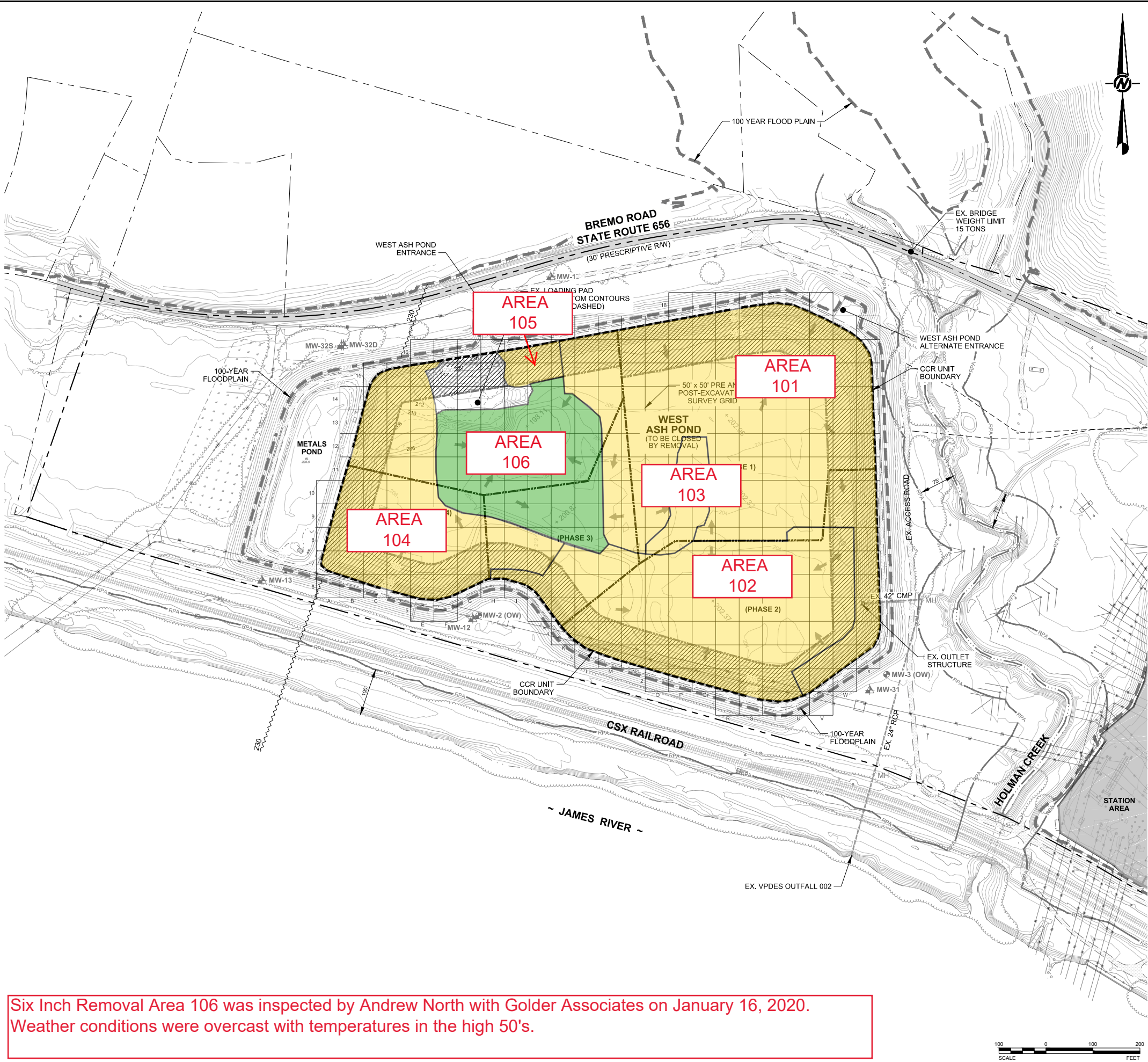
- GENERAL NOTES**
- EXISTING CONDITIONS COMPILED FROM:
    - AERIAL TOPOGRAPHIC SURVEY PREPARED BY MCKENZIE SNYDER, INC., DATE OF AERIAL PHOTO: 1/16/15 [CONTROL PREPARED BY H&B SURVEYING & MAPPING (H&B)]
    - BOUNDARY SURVEY PREPARED BY H&B SURVEYING AND MAPPING, LLC DATED 04/27/15.
    - EXISTING TOPOGRAPHY WITHIN THE LIMITS OF THE WEST ASH POND BASED ON FIELD SURVEY BY H&B SURVEYING AND MAPPING DATED 07/06/17. TOPO REPRESENTS THE BOTTOM OF POND.
  - SITE DATUM: NAD83 / NAVD88
  - WETLAND DELINEATION BY DOMINION ENVIRONMENTAL SERVICES ON 01/30/15 & 02/05/15 AND BY GOLDER ASSOCIATES ON 03/16/15 & 03/25/15. WATERS OF THE U.S. CONFIRMED BY THE USACE DURING JUNE 4, 2015 SITE VISIT.
  - 100 YEAR FLOOD PLAIN DELINEATION BASED ON FLOOD ELEVATION DATA REPRESENTED ON FEMA FLOOD INSURANCE RATE MAP (FIRM), MAP NUMBER 51065C0260C, EFFECTIVE DATE: 05/16/2008.

- CLOSURE BY REMOVAL NOTES**
- TOPOGRAPHY SHOWN WITHIN LIMITS OF THE WEST ASH POND, REPRESENTS THE POND BOTTOM BASED ON FIELD SURVEY BY H&B SURVEYING AND MAPPING DATED 07/06/17.
  - PHASED CLOSURE OF THE WEST POND MAY BE SEQUENCED AS NECESSARY TO ADDRESS ISSUES RELATED TO ACCESS AND SLOPE STABILITY, AND TO MINIMIZE CONTACT STORMWATER AREAS. SUB-PHASES MAY BE REQUIRED FOR REGULATORY APPROVAL.
  - ANY AREA CERTIFIED AS ACHIEVING CLOSURE BY REMOVAL IS TO BE PROTECTED FROM CCR AND CONTACT STORMWATER, AND MAY BE FILLED AND/OR RESHAPED AS NEEDED PRIOR TO ACHIEVING FINAL GRADES.
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  - FOLLOWING VISUAL-CLEAN CONDITIONS, OVER-EXCAVATE THE REMOVAL FOOTPRINT BY AT LEAST SIX INCHES.
  - VISUAL INSPECTION AND TARGETED SUBGRADE VISUAL SAMPLING TO BE OVERSEEN BY OWNER'S ENGINEER REPRESENTATIVE. SAMPLING TO BE PERFORMED AT A FREQUENCY OF AT LEAST ONE TEST PER ACRE. TARGETED SAMPLING TO CONSIST OF HAND-DUG HOLES AT LEAST SIX INCHES DEEP.
  - EXCAVATION OF SLOPES STEEPER THAN 2:1 SHALL BE SEQUENCED SUCH THAT THE SLOPES CAN BE EXCAVATED, INSPECTED, AND BACKFILLED IN THE SHORTEST TIME POSSIBLE. BACKFILL SLOPES WITH CLEAN SOIL FILL AT NO STEEPER THAN 2:1.
  - EXCAVATED CCR AND SOIL-CCR MIXTURES SHALL BE CONSOLIDATED IN NORTH ASH POND OR TAKEN TO AN OFF-SITE DISPOSAL FACILITY AS DIRECTED BY DOMINION.

PROJECT		CLIENT		SEAL	
CLOSURE BY REMOVAL PLAN		DOMINION ENERGY			
WEST ASH POND & EAST ASH POND		BREMO POWER STATION			
SOLID WASTE PERMIT No. 618		FLUVANNA COUNTY, VIRGINIA			
TITLE		CONSULTANT			
WEST ASH POND		GOLDER ASSOCIATES INC.			
CLOSURE BY REMOVAL PLAN		2108 WEST LABURNUM AVENUE			
		SUITE 200			
		RICHMOND, VA 23227			
		(804) 358-7900			
		www.golder.com			
PROJECT NO.					
15-20347					
REV.	3 of 9	DRAWING			
1		CBR-3			



Path: G:\Plan Production Data Files\Drawing Data Files\15-20347\DWG - EAP and WAP Closure by Removal\Active Drawings\1520347D0A\_M02.dwg



Six Inch Removal Area 106 was inspected by Andrew North with Golder Associates on January 16, 2020. Weather conditions were overcast with temperatures in the high 50's.

LEGEND	
	DOMINION PROPERTY BOUNDARY
	ADJACENT PROPERTY BOUNDARY
	CCR UNIT BOUNDARY
	EXISTING TOPOGRAPHIC CONTOURS (2' INTERVALS)
	EXISTING PAVED ROAD
	EXISTING UNPAVED ROAD
	EXISTING RAILROAD
	WETLANDS
	CREEK/STREAM CENTERLINE
	LIMITS OF RIPARIAN PROTECTION AREA (PER FLUVANNA COUNTY ORDINANCE)
	APPROXIMATE EDGE OF SURFACE WATER
	LIMITS OF 100-YR FLOOD PLAIN
	BASE FLOOD ELEVATION (100-YEAR, SEE NOTE 4)
	EXISTING TREE LINE
	EXISTING FENCE
	EXISTING OVERHEAD UTILITY LINE
	EXISTING MONITORING WELL LOCATION AND IDENTIFICATION (CCR RULE)
	EXISTING OBSERVATION WELL LOCATION AND IDENTIFICATION
	EXISTING MANHOLE
	EXISTING SURFACE WATER FLOW DIRECTION
	APPROXIMATE CLEAN CLOSURE PHASE LIMITS (SUBJECT TO CHANGE BASED ON FIELD CONDITIONS DURING EXCAVATION AND MAY INCLUDE SUB-PHASES)
	DENOTES APPROXIMATE LIMITS OF CRITICAL AREAS SUBJECT TO BACKFILL FOR ACCESS AND SLOPE STABILITY

- GENERAL NOTES**
- EXISTING CONDITIONS COMPILED FROM:
    - AERIAL TOPOGRAPHIC SURVEY PREPARED BY MCKENZIE SNYDER, INC., DATE OF AERIAL PHOTO: 1/16/15 [CONTROL PREPARED BY H&B SURVEYING & MAPPING (H&B)]
    - BOUNDARY SURVEY PREPARED BY H&B SURVEYING AND MAPPING, LLC DATED 04/27/15.
    - EXISTING TOPOGRAPHY WITHIN THE LIMITS OF THE WEST ASH POND BASED ON FIELD SURVEY BY H&B SURVEYING AND MAPPING DATED 07/06/17. TOPO REPRESENTS THE BOTTOM OF POND.
  - SITE DATUM: NAD83 / NAVD88
  - WETLAND DELINEATION BY DOMINION ENVIRONMENTAL SERVICES ON 01/30/15 & 02/05/15 AND BY GOLDER ASSOCIATES ON 03/16/15 & 03/25/15. WATERS OF THE U.S. CONFIRMED BY THE USACE DURING JUNE 4, 2015 SITE VISIT.
  - 100 YEAR FLOOD PLAIN DELINEATION BASED ON FLOOD ELEVATION DATA REPRESENTED ON FEMA FLOOD INSURANCE RATE MAP (FIRM), MAP NUMBER 51065C0260C, EFFECTIVE DATE: 05/16/2008.

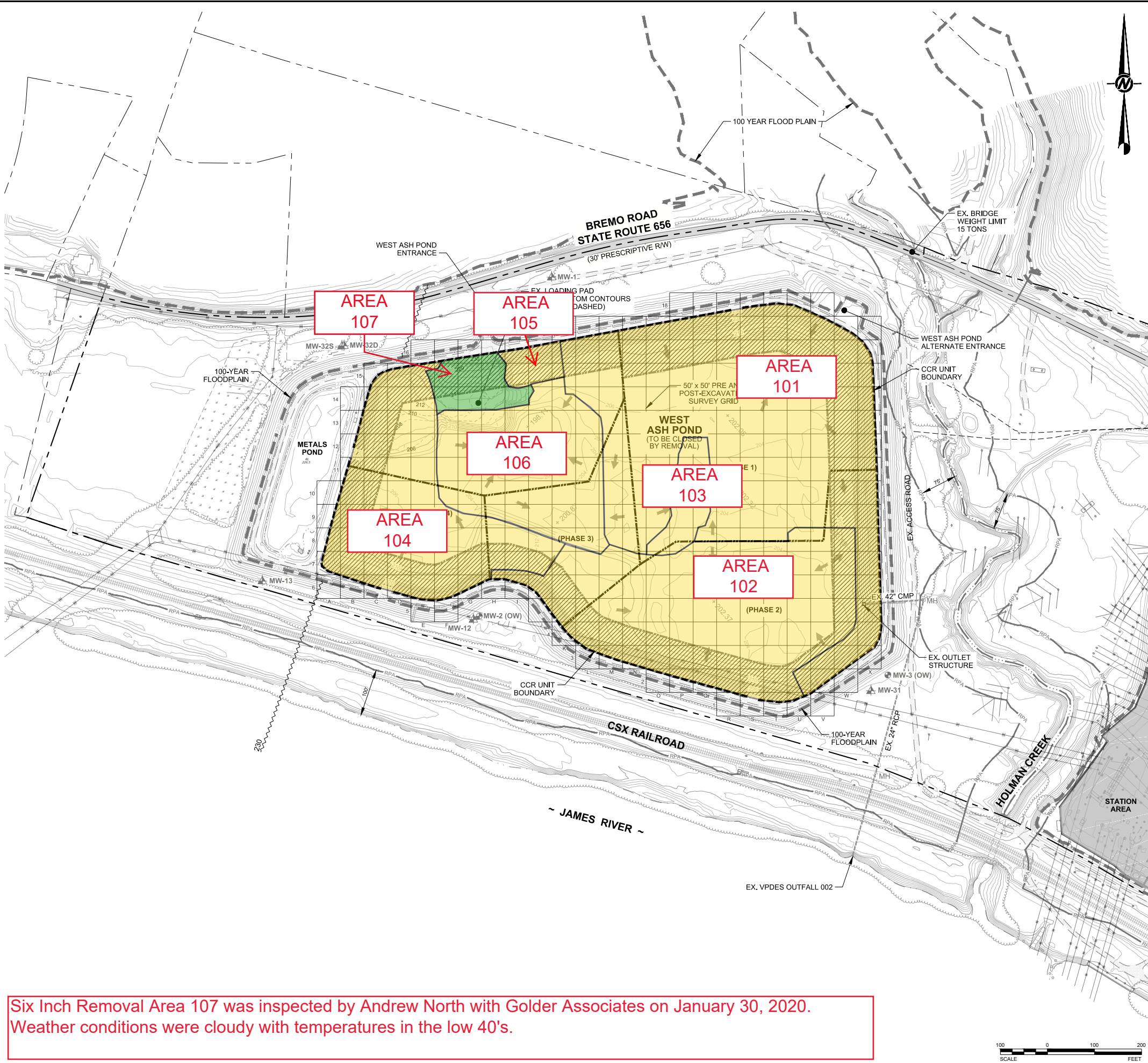
- CLOSURE BY REMOVAL NOTES**
- TOPOGRAPHY SHOWN WITHIN LIMITS OF THE WEST ASH POND, REPRESENTS THE POND BOTTOM BASED ON FIELD SURVEY BY H&B SURVEYING AND MAPPING DATED 07/06/17.
  - PHASED CLOSURE OF THE WEST POND MAY BE SEQUENCED AS NECESSARY TO ADDRESS ISSUES RELATED TO ACCESS AND SLOPE STABILITY, AND TO MINIMIZE CONTACT STORMWATER AREAS. SUB-PHASES MAY BE REQUIRED FOR REGULATORY APPROVAL.
  - ANY AREA CERTIFIED AS ACHIEVING CLOSURE BY REMOVAL IS TO BE PROTECTED FROM CCR AND CONTACT STORMWATER, AND MAY BE FILLED AND/OR RESHAPED AS NEEDED PRIOR TO ACHIEVING FINAL GRADES.
  - ACCUMULATED CCR SHALL BE REMOVED FROM SURFACES WITHIN THE POND LIMITS SUCH THAT NO CCR REMAINS VISIBLE.
  - FOLLOWING VISUAL-CLEAN CONDITIONS, OVER-EXCAVATE THE REMOVAL FOOTPRINT BY AT LEAST SIX INCHES.
  - VISUAL INSPECTION AND TARGETED SUBGRADE VISUAL SAMPLING TO BE OVERSEEN BY OWNER'S ENGINEER REPRESENTATIVE. SAMPLING TO BE PERFORMED AT A FREQUENCY OF AT LEAST ONE TEST PER ACRE. TARGETED SAMPLING TO CONSIST OF HAND-DUG HOLES AT LEAST SIX INCHES DEEP.
  - EXCAVATION OF SLOPES STEEPER THAN 2:1 SHALL BE SEQUENCED SUCH THAT THE SLOPES CAN BE EXCAVATED, INSPECTED, AND BACKFILLED IN THE SHORTEST TIME POSSIBLE. BACKFILL SLOPES WITH CLEAN SOIL FILL AT NO STEEPER THAN 2:1.
  - EXCAVATED CCR AND SOIL-CCR MIXTURES SHALL BE CONSOLIDATED IN NORTH ASH POND OR TAKEN TO AN OFF-SITE DISPOSAL FACILITY AS DIRECTED BY DOMINION.

PROJECT		CLIENT		CONSULTANT	
CLOSURE BY REMOVAL PLAN		DOMINION ENERGY		GOLDER ASSOCIATES INC.	
WEST ASH POND & EAST ASH POND		BREMO POWER STATION		2108 WEST LABURNUM AVENUE	
SOLID WASTE PERMIT No. 618		FLUVANNA COUNTY, VIRGINIA		SUITE 200	
				RICHMOND, VA 23227	
				(804) 358-7900	
				www.golder.com	
TITLE					
WEST ASH POND					
CLOSURE BY REMOVAL PLAN					
PROJECT NO.					
15-20347					
REV.	3 of 9	DRAWING			
1		CBBR-3			

SEAL																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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Six Inch Removal Area 107 was inspected by Andrew North with Golder Associates on January 30, 2020. Weather conditions were cloudy with temperatures in the low 40's.

LEGEND	
	DOMINION PROPERTY BOUNDARY
	ADJACENT PROPERTY BOUNDARY
	CCR UNIT BOUNDARY
	EXISTING TOPOGRAPHIC CONTOURS (2' INTERVALS)
	EXISTING PAVED ROAD
	EXISTING UNPAVED ROAD
	EXISTING RAILROAD
	WETLANDS
	CREEK/STREAM CENTERLINE
	LIMITS OF RIPARIAN PROTECTION AREA (PER FLUVANNA COUNTY ORDINANCE)
	APPROXIMATE EDGE OF SURFACE WATER
	LIMITS OF 100-YR FLOOD PLAIN
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	EXISTING TREE LINE
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PROJECT		CLIENT		CONSULTANT		PROJECT NO.	
CLOSURE BY REMOVAL PLAN		DOMINION ENERGY		GOLDER		15-20347	
WEST ASH POND & EAST ASH POND		BREMO POWER STATION		2108 WEST LABURNUM AVENUE		DRAWING	
SOLID WASTE PERMIT No. 618		FLUVANNA COUNTY, VIRGINIA		SUITE 200		CBR-3	
TITLE		CONSULTANT		GOLDER ASSOCIATES INC.		PROJECT NO.	
WEST ASH POND				2108 WEST LABURNUM AVENUE		15-20347	
CLOSURE BY REMOVAL PLAN				SUITE 200		DRAWING	
				RICHMOND, VA 23227		CBR-3	
				(804) 358-7900		PROJECT NO.	
				www.golder.com		15-20347	
REV.		PROJECT		CONSULTANT		PROJECT NO.	
1		CLOSURE BY REMOVAL PLAN		GOLDER		15-20347	
		WEST ASH POND & EAST ASH POND		2108 WEST LABURNUM AVENUE		DRAWING	
		SOLID WASTE PERMIT No. 618		SUITE 200		CBR-3	
		TITLE		GOLDER ASSOCIATES INC.		PROJECT NO.	
		CONSULTANT		2108 WEST LABURNUM AVENUE		15-20347	
				SUITE 200		DRAWING	
				RICHMOND, VA 23227		CBR-3	
				(804) 358-7900		PROJECT NO.	
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REV.		PROJECT		CONSULTANT		PROJECT NO.	
1		CLOSURE BY REMOVAL PLAN		GOLDER		15-20347	
		WEST ASH POND & EAST ASH POND		2108 WEST LABURNUM AVENUE		DRAWING	
		SOLID WASTE PERMIT No. 618		SUITE 200		CBR-3	
		TITLE		GOLDER ASSOCIATES INC.		PROJECT NO.	
		CONSULTANT		2108 WEST LABURNUM AVENUE		15-20347	
				SUITE 200		DRAWING	
				RICHMOND, VA 23227		CBR-3	
				(804) 358-7900		PROJECT NO.	
				www.golder.com		15-20347	
REV.		PROJECT		CONSULTANT		PROJECT NO.	
1		CLOSURE BY REMOVAL PLAN		GOLDER		15-20347	
		WEST ASH POND & EAST ASH POND		2108 WEST LABURNUM AVENUE		DRAWING	
		SOLID WASTE PERMIT No. 618		SUITE 200		CBR-3	
		TITLE		GOLDER ASSOCIATES INC.		PROJECT NO.	
		CONSULTANT		2108 WEST LABURNUM AVENUE		15-20347	
				SUITE 200		DRAWING	
				RICHMOND, VA 23227		CBR-3	
				(804) 358-7900		PROJECT NO.	
				www.golder.com		15-20347	
REV.		PROJECT		CONSULTANT		PROJECT NO.	
1		CLOSURE BY REMOVAL PLAN		GOLDER		15-20347	
		WEST ASH POND & EAST ASH POND		2108 WEST LABURNUM AVENUE		DRAWING	
		SOLID WASTE PERMIT No. 618		SUITE 200		CBR-3	
		TITLE		GOLDER ASSOCIATES INC.		PROJECT NO.	
		CONSULTANT		2108 WEST LABURNUM AVENUE		15-20347	
				SUITE 200		DRAWING	
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REV.		PROJECT		CONSULTANT		PROJECT NO.	
1		CLOSURE BY REMOVAL PLAN		GOLDER		15-20347	
		WEST ASH POND & EAST ASH POND		2108 WEST LABURNUM AVENUE		DRAWING	
		SOLID WASTE PERMIT No. 618		SUITE 200		CBR-3	
		TITLE		GOLDER ASSOCIATES INC.		PROJECT NO.	
		CONSULTANT		2108 WEST LABURNUM AVENUE		15-20347	
				SUITE 200		DRAWING	
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REV.		PROJECT		CONSULTANT		PROJECT NO.	
1		CLOSURE BY REMOVAL PLAN		GOLDER		15-20347	
		WEST ASH POND & EAST ASH POND		2108 WEST LABURNUM AVENUE		DRAWING	
		SOLID WASTE PERMIT No. 618		SUITE 200		CBR-3	
		TITLE		GOLDER ASSOCIATES INC.		PROJECT NO.	
		CONSULTANT		2108 WEST LABURNUM AVENUE		15-20347	
				SUITE 200		DRAWING	
				RICHMOND, VA 23227		CBR-3	
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REV.		PROJECT		CONSULTANT		PROJECT NO.	
1		CLOSURE BY REMOVAL PLAN		GOLDER		15-20347	
		WEST ASH POND & EAST ASH POND		2108 WEST LABURNUM AVENUE		DRAWING	
		SOLID WASTE PERMIT No. 618		SUITE 200		CBR-3	
		TITLE		GOLDER ASSOCIATES INC.		PROJECT NO.	
		CONSULTANT		2108 WEST LABURNUM AVENUE		15-20347	
				SUITE 200		DRAWING	
				RICHMOND, VA 23227		CBR-3	
				(804) 358-7900		PROJECT NO.	
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REV.		PROJECT		CONSULTANT		PROJECT NO.	
1		CLOSURE BY REMOVAL PLAN		GOLDER		15-20347	
		WEST ASH POND & EAST ASH POND		2108 WEST LABURNUM AVENUE		DRAWING	
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		CONSULTANT		2108 WEST LABURNUM AVENUE		15-20347	
				SUITE 200		DRAWING	
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1		CLOSURE BY REMOVAL PLAN		GOLDER		15-20347	
		WEST ASH POND & EAST ASH POND		2108 WEST LABURNUM AVENUE		DRAWING	
		SOLID WASTE PERMIT No. 618		SUITE 200		CBR-3	
		TITLE		GOLDER ASSOCIATES INC.		PROJECT NO.	
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				SUITE 200		DRAWING	
				RICHMOND, VA 23227		CBR-3	
				(804) 358-7900		PROJECT NO.	
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1		CLOSURE BY REMOVAL PLAN		GOLDER		15-20347	
		WEST ASH POND & EAST ASH POND		2108 WEST LABURNUM AVENUE		DRAWING	
		SOLID WASTE PERMIT No. 618		SUITE 200		CBR-3	
		TITLE		GOLDER ASSOCIATES INC.		PROJECT NO.	
		CONSULTANT		2108 WEST LABURNUM AVENUE		15-20347	
				SUITE 200		DRAWING	
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				(804) 358-7900		PROJECT NO.	
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		SOLID WASTE PERMIT No. 618		SUITE 200		CBR-3	
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		CONSULTANT		2108 WEST LABURNUM AVENUE		15-20347	
				SUITE 200		DRAWING	
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		SOLID WASTE PERMIT No. 618		SUITE 200		CBR-3	
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		CONSULTANT		2108 WEST LABURNUM AVENUE		15-20347	
				SUITE 200		DRAWING	
				RICHMOND, VA 23227		CBR-3	
				(804) 358-7900		PROJECT NO.	
				www.golder.com		15-20347	
REV.		PROJECT		CONSULTANT		PROJECT NO.	
1		CLOSURE BY REMOVAL PLAN		GOLDER		15-20347	
		WEST ASH POND & EAST ASH POND		2108 WEST LABURNUM AVENUE		DRAWING	
		SOLID WASTE PERMIT No. 618		SUITE 200		CBR-3	
		TITLE		GOLDER ASSOCIATES INC.		PROJECT NO.	
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				RICHMOND, VA 23227		CBR-3	
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		TITLE		GOLDER ASSOCIATES INC.			



# SURFACE IMPOUNDMENT CLOSURE PLAN

*Bremo Power Station – West and East Ash Ponds*

*Permit #618*

Submitted to:



## **Bremo Power Station**

1038 Bremo Road  
Bremo Bluff, VA 23022

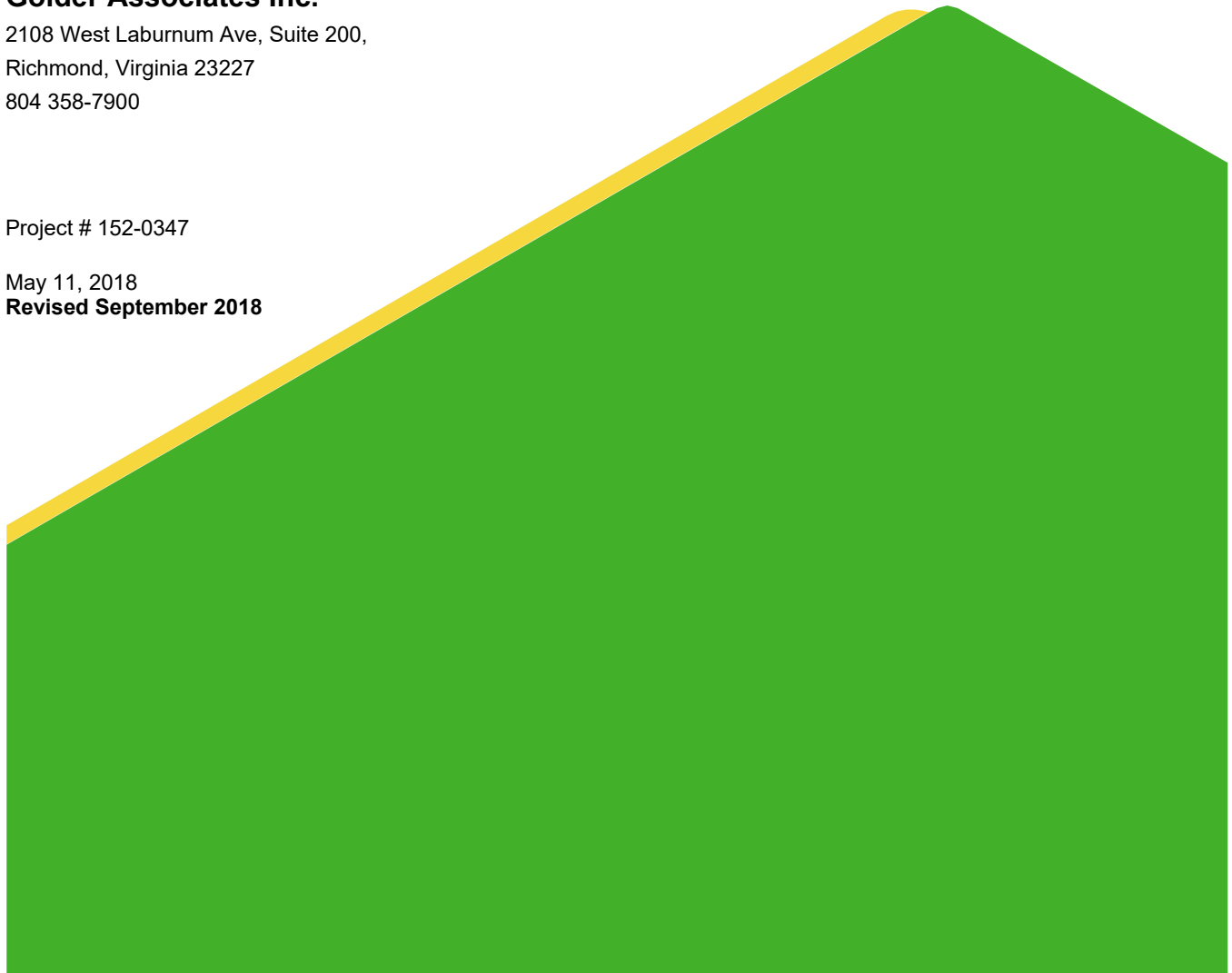
Submitted by:

## **Golder Associates Inc.**

2108 West Laburnum Ave, Suite 200,  
Richmond, Virginia 23227  
804 358-7900

Project # 152-0347

May 11, 2018  
**Revised September 2018**





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## Tables

Table 1	Closure Schedule
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## Attachments

Attachment 1	Closure by Removal Drawings
Attachment 2	Closure Cost Estimate



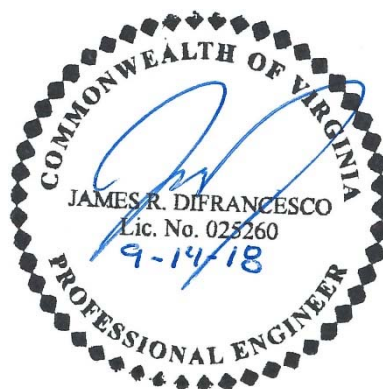
## 1.0 PLAN CERTIFICATION

This Closure Plan for the Bremo Power Station's West Ash Pond (WAP) and East Ash Pond (EAP) was prepared by Golder Associates Inc. (Golder). The document and Certification/Statement of Professional Opinion are based on and limited to information that Golder has relied on from Dominion Energy and others, but not independently verified, as well as work products produced by Golder.

On the basis of and subject to the foregoing, it is my professional opinion as a Professional Engineer licensed in the Commonwealth of Virginia that this document has been prepared in accordance with good and accepted engineering practices as exercised by other engineers practicing in the same discipline(s), under similar circumstances, at the same time, and in the same locale. It is my professional opinion that the document was prepared consistent with the requirements in §257.102 of the United States Environmental Protection Agency's "Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments," published in the Federal Register on April 17, 2015, with an effective date of October 19, 2015 (40 CFR §257.102), as well as with the requirements in §257.100 resulting from the EPA's "Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals From Electric Utilities; Extension of Compliance Deadlines for Certain Inactive Surface Impoundments; Response to Partial Vacatur" published in the Federal Register on August 5, 2016 with an effective date of October 4, 2016 (40 CFR §257.100).

The use of the word "certification" and/or "certify" in this document shall be interpreted and construed as a Statement of Professional Opinion, and is not and shall not be interpreted or construed as a guarantee, warranty, or legal opinion.

Ron DiFrancesco, P. E.  
Printed Name of Professional Engineer



025260  
Commonwealth of Virginia License No.

\_\_\_\_\_  
Signature and Date



## 2.0 INTRODUCTION

This Closure Plan (Plan) was prepared for the Bremo Power Station's (Station) inactive Coal Combustion Residuals (CCR) surface impoundments, the West Ash Pond (WAP) and East Ash Pond (EAP). This Closure Plan was prepared in accordance with 40 CFR Part §257, Subpart D and is consistent with the requirements of 40 CFR §257.102 for closure of CCR surface impoundments, 40 CFR §257.100(e)(6)(i), and Virginia Solid Waste Management Regulations 9 VAC20-81-800. The Station, owned and operated by Virginia Electric and Power Company d/b/a Dominion Energy Virginia (Dominion), is located in Bremo Bluff, Virginia at 1038 Bremo Road, north of the James River.

The WAP and EAP are being closed as CCR surface impoundments under the CCR rule provisions at 40 CFR §257. The ponds will be closed by removal of CCR pursuant to 40 CFR §257.102(c). All elevations noted in this document, unless stated otherwise, are in feet relative to the North American Vertical Datum of 1988 (NAVD-88).

## 2.1 General Impoundment Information

### 2.1.1 West Ash Pond

The WAP is approximately 17 acres in size and was used as a water treatment pond to settle and manage low-volume wastewaters, including CCR. In 2014, the Station converted from a coal-fired power plant to a natural gas-fired power plant. No new CCR has been placed in the WAP after the conversion. The WAP contained approximately 327,000 cubic yards (CY) of CCR prior to the start of excavation activities.

The WAP is regulated under the following permits:

- Virginia Department of Environmental Quality (DEQ) Virginia Pollutant Discharge Elimination System (VPDES) Permit No. VA0004138
- DEQ VPDES Construction General Permit No. VAR10H875
- Virginia Department of Conservation and Recreation (DCR) Operation and Maintenance Certificate, Inventory No. 06511

### 2.1.2 East Ash Pond

The EAP is an approximately 26.5-acre impoundment that was used for the storage of CCR from the Bremo Power Station. The pond was placed into service in the 1930's and was capped with soil fill in the mid-1980's except for the eastern portion of the pond, which remained wet, allowing pass-through of drainage from the adjacent area to the north. The EAP contained approximately 1,800,000 cubic yards (CY) of CCR prior to the start of excavation activities.



The EAP is regulated under the following permits:

- Virginia Department of Environmental Quality (DEQ) Virginia Pollutant Discharge Elimination System (VPDES) Permit No. VA0004138
- DEQ VPDES Construction General Permit No. VAR10H875
- Virginia Department of Conservation and Recreation (DCR) Operation and Maintenance Certificate, Inventory No. 00815

### 3.0 CLOSURE IMPLEMENTATION

#### 3.1 Overview of Closure Approach

This plan provides for the closure of the WAP and EAP by removal of the CCR material. Closure is considered complete under 40 CFR 257.102 and 9 VAC20-81-810 when:

1. A Professional Engineer licensed in the Commonwealth of Virginia certifies all CCR has been removed from the units followed by an over-excavation of approximately 6 inches of soil.
2. The unit's downgradient groundwater monitoring wells do not exhibit levels in excess of a maximum contaminant limit (MCL) or established groundwater protection standard for any CCR Appendix IV constituent *after a minimum of ten sampling events have occurred after CCR material has been verified as removed by a professional engineer licensed in Virginia.*

At the time of writing, the majority of CCR in the ponds has been relocated to the North Ash Pond (NAP). Final CCR removal will either be consolidated in the NAP, or disposed of in a designated off-site facility. After completing the removal of CCR from the WAP, the embankments will be stabilized and/or removed and the remaining former pond area will be re-graded and left as a grassy open area. After completing the removal of CCR from the EAP, the embankments will be stabilized and the area will be repurposed as the East Stormwater Management Pond. In addition, a discrete area of fugitive CCR has been identified along the southern portion of the EAP embankment. This area will be further characterized and the residual CCR will be removed as part of the EAP closure.

During and after closure, the existing network of groundwater monitoring wells will be sampled and tested to determine the monitored constituent concentrations required in 40 CFR §257 Appendix IV.

### 4.0 CLOSURE TIMEFRAMES

Table 1 below outlines the estimated sequence of scheduled closure activities.

**Table 1: Closure Schedule**

Activity	Tentative Date
Completion of CCR Removal	By October 2018
Completion of Closure Construction	By January 2019
Certification of Construction Completion	By April 2019



Closure is considered complete when the elements of this Closure Plan specified above have been performed, as certified by a Professional Engineer licensed in the Commonwealth of Virginia. This certification will be included as part of a closure certification report. In accordance with 40 CFR §257.102(h), Dominion will prepare a notification of closure of the CCR unit within 30 days of completion of closure, and place the notification in the operating record.

## **5.0 INVENTORY REMOVAL AND DISPOSAL**

### **5.1 Waste Removal, Decontamination and Disposal**

The protocol for closure by removal of materials within the EAP and WAP will involve removing accumulated CCR such that no residual materials remain visible, followed by over-excavating the removal footprint by approximately 6 inches. Removed CCR and CCR-mixed soil will either be consolidated in the NAP or taken to an off-site disposal facility. To facilitate stormwater management, construction, and/or structural stabilization of embankments or excavations, closure by removal of areas within the ponds may be achieved in phases. Phased closures may be sequenced as necessary to support traffic patterns, stormwater controls, etc.

Material removal against embankments may involve excavation of the upstream embankment face to a near-vertical condition. Immediately after excavation and inspection of these areas for certification, fill soil will be placed and compacted against the embankment to re-establish stable slopes of no steeper than 2 horizontal to 1 vertical (2H:1V). For rock, existing concrete designated to remain, or other similar hard surfaces (e.g. pipes or foundation supports to remain), the surface will be cleaned to a visually-clean condition through mechanical means such as pressure washing. The soils surrounding said hard areas will be removed to the 6-inch over-excavation criterion. After CCR removal and certification, the WAP will be graded to drain. Vegetative stabilization will be established to prevent erosion. The area will be maintained as a grassy open area. After CCR removal and certification in the EAP, the pond subgrade will be shaped and modifications will be made to the existing outlet structure. Vegetative stabilization will be established to prevent erosion.

### **5.2 Sampling and Testing Program**

After removal of the 6-inch over-excavation material, the area will be visually inspected to verify the CCR and over-excavation has been achieved. The ponds will be further inspected by targeted soil cores for visual inspection to a depth of at least 6 inches at a frequency of at least one core per acre. The soil cores will be dug by hand, using a hand auger or similar tool, and be a minimum of 6-inches deep.

Verification surveys of the pond closure will be prepared by a Commonwealth of Virginia-licensed Land Surveyor and will consist of a survey of the “visually clean” surface and a survey of the “over-excavation”



surface to verify the minimum 6-inch removal. Certification of the closure by removal will be provided by a Commonwealth of Virginia-licensed Professional Engineer.

Groundwater monitoring will be conducted in accordance with the approved Groundwater Monitoring Plan to meet the closure by removal standard set forth in 40 CFR 257.102(c) and the Virginia Solid Waste Management Regulations.

### 5.3 Other Areas

During the evaluation of the nature and extent of CCRs in and around the EAP, a thin area of residual CCR material was identified along a portion of the toe of the East Pond embankment. Additional permits from the Corps of Engineers and Fluvanna County may be required to authorize removal of materials in this area, and Dominion will obtain all necessary permits prior to performing removal activities in this area. The identified materials will be removed to a visually clean condition and relocated to the North Pond. Verification and documentation of the removal will be provided by a Virginia-licensed Professional Engineer. After removal and verification, the vegetation in the area will be restored with equivalent vegetation as per the applicable permits.

## 6.0 CLOSURE OF SUPPORT PONDS AND BASINS

There are no supporting ponds or basins associated with the WAP or EAP.

## 7.0 CLOSURE IMPLEMENTATION

### 7.1 Posting

One sign will be posted at the site entrance to each pond notifying all persons of the final closure and prohibition against further receipt of CCR. Unauthorized access to the site will be controlled by natural barriers or lockable gates across the access roads.

### 7.2 Certification

Upon completion of closure construction, a certification statement signed by a licensed Professional Engineer will be placed in the operating record and submitted to the DEQ along with the documentation from the Sampling and Testing Program. The certification statement shall read as follows:

**I certify that closure has been completed in accordance with the Closure Plan dated [DATE] for solid waste permit number 618 issued to Dominion, with the exception of the following discrepancies: [To Be Determined]**

**In addition, a sign(s) was (were) posted on [DATE] at the site entrance notifying all persons of the closing [and state other notification procedures if applicable] and**



**barriers [indicate type] were installed at [location] to prevent new waste from being deposited.**

**[Signature, date and stamp of Professional Engineer]**

### **7.3 Post-Closure Uses**

No post-closure use of the WAP area is proposed. The EAP will be repurposed as the East Stormwater Management Pond for stormwater and low volume wastewaters from the Station.

### **8.0 CLOSURE COST ESTIMATE**

The closure cost estimate for the WAP and EAP is \$18,041,661. This estimated amount covers the remaining excavation, inspection, testing, and certification as proposed in this Plan.



DOMINION ENERGY

# BREMO POWER STATION

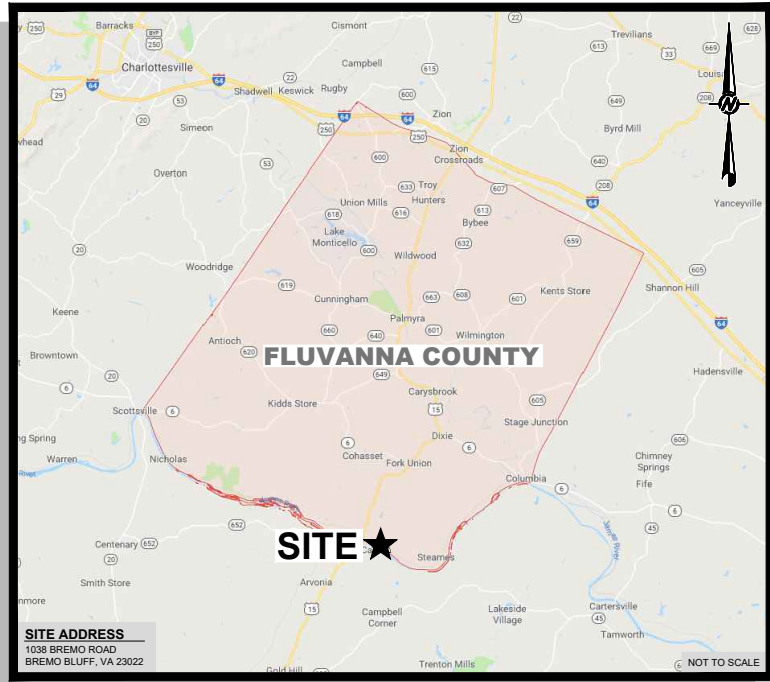
## CLOSURE BY REMOVAL PLAN

### WEST ASH POND & EAST ASH POND

### SOLID WASTE PERMIT No. 618

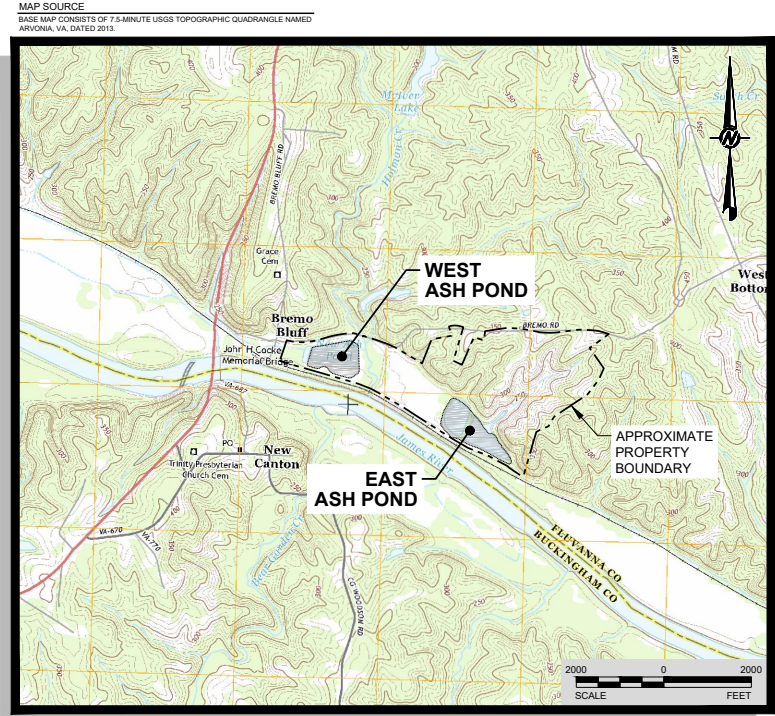
### FLUVANNA COUNTY, VIRGINIA

### SEPTEMBER 2018



VICINITY MAP

DRAWING INDEX	
DRAWING No.	DRAWING TITLE
CBR-1	COVER SHEET
CBR-2	WEST ASH POND PRE-CLOSURE TOPOGRAPHY (APPROXIMATE BOTTOM OF POND)
CBR-3	WEST ASH POND CLOSURE BY REMOVAL PLAN
CBR-4	WEST ASH POND CONCEPTUAL FINAL GRADING PLAN
CBR-5	WEST ASH POND CROSS-SECTIONS
CBR-6	EAST ASH POND PRE-CLOSURE TOPOGRAPHY (APPROXIMATE BOTTOM OF POND)
CBR-7	EAST ASH POND CLOSURE BY REMOVAL PLAN
CBR-8	EAST ASH POND CONCEPTUAL FINAL GRADING PLAN
CBR-9	EAST ASH POND CROSS-SECTIONS



SITE LOCATION MAP

PREPARED BY:



GOLDER ASSOCIATES, INC.  
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CLIENT  
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BREMO POWER STATION  
FLUVANNA COUNTY, VIRGINIA

CONSULTANT  
GOLDER ASSOCIATES, INC.  
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RICHMOND, VA 23227  
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**GOLDER**

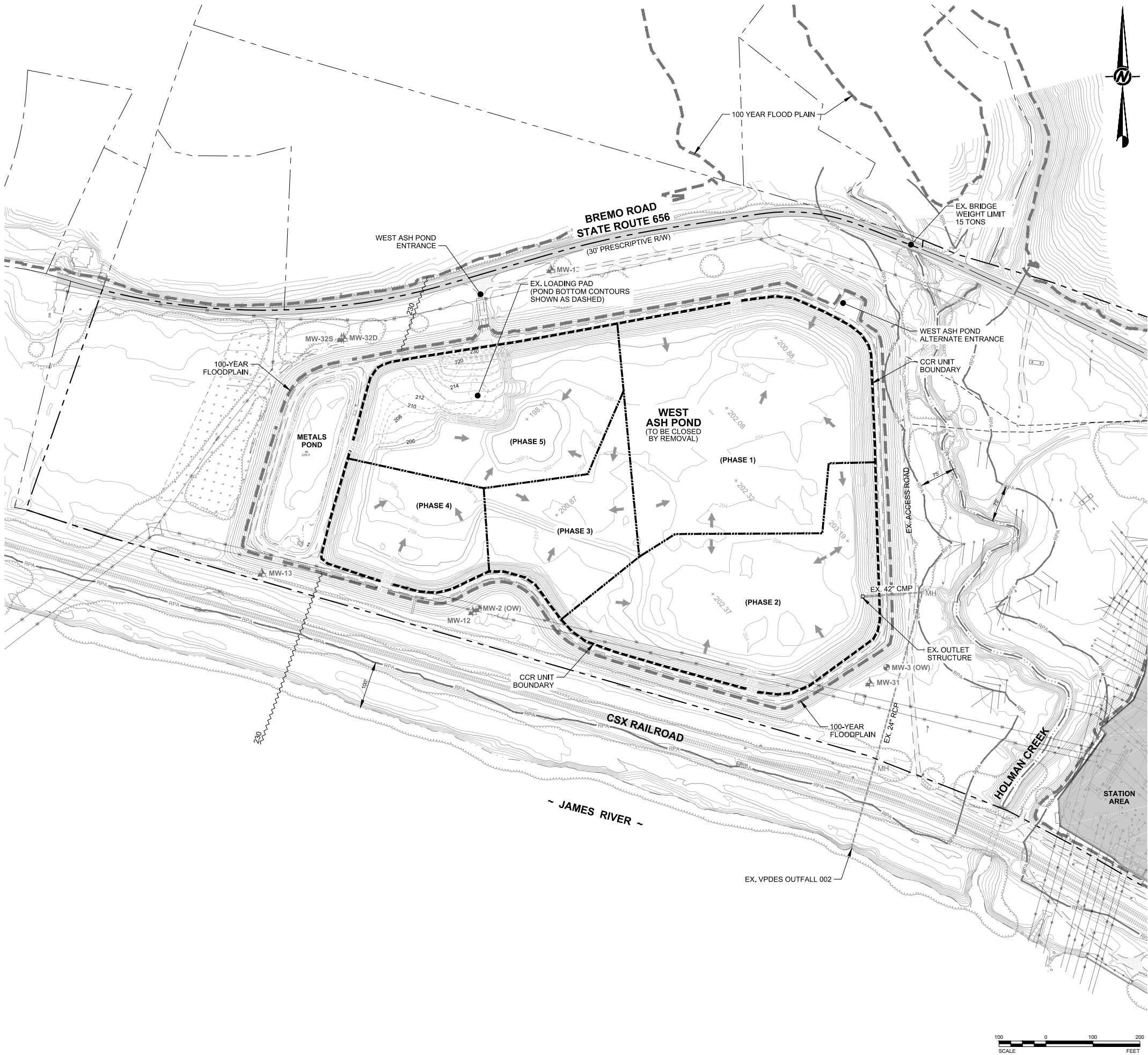
PROJECT  
CLOSURE BY REMOVAL PLAN  
WEST ASH POND & EAST ASH POND  
SOLID WASTE PERMIT No. 618

TITLE  
**COVER SHEET**

PROJECT NO.  
15-20347



Path: G:\Plan Production Data Files\Drawing Data Files\15-20347\DWG - EAP and WAP Closure by Removal\Active Drawings\1520347D0A.MXD.dwg



LEGEND	
	DOMINION PROPERTY BOUNDARY
	ADJACENT PROPERTY BOUNDARY
	CCR UNIT BOUNDARY
	EXISTING TOPOGRAPHIC CONTOURS (2' INTERVALS)
	EXISTING PAVED ROAD
	EXISTING UNPAVED ROAD
	EXISTING RAILROAD
	WETLANDS
	CREEK/STREAM CENTERLINE
	LIMITS OF RIPARIAN PROTECTION AREA (PER FLUVANNA COUNTY ORDINANCE)
	APPROXIMATE EDGE OF SURFACE WATER
	LIMITS OF 100-YR FLOOD PLAIN
	BASE FLOOD ELEVATION (100-YEAR, SEE NOTE 4)
	EXISTING TREE LINE
	EXISTING FENCE
	EXISTING OVERHEAD UTILITY LINE
	EXISTING MONITORING WELL LOCATION AND IDENTIFICATION (CCR RULE)
	EXISTING OBSERVATION WELL LOCATION AND IDENTIFICATION
	EXISTING MANHOLE
	EXISTING SURFACE WATER FLOW DIRECTION

- GENERAL NOTES**
- EXISTING CONDITIONS COMPILED FROM:
    - AERIAL TOPOGRAPHIC SURVEY PREPARED BY MCKENZIE SNYDER, INC., DATE OF AERIAL PHOTO: 1/16/15 [CONTROL PREPARED BY H&B SURVEYING & MAPPING (H&B)]
    - BOUNDARY SURVEY PREPARED BY H&B SURVEYING AND MAPPING, LLC DATED 04/27/15.
    - EXISTING TOPOGRAPHY WITHIN THE LIMITS OF THE WEST ASH POND BASED ON FIELD SURVEY BY H&B SURVEYING AND MAPPING DATED 07/06/17. TOPO REPRESENTS THE BOTTOM OF POND.
  - SITE DATUM: NAD83 / NAVD88
  - WETLAND DELINEATION BY DOMINION ENVIRONMENTAL SERVICES ON 01/30/15 & 02/05/15 AND BY GOLDER ASSOCIATES ON 03/16/15 & 03/25/15. WATERS OF THE U.S. CONFIRMED BY THE USACE DURING JUNE 4, 2015 SITE VISIT.
  - 100 YEAR FLOOD PLAIN DELINEATION BASED ON FLOOD ELEVATION DATA REPRESENTED ON FEMA FLOOD INSURANCE RATE MAP (FIRM), MAP NUMBER 51065C0260C, EFFECTIVE DATE: 05/16/2008.
  - THE MAJORITY OF WATER AND ASH HAS BEEN REMOVED FROM THE WEST ASH POND, AND ONLY MANAGED CONTACT STORMWATER IS PRESENT.



CLIENT  
DOMINION ENERGY  
BREMO POWER STATION  
FLUVANNA COUNTY, VIRGINIA

CONSULTANT  
GOLDER ASSOCIATES INC.  
2108 WEST LABURNUM AVENUE  
SUITE 200  
RICHMOND, VA 23227  
(804) 388-7900  
www.golder.com

**GOLDER**

PROJECT  
CLOSURE BY REMOVAL PLAN  
WEST ASH POND & EAST ASH POND  
SOLID WASTE PERMIT NO. 618

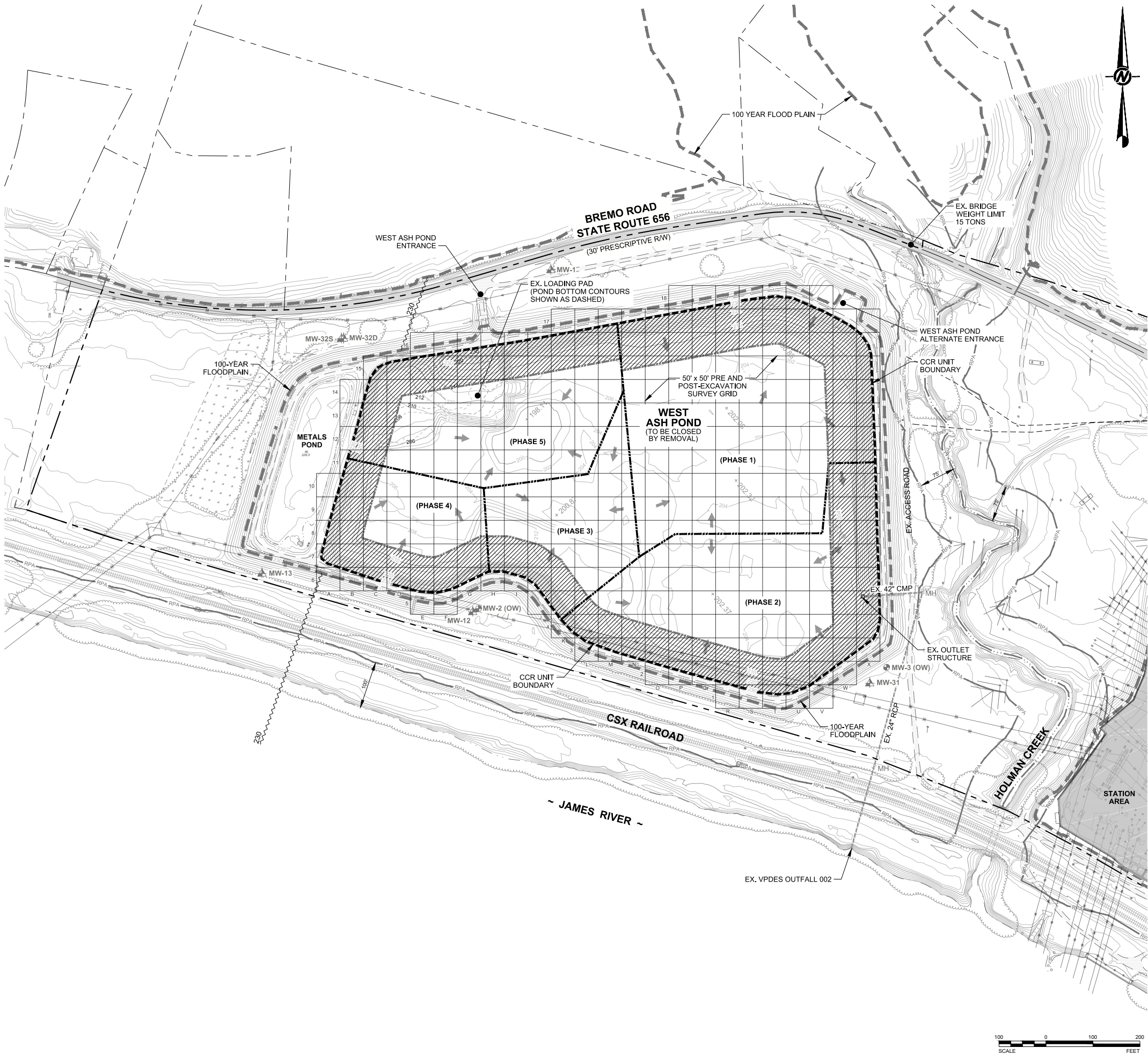
TITLE  
WEST ASH POND  
PRE-CLOSURE TOPOGRAPHY  
(APPROXIMATE BOTTOM OF POND)

PROJECT NO.  
15-20347

1" IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN ADJUSTED FROM: ARCH D



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LEGEND	
	DOMINION PROPERTY BOUNDARY
	ADJACENT PROPERTY BOUNDARY
	CCR UNIT BOUNDARY
	EXISTING TOPOGRAPHIC CONTOURS (2' INTERVALS)
	EXISTING PAVED ROAD
	EXISTING UNPAVED ROAD
	EXISTING RAILROAD
	WETLANDS
	CREEK/STREAM CENTERLINE
	LIMITS OF RIPARIAN PROTECTION AREA (PER FLUVANNA COUNTY ORDINANCE)
	APPROXIMATE EDGE OF SURFACE WATER
	LIMITS OF 100-YR FLOOD PLAIN
	BASE FLOOD ELEVATION (100-YEAR, SEE NOTE 4)
	EXISTING TREE LINE
	EXISTING FENCE
	EXISTING OVERHEAD UTILITY LINE
	EXISTING MONITORING WELL LOCATION AND IDENTIFICATION (CCR RULE)
	EXISTING OBSERVATION WELL LOCATION AND IDENTIFICATION
	EXISTING MANHOLE
	EXISTING SURFACE WATER FLOW DIRECTION
	APPROXIMATE CLEAN CLOSURE PHASE LIMITS (SUBJECT TO CHANGE BASED ON FIELD CONDITIONS DURING EXCAVATION AND MAY INCLUDE SUB-PHASES)
	DENOTES APPROXIMATE LIMITS OF CRITICAL AREAS SUBJECT TO BACKFILL FOR ACCESS AND SLOPE STABILITY

- GENERAL NOTES**
- EXISTING CONDITIONS COMPILED FROM:
    - AERIAL TOPOGRAPHIC SURVEY PREPARED BY MCKENZIE SNYDER, INC., DATE OF AERIAL PHOTO: 1/16/15 [CONTROL PREPARED BY H&B SURVEYING & MAPPING (H&B)]
    - BOUNDARY SURVEY PREPARED BY H&B SURVEYING AND MAPPING, LLC DATED 04/27/15.
    - EXISTING TOPOGRAPHY WITHIN THE LIMITS OF THE WEST ASH POND BASED ON FIELD SURVEY BY H&B SURVEYING AND MAPPING DATED 07/06/17. TOPO REPRESENTS THE BOTTOM OF POND.
  - SITE DATUM: NAD83 / NAVD88
  - WETLAND DELINEATION BY DOMINION ENVIRONMENTAL SERVICES ON 01/30/15 & 02/05/15 AND BY GOLDER ASSOCIATES ON 03/16/15 & 03/25/15. WATERS OF THE U.S. CONFIRMED BY THE USACE DURING JUNE 4, 2015 SITE VISIT.
  - 100 YEAR FLOOD PLAIN DELINEATION BASED ON FLOOD ELEVATION DATA REPRESENTED ON FEMA FLOOD INSURANCE RATE MAP (FIRM), MAP NUMBER 51065C0260C, EFFECTIVE DATE: 05/16/2008.

- CLOSURE BY REMOVAL NOTES**
- TOPOGRAPHY SHOWN WITHIN LIMITS OF THE WEST ASH POND, REPRESENTS THE POND BOTTOM BASED ON FIELD SURVEY BY H&B SURVEYING AND MAPPING DATED 07/06/17.
  - PHASED CLOSURE OF THE WEST POND MAY BE SEQUENCED AS NECESSARY TO ADDRESS ISSUES RELATED TO ACCESS AND SLOPE STABILITY, AND TO MINIMIZE CONTACT STORMWATER AREAS. SUB-PHASES MAY BE REQUIRED FOR REGULATORY APPROVAL.
  - ANY AREA CERTIFIED AS ACHIEVING CLOSURE BY REMOVAL IS TO BE PROTECTED FROM CCR AND CONTACT STORMWATER, AND MAY BE FILLED AND/OR RESHAPED AS NEEDED PRIOR TO ACHIEVING FINAL GRADES.
  - ACCUMULATED CCR SHALL BE REMOVED FROM SURFACES WITHIN THE POND LIMITS SUCH THAT NO CCR REMAINS VISIBLE.
  - FOLLOWING VISUAL-CLEAN CONDITIONS, OVER-EXCAVATE THE REMOVAL FOOTPRINT BY AT LEAST SIX INCHES.
  - VISUAL INSPECTION AND TARGETED SUBGRADE VISUAL SAMPLING TO BE OVERSEEN BY OWNER'S ENGINEER REPRESENTATIVE. SAMPLING TO BE PERFORMED AT A FREQUENCY OF AT LEAST ONE TEST PER ACRE. TARGETED SAMPLING TO CONSIST OF HAND-DUG HOLES AT LEAST SIX INCHES DEEP.
  - EXCAVATION OF SLOPES STEEPER THAN 2:1 SHALL BE SEQUENCED SUCH THAT THE SLOPES CAN BE EXCAVATED, INSPECTED, AND BACKFILLED IN THE SHORTEST TIME POSSIBLE. BACKFILL SLOPES WITH CLEAN SOIL FILL AT NO STEEPER THAN 2:1.
  - EXCAVATED CCR AND SOIL-CCR MIXTURES SHALL BE CONSOLIDATED IN NORTH ASH POND OR TAKEN TO AN OFF-SITE DISPOSAL FACILITY AS DIRECTED BY DOMINION.

CLIENT

DOMINION ENERGY

BREMO POWER STATION

FLUVANNA COUNTY, VIRGINIA

CONSULTANT

GOLDER ASSOCIATES INC.

2108 WEST LABURNUM AVENUE

SUITE 200

RICHMOND, VA 23227

(804) 388-7900

www.golder.com

PROJ. NO.

15-20347

TITLE

WEST ASH POND CLOSURE BY REMOVAL PLAN

REV.

3 of 9

DRAWING

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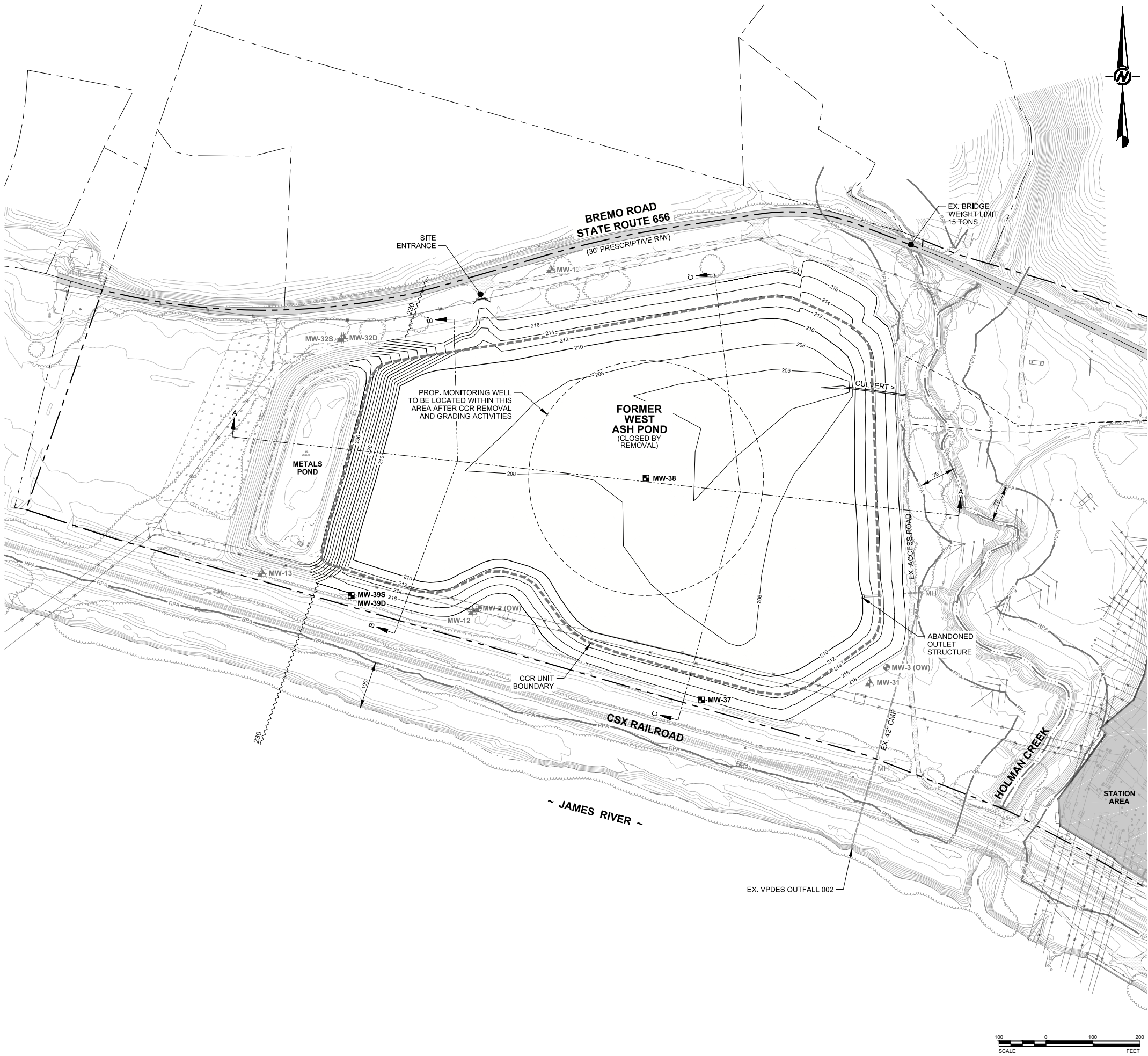
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Path: G:\Plan Production Data Files\Drawing Data Files\15-20347\DWG - EAP and WAP Closure by Removal\Active Drawings\1520347DCA\_W0405.dwg



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	PROPOSED MONITORING WELL LOCATION AND IDENTIFICATION
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  - AERIAL TOPOGRAPHIC SURVEY PREPARED BY MCKENZIE SNYDER, INC., DATE OF AERIAL PHOTO: 1/16/15 [CONTROL PREPARED BY H&B SURVEYING & MAPPING (H&B)]
  - BOUNDARY SURVEY PREPARED BY H&B SURVEYING AND MAPPING, LLC DATED 04/27/15.
- SITE DATUM: NAD83 / NAVD88
- WETLAND DELINEATION BY DOMINION ENVIRONMENTAL SERVICES ON 01/30/15 & 02/05/15 AND BY GOLDER ASSOCIATES ON 03/16/15 & 03/25/15. WATERS OF THE U.S. CONFIRMED BY THE USACE DURING JUNE 4, 2015 SITE VISIT.
- 100 YEAR FLOOD PLAIN DELINEATION BASED ON FLOOD ELEVATION DATA REPRESENTED ON FEMA FLOOD INSURANCE RATE MAP (FIRM), MAP NUMBER 51065C0260C, EFFECTIVE DATE: 05/16/2008.

## CONCEPTUAL FINAL GRADING NOTE

- CONCEPTUAL FINAL GRADING IS SHOWN FOR REFERENCE ONLY AND IS SUBJECT TO CHANGE.



CLIENT  
DOMINION ENERGY  
BREMO POWER STATION  
FLUVANNA COUNTY, VIRGINIA

CONSULTANT  
GOLDER ASSOCIATES INC.  
2108 WEST LABURNUM AVENUE  
SUITE 200  
RICHMOND, VA 23227  
(804) 358-7900  
www.golder.com

**GOLDER**

PROJECT  
CLOSURE BY REMOVAL PLAN  
WEST ASH POND & EAST ASH POND  
SOLID WASTE PERMIT NO. 618

TITLE  
WEST ASH POND  
CONCEPTUAL FINAL GRADING PLAN

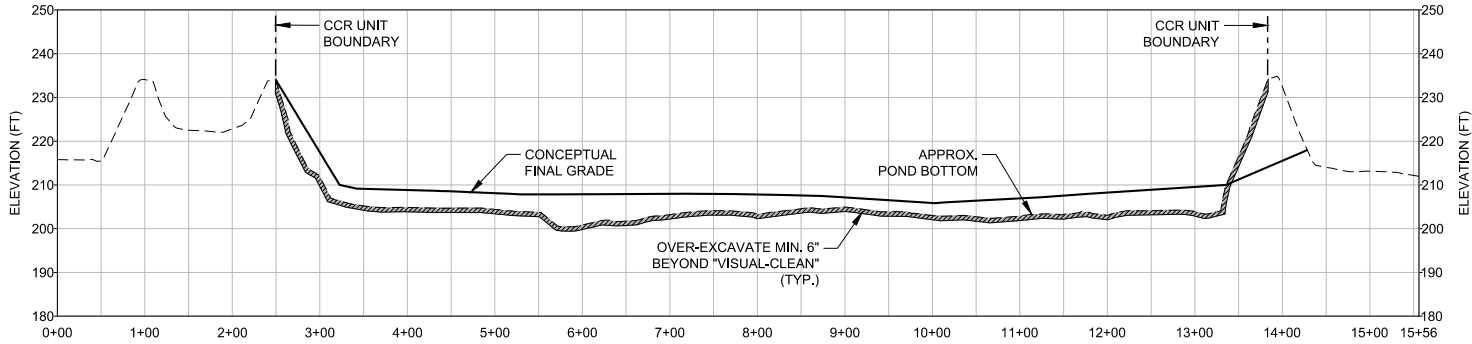
PROJECT NO.  
15-20347

REV. 1  
4 of 9  
DRAWING  
CBR-4

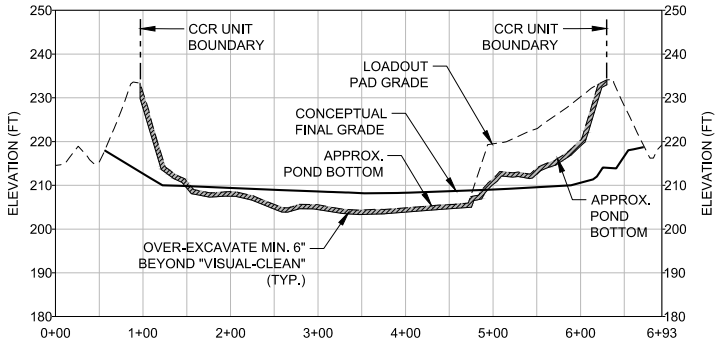
1" IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN ADJUSTED FROM: ARCH D



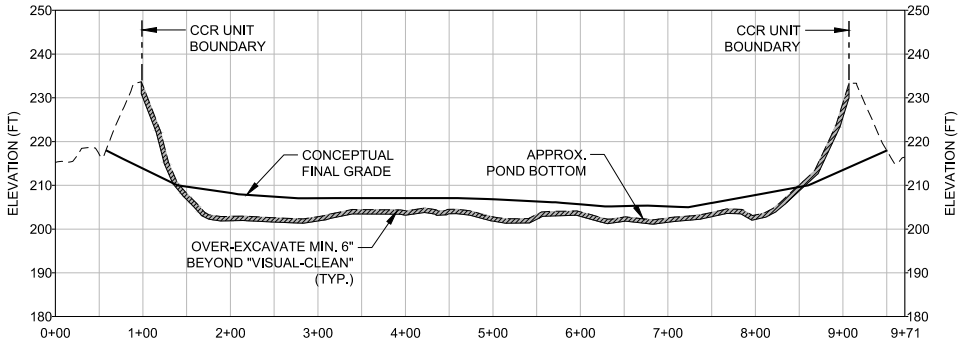
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SECTION A - A'



SECTION B - B'



SECTION C - C'



PROJECT  
CLOSURE BY REMOVAL PLAN  
WEST ASH POND & EAST ASH POND  
SOLID WASTE PERMIT No. 618

TITLE  
WEST ASH POND  
CROSS-SECTIONS

PROJECT NO.  
15-20347

CLIENT  
DOMINION ENERGY  
BREMO POWER STATION  
FLUVANNA COUNTY, VIRGINIA

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SEAL

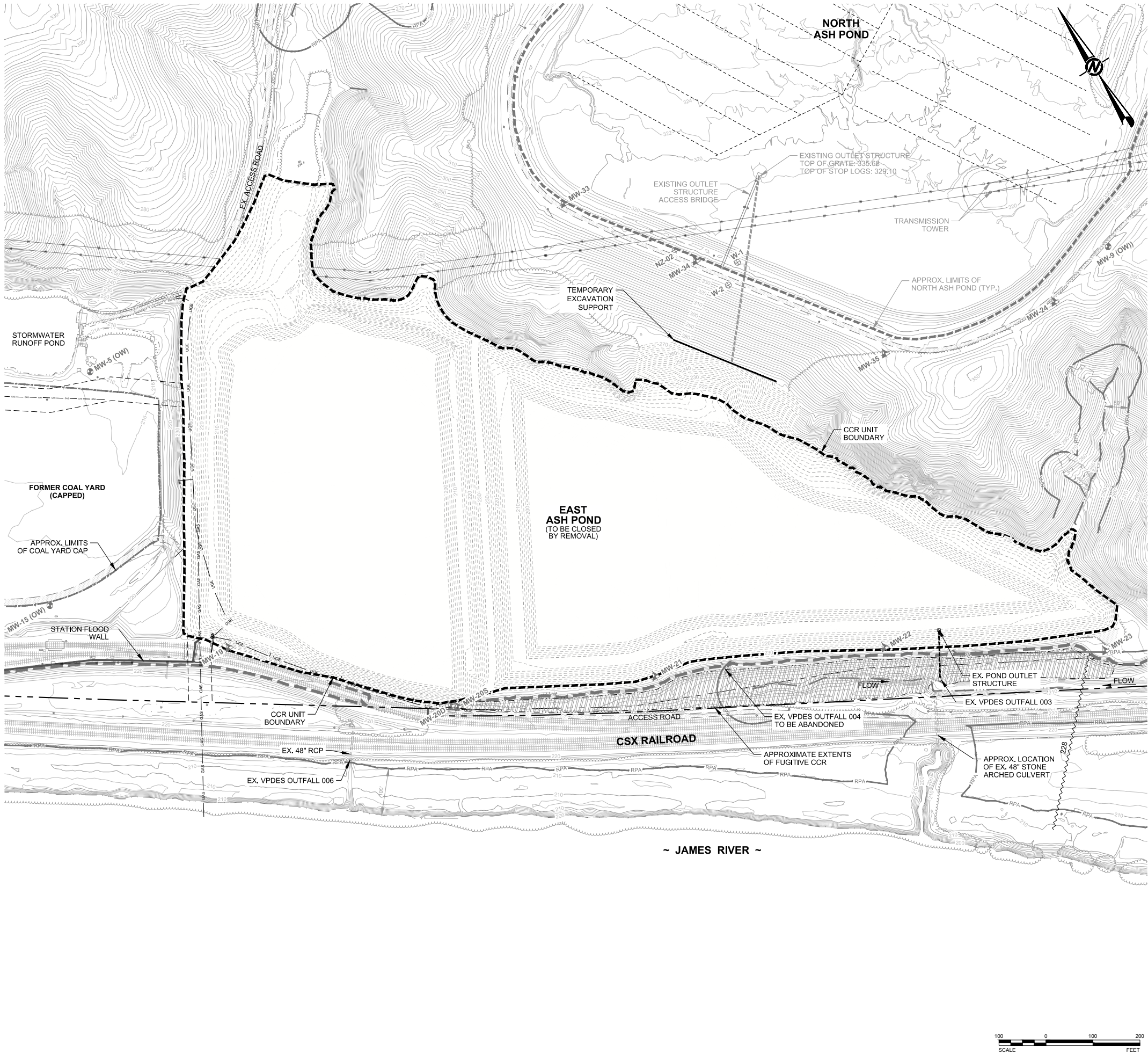


REV.	MMDDYY	DESCRIPTION	DESIGN	CADD	CHECK	REVIEW
1	09/14/18	RESPONSE TO DEQ TR COMMENTS	JRD	BPG	DPM	JRD
0	05/07/18	ISSUED FOR PERMIT	JRD	BPG	DPM	JRD

1" IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN ADJUSTED FROM: ARCH D



Path: G:\Plan Production Data Files\Drawing Data Files\15-20347\0411 - EAP and WAP Closure by Removal\Active Drawings\1520347.DWG, W06-07.dwg



## LEGEND

---	DOMINION PROPERTY BOUNDARY
- - - -	ADJACENT PROPERTY BOUNDARY
----	CCR UNIT BOUNDARY
200	EXISTING TOPOGRAPHIC CONTOURS (2' INTERVALS) (FROM AERIAL SURVEY - SEE GENERAL NOTE 1a)
200	APPROX. POND BOTTOM CONTOURS (2' INTERVALS) (SEE GENERAL NOTE 1c)
----	EXISTING UNPAVED ROAD
+++++	EXISTING RAILROAD
□	WETLANDS
----	CREEK/STREAM CENTERLINE
----	LIMITS OF RIPARIAN PROTECTION AREA (PER FLUVANNA COUNTY ORDINANCE)
----	APPROXIMATE EDGE OF SURFACE WATER
----	LIMITS OF 100-YR FLOOD PLAIN
228 ~~~~~	BASE FLOOD ELEVATION (100-YEAR, SEE NOTE 4)
~~~~~	EXISTING TREE LINE
----	EXISTING FENCE
----	EXISTING OVERHEAD UTILITY LINE
----	EXISTING UNDERGROUND ELECTRIC LINE
----	EXISTING UNDERGROUND GAS LINE
▲ MW-22	EXISTING MONITORING WELL LOCATION AND IDENTIFICATION (CCR RULE)
● MW-5 (OW)	EXISTING OBSERVATION WELL LOCATION AND IDENTIFICATION
⊕ NZ-02	EXISTING PIEZOMETER AND IDENTIFICATION
□ MH	EXISTING MANHOLE

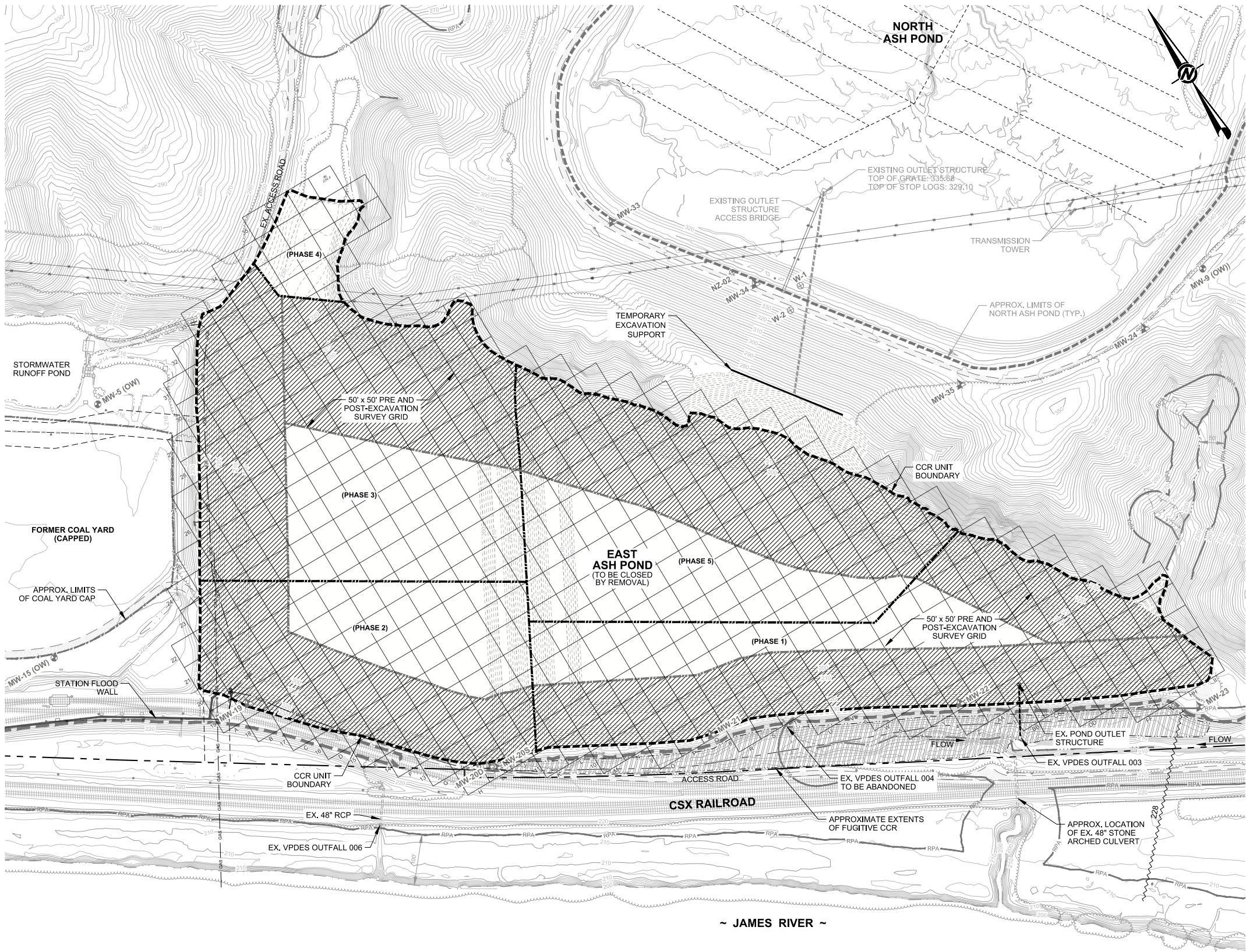
## GENERAL NOTES

- EXISTING CONDITIONS COMPILED FROM:
  - AERIAL TOPOGRAPHIC SURVEY PREPARED BY MCKENZIE SNYDER, INC., DATE OF AERIAL PHOTO: 1/16/15 [CONTROL PREPARED BY H&B SURVEYING & MAPPING (H&B)]
  - BOUNDARY SURVEY PREPARED BY H&B SURVEYING AND MAPPING, LLC DATED 04/27/15.
  - TOPOGRAPHY WITHIN THE LIMITS OF THE EAST ASH POND BASED ON THE APPROXIMATE POND BOTTOM PER HISTORICAL INFORMATION.
- SITE DATUM: NAD83 / NAVD88
- WETLAND DELINEATION BY DOMINION ENVIRONMENTAL SERVICES ON 01/30/15 & 02/05/15 AND BY GOLDER ASSOCIATES ON 03/16/15 & 03/25/15. WATERS OF THE U.S. CONFIRMED BY THE USACE DURING JUNE 4, 2015 SITE VISIT.
- 100 YEAR FLOOD PLAIN DELINEATION BASED ON FLOOD ELEVATION DATA REPRESENTED ON FEMA FLOOD INSURANCE RATE MAP (FIRM), MAP NUMBER 51065C0260C, EFFECTIVE DATE: 05/16/2008.
- THE MAJORITY OF WATER AND ASH HAS BEEN REMOVED FROM THE EAST ASH POND, AND ASH REMOVAL ACTIVITIES ARE ONGOING.





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## LEGEND

	DOMINION PROPERTY BOUNDARY
	ADJACENT PROPERTY BOUNDARY
	CCR UNIT BOUNDARY
	EXISTING TOPOGRAPHIC CONTOURS (2' INTERVALS) (FROM AERIAL SURVEY - SEE GENERAL NOTE 1a)
	APPROX. POND BOTTOM CONTOURS (2' INTERVALS) (SEE GENERAL NOTE 1c)
	EXISTING UNPAVED ROAD
	EXISTING RAILROAD
	WETLANDS
	CREEK/STREAM CENTERLINE
	LIMITS OF RIPARIAN PROTECTION AREA (PER FLUVANNA COUNTY ORDINANCE)
	APPROXIMATE EDGE OF SURFACE WATER
	LIMITS OF 100-YR FLOOD PLAIN
	BASE FLOOD ELEVATION (100-YEAR, SEE NOTE 4)
	EXISTING TREE LINE
	EXISTING FENCE
	EXISTING OVERHEAD UTILITY LINE
	EXISTING UNDERGROUND ELECTRIC LINE
	EXISTING UNDERGROUND GAS LINE
	EXISTING MONITORING WELL LOCATION AND IDENTIFICATION (CCR RULE)
	EXISTING OBSERVATION WELL LOCATION AND IDENTIFICATION
	EXISTING PIEZOMETER AND IDENTIFICATION
	EXISTING MANHOLE
	APPROXIMATE CLEAN CLOSURE PHASE LIMITS (SUBJECT TO CHANGE BASED ON FIELD CONDITIONS DURING EXCAVATION AND MAY INCLUDE SUB-PHASES)
	DENOTES APPROXIMATE LIMITS OF CRITICAL AREAS SUBJECT TO BACKFILL FOR ACCESS AND SLOPE STABILITY

## GENERAL NOTES

- EXISTING CONDITIONS COMPILED FROM:
  - AERIAL TOPOGRAPHIC SURVEY PREPARED BY MCKENZIE SNYDER, INC., DATE OF AERIAL PHOTO: 1/16/15 [CONTROL PREPARED BY H&B SURVEYING & MAPPING (H&B)]
  - BOUNDARY SURVEY PREPARED BY H&B SURVEYING AND MAPPING, LLC DATED 04/27/15.
  - TOPOGRAPHY WITHIN THE LIMITS OF THE EAST ASH POND BASED ON THE APPROXIMATE POND BOTTOM PER HISTORICAL INFORMATION.
- SITE DATUM: NAD83 / NAVD88
- WETLAND DELINEATION BY DOMINION ENVIRONMENTAL SERVICES ON 01/30/15 & 02/05/15 AND BY GOLDER ASSOCIATES ON 03/16/15 & 03/25/15. WATERS OF THE U.S. CONFIRMED BY THE USACE DURING JUNE 4, 2015 SITE VISIT.
- 100 YEAR FLOOD PLAIN DELINEATION BASED ON FLOOD ELEVATION DATA REPRESENTED ON FEMA FLOOD INSURANCE RATE MAP (FIRM), MAP NUMBER 51065C0260C, EFFECTIVE DATE: 05/16/2008.

## CLOSURE BY REMOVAL NOTES

- TOPOGRAPHY SHOWN WITHIN LIMITS OF THE EAST ASH POND REPRESENTS THE APPROXIMATE BOTTOM BASED ON HISTORIC DRAWINGS AND FIELD INFORMATION. FOR REFERENCE ONLY.
- PHASED CLOSURE OF EAST ASH POND MAY BE SEQUENCED AS NECESSARY TO SUPPORT CONSTRUCTION AND MAY INCLUDE SUB-PHASES FOR REGULATORY APPROVAL TO SUPPORT ACCESS, SLOPE STABILITY, AND MINIMIZE CONTACT STORMWATER AREAS.
- ANY AREA CERTIFIED AS ACHIEVING CLOSURE BY REMOVAL IS TO BE PROTECTED FROM CCR AND CONTACT STORMWATER, AND MAY BE FILLED AND/OR RESHAPED PRIOR TO ACHIEVING FINAL GRADES.
- ACCUMULATED CCR SHALL BE REMOVED FROM SURFACES WITHIN THE POND LIMITS SUCH THAT NO CCR REMAINS VISIBLE.
- FOLLOWING VISUAL-CLEAN CONDITIONS, OVER-EXCAVATE THE REMOVAL FOOTPRINT BY AT LEAST SIX INCHES.
- VISUAL INSPECTION AND TARGETED SUBGRADE VISUAL SAMPLING TO BE OVERSEEN BY OWNER'S ENGINEER REPRESENTATIVE. SAMPLING TO BE PERFORMED AT A FREQUENCY OF AT LEAST ONE TEST PER ACRE. TARGETED SAMPLING TO CONSIST OF HAND-DUG HOLES AT LEAST SIX INCHES DEEP.
- EXCAVATION OF SLOPES STEEPER THAN 2:1 SHALL BE SEQUENCED SUCH THAT THE SLOPES CAN BE EXCAVATED, INSPECTED, AND BACKFILLED IN THE SHORTEST TIME POSSIBLE. BACKFILL SLOPES WITH CLEAN SOIL FILL AT NO STEEPER THAN 2:1.
- EXCAVATED CCR AND SOIL-CCR MIXTURES SHALL BE CONSOLIDATED IN NORTH ASH POND OR TAKEN TO AN OFF-SITE DISPOSAL FACILITY AS DIRECTED BY DOMINION.

1	09/14/18	RESPONSE TO DEQ TR COMMENTS	JRD	DPM	JRD
0	05/07/18	ISSUED FOR PERMIT	JRD	BPG	DPM
REV.	MMDDYY	DESCRIPTION	DESIGN	CADD	CHECK REVIEW



CLIENT  
DOMINION ENERGY  
BREMO POWER STATION  
FLUVANNA COUNTY, VIRGINIA

CONSULTANT  
GOLDER ASSOCIATES INC.  
2108 WEST LABURNUM AVENUE  
SUITE 200  
RICHMOND, VA 23227  
(804) 368-7900  
www.golder.com



PROJECT  
CLOSURE BY REMOVAL PLAN  
WEST ASH POND & EAST ASH POND  
SOLID WASTE PERMIT NO. 618

TITLE  
EAST ASH POND  
CLOSURE BY REMOVAL PLAN

PROJECT NO.  
15-20347

REV.  
1

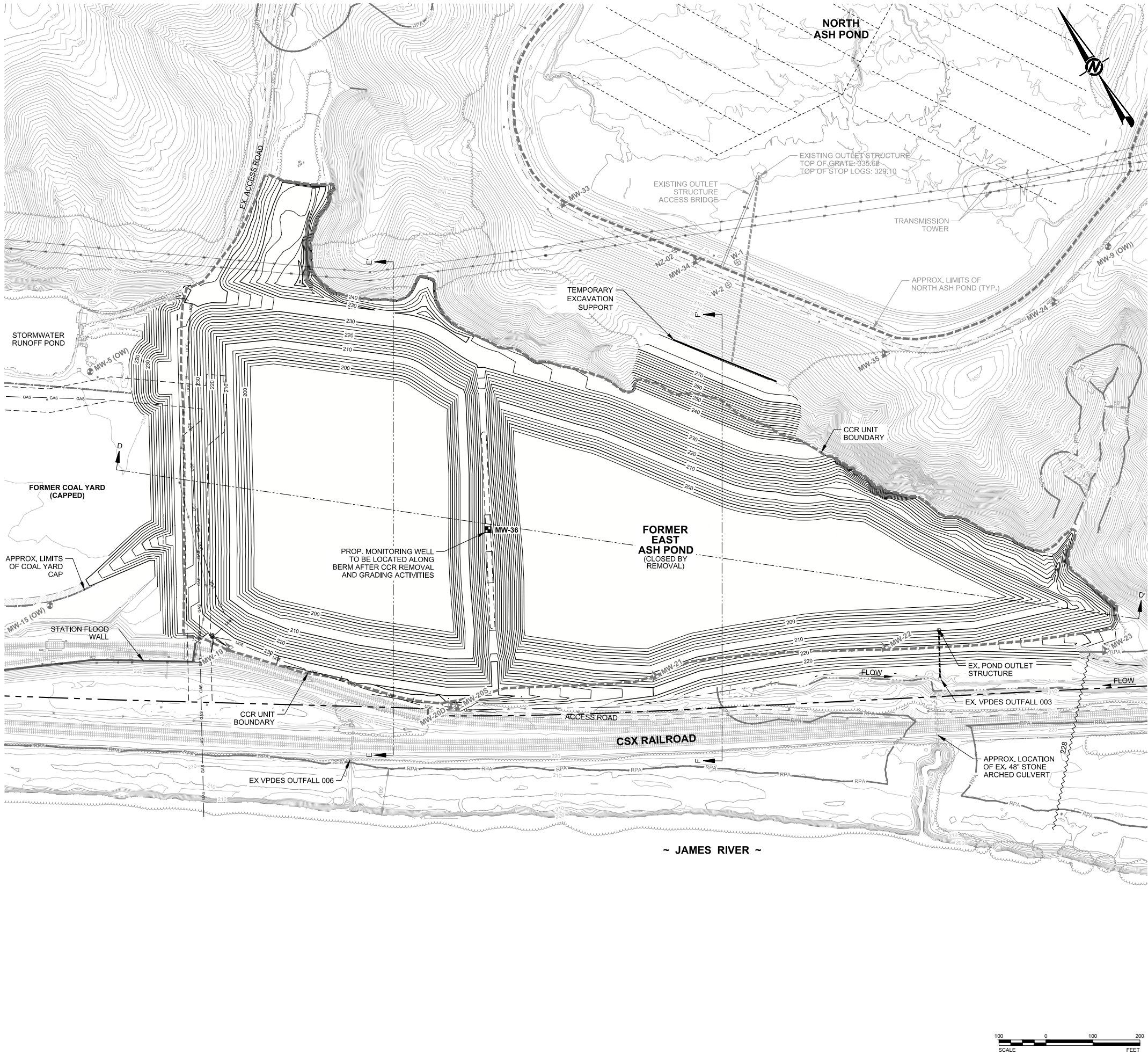
7 of 9

DRAWING  
CBR-7

1" = 100' IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN ADJUSTED FROM ARCH D.



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## LEGEND




	DOMINION PROPERTY BOUNDARY
	ADJACENT PROPERTY BOUNDARY
	CCR UNIT BOUNDARY
	EXISTING TOPOGRAPHIC CONTOURS (2' INTERVALS) (FROM AERIAL SURVEY - SEE GENERAL NOTE 1a)
	CONCEPTUAL FINAL GRADE CONTOURS (2' INTERVALS)
	EXISTING UNPAVED ROAD
	EXISTING RAILROAD
	WETLANDS
	CREEK/STREAM CENTERLINE
	LIMITS OF RIPARIAN PROTECTION AREA (PER FLUVANNA COUNTY ORDINANCE)
	APPROXIMATE EDGE OF SURFACE WATER
	BASE FLOOD ELEVATION (100-YEAR, SEE NOTE 4)
	EXISTING TREE LINE
	EXISTING FENCE
	EXISTING OVERHEAD UTILITY LINE
	EXISTING UNDERGROUND ELECTRIC LINE
	EXISTING UNDERGROUND GAS LINE
	EXISTING MONITORING WELL LOCATION AND IDENTIFICATION (CCR RULE)
	EXISTING OBSERVATION WELL LOCATION AND IDENTIFICATION
	PROPOSED MONITORING WELL LOCATION AND IDENTIFICATION
	EXISTING PIEZOMETER AND IDENTIFICATION
	EXISTING MANHOLE

## GENERAL NOTES

- EXISTING CONDITIONS COMPILED FROM:
  - AERIAL TOPOGRAPHIC SURVEY PREPARED BY MCKENZIE SNYDER, INC., DATE OF AERIAL PHOTO: 1/16/15 [CONTROL PREPARED BY H&B SURVEYING & MAPPING (H&B)]
  - BOUNDARY SURVEY PREPARED BY H&B SURVEYING AND MAPPING, LLC DATED 04/27/15.
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## CONCEPTUAL FINAL GRADING NOTE

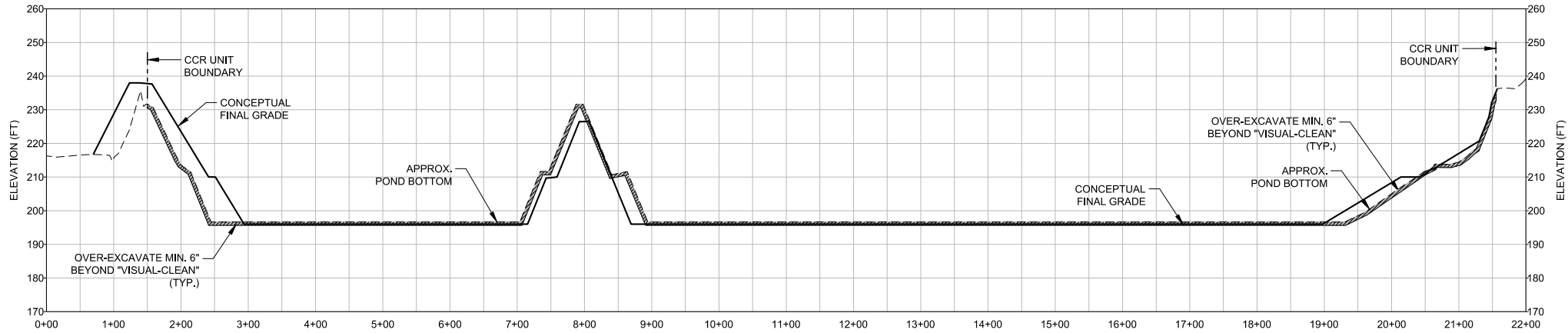
- CONCEPTUAL FINAL GRADING IS SHOWN FOR REFERENCE ONLY AND IS SUBJECT TO CHANGE.

PROJECT CLOSURE BY REMOVAL PLAN WEST ASH POND & EAST ASH POND SOLID WASTE PERMIT No. 618	CLIENT DOMINION ENERGY BREMO POWER STATION FLUVANNA COUNTY, VIRGINIA	CONSULTANT GOLDER ASSOCIATES INC. 2108 WEST LABURNUM AVENUE SUITE 200 RICHMOND, VA 23227 (804) 358-7900 www.golder.com		PROJECT NO. 15-20347	REV. 1	8 of 9	DRAWING CBR-8										
								1		09/14/18		RESPONSE TO DEQ TR COMMENTS		JRD	BPG	DPM	JRD
								0		05/07/18		ISSUED FOR PERMIT		JRD	BPG	DPM	JRD
								REV.		MMDDYY		DESCRIPTION		DESIGN	CADD	CHECK	REVIEW

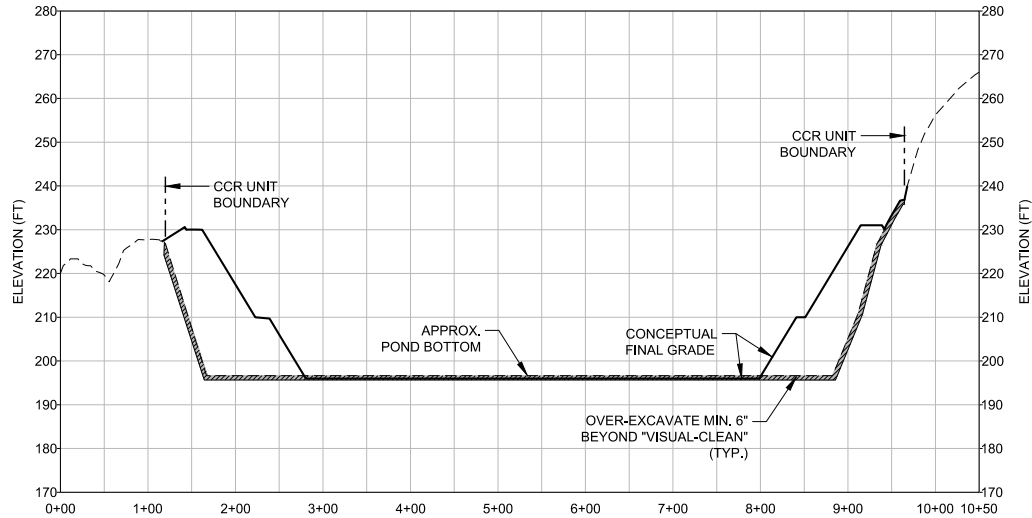
1" = 100' IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN ADJUSTED FROM ARCH D



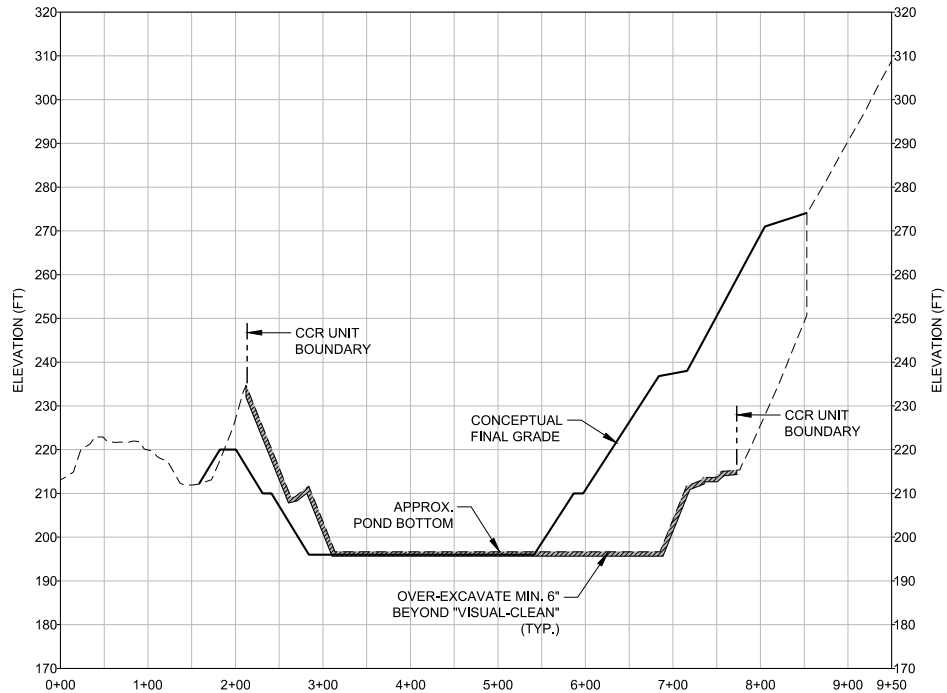
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SECTION D - D'



SECTION E - E'



SECTION F - F'



PROJECT  
CLOSURE BY REMOVAL PLAN  
WEST ASH POND & EAST ASH POND  
SOLID WASTE PERMIT No. 618

TITLE  
EAST ASH POND  
CROSS-SECTIONS

PROJECT NO.  
15-20347

CLIENT  
DOMINION ENERGY  
BREMO POWER STATION  
FLUVANNA COUNTY, VIRGINIA

CONSULTANT



GOLDER ASSOCIATES INC.  
2108 WEST LABURNUM AVENUE  
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RICHMOND, VA 23227  
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SEAL

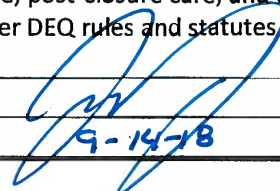



REV.	MMDDYY	DESCRIPTION	DESIGN	CADD	CHECK	REVIEW
1	09/14/18	RESPONSE TO DEQ TR COMMENTS	JRD	BPG	DPM	JRD
0	05/07/18	ISSUED FOR PERMIT	JRD	BPG	DPM	JRD





## Solid Waste Disposal Facility Cost Estimate Form

Facility Name:		Bremono Power Station CCR Impoundments				Permit No. SWP		618	
Address:		1038 Bremono Road							
City:		Bremono Bluff		State:		VA		Zip: 23022	
FA Holder:		Dominion Energy Virginia							
Estimate Prepared By:		Golder Associates Inc.							
Indicate the plan versions for which this cost estimate was prepared, identifying the following information for each plan:									
<b>Closure Plan</b>					<b>Post-Closure Care Plan</b>				
Title:		Surface Impoundment Closure Plan			Title:		n/a		
Plan Date:		May 2018		Approved:		Plan Date:		Approved:	
Consultant:		Golder Associates Inc.			Consultant:				
<b>Corrective Action Plan</b>					<b>Corrective Action Monitoring Plan</b>				
Title:		n/a			Title:		n/a		
Plan Date:				Approved:		Plan Date:		Approved:	
Consultant:					Consultant:				
<b>Cost Estimate Summary</b>									
Total Closure Cost:		\$18,041,661							
Total Post-Closure Cost:		\$0							
Total Corrective Action Cost:		\$0							
<b>TOTAL:</b>		<b>\$18,041,661</b>							
<b>References</b>									
Please indicate references used to develop this cost estimate: Unit costs were developed from 2016 closure construction bid estimates for Dominion's CCR impoundment facilities, estimates of soil prices in the coastal Virginia area, and other landfill closure bid packages in the consultant's local area.									
<b>Certification by Preparer:</b>									
This is to certify that the cost estimates pertaining to the engineering features and monitoring requirements of this solid waste management facility have been prepared by me and are representative of the design specified in the facility's approved Closure, Post-Closure and Corrective Action Plans. The estimate is based on the cost of hiring a third party and does not incorporate any salvage value that may be realized by the sale of wastes, facility structures, or equipment, land or other facility assets at the time of partial or final closure. In my professional judgment, the cost estimates are a true, correct, and complete representation of the financial liabilities for closure, post-closure care, and corrective action of the facility and comply with the requirements of 9 VAC 20-70 and all other DEQ rules and statutes of the Commonwealth of Virginia.									
Name:		Ron DiFrancesco, P.E.			Signature:				
Title:		Principal and Practice Leader			Date:		9-14-18		
<b>Acknowledgement by Owner/Operator :</b>									
Name:		David Craymer			Signature:				
Title:		Vice President, Power Generation Systems Operations			Date:		09/07/18		



**Bremo Power Station - Permit #618**  
**East Ash Pond CCR Impoundment Closure by Removal Cost Estimate**

Item No.	Description	Unit of Measure	Quantity	Unit Price	Total	Notes/Assumptions
1	Demobilization	LS	1	\$ 1,099,687	\$ 1,099,687	
2	General Conditions	MO	6	\$ 203,688	\$ 1,222,128	
3	Construction Engineering / Surveying / Permitting	MO	6	\$ 20,000	\$ 120,000	Existing E&S Plan amendment
4	Maintain and inspect erosion / stormwater controls during	MO	6	\$ 8,000	\$ 48,000	
5	Dewatering	MO	6	\$ 553,369	\$ 3,320,214	
6	Stormwater Maintenance	MO	6	\$ 24,185	\$ 145,110	
7	Silt Fence non-reinforced	LF	3,500	\$ 4.27	\$ 14,945	
8	Silt Fence removal and disposal	LF	7,527	\$ 3.37	\$ 25,366	
9	CCR Excavation	CY	150,000	\$ 6.50	\$ 975,000	
10	6-inch over-excavation (26.5 acres)	CY	21,375	\$ 6.50	\$ 138,938	Excavate, load, haul and place in NAP
11	Soil backfill for slope stabilization	CY	250,000	\$ 25.00	\$ 6,250,000	Excavate, load, place and compact.
12	Site stabilization	Ac	27	\$ 3,500.00	\$ 94,500	
13	Closure sign	Ea	1	\$ 125	\$ 125	
14	Contingency	%	13,454,012	10%	\$ 1,345,401	
15	3rd party certification survey	Ac	27	\$ 4,500	\$ 119,250	
16	Construction QA/QC oversight	MO	6	\$ 20,000	\$ 120,000	
16	Closure certification report	LS	1	\$ 8,000	\$ 8,000	
17	Groundwater Monitoring	LS	1	\$ 66,380	\$ 66,380	Minimum remaining sampling events to demonstrate closure
	<b>Total</b>				<b>\$ 15,113,044</b>	

Notes: 1. Estimate based on starting with current condition as of September 14, 2018 to achieve clean closure condition



**Bremo Power Station - Permit #618**  
**West Ash Pond CCR Impoundment Closure by Removal Cost Estimate**

Item No.	Description	Unit of Measure	Quantity	Unit Price	Total	Notes/Assumptions
1	Mobilization/Demobilization General Conditions	LS	1	\$ 75,000	\$ 75,000	
2	Construction Engineering / Surveying / Permitting	LS	1	\$ 35,000	\$ 35,000	Existing E&S Plan amendment
3	Maintain and inspect erosion / stormwater controls during	MO	4	\$ 5,000	\$ 20,000	
4	Stormwater Maintenance	MO	4	\$ 27,300	\$ 109,200	
5	Silt Fence non-reinforced	LF	3,000	\$ 4.27	\$ 12,810	
6	Silt Fence removal and disposal	LF	3,000	\$ 3.37	\$ 10,110	
7	6-inch over-excavation (17 acres)	CY	13,709	\$ 6.50	\$ 89,109	Excavate, load, haul and place in NAP
8	Embankment removal	CY	80,000	\$ 25.00	\$ 2,000,000	Partial removal and elimination from Dam Safety program
9	Site stabilization	Ac	17	\$ 3,500.00	\$ 59,500	
10	Closure sign	Ea	1	\$ 125	\$ 125	
11	Contingency	%	2,410,854	10%	\$ 241,085	
12	3rd party certification survey	Ac	17	\$ 4,500	\$ 76,500	
13	Construction QA/QC oversight	LS	1	\$ 93,500	\$ 93,500	
14	Closure certification report	LS	1	\$ 8,000	\$ 8,000	
15	Groundwater Monitoring	Ls	1	\$ 98,678	\$ 98,678	Minimum remaining sampling events to demonstrate closure
	<b>Total</b>				<b>\$ 2,928,617</b>	

Notes: 1. Estimate based on starting with current condition as of September 14, 2018 to achieve clean closure condition



Established in 1960, Golder Associates is a global, employee-owned organization that helps clients find sustainable solutions to the challenges of finite resources, energy and water supply and management, waste management, urbanization, and climate change. We provide a wide range of independent consulting, design, and construction services in our specialist areas of earth, environment, and energy. By building strong relationships and meeting the needs of clients, our people have created one of the most trusted professional services organizations in the world.

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Asia	+ 852 2562 3658
Australasia	+ 61 3 8862 3500
Europe	+ 356 21 42 30 20
North America	+ 1 800 275 3281
South America	+ 56 2 2616 2000

[solutions@golder.com](mailto:solutions@golder.com)  
[www.golder.com](http://www.golder.com)

**Golder Associates Inc.**  
**2108 W. Laburnum Avenue, Suite 200**  
**Richmond, VA 23227 USA**  
**Tel: (804) 358-7900**  
**Fax: (804) 358-2900**



**Engineering Earth's Development, Preserving Earth's Integrity**

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**From:** Dennis A Slade <dennis.a.slade@dominionenergy.com>  
**Sent:** Friday, February 7, 2020 8:25 AM  
**To:** 'Adamson, Gregory'  
**Subject:** Bremo West Pond

Greg,

Good morning. I received an update from Golder on the Bremo West Pond. They have verified 100% visual removal of material and over-excavation of the entire pond, including removal of the haul out ramp. Areas along the south and west berms have been buttressed with clean fill. Please let me know if you need to inspect prior to us backfilling the remaining areas.

Thank you.

**Dennis A. Slade, CHMM**  
Corporate Waste and Remediation Manager  
Dominion Energy Services  
5000 Dominion Boulevard  
Glen Allen, VA 23060  
(804) 273-2658 desk  
(804) 317-7079 mobile  
[dennis.a.slade@dominionenergy.com](mailto:dennis.a.slade@dominionenergy.com)