CCP Annual Inspection Report

Brickhaven No. 2 Mine Tract A Structural Fill

DWM Permit 1910, DEMLR Permit 19-25

Charah, Inc.

Moncure, North Carolina

February 2019

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Contents

Appendices

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Introduction

This report summarizes the findings for the annual inspection conducted on January 16, 2020, 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 shown in Figure 1. As of the date of this inspection, all areas that have been granted permits to operate which include Cell 1 (Subcells A, B, C and D), Cell 2 (Subcells A, B, C, D, E, F and G) and Cell 6 (Subcells A, B and C) have been filled and are undergoing final closure.

Inspection Report

The goal of this inspection is to ensure the design, construction, and maintenance of the structural fill unit is consistent with recognized good engineering practices and 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)
- Construction Certifications

- 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
- CCP tonnage reports
- CCP source analysis 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. Where deficiencies were identified follow up corrective actions were also documented. Review of the above documents did not reveal any indications of operation or safety concerns regarding the CCP structural fill.

The CCP structural fill received a total of 7,237,665 tons of CCP as of October 2019 based on data provided by Charah.

Visual Site Inspection

A visual inspection, conducted on January 16, 2020, 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 sunny with an approximate temperature of 60 degrees Fahrenheit. The site had received heavy rains just prior to the inspection so special attention was made to the stormwater conveyance structures and sediment basins. This inspection was limited to the CCP structural fill, stormwater control devices and leachate systems. This does not address other site operations including existing

stockpiling, excavations, and the rail unloading area. The previous annual inspection was conducted on January 18, 2019, and it covered CCP placement in Cell 1, (Subcells A, B, C and D), Cell 2 (Sub cells A, B, C, D, E, F and G) and Cell 6 (Subcells A, B and C). Filling activities since the last inspection have occurred in the permitted areas of Cell 6, Subcells A, B and C which increased the in-place volume to 7,237,665 tons. Filling activities ceased in July 2019 and closure capping began. Refer to the cross-section drawings in Appendix A (Figure 3) to see the changes in the geometry of the structural fill. 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. Newly closed CCP fill areas
5. Structural fill visual stability

Structural Fill Access

Facility access from Moncure-Flatwood Road is controlled by a staffed gate requiring check in and check out of visitors. CCP would arrive via railroad, 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 to the top of the lined structural fill. The entire structural fill area is encompassed by a stone road that connects to the front entrance gate and leachate management facilities. Due to recent closure capping activities the perimeter road near the structural fill was disturbed and needed to be re-established as shown in Photo 1. The structural fill has two roads to access the top of the CCP structural fill. One road enters from the north at the Cell 1D/2A interface and the other enters from the south into the Cell 2G area shown in Photo 2.

Leachate Management

The leachate management system for the structural fill includes a series of perforated High-Density Polyethylene (HDPE) pipes within the lined area that drain to either a sump in Cell 1 or a sump in Cell 6. Both sumps have two pumps installed to pump leachate to three onsite storage tanks. At the Cell 1 sump the pump was actively pumping to the leachate storage tanks. The Cell 6 sump was not actively pumping as the liquid level in the sump was below the start elevation. Refer to Photo 3 to see the Cell 6 sump enclosure. The system was operating within its pressure range and the transducers were reading within their range.

The leachate enclosures and tanks exhibited no signs of leakage at the time of the inspection. The leachate tanks contained leachate and were actively being drained into tanker trucks for transportation to one of the approved disposal locations. Refer to Photo 4 to see an example of the leachate operations inspection form kept onsite.

Stormwater Segregation and Erosion Control

At the time of this inspection, all slopes had been recently capped with a composite liner system and covered with soil. There were some areas exhibiting erosion rills as shown in Photo 5 taken just east of the Cell 6 sump enclosure and on the slope near the Cell 2G access road as shown

on Photo 6. Photo 6 also shows the capped area requiring seeding beneath the power lines and the unconstructed subcell 6D area. For the remainder structural fill Photos 7 through 11 show good vegetation growth. Photos 12 through 14 show the performance of the permitted sediment basins. All basins were observed to contain the stormwater and function properly.

Closed CCP Fill Areas

The site inspection included monitoring of the closed CCP structural fill. The as-built survey was provided by McAdams Company and shows the final development of the structural fill. HDR has provided cross-sections in Appendix A showing the changes in geometry between the 2018 and 2019 inspection reports.

Overall, the filled and capped areas appeared to have adequate soil cover and showed no signs of operational or structural concern. The final slopes were seeded with the exception of the areas noted above. No signs of CCP release were observed.

Structural Fill Stability

Based on the site inspection, no structural weaknesses were observed in the compacted CCP material.

Summary

Site staff are performing and maintaining the permit documents and routine maintenance and monitoring reports as required. The following deficiencies in site conditions were identified to Charah staff at the time of inspection:

- Complete seeding of the capped areas beneath the power lines
- Fix erosion rills near the Cell 6 enclosure and seed.
- Re-establish the stone access road on the northern side of the structural fill.

HDR's review and visual inspection identified no apparent structural weakness in the CCP material placed as a part of the permanent structural fill.

A

Appendix A – Drawings

- Figure 1 - Overall Site Plan
- Figure 2 - Current CCP Fill Area
- Figure 3 - Structural Fill Cross Sections

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NOTE:

1. CONTOURS INSIDE OF THE LINED AREA REPRESENT TOP OF ASH CONTOURS.

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ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	
DESIGNED BY	Z. PRIESTER
DRAWN BY	
CHECKED BY	
PROJECT NUMBER	

Charah

BRICKHAVEN No. 2 MINE TRACT "A" MINE
SITE INSPECTION
MONCURE, NC

OVERALL SITE PLAN

0 1" 2"

FILENAME	Overall Site Plan SI.dwg
SCALE	1"=200'

FIGURE 1

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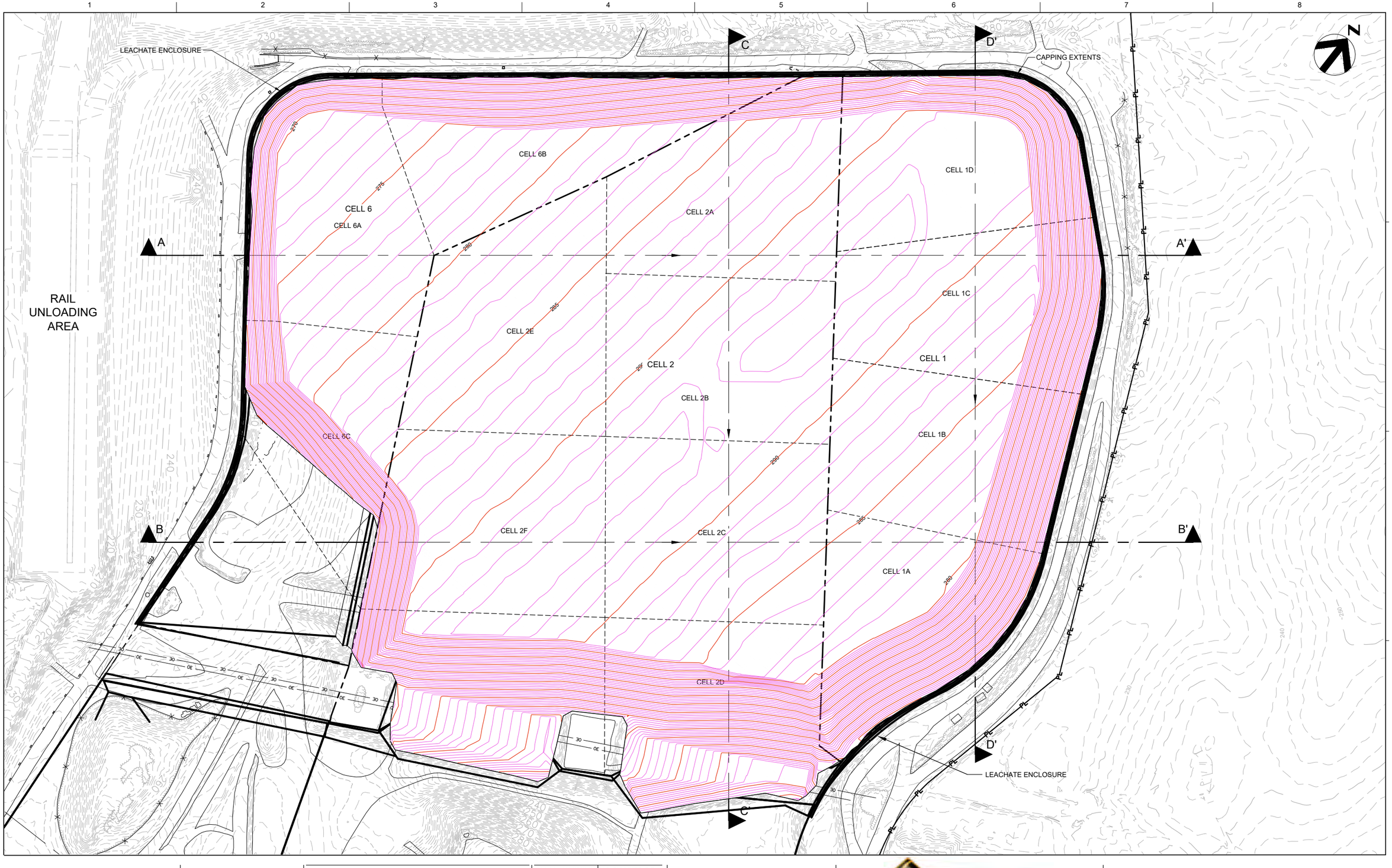

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ISSUE	DATE	DESCRIPTION

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DESIGNED BY	J. GAUL
DRAWN BY	
CHECKED BY	
PROJECT NUMBER	

Charah

BRICKHAVEN No. 2 MINE TRACT "A" MINE
SITE INSPECTION
MONCURE, NC

CURRENT CCP FILL AREA

0 1" 2"

FILENAME Overall Site Plan SI.dwg
SCALE 1"=100'

FIGURE 2

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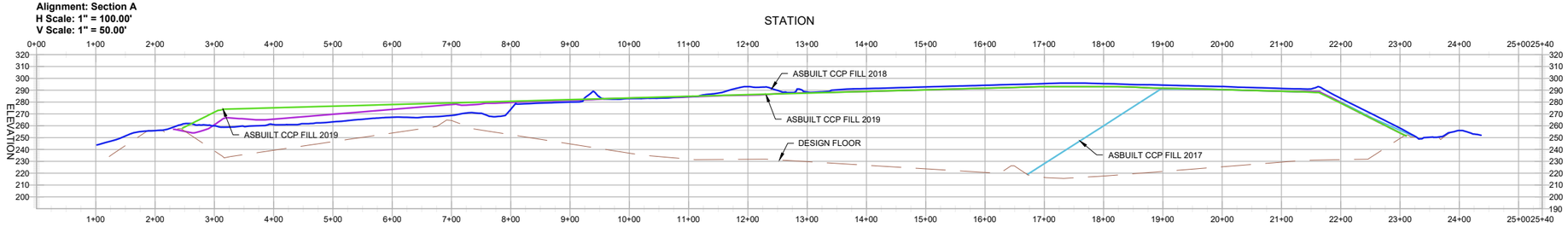
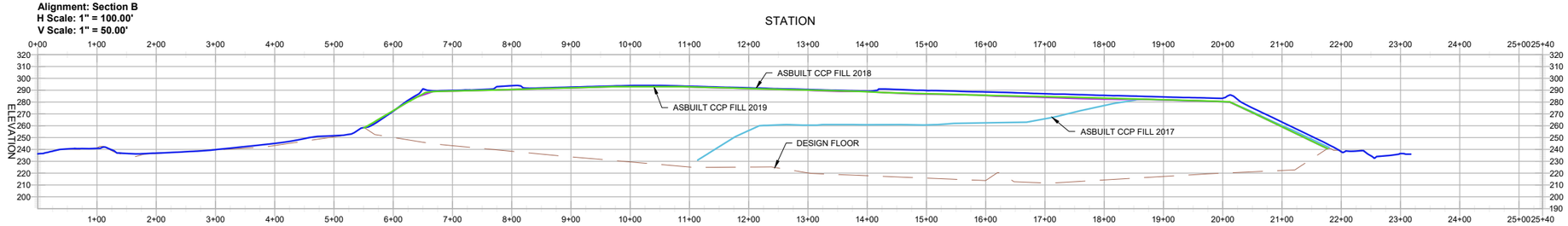
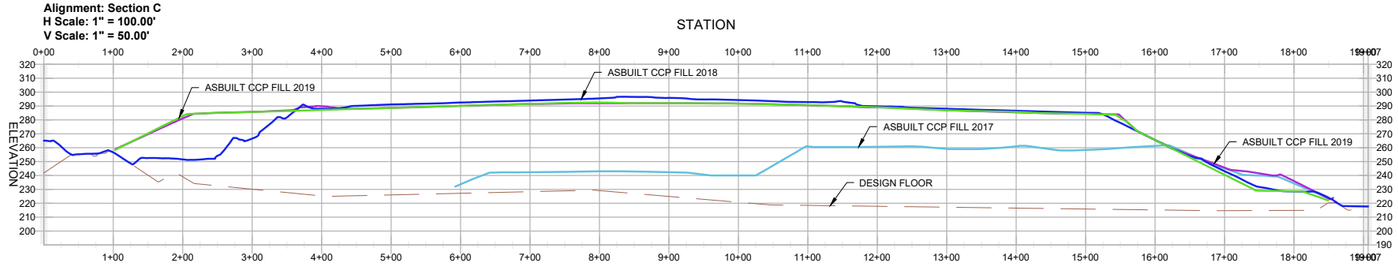
Alignment: Section A
H Scale: 1" = 100.00'
V Scale: 1" = 50.00'



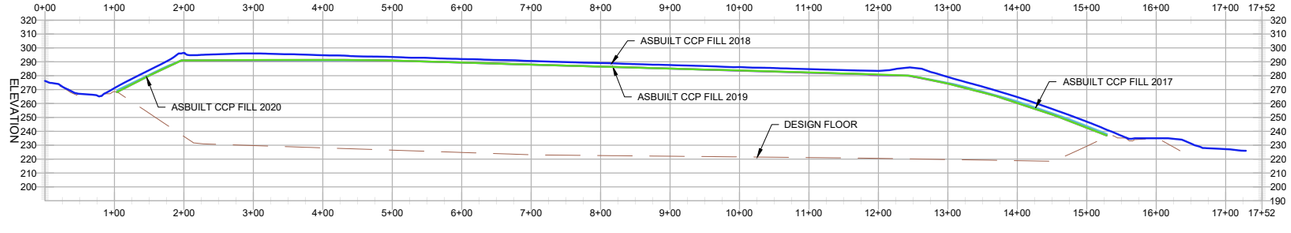
Alignment: Section B
H Scale: 1" = 100.00'
V Scale: 1" = 50.00'



Alignment: Section C
H Scale: 1" = 100.00'
V Scale: 1" = 50.00'



Alignment: Section D
H Scale: 1" = 100.00'
V Scale: 1" = 50.00'



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ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	M.D. PLUMMER, P.E.
DESIGNED BY	J. GAUL
DRAWN BY	
CHECKED BY	
PROJECT NUMBER	

Charah

BRICKHAVEN No. 2 MINE TRACT "A" MINE
SITE INSPECTIONS
MONCURE, NC

SITE SECTIONS

0 1" 2"

FILENAME Overall Site Plan SI.dwg
SCALE as shown

FIGURE 3

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B

Appendix B – Site Inspection Photographs

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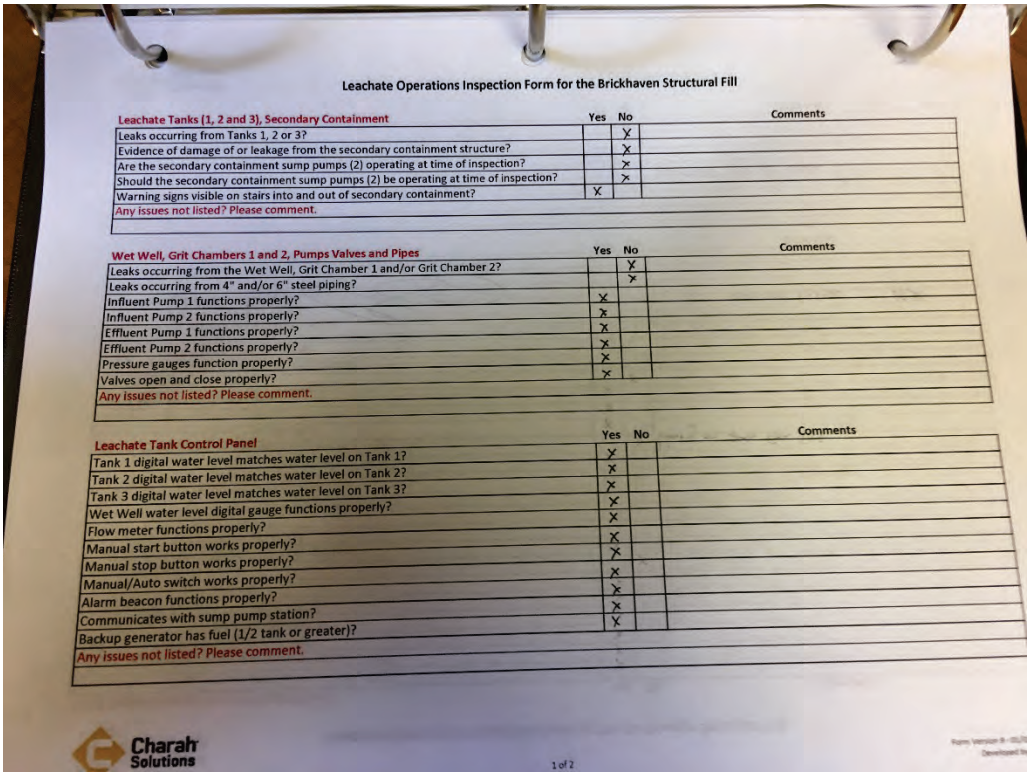
Photo 1

Photo 2

Photo 3



Leachate Operations Inspection Form for the Brickhaven Structural Fill

Leachate Tanks (1, 2 and 3), Secondary Containment	Yes	No	Comments
Leaks occurring from Tanks 1, 2 or 3?		X	
Evidence of damage of or leakage from the secondary containment structure?		X	
Are the secondary containment sump pumps (2) operating at time of inspection?		X	
Should the secondary containment sump pumps (2) be operating at time of inspection?		X	
Warning signs visible on stairs into and out of secondary containment?	X		
Any issues not listed? Please comment.			

Wet Well, Grit Chambers 1 and 2, Pumps Valves and Pipes	Yes	No	Comments
Leaks occurring from the Wet Well, Grit Chamber 1 and/or Grit Chamber 2?		X	
Leaks occurring from 4" and/or 6" steel piping?		X	
Influent Pump 1 functions properly?	X		
Influent Pump 2 functions properly?	X		
Effluent Pump 1 functions properly?	X		
Effluent Pump 2 functions properly?	X		
Pressure gauges function properly?	X		
Valves open and close properly?	X		
Any issues not listed? Please comment.			

Leachate Tank Control Panel	Yes	No	Comments
Tank 1 digital water level matches water level on Tank 1?	X		
Tank 2 digital water level matches water level on Tank 2?	X		
Tank 3 digital water level matches water level on Tank 3?	X		
Wet Well water level digital gauge functions properly?	X		
Flow meter functions properly?	X		
Manual start button works properly?	X		
Manual stop button works properly?	X		
Manual/Auto switch works properly?	X		
Alarm beacon functions properly?	X		
Communicates with sump pump station?	X		
Backup generator has fuel (1/2 tank or greater)?	X		
Any issues not listed? Please comment.			

Charah Solutions

1 of 2

Photo 4

Photo 5

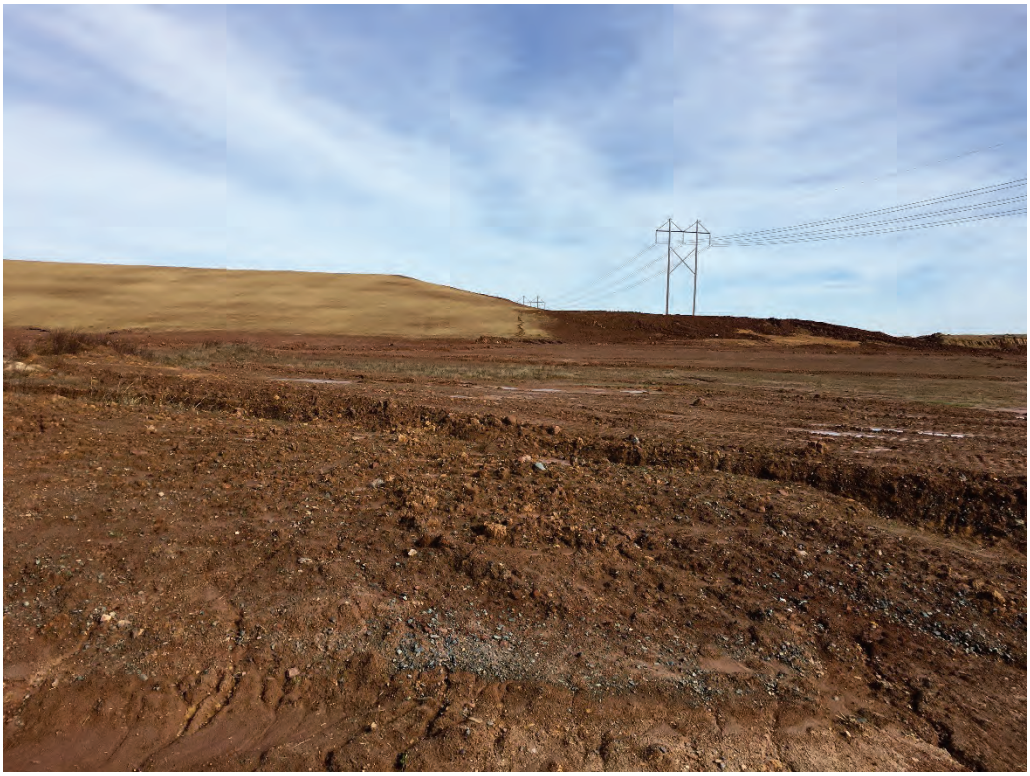


Photo 6

Photo 7

Photo 8

Photo 9

Photo 10

Photo 11

Photo 12

Photo 13

Photo 14

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