



# CCR Removal Report

Supplement No. 2

Former B.C. Cobb Power Plant  
Bottom Ash Pond and Ponds 0-8

June 8, 2023

*Prepared for:*  
Muskegon Environmental Redevelopment Group, LLC  
(MERG)  
Muskegon, Michigan

*Prepared by:*  
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# 1 Introduction and Purpose

HDR MICHIGAN, Inc. (HDR) has prepared this Supplement No. 2 of the CCR Removal Report for Bottom Ash Pond and Ponds 0-8 at the Former B.C. Cobb Power Plant (B.C. Cobb) in Muskegon, Michigan. The CCR Removal Report (Ref. [2]) was submitted on September 19, 2022 to Muskegon Environmental Redevelopment Group, LLC (MERG) and ultimately Michigan Department of Environment, Great Lakes, and Energy (EGLE) for review and approval. Additionally, Supplement No. 1 of the CCR Removal Report (Ref. [3]) was submitted on December 7, 2022 to MERG and ultimately to EGLE.

In January 2023, MERG recognized sloughing on the interior slope of the North Embankment of the impoundment, likely due to wind/wave action during storm events. MERG promptly began slope reinforcement repairs of the perimeter embankments, and those repairs are anticipated to be complete in June 2023. As part of the slope repairs, the excavation was partially dewatered and MERG performed additional excavation in the areas adjacent to the North Embankment sloughing to remove any potential CCR contamination that could have come from the embankment material. A site visit was performed by HDR on April 17, 2023 to assess the excavation footprint for potential ash entering the excavation footprint due to the embankment sloughing. MERG and HDR determined that reverification should be performed to verify the previously assessed B-series nodes within the excavation footprint, which is the node line that is adjacent to the North Embankment. In order to distinguish the labeling of the resampled B-series nodes from the previously sampled B-series nodes included in preceding reports, the nodes were given an “R” designation at the end of the node label.

Further information about the original sampling of the B-series nodes is presented in the CCR Removal Report (Ref. [2]) and Supplement No. 1 (Ref. [3]). The B-series node locations where resampling was performed to collect the follow-up samples are shown on Figure 1.

# 2 CCR Removal Verification

The CCR removal procedures were implemented in accordance with the Closure Work Plan (Ref. [1]). Further details on lines of evidence for CCR removal and site information are presented in the CCR Removal Report (Ref. [2]). The resampling of the B-series nodes followed the Standard Operating Procedures presented in Attachment A of the CCR Removal Report (Ref. [2]). The following paragraphs detail the reassessment of the B-series sample nodes and confirmation of meeting the three lines of evidence of CCR removal.

The field visit to sample the B-series sample nodes was performed on May 15, 2023. An Observation Report summarizing the field visit is presented in Attachment A. The excavation was mostly dewatered, with locally ponded areas along the B-series nodes where recent excavation had occurred. Water depths in those locally ponded areas at the time of the field visit were up to approximately 1-foot. HDR field personnel accessed the B-series node locations (which were surveyed and staked by MERG) and collected the



samples. The B-series line consists of thirty-three (33) nodes designated as B2R through B34R in order to distinguish the node information collected herein from the previous B-series nodes. In areas where standing water was present (13 sample nodes), a sample was taken and brought to shore for photographs and processing. The following subsections detail the sample processing and the results of the lines of evidence required at each resampled B-series nodes.

## 2.1 First Line of Evidence - Documentation of Excavation Grades

The first line of evidence to verify CCR removal was to confirm that excavations extended to at least the elevations established in the Closure Work Plan (Ref. [1]). MERG provided final surface elevations for the B-series nodes which were resurveyed in June 2023. The final surfaces for the B-series nodes are presented in Table 1. The final survey of twenty-four (24) nodes indicates the nodes are higher than the design elevation (positive numbers in the *Elevation Difference* column); the following explanations are provided and noted in Table 1:

- Eight (8) nodes were previously excavated below design grade, as reported in Ref. [2] and therefore defined as passing. The current higher elevations at these eight (8) nodes are due to the earthwork activities related to the North Embankment slope repair.
- Sixteen (16) nodes were previously surveyed above design grade as reported in Ref. [2]. These sixteen (16) nodes were potholed to design grade during previous site visits with passing results, and therefore defined as passing herein.
- Nine (9) nodes were surveyed below design grade and defined as passing.

Considering the information provided from previous surveys, previous site visits, and the current survey presented herein, the B-series nodes meet the requirement of the first line of evidence of the Closure Work Plan (Ref. [1]).

**Table 1. Summary Documentation of Excavation Grades**

Node ID	Design Elevation (feet)	Final Surface Elevation June 2023 (feet)	Elevation Difference (-/+ feet)	Documentation of Excavation Grade: Pass/Fail
B2R	571.31	+576.49	+5.18	Pass by previous potholing
B3R	573.90	+574.06	+0.16	Pass by previous potholing
B4R	575.70	+574.05	-1.65	Pass
B5R	576.77	+574.12	-2.65	Pass
B6R	577.15	+573.61	-3.54	Pass
B7R	577.25	+573.93	-3.32	Pass

Node ID	Design Elevation (feet)	Final Surface Elevation June 2023 (feet)	Elevation Difference (-/+ feet)	Documentation of Excavation Grade: Pass/Fail
B8R	577.29	+574.25	-3.04	Pass
B9R	577.11	+574.15	-2.96	Pass
B10R	574.78	+574.01	-0.77	Pass
B11R	573.99	+574.48	+0.49	Previously excavated below design grade
B12R	574.14	+574.27	+0.13	Previously excavated below design grade
B13R	574.01	+574.22	+0.21	Previously excavated below design grade
B14R	574.01	+574.20	+0.19	Previously excavated below design grade
B15R	573.99	+573.67	-0.32	Pass
B16R	573.23	+574.03	+0.80	Pass by previous potholing
B17R	572.33	+573.87	+1.54	Pass by previous potholing
B18R	571.46	+573.65	+2.19	Pass by previous potholing
B19R	570.69	+573.99	+3.30	Pass by previous potholing
B20R	569.99	+574.15	+4.16	Pass by previous potholing
B21R	569.99	+574.16	+4.17	Pass by previous potholing
B22R	570.02	+574.50	+4.48	Pass by previous potholing
B23R	571.76	+573.64	+1.88	Pass by previous potholing
B24R	572.54	+573.53	+0.99	Pass by previous potholing
B25R	572.48	+573.96	+1.48	Pass by previous potholing
B26R	572.74	+573.82	+1.08	Pass by previous potholing
B27R	573.01	+573.57	+0.56	Previously excavated below design grade
B28R	573.28	+573.65	+0.37	Previously excavated below design grade
B29R	571.00	+573.65	+2.65	Pass by previous potholing
B30R	567.78	+573.73	+5.96	Pass by previous potholing
B31R	565.55	+573.95	+8.40	Pass by previous potholing
B32R	573.75	+575.78	+2.03	Previously excavated below design grade
B33R	574.40	+573.94	-0.46	Pass

Node ID	Design Elevation (feet)	Final Surface Elevation June 2023 (feet)	Elevation Difference (-/+ feet)	Documentation of Excavation Grade: Pass/Fail
B34R	574.00	+574.48	+0.48	Previously excavated below design grade

## 2.2 Second Line of Evidence - Photographic Documentation

The second line of evidence to verify CCR removal was photographic documentation at the sample node locations. Photographic documentation of twenty (20) sample nodes were performed in accordance with the Standard Operating Procedures presented in Attachment A of the CCR Removal Report (Ref. [1]). Due to the current standing water at the location at thirteen (13) sample nodes, in-place photographs were not feasible using the standard methods. Similar to the procedures performed in Supplement No. 1 of the CCR Removal Report (Ref. [3]), material was sampled at thirteen (13) nodes were brought to shore, drained of water, placed on a dish, and photographed with a whiteboard identifier as presented in Attachment C.

Photographic documentation of the general area-wide excavation is presented in Attachment B. Photographic documentation of the thirty-three (33) resampled B-series nodes is presented in Attachment C. It should be noted that the white boards shown on the photographic documentation in Attachment C do not have the “R” designation in the label of the sample node. The “R” designation was added after the photographs were taken to distinguish the labeling of the resampled B-series nodes from the previously sampled B-series nodes included in preceding reports.

## 2.3 Third Line of Evidence - Microscopic Quantification

The third line of evidence to verify CCR removal at the B-series sample nodes was microscopic quantification. Microscopic quantification was conducted at each node to verify that the samples contained more or less than the 5 percent CCR threshold established in the Closure Work Plan (Ref. [1]). The microscopic quantification procedures performed for the resampled sub-nodes, presented herein, are in accordance with the procedures established in the CCR Removal Report (Ref. [2]). Example photographs taken during the microscopic quantification by HDR for the B-series nodes are included in Attachment D.

Table 2 provides a summary of the microscopic quantification of the B-series nodes.

**Table 2. Summary of Microscopic Quantification Results**

Sub-Node ID	Date Sampled	Northing (feet)	Easting (feet)	HDR Microscopic Estimation of CCR (%)	HDR Microscopy Pass/Fail (< 5%)
B2R	5/15/2023	647379.6	12622634.4	1-2%	Pass
B3R	5/15/2023	647341.3	12622666.6	<1%	Pass
B4R	5/15/2023	647303.0	12622698.7	<1%	Pass
B5R	5/15/2023	647264.8	12622730.9	1-2%	Pass
B6R	5/15/2023	647226.5	12622763.2	1-2%	Pass
B7R	5/15/2023	647188.1	12622795.3	<1%	Pass
B8R	5/15/2023	647150.0	12622827.5	<1%	Pass
B9R	5/15/2023	647111.6	12622859.7	<1%	Pass
B10R	5/15/2023	647073.4	12622891.8	2-3%	Pass
B11R	5/15/2023	647035.2	12622924.1	<1%	Pass
B12R	5/15/2023	646996.8	12622956.2	2-3%	Pass
B13R	5/15/2023	646958.6	12622988.4	1-2%	Pass
B14R	5/15/2023	646920.3	12623020.5	<1%	Pass
B15R	5/15/2023	646882.0	12623052.8	<1%	Pass
B16R	5/15/2023	646843.8	12623084.9	<1%	Pass
B17R	5/15/2023	646805.5	12623117.0	1-2%	Pass
B18R	5/15/2023	646767.2	12623149.2	2-3%	Pass
B19R	5/15/2023	646728.9	12623181.4	<1%	Pass
B20R	5/15/2023	646690.7	12623213.6	<1%	Pass
B21R	5/15/2023	646652.4	12623245.7	<1%	Pass
B22R	5/15/2023	646614.1	12623277.9	2-3%	Pass
B23R	5/15/2023	646575.9	12623310.2	<1%	Pass
B24R	5/15/2023	646537.6	12623342.2	<1%	Pass
B25R	5/15/2023	646499.3	12623374.5	2-3%	Pass
B26R	5/15/2023	646461.1	12623406.7	3-4%	Pass
B27R	5/15/2023	646422.8	12623438.9	1-2%	Pass
B28R	5/15/2023	646384.5	12623470.9	1-2%	Pass
B29R	5/15/2023	646346.2	12623503.2	2-3%	Pass

Sub-Node ID	Date Sampled	Northing (feet)	Easting (feet)	HDR Microscopic Estimation of CCR (%)	HDR Microscopy Pass/Fail (< 5%)
B30R	5/15/2023	646308.0	12623535.3	<1%	Pass
B31R	5/15/2023	646269.6	12623567.5	<1%	Pass
B32R	5/15/2023	646231.5	12623599.7	2-3%	Pass
B33R	5/15/2023	646193.1	12623631.9	2-3%	Pass
B34R	5/15/2023	646154.9	12623664.1	2-3%	Pass

### 3 Summary

In January 2023, MERG recognized sloughing on the interior slope of the North Embankment of the impoundment. MERG promptly began slope reinforcement repairs of the perimeter embankments. As part of the slope repairs, the excavation was partially dewatered and MERG performed additional excavation in the areas adjacent to the North Embankment sloughing to remove any potential CCR contamination that could have come from the embankment material. MERG and HDR determined that reverification should be performed to verify the previously assessed B-series nodes within the excavation footprint, which is the node line that is adjacent to the North Embankment.

The field and microscopic results of the thirty-three (33) B-series nodes indicate that each node meets the three lines of evidence for CCR removal in accordance with the Closure Work Plan (Ref. [1]).

## 4 Certification

Based on the review of the B.C. Cobb Generating Facility Bottom Ash Pond and Ponds 0-8 Closure Work Plan developed by Golder Associates, Inc. dated May 30, 2018, the modifications of the Closure Work Plan approved by the Michigan Department of Environment, Great Lakes, and Energy, and the attached documentation of this report, I certify to the best of my knowledge, information, and belief that this CCR Removal Report - Supplement No. 2 is accurate and that MERG has met the intent of the Closure Work Plan in regards to the resampled B-series nodes detailed herein.



Bryce Burkett, P.E.  
Senior Geotechnical Project Manager



08 Jun 2023

## 5 References

- Ref. [1]* Golder Associates, Inc. B.C. Cobb Generating Facility, Bottom Ash Pond and Ponds 0-8 Closure Work Plan, May 30, 2018.
- Ref. [2]* HDR Michigan, Inc., CCR Removal Report, Former B.C. Cobb Power Plant Bottom Ash Pond and Ponds 0-8, September 19, 2022.
- Ref. [3]* HDR Michigan, Inc., CCR Removal Report – Supplement No. 1, Former B.C. Cobb Power Plant Bottom Ash Pond and Ponds 0-8, December 7, 2022.

**TABLE 3**  
**SAMPLE NODE SUMMARY**



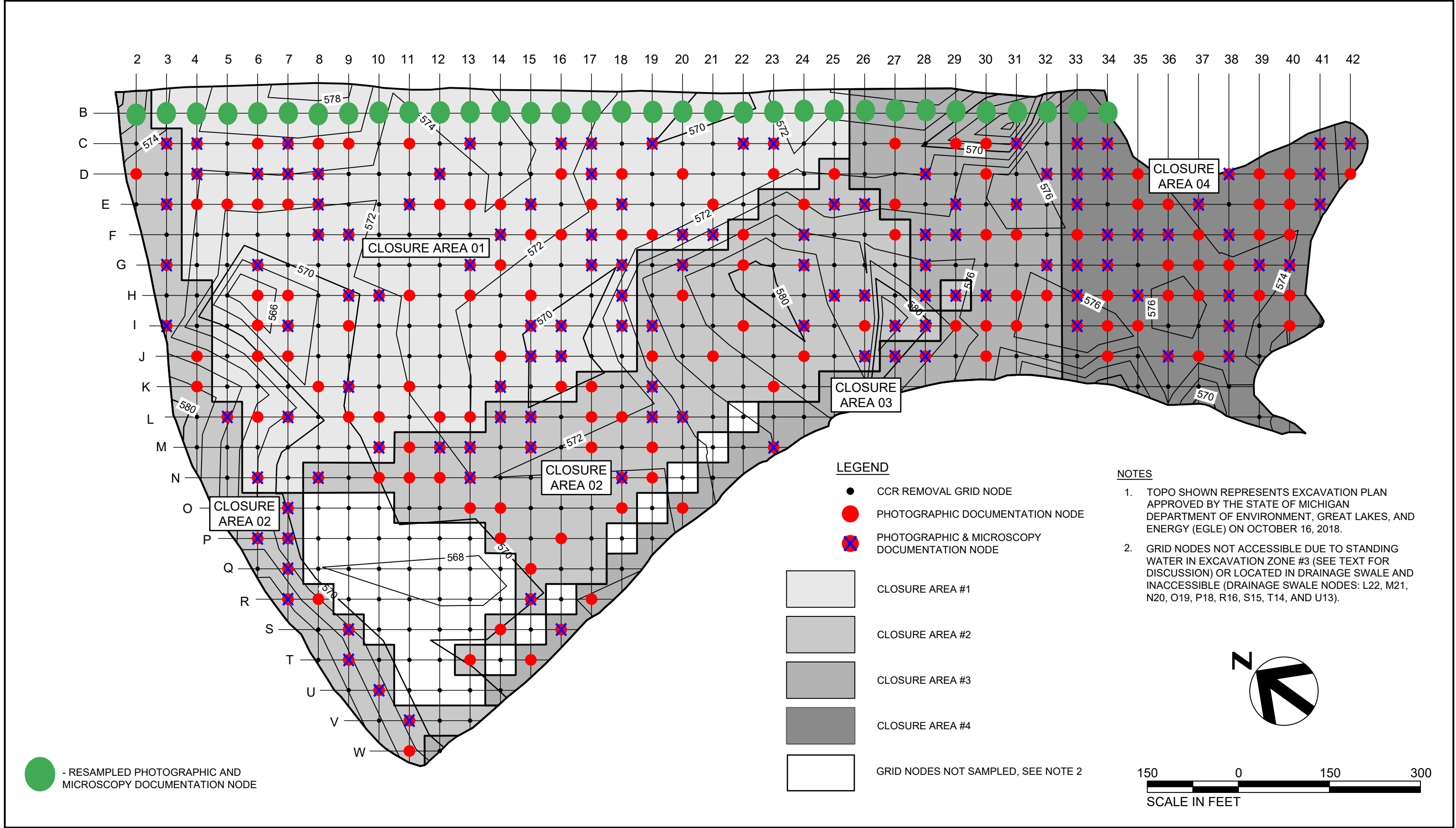


Table 3: Sample Node Summary

Node ID	Date Sampled	Northing (feet)	Easting (feet)	Final Field Elevation <sup>1</sup> (feet)	Design Elevation (feet)	Final Elevation Difference Relative to Closure Work Plan (-/+ feet)	HDR Microscopic Estimation of CCR (%)	CTL Microscopic Estimation QC (%)	HDR Microscopy Pass/Fail (< 5%)	Potholing Pass/Fail	CCR Present at Surface	Comments
B2R	5/15/2023	647379.6	12622634.4	+576.49	571.31	+5.18	1-2%	NS	Pass	N/A	No	Node previously passed potholing verification. See CCR Removal Report dated September, 19, 2022.
B3R	5/15/2023	647341.3	12622666.6	+574.06	573.90	+0.16	<1%	NS	Pass	N/A	No	Node previously passed potholing verification. See CCR Removal Report dated September, 19, 2022.
B4R	5/15/2023	647303.0	12622698.7	+574.05	575.70	-1.65	<1%	NS	Pass	N/A	No	
B5R	5/15/2023	647264.8	12622730.9	+574.12	576.77	-2.65	1-2%	NS	Pass	N/A	No	
B6R	5/15/2023	647226.5	12622763.2	+573.61	577.15	-3.54	1-2%	NS	Pass	N/A	No	
B7R	5/15/2023	647188.1	12622795.3	+573.93	577.25	-3.32	<1%	NS	Pass	N/A	No	
B8R	5/15/2023	647150.0	12622827.5	+574.25	577.29	-3.04	<1%	NS	Pass	N/A	No	
B9R	5/15/2023	647111.6	12622859.7	+574.15	577.11	-2.96	<1%	NS	Pass	N/A	No	
B10R	5/15/2023	647073.4	12622891.8	+574.01	574.78	-0.77	2-3%	NS	Pass	N/A	No	
B11R	5/15/2023	647035.2	12622924.1	+574.48	573.99	+0.49	<1%	NS	Pass	N/A	No	Node location was excavated below design grade prior during original excavation. Node elevation is currently higher due to earthwork activities during slope repair.
B12R	5/15/2023	646996.8	12622956.2	+574.27	574.14	+0.13	2-3%	NS	Pass	N/A	No	Node location was excavated below design grade prior during original excavation. Node elevation is currently higher due to earthwork activities during slope repair.
B13R	5/15/2023	646958.6	12622988.4	+574.22	574.01	+0.21	1-2%	NS	Pass	N/A	No	Node location was excavated below design grade prior during original excavation. Node elevation is currently higher due to earthwork activities during slope repair.
B14R	5/15/2023	646920.3	12623020.5	+574.20	574.01	+0.19	<1%	NS	Pass	N/A	No	Node location was excavated below design grade prior during original excavation. Node elevation is currently higher due to earthwork activities during slope repair.
B15R	5/15/2023	646882.0	12623052.8	+573.67	573.99	-0.32	<1%	NS	Pass	N/A	No	
B16R	5/15/2023	646843.8	12623084.9	+574.03	573.23	+0.80	<1%	NS	Pass	N/A	No	Node previously passed potholing verification. See CCR Removal Report dated September, 19, 2022.
B17R	5/15/2023	646805.5	12623117.0	+573.87	572.33	+1.54	1-2%	NS	Pass	N/A	No	Node previously passed potholing verification. See CCR Removal Report dated September, 19, 2022.
B18R	5/15/2023	646767.2	12623149.2	+573.65	571.46	+2.19	2-3%	NS	Pass	N/A	No	Node previously passed potholing verification. See CCR Removal Report dated September, 19, 2022.
B19R	5/15/2023	646728.9	12623181.4	+573.99	570.69	+3.30	<1%	NS	Pass	N/A	No	Node previously passed potholing verification. See CCR Removal Report dated September, 19, 2022.
B20R	5/15/2023	646690.7	12623213.6	+574.15	569.99	+4.16	<1%	NS	Pass	N/A	No	Node previously passed potholing verification. See CCR Removal Report dated September, 19, 2022.
B21R	5/15/2023	646652.4	12623245.7	+574.16	569.99	+4.17	<1%	NS	Pass	N/A	No	Node previously passed potholing verification. See CCR Removal Report dated September, 19, 2022.
B22R	5/15/2023	646614.1	12623277.9	+574.50	570.02	+4.48	2-3%	NS	Pass	N/A	No	Node previously passed potholing verification. See CCR Removal Report dated September, 19, 2022.
B23R	5/15/2023	646575.9	12623310.2	+573.64	571.76	+1.88	<1%	NS	Pass	N/A	No	Node previously passed potholing verification. See CCR Removal Report dated September, 19, 2022.
B24R	5/15/2023	646537.6	12623342.2	+573.53	572.54	+0.99	<1%	NS	Pass	N/A	No	Node previously passed potholing verification. See CCR Removal Report dated September, 19, 2022.
B25R	5/15/2023	646499.3	12623374.5	+573.96	572.48	+1.48	2-3%	NS	Pass	N/A	No	Node previously passed potholing verification. See CCR Removal Report dated September, 19, 2022.
B26R	5/15/2023	646461.1	12623406.7	+573.82	572.74	+1.08	3-4%	NS	Pass	N/A	No	Node previously passed potholing verification. See CCR Removal Report dated September, 19, 2022.
B27R	5/15/2023	646422.8	12623438.9	+573.57	573.01	+0.56	1-2%	NS	Pass	N/A	No	Node location was excavated below design grade prior during original excavation. Node elevation is currently higher due to earthwork activities during slope repair.
B28R	5/15/2023	646384.5	12623470.9	+573.65	573.28	+0.37	1-2%	NS	Pass	N/A	No	Node location was excavated below design grade prior during original excavation. Node elevation is currently higher due to earthwork activities during slope repair.
B29R	5/15/2023	646346.2	12623503.2	+573.65	571.00	+2.65	2-3%	NS	Pass	N/A	No	Node previously passed potholing verification. See CCR Removal Report dated September, 19, 2022.
B30R	5/15/2023	646308.0	12623535.3	+573.73	567.78	+5.96	<1%	NS	Pass	N/A	No	Node previously passed potholing verification. See CCR Removal Report dated September, 19, 2022.
B31R	5/15/2023	646269.6	12623567.5	+573.95	565.55	+8.40	<1%	NS	Pass	N/A	No	Node previously passed potholing verification. See CCR Removal Report dated September, 19, 2022.
B32R	5/15/2023	646231.5	12623599.7	+575.78	573.75	+2.03	2-3%	NS	Pass	N/A	No	Node location was excavated below design grade prior during original excavation. Node elevation is currently higher due to earthwork activities during slope repair.
B33R	5/15/2023	646193.1	12623631.9	+573.94	574.40	-0.46	2-3%	NS	Pass	N/A	No	
B34R	5/15/2023	646154.9	12623664.1	+574.48	574.00	+0.48	2-3%	NS	Pass	N/A	No	Node location was excavated below design grade prior during original excavation. Node elevation is currently higher due to earthwork activities during slope repair.

Note:  
1. Elevations provided by MERG on June 6, 2023.

**FIGURE**



**MUSKEGON ENVIRONMENTAL  
REDEVELOPMENT GROUP, LLC (MERG)  
BC COBB ASH POND CLOSURE**

SAMPLE NODE LAYOUT

DATE  
NOVEMBER 2022

FIGURE

1

**ATTACHMENT A**  
HDR OBSERVATION REPORT

## OBSERVATION REPORT – Follow-up Sampling Area

<b>HDR Project No.</b>	10220433	<b>Project Name:</b>	B.C. Cobb Ash Pond Closure
<b>Client:</b>	MERG	<b>Site Location:</b>	Muskegon, Michigan

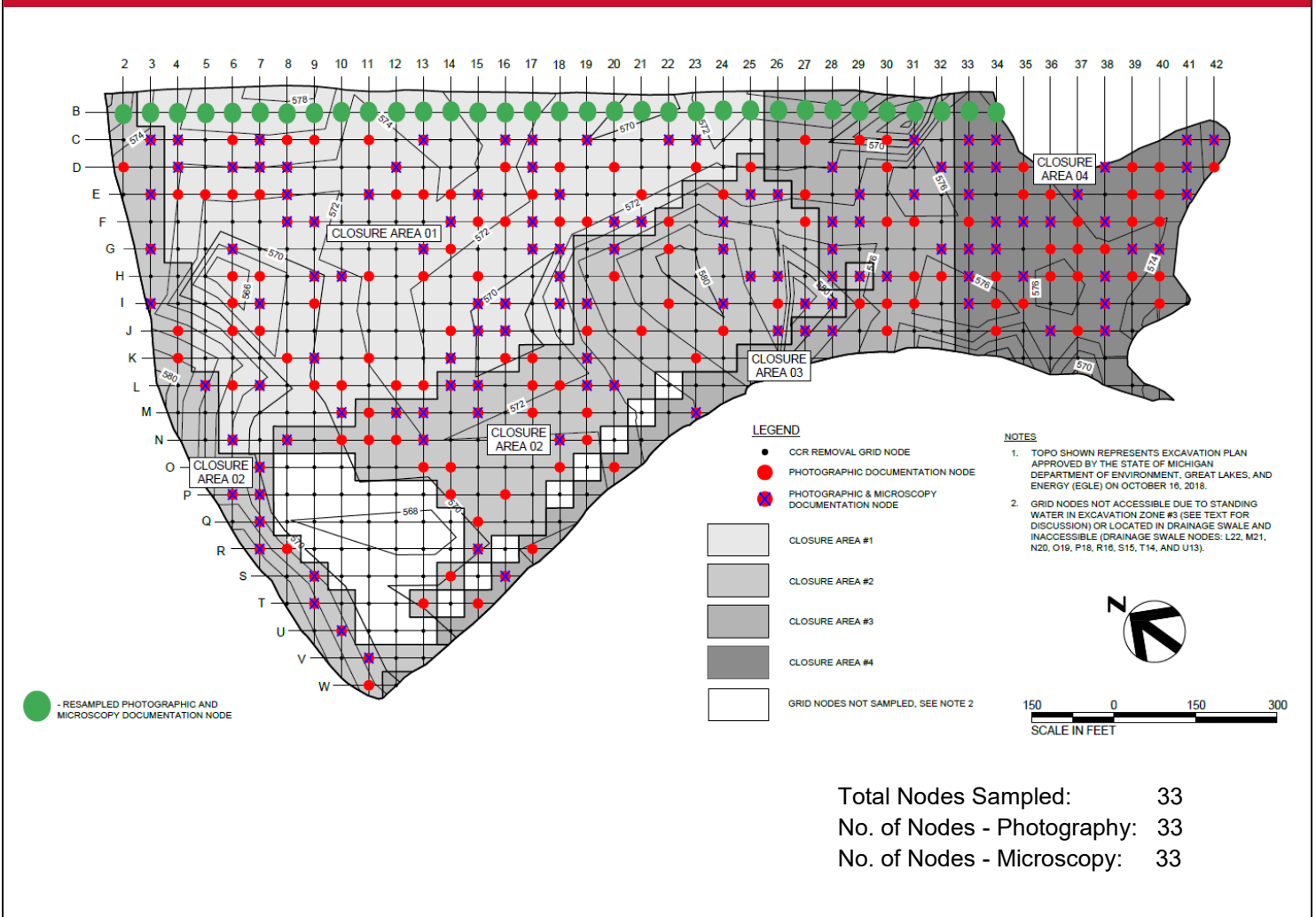
## DAILY REPORT DATA

<b>Inspection Date:</b>	May 15, 2023	<b>Report No.:</b>	006
<b>Inspected By:</b>	Bryce Burkett		

## WEATHER CONDITIONS

<b>Conditions:</b>	Sunny	<b>Temperature:</b>	60-70 °F
<b>Wind:</b>	0-5 mph	<b>Precipitation:</b>	None

## AREA INSPECTED



## DOCUMENTATION OF EXCAVATION GRADES

<b>Data Survey Received from Charah:</b>	June 6, 2023
<b>No. of Nodes Above Design Grade:</b>	24
<b>No. of Nodes Hand-Augered (Potholed):</b>	N/A, See Supplement No.2 Text

## VISUAL INSPECTION OF AREA – Follow-up Sampling Area

**Photographs Taken of Area:**

Yes

**Closure Area #6 Notes:**

### General Site Conditions:

- The excavation has been dewatered to allow equipment access for the repairs of the North Embankment.
- Water has ponded in areas where MERG has recently excavated more material adjacent to the North Embankment. Thirteen (13) out of the thirty-three (33) B-series nodes were in shallow standing water.
- The node areas (and surrounding areas in the excavation footprint) consisted of natural sands.
- Area photographs were taken of the sample areas.

### Photographs:

- In-place node photographs were taken at 20 sample node locations. Due to standing water at 13 sample node locations, representative samples were taken to shore and photographs of the 13 samples were taken.
- Photographs were taken for all B-series sample nodes.

### HDR Microscopy Results:

- All 33 B-series sample locations were analyzed for microscopic quantification.
- 33 nodes pass, 0 nodes fail within the B-series sample nodes.

Node ID	HDR Microscopic Estimation of CCR (%)	HDR Microscopy Pass/Fail (< 5%)
B2R	1-2%	Pass
B3R	<1%	Pass
B4R	<1%	Pass
B5R	1-2%	Pass
B6R	1-2%	Pass
B7R	<1%	Pass
B8R	<1%	Pass
B9R	<1%	Pass
B10R	2-3%	Pass
B11R	<1%	Pass
B12R	2-3%	Pass
B13R	1-2%	Pass
B14R	<1%	Pass
B15R	<1%	Pass
B16R	<1%	Pass
B17R	1-2%	Pass
B18R	2-3%	Pass

Node ID	HDR Microscopic Estimation of CCR (%)	HDR Microscopy Pass/Fail (< 5%)
B19R	<1%	Pass
B20R	<1%	Pass
B21R	<1%	Pass
B22R	2-3%	Pass
B23R	<1%	Pass
B24R	<1%	Pass
B25R	2-3%	Pass
B26R	3-4%	Pass
B27R	1-2%	Pass
B28R	1-2%	Pass
B29R	2-3%	Pass
B30R	<1%	Pass
B31R	<1%	Pass
B32R	2-3%	Pass
B33R	2-3%	Pass
B34R	2-3%	Pass

**ATTACHMENT B**  
PHOTOGRAPHIC DOCUMENTATION –  
GENERAL SITE PHOTOGRAPHS



Client Name:	Site Location:	General Photographic Log
Muskegon Environmental Redevelopment Group, LLC (MERG)	Former B.C. Cobb Power Plant Bottom Ash Pond and Ponds 0-8 Muskegon, Michigan	HDR Project No. 10220433
<p><b>Photograph No. 1</b></p> <p><b>Description:</b> Looking into excavation adjacent to North Embankment. Note repairs to North Embankment.</p> <p><b>Date:</b> May 15, 2023</p> <p><b>Orientation:</b> Looking northwest</p> <p><b>Approximate Location</b></p> 		
<p><b>Photograph No. 2</b></p> <p><b>Description:</b> General area photo of excavation at B-series nodes. Note clean sand present and standing water from recent excavation.</p> <p><b>Date:</b> May 15, 2023</p> <p><b>Orientation:</b> Looking east</p> <p><b>Approximate Location</b></p> 		





Client Name:	Site Location:	General Photographic Log
Muskegon Environmental Redevelopment Group, LLC (MERG)	Former B.C. Cobb Power Plant Bottom Ash Pond and Ponds 0-8 Muskegon, Michigan	HDR Project No. 10220433

### Photograph No. 3

**Description:**

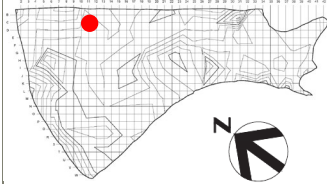
General area photo of excavation at B-series nodes. Note clean sand present and standing water from recent excavation.

**Date:**

May 15, 2023

**Orientation:**

Looking east

**Approximate Location**

### Photograph No. 4

**Description:**

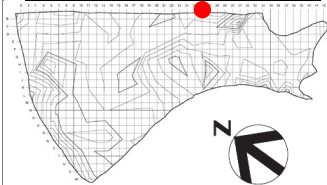
General area photo of North Embankment adjacent to B-series nodes. Note North Embankment repairs.

**Date:**

May 15, 2023

**Orientation:**

Looking northwest

**Approximate Location**



Client Name:	Site Location:	General Photographic Log
Muskegon Environmental Redevelopment Group, LLC (MERG)	Former B.C. Cobb Power Plant Bottom Ash Pond and Ponds 0-8 Muskegon, Michigan	HDR Project No. 10220433
<p><b>Photograph No. 5</b></p> <p><b>Description:</b> General area photo of North Embankment adjacent to B-series nodes. Note North Embankment repairs.</p> <p><b>Date:</b> May 15, 2023</p> <p><b>Orientation:</b> Looking south</p> <p><b>Approximate Location</b></p> 		
<p><b>Photograph No. 6</b></p> <p><b>Description:</b> General area photo of North Embankment adjacent to B-series nodes. Note North Embankment repairs.</p> <p><b>Date:</b> May 15, 2023</p> <p><b>Orientation:</b> Looking west</p> <p><b>Approximate Location</b></p> 		

**ATTACHMENT C**  
PHOTOGRAPHIC DOCUMENTATION –  
PHOTOGRAPHIC NODES



Client Name:	Site Location:	Node Photographic Log
Muskegon Environmental Redevelopment Group, LLC (MERG)	Former B.C. Cobb Power Plant Bottom Ash Pond and Ponds 0-8 Muskegon, Michigan	HDR Project No. 10220433
<p><b>Photograph No. 1</b></p> <p>Node: B2R</p> <p>HDR Microscopic Quantification Result: 1-2%</p>		
<p><b>Photograph No. 2</b></p> <p>Node: B3R</p> <p>HDR Microscopic Quantification Result: &lt;1%</p>		







Client Name:	Site Location:	Node Photographic Log
Muskegon Environmental Redevelopment Group, LLC (MERG)	Former B.C. Cobb Power Plant Bottom Ash Pond and Ponds 0-8 Muskegon, Michigan	HDR Project No. 10220433
<b>Photograph No. 3</b>		
Node: B4R  HDR Microscopic Quantification Result: 1-2%		
<b>Photograph No. 4</b>		
Node: B5R  HDR Microscopic Quantification Result: 1-2%		



Client Name:	Site Location:	Node Photographic Log
Muskegon Environmental Redevelopment Group, LLC (MERG)	Former B.C. Cobb Power Plant Bottom Ash Pond and Ponds 0-8 Muskegon, Michigan	HDR Project No. 10220433
<p><b>Photograph No. 5</b></p> <p>Node: B6R</p> <p>HDR Microscopic Quantification Result: 1-2%</p>		
<p><b>Photograph No. 6</b></p> <p>Node: B7R</p> <p>HDR Microscopic Quantification Result: &lt;1%</p>		





Client Name:	Site Location:	Node Photographic Log
Muskegon Environmental Redevelopment Group, LLC (MERG)	Former B.C. Cobb Power Plant Bottom Ash Pond and Ponds 0-8 Muskegon, Michigan	HDR Project No. 10220433
<b>Photograph No. 7</b>		
Node: B8R  HDR Microscopic Quantification Result: <1%		
<b>Photograph No. 8</b>		
Node: B9R  HDR Microscopic Quantification Result: <1%		





Client Name:	Site Location:	Node Photographic Log
Muskegon Environmental Redevelopment Group, LLC (MERG)	Former B.C. Cobb Power Plant Bottom Ash Pond and Ponds 0-8 Muskegon, Michigan	HDR Project No. 10220433
<p><b>Photograph No. 9</b></p> <p>Node: B10R</p> <p>HDR Microscopic Quantification Result: 2-3%</p>		
<p><b>Photograph No. 10</b></p> <p>Node: B11R</p> <p>HDR Microscopic Quantification Result: &lt;1%</p>		







Client Name:	Site Location:	Node Photographic Log
Muskegon Environmental Redevelopment Group, LLC (MERG)	Former B.C. Cobb Power Plant Bottom Ash Pond and Ponds 0-8 Muskegon, Michigan	HDR Project No. 10220433
<b>Photograph No. 11</b>		
Node: B12R  HDR Microscopic Quantification Result: 2-3%		
<b>Photograph No. 12</b>		
Node: B13R  HDR Microscopic Quantification Result: 1-2%		



Client Name:	Site Location:	Node Photographic Log
Muskegon Environmental Redevelopment Group, LLC (MERG)	Former B.C. Cobb Power Plant Bottom Ash Pond and Ponds 0-8 Muskegon, Michigan	HDR Project No. 10220433
<p><b>Photograph No. 13</b></p> <p>Node: B14R</p> <p>HDR Microscopic Quantification Result: &lt;1%</p>		
<p><b>Photograph No. 14</b></p> <p>Node: B15R</p> <p>HDR Microscopic Quantification Result: &lt;1%</p>		







Client Name:	Site Location:	Node Photographic Log
Muskegon Environmental Redevelopment Group, LLC (MERG)	Former B.C. Cobb Power Plant Bottom Ash Pond and Ponds 0-8 Muskegon, Michigan	HDR Project No. 10220433
<b>Photograph No. 15</b>		
Node: B16R  HDR Microscopic Quantification Result: <1%		
<b>Photograph No. 16</b>		
Node: B17R  HDR Microscopic Quantification Result: 1-2%		



Client Name:	Site Location:	Node Photographic Log
Muskegon Environmental Redevelopment Group, LLC (MERG)	Former B.C. Cobb Power Plant Bottom Ash Pond and Ponds 0-8 Muskegon, Michigan	HDR Project No. 10220433
<p><b>Photograph No. 17</b></p> <p>Node: B18R</p> <p>HDR Microscopic Quantification Result: 2-3%</p>		
<p><b>Photograph No. 18</b></p> <p>Node: B19R</p> <p>HDR Microscopic Quantification Result: &lt;1%</p>		







Client Name:	Site Location:	Node Photographic Log
Muskegon Environmental Redevelopment Group, LLC (MERG)	Former B.C. Cobb Power Plant Bottom Ash Pond and Ponds 0-8 Muskegon, Michigan	HDR Project No. 10220433
Photograph No. 19		
Node: B20R  HDR Microscopic Quantification Result: <1%		
Photograph No. 20		
Node: B21R  HDR Microscopic Quantification Result: <1%		



Client Name:	Site Location:	Node Photographic Log
Muskegon Environmental Redevelopment Group, LLC (MERG)	Former B.C. Cobb Power Plant Bottom Ash Pond and Ponds 0-8 Muskegon, Michigan	HDR Project No. 10220433
<p><b>Photograph No. 21</b></p> <p>Node: B22R</p> <p>HDR Microscopic Quantification Result: 2-3%</p>		
<p><b>Photograph No. 22</b></p> <p>Node: B23R</p> <p>HDR Microscopic Quantification Result: &lt;1%</p>		






Client Name:	Site Location:	Node Photographic Log
Muskegon Environmental Redevelopment Group, LLC (MERG)	Former B.C. Cobb Power Plant Bottom Ash Pond and Ponds 0-8 Muskegon, Michigan	HDR Project No. 10220433
<b>Photograph No. 23</b>		
Node: B24R  HDR Microscopic Quantification Result: <1%		
<b>Photograph No. 24</b>		
Node: B25R  HDR Microscopic Quantification Result: 2-3%		



Client Name:	Site Location:	Node Photographic Log
Muskegon Environmental Redevelopment Group, LLC (MERG)	Former B.C. Cobb Power Plant Bottom Ash Pond and Ponds 0-8 Muskegon, Michigan	HDR Project No. 10220433
<b>Photograph No. 25</b>		
<p>Node: B26R</p> <p>HDR Microscopic Quantification Result: 3-4%</p>		
<b>Photograph No. 26</b>		
<p>Node: B27R</p> <p>HDR Microscopic Quantification Result: 1-2%</p>		





Client Name:	Site Location:	Node Photographic Log
Muskegon Environmental Redevelopment Group, LLC (MERG)	Former B.C. Cobb Power Plant Bottom Ash Pond and Ponds 0-8 Muskegon, Michigan	HDR Project No. 10220433
<b>Photograph No. 27</b>		
Node: B28R  HDR Microscopic Quantification Result: 1-2%		
<b>Photograph No. 28</b>		
Node: B29R  HDR Microscopic Quantification Result: 2-3%		




Client Name:	Site Location:	Node Photographic Log
Muskegon Environmental Redevelopment Group, LLC (MERG)	Former B.C. Cobb Power Plant Bottom Ash Pond and Ponds 0-8 Muskegon, Michigan	HDR Project No. 10220433
<p><b>Photograph No. 29</b></p> <p>Node: B30R</p> <p>HDR Microscopic Quantification Result: &lt;1%</p>		
<p><b>Photograph No. 30</b></p> <p>Node: B31R</p> <p>HDR Microscopic Quantification Result: &lt;1%</p>		





Client Name:	Site Location:	Node Photographic Log
Muskegon Environmental Redevelopment Group, LLC (MERG)	Former B.C. Cobb Power Plant Bottom Ash Pond and Ponds 0-8 Muskegon, Michigan	HDR Project No. 10220433
<b>Photograph No. 31</b>		
Node: B32R  HDR Microscopic Quantification Result: 2-3%		
<b>Photograph No. 32</b>		
Node: B33R  HDR Microscopic Quantification Result: 2-3%		



Client Name:	Site Location:	Node Photographic Log
Muskegon Environmental Redevelopment Group, LLC (MERG)	Former B.C. Cobb Power Plant Bottom Ash Pond and Ponds 0-8 Muskegon, Michigan	HDR Project No. 10220433
<div data-bbox="175 384 423 415"> <b>Photograph No. 33</b> </div> <div data-bbox="131 457 399 615"> Node: B34R   HDR Microscopic Quantification Result:  2-3% </div>		
		



**ATTACHMENT D**  
PHOTOGRAPHIC DOCUMENTATION –  
MICROSCOPIC QUANTIFICATION

Client Name:	Site Location:	Microscopic Photographic Log
Muskegon Environmental Redevelopment Group, LLC (MERG)	Former B.C. Cobb Power Plant Bottom Ash Pond and Ponds 0-8 Muskegon, Michigan	HDR Project No. 10220433
<div data-bbox="180 384 412 415"><b>Photograph No. 1</b></div> <div data-bbox="131 457 464 741"> <p>Node: B2R</p> <p>HDR Microscopic Quantification Result: 1-2%</p> <p>Note: Light colored and transparent quartz. Scarce CCR present.</p> </div>		
<div data-bbox="180 1161 412 1192"><b>Photograph No. 2</b></div> <div data-bbox="131 1234 464 1518"> <p>Node: B10R</p> <p>HDR Microscopic Quantification Result: 2-3%</p> <p>Note: Sporadic small CCR particles (red arrows) mixed with clean sand.</p> </div>		







Client Name:	Site Location:	Microscopic Photographic Log
Muskegon Environmental Redevelopment Group, LLC (MERG)	Former B.C. Cobb Power Plant Bottom Ash Pond and Ponds 0-8 Muskegon, Michigan	HDR Project No. 10220433
Photograph No. 3		
Node: B11R  HDR Microscopic Quantification Result: <1%  Note: Clean natural sand.		
Photograph No. 4		
Node: B18R  HDR Microscopic Quantification Result: 2-3%  Note: Sporadic small CCR particles (red arrows) present mixed with clean sand.		


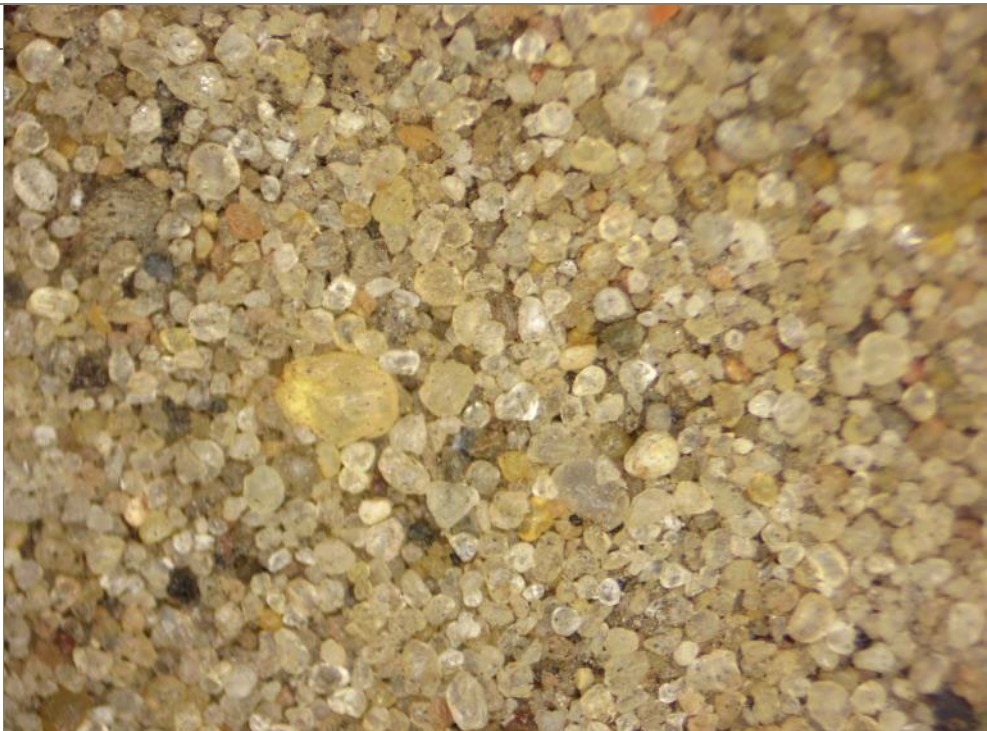


Client Name:	Site Location:	Microscopic Photographic Log
Muskegon Environmental Redevelopment Group, LLC (MERG)	Former B.C. Cobb Power Plant Bottom Ash Pond and Ponds 0-8 Muskegon, Michigan	HDR Project No. 10220433
<div data-bbox="131 380 464 422"> <b>Photograph No. 5</b> </div> <div data-bbox="131 453 464 743"> <p>Node: B24R</p> <p>HDR Microscopic Quantification Result: &lt;1%</p> <p>Note: Light colored and transparent quartz. Scarce CCR present.</p> </div>		
<div data-bbox="131 1157 464 1199"> <b>Photograph No. 6</b> </div> <div data-bbox="131 1230 464 1551"> <p>Node: B29R</p> <p>HDR Microscopic Quantification Result: 2-3%</p> <p>Note: Sporadic small CCR particles (red arrows) present mixed with clean sand.</p> </div>		







Client Name:	Site Location:	Microscopic Photographic Log
Muskegon Environmental Redevelopment Group, LLC (MERG)	Former B.C. Cobb Power Plant Bottom Ash Pond and Ponds 0-8 Muskegon, Michigan	HDR Project No. 10220433
<b>Photograph No. 7</b>		
Node: B31R  HDR Microscopic Quantification Result: <1%  Note: Clean natural sand.		
<b>Photograph No. 8</b>		
Node: B34R  HDR Microscopic Quantification Result: 2-3%  Note: Sporadic small CCR particles present mixed with clean sand.		