



CCP Annual Inspection Report

Brickhaven No. 2 Mine Tract A Structural Fill
DWM Permit 1910, DEMLR Permit 19-25

Charah, Inc.

Moncure, North Carolina
October 2016



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Introduction

This report summarizes the findings for the first annual inspection conducted on June 23, 2016, of the Brickhaven No.2 Mine Tract “A” structural fill located off Moncure-Flatwood Road in Chatham County, North Carolina. The site is owned by Green Meadow, LLC and operated by Charah, Inc. under North Carolina Department of Environmental Quality (NCDEQ) Division of Waste Management (DWM) Structural Fill Permit 1910 issued June 5, 2015, in conjunction with the NCDEQ Division of Energy, Mineral and Land Resources (NCDEMLR) Mining Permit 19-25 also issued June 5, 2015. The Brickhaven No. 2 Mine Tract “A” structural fill project has been permitted and constructed in accordance with the North Carolina Coal Ash Management Act of 2014 (CAMA) and NCDEQ structural fill rules. The structural fill will be developed in six cells. As of the date of this inspection, all of Cell 1 has been constructed (Subcells A, B, C and D) and granted permits to operate.

Inspection Report

The goal of this inspection is to ensure the design, construction, operation, and maintenance of the structural fill unit is generally consistent with recognized good engineering practices and to ensure a detailed level of engineering analysis of operating conditions are evaluated which could lead to recommendations to address design or operating issues that need attention. This inspection includes the following.

- A discussion of the findings and remedies for any issues found in the document review.
- A discussion of the findings and remedies for any issues found in the site inspection.
- Any changes in the geometry of the structure since the previous annual inspection and related documentation submitted to regulators.
- The approximate volume of the coal combustion products (CCP) contained in the unit at the time of the inspection.
- Any appearance of an actual or potential structural weakness of the CCP unit.
- Any existing conditions that are disrupting, or have the potential to disrupt, the operation and safety of the CCP unit.

The inspection report below discusses the document and visual inspection review.

Document Review

HDR reviewed the availability of complete and up to date permit documents as well as Charah’s adherence to required recordkeeping. Operating Record documents include the following.

Permit Documents

- NCDEQ structural fill permit and modification(s)
- NCDEQ mine permit and modification(s)
- Erosion control permit and modification(s)
- Erosion control plans
- NPDES permit

- Leachate discharge permit
- Leachate pump and haul permit
- Waterline permit
- NCDEQ inspection reports
- Stormwater pollution prevention plan

Operational Documents

- Operations plan
- Safety reports
- Groundwater reports
- Leachate collection and discharge records
- Leachate analysis reports
- Site inspection (weekly) reports
- Tonnage reports
- Compaction test reports
- Topographic surveys
- As-built drawings
- Training records for the qualified person(s) performing the weekly inspections
- Records/receipts for all (liner, leachate, and groundwater) system repairs.
- Incident reports (safety, delivery of non-CCP materials, spills, etc.)
- Documentation of cover placement

Weekly inspections were performed and documented by site personnel regarding operations, safety, maintenance of the groundwater wells, run-on and run-off controls, wind dispersal control systems, liner systems, and leachate collection systems. No deficiencies were identified as a result of the document review, nor did review of the above documents reveal any indications of operation, safety, or structural concerns regarding the CCP structural fill.

The CCP volume contained in the unit as of June 29, 2016, is 862,254 cubic yards based on the as-built survey provided by McAdams Company.

Visual Site Inspection

A visual inspection of the CCP structural fill was performed to identify signs of distress, malfunction, or threats to safety not identified in the document review or weekly inspection records. The weather during the site visit was partly cloudy with temperatures ranging from 72 to 90 degrees Fahrenheit. HDR staff conducted the site inspection traversing on foot from the leachate enclosure located at the southern end of Cell 1 in a counterclockwise direction around the cell. This inspection was limited to the CCP placement area and does not address other site operations including existing stockpiling, excavations, and the rail unloading area. The site inspection included an evaluation of the following site features.

1. Structural fill access
2. Leachate management system

3. Stormwater segregation and erosion control
4. Active CCP fill areas (CCP placement, spreading, and compaction)
5. Structural fill visual stability

Structural Fill Access

Facility access by road is controlled by a staffed gate requiring check in and check out of visitors. CCP arrives via railroad and is unloaded onto off-road dump trucks in a lined area and then hauled to the active CCP containment area. Stone access ramps are constructed and maintained to provide access from the unloading area to the lined containment area.

Leachate Management

The leachate management system for the cell includes a series of perforated HDPE pipes within the lined area that drain to a sump area where leachate is pumped through the leachate enclosure to onsite storage tanks. As the structural fill is constructed, Charah offsets the CCP surface inward from the containment berms to allow room to collect and convey leachate to the collection system. Refer to Photos 7 and 8 for examples. The leachate enclosure was operational and exhibited no signs of leakage. The leachate collection pipes were missing the pipes supports but otherwise were in good working order. The leachate tanks were being actively filled and exhibited no signs of leakage.

Stormwater Segregation and Erosion Control

Charah minimizes leachate generation by the use of temporary raincover to segregate stormwater from the CCP. At the time of this inspection, all subcells were actively receiving CCP; therefore, no raincover was being utilized. Charah is actively covering the CCP with soil as the final grades are achieved to segregate stormwater runoff as shown in Pictures 1 through 7. This soil is seeded as well to prevent erosion. In general, areas that had soil were stabilized with vegetation and were functioning as intended. There were a couple of areas of erosion repair and reseeded that had been recently completed on the eastern slope of Cell 1. Photos 4 and 5 show the repair of these areas. No signs of CCP release were observed and the repair was functioning as intended. Overall, the areas with interim cover appeared to have adequate soil cover and showed no signs of operational or structural concern. In general, areas of more recently constructed CCP, where topsoil had not yet been installed and vegetation not yet established, were showing no signs of rill erosion. As shown in Photo 9, one area in Subcell 1C did exhibit some erosion rills where the CCP grades had been laid back to direct contact water to the leachate drainage system in the floor. This is expected due to the slope grades and lack of vegetation. Rill erosion in these areas posed no apparent operational or structural concerns. Stormwater and erosion control outside of the structural fill is controlled by a perimeter channel that drains to the mine pond onsite. The initial haul road into Subcell 1A blocked the path of drainage, causing ponding at the base of the leachate enclosure. Charah has redirected the flow by adding a drop inlet and culvert as shown in Photo 2. HDR recommends monitoring the perimeter channel to ensure it contains the stormwater flows and prevents flooding of the leachate containment area. All site basins appear to be functioning as intended with no operational or structural concerns.

Active CCP Fill Areas

The site inspection included monitoring of CCP placement, spreading, and compacting in an active portion of the structural fill. Active filling was occurring in the Subcells B, C, and D areas. The CCP was placed in approximately 12-inch lifts and compacted using dozers. No wind blown CCP was observed during dumping and compacting operations. The lift sides were sloped at generally a 3 horizontal to 1 vertical slope and the observed operation appeared to be carried out in a safe manner.

Structural Fill Stability

Based on the site inspection, no apparent or potential structural weaknesses were observed. As stated above, continued monitoring and minor repairs should be completed to address rill and gully erosion before it becomes a potential structural fill weakness. Much of the site's interior rill erosion will be addressed as the structural fill operation continues. This interior rill erosion has limited potential of creating a structural weakness. There were no signs of exterior erosion rills but onsite staff should continue to monitor for any developments.

Summary

On June 23, 2016, HDR staff conducted the first annual CCP inspection for the Brickhaven No. 2 Mine Tract "A" CCP structural fill. The inspection included a file document review and a visual inspection of the structural fill operations.

Site staff is performing and maintaining the permit documents and the routine maintenance and monitoring reports as required. The site geometry was documented through an as-built provided by McAdams Co. The amount of CCP placed through June 29, 2016, has consumed 827,258 cubic yards of permitted airspace.

HDR's review of the means and methods and visual inspection of placement identified no apparent structural weaknesses. Based on HDR's review, there are no recommended operational changes at this time other than those identified above.



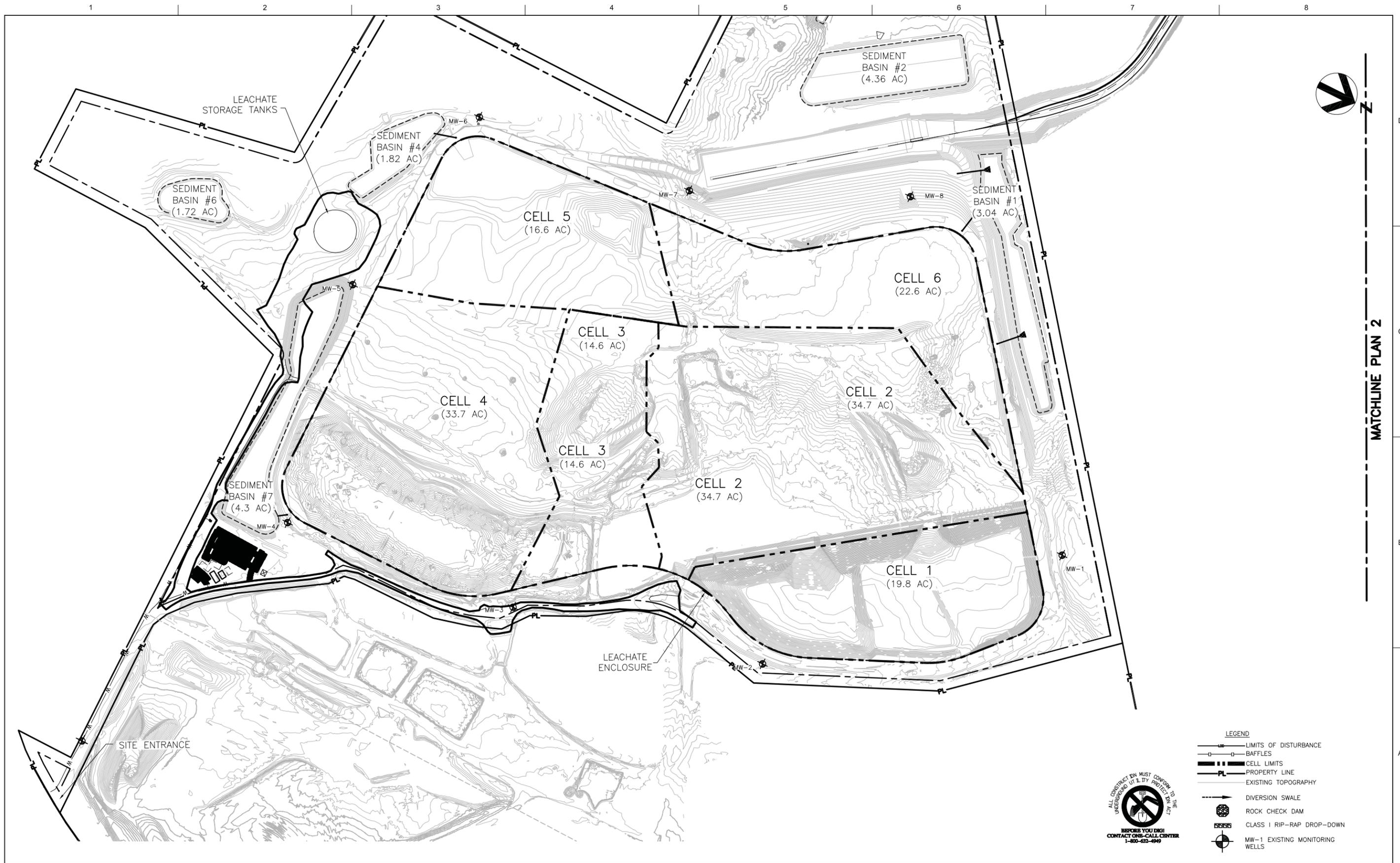
A

Appendix A – Site Map and Current As-Built Drawing





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- LEGEND**
- LIMITS OF DISTURBANCE
 - BAFFLES
 - CELL LIMITS
 - PROPERTY LINE
 - EXISTING TOPOGRAPHY
 - DIVERSION SWALE
 - ROCK CHECK DAM
 - CLASS 1 RIP-RAP DROP-DOWN
 - MW-1 EXISTING MONITORING WELLS

ALL CONSTRUCTION MUST CONFORM TO THE UNDERGROUND UTILITY PROTECT AND MARK ACT
BEFORE YOU DIG!
 CONTACT ONE-CALL CENTER
 1-800-432-4949



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 440 S. Church St. Suite 1000
 Charlotte, NC 28202-2075
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 N.C.B.E.L.S. License Number F-0116

PROJECT MANAGER	M.D. PLUMMER, P.E.	
DESIGNED BY		
DRAWN BY		
CHECKED BY		
PROJECT NUMBER	453925-237673-018	
ISSUE	DATE	DESCRIPTION



BRICKHAVEN No. 2 MINE TRACT "A" MINE
 STRUCTURAL FILL
 MONCURE, NC



FILENAME | FIG.1.dwg
 SCALE | 1"=200'

SHEET
FIGURE 1

C:\working\453925\BRICKHAVEN No. 2 Mine Tract "A" Site Plan.dwg, Plot 1, 10/12/2016 5:12:38 PM, csmiller



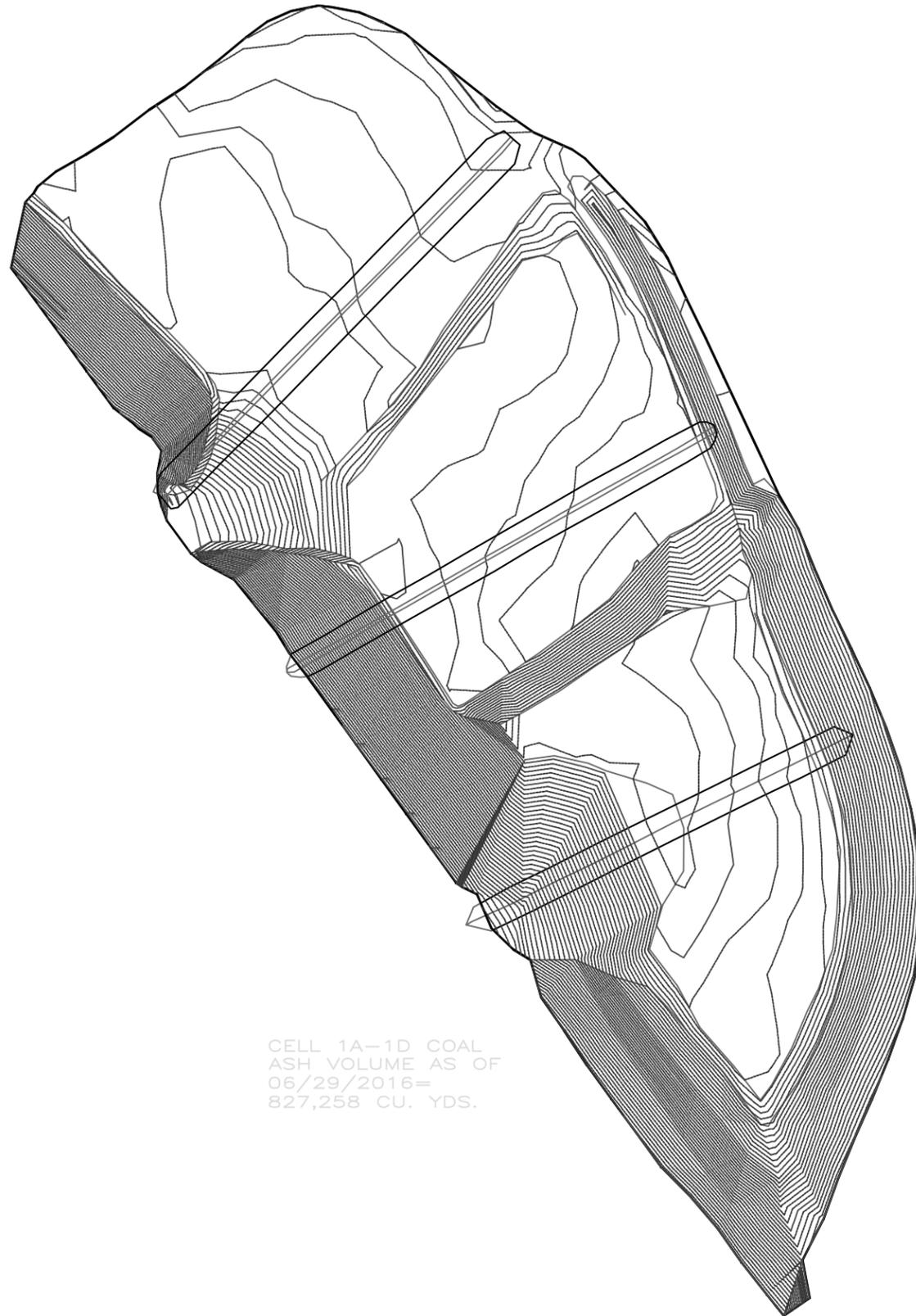
VICINITY MAP

N.T.S

I HEREBY CERTIFY THAT THE TOPOGRAPHIC SURVEY SHOWN HEREON IS BASED ON AN ACTUAL FIELD SURVEY MADE UNDER MY SUPERVISION AND ACCURATELY REPRESENTS THE PHYSICAL FEATURES THEREON AT THE TIME OF THIS SURVEY.

GREGORY C. BEWLEY, P.L.S. L-4805

DATE



CELL 1A-1D COAL
ASH VOLUME AS OF
06/29/2016=
827,258 CU. YDS.

PRELIMINARY PLAT
NOT FOR RECORDATION
CONVEYANCES OR SALES

GENERAL NOTES

1. THIS IS A SURVEY OF AN EXISTING PARCEL(S) OF LAND. THIS IS A TOPOGRAPHIC SURVEY.
2. BEARINGS FOR THIS SURVEY ARE BASED ON NAD 83 ESTABLISHED BY VRS GPS METHOD.
3. ALL DISTANCES ARE HORIZONTAL GROUND DISTANCES.
4. AREA BY COORDINATE GEOMETRY.
5. THIS SURVEY PERFORMED AND MAP PREPARED WITHOUT BENEFIT OF A TITLE REPORT. THIS SURVEY SUBJECT TO ANY FACTS AND EASEMENTS WHICH MAY BE DISCLOSED BY A FULL AND ACCURATE TITLE SEARCH.
6. ELEVATIONS FOR THIS SURVEY ARE BASED ON NAVD 88

REVISIONS:

1	
2	
3	
4	
5	
6	

OWNER:
CHARAH
12601 PLANTSIDE DRIVE
LOUISVILLE, KENTUCKY

BRICKHAVEN MINE #2
ASH VOLUMN CHECK
CHATHAM COUNTY, NORTH CAROLINA

PRODUCT NO. CHR-15010
FIELDNAME CHR-15010-ASH
CHECKED BY: WCR
DRAFT BY: GCB
SCALE: 1"=60'
DATE: 06-29-2016
SHEET NO. 1-1



THE JOHN R. McADAMS
COMPANY, INC.
9905 Mecklen Parkway
Durham, North Carolina 27719
License No.: C-02883
(800) 758-5646 • McAdamsCo.com



PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

C:\pwworking\john.r.mcadams\2016\CHR-15010-ASH-CELLS-1A-1D-10P.dwg 06/29/2016 10:50:38 AM GCB



B

Appendix B – Site Inspection Photographs



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1. Cell 1 stormwater segregation



2. Cell 1 leachate enclosure and drop inlet



3. Interim cover and seeding of top deck areas on the south side of Cell 1



4. Erosion repairs on the eastern slope of Cell 1



5. Erosion repairs on the eastern slope of Cell 1



6. Transition from final covered areas to active CCP placement



7. Transition from final covered areas to active CCP placement



8. Offset from the Cell 1-2 divider berm for leachate management



9. Tracked interim CCP surface to prevent erosion



10. Leachate cleanout pipe on the northern end of Cell 1



11. CCP placement in compacted lifts



12. Lift placement for CCP



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