WEEKLY SUMMARY REPORT

Week Ending: 08/24/2024 (Saturday)
Report No.: W-02-082424

Civil & Environmental Consultants, Inc.

PROJECT INFORMATION

PROJECT NAME:	BYPASS BASIN RETROFIT CQA		
LOCATION:	Powerton Generating Station	CEC PROJECT NO:	343-014.0200
PLANS AND SPECS:	S&L Bypass Basin Retrofit Project	WEATHER:	Sunny, No Rain
ISSUED DATE:	07/12/24	TEMP. RANGE (°F)	52-90

PERSONNEL

FIELD REP(S):	Derek Dorsz, Alexander Bush, Saurabhh Saawant	CEC PROJ. MANAGER(S):	Dean Jones
CLIENT:	Midwest Generation	CLIENT CONTACT(S):	Joe Kotas
CONTRACTOR:	Bluff City Construction (BCC)	SUPERVISOR:	Larry Hunt
CONTRACTOR:	Clean Air and Water Systems (CAAWS)	SUPERVISOR:	Andy Khamarlorm

SAFETY MEETINGS AND PARTICIPATION

Participation in Contractor's Tailgate Safety Meeting? ☐ **Yes** ☒ **No** *Vehicle Check Performed?* ☒ **Yes or** ☐ **No**

Plan for the Day Required (WSM 200.25): ☐ Yes (CLICK LINK BELOW) ☒ No

WORK PERFORMED SINCE CEC'S LAST VISIT(1)

Work performed since CEC representative's last site visit? (1) ☐ **Yes** ☒ **No**

Date CEC representative was last onsite: **Saturday, August 24, 2024**

(1) Critical work or work requiring continuous observation that has been completed without CEC representation being present onsite. CEC was not made aware that this work was being completed.

SUMMARY OF WORK OBSERVED, LOCATION, AND CONTRACTOR PERFORMING WORK

- Bluff City Construction (BCC) received loads of structural fill.
- Placed, graded, and compacted the final lift of structural fill within the bottom of the bypass basin and inlet structure, including adding water to achieve adequate compaction of the lifts.
    - Each lift thickness verified before and after compaction efforts to verify lift thicknesses.
    - Each lift compaction tested with the nuclear density gauge and sand cone, see attachments for reports.
- Graded structural fill on access ramp.
- Surveyed structural fill grades.
- Fusion welded 6" HDPE perforated leachate collection pipe. Perforations were orientated properly.
- Installed electrofusion couplers on 12" HDPE riser pipe.
- Installed non-woven geotextile, crushed aggregate bedding stone (CAB) within central trench, then installed 6" leachate collection pipe and 12" riser pipe within the trench and sump area.
- Excavated anchor trench on south, west, southeast, and northwest edges of basin.
- Placed lower sand cushion layer on top of the west and south sides of the basin.
- Received delivery of GCL.
    - Rolls unloaded and staged in the staging area located east of the bypass basin. Unloading methods and staging area were acceptable.
    - Rolls matched rolls listed in the approved submittals.
- Otto Baum applied Recrete 20 to inlet structure and grouted pipe at the outlet structure.
- Otto Baum filled vertical CMP with flowable fill.
- CAAWS inspected and approved of the bypass basin subgrade,
- CAAWS deployed and installed GCL and geomembrane across the basin.

  - Installation procedures from specifications were followed.
- CAAWS performed testing on seams of the geomembrane.
- CAAWS installed batten strips on outlet structure.
- CAAWS performed detail work around concrete structures and slope indicators.

UNEXPECTED, UNUSUAL, OR NONCONFORMING OBSERVATIONS (NEW / RESOLVED)

Unexpected, unusual, or nonconforming work observed? ☐ **Yes** ☒ **No**

- N/A

SUMMARY OF MEETINGS / DISCUSSIONS / PHONE CONVERSATIONS

- N/A

ATTACHMENTS

- Field Density Test Report and Sand Cone Test Reports
- Results of HDPE destructive testing.

DESCRIPTION OF SAMPLES TAKEN OR MATERIALS DELIVERED TO LAB

- PBBR-SF-5 sample collected and taken to lab.
- PBBR-CAB-1 sample collected and taken to lab.
- CAAWS removed two 2-foot sections from selected rolls of GCL for laboratory testing.
- Samples of flowable fill were collected and taken to lab.
- HDPE geomembrane destructive samples (DS-1 through DS-8) were collected, overnighted to lab, and received results.

PHOTOGRAPHS

Photo 1: shows storage of liner.

* No representations or warranties are made regarding the accuracy of the information generated by the Theodolite application, which is stamped on the photo, or the suitability of that information for any; legal, engineering, surveying, or other use or purpose.

Photo 2: shows excavation of anchor trench.

Photo 3: shows deployment of GCL, geomembrane, and installation of CAB.

Photo 4: shows batten strips along outlet structure.

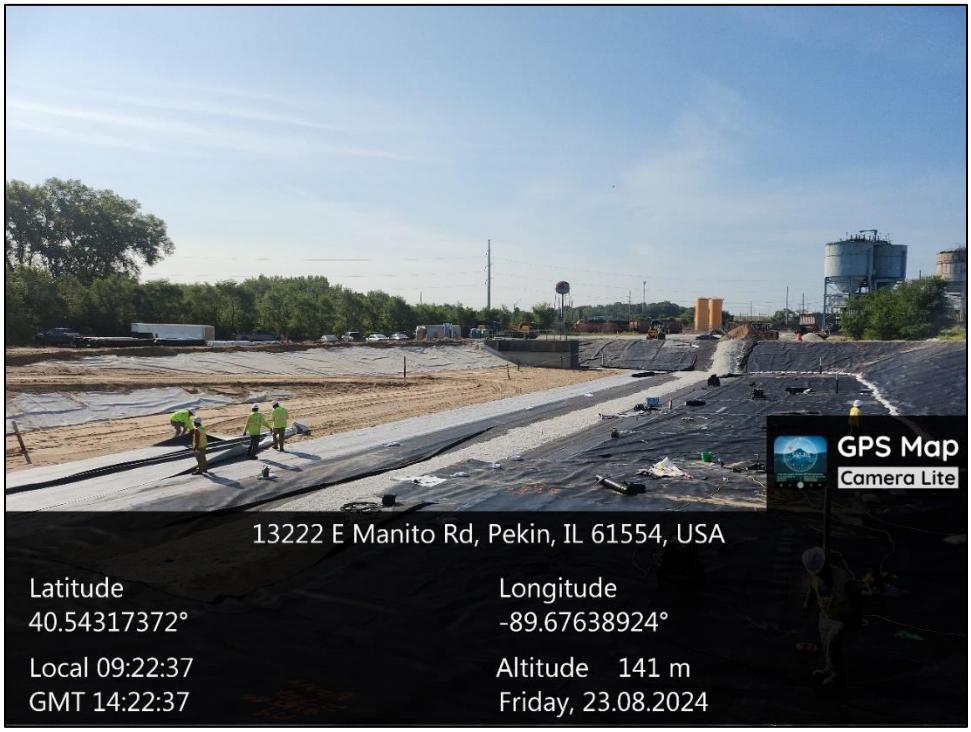

Photo 5: shows placement of geomembrane on western half of basin.

APPROVED BY

FIELD REP: Derek Dorsz DATE: 08/24/2024 CEC MANAGER: Dean Jones DATE: 08/26/2024

This document is draft until reviewed and approved by a Project Manager

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DAILY FIELD REPORT

Date: 08/20/2024 (Tuesday)
Report No.: 08-082024

Civil & Environmental Consultants, Inc.

NUCLEAR COMPACTION TEST DATA (ASTM D6938)

PROJECT NAME: Powerton Bypass Basin Retrofit
PROJECT NUMBER: 343-014
CEC TECHNICIAN: Derek Dorsz
GAUGE NUMBER: 27636
CONTRACTOR: Bluff City Construction

STANDARD COUNTS:

DENSITY 954 **%** **DEVIATION** 0.32 **±1% PASSING**
MOISTURE 613 **%** **DEVIATION** 0.33 **±2% PASSING**

TEST NUMBER	13	14	15	16		
LOCATION	N: 1411934.6 E:2432898.2	N: 1411910.6 E: 2432893.1	N: 1411886.5 E: 2432902.8	N: 1412025.9 E: 2432879.7		
ELEVATION OR LIFT NUMBER	Lift 4 Z: 458.5	Lift 4 Z: 458.2	Lift 4 Z: 458.3	Lift 4 Z 458.4		
LIFT THICKNESS (in.)	8	8	8	8		
NUMBER OF PASSES	2	2	2	2		
PROBE DEPTH (in.)	0	0	0	0		
FIELD WET DENSITY (pcf)	113.3	116.2	109.8	113.7		
FIELD DRY DENSITY (pcf)	107.3	108.5	107.4	107.9		
COMPACTION (%)	95.1	96.2	95.2	95.7		
COMPACTION PASS/FAIL	PASS	PASS	PASS	PASS		
FIELD MOISTURE (%)	5.6	7.1	5.4	5.4		
MOISTURE PASS/FAIL	PASS	PASS	PASS	PASS		
LAB PROCTOR MDD	112.8	112.8	112.8	112.8		
PROCTOR TYPE (Mod./Stan.)	Modified	Modified	Modified	Modified		
SPECIFIED MIN. COMPACTION (%)	95.0	95.0	95.0	95.0		
LABORATORY OMC (%)	12.0	12.0	12.0	12.0		
SPECIFIED MOISTURE RANGE	N/A	N/A	N/A	N/A		
RETEST NUMBER	N/A	N/A	N/A	N/A		
REMARKS						

NOTES:
1. MDD denotes Maximum Dry Density.
2. OMC denotes Optimum Moisture Content.
3. Elevations and lift thicknesses are approximate.
4. N denote Northing, E denotes Easting, and Z denotes elevation. Coordinates given by Bluff City Construction.

Powerton Bypass Basin Retrofit
Sand Cone Test

Civil & Environmental Consultants, Inc.

Sand Cone Analysis (Cannot be performed in soils with coarse aggregates)
Date: 8/20/24 Test No: 16

This method is using balance scales measuring mass **to determine unit weight**. If you are using digital scales or scales with springs for the force-measuring mechanism, use the "Pounds-Force" Tab.

Obtain Sample for Wet Density

- Excavate hole with large metal spoon or garden trowel that is 3 to 4" in diameter and 3 to 4 inches deep in order to obtain a sample of at least 500 grams (1.1 lbs).

- Fill the cone on the apparatus with the sand from the sandcone to detemine the weight of the sand in the cone.

-Weight of sand from full cone (W_1) in Pounds (grams) = 1573.000 grams
-Weight of cone/jar aperatus with sand = (W) in grams 7118.000 grams
-Enter pre-determined density of sand in jar = 1.530 g/cm^3

-Place base plate over excavated hole with hole in base plate in ceter of excavated hole.
-Weigh moist/wet soil from excavation Ws = 597.000 grams
- Place cone (attached to sand jar) over hole and open valve.
- Turn Valve off and remove cone and base plate. If excavation is not full, spread sand evenly in excavation and repeat last step.

- Determine Volume of Hole Excavated.

- Weigh jar and remaining sand **(W_2)** 5047.000 grams + weight of sand in the full cone **(W_1)** and subtract from weight of full jar **(W)**: **W - (W_1+W_2)** 498.000 grams

Volume of Excavation = 325.490 cm^3

Wet Density of Excavated Soil W_W = 1834.157 kg/m^3

Dry Density of Soil

- Place moist soil obtained from the excavation into pan for drying after weighing on the scale
- Place material in iron skillet over active burner and break apart the core so that it can be dried over the heat.
- Carefully remove dried material from skillet making sure to transfer all material into a tin or other aparatus to be weighed.

- Obtain weight in grams of dry soil W_D = 569.000 grams
- Moisture Content of sample = 4.690 %

Soil Dry Density = 1751.986 **kg/m^3**

***Soil Dry Unit Wt. = 109.32 **lb/ft^3** *** measured in force (lb/ft^3)

Date: 2024-08-24

Mail To:
Derek Dorsz
Civil and Environmental Consultants
1230 E Diehl Rd, Suite 200
Naperville , IL , 60563

Bill To:

Civil and Environmental Consultants
343-014

e-mail:
ddorsz@cecinc.com abush@cecinc.com djones@cecinc.com

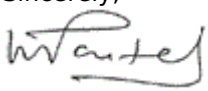
Dear Dorsz,

Thank you for consulting with TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:	**Bypass Basin Retofit Powerton**
TRI Job Reference Number:	**81492**
Material(s) Tested:	(6) Heat Fusion Weld Seam(s) (2) Single Fusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

Codes:	
AD	Adhesion Failure (100% Peel)
BRK	Break in sheeting away from Seam edge.
SE	Break in sheeting at edge of seam.
AD-BRK	Break in sheeting after some adhesion failure - partial peel.
SIP	Separation in the plane of the sheet (leaving the bond intact).
FTB	Film tearing bond (all non "AD" failures).
NON-FTB	100% peel.

If you have any questions or require any additional information, please call us at 1-800-880-8378.
Sincerely,



Mansukh Patel
Sr. Laboratory Coordinator
Geosynthetic Services Division
http://www.geosyntheticstestinc.com

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Civil and Environmental Consultants
Project: Bypass Basin Retofit Powerton

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81492

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-1 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	120	115	116	114	116	**116**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	112	117	118	125	111	**117**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	162	157	166	163	161	**162**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-2 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	132	135	136	135	125	**133**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	145	138	153	151	139	**145**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	161	162	164	165	161	**163**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Civil and Environmental Consultants
Project: Bypass Basin Retofit Powerton

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81492

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-3 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	132	126	127	133	124	**128**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	125	127	120	120	130	**124**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	163	157	156	157	158	**158**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-4 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	110	107	108	108	107	**108**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	127	127	116	117	122	**122**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	165	160	160	160	164	**162**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Civil and Environmental Consultants
Project: Bypass Basin Retofit Powerton

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81492

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-7 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	147	142	151	155	148	**149**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	142	142	144	148	143	**144**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	165	163	152	165	157	**160**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-8 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	121	120	119	119	121	**120**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	122	111	128	128	120	**122**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	173	164	156	163	160	**163**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS - SINGLE TRACK
TRI Client: Civil and Environmental Consultants
Project: Bypass Basin Retofit Powerton

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 81492

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-5 | Weld: Single Extrusion						
Side: Peel						**Peel**
Peel Strength (ppi)	141	142	113	100	109	**121**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	179	179	179	186	180	**181**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-6 | Weld: Single Extrusion						
Side: Peel						**Peel**
Peel Strength (ppi)	155	158	146	143	148	**150**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	174	169	175	175	169	**172**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	