October 25, 2024

Mr. Brian Rath, P.E.
Iowa Department of Natural Resources
6200 Park Avenue
Suite 200
Des Moines, IA 50321

RE: Cedar Rapids Linn County Solid Waste Agency – Site 2 Landfill
Permit No. 57-SDP-01-72
30-acre Cell Improvements Report

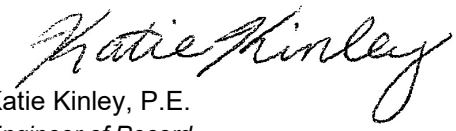
Dear Mr. Rath,

On behalf of Cedar Rapids Linn County Solid Waste Agency (CRLCSWA), HDR Engineering, Inc. (HDR) is submitting the enclosed Construction Quality Assurance (CQA) Report for the 30-acre Cell Improvements construction project located at the Site 2 Landfill in Marion, Iowa.

The CQA Report enclosed details the 30-acre Cell Improvements project construction that started in the summer of 2023 and was completed in the fall of 2024.

Should you have any questions or require additional information, please do not hesitate to contact us at (402) 639-3869.

Sincerely,
HDR Engineering, Inc.



Katie Kinley, P.E.
Engineer of Record

cc: Garrett Prestegard, CRLCSWA
Karmin McShane, CRLCSWA

hdrinc.com

1917 S 67th StreetOmaha, NE 68106-2973
(402) 399-1000

Construction Quality Assurance Report

Cedar Rapids Linn County Solid Waste Agency (CRLCSWA) – Site 2 Landfill

30-acre Cell Improvements (HDR #10362196)

Marion, IA

Submittal Date: October 25, 2024

Permit #: 57-SDP-01-72

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Appendices

Professional Engineer Certification

Based upon the observations and tests as documented in the enclosed Construction Quality Assurance Report, it is our opinion that the Cedar Rapids Linn County Solid Waste Agency Site-2 Landfill Gas System Improvements construction has been completed in substantial conformance with the requirements of the Permit Application (57-SDP-01-72), the Project Plans, and the Project Specifications.

Our professional services have been provided using the level of care and skill ordinarily exercised, under similar circumstances, by engineering professionals currently practicing in this locality. No other representation, express or implied, and no warranty or guarantee is included or intended.

Prepared by HDR Engineering, Inc.

I hereby certify that these engineering documents were prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Katie Kinley 10.25.24

Katie Kinley, P.E. Date
Iowa License No. P26021
My license renewal date is December 31, 2025.

Pages or sheets covered by this seal:

All.

1.0 Introduction

The Cedar Rapids Linn County Solid Waste Agency (CRLCSWA) Site-2 Municipal Solid Waste (MSW) Landfill is located at 1954 County Home Road, Marion, IA. HDR Engineering, Inc. (HDR or Engineer) was retained by CRLCSWA to provide part-time construction quality assurance (CQA) and certificate for construction and installation of the 30-acre Cell Improvements (Project) at the Site-2 Landfill.

Figure 1. CRLCSWA Site 2 Landfill Aerial

The HDR Project Manager (PM) for this project was Morgan Mays, P.E. Morgan has extensive experience in his time as a professional designing, overseeing, and managing a variety of related projects. The HDR Design Engineer was Katie Kinley, P.E. Katie's engineering experience includes design, review, and oversight of landfill infrastructure improvement construction, designing construction modifications landfill infrastructure, and oversight and management of construction projects for public and private clients across the country.

As part of the design contract, HDR was also retained by CRLCSWA to provide construction quality assurance observation duties for the project. Kaite Kinley was supported by Ty Liebold, P.E. and Jason Reichart, P.E. of HDR. With the oversight of Katie Kinley and Morgan Mays, Ty Liebold and Jason Reichart reviewed shop drawings and submittals, completed construction documentation regarding on-site observations, reviewed and approved payment applications, and prepared project closeout documentation, among other construction administration tasks. The observation reports are provided in ***Appendix A – Construction Notes and Photos***.

2.0 Project Overview

HDR prepared the design plans for construction (issued August 10, 2023). HDR reviewed and approved submittals and modifications. Submittal documentation is provided in ***Appendix B – Technical Submittals***.

The designed and installed improvements include, but are not exclusive to, the following:

- Final Cover Access Road Construction
- Toe Drain Installation
- Leachate System Modifications
- Seeding

See the Contract Modifications Section for additional work completed.

2.1 Timeline

An overall timeline for the project can be found in Table 1 below.

Table 1: Timeline of Construction Activities

Task	Projected Duration (Days)	Start Date	End Date
Notice to Proceed	6/8/2023		
Mobilization	5	8/7/2023	8/11/2023
Final Cover Access Road	124	8/11/2023	12/12/2023
Leachate System Improvements	3	12/4/2023	12/6/2023
Toe Drain	2	12/6/2023	12/7/2023
Seeding	154	12/7/2023	5/8/2024
Substantial Completion	6/25/2024		
Final Completion	10/2024		

2.2 Key Personnel

OWNER
Cedar Rapids Linn County Solid Waste Agency (CRLCSWA)
1954 County Home Road
Marion, Iowa 52302
Karmin McShane, Executive Director
Garrett Prestegard, Environmental Engineer

PROJECT MANAGER
HDR Engineering, Inc. (HDR)
4620 E 53rd Street
Davenport, IA 52807
Morgan Mays, P.E., Project Manager, Civil

DESIGN ENGINEER
HDR Engineering, Inc. (HDR)
1917 S. 67th Street
Omaha, NE 68106
Katie Kinley, P.E., Project Manager, Civil

CONSTRUCTION QUALITY ASSURANCE ENGINEER
HDR Engineering, Inc. (HDR)
1917 S. 67th Street
Omaha, NE 68106
Morgan Mays, P.E., Project Manager
Katie Kinley, P.E., Design Engineer
Jason Reichart, P.E., Project Engineer
Ty Leibold, P.E., Project Engineer

GENERAL CONTRACTOR
Gensini Excavating, Inc. (Gensini)
10602 Highway 26
Princeton, IL 61356
Mike Garland, Project Manager

SOILS TESTING SUBCONTRACTOR
Terracon Consultants, Inc.
2640 12th St SW
Cedar Rapids, IA 52404
Peng Cavan, Project Engineer

SURVEYING SUBCONTRACTOR
Vobr Niemeyer, LLC
5340 N Park Pl NE
Cedar Rapids, IA 52402
Matt Vobr, Owner/Project Surveyor

SEEDING SUBCONTRACTOR
Martenson Turf Products, Inc.
250 W. Adams Street,
Waterman, IL 60556

2.3 Construction Quality Assurance Program

In order to implement the CQA program, construction drawings, technical specifications, and industry standards were utilized for guidance. For this Project, HDR's effort included, but were not exclusive to, the following CQA monitoring activities:

Final Cover Access Road Construction
CQA Monitoring during final cover access road construction involved the following activities;

- Observed compaction methods and verified results.
- Observed placement of roadway aggregate.
- Verified culvert placement.
- Observed rip rap apron construction.

Toe Drain Installation
CQA Monitoring during toe drain installation involved the following activities:

- Observed installation of the toe drain and its associated appurtenances.

Leachate System Modifications
CQA Monitoring during leachate system and leachate electric panel modifications involved the following activities:

- Observed construction of a bypass of the existing leachate tank.
- Observed the abandonment of the existing leachate tank.
- Verified the extensions and the adjustments of existing leachate wells.

3.0 Contract Modifications

There were no contract modifications made to the original plans throughout the course of the project. The record drawings can be found in ***Appendix D – Record Drawings***.

4.0 Final Cover Access Road Construction

Construction of the final cover access road for this project was initiated on August 11, 2023 and was completed on December 12, 2024. Prior to the start of construction, a pre-construction meeting was held on July 11, 2023, including representatives from HDR, CRLCSWA, and Gensini Excavating, Inc. Meeting notes from the pre-construction meeting are provided in ***Appendix C – Meeting Notes***.

4.1 Roadway Base

The final cover access road was brought up to grade in compacted lifts using on-site borrow material. A total of 30 nuclear density field tests were completed by Terracon. Results and locations of the nuclear density field tests are provided in ***Appendix B – Technical Submittals***. Photos and documentation are provided in ***Appendix A – Construction Notes and Photos***.

4.3 Roadway Aggregate

A roadway geotextile was placed prior to the placement of roadway aggregate. Two distinct layers of roadway aggregate were placed on top of the roadway geotextile: Base Coarse and Surface Coarse. Base coarse followed IDOT Gradation No. 13a in conformance with Section 4122 of the IDOT Standard Specifications. Surface coarse followed IDOT Gradation No. 11 in conformance with Section 4119 of the IDOT Standard Specifications.

4.4 Erosion Protection

Revetment stone was placed on the southern portion interior ditch of the final cover access road. Two different sizes, IDOT Standard Class E and 6-inch nominal diameter erosion stone per IDOT Standard 4130, were used and placed in accordance with the Project Drawings.

4.5 Roadway Transition

Construction of the roadway transition between the pavement of the existing north entrance and the final cover access road initiated December 11, 2023 and was completed December 12, 2023. A concrete apron was constructed to connect these two roads with two bollards on the outside of the constructed transition. Concrete mix design and installation documentation are provided in ***Appendix B – Technical Submittals***. Dowels were installed connecting the entrance to the concrete apron. Photos and documentation are provided in ***Appendix A – Construction Notes and Photos***.

5.0 Toe Drain Installation

5.1 Toe Drain Installation

Toe drain installation was initiated December 6, 2023 and was completed December 7, 2023. The toe drain was installed on the eastern side of the 30-acre cell as indicated by the Project Drawings. A 4-inch HDPE perforated pipe was used to convey the liquid that enter the toe drain. HDPE piping materials can be found in ***Appendix B – Technical Submittals***. The toe drain was backfilled per the Project Drawings and terminates at an existing leachate access riser located on the east side of the landfill's 13-acre cell.

6.0 Leachate System Modifications

6.1 Leachate Manhole and Storage Tank Abandonment

The abandonment of the leachate manhole and leachate storage tank on the northeast corner of the 30-acre cell initiated December 1, 2023 and was completed December 5, 2023. Influent and effluent pipes into these structures were cut and capped. The leachate manhole and storage tank were backfilled and abandoned in place per the Project Drawings. Photos and documentation are provided in ***Appendix A – Construction Notes and Photos***.

6.2 Leachate Storage Tank Bypass

The leachate storage tank bypass was completed in the same period as the leachate manhole and storage tank abandonment as listed in Section 6.1 of this report. The leachate conveyance lines that flowed into the leachate storage tank were cut and redirected around the leachate storage tank. Leachate conveyance lines were connected to existing leachate conveyance infrastructure. Photos and documentation are provided in ***Appendix A – Construction Notes and Photos***. Electrical infrastructure associated with the pumping system in the leachate storage tank was removed or abandoned by Price Electric under a separate contract.

6.3 Leachate Well 7 Modifications

Leachate Well 7 (LW-7) modifications were completed during the same period as the leachate manhole and storage tank abandonment as listed in Section 6.1 of this report. The modifications consisted of rerouting a landfill gas condensate drainage line from the abandoned leachate tank to tie-in and drain into LW-7, rerouting the discharge line for LW-7 leachate pump from the abandoned leachate tank to the newly constructed bypass line, and installing a new check valve on the LW-7 leachate pump discharge line.

7.0 Seeding

6.1 Seeding

Seeding of disturbed areas was conducted between December 7, 2023 to May 8, 2024. Seed mixes and products were provided by Martenson Turf Products, Inc and followed IDOT Standard Specifications, Article 2601.03, C, 3, b – Rural Seeding Mixture. The seeding mix as submitted by Gensini Excavating, Inc is provided in ***Appendix B – Technical Submittals.*** The areas that were seeded included but are not limited to the slopes as created by the final cover access road, the area of leachate system improvements in the northeast corner of the 30-acre cell, where the toe drain was installed, and other areas dictated by CRLCSWA.

8.0 General Comments and Conclusions

The CQA activities and site observations described in this report indicate the 30-Acre Cell Improvements were constructed in accordance with the design documents, project manual specifications, applicable Iowa Administrative Code regulations, and permit documents.

This report has been prepared for the exclusive use of Cedar Rapids Linn County Solid Waste Agency for specific application to the project discussed herein. This document has been prepared using the level of care and skill ordinarily exercised, under similar circumstances, by engineering professionals currently practicing in this locality. No other representation, express or implied, and no warranty.

Appendix A

Construction Notes and Photos

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CONSTRUCTION DAILY REPORT

HDR Project No.	10362196	**PROJECT NAME:**	Site 2 – 30-acre Cell Improvements
CONTRACTOR:	Gensini Excavating, Inc.	**RPR/CQA Consultant:**	HDR Engineering, Inc.
OWNER PROJ. #	10362196	**OWNER:**	Cedar Rapids Linn County Solid Waste Agency (CRLCSWA)
SITE ADDRESS	1954 County Home Road Marion, Iowa 52302	**Design Engineer:**	HDR Engineering, Inc.

DAILY REPORT DATA:

Report Date:	08/17/2023	**Report No.:**	1
Created By:	Ty Leibold		

Summary
August 17, 2023

	High	Low	Average
Temperature	77.9 °F	54.7 °F	70.4 °F
Dew Point	64.6 °F	51.8 °F	58.9 °F
Humidity	90 %	48 %	68 %
Precipitation	0.00 in	--	--

	High	Low	Average
Wind Speed	22.4 mph	0.0 mph	6.8 mph
Wind Gust	28.6 mph	--	9.2 mph
Wind Direction	--	--	West
Pressure	30.11 in	29.82 in	--

Source: Weather Underground
(https://www.wunderground.com/dashboard/pws/KIAMARIO120/graph/2023-08-17/2023-08-17/daily)

GENERAL OBSERVATIONS AND REMARKS

- Walked through the project site with Joe Gensini and discussed grading issues with Electrical Boxes.
- Contractor discussed shifting the access road over at electrical boxes to meet overall intents of the project.
- Ty spoke with the contractor and discussed the overall drainage intents of the project and the access road specifically noting the typical sections.
- Ty and Joe noted some erosion had occurred where proposed road was aligned.
- Joe said they were planning to calibrate the GPS and the digital files received from HDR this week.

CONSTRUCTION DAILY REPORT

HDR Project No.	10362196	**PROJECT NAME:**	Site 2 – 30-acre Cell Improvements
CONTRACTOR:	Gensini Excavating, Inc.	**RPR/CQA Consultant:**	HDR Engineering, Inc.
OWNER PROJ. #	10362196	**OWNER:**	Cedar Rapids Linn County Solid Waste Agency (CRLCSWA)
SITE ADDRESS	1954 County Home Road Marion, Iowa 52302	**Design Engineer:**	HDR Engineering, Inc.

DAILY REPORT DATA:

Report Date:	08/21/2023	**Report No.:**	2
Created By:	Ty Leibold		

Summary
August 21, 2023

	High	Low	Average
Temperature	91.9 °F	71.6 °F	80.4 °F
Dew Point	77.5 °F	63.7 °F	71.7 °F
Humidity	91 %	60 %	76 %
Precipitation	0.00 in	--	--

	High	Low	Average
Wind Speed	9.6 mph	0.0 mph	2.5 mph
Wind Gust	12.5 mph	--	3.5 mph
Wind Direction	--	--	ESE
Pressure	30.33 in	30.25 in	--

Source: Weather Underground
(https://www.wunderground.com/dashboard/pws/KIAMARIO120/graph/2023-08-21/2023-08-21/daily)

GENERAL OBSERVATIONS AND REMARKS

- CRLCSWA gave safety orientation for the contractor, and discussed hours of operation of the landfill.
- CRLCSWA stated that the contractor shall use the south entrance for all operations.
- Contractor asked what to do about potential trash being found within limits of the road – CRLCSWA mentioned their own personnel could collect trash.
- All parties agreed if garbage is encountered this will be considered an add on to the current contract.
- Contractor stated that they would construct the perimeter silt fence as construction proceeds.
- It was stated that there is 2 feet of clay cover, with no liner in the 30-acre closed cell.
- Contractor is planning for the first day of construction today - likely just stripping topsoil.

CONSTRUCTION DAILY REPORT

HDR Project No.	10362196	**PROJECT NAME:**	Site 2 – 30-acre Cell Improvements
CONTRACTOR:	Gensini Excavating, Inc.	**RPR/CQA Consultant:**	HDR Engineering, Inc.
OWNER PROJ. #	10362196	**OWNER:**	Cedar Rapids Linn County Solid Waste Agency (CRLCSWA)
SITE ADDRESS	1954 County Home Road Marion, Iowa 52302	**Design Engineer:**	HDR Engineering, Inc.

DAILY REPORT DATA:

Report Date:	08/28/2023	**Report No.:**	3
Created By:	Ty Leibold		

Summary
August 28, 2023

	High	Low	Average
Temperature	86.2 °F	53.4 °F	69.7 °F
Dew Point	64.6 °F	51.4 °F	58.8 °F
Humidity	93 %	43 %	71 %
Precipitation	0.00 in	--	--

	High	Low	Average
Wind Speed	11.2 mph	0.0 mph	2.0 mph
Wind Gust	14.8 mph	--	2.6 mph
Wind Direction	--	--	SSE
Pressure	30.19 in	30.07 in	--

Source: Weather Underground
(https://www.wunderground.com/dashboard/pws/KIAMARIO120/graph/2023-08-28/2023-08-28/daily)

GENERAL OBSERVATIONS AND REMARKS

- Contractor left the south access gate open, Ty reminded the contractor to keep this gate closed at all times for security purposes.
- Contractor was planning for rock to start coming next Wednesday (9/6). Ty noted that we may have to push that date back based on the design change.
- Ty noted that it appeared as if the contractor pushed the removed trees back into the vegetation.
- Contractor knocked property line marker over near the start of the access road.
- Ty noted that the access road near LW-5 needs to get reworked.
- Ty noted most of the rough grading work had been complete from the start to LW-8.
- Planned for a progress meeting Thursday (8/31).
- Ty noted that it appeared the access road had been shifted around the condensate valve near LW-3.

PHOTOGRAPHIC LOG

Project Name:	Site 2 – 30-acre Cell Improvements	**Date:**	8/28/23	**Day:**	Monday

Final cover access road grading work, facing west.

Grading on the slope west of the final cover access road, facing southwest.

Final cover access road crowding leachate well, facing south.

Final cover access road crowding leachate well, facing south.

Final cover access road grading work, facing east.

Final cover access road grading work on southern end, facing north.

CONSTRUCTION DAILY REPORT

HDR Project No.	10362196	**PROJECT NAME:**	Site 2 – 30-acre Cell Improvements
CONTRACTOR:	Gensini Excavating, Inc.	**RPR/CQA Consultant:**	HDR Engineering, Inc.
OWNER PROJ. #	10362196	**OWNER:**	Cedar Rapids Linn County Solid Waste Agency (CRLCSWA)
SITE ADDRESS	1954 County Home Road Marion, Iowa 52302	**Design Engineer:**	HDR Engineering, Inc.

DAILY REPORT DATA:

Report Date:	08/31/2023	**Report No.:**	4
Created By:	Ty Leibold		

Summary
August 31, 2023

	High	Low	Average
Temperature	79.3 °F	45.0 °F	61.9 °F
Dew Point	56.5 °F	42.3 °F	49.9 °F
Humidity	92 %	32 %	68 %
Precipitation	0.00 in	--	--

	High	Low	Average
Wind Speed	14.8 mph	0.0 mph	2.0 mph
Wind Gust	18.3 mph	--	2.8 mph
Wind Direction	--	--	SE
Pressure	30.26 in	30.17 in	--

Source: Weather Underground
(https://www.wunderground.com/dashboard/pws/KIAMARIO120/graph/2023-08-31/2023-08-31/daily)

GENERAL OBSERVATIONS AND REMARKS

- Contractor held progress meeting with HDR and discussed plan for the remainder of the project work.
- Contractor had hoped to be done with the majority of the road by the end of next week (9/8). Also mentioned they are waiting on the HDPE perforated pipe from their supplier, and cannot continue construction until that comes in.
- Contractor plans to arrive back on site to continue construction work when the toe drain comes in.

CONSTRUCTION DAILY REPORT

HDR Project No.	10362196	**PROJECT NAME:**	Site 2 – 30-acre Cell Improvements
CONTRACTOR:	Gensini Excavating, Inc.	**RPR/CQA Consultant:**	HDR Engineering, Inc.
OWNER PROJ. #	10362196	**OWNER:**	Cedar Rapids Linn County Solid Waste Agency (CRLCSWA)
SITE ADDRESS	1954 County Home Road Marion, Iowa 52302	**Design Engineer:**	HDR Engineering, Inc.

DAILY REPORT DATA:

Report Date:	09/05/2023	**Report No.:**	5
Created By:	Ty Leibold		

Summary
September 5, 2023

	High	Low	Average
Temperature	86.9 °F	72.0 °F	79.1 °F
Dew Point	74.1 °F	65.5 °F	70.4 °F
Humidity	89 %	61 %	75 %
Precipitation	0.07 in	--	--

	High	Low	Average
Wind Speed	21.7 mph	0.0 mph	7.1 mph
Wind Gust	26.2 mph	--	9.3 mph
Wind Direction	--	--	South
Pressure	29.94 in	29.84 in	--

Source: Weather Underground
(https://www.wunderground.com/dashboard/pws/KIAMARIO120/graph/2023-09-05/2023-09-05/daily)

GENERAL OBSERVATIONS AND REMARKS

- Ty noted that the contractor left the south entrance gate open again, brought this issue up to the contractor.
- Ty noted that rock is placed from start to finish (both lifts).
- Ty noted that the contractor still needed to taper in grade around electrical boxes, and discussed project intents with the contractor.
- Ty noted LW-9 is almost buried with rock
    - Brought the issue to the Contractor, and he said they'll work it out.
- Contractor noted revetment & erosion stone is planning to arrive tomorrow.
- Derek said they still plan to feather in the grade around SW Electrical boxes.
- Ty noted 80 feet of corrugated metal pipe had been laid under access road at culvert outfall.

PHOTOGRAPHIC LOG

Project Name:	Site 2 – 30-acre Cell Improvements	**Date:**	9/5/23	**Day:**	Tuesday

Final cover access road next to existing leachate well, facing east.

Roadway aggregate close to leachate well, facing southeast.

Surface course installed on final cover access road, facing west.

Final cover access road nearing leachate well, facing northwest.

Final cover access road with surface course installed, facing south.

Final cover access road with surface course installed, facing south.

CONSTRUCTION DAILY REPORT

HDR Project No.	10362196	**PROJECT NAME:**	Site 2 – 30-acre Cell Improvements
CONTRACTOR:	Gensini Excavating, Inc.	**RPR/CQA Consultant:**	HDR Engineering, Inc.
OWNER PROJ. #	10362196	**OWNER:**	Cedar Rapids Linn County Solid Waste Agency (CRLCSWA)
SITE ADDRESS	1954 County Home Road Marion, Iowa 52302	**Design Engineer:**	HDR Engineering, Inc.

DAILY REPORT DATA:

Report Date:	09/07/2023	**Report No.:**	6
Created By:	Ty Leibold		

Summary
September 7, 2023

	High	Low	Average
Temperature	70.2 °F	52.7 °F	62.9 °F
Dew Point	58.6 °F	49.5 °F	56.1 °F
Humidity	93 %	61 %	79 %
Precipitation	0.00 in	--	--

	High	Low	Average
Wind Speed	13.9 mph	0.0 mph	4.5 mph
Wind Gust	17.2 mph	--	5.9 mph
Wind Direction	--	--	
Pressure	30.16 in	30.04 in	--

Source: Weather Underground
(https://www.wunderground.com/dashboard/pws/KIAMARIO120/graph/2023-09-07/2023-09-07/daily)

GENERAL OBSERVATIONS AND REMARKS

- HDR, CRLCSWA, and Contractor walked through the project site documenting final items remaining to be addressed specifically regarding the access road.
- Major Items included as follows:
  - Contractor to fill around LW-8, and repair broken electrical conduit as well as raise electrical panel using existing foundation and support frame.
  - Contractor to fill around LW-9 and grade area to drain, as well as raise electrical panel using existing foundation and support frame. Contractor to also raise well riser at this location.
  - Contractor to fill around LW-10 and grade area to drain.
  - Contractor to clean out existing culvert outlet on the north end of the project, as well as repair damaged silt fence.
  - Contractor to fill around LW-1 and grade area to drain.
  - Contractor to add marker to LW-3 well riser near edge of road for location purposes.
  - Contractor to fill around electrical panel at LW-4 and grade area to drain.
  - Contractor to fill around electrical panel at LW-5 and grade area to drain, as well as raise electrical panel using existing foundation and support frame.
  - Contractor to reshape erosion stone rock ditch near LW-5 to maintain drainage to the south as shown in the plans.
  - Contractor to investigate electrical issues at LW-12. Upon CRLCSWA investigation it appeared that the conduit had been damaged by the contractor and is potentially the reason for the pump overload condition reported on 9/14.
- Items were discussed and agreed to on-site with the Contractor.

PHOTOGRAPHIC LOG

Project Name:	Site 2 – 30-acre Cell Improvements	**Date:**	9/7/23	**Day:**	Thursday

Broken electrical on LW-8, facing south.

Roadway closed to leachate well, facing west.

Additional fill placed on the west side of final cover access road, facing south.

Final cover access road encroaching on leachate well, facing north.

Final cover access road grading drainage not adequate around leachate well, facing west.

Final cover access road grading drainage not adequate around leachate well, facing west.

CONSTRUCTION DAILY REPORT

HDR Project No.	10362196	**PROJECT NAME:**	Site 2 – 30-acre Cell Improvements
CONTRACTOR:	Gensini Excavating, Inc.	**RPR/CQA Consultant:**	HDR Engineering, Inc.
OWNER PROJ. #	10362196	**OWNER:**	Cedar Rapids Linn County Solid Waste Agency (CRLCSWA)
SITE ADDRESS	1954 County Home Road Marion, Iowa 52302	**Design Engineer:**	HDR Engineering, Inc.

DAILY REPORT DATA:

Report Date:	11/27/2023	**Report No.:**	7
Created By:	Ty Leibold		

Summary
November 27, 2023

	High	Low	Average
Temperature	27.1 °F	10.8 °F	18.0 °F
Dew Point	19.2 °F	6.1 °F	11.6 °F
Humidity	83 %	69 %	76 %
Precipitation	0.00 in	--	--

	High	Low	Average
Wind Speed	16.3 mph	0.2 mph	4.3 mph
Wind Gust	21.7 mph	--	6.1 mph
Wind Direction	--	--	NW
Pressure	30.33 in	30.12 in	--

Source: Weather Underground
(https://www.wunderground.com/dashboard/pws/KIAMARIO120/graph/2023-11-27/2023-11-27/daily)

GENERAL OBSERVATIONS AND REMARKS

- Ty discussed schedule with contractor over the phone, they had to cancel because of cold weather. Tentatively planning to be back Wednesday (11/29).
- Contractor thought that the grading punch-list items and seeding might have to wait till spring, but he'd like to get electrical work done this week.
- Ty requested that the contractor give CRLCSWA a quote on the electrical work.
- Schedule requirements from Specifications: Substantial Completion: May 10, 2024; Final Completion: June 7th 2024

CONSTRUCTION DAILY REPORT

HDR Project No.	10362196	**PROJECT NAME:**	Site 2 – 30-acre Cell Improvements
CONTRACTOR:	Gensini Excavating, Inc.	**RPR/CQA Consultant:**	HDR Engineering, Inc.
OWNER PROJ. #	10362196	**OWNER:**	Cedar Rapids Linn County Solid Waste Agency (CRLCSWA)
SITE ADDRESS	1954 County Home Road Marion, Iowa 52302	**Design Engineer:**	HDR Engineering, Inc.

DAILY REPORT DATA:

Report Date:	11/30/2023	**Report No.:**	8
Created By:	Ty Leibold		

Summary
November 30, 2023

	High	Low	Average
Temperature	46.6 °F	27.0 °F	36.2 °F
Dew Point	36.7 °F	23.7 °F	30.7 °F
Humidity	90 %	64 %	81 %
Precipitation	0.00 in	--	--

	High	Low	Average
Wind Speed	13.6 mph	0.0 mph	3.7 mph
Wind Gust	15.9 mph	--	4.6 mph
Wind Direction	--	--	SSW
Pressure	30.01 in	29.81 in	--

Source: Weather Underground
(https://www.wunderground.com/dashboard/pws/KIAMARIO120/graph/2023-11-30/2023-11-30/daily)

GENERAL OBSERVATIONS AND REMARKS

- After not showing up or answering phone calls on 11/29, Contractor emailed HDR in the afternoon stating they'd be back on-site Monday (12/4).

CONSTRUCTION DAILY REPORT

HDR Project No.	10362196	**PROJECT NAME:**	Site 2 – 30-acre Cell Improvements
CONTRACTOR:	Gensini Excavating, Inc.	**RPR/CQA Consultant:**	HDR Engineering, Inc.
OWNER PROJ. #	10362196	**OWNER:**	Cedar Rapids Linn County Solid Waste Agency (CRLCSWA)
SITE ADDRESS	1954 County Home Road Marion, Iowa 52302	**Design Engineer:**	HDR Engineering, Inc.

DAILY REPORT DATA:

Report Date:	12/01/2023	**Report No.:**	9
Created By:	Ty Leibold		

Summary
December 1, 2023

	High	Low	Average
Temperature	36.5 °F	30.6 °F	34.1 °F
Dew Point	30.4 °F	26.2 °F	28.1 °F
Humidity	86 %	75 %	79 %
Precipitation	0.00 in	--	--

	High	Low	Average
Wind Speed	18.8 mph	1.1 mph	8.2 mph
Wind Gust	25.1 mph	--	10.3 mph
Wind Direction	--	--	NNE
Pressure	30.07 in	29.92 in	--

Source: Weather Underground
(https://www.wunderground.com/dashboard/pws/KIAMARIO120/graph/2023-12-1/2023-12-1/daily)

GENERAL OBSERVATIONS AND REMARKS

- Contractor stated that they are waiting to final grade and seed to until next spring.
- Contractor decommissioned and abandoned Existing Leachate Well. See 12/5/2023 DFR for bypass completion.

CONSTRUCTION DAILY REPORT

HDR Project No.	10362196	**PROJECT NAME:**	Site 2 – 30-acre Cell Improvements
CONTRACTOR:	Gensini Excavating, Inc.	**RPR/CQA Consultant:**	HDR Engineering, Inc.
OWNER PROJ. #	10362196	**OWNER:**	Cedar Rapids Linn County Solid Waste Agency (CRLCSWA)
SITE ADDRESS	1954 County Home Road Marion, Iowa 52302	**Design Engineer:**	HDR Engineering, Inc.

DAILY REPORT DATA:

Report Date:	12/04/2023	**Report No.:**	10
Created By:	Ty Leibold		

Summary
December 4, 2023

	High	Low	Average
Temperature	35.8 °F	30.6 °F	33.5 °F
Dew Point	33.1 °F	28.6 °F	30.6 °F
Humidity	94 %	79 %	89 %
Precipitation	0.04 in	--	--

	High	Low	Average
Wind Speed	11.4 mph	0.0 mph	3.2 mph
Wind Gust	13.6 mph	--	4.0 mph
Wind Direction	--	--	ENE
Pressure	30.14 in	29.98 in	--

Source: Weather Underground
(https://www.wunderground.com/dashboard/pws/KIAMARIO120/graph/2023-12-4/2023-12-4/daily)

GENERAL OBSERVATIONS AND REMARKS

- Contractor is planning for their welder to arrive tomorrow morning.
- Contractor is planning to dig the trench and lay the pipe today.
- Contractor plans to wait to do the concrete work until Joe is on-site, crew did not have plans for concrete to proceed.
- CRLCSWA staff noted to the contractor that there is another buried pipe that needs located and connected back in the system.
- Contractor finished digging trenches near LW-7, the toe drain ditch had still not been completed.
- Contractor left the site early at 3:15 p.m., conditions were still fine for working.
- Contractor plans to finish digging trenches and welding pipe 12/5 – 12/6.

PHOTOGRAPHIC LOG

Project Name:	Site 2 – 30-acre Cell Improvements	**Date:**	12/4/23	**Day:**	Monday

Abandoned electrical panel near the leachate storage tank, facing west.

Excavation for existing leachate forcemain near leachate storage tank, facing southwest.

Existing leachate forcemain exposed south of the leachate storage tank, facing southeast.

Exposed leachate forcemain near the leachate storage tank, facing north.

Excavation for existing leachate forcemain near leachate storage tank, facing north.

Electrical panel near leachate storage tank ,facing east.

CONSTRUCTION DAILY REPORT

HDR Project No.	10362196	**PROJECT NAME:**	Site 2 – 30-acre Cell Improvements
CONTRACTOR:	Gensini Excavating, Inc.	**RPR/CQA Consultant:**	HDR Engineering, Inc.
OWNER PROJ. #	10362196	**OWNER:**	Cedar Rapids Linn County Solid Waste Agency (CRLCSWA)
SITE ADDRESS	1954 County Home Road Marion, Iowa 52302	**Design Engineer:**	HDR Engineering, Inc.

DAILY REPORT DATA:

Report Date:	12/05/2023	**Report No.:**	11
Created By:	Ty Leibold		

Summary
December 5, 2023

	High	Low	Average
Temperature	37.9 °F	28.9 °F	34.7 °F
Dew Point	34.3 °F	25.3 °F	31.7 °F
Humidity	96 %	80 %	89 %
Precipitation	0.00 in	--	--

	High	Low	Average
Wind Speed	17.4 mph	0.0 mph	5.9 mph
Wind Gust	20.6 mph	--	7.5 mph
Wind Direction	--	--	North
Pressure	30.44 in	29.99 in	--

Source: Weather Underground
(https://www.wunderground.com/dashboard/pws/KIAMARIO120/graph/2023-12-5/2023-12-5/daily)

GENERAL OBSERVATIONS AND REMARKS

- Contractor plans to weld by-pass today.
- Contractor installed the check valve & HDPE to PVC adapter.
- Contractor stockpiled rock for toe drain in SB entry lane to landfill.
- Contractor plans to hook into the leachate line which was directed to be the line furthest to the West (away from road).
- Contractor plans to install toe drain tomorrow.
- CRLCSWA noted that the electrical issues remain – unsure whether that was a result of the busted conduit at LW-6 or damaged conduit at LW-12.
- Contractor backfilled trenches around the decommissioned tank.

PHOTOGRAPHIC LOG

Project Name:	Site 2 – 30-acre Cell Improvements	**Date:**	12/5/23	**Day:**	Tuesday

Newly installed bypass around leachate tank, facing south.

Installation of the leachate forcemain bypass, facing east.

Installation of the leachate forcemain bypass, facing west.

PVC to HDPE adapter, facing south.

Fusion operations for HDPE piping, facing east.

Installed leachate bypass system, facing northeast.

CONSTRUCTION DAILY REPORT			
HDR Project No.	10362196	**PROJECT NAME:**	Site 2 – 30-acre Cell Improvements
CONTRACTOR:	Gensini Excavating, Inc.	**RPR/CQA Consultant:**	HDR Engineering, Inc.
OWNER PROJ. #	10362196	**OWNER:**	Cedar Rapids Linn County Solid Waste Agency (CRLCSWA)
SITE ADDRESS	1954 County Home Road Marion, Iowa 52302	**Design Engineer:**	HDR Engineering, Inc.

DAILY REPORT DATA:			
Report Date: 12/06/2023	Ty Leibold	**Report No.:**	12
DAILY REPORT DATA:			
Report Date:	12/06/2023	**Report No.:**	12
Created By:	Ty Leibold		

Summary
December 6, 2023

	High	Low	Average
Temperature	44.1 °F	22.8 °F	34.2 °F
Dew Point	33.4 °F	21.0 °F	28.4 °F
Humidity	93 %	63 %	80 %
Precipitation	0.00 in	--	--

	High	Low	Average
Wind Speed	19.7 mph	0.0 mph	5.1 mph
Wind Gust	25.1 mph	--	6.4 mph
Wind Direction	--	--	South
Pressure	30.46 in	30.01 in	--

Source: Weather Underground
(https://www.wunderground.com/dashboard/pws/KIAMARIO120/graph/2023-12-6/2023-12-6/daily)

GENERAL OBSERVATIONS AND REMARKS

- Contractor made the connection to leachate riser.
- Contractor still plans to dig toe drain trench all today and lay & weld pipe.
- Contractor made connection to the riser and backfilled.
- Ty noted work will be continuing later into the week.

PHOTOGRAPHIC LOG

Project Name:	Site 2 – 30-acre Cell Improvements	**Date:**	12/6/23	**Day:**	Wednesday

HDPE fusion operations to existing leachate access riser, facing southeast.

HDPE tee installed to toe drain piping, facing southeast.

Toe drain piping in the trench, facing north.

Aggregate being placed in the toe drain trench, facing north.

Soil backfill on the toe drain, facing south.

Sand backfill in the toe drain trench, facing north.

CONSTRUCTION DAILY REPORT

HDR Project No.	10362196	**PROJECT NAME:**	Site 2 – 30-acre Cell Improvements
CONTRACTOR:	Gensini Excavating, Inc.	**RPR/CQA Consultant:**	HDR Engineering, Inc.
OWNER PROJ. #	10362196	**OWNER:**	Cedar Rapids Linn County Solid Waste Agency (CRLCSWA)
SITE ADDRESS	1954 County Home Road Marion, Iowa 52302	**Design Engineer:**	HDR Engineering, Inc.

DAILY REPORT DATA:

Report Date:	12/07/2023	**Report No.:**	13
Created By:	Ty Leibold		

Summary
December 7, 2023

	High	Low	Average
Temperature	56.1 °F	31.5 °F	43.9 °F
Dew Point	45.1 °F	28.0 °F	37.0 °F
Humidity	91 %	61 %	77 %
Precipitation	0.00 in	--	--

	High	Low	Average
Wind Speed	17.2 mph	0.0 mph	3.7 mph
Wind Gust	20.6 mph	--	4.7 mph
Wind Direction	--	--	South
Pressure	30.02 in	29.65 in	--

Source: Weather Underground
(https://www.wunderground.com/dashboard/pws/KIAMARIO120/graph/2023-12-7/2023-12-7/daily)

GENERAL OBSERVATIONS AND REMARKS

- Contractor called and stated they tied into the wrong 8" line per CRLCSWA direction. Their welder has already left the site and can't do anymore repairs – sounds like CRLCSWA has a welder in mind that can do the repairs separately from the contract.
- Contractor stated Galen (their electrical sub) will not respond to him.
- Ty told Contractor to reach out to Hawkeye Electric.
- Contractor found a potential electrical contractor (Shreff Electrical). Electrician, Adam, and Garrett walked the site earlier and discussed scope of the electrical work.
- Welder from another company, separate of Gensini, was working on fixing the connection independently for CRLCSWA.
- Gensini opened the trench back up for the welder to make the correct connection.
- Contractor plans to seed toe drain area tomorrow morning and shape up grading near the tank.
- Ty noted that the contractor will have to final grade area in the spring-there's not enough leftover material from the toe drain.
- Contractor stated toe drain terminates between sign and light pole. Directly under the berm-past the abandoned leachate tank.

PHOTOGRAPHIC LOG

Project Name:	Site 2 – 30-acre Cell Improvements	**Date:**	12/7/23	**Day:**	Thursday

Toe drain removed from previous connection, facing southeast.

Toe drain removed from previous connection, facing north.

Final grading over toe drain, facing north.

Final grading over toe drain, facing north.

Final grading over toe drain, facing north.

Final grading over toe drain, facing north.

CONSTRUCTION DAILY REPORT

HDR Project No.	10362196	**PROJECT NAME:**	Site 2 – 30-acre Cell Improvements
CONTRACTOR:	Gensini Excavating, Inc.	**RPR/CQA Consultant:**	HDR Engineering, Inc.
OWNER PROJ. #	10362196	**OWNER:**	Cedar Rapids Linn County Solid Waste Agency (CRLCSWA)
SITE ADDRESS	1954 County Home Road Marion, Iowa 52302	**Design Engineer:**	HDR Engineering, Inc.

DAILY REPORT DATA:

Report Date:	12/08/2023	**Report No.:**	14
Created By:	Ty Leibold		

Summary
December 8, 2023

	High	Low	Average
Temperature	57.2 °F	38.7 °F	48.3 °F
Dew Point	45.0 °F	34.7 °F	41.5 °F
Humidity	88 %	61 %	78 %
Precipitation	0.07 in	--	--

	High	Low	Average
Wind Speed	21.3 mph	0.0 mph	4.9 mph
Wind Gust	26.2 mph	--	6.1 mph
Wind Direction	--	--	SW
Pressure	29.79 in	29.64 in	--

Source: Weather Underground
(https://www.wunderground.com/dashboard/pws/KIAMARIO120/graph/2023-12-8/2023-12-8/daily)

GENERAL OBSERVATIONS AND REMARKS

- Contractor still working on remaining punch list items.
- Ty discussed with Contractor their intents to keep the ditch shape near LW-5 on the east side of the access road.
  - Contractor stated he didn't want to have to dig rock up but said he will try to rearrange things to maintain existing "V" ditch as shown in the plans.
- Contractor now planning to do concrete work next week (12/11).
- Contractor asked about driveway apron detail. Ty sent contractor SUDAS 7030.102 detail and said to put in Type B driveway apron with flares with dimensions of 15' x 6' in width.
  - Contractor reviewed detail and agreed

PHOTOGRAPHIC LOG

Project Name:	Site 2 – 30-acre Cell Improvements	**Date:**	12/8/23	**Day:**	Friday

Connection to correct leachate access riser to toe drain, facing northeast.

Riprap installed on interior ditch of final cover access road without v-ditch, facing northwest.

Riprap installed on interior ditch of final cover access road without v-ditch, facing southwest.

Grading fixed to drain area leachate well, facing southwest.

CONSTRUCTION DAILY REPORT

HDR Project No.	10362196	**PROJECT NAME:**	Site 2 – 30-acre Cell Improvements
CONTRACTOR:	Gensini Excavating, Inc.	**RPR/CQA Consultant:**	HDR Engineering, Inc.
OWNER PROJ. #	10362196	**OWNER:**	Cedar Rapids Linn County Solid Waste Agency (CRLCSWA)
SITE ADDRESS	1954 County Home Road Marion, Iowa 52302	**Design Engineer:**	HDR Engineering, Inc.

DAILY REPORT DATA:

Report Date:	12/11/2023	**Report No.:**	15
Created By:	Ty Leibold		

Summary
December 11, 2023

	High	Low	Average
Temperature	40.3 °F	11.7 °F	25.0 °F
Dew Point	30.4 °F	9.0 °F	20.5 °F
Humidity	91 %	66 %	83 %
Precipitation	0.00 in	--	--

	High	Low	Average
Wind Speed	11.2 mph	0.0 mph	1.6 mph
Wind Gust	14.8 mph	--	2.1 mph
Wind Direction	--	--	ESE
Pressure	30.27 in	30.16 in	--

Source: Weather Underground (https://www.wunderground.com/dashboard/pws/KIAMARIO120/graph/2023-12-11/2023-12-11/daily)

GENERAL OBSERVATIONS AND REMARKS

- Contractor placed Traffic Control per their submitted Traffic Control Plan.
- Ty noted, according to weather forecasts, there is planned to be a high of 38°F.
- Contractor removed entry sign last Friday (12/8). Foundation is still sitting at the entrance. Contractor stated it was too heavy for their current equipment.
- Ty noted that the toe drain appears to have been seeded Friday.
- Ty noted that the connection to loadout riser was finished by third party welder that CRLCSWA negotiated separate of our contract.
- Ty noted that he assumed fusion welder was used. CRLCSWA spoke with Katie (EOR) about the details of the connection.
- Ty noted very minimal wind, and a temperature of 34° F at Noon. According to forecasts, temperatures appear to be rising until 3:15 pm today. Ty told the contractor that we should have a window to pave with normal concrete mix.
- Ty gave contractor BT-3 joint standard from the Iowa DOT Standard Road Plans.
- Ty and contractor noted an existing electrical conduit run right at the back of curb, with little to no cover beneath the pavement.
    - Contractor dug a narrow trench in the subbase to keep it out of pavement.
- Ty noted the concrete showed up at 1:40 p.m., 38° F air temperature.
- Ty noted the contractor finished the pour at 2:50 p.m. with the truck cleaned out and leaving by 3:00 p.m.
    - Ty noted the temperature reached 39° F at the conclusion of the pour.
- Ty archived concrete ticket for CRLCSWA records.
- CRLCSWA approved of contractors grading work around LW-7.
- CRLCSWA noted that seeding / native plantings still needed to be done by contractor, and that they still haven't received an electrical quote from contractor. CRLCSWA mentioned they may want to do this work separately.
- Ty noted that the contractor installed the driveway apron with plenty of depth, closer to 9" – 10" inches.
- Ty discussed remaining electrical and grading issues with contractor on-site.

PHOTOGRAPHIC LOG

Project Name:	Site 2 – 30-acre Cell Improvements	**Date:**	12/11/23	**Day:**	Monday

Soil removed for roadway transition, facing south.

Chipped corner of existing concrete, facing southeast.

Excavator placing concrete subbase, facing northeast.

Concrete formwork installed, facing northeast.

Gensini finishing the concrete, facing northeast.

Finished roadway transition, facing southwest.

CONSTRUCTION DAILY REPORT

HDR Project No.	10362196	**PROJECT NAME:**	Site 2 – 30-acre Cell Improvements
CONTRACTOR:	Gensini Excavating, Inc.	**RPR/CQA Consultant:**	HDR Engineering, Inc.
OWNER PROJ. #	10362196	**OWNER:**	Cedar Rapids Linn County Solid Waste Agency (CRLCSWA)
SITE ADDRESS	1954 County Home Road Marion, Iowa 52302	**Design Engineer:**	HDR Engineering, Inc.

DAILY REPORT DATA:

Report Date:	12/12/2023	**Report No.:**	16
Created By:	Ty Leibold		

Summary
December 12, 2023

	High	Low	Average
Temperature	38.7 °F	22.6 °F	29.3 °F
Dew Point	25.5 °F	13.6 °F	18.5 °F
Humidity	80 %	40 %	65 %
Precipitation	0.00 in	--	--

	High	Low	Average
Wind Speed	17.9 mph	0.0 mph	3.5 mph
Wind Gust	21.7 mph	--	5.0 mph
Wind Direction	--	--	NNW
Pressure	30.69 in	30.23 in	--

Source: Weather Underground
(https://www.wunderground.com/dashboard/pws/KIAMARIO120/graph/2023-12-12/2023-12-12/daily)

GENERAL OBSERVATIONS AND REMARKS

- Ty walked through remaining grading issues with the Contractor and reminded him of the location of the borrow site.
- Ty discussed mulching/straw at toe drain and the requirements of the native plantings in the specifications along the north side of the access road.
- Contractor stated he will fix grading issues that he can, at areas where they can't, they will plan to stockpile material and come back in the spring to finish the work.
- Ty discussed installing a more permanent "post" to help locate the valve near LW-3.
- Contractor stated that they will probably plan to hire an erosion control sub.

PHOTOGRAPHIC LOG

Project Name:	Site 2 – 30-acre Cell Improvements	**Date:**	12/12/23	**Day:**	Tuesday

Roadway transition, facing southeast.

Roadway transition, facing northwest.

CONSTRUCTION DAILY REPORT

HDR Project No.	10362196	**PROJECT NAME:**	Site 2 – 30-acre Cell Improvements
CONTRACTOR:	Gensini Excavating, Inc.	**RPR/CQA Consultant:**	HDR Engineering, Inc.
OWNER PROJ. #	10362196	**OWNER:**	Cedar Rapids Linn County Solid Waste Agency (CRLCSWA)
SITE ADDRESS	1954 County Home Road Marion, Iowa 52302	**Design Engineer:**	HDR Engineering, Inc.

DAILY REPORT DATA:

Report Date:	05/06/2024	**Report No.:**	17
Created By:	Ty Leibold		

Summary
May 6, 2024

	High	Low	Average
Temperature	76.3 °F	50.2 °F	64.0 °F
Dew Point	60.8 °F	42.3 °F	50.4 °F
Humidity	83 %	43 %	63 %
Precipitation	0.00 in	--	--

	High	Low	Average
Wind Speed	23.0 mph	0.0 mph	5.2 mph
Wind Gust	27.3 mph	--	7.3 mph
Wind Direction	--	--	SE
Pressure	30.11 in	29.76 in	--

Source: Weather Underground
(https://www.wunderground.com/dashboard/pws/KIAMARIO120/graph/2024-05-6/2024-05-6/daily)

GENERAL OBSERVATIONS AND REMARKS

- Ty noted Gensini was back on-site to finish the remaining punch-list items.
- Ty noted the remaining items to be completed (emailed to the contractor):
  - Demo underground storage electrical panels
  - Reshape “V” ditch
  - Grade to drain around electrical panels
  - Add marker near LW-3
  - Build up embankment near driveway entrance
  - Reseeding
  - “Do Not Enter” sign now missing? – Not needed CRLCSWA doesn’t know where the sign went
- Ty spoke with contractor; they’ll likely have to come back later in the week due to the rain tonight and into tomorrow.
- Contractor claims they have a plan to address everything.
- Ty spoke with Contractor about areas needing seeding.
- Ty spoke with Contractor about keeping ditch between the access road and landfill on the western side of the project.

PHOTOGRAPHIC LOG

Project Name:	Site 2 – 30-acre Cell Improvements	**Date:**	5/6/24	**Day:**	Monday

North slope of the final cover access road, facing southwest.

West slope of the final cover access road, facing southwest.

Grading over the leachate storage tank and bypass, facing south.

V-ditch missing in interior ditch, facing south.

Slope of final cover access road on the southwest portion of the roadway, facing northwest.

Slope of final cover access road on the southwest portion of the roadway, facing northwest.

CONSTRUCTION DAILY REPORT

HDR Project No.	10362196	**PROJECT NAME:**	Site 2 – 30-acre Cell Improvements
CONTRACTOR:	Gensini Excavating, Inc.	**RPR/CQA Consultant:**	HDR Engineering, Inc.
OWNER PROJ. #	10362196	**OWNER:**	Cedar Rapids Linn County Solid Waste Agency (CRLCSWA)
SITE ADDRESS	1954 County Home Road Marion, Iowa 52302	**Design Engineer:**	HDR Engineering, Inc.

DAILY REPORT DATA:

Report Date:	05/07/2024	**Report No.:**	18
Created By:	Ty Leibold		

Summary
May 7, 2024

	High	Low	Average
Temperature	76.8 °F	54.7 °F	65.6 °F
Dew Point	62.4 °F	41.0 °F	54.2 °F
Humidity	94 %	32 %	70 %
Precipitation	0.84 in	--	--

	High	Low	Average
Wind Speed	32.4 mph	0.0 mph	6.7 mph
Wind Gust	43.4 mph	--	8.8 mph
Wind Direction	--	--	South
Pressure	29.77 in	29.57 in	--

Source: Weather Underground
(https://www.wunderground.com/dashboard/pws/KIAMARIO120/graph/2024-05-7/2024-05-7/daily)

GENERAL OBSERVATIONS AND REMARKS

- Ty spoke with contractor in the morning, contractor was concerned about bringing in wet borrow material. So instead, they plan to bring in 2-4 truckloads of topsoil tomorrow for the berm.
- Contractor stated they finished the grading around the panels yesterday as well as re-digging the rock ditch.
- Contractor stated everything was also seeded yesterday.
- Contractor walked around the site today with CRLCSWA and their only remaining concern was building up berm near the scale house.
- Ty asked contractor to carve out the earth ditch with the skid loader along the western section of the access road. Still looked like there were some pockets of standing water.
- Ty also asked the contractor to lay some topsoil along northern section of the access road on the inside shoulder. Similar to the shoulder slope on the North side of the access road.

CONSTRUCTION DAILY REPORT

HDR Project No.	10362196	**PROJECT NAME:**	Site 2 – 30-acre Cell Improvements
CONTRACTOR:	Gensini Excavating, Inc.	**RPR/CQA Consultant:**	HDR Engineering, Inc.
OWNER PROJ. #	10362196	**OWNER:**	Cedar Rapids Linn County Solid Waste Agency (CRLCSWA)
SITE ADDRESS	1954 County Home Road Marion, Iowa 52302	**Design Engineer:**	HDR Engineering, Inc.

DAILY REPORT DATA:

Report Date:	05/08/2024	**Report No.:**	19
Created By:	Ty Leibold		

Summary
May 8, 2024

	High	Low	Average
Temperature	79.9 °F	51.6 °F	66.2 °F
Dew Point	59.0 °F	43.0 °F	52.0 °F
Humidity	87 %	34 %	62 %
Precipitation	0.14 in	--	--

	High	Low	Average
Wind Speed	19.9 mph	0.0 mph	3.5 mph
Wind Gust	25.1 mph	--	4.8 mph
Wind Direction	--	--	ESE
Pressure	29.81 in	29.69 in	--

Source: Weather Underground
(https://www.wunderground.com/dashboard/pws/KIAMARIO120/graph/2024-05-8/2024-05-8/daily)

GENERAL OBSERVATIONS AND REMARKS

- Contractor brought in 6 loads of topsoil and got everything graded out and seeded along the berm.
- Ty asked the contractor if he put any on the North section and he said no, Ty clarified that it was needed.
- Ty asked the contractor if he re-scraped the ditch along the west section and he said no – but he is going to look at it to see what he could do. Contractor said they are planning to leave after that.
- SWA agency staff found a leak near the new check valve near the leachate abandonment. Contractor was notified and will be on site next week to make repairs

PHOTOGRAPHIC LOG

Project Name:	Site 2 – 30-acre Cell Improvements	**Date:**	5/8/24	**Day:**	Wednesday

Gensini seeding around the leachate storage tank, facing west.

Ponded water near the leachate storage tank, facing northwest.

Ponded water near the leachate storage tank, facing southwest.

Leak near the new check valve, facing south.

CONSTRUCTION DAILY REPORT

HDR Project No.	10362196	**PROJECT NAME:**	Site 2 – 30-acre Cell Improvements
CONTRACTOR:	Gensini Excavating, Inc.	**RPR/CQA Consultant:**	HDR Engineering, Inc.
OWNER PROJ. #	10362196	**OWNER:**	Cedar Rapids Linn County Solid Waste Agency (CRLCSWA)
SITE ADDRESS	1954 County Home Road Marion, Iowa 52302	**Design Engineer:**	HDR Engineering, Inc.

DAILY REPORT DATA:

Report Date:	05/10/2024	**Report No.:**	20
Created By:	Jason Reichart		

Summary
May 10, 2024

	High	Low	Average
Temperature	74.3 °F	49.3 °F	61.5 °F
Dew Point	56.5 °F	45.9 °F	50.6 °F
Humidity	97 %	39 %	71 %
Precipitation	0.00 in	--	--

	High	Low	Average
Wind Speed	24.6 mph	0.0 mph	4.4 mph
Wind Gust	34.2 mph	--	5.8 mph
Wind Direction	--	--	NW
Pressure	30.11 in	29.88 in	--

Source: Weather Underground
(https://www.wunderground.com/dashboard/pws/KIAMARIO120/graph/2024-05-10/2024-05-10/daily)

GENERAL OBSERVATIONS AND REMARKS

- Contractor was on site earlier this week correcting drainage issues near the leachate tank abandonment
  - Drainage and grading issues still remain at numerous places on site
  - Contractor was notified and will be returning to remedy

PHOTOGRAPHIC LOG

Project Name:	Site 2 – 30-acre Cell Improvements	**Date:**	5/10/24	**Day:**	Friday

Drainage and grading issue near the leachate tank, facing north.

Drainage and grading issue near the leachate tank, facing south.

Drainage problems near leachate well, facing southeast.

Drainage issues in the interior ditch of the final cover access road, facing north.

Seeding not taking on the north slope of the final cover access road, facing north.

Drainage/grading in the interior ditch of the final cover access road, facing southeast.

CONSTRUCTION DAILY REPORT

HDR Project No.	10362196	**PROJECT NAME:**	Site 2 – 30-acre Cell Improvements
CONTRACTOR:	Gensini Excavating, Inc.	**RPR/CQA Consultant:**	HDR Engineering, Inc.
OWNER PROJ. #	10362196	**OWNER:**	Cedar Rapids Linn County Solid Waste Agency (CRLCSWA)
SITE ADDRESS	1954 County Home Road Marion, Iowa 52302	**Design Engineer:**	HDR Engineering, Inc.

DAILY REPORT DATA:

Report Date:	06/24/2024	**Report No.:**	21
Created By:	Jason Reichart		

Summary
May 24, 2024

	High	Low	Average
Temperature	70.0 °F	56.7 °F	64.0 °F
Dew Point	65.7 °F	50.5 °F	59.0 °F
Humidity	94 %	66 %	84 %
Precipitation	1.25 in	--	--

	High	Low	Average
Wind Speed	24.6 mph	0.0 mph	3.6 mph
Wind Gust	34.2 mph	--	5.0 mph
Wind Direction	--	--	SE
Pressure	29.95 in	29.73 in	--

Source: Weather Underground
(https://www.wunderground.com/dashboard/pws/KIAMARIO120/graph/2024-05-24/2024-05-24/daily)

GENERAL OBSERVATIONS AND REMARKS

- Contractor brought in 6 loads of topsoil to the leachate abandonment area to correct drainage issues

PHOTOGRAPHIC LOG

Project Name:	Site 2 – 30-acre Cell Improvements	**Date:**	6/24/24	**Day:**	Monday

Topsoil being placed near the leachate tank, facing north.

Dump Truck dumping top soil near the leachate tank, facing south.

CONSTRUCTION DAILY REPORT

HDR Project No.	10362196	**PROJECT NAME:**	Site 2 – 30-acre Cell Improvements
CONTRACTOR:	Gensini Excavating, Inc.	**RPR/CQA Consultant:**	HDR Engineering, Inc.
OWNER PROJ. #	10362196	**OWNER:**	Cedar Rapids Linn County Solid Waste Agency (CRLCSWA)
SITE ADDRESS	1954 County Home Road Marion, Iowa 52302	**Design Engineer:**	HDR Engineering, Inc.

DAILY REPORT DATA:

Report Date:	06/25/2024	**Report No.:**	22
Created By:	Jason Reichart		

Summary
May 25, 2024

	High	Low	Average
Temperature	75.7 °F	43.9 °F	62.6 °F
Dew Point	57.0 °F	41.9 °F	50.7 °F
Humidity	94 %	42 %	67 %
Precipitation	0.00 in	--	--

	High	Low	Average
Wind Speed	10.7 mph	0.0 mph	2.8 mph
Wind Gust	13.6 mph	--	3.8 mph
Wind Direction	--	--	East
Pressure	30.03 in	29.87 in	--

Source: Weather Underground
(https://www.wunderground.com/dashboard/pws/KIAMARIO120/graph/2024-05-25/2024-05-25/daily)

GENERAL OBSERVATIONS AND REMARKS

- Contractor correcting grading issues along the berm and around electric meters.
- Contractor completed final seeding of disturbed areas
- Jason Reichart walked the site with the Contractor to verify all contractor items have been satisfactorily completed.

PHOTOGRAPHIC LOG

Project Name:	Site 2 – 30-acre Cell Improvements	**Date:**	6/25/24	**Day:**	Tuesday

Final grading near leachate tank, facing southeast.

Final grading near leachate tank, facing north.

Appendix B

Technical Submittals

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HDPE Piping Submittals

HIGH-DENSITY POLYETHYLENE PIPE

High density polyethylene (HDPE) pipe is an exceptional piping product well-suited for a broad range of demanding applications. Tough, resilient HDPE piping is widely used in municipal water and sewer applications, natural gas distribution, industrial process piping, fire water loops, mining/ slurry handling systems and many more types of systems. With its strong, butt-fused joints and long-term ductility, HDPE pipe can be installed in numerous ways such as direct burial, slip-lining, pipe-bursting, and directional drilling. As a leading global distributor of HDPE piping systems and fusion equipment, along with fusion and fabrication services, ISCO Industries is your primary resource for all of your HDPE piping needs.

Consider some of these characteristics of HDPE Pipe:

- Economical
- Chemical/Corrosion Resistant
- Zero Leak-Rate
- Hydraulically Smooth
- Fatigue and Surge Resistant
- Long Design Life
- Tappable
- Easily Installed
- Small to Large Diameters
- Non-Toxic, Non-Tasting
- Lightweight
- Reliable
- Long-term strength and ductility
- Flexible and Coil-able
- Heat Fused
- Mechanically Joined (As Needed)
- Compatible with other systems
- Weather Resistant
- Impact Resistant
- Freeze Resistant
- Durable
- Abrasion Resistant
- Inert
- Self-Restrained Pipe (Monolithic)
- Listed and Approved

IMPORTANT STANDARDS FOR HIGH DENSITY POLYETHYLENE (HDPE) PIPE

As with any engineering material, there are numerous standards and codes by which HDPE pipe and fittings are produced, designed and installed. Principle among these are the applicable standards published by ASTM International (formerly known as the American Society for Testing and Materials). Other additional standards and/or codes such as AWWA, DOT, API or others may apply to specific installations or uses of HDPE pipe as well. What follows is a partial listing of some of the principle standards pertaining to HDPE piping within the North American market area.

TUBERÍA DE POLIETILENO DE ALTA DENSIDAD

La tubería de polietileno de alta densidad (HDPE) es un producto de tubería excepcional, bien adaptado a una amplia gama de aplicaciones exigentes. La tubería HDPE es fuerte y elástica y es ampliamente utilizada en aguas municipales y aplicaciones en alcantarillado, distribución de gas natural, tubería para procesamientos industriales, sistemas de agua contraincendios, sistemas de manejo de fangos / minería y muchos otros tipos de sistemas. Con sus uniones fuertes, fundidas a tope y ductilidad a largo plazo, la tubería HDPE puede instalarse de numerosas maneras tales como directamente enterrada, métodos de instaleionsin zanja y perforación direccional. Como un distribuidor líder a nivel mundial de sistemas con tubería HDPE y equipos de fusión, junto con servicios de fusión y fabricación, ISCO Industries es su principal recurso para todas sus necesidades en cuanto a tubería HDPE.

Considere algunas de estas características de la tubería HDPE:

- Económica
- Resistente a químicos/ a la corrosión
- Cero porciento de fugas
- Hidráulicamente suave
- Resistente a la fatiga y a sobrecargas de presión.
- Larga vida útil
- Derivable
- Fácil de instalar
- De diámetros pequeños a grandes
- No tóxica, no degustable
- Liviana
- Confiable
- Resistencia y ductilidad a largo plazo
- Flexible y rebobinable
- Termo-fundida
- Unido mecánicamente (si sea necesario)
- Compatible con otros sistemas
- Resistente a la intemperie
- Resistente a golpes
- Resistente a la congelación
- Durable
- Resistente a la abrasión
- Inerte
- Tubería auto-restringible (monolítica)
- Listada y Aprobada

NORMAS IMPORTANTES PARA POLIETILENO DE ALTA DENSIDAD (HDPE)

Como con cualquier material de ingeniería, hay numerosas normas y códigos mediante los cuales la tubería y accesorios HDPE son elaborados, diseñados e instalados. Entre estos principios están las normas aplicables publicadas por ASTM International (anteriormente conocida como Sociedad Americana para el Ensayo de Materiales). Otras normas y/o códigos adicionales como AWWA, DOT, API y otros pueden también aplicarse a instalaciones o a usos específicos de la tubería HDPE. Lo que sigue es una lista parcial de algunas normas de principios pertinentes a la tubería HDPE en el área del mercado norteamericano

PIPE RESIN STANDARDS

ASTM D3350 - "Standard Specification for Polyethylene Plastics Pipe and Fitting Materials".
The quality of HDPE pipe starts with the resin from which it is produced. ASTM D3350 defines the basic physical property requirements of the polyethylene compound that is used to make the pipe or fittings.

ASTM F412 - "Standard Terminology Relating to Plastic Piping Systems".

ISO 4427-1 – "Plastics piping systems – Polyethylene (PE) pipes and fittings for water supply – Part 1: General". Specifies the general aspects of polyethylene (PE) piping systems (mains and service pipes) intended for the conveyance of water for human consumption, including raw water prior to treatment and water for general purposes. It also specifies the test parameters for the test methods to which it refers.

PIPE DIMENSIONS AND MANUFACTURING STANDARDS

ASTM F714 - "Standard Specification for Polyethylene (PE) Pipe (SDR-PR) Based on Outside Diameter".
Pipe produced in accordance with this standard is used across a broad variety of municipal, industrial, and various water-related applications. This standard includes IPS, DIPS and metric sizing systems in nominal outside diameters from 3" - 54".

ASTM D2513 - "Standard Specification for Thermoplastic Gas Pressure Pipe, Tubing and Fittings".
Polyethylene pipe and other plastics for natural gas distribution are described in great detail in this standard.

ASTM D3035 - "Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter".
Most HDPE water tubing (½" to 3") is made to the dimensions in this standard. This standard was revised to include IPS sizes up through nominal 65" outside diameter and DIPS sizes up through nominal 48" outside diameter for municipally oriented PE pipe applications or services.

ASTM F2619 - "Standard Specification for High Density Polyethylene (PE) Line Pipe".
This standard includes HDPE pipe in sizes from ½" to 65" for various oil and gas producing applications such as oil, dry or wet gas, multiphase fluids and non-potable oil field water.
ASTM F3123 - "Standard Specification for Metric Outside Diameter Polyethylene (PE) Plastic Pipe (DR-PN)".

ISO 4427-2 – "Plastic piping systems – Polyethylene (PE) pipes and fittings for water supply – Part 2: Pipes". Specifies the pipes made from polyethylene (PE) intended for the conveyance of water for human consumption, including raw water prior to treatment and water for general purposes. It also specifies the test parameters for the test methods to which it refers.

REQUISITOS DE LA RESINA DE LA TUBERÍA

ASTM D3350 – "Especificación estándar para materiales de tubería y accesorios plásticos de polietileno". La calidad de la tubería HDPE empieza con la resina con la cual es elaborada. ASTM D3350 define los requisitos básicos de las propiedades físicas del compuesto de polietileno usado para hacer tubería y accesorios.

ASTM F412 - "Terminología Estándar Relacionada con los Sistemas de Tuberías de Plástico".

ISO 4427-1 – "Sistema de tuberías de plástico – Tuberías y fittings de Polietileno (PE) para suministro de agua – 1° Parte: General".
Especifica los aspectos generales de los sistemas de canalización hechos de PE (Polietileno) [cañerías y tuberías de servicio] para sistemas destinados a la conducción de agua para el consumo humano, incluyendo el agua cruda antes del tratamiento y el agua para usos generales. También especifica los parámetros de ensayo para los métodos de prueba a que se refiere.

REQUISITOS DIMENSIONALES Y DE FABRICACIÓN DE LA TUBERÍA

ASTM F714 – "Especificación estándar para la tubería (SDR-PR) de polietileno (PE) basada en el diámetro exterior." Esta norma se usa para la mayoría de aplicaciones con tubería HDPE de gran diámetro (4 a 63 pulgadas) aparte de la tubería para gas.

ASTM D2513 – "Especificación estándar para tubería termoplástica de presión para gas, entubado y accesorios". La tubería de polietileno y de otros plásticos para la distribución de gas natural se describen con mucho detalle en esta norma"

ASTM D3035 –"Especificación estándar para la tubería (DR-PR) plástica de polietileno (PE) basándose en el diámetro exterior controlado". La mayoría de la tubería HDPE para agua (de 1/2 a 3 pulgadas) está hecha según dimensiones de esta norma. Si bien, se proveen tuberías de tamaños hasta 24 pulgadas, muy poca tubería de gran diámetro se hace según esta norma.

ASTM F2619 – "Especificación estándar para tubería de conducción de polietileno (PE) de alta densidad" Esta norma incluye la tubería HDPE con tamaños desde ½ a 65 pulgadas para varias aplicaciones de producción de crudo y gas tales como crudo, gas seco o húmedo, fluidos de fase múltiple y agua no-potable de campos petrolíferos.

ASTM F3123 - "Especificación estándar para tubería plástica de polietileno (PE) de diámetro exterior métrico"

ISO 4427-2 – "Sistema de tuberías de plástico – Tuberias y fittings de Polietileno (PE) para suministro de agua – 2° Parte: Tuberías".
Especifica las tuberías hechas de PE (Polietileno) destinadas a la conducción de agua para el consumo humano, incluyendo el agua cruda antes del tratamiento y el agua para usos generales. También especifica los parámetros de ensayo para los métodos de prueba a que se refiere.

INSTALLATION STANDARDS

ASTM D2321 - "Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity Flow Applications"

ASTM D2774 - "Standard Practice for Underground Installation of Thermoplastic Pressure Piping"

ASTM F585 - "Standard Practice for Insertion of Flexible Polyethylene Pipe into Existing Sewers"

ASTM F1668 - "Standard Guide for Construction Practices for Buried Plastic Pipe"

ASTM F1962 - "Standard Guide for Use of Maxi-Horizontal Directional Drilling for Placement of Polyethylene Pipe or Conduit Under Obstacles, Including River Crossings"

ASTM F2164 - "Standard Practice for Field Leak Testing of Polyethylene (PE) Pressure Piping Systems Using Hydrostatic Pressure".

AMERICAN WATER WORKS ASSOCIATION STANDARDS

ANSI/AWWA C901 - "Polyethylene Pressure Pipe and Tubing, .5 in. (13 mm) Through 3 in. (76 mm) for Water Service"

ANSI/AWWA C906 - "Polyethylene Pipe and Fittings, 4 in. (100 mm) through 63 in. (1,575 mm) for Water Distribution"

PIPE JOINING & QUALIFICATION STANDARDS

ASTM F2620 - "Standard Practice for Heat Fusion of Polyethylene Pipe and Fittings"

ASTM D2657 - "Standard Practice of Heat Fusion Joining of Polyolefin Pipe and Fittings"

ASTM F1290 - "Standard Practice for Electrofusion Joining Polyolefin Pipe and Fittings"

ASTM F3190 - "Standard Practice for Heat Fusion Equipment (HFE) Operator Qualification on Polyethylene (PE) and Polyamide (PA) Pipe and Fittings"

ISO 21307 – "Plastic pipes and fittings – Butt fusion jointing procedures for polyethylene (PE) pipes and fittings used in the construction of gas and water distribution systems"

FITTING STANDARDS

ASTM D3261 - "Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing"

ASTM F1055 - "Standard Specification for Electrofusion Fittings for Outside Diameter Controlled Polyethylene Pipe and Tubing"

NORMAS DE INSTALACIÓN

ASTM D2321 – "Práctica estándar para la instalación subterránea de tubería termoplástica en alcantarillas u otras aplicaciones de flujo por gravedad"

ASTM D2774 – "Práctica estándar para la instalación subterránea de tubería termoplástica de presión"

ASTM F585 – "Práctica estándar para la inserción de tubería flexible en alcantarillas existentes"

ASTM F1668 – "Guía estándar de prácticas de construcción para tubería plástica enterrada"

ASTM F1962 –"Guía estándar para uso en perforación direccional de máxima horizontalidad para la colocación de tubería o conducto de polietileno debajo de obstáculos, incluidos cruces de ríos"

ASTM F2164 -"Práctica estándar para la prueba de fugas sobre el terreno de los sistemas presurizados con tubería de polietileno (PE) mediante presión hidrostática"

NORMAS DE LA ASOCIACIÓN AMERICANA DE DISTRIBUCIÓN DE AGUA

ANSI/AWWA C901-2005 - "Tubo y tubería de presión de polietileno, 0,5 pulgadas (13mm) hasta 3 pulgadas (76mm) para servicios de agua"

ANSI/AWWA C906-2006 - "Tubería y accesorios de polietileno, de 4 pulgadas (100mm) hasta 63 pulgadas (1.575mm) para distribución de agua"

ESTANDARES PARA LA CERTIFICACION DE TUBERIAS Y FUSIONES

ASTM F2620 -"Práctica estándar para la termo-fusión de tubería y accesorios de polietileno"

ASTM D2657 -"Práctica estándar para unión por termo-fusión de tubería y accesorios de polietileno"

ASTM F1290 -"Práctica estándar para unión por electro-fusión de tubería y accesorios de poliolefina"

ASTM F3190 - "Práctica Estándar para la Certificación del Operador de Equipos de Termo-Fusion (HFE) de Tuberías y Accesorios de Polietileno (PE) y Poliamida (PA)"

ISO 21307 – "Tuberias y Fittings Plasticos – Procedimiento de Union a Tope para tuberias y fittings de polietileno (PE) usado en la construccion de sistemas para distribucion de gas y agua"

NORMAS PARA ACCESORIOS

ASTM D3261 - "Especificación estándar para Polietileno de la Fusión de Calor del Extremo (PE) Accesorios de Plástico para Polietileno (PE) Tubo de Plástico y tubería"

ASTM F1055 -"Especificación estándar para la electro-fusión de accesorios para tubo y tubería de polietileno de diámetro externo controlado"

ASTM F1759 - "Standard Practice for Design of High Density Polyethylene (HDPE) Manholes for Subsurface Applications"

ASTM F2206 - "Standard Specification for Fabricated Fittings of Butt-Fused Polyethylene (PE) Plastic Pipe, Fittings, Sheet Stock, Plate Stock or Block Stock"

ASTM F2880 - "Standard Specification for Lap-Joint Type Flange Adapters for Polyethylene Pressure Pipe in Nominal Pipe Sizes 3/4 in. to 65 in."

ISO 4427-3 – "Plastic piping systems – Polyethylene (PE) pipes and fittings for water supply – Part 3: Fittings".

Specifies the general aspects of fittings made from PE for piping systems intended for the conveyance of water for human consumption, including raw water prior to treatment and water for general purposes. It also specifies the test parameters for the test methods to which it refers.

CANADIAN STANDARDS ASSOCIATION

CAN/CSA137 - "Thermoplastic Pressure Piping Compendium"

CSA Z662 - "Oil and Gas Pipeline Systems"

OTHER USEFUL REFERENCES

Handbook of Polyethylene Pipe, A publication of the Plastics Pipe Institute (www.plasticpipe.org)

AWWA M55, PE Pipe - Design and Installation, A Manual of Water Supply Practices published by the American Water Works Association

ISO 4427-5 – "Plastic piping systems – Polyethylene (PE) pipes and fittings for water supply – Part 5: Fitness for purpose of the system".

Specifies the characteristics of the fitness for purpose of assembled piping systems made from polyethylene (PE) intended for the conveyance of water for human consumption, including raw water prior to treatment and water for general purposes. It also specifies the test parameters for the test methods to which it refers.

ASTM F1759 -"Práctica estándar para el diseño de entradas a alcantarillas de polietileno de alta densidad (HDPE) para aplicaciones bajo superficie"

ASTM F2206 -"Especificación estándar para accesorios fabricados de tubería plástica de polietileno (PE) fundida a tope, accesorios, reservas de láminas de planchas y de bloques"

ASTM F2880 "Especificación estándar para adaptadores de bridas tipo lap-joint para tubería de presión de polietileno en diámetros nominales, ¾" a 65""

ISO 4427-3 – "Sistema de tuberías de plástico – Tuberías y fittings de Polietileno (PE) para suministro de agua – 3° Parte: Fittings".
Especifica los aspectos generales de los accesorios hechos de PE (Polietileno) para sistemas de canalización destinados a la conducción de agua para el consumo humano, incluyendo el agua cruda antes del tratamiento y el agua para usos generales. También especifica los parámetros de ensayo para los métodos de prueba a que se refiere.

ASOCIACIÓN DE NORMAS CANADIENSES

CAN/CSA137 - "Compendio de tubería termoplástica de presión"

CSA Z662 - "Sistemas de Conducción de Tuberías para Oleoductos y Gasoductos"

OTRAS REFERENCIAS ÚTILES

Manual de tubería de polietileno, una publicación del instituto de tubería plástica (www.plasticpipe.org)

AWWA M55, Tubería PE - Diseño e instalación, un manual de prácticas de abastecimiento de agua publicado por la asociación americana de abastecimiento de agua.

ISO 4427-5 – "Sistema de tuberías de plástico – Tuberías y fittings de Polietileno (PE) para suministro de agua – 5° Parte: Adaptación según el propósito del sistema".

Especifica las características de la aptitud para el uso de los sistemas de tuberías ensambladas hechas de PE (Polietileno) destinados a la conducción de agua para el consumo humano, incluyendo el agua cruda antes del tratamiento y el agua para usos generales. También especifica los parámetros de ensayo para los métodos de prueba a que se refiere.

SPECIFICATIONS FOR HDPE PIPE

Polyethylene piping systems are defined or specified using two important criteria: the ASTM D3350 cell classification and the ASTM F412 thermoplastic piping material designation code. For many years, the ASTM D3350 cell classification consisted of a series of six digits followed by one letter, shown in Table 1. The six digits equate to the specified level of performance required in six separate physical properties defined within the standard. The final letter specifies the color or UV-resistance requirement. ASTM D3350 also includes a requirement for testing the resistance of the polyethylene compound to the oxidative effects of chlorine. The six digits and one letter are now supplemented by a chlorine resistance categorization. Taken together the D3350 cell classification establishes a minimum range of technical performance for the PE compound used to produce the pipe.

The F412 thermoplastic piping material designation code allows for simple identification of the most significant engineering properties of a PE pipe material. This code consists of an abbreviation for the basic material as defined within the ASTM standards. The standardized abbreviation for polyethylene is the term "PE". This basic polymer designation is then followed by a series of four digits. The first two digits relate directly to specific physical properties for the compound as defined within ASTM D3350. The last two digits are the long-term hydrostatic stress rating as recommended by the Hydrostatic Stress Board of the Plastic Pipe Institute in hundreds of psi. The long-term hydrostatic stress rating is the hydrostatic design basis (HDB) multiplied by the appropriate design factor (DF).

So the thermoplastic piping material designation code follows the form below.

PEXYZZ, the format of the thermoplastic material designation code for PE pipe

Where: **PE** indicates polyethylene

X is the characteristic density range for the compound used to make the pipe as defined within ASTM D3350

Y is the characteristic slow crack growth resistance range for the compound used to make the pipe as defined within ASTM D3350

ZZ is the long-term hydrostatic stress at 73°F, expressed in hundreds of psi

ESPECIFICACIONES PARA LA TUBERÍA HDPE

Los sistemas de tubería de polietileno se definen o especifican usando dos importantes criterios: La célula de clasificación de ASTM D3350 y el código de designación de material termoplástico para tubería ASTM F412. El ASTM D3350 consiste en una serie de seis dígitos seguidos por una letra. Los seis dígitos corresponden al nivel especificado del desempeño requerido en seis propiedades físicas separadas definidas dentro de la norma. La letra final especifica el color o la resistencia a los UV que se exige. Todo Junto la célula de clasificación D3350 establece un margen mínimo de desempeño técnico para el compuesto de PE usado para elaborar la tubería

El código termoplástico F412 designado permite la simple identificación de las propiedades de ingeniería más significativas de la tubería de PE. Este código consiste en una abreviación del material básico según se lo define en las normas ASTM. La abreviación estandarizada para el polietileno es "PE" Esta designación básica del polímero es seguida de una serie de cuatro dígitos. Los primeros dos dígitos se relacionan directamente con propiedades físicas específicas del compuesto según lo definido en ASTM D3350. Los últimos dos dígitos representan la tasa de fatiga hidrostática a largo plazo según lo recomendado por la junta para la fatiga hidrostática del instituto de tubería plástica en cientos de PSI. La tasa de la fatiga hidrostática a largo plazo es igual a la base del diseño hidrostático (HDB) multiplicado por el factor de diseño apropiado (DF)

Así el código de designación del material de la tubería termoplástica sigue la forma indicada abajo:

PEXYZZ, El formato del material termoplástico código designación de tubos PE.

Donde: **PE** - significa polietileno

X - es el margen de la densidad característica del compuesto usado para hacer la tubería según lo definido en ASTM D3350

Y - es el margen de la resistencia al crecimiento lento de fisuras característico del compuesto usado para hacer la tubería según lo definido en ASTM D3350

ZZ - es la fatiga hidrostática a largo plazo a 230°F expresado en cientos de PSI

Historically, the market for PE pipe was dominated by essentially two primary thermoplastic material designation codes. These were PE2406 and PE3408. In 2005, changes were made to ASTM D3350 to allow for the identification and integration of much higher levels of technical performance in PE piping materials within the North American standards system. This resulted in a temporary proliferation of PE thermoplastic piping material designation codes. Today, we still have a fairly broad selection of material designation codes for PE piping systems throughout the marketplace. However, for all practical purposes, the market for PE pipe is characterized by the three common thermoplastics materials designation codes.

PE2708 - This piping product, commonly supplied as yellow colored products, is produced from a medium density compound as defined in the current version of D3350 and is widely used in natural gas distribution and some specialty applications.

PE3608 - This piping product is the legacy product resulting from the old PE3408 thermoplastic piping material designation code that was so widely specified and used prior to 2005. Today, products labeled PE3608 are rather uncommon due to higher performing PE4710 resins available at roughly the same price.

PE4710 - This piping product designation represents the culmination of years of technical research on polymer performance in PE piping and offers the designer or end-user exceptional levels of pipe system performance. For example, the PE4710 piping products support a higher long-term hydrostatic stress rating making the pressure rating for a given wall thickness of pipe 25% higher than a comparable PE3608 piping product. By the same token, these piping products exhibit a significantly higher resistance to slow crack growth. Given the exceedingly high physical performance of the PE4710 piping products, it is no surprise that they have replaced the older PE3408/PE3608 piping products since they meet or exceed all of the technical requirements.

PE100 – This piping product material meets the requirements for polyethylene piping systems as defined by the International Organization of Standardization (ISO). PE100 materials have proven to provide excellent creep rupture strength, resistance to rapid crack propagation, and stress crack resistance. PE100 is the primary polyethylene material used in global polyethylene piping applications not specified by ASTM materials.

Históricamente, el mercado de la tubería PE estaba dominado esencialmente por dos códigos principales de designación del material termoplástico. Estos eran PE2406 y PE3408. En el 2005, se hicieron cambios al ASTM D3350 para permitir, dentro del sistema de normas norteamericanas, la identificación e integración de niveles mucho más elevados de desempeño técnico en lo materiales de PE. Esto dio como resultado una proliferación provisional de los códigos de designación del material de la tubería termoplástica de PE. Hoy, aún tenemos una muy amplia selección de códigos de designación de material para sistemas de tubería de PE por todo el mercado. Sin embargo, para efectos prácticos, el mercado de la tubería de PE está caracterizado por tres códigos de designación de material termoplástico de uso corriente.

PE2708 - Este producto para tubería comúnmente suministrado como productos de color amarillo es producido a partir de un compuesto de media densidad según lo definido en la versión actual del D3350 y es ampliamente usado en la distribución de gas natural y en algunas aplicaciones especializadas.

PE3608 - Este producto para tubería es un producto heredado y resultado del antiguo código PE3408 de designación del material de la tubería termoplástica que fue ampliamente especificado y usado antes del 2005. Hoy en día, los productos etiquetados PE3608 son bastante poco comunes debido a las resinas PE4710 de mayor rendimiento disponibles a aproximadamente el mismo precio.

PE4710 - Esta designación de producto para tubería representa la culminación de años de investigación técnica en desempeño del polímero en tubería de PE y ofrece al diseñador o al usuario final niveles excepcionales de desempeño de sistemas de tubería. Por ejemplo, los productos PE4710 para tubería soportan un régimen nominal más alto de fatiga hidrostática a largo plazo haciendo que la capacidad de presión para un espesor dado de pared sea 25% más elevada que un producto PE3608 para tubería comparable. De la misma manera, estos productos para tubería exhiben una resistencia significativamente más elevada al crecimiento lento de fisuras. Dado el rendimiento físico extremadamente alto de los productos de tubería PE4710, no es de sorprender que cumplan o superen todos los requisitos técnicos de los productos de tubería PE3408 o PE3608. Dado el rendimiento físico excesivamente alto de los productos de tubería PE4710, no es de sorprender que hayan reemplazado los productos de tubería PE3408 / PE3608 más antiguos ya que cumplen o superan todos los requisitos técnicos.

PE100 – Esta materia prima de tubería cumple con los requisitos para los sistemas de tubería de polietileno según lo definido por la Organización Internacional de Normalización (ISO). Los materiales PE100 han demostrado proporcionar una excelente resistencia a la rotura por afluencia, resistencia a la propagación rápida de grietas y resistencia al fisuras por tensión. PE100 es el material primario de polietileno utilizado en aplicaciones de tuberías de polietileno global no especificadas por los materiales de ASTM.

Table 1 provides a summary of the different ASTM D 3350 cell classification for each of these materials based on these three primary thermoplastic piping material designation codes.

Table 1: Typical Cell Classification by Current Thermoplastic Piping Material Designation Code

Physical Property	ASTM Test Method	Units	PE2708		PE3608		PE4710	
			Cell Number	Typical Value	Cell Number	Typical Value	Cell Number	Typical Value
Density	D 1505	gr/cc	2	>0.925 - 0.940	3	>0.940 - 0.947	4	>0.947 - 0.955
Melt Index	D 1238	gr/10 min	3	<0.4 - 0.15	4	<0.15	4	<0.15
Flexural Modulus	D 790	psi	3	40,000 - <80,000	5	110,000 - <180,000	5	110,000 - <180,000
Tensile Strength	D 638	psi	3	2,600 - <3,000	4	3,000 - <3,500	4	3,000 - <3,500
							5	3,500 - <4,000
Resistance to Slow Crack Growth	F 1473	hours	7	500 minimum	6	100 minimum	7	500 minimum
Hydrostatic Design Basis, HDB	D 2837	psi	3	1250	4	1600	4	1600
UV Stabilizer	D 1603	%	E	Colored with UV Stabilizer	C	2% Min Carbon Black	C	2% Min Carbon Black

Notes:
1. The density provided is base resin density (without the influence of carbon black). Typical PE4710 HDPE pipe has a density of 0.956 to 0.964 with carbon black.
2. To be designated a PE4710, the pipe resin must meet certain supplementary requirements established by the Stress Board (HSB) of the Plastics Pipe Institute (PPI).
3. Tensile Strength cell numbers of 4 and 5 are both acceptable values for PE4710 materials.

Table 2: ASTM D3350 Chlorine Resistance Testing Categorization

Categorization	Test Stress 2.48 MPa (360 psi) Time (h)	Test Stress 2.76 MPa (400 psi) Time (h)	Test Stress 3.10 MPa (450 psi) Time (h)
CC0	Unspecified	Unspecified	Unspecified
CC1	2700	1900	1900
CC2	7400	5100	3400
CC3	16 200	11 100	7400

It should be noted that other PE thermoplastics piping material designation codes do exist and may be encountered in the market place occasionally. However, the three primary PE thermoplastic piping material designations codes of Table 1 represent the principle PE piping products in the market today. For more information regarding these other thermoplastic piping material designation codes, please contact your ISCO sales professional.

Table 3 below provides a simplification of Table 1 and illustrates the relative ease with which PE piping products may be specified. Using this approach allows the designer or specified to accurately designate the appropriate PE piping product through the use a single thermoplastic piping material designation code and a relatively simple text string that establishes the physical property requirements for seven key performance properties.

The selected thermoplastic piping material designation code and minimum cell classification is then combined with the appropriate production and installation standards to effectively specify a tough, durable PE piping system. ISCO Industries can provide model specifications for a wide range of PE pipe applications. These model specifications are available at www.isco-pipe.com or by contacting your ISCO sales professional.

Table 3: Representative Minimum Cell Classification by Thermoplastic Piping Material Designation Code

Thermoplastic Piping Material Designation Code	Minimum Cell Classification Per ASTM D3350
PE2708	233373E
PE3608	345464C
PE4710	445474C

La tabla 1 da un resumen de la diferente clasificación de célula según ASTM D 3350 para cada uno de estos materiales basándose en los tres códigos principales de designación del material de la tubería termoplástica.

Tabla 1: Clasificación típica de la célula por el código actual de designación del material de la tubería termoplástica.

Propiedades físicas	Método de prueba ASTM	Unidades	PE2708		PE3608		PE4710	
			Número de célula	Valor típico	Número de célula	Valor típico	Número de célula	Valor típico
Densidad	D 1505	gr/cc	2	>0.925 - 0.940	3	>0.940 - 0.947	4	>0.947 - 0.955
Índice de fundición	D 1238	gr/10 min	3	<0.4 - 0.15	4	<0.15	4	<0.15
Módulo de flexión	D 790	psi	3	40,000 - <80,000	5	110,000 - <180,000	5	110,000 - <180,000
Resistencia a la tracción	D 638	psi	3	2,600 - <3,000	4	3,000 - <3,500	4	3,000 - <3,500
							5	3,500 - <4,000
Resistencia al crecimiento lento de fisuras	F 1473	hours	7	500 min	6	100 min	7	500 min
Base del diseño hidrostático, HDB	D 2837	psi	3	1250	4	1600	4	1600
Estabilizador UV	D 1603	%	E	Coloreado con estabilizador UV	C	2% mínimo carbon negro	C	2% mínimo carbon negro

Notas:

1. La densidad provista es la densidad de la resina base (sin la influencia del negro de carbón). La tubería HDPE PE4710 típica tiene una densidad de 0,956 a 0,964 con negro carbón.
2. Para ser designado como un PE4710, la resina del tubo debe cumplir ciertos requisitos suplementarios establecidos por la junta de la fatiga hidrostática (HSB) del instituto de tubería plástica (PPI).
3. La resistencia a la tracción de los números de cédula 4 y 5 son ambos valores aceptables para los materiales de PE4710.

Tabla2: ASTM D3350 Cloro pruebas de resistencia categorización

Categorización	Prueba de esfuerzo 2.48 MPa (360 psi) Tiempo (h)	Prueba de esfuerzo 2.76 MPa (400 psi) Tiempo (h)	Prueba de esfuerzo 3.10 MPa (450 psi) Tiempo (h)
CC0	sin especificar	sin especificar	sin especificar
CC1	2700	1900	1900
CC2	7400	5100	3400
CC3	16 200	11 100	7400

Debe notarse que existen otros códigos de designación para el material de la tubería termoplástica de PE y de cuando en cuando pueden encontrarse en el mercado. Sin embargo, los tres códigos principales de designación del material de la tubería termoplástica de la tabla 1 representan el principio de los productos de la tubería PE en el mercado actual. Para más información referente a estos otros códigos de designación de material termoplástico para tubería, por favor póngase en contacto con profesional de ventas de ISCO.

La tabla 3 de abajo es una simplificación de la tabla 1 e ilustra la relativa facilidad con la cual los productos para tubería PE pueden ser especificados. El uso de esta aproximación permite al diseñador o al que especifica designar con precisión el producto apropiado para tubería PE mediante el uso de un simple código de designación de material de la tubería termoplástica y una cadena de texto relativamente simple que establece los requisitos de las propiedades físicas para siete claves de desempeño.

El código de designación del material de la tubería termoplástica y la clasificación mínima de célula se combinan luego con las normas apropiadas de producción e instalación para especificar eficazmente un sistema de tubería PE fuerte y durable. ISCO Industries puede proveer especificaciones modelos para una amplia gama de aplicaciones de tubería PE. Estas especificaciones modelo están disponibles en www.isco-pipe.com o al ponerse en contacto con su profesional de ventas de ISCO.

Tabla 3: Representante de Clasificación de la célula mínima por termoplástico tuberías de materiales Código Denominación

Termoplástico tuberías de materiales Código Denominación	Clasificación celular Mínimo Según ASTM D3350
PE2708	233373E
PE3608	345464C
PE4710	445474C

HDPE FITTINGS - MOLDED

There are two basic methods of creating most HDPE fittings, either by injection molding or fabricating from pipe or cylinders. Molded fittings are typically fully pressure rated, since the body of the molded fitting is reinforced with extra material around the OD at the bend, branch, or reduction to provide additional strength and maintain the intended pressure rating. The reinforcement terminates near the end of the molded fitting so that it has the same outside diameter of the pipe to facilitate welding. Fittings that are typically made by injection molding are 90 degree elbows, 45 degree elbows, tees, reducers, end caps and flange adapters. Molded fittings are typically available in 12" and smaller sizes due to processing and cost variables.

HDPE FITTINGS - FABRICATED

Like any other material, HDPE fabricated elbows and tees have a reduced pressure rating because the miter cut and weld create an effective oval at the welded intersection. Stress is increased during operation because of changes in flow direction. As the angle of the miter cut increases, the operating stress also increases along with the challenge of maintaining section alignment. Sweep bends that are forged from pipe have no cuts/welds, therefore have no derating.

In the early stages of the HDPE industry, a standard 25% derating for HDPE elbows was commonly used. With the advent of elbows made with larger miter angles (i.e. 3 segment 90/2 segment 45) and new resins, a more systematic approach was needed. The American Society of Mechanical Engineers offered an equation within the process piping code B31.3 that was incorporated by ISCO from 2003 to 2016. In section 304.2, equations 4a and 4b were used to determine pressure ratings of mitered elbows. For HDPE fittings, the pressure rating at that time was based on three criteria: the miter angle, the resin's material properties (Pipe Design Stress), and the wall thickness.

ISCO has taken the next step in the advancement of producing high-quality fabricated HDPE fittings. Our fabricated elbows, tees, reducing tees, and end caps are now produced and tested in accordance with ASTM F2206 - "Standard Specification for Fabricated Fittings of Butt-Fused Polyethylene Plastic Pipe". ASTM F2206 places very specific requirements on fabricated fittings in two areas - the type of HDPE pipe, fittings, and plate or sheet stock used in the manufacturing of pressure-rated fabricated fittings; and the testing required for qualifying fabricated fittings.

ISCO only uses PE4710 HDPE materials per ASTM D3350 and HDPE pipe manufactured in accordance with ASTM D3035, ASTM F714, or ASTM F2619 to produce ASTM F2206 fabricated fittings. In addition, ISCO has contracted with accredited third-party agencies to conduct the short-term and elevated-temperature

ACCESORIOS PEAD - MOLDEADOS

Hay dos métodos básicos para elaborar la mayoría de accesorios HDPE, sea mediante moldeo por inyección o por fabricación a partir de tubería o cilindros. Los accesorios moldeados están normalmente categorizados para la presión máxima, ya que el cuerpo del accesorio moldeado es más grueso (material extra alrededor del diámetro externo, excepto en los extremos) que la tubería lo que proporciona una resistencia adicional y mantiene la capacidad de presión esperada. Los accesorios normalmente hechos mediante moldeo por inyección son los codos de 90°, codos de 45°, tees, reductores, tapas de extremo y adaptadores de brida. Los accesorios moldeados están normalmente disponibles en diametros de 12" y hacia abajo por razones de costo y de procesamiento.

ACCESORIOS PEAD - FABRICADOS

Al igual que cualquier otro material, HDPE fabricado codos o tees fabricados tienen una capacidad de presión reducida porque el corte a inglete y la soldadura crean un óvalo eficaz en la intersección soldada. El esfuerzo aumenta durante la operación debido a los cambios de dirección del flujo. A medida que el ángulo de corte a inglete aumenta, la tensión operativa también aumenta junto con el reto de mantener la alineación de la sección. Las curvas de barrido que se forjan desde la tubería no tienen cortes / soldaduras, por lo tanto no tienen reducción de potencia.

En las etapas iniciales de la industria del HDPE (PEAD), una reducción estándar del 25% para codos en PEAD fue usado comúnmente. Con la aparición de codos hechos con mayores ángulos de inglete (ejemplo. 3 segmento 90/ 2 segmento 45) y de nuevas resinas, fue necesario un enfoque más sistemático. La sociedad The American Society of Engineers eléctricos ofreció una ecuación dentro de la norma B31.3 para procesamiento de tubería que fue incorporado por ISCO desde el 2003 al 2016. En la sección 304.2, las ecuaciones 4a y 4b se usaron para determinar las capacidades de presión de los codos de inglete. Para los accesorios de PEAD, la capacidad de presión en aquel momento se basaba en tres criterios: el ángulo de inglete, las propiedades del material de la resina (esfuerzo de diseño de tubería), y el espesor de la pared.

ISCO ha dado un paso adelante en el progreso de producción de accesorios de PEAD fabricados con alta calidad. Nuestros codos, tees rectas, tees reductoras, y tapas de extremo fabricados son ahora producidos y probados siguiendo la norma ASTM F2206 - "Especificación estándar para accesorios fabricados para la tubería plástica de polietileno de fusión a tope". La norma ASTM F2206 pone requisitos muy específicos sobre accesorios fabricados en dos áreas – en el tipo de tubería de PEAD, accesorios, y las reservas de plancha y láminas usadas en la fabricación de accesorios fabricados con presión nominal; y en las pruebas requeridas para la calificación de los accesorios fabricados.

ISCO usa solamente PE4710 materiales de PEAD según la norma ASTM D3350 y tubería de PEAD fabricada de acuerdo con las normas ASTM D3035, ASTM F714, ó ASTM F2619 para producir accesorios fabricados según la norma ASTM F2206. Además, ISCO ha firmado contratos con agencias de terceros acreditadas para realizar los ensayos requeridos para cumplir con la pruebas de diseño del estándar ASTM F2206- los ensayos a corto plazo y a presión elevada-temperatura mantenida.

sustained-pressure proof-of-design testing required to meet the ASTM F2206 standard.

ASTM F2206 also establishes the concept of Equivalent Dimension Ratio, or EDR, that simplifies the process of matching the required pressure rating of fabricated fittings using miter cut feedstock (elbows and straight line tees) to that of the pipe in which it will be joined. EDRs are determined for each fitting type and wall thickness by the collection of empirical data from the required ASTM F2206 pressure testing (see Table 6a and 6b for testing information). The EDR methodology provides HDPE piping system designers with a consistent means for specifying HDPE fabricated fittings. Note: Standard ISCO ASTM F2206 fabricated fittings are not manufactured with beveled ends on the inside diameter; however, this option is available upon request.

La norma ASTM F2206 establece también el concepto de Relación Dimensional Equivalente, o EDR (por sus siglas en inglés), que simplifica el proceso de emparejar capacidad de presión requerida de un accesorio fabricado con materia prima cortada en angulo (codos y tees rectas) con la de la tubería a la cual irá unido Los EDRs son determinados para cada tipo de accesorio y espesor. EDR es determinado para cada tipo de accesorio y espesor de pared mediante la recopilación de datos empíricos de las pruebas de presión requeridas por la norma ASTM F2206 (consulte la Tabla 6a y 6b para obtener información sobre las pruebas). La metodología EDR proporciona a los diseñadores de sistemas de tubería de PEAD unos medios consistentes para la especificación de accesorios fabricados en PEAD. Nota: Los accesorios ISCO estándar fabricados según la norma ASTM F2206 no se fabrican con extremos biselados en el diámetro interior; sin embargo, esta opción está disponible bajo pedido.

Table 4

Piping System DR	Feedstock DR	Fitting EDR	Fitting Pressure Rating (psi)
7	5	7	335
9	7	9	250
11	9	11	200
13.5	11	13.5	160
17	11	17	125
21	17	21	100
26	21	26	80
32.5	26	32.5	63

ISCO has not included HDPE fabricated crosses and lateral wyes within the ASTM F2206 offering. ISCO recommends that engineers considering the use of HDPE crosses and lateral wyes implement derating factors as shown in Table 7.

ISCO no ha incluido piezas en cruz ni piezas en Y laterales de PEAD fabricadas dentro de lo que ofrece la norma ASTM F2206. ISCO recomienda que los ingenieros consideren los factores de corrección de presión de la piezas HDPE laterales tipo "Ys" como se muestra en la Tabla 7.

DR, EDR, PRESSURE RATING, AND AVAILABLE SIZES

The chart below is representative of a pressure chart for each fitting page, where items in bold blue are considered standard in many sizes.Those in gray are considered non-standard and availability may be limited. Those not listed are not available for that fitting style.

DR, EDR, Presión de servicio y disponible

El siguiente cuadro es representativo de un gráfico de presión para cada página de adaptación, donde los elementos en negrita se consideran estándar en muchos tamaños. Los que están en gris son considerados no-estándar y la disponibilidad pueden ser limitados. Aquellos que no figuran no están disponibles para que el estilo apropiado.

Table 5

Feedstock DR	32.5	26	21	17	13.5	11	9	7
Pressure Rating	XX psi	XX psi	XX psi	**XX psi**	XX psi	**XX psi**	**XX psi**	XX psi
EDR	XX	XX	XX	**XX**	XX	**XX**	**XX**	XX

ISCO ASTM F2206 PRESSURE TESTING

The following table lists the fitting styles and sizing groups where ISCO has conducted pressure testing in accordance with ASTM F2206, Section 7.3 ("Elevated Sustained Pressure Test" and "Short Term Pressurization Testing"):

ISCO Prueba de Presión ASTM F2206

La siguiente tabla enumera los tipos de accesorios y los diversos diámetros donde ISCO ha realizado pruebas de presión de acuerdo con la norma ASTM F2206, Sección 7.3 ("Prueba de Presión Incrementada y Sostenida" y "Prueba de Presurización de Corta Duración"):

Table 6a

	ASTM F2206 Size Groups Grupos de Tamaño ASTM F2206		
Fitting Style Estilo de Accesorio	≤12"	>12"- <24"	≥24"
Elbows Codos	X	X	X
Tees Hierros en T	X	X	X
Reducing Tees Tees reductoras	X	X	X
End Caps Tapas del extremo	X	X	X

ASTM F2206 pressure testing was conducted with ISCO HDPE fabricated fittings during the months/years shown below:

La prueba de presión según ASTM F2206 se realizó con accesorios HDPE fabricados por ISCO durante los meses/años que se muestran a continuación:

Table 6b

	ASTM F2206 Size Groups Grupos de Tamaño ASTM F2206		
Required Test Prueba Requerida	≤12"	>12"- <24"	≥24"
Short Term Pressure Test Performed in Prueba de presión a corto plazo realizada en	Completed & Current Actualizado	Completed & Current Actualizado	Completed & Current Actualizado
Elevated Temperature / Sustained Pressure Test Performed in Prueba de temperatura elevada / presión sostenida realizada en	Completed & Current Actualizado	Completed & Current Actualizado	Completed & Current Actualizado

Table 7: Derating Factors for Non-ASTM F2206 Fabricating Fittings

For HDPE fittings made from pipe with no additional reinforcement

Crosses-Fabricated	Cruz – Fabricadas	DR: 7, 9, 11 — Derating Factor: 0.60 DR: 13.5 - 32.5 — Derating Factor: 0.50
Lateral Wyes-Fabricated	YES laterales - Fabricadas	DR: 7, 9, 11 — Derating Factor: 0.33 DR: 13.5 - 32.5 — Derating Factor: 0.33
Plastic Blind Flanges HDPE/PVC • Blind Flanges are available in 1" thick as standard with limited ranges of full pressure capacity. Some additional thickness options are available. Larger blinds likely have reduced capacity-verify pressure requirements at time of order.	Bridas ciegas plásticas HDPE/PVC • Las bridas ciegas están disponibles en espesores de 1 pulgada como estándar con capacidad de presión máxima de intervalos limitados. Están disponibles algunas opciones con espesores adicionales. Las bridas ciegas más grandes tienen probablemente una reducida capacidad – verifique los requisitos de la presión al momento del pedido.	DR: 7 - 32.5 — Derating Factor: *conditional
Cleanout Fittings HDPE • Cleanout Fittings are used in gravity flow applications and are only designed for preventing the intrusion of ambient environment into the pipe.	Accesorios HDPE de limpieza • Los accesorios de limpieza se usan en aplicaciones de flujo por gravedad y están diseñados solamente para evitar la intromisión en la tubería del entorno medio ambiental.	DR: 7 - 32.5 — Derating Factor: 0

ISCO AND ASME B31 REQUIREMENTS

The American Society of Mechanical Engineers (ASME) was founded in 1880 as a way for engineers to address concerns within the United States' vast industrial and mechanical expansion. Today, ASME has more than 100,000 members where many participate in committees producing and maintaining more than 600 codes, standards and technical journals in use by numerous industries in more than 100 countries.

ASME codes and standards relate to many different technical disciplines. The series of technical codes that discuss piping and pipelines is the ASME B31 Series. The B31 Series includes codes and standards covering everything from design and materials through fabrication, assembly, and testing of pressure piping systems for a host of applications including Power (B31.1), Fuel Gas (B31.2), Process (B31.3) and Pipeline Transportation (B31.4) among others.

Thermoplastic (HDPE) piping systems are referenced in two specific sections within the ASME B31 Series: B31.1 – Power Piping and B31.3 - Process Piping. B31.1 prescribes minimum requirements typically found in electric power generating stations and district heating and cooling systems. B31.3 contains requirements for piping used in petroleum refineries, chemical plants and related processing plants and terminals.

ISCO's fabrication facilities currently use a fusing (bonding) procedure and fusion operators that meet the requirements of both ASME B31.1 and B31.3. The following provides a brief overview of the B31.1 and B31.3 rules as they apply to HDPE fabricators:

ASME B31.1

ASME B31.1 includes Mandatory Appendix N – Rules for Nonmetallic Piping and Piping Lined with Nonmetals. The qualification requirements for fusing (bonding) procedure specifications and personnel are given in Chapter N-V Fabrication, Assembly, and Erection, Section N-127 Bonding Plastic Joints. Qualification requirements and specific qualification tests are set out in N-127 and include:

Requisitos de ISCO y ASME B31

La Sociedad Americana de Ingenieros Mecánicos (ASME por sus siglas en inglés) fue fundada en 1880 como un modo para que los ingenieros aborden diversos temas en el marco de la vasta expansión industrial y mecánica en los Estados Unidos. Hoy, ASME tiene más de 100,000 miembros, donde muchos participan en comités que crean y mantienen más de 600 códigos, estándares y documentos técnicos que son usados por numerosas industrias en más de 100 países.

Los códigos y estándares ASME se utilizan en diversas disciplinas técnicas. La serie de códigos técnicos que tratan sobre tuberías y líneas de conducción es la serie ASME B31. La serie B31 incluye códigos y estándares que cubren temas desde el diseño y materiales durante la fabricación, ensamble, y las pruebas de los sistemas de tuberías a presión para un gran número de aplicaciones que incluyen Energía (B31.1), Gas combustible (B31.2), Proceso (B31.3) y Poliductos (B31.4) entre otros.

Los sistemas de tuberías termoplásticas (HDPE) se mencionan en dos secciones específicas dentro de la serie ASME B31:

B31.1 – Tuberías para uso en proyectos de Energía y B31.3 – Requerimiento de Tuberías. B31.1 - Prescribe los requisitos mínimos normalmente encontrados en estaciones generadoras de energía eléctrica y sistemas de calefacción & enfriamiento. B31.3 contiene los requisitos para tuberías utilizadas en refinerías de petróleo, plantas químicas y plantas terminales relacionadas.

Las instalaciones de fabricación de ISCO cuentan actualmente con un procedimiento de fusión (unión) y operadores de fusión que cumplen con los requisitos de las normas ASME B31.1 y B31.3. A continuación se ofrece un breve resumen de las normas B31.1 y B31.3 que se aplican a en la fabricación de productos HDPE:

ASME B31.1

ASME B31.1 incluye el Apéndice N obligatorio - Normas para Tuberías No Metálicas y para Tuberías Revestidas con No-Metales. Los requisitos exigidos para las especificaciones del procedimiento de fusión (unión) y para el personal se encuentran en el Capítulo N-V Fabricación, Ensamblaje y Montaje, Sección N-127 Uniones (Fusiones) de Plástico. Los requisitos de certificación y las pruebas específicas se mencionan en N-127 e incluyen:

Table 8

Test Method Método de Prueba	Material Parameters Parámetros del Material	Test Parameters Parámetros de la Prueba	Number Required Número requerido	Pass Aprobación
Hydrostatic Pressure Presión Hidrostática	NPS 4-inch or a minimum of 25% of the NPS of the largest piping component tested; test assembly shall contain one pipe-to-pipe joint and one pipe-to-fitting joint NPS de 4 pulgadas o un mínimo de 25% del NPS del diámetro de tubería más grande probado; la prueba debe contener una unión tubo con tubo y una unión tubo y accesorio	Maximum of either 150 psig or 1.5 times the pressure calculated per N-104.1.2(a) Máximo 150 psig o 1.5 veces la presión calculada según N-104.1.2 (a)	Once per operator Una por operador	Joints shall not leak or separate at the test pressure Las fusiones no deben tener fugas ni separarse durante la prueba de presión.
OR Alternativa				
Reverse Bend or Guided Side Bend Doblado Invertido o Doblado Lateral Guiado	NPS 4-inch or a minimum of 25% of the NPS of the largest piping component tested; test assembly shall contain one pipe-to-pipe joint and one pipe-to-fitting joint NPS de 4 pulgadas o un mínimo de 25% del NPS del diámetro de tubería más grande probado; la prueba debe contener una unión tubo con tubo y una unión tubo y accesorio	Test strips shall not break when bent a minimum of 90 degrees, at ambient temperature, over an inside bend radius of 1.5 times the NPS tested La probeta o muestra no se debe romper cuando se doble a 90 grados mínimo, a temperatura ambiente, en un radio de curvatura interna de 1.5 veces el NPS probado	Minimum of three coupons per operator Mínimo de tres muestras por operador	Test strips shall not break at required bend radius Las probeta o muestra no se debe romper en el radio de curvatura requerido

ASME B31.3

ASME B31.3 also requires that HDPE fusion procedures and operators (bonders) be qualified and specific details of this are found in Section A328 Bonding of Plastics. Section A328.1, Bonding Responsibility, states that each employer is responsible for the bonding done by personnel of his organization and ... shall conduct the required performance qualification tests to quality bonding procedure specifications (BPS) and bonders or bonding operators. Specifically, Section A328.2.5 outlines the qualification tests for the fusion procedure or BPS, and the performance of each fusion or bonding operator as:

ISCO has qualified our fusion procedure and operators per ASME B31.3, Section N-127.

ASME B31.3

ASME B31.3 también requiere que los procedimientos y operadores (soldadores) de fusión de HDPE estén certificados y los detalles específicos de esto se encuentran en la sección A328 Unión de Plásticos. La Sección A328.1, Responsabilidad de la Fusion, establece que cada empleador es responsable de la fusión realizada por el personal de su organización y ... este llevará a cabo las pruebas para la certificación de desempeño requeridas según las especificaciones del procedimiento de unión (fusión) de calidad (BPS) y los operadores de equipos semiautomáticos y automáticos. Concretamente, la Sección A328.2.5 describe las pruebas de certificación para el procedimiento de fusión ó BPS, y el desempeño de cada operador de fusión o unión como:

ISCO ha certificado nuestro procedimiento de fusión y operadores según la norma ASME B31.3, Sección N-127.

Table 9

Test Method Método de Prueba	Material Parameters Parámetros de Material	Test Parameters Parámetros de Prueba	Number Required Número Requerido	Pass Aprobación
Quick Burst in accordance with ASTM D1599 Prueba Destructiva de acuerdo a ASTM D1599	NPS 4-Inch or a minimum of 25% of the NPS of the largest piping component tested; test assembly shall contain at least one of each joint type identified in the BPS NPS de 4 pulgadas o un mínimo del 25% del NPS del diámetro más grande de tubería probado; la muestra de prueba debe contener al menos uno de cada tipo de unión (fusión) identificado en el BPS	Increase pressure within the assembly to induce failure between 60 seconds and 70 seconds Aumentar la presión dentro de la tubería para provocar la falla entre 60 segundos y 70 segundos	Once per procedure and/or operator Una vez por procedimiento y/o por operador	Failure initiates outside of the fusion weld La falla se inicia fuera de la soldadura por fusión
OR Alternativa				
Hydrostatic Hidrostático	NPS 4-Inch or a minimum of 25% of the NPS of the largest piping component tested; test assembly shall contain at least one of each joint type identified in the BPS NPS de 4 pulgadas o un mínimo del 25% del NPS del componente más grande de tubería probado; la muestra de prueba debe contener al menos uno de cada tipo de fusión identificado en el BPS	The test pressure shall be calculated per A328.2.5. Test duration shall not be less than 1 hour La presión de prueba se calculará según la norma A328.2.5. La duración de la prueba no será inferior a 1 hora	Once per procedure and/or operator Una vez por procedimiento y/o por operador	No leakage or separation of joints Sin fugas ni separación de las uniones

ISCO has conducted testing in accordance with Section A328.2 thus qualifying our fusion procedure and operators to ASME B31.3.

If your project includes HDPE materials specified to ASME B31.1 or B31.3, it should be a technical requirement that your HDPE supplier submit qualification-testing records. This is the only way to ensure your project truly meets ASME B31.1 or B31.3 requirements.

ISCO has qualified our procedures and operators in accordance with both ASME B31.1 and B31.3, and we are ready to fabricate best-in-class fittings and spools for your ASME B31 project.

ISCO ha realizado la prueba de acuerdo con la Sección A328.2, certificando así nuestro procedimiento de fusión y operadores según ASME B31.3.

Si su proyecto incluye materiales HDPE especificados según las normas ASME B31.1 o B31.3, debe ser una exigencia técnica que su proveedor de HDPE presente registros de pruebas-certificaciones. Esta es la única forma de garantizar que su proyecto realmente cumpla con los requisitos exigidos por la norma ASME B31.1 o B31.3.

ISCO ha certificado sus procedimientos y operadores de acuerdo con las normas ASME B31.1 y B31.3, y estamos listos para fabricar los mejores accesorios y estructuras para su proyecto ASME B31.

IPS PIPE AND FITTINGS

IPS

IPS refers to the Iron Pipe Sizing system in use by some industries, including major HDPE pipe manufacturers.

IPS

IPS se refiere al sistema de dimensionamiento de la tubería de hierro usado en algunas industrias, incluidos los principales fabricantes de tubería HDPE.

PE4710 HDPE PIPE SIZES IPS AND LARGE DIAMETER METRIC

PE4710 Tamaños HDPE tuberías IPS y Diámetro Grande Métrico

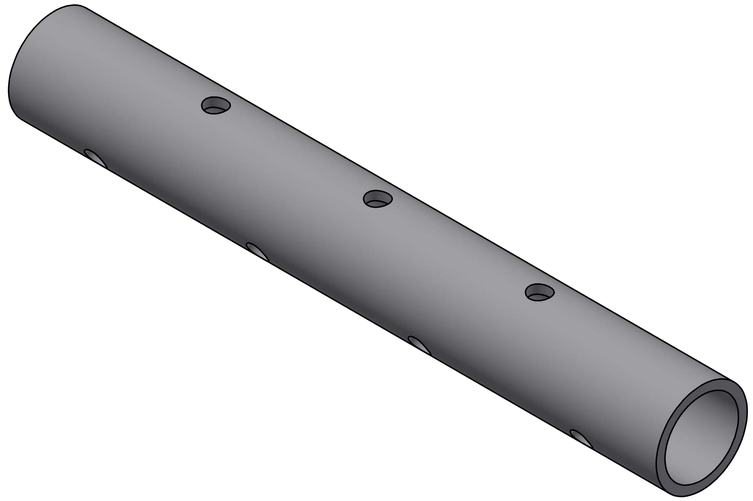
DR		11			13.5			15.5		
PE4710 Pressure Rating Resistencia a la Presión		200 psi			160 psi			138 psi		
Nom. OD DE Nominal (in)	Actual OD DE Actual (in)	Min Wall Espesor Mínimo de Pared (in)	Avg ID DI Promedio (in)	Weight Peso (lb/ft)	Min Wall Espesor Mínimo de Pared (in)	Avg ID DI Promedio (in)	Weight Peso (lb/ft)	Min Wall Espesor Mínimo de Pared (in)	Avg ID DI Promedio (in)	Weight Peso (lb/ft)
¾″	1.05	0.095	0.848	0.13	---	---	---	---	---	---
1″	1.315	0.12	1.062	0.2	---	---	---	---	---	---
1¼″	1.66	0.151	1.34	0.314	---	---	---	---	---	---
1½″	1.9	0.173	1.534	0.411	---	---	---	---	---	---
2″	2.375	0.216	1.917	0.642	0.176	2.002	0.534	0.153	2.05	0.47
3″	3.5	0.318	2.825	1.395	0.259	2.95	1.16	0.226	3.021	1.02
4″	4.5	0.409	3.633	2.31	0.333	3.793	1.92	0.29	3.885	1.687
5″	5.563	0.506	4.491	3.523	0.412	4.689	2.928	0.359	4.802	2.58
6″	6.625	0.602	5.348	4.93	0.491	5.585	4.152	0.427	5.719	3.656
8″	8.625	0.784	6.963	8.47	0.639	7.271	7.04	0.556	7.445	6.197
10″	10.75	0.977	8.678	13.16	0.796	9.062	10.932	0.694	9.28	9.626
12″	12.75	1.159	10.293	18.51	0.944	10.748	15.38	0.823	11.006	13.53
14″	14	1.273	11.302	22.32	1.037	11.801	18.54	0.903	12.085	16.31
16″	16	1.455	12.916	29.15	1.185	13.487	24.22	1.032	13.812	21.3
18″	18	1.636	14.531	36.89	1.333	15.173	30.651	1.161	15.538	26.95
20″	20	1.818	16.145	45.541	1.481	16.859	37.84	1.29	17.265	33.28
22″	22	2	17.76	55.105	1.63	18.545	45.79	1.419	18.991	39.712
24″	24	2.182	19.375	65.58	1.778	20.231	54.49	1.548	20.717	47.92
26″	26	2.364	20.989	77.44	1.926	21.917	64.261	1.677	22.444	56.532
28″	28	2.545	22.604	89.785	2.074	23.603	74.522	1.806	24.17	65.563
30″	30	2.727	24.218	103.076	2.222	25.289	85.543	1.935	25.897	75.264
32″	32	2.909	25.833	117.285	2.37	26.975	97.324	2.065	27.623	85.672
34″	34	3.091	27.447	132.411	2.519	28.661	109.905	2.194	29.35	96.714
36″	36	3.273	29.062	148.454	2.667	30.347	123.208	2.323	31.076	108.424
42″	42	3.818	33.906	202.039	3.111	35.404	167.675	2.71	36.255	147.568
48″	48	4.364	38.749	278.27	3.556	40.461	216.74	3.097	41.435	192.774
54″	54	4.909	43.59	352.14	4.00	45.75	286.94	3.484	46.614	243.921
1600mm/63″	62.99	---	---	---	4.667	53.107	390.58	4.065	54.383	340.15
1800mm	70.87	---	---	---	5.2*	60.1*	Call	---	---	---
2000mm	78.74	---	---	---	5.8*	66.8*	Call	---	---	---
2250mm	88.58	---	---	---	---	---	---	---	---	---
2500mm	98.43	---	---	---	---	---	---	---	---	---
2720mm	107.1	---	---	---	---	---	---	---	---	---
2800mm	110.2	---	---	---	---	---	---	---	---	---
3000mm	118.1	---	---	---	---	---	---	---	---	---
3500mm	137.8	---	---	---	---	---	---	---	---	---

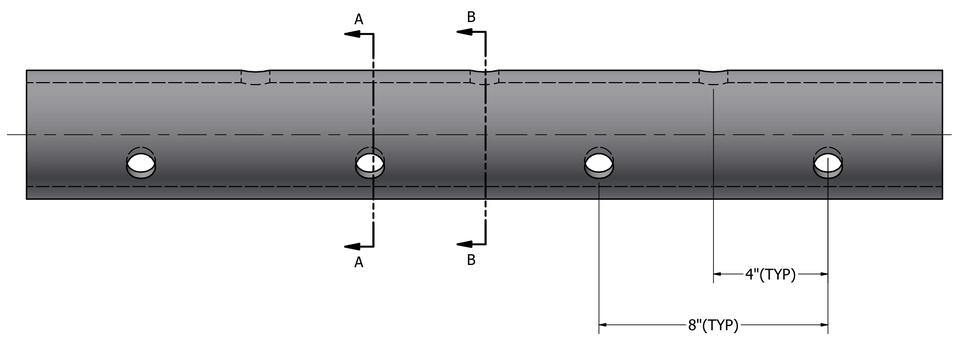
1. Pressures are based on using water at 23°C (73°F).
2. Average inside diameter calculated using actual OD and minimum wall plus 6% for use in estimating fluid flows. Actual ID will vary.
3. Other piping sizes or DR's may be available upon request.
4. Standard Lengths:
   - 40' for 2"-24"
   - 50' for 26" and larger
   - Coils available for ¾ - 4" (6" by special order)

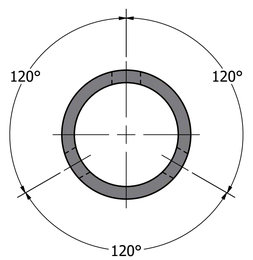
*DR 13.6

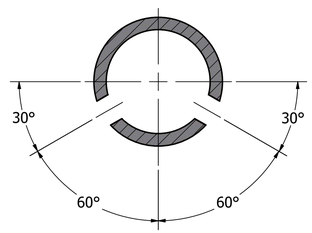
1. Las presiones están basadas en el uso de agua a 23°C (73°F)
2. El diámetro interno promedio calculado el diámetro externo real y la pared mínima más 6% para uso la estimación de flujos de fluidos. El diámetro interno real variará.
3. Otros tamaños o DR de tubería pueden estar disponibles bajo pedido.
4. Longitudes estándar
   - 40 pies para 2 -24 pulgadas
   - 50 pies para 26 pulgadas o mayores
   - Bobinas disponibles para ¾ a 4 pulgadas (6 pulgadas para pedidos especiales)

PARTS LIST			
ITEM	SIZE/DR	PART NUMBER	DESCRIPTION
1	4" DR 11 IPS	35041199	2 ROWS OF 1/2" DIA. HOLES, 120 DEGREE APART, 8" C-C AND 1 SIMILAR ROW STAGGERED 4" & 120 DEGREE FROM OTHER 2 ROWS (3 TOTAL ROWS)

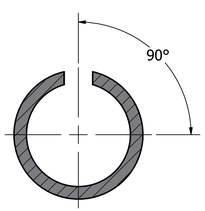








SECTION A-A



SECTION B-B

NOT TO SCALE

TOLERANCE STANDARDS AS MEASURED AT AMBIENT TEMPERATURE:
-ISCO SHALL MAINTAIN A FABRICATION TOLERANCE OF ± 1/2" FOR ALL DIMENSIONS SHOWN.
-ISCO SHALL MAINTAIN A FABRICATION TOLERANCE OF ± 2° FOR ALL ANGLES SHOWN.
-('X'') MARKS A DIMENSION THAT IS FOR REFERENCE ONLY.
-(NC) MARKS A DIMENSION THAT IS NOT CRITICAL AND REQUIRES NO NOTIFICATION OF DEVIATION BY FABRICATOR.
-SPECIFIC TOLERANCES MAY BE PROVIDED BY CUSTOMER BUT MUST BE APPROVED BY ISCO INDUSTRIES AND NOTED ON DRAWING PRIOR TO FABRICATION.
*UNLESS OTHERWISE SPECIFIED.

GENERAL NOTES:
-STRUCTURE OUTLETS NOT DESIGNED AS ANCHOR POINTS FOR CONNECTED PIPING.

REVISION HISTORY

REV	DESCRIPTION	DATE	BY
1	PIPE SIZE REVISED.	08/29/23	SF

TESTING
REQUIRED: NONE
TYPE: N/A
PRESSURE: N/A
DURATION: N/A

APPROVED BY: DATE:

WO #:

ISCO
www.isco-pipe.com 1-800-345-4726

DRAWN BY: SOD DATE: 08/24/2023

REVIEWED BY: BS DATE: 08/24/2023

CUSTOMER NAME: GENSINI EXC (CEDAR RAPIDS)

DRAWING TITLE: 4" DR 11 HDPE PERF PATTERN

SIZE: D | DWG FILE LOCATION: DN/AS/KS/GENSINI EXC (CEDAR RAPIDS)-082423 | SHEET 1 OF 1

TERRITORY REPRESENTATIVE: KAELYN SMITH

Soils Testing and Quality Control Submittals

LABORATORY COMPACTION CHARACTERISTICS OF SOIL REPORT

Report Number: 06231272.0003
Service Date: 08/21/23
Report Date: 08/23/23
Task: 02 - Laboratory Soil-Aggregate Testing

2640 12th St SW
Cedar Rapids, IA 52404-3440
319-366-8321

Client

Gensini Excavating Inc
Attn: Joe Gensini
10602 IL Hwy 26
Princeton, IL 61356

Project

CRLCSWA Site 2 - 30 Acre Cell Improvements
1954 County Home Road
Marion, IA

Project Number: 06231272

Material Information

Source of Material: Landfill Stockpile
Proposed Use: Fill

Sample Information

Sample Date: 08/21/23
Sampled By: Vito Aiello
Sample Location: South face of the ledge

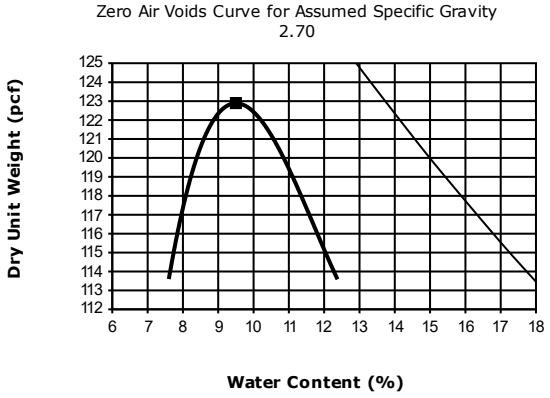
Sample Description: Gray Sandy Lean Clay trace Gravel

Laboratory Test Data

Test Procedure: ASTM D698 (Standard)
Test Method: Method B
Sample Preparation: Wet
Rammer Type: Manual
Maximum Dry Unit Weight (pcf): **122.9**
Optimum Water Content (%): **9.5**

	Result	Specifications
Liquid Limit:		
Plastic Limit:		
Plasticity Index:		
In-Place Moisture (%):		

USCS:



Comments:

Services: Obtain a sample of fill material at a project site and return it to the laboratory. Prepare and test the sample for standard Proctor moisture-density relationship.

Terracon Rep.: Dillon Nolan
Reported To:
Contractor:

Report Distribution:

(1) Gensini Excavating Inc, Joe Gensini
(1) Gensini Excavating Inc, Mike Garland
(1) Terracon Consultants, Inc., Peng Cavan

Reviewed By: _____

Cavan, Peng
Project Engineer

Test Methods:

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

LABORATORY COMPACTION CHARACTERISTICS OF SOIL REPORT

Report Number: 06231272.0009
Service Date: 08/28/23
Report Date: 08/30/23
Task: 02 - Laboratory Soil-Aggregate Testing

Terracon
2640 12th St SW
Cedar Rapids, IA 52404-3440
319-366-8321

Client

Gensini Excavating Inc
Attn: Joe Gensini
10602 IL Hwy 26
Princeton, IL 61356

Project

CRLCSWA Site 2 - 30 Acre Cell Improvements
1954 County Home Road
Marion, IA

Project Number: 06231272

Material Information

Source of Material: Onsite
Proposed Use: Road Fill

Sample Information

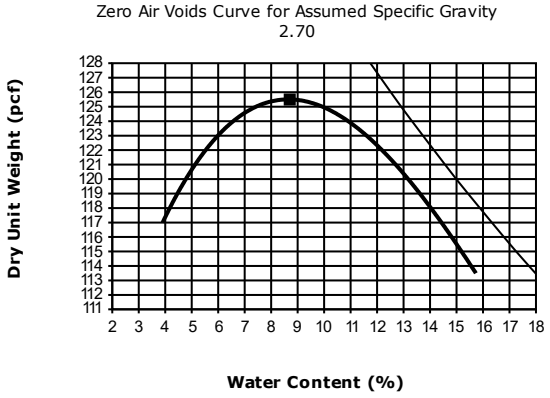
Sample Date: 08/28/23
Sampled By: Jake MacDonald
Sample Location: Test #1 Report .06231272.0007

Sample Description: Gray Brown Sandy Lean Clay trace Gravel

Laboratory Test Data

Test Procedure: ASTM D698 (Standard)
Test Method: Method B
Sample Preparation: Wet
Rammer Type: Mechanical
Maximum Dry Unit Weight (pcf): 125.5
Optimum Water Content (%): 8.7

	Result	Specifications
Liquid Limit:		
Plastic Limit:		
Plasticity Index:		
In-Place Moisture (%):		
USCS:		



Comments:

Services:

Terracon Rep.: Dillon Nolan
Reported To:
Contractor:

Report Distribution:

(1) Gensini Excavating Inc, Joe Gensini
(1) Gensini Excavating Inc, Mike Garland
(1) Terracon Consultants, Inc., Peng Cavan

Reviewed By: _____

Cavan, Peng
Project Engineer

Test Methods:

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

SAMPLE PICK-UP REPORT

Report Number: 06231272.0002
Service Date: 08/21/23
Report Date: 08/22/23
Task: 01 - Earthwork Observation & Testing

2640 12th St SW
Cedar Rapids, IA 52404-3440
319-366-8321

Client

Gensini Excavating Inc
Attn: Joe Gensini
10602 IL Hwy 26
Princeton, IL 61356

Project

CRLCSWA Site 2 - 30 Acre Cell Improvements
1954 County Home Road
Marion, IA

Project Number: 06231272

Sample Information

Terracon was requested to perform a sample pickup of the following materials:

Material Type/ Description	Source	Sample Location	Sample Type	Sampling Procedure	Proposed Use
Soil - Gray Sandy Lean Clay trace Gravel	Onsite	Stock area upper south facing ledge	Bulk	Stockpile	Fill

Sample Delivery

Samples were obtained and delivered to a Terracon laboratory on 8/21/2023 for testing as requested.

Services: Pickup Sample of Fill Material

Terracon Rep.: Vito Aiello
Reported To: Joe with Gensini Excavating
Contractor: Gensini Excavating
Report Distribution:

(1) Gensini Excavating Inc, Joe Gensini
(1) Gensini Excavating Inc, Mike Garland
(1) Terracon Consultants, Inc., Peng Cavan

Reviewed By:

Cavan, Peng
Project Engineer

FIELD DENSITY TEST REPORT

Report Number: 06231272.0004
Service Date: 08/23/23
Report Date: 08/25/23
Task: 01 - Earthwork Observation & Testing

Terracon
2640 12th St SW
Cedar Rapids, IA 52404-3440
319-366-8321

Client

Gensini Excavating Inc
Attn: Joe Gensini
10602 IL Hwy 26
Princeton, IL 61356

Project

CRLCSWA Site 2 - 30 Acre Cell Improvements
1954 County Home Road
Marion, IA

Project Number: 06231272

Material Information

Mat. No.	Proctor Ref. No.	Classification and Description	Laboratory Test Method	Lab Test Data: Opt. Water Content (%)	Lab Test Data: Max. Lab Density (pcf)	Project Requirements: Water Content (%)	Project Requirements: Compaction (%)
1	06231272.0003	Gray Sandy Lean Clay trace Gravel	ASTM D698 (Standard)	9.5	122.9	7.5 - 12.5	Min 95

Field Test Data

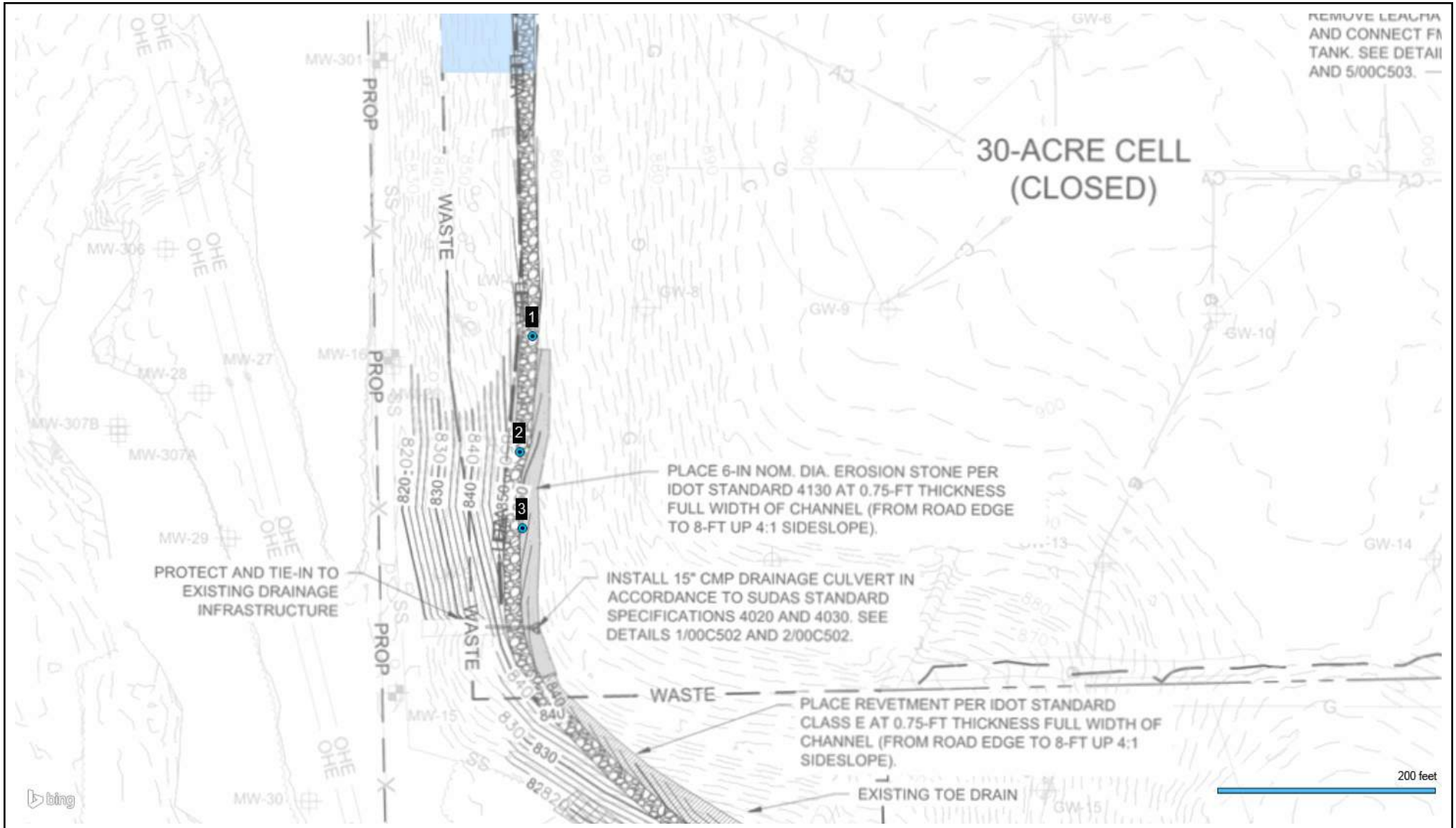
Test No.	Test Location	Lift / Elev.	Mat. No.	Probe Depth (in)	Wet Density (pcf)	Water Content (pcf)	Water Content (%)	Dry Density (pcf)	Percent Compaction (%)
	Access roadway subgrade								
1	See attached diagram	846	1	8	133.8	13.5	11.2	120.3	98
2	See attached diagram	844	1	8	139.3	14.3	11.4	125.0	100+
3	See attached diagram	842	1	8	133.3	14.1	11.8	119.2	97

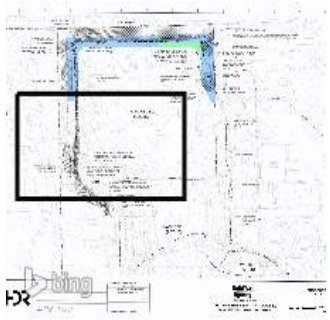
Datum: Elevation **Std. Cnt. M:** 721 **Std. Cnt. D:** 1828
S/N: 31638 **Make:** Troxler **Model:** 3430 **Last Cal. Date:** 02/01/2023
Comments: **Test and/or retest results on this report meet project requirements as noted above.**

Services: Perform in-place moisture and density tests as requested or as required by the project specifications to determine degree of compaction and material moisture condition.
Terracon Rep.: Vito Aiello
Reported To: Joe with Gensini Excavating
Contractor: Gensini Excavating
Report Distribution:
(1) Gensini Excavating Inc, Joe Gensini
(1) Gensini Excavating Inc, Mike Garland
(1) Terracon Consultants, Inc., Peng Cavan

Reviewed By: Cavan, Peng
Project Engineer

Test Methods: ASTM D6938





Test

Retested / Accepted

Deviation

Terracon

2640 12th St SW
Cedar Rapids, IA
52404-3440

319-366-8321
terracon.com

CRLCSWA Site 2 - 30 Acre Cell Improvements

Field Density Testing

Exhibit

A-1

Report Number:	Service Date:	Employee:	Scale:
06231272.0004	08/23/2023	Aiello, Vito	Refer to Drawing

FIELD DENSITY TEST REPORT

Report Number: 06231272.0005
Service Date: 08/23/23
Report Date: 08/24/23
Task: 01 - Earthwork Observation & Testing

Terracon
2640 12th St SW
Cedar Rapids, IA 52404-3440
319-366-8321

Client

Gensini Excavating Inc
Attn: Joe Gensini
10602 IL Hwy 26
Princeton, IL 61356

Project

CRLCSWA Site 2 - 30 Acre Cell Improvements
1954 County Home Road
Marion, IA

Project Number: 06231272

Material Information

Mat. No.	Proctor Ref. No.	Classification and Description	Laboratory Test Method	Lab Test Data: Opt. Water Content (%)	Lab Test Data: Max. Lab Density (pcf)	Project Requirements: Water Content (%)	Project Requirements: Compaction (%)
1	06231272.0003	Gray Sandy Lean Clay trace Gravel	ASTM D698 (Standard)	9.5	122.9	7.5 - 12.5	Min 95

Field Test Data

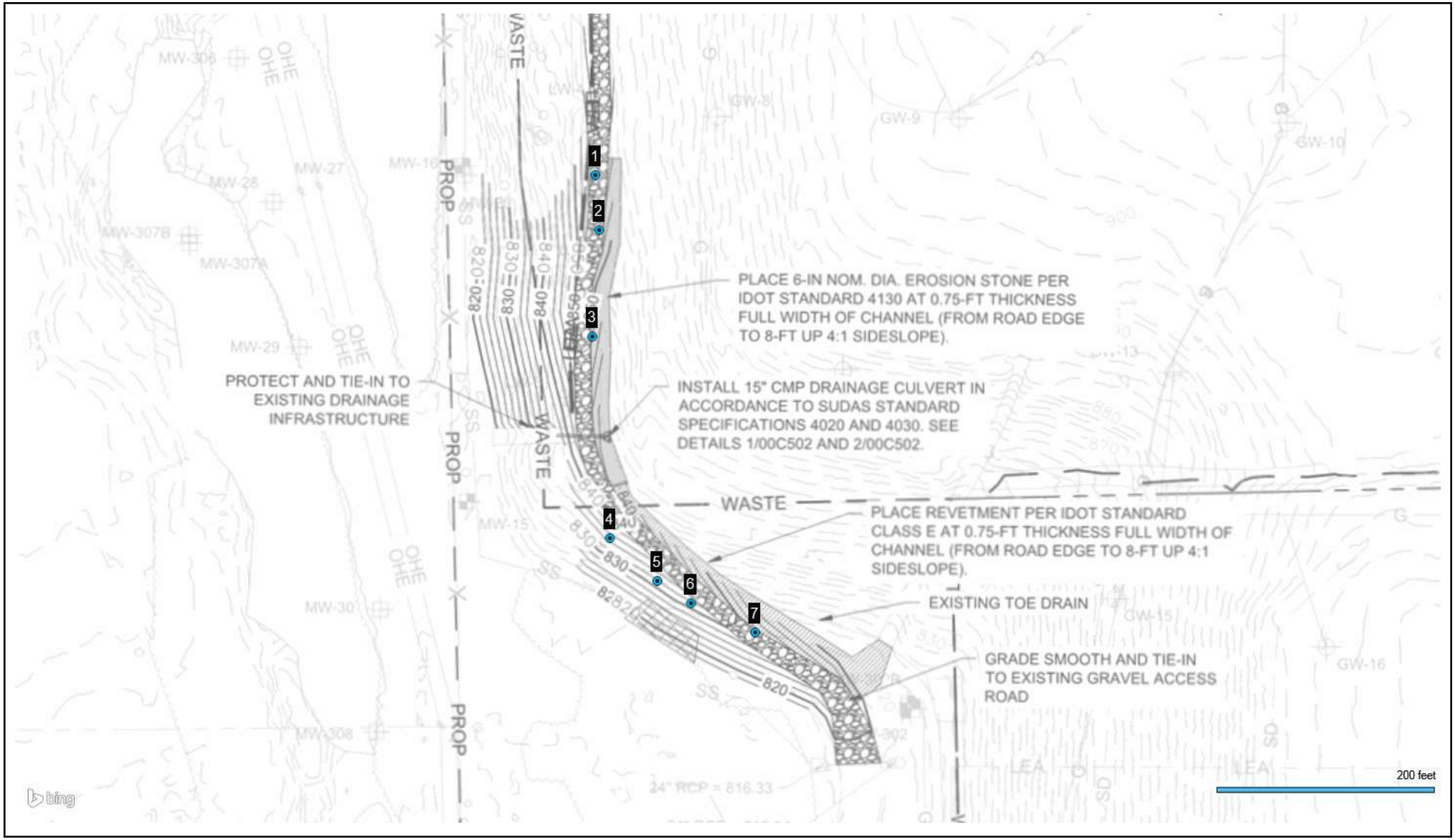
Test No.	Test Location	Lift / Elev.	Mat. No.	Probe Depth (in)	Wet Density (pcf)	Water Content (pcf)	Water Content (%)	Dry Density (pcf)	Percent Compaction (%)
	Access road embankment								
1	See diagram	850	1	8	132.3	14.5	12.3	117.8	96
2	See diagram	845	1	8	136.0	14.5	11.9	121.5	99
3	See diagram	843	1	8	130.6	12.6	10.7	118.0	96
4	See diagram	823	1	8	136.4	14.6	12.0	121.8	99
5	See diagram	822	1	8	135.3	13.6	11.2	121.7	99
6	See diagram	822	1	8	135.2	14.5	12.0	120.7	98
7	See diagram	821	1	8	132.6	13.5	11.3	119.1	97

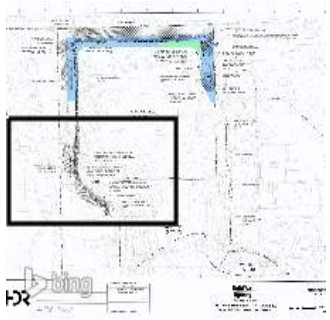
Datum: Elevation **Std. Cnt. M:** 658 **Std. Cnt. D:** 1711
S/N: 32395 **Make:** Troxler **Model:** 3430 **Last Cal. Date:** 03/10/2023
Comments: **Test and/or retest results on this report meet project requirements as noted above.**

Services: Perform in-place moisture and density tests as requested or as required by the project specifications to determine degree of compaction and material moisture condition.
Terracon Rep.: Jake MacDonald
Reported To: Joe with Gensini Excavating
Contractor: Gensini Excavating
Report Distribution:
(1) Gensini Excavating Inc, Joe Gensini
(1) Gensini Excavating Inc, Mike Garland
(1) Terracon Consultants, Inc., Peng Cavan

Reviewed By: Cavan, Peng
Project Engineer

Test Methods: ASTM D6938





Test

Retested / Accepted

Deviation

Terracon

2640 12th St SW
Cedar Rapids, IA
52404-3440

319-366-8321
terracon.com

CRLCSWA Site 2 - 30 Acre Cell Improvements

Field Density Testing

Exhibit

A-1

Report Number:	Service Date:	Employee:	Scale:
06231272.0005	08/23/2023	MacDonald, Jake	Refer to Drawing

FIELD DENSITY TEST REPORT

Report Number: 06231272.0006
Service Date: 08/25/23
Report Date: 08/28/23
Task: 01 - Earthwork Observation & Testing

Terracon
2640 12th St SW
Cedar Rapids, IA 52404-3440
319-366-8321

Client

Gensini Excavating Inc
Attn: Joe Gensini
10602 IL Hwy 26
Princeton, IL 61356

Project

CRLCSWA Site 2 - 30 Acre Cell Improvements
1954 County Home Road
Marion, IA

Project Number: 06231272

Material Information

Mat. No.	Proctor Ref. No.	Classification and Description	Laboratory Test Method	Lab Test Data: Opt. Water Content (%)	Lab Test Data: Max. Lab Density (pcf)	Project Requirements: Water Content (%)	Project Requirements: Compaction (%)
1	06231272.0003	Gray Sandy Lean Clay trace Gravel	ASTM D698 (Standard)	9.5	122.9	7.5 - 12.5	Min 95

Field Test Data

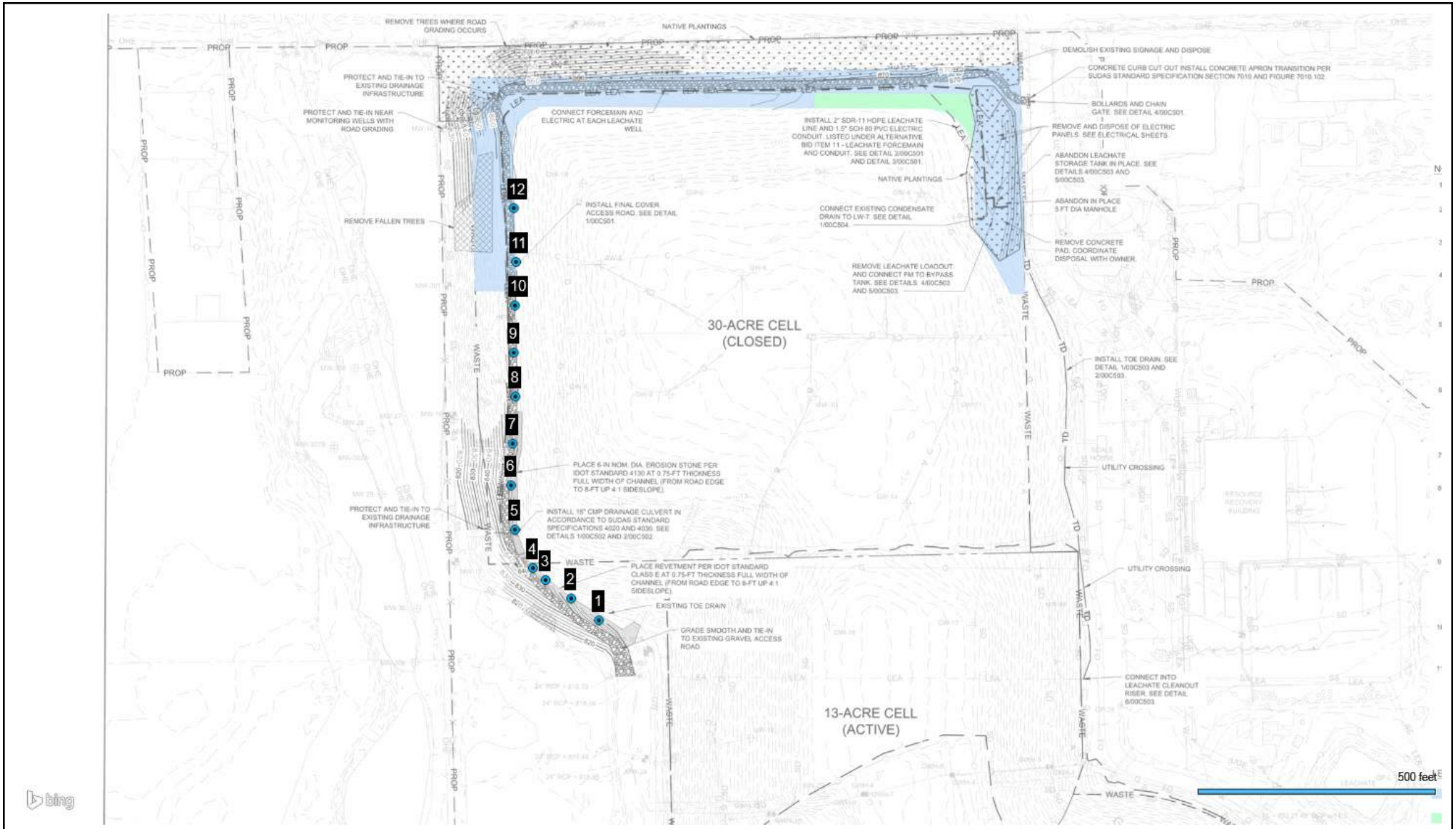
Test No.	Test Location	Lift / Elev.	Mat. No.	Probe Depth (in)	Wet Density (pcf)	Water Content (pcf)	Water Content (%)	Dry Density (pcf)	Percent Compaction (%)
	Road access								
1	See diagram	824	1	8	142.8	13.1	10.1	129.7	100+
2	See diagram	828	1	8	141.4	13.8	10.8	127.6	100+
3	See diagram	833	1	8	139.9	13.4	10.6	126.5	100+
4	See diagram	837	1	8	136.1	12.6	10.2	123.5	100
5	See diagram	841	1	8	140.8	11.9	9.2	128.9	100+
6	See diagram	846	1	8	142.3	13.2	10.2	129.1	100+
7	See diagram	850	1	8	140.1	14.1	11.2	126.0	100+
8	See diagram	854	1	8	139.5	13.5	10.7	126.0	100+
9	See diagram	856	1	8	137.3	14.7	12.0	122.6	100
10	See diagram	858	1	8	136.1	11.6	9.3	124.5	100+
11	See diagram	860	1	8	138.6	11.8	9.3	126.8	100+
12	See diagram	861	1	8	140.3	11.7	9.1	128.6	100+

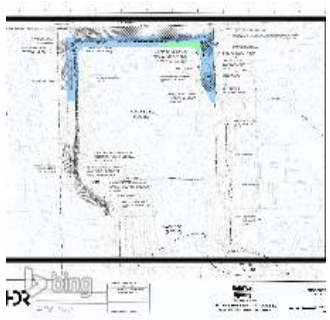
Datum: Sea level **Std. Cnt. M:** 665 **Std. Cnt. D:** 1931
S/N: 34430 **Make:** Troxler **Model:** 3430 **Last Cal. Date:** 02/01/2023
Comments: **Test and/or retest results on this report meet project requirements as noted above.**

Services: Perform in-place moisture and density tests as requested or as required by the project specifications to determine degree of compaction and material moisture condition.
Terracon Rep.: Justin Hannemann
Reported To: Joe with Gensini Excavating
Contractor: Gensini Excavating
Report Distribution:
(1) Gensini Excavating Inc, Joe Gensini
(1) Gensini Excavating Inc, Mike Garland
(1) Terracon Consultants, Inc., Peng Cavan

Reviewed By: Cavan, Peng
Project Engineer

Test Methods: ASTM D6938





Test

Retested / Accepted

Deviation

Terracon

2640 12th St SW
Cedar Rapids, IA
52404-3440

319-366-8321
terracon.com

CRLCSWA Site 2 - 30 Acre Cell Improvements

Field Density Testing

Exhibit

A-1

Report Number:	Service Date:	Employee:	Scale:
06231272.0006	08/25/2023	Hannemann, Justin	Refer to Drawing

FIELD DENSITY TEST REPORT

Report Number: 06231272.0007
Service Date: 08/28/23
Report Date: 08/30/23
Task: 01 - Earthwork Observation & Testing

Terracon
2640 12th St SW
Cedar Rapids, IA 52404-3440
319-366-8321

Client

Gensini Excavating Inc
Attn: Joe Gensini
10602 IL Hwy 26
Princeton, IL 61356

Project

CRLCSWA Site 2 - 30 Acre Cell Improvements
1954 County Home Road
Marion, IA

Project Number: 06231272

Material Information

Mat. No.	Proctor Ref. No.	Classification and Description	Laboratory Test Method	Lab Test Data: Opt. Water Content (%)	Lab Test Data: Max. Lab Density (pcf)	Project Requirements: Water Content (%)	Project Requirements: Compaction (%)
1	06231272.0003	Gray Sandy Lean Clay trace Gravel	ASTM D698 (Standard)	9.5	122.9	7.5 - 12.5	Min 95
2	06231272.0009	Gray Brown Sandy Lean Clay trace Gravel	ASTM D698 (Standard)	8.7	125.5	6.7 - 11.7	Min 95

Field Test Data

Test No.	Test Location	Lift / Elev.	Mat. No.	Probe Depth (in)	Wet Density (pcf)	Water Content (pcf)	Water Content (%)	Dry Density (pcf)	Percent Compaction (%)	
	Access road subgrade									
1	See diagram	863	2	8	125.3	11.5	10.1	113.8	91	*
2	See diagram	861	1	8	129.8	10.7	9.0	119.1	97	
3	See diagram	861	1	8	135.0	12.3	10.0	122.7	100	
4	See diagram	861	1	8	134.2	12.1	9.9	122.1	99	
5	See diagram	861	1	8	133.5	11.1	9.1	122.4	100	

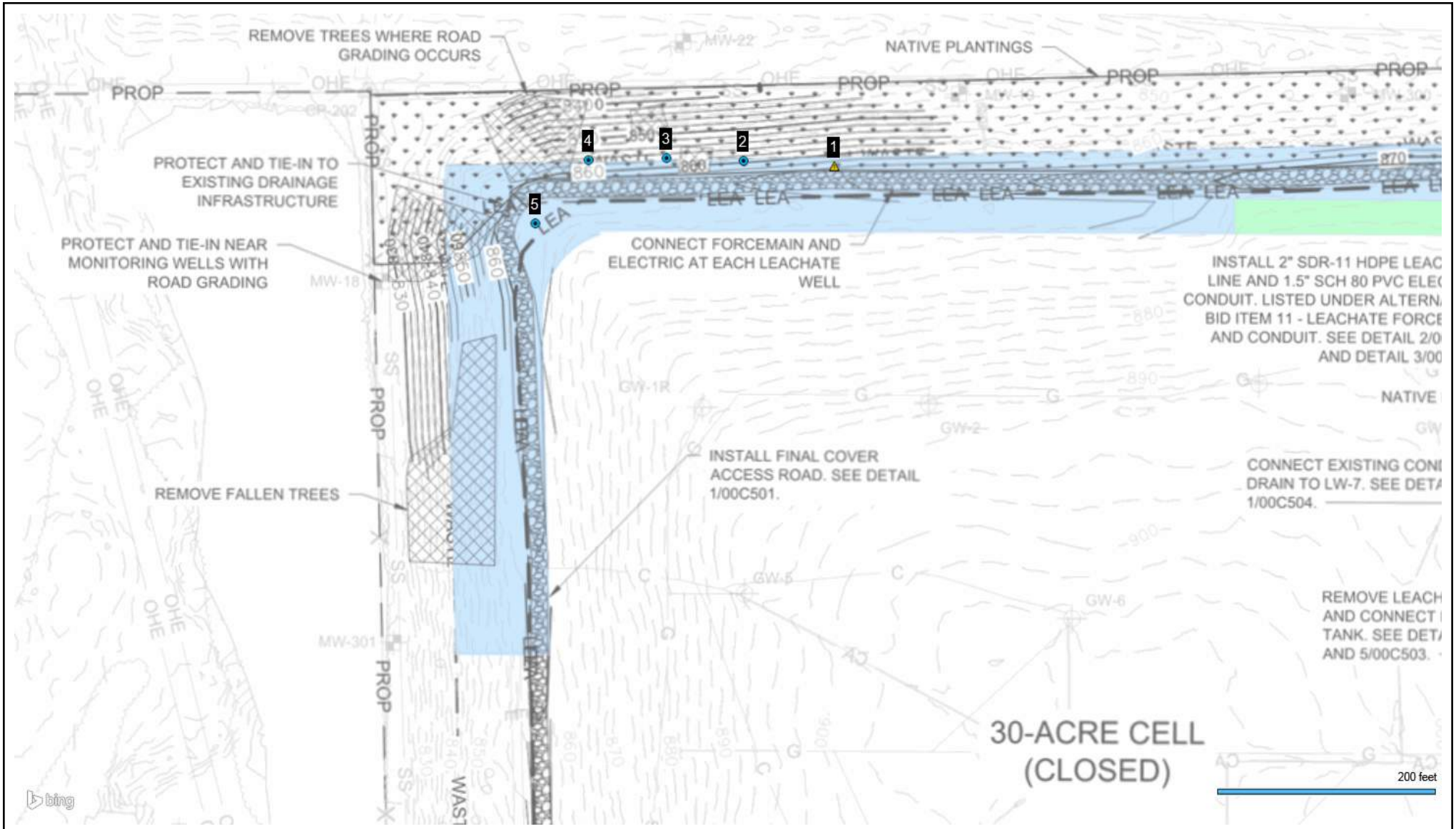
Datum: Sea level **Std. Cnt. M:** 653 **Std. Cnt. D:** 1707
S/N: 32395 **Make:** Troxler **Model:** 3430 **Last Cal. Date:** 03/10/2023

Comments: **An asterisk (*) appears next to the test results which do not meet the project requirements as noted above.**
Test 1 is a different material, new proctor was brought back for testing.

Services: Perform in-place moisture and density tests as requested or as required by the project specifications to determine degree of compaction and material moisture condition.
Terracon Rep.: Jake MacDonald
Reported To: Joe with Gensini Excavating
Contractor: Gensini Excavating
Report Distribution:
(1) Gensini Excavating Inc, Joe Gensini
(1) Gensini Excavating Inc, Mike Garland
(1) Terracon Consultants, Inc., Peng Cavan

Reviewed By: Cavan, Peng
Project Engineer

Test Methods: ASTM D6938



Test

Retested / Accepted

Deviation

Terracon

2640 12th St SW
Cedar Rapids, IA 52404-3440

319-366-8321
terracon.com

CRLCSWA Site 2 - 30 Acre Cell Improvements

Field Density Testing

Exhibit

A-1

Report Number:	Service Date:	Employee:	Scale:
06231272.0007	08/28/2023	MacDonald, Jake	Refer to Drawing

DEVIATION LOG

Report Date: 8/30/2023

2640 12th St SW
Cedar Rapids, IA 52404-3440
319-366-8321

Client

Gensini Excavating Inc
Attn: Joe Gensini
10602 IL Hwy 26
Princeton, IL 61356

Project

CRLCSWA Site 2 - 30 Acre Cell Improvements
1954 County Home Road
Marion, IA

Project Number: 06231272

Deviation No.	Report No.	Service	Service Date	Description/Comments	How Resolved	Date Resolved	Status
D000001	0007	Field Density Testing	08/28/23	See diagram - Percent compaction does not comply, Test 1			Open

FIELD DENSITY TEST REPORT

Report Number: 06231272.0008
Service Date: 08/29/23
Report Date: 08/30/23
Task: 01 - Earthwork Observation & Testing

Terracon
2640 12th St SW
Cedar Rapids, IA 52404-3440
319-366-8321

Client

Gensini Excavating Inc
Attn: Joe Gensini
10602 IL Hwy 26
Princeton, IL 61356

Project

CRLCSWA Site 2 - 30 Acre Cell Improvements
1954 County Home Road
Marion, IA

Project Number: 06231272

Material Information

Mat. No.	Proctor Ref. No.	Classification and Description	Laboratory Test Method	Lab Test Data: Opt. Water Content (%)	Lab Test Data: Max. Lab Density (pcf)	Project Requirements: Water Content (%)	Project Requirements: Compaction (%)
1	06231272.0003	Gray Sandy Lean Clay trace Gravel	ASTM D698 (Standard)	9.5	122.9	7.5 - 12.5	Min 95

Field Test Data

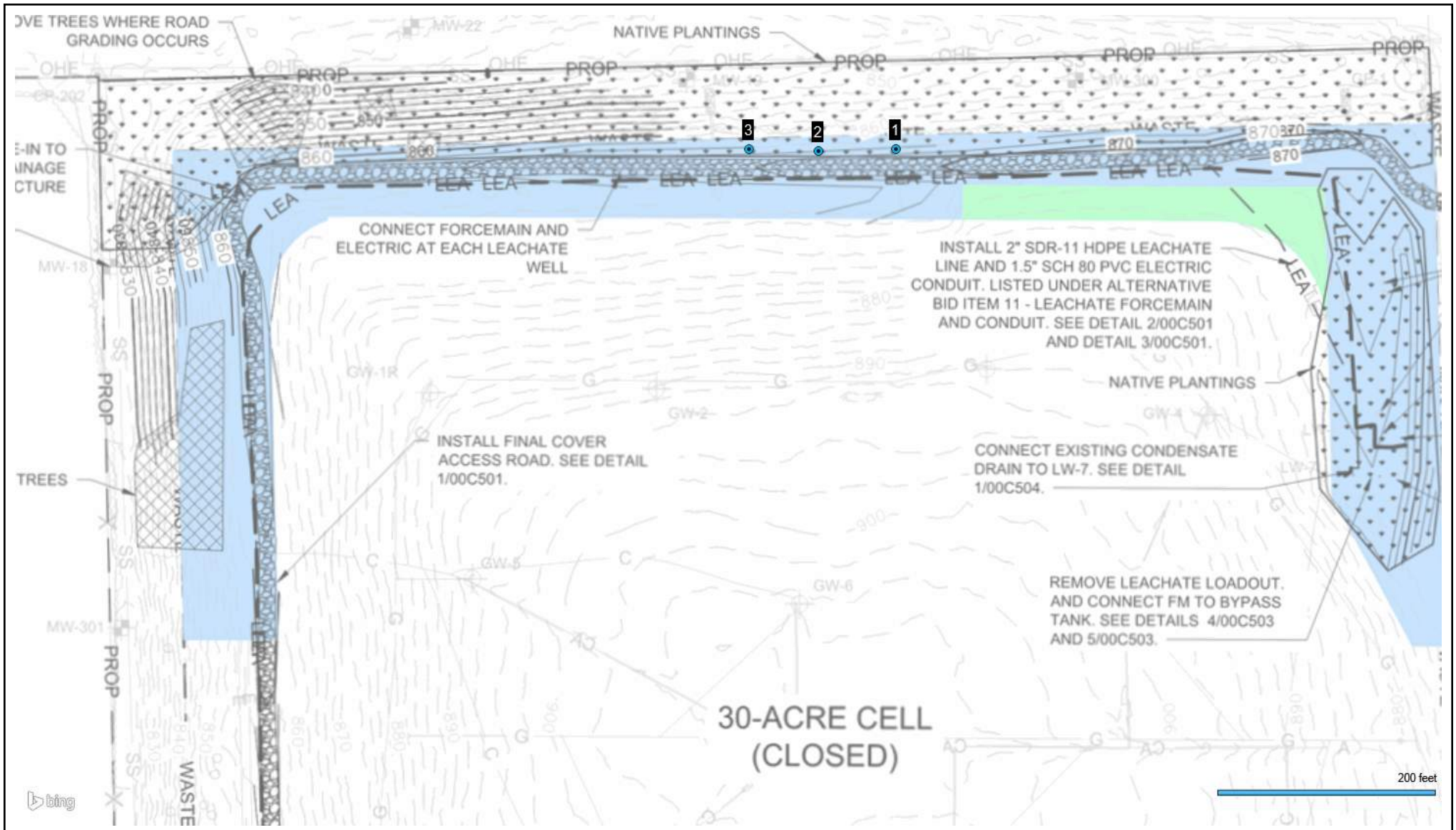
Test No.	Test Location	Lift / Elev.	Mat. No.	Probe Depth (in)	Wet Density (pcf)	Water Content (pcf)	Water Content (%)	Dry Density (pcf)	Percent Compaction (%)
	Roadway access								
1	See diagram	861	1	8	134.9	12.0	9.8	122.9	100
2	See diagram	863	1	8	136.8	14.7	12.0	122.1	99
3	See diagram	863	1	8	135.7	13.6	11.1	122.1	99

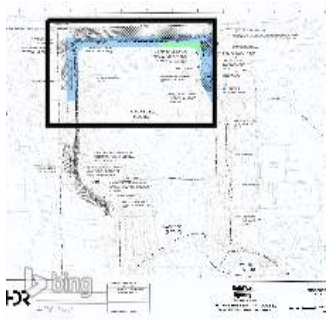
Datum: Sea level **Std. Cnt. M:** 653 **Std. Cnt. D:** 1707
S/N: 32395 **Make:** Troxler **Model:** 3430 **Last Cal. Date:** 03/10/2023
Comments: **Test and/or retest results on this report meet project requirements as noted above.**

Services: Perform in-place moisture and density tests as requested or as required by the project specifications to determine degree of compaction and material moisture condition.
Terracon Rep.: Jake MacDonald
Reported To: Joe with Gensini Excavating
Contractor: Gensini Excavating
Report Distribution:
(1) Gensini Excavating Inc, Joe Gensini
(1) Gensini Excavating Inc, Mike Garland
(1) Terracon Consultants, Inc., Peng Cavan

Reviewed By: Cavan, Peng
Project Engineer

Test Methods: ASTM D6938





Test

Retested / Accepted

Deviation

Terracon

2640 12th St SW
Cedar Rapids, IA 52404-3440

319-366-8321
terracon.com

CRLCSWA Site 2 - 30 Acre Cell Improvements

Field Density Testing

Exhibit

A-1

Report Number:	Service Date:	Employee:	Scale:
06231272.0008	08/29/2023	MacDonald, Jake	Refer to Drawing

Concrete Submittal

ROGERS READY MIX

Marion Plant
3790 3rd Ave
Marion, IA 52302
319.373.3894

Cedar Rapids Plant
2505 12th St SW
Cedar Rapids, IA 52404
319.200.4022

SOLD TO:

$Gensini
Gensini excavating

OH

SHIP TO:

LINN COUNTY LANDFILL
MAIN ENTARNCE 4 IN
THEY POURED

TIME	MIX	LOAD SIZE	YARDS ORDERED	TRUCK NO.	DRIVER	PLANT	TICKET #
13:19	27	6	6.00	37	Mark	Marion	32644
DATE		# OF LOADS	DELIVERED QTY	BATCH #	FINISHER	RATIO #	SLUMP
12/11/2023		1	6.00	33133	THEY POURED	0.00	4.00

WARNING
IRRITATING TO THE SKIN AND EYES

Contains Portland Cement. Wear rubber boots and gloves, PROLONGED CONTRACT MAY CAUSE BURNS. Avoid contact with skin or eyes, flush thoroughly with water. If irritation persists, get medical attention.
KEEP CHILDREN AWAY.

CONCRETE is a PERISHABLE COMMODITY and BECOMES THE PROPERTY of the PURCHASER UPON LEAVING the PLANT. ANY CHANGES or CANCELLATION of ORIGINAL INSTRUCTIONS MUST be TELEPHONED to the OFFICE BEFORE LOADING starts.

This undersigned promises to pay all costs, including reasonable attorneys fees incurred in collection ay sums owed.

All accounts not paid within 30 days of delivery will bear interest at the rate of 18% per annum

Not responsible for Reactive Aggregate or Color Quality. No Claim Allowed Unless Made at the Time Material is Delivered.

A $30.00 Service Charge and Loss of the Cash Discount will be Collected on all Returned Checks.

Excess Delay Time Charged at Prevailing Rates.

PROPERTY DAMAGE RELEASE
(TO BE SIGNED IF DELIVERY TO BE MADE INSIDE CURB LINE)

Dear Customer: The driver of this truck in presenting this RELEASE to you for your signature is of the opinion that the size and weight of his truck may possibly cause damage to the premises and/or adjacent property if he places the material in his load where you desire it. It is our wish to help you in every way that we can, but in order to do this the driver is requesting that you sign this RELEASE relieving him and his supplier from any responsibility from any damage that may occur to the premises and/ or adjacent property, buildings, sidewalks, drive-ways, curbs, etc. by the delivery of this material, and that you also agree to help him remove mud from the wheels of his vehicle so that he will not litter the public street. Further, as additional consideration, the undersigned agrees to indemnify and hold harmless the driver of this truck and this supplier for any and all damage to the premises and/or adjacent property which may be claimed by anyone to have arisen out or delivery of this order.

SIGNED:

Excessive Water is Detrimental to Concrete

Performance. Water Added by Request / Authorized by:

Signature

Gallons Added 4 gallons

NOTICE:

MY SIGNATURE BELOW INDICATES THAT I HAVE READ THE HEALTH WARNING NOTICE AND SUPPLIER WILL NOT BE RESPONSBLE FOR ANY DAMAGE CAUSED WHEN DELIVERING INSIDE CURB LINE.

X

QUANITITY	CODE	DESCRIPTION	UNIT PRICE	EXTENDED PRICE
6.00 yd	27	DOT C-3WRA NO ASH		
6.00 yd	2% NCA	2% NCA		
6.00 yd	%HOT WATER	HOT WATER %		

ADDITIONAL CHARGE:

TAX

GRAND TOTAL

RETURNED TO PLANT	LEFT JOB	FINISH UNLOADING	DELAY EXPLANATION / CYLINDER TEST	
	3:00		1. JOB NOT READY	6. ADDED WATER
LEFT PLANT	ARRIVED ON JOB	START UNLOADING	2. SLOW POUR OR PUMP	7. ACCIDENT
	1:38		3. TRUCK AHEAD OF JOB	8. CITATION
TOTAL ROUND TRIP	TOTAL AT JOB	UNLOADING TIME	4. TRUCK BROKE DOWN	9. OTHER
	1.5 hrs		5. CONTRACTOR BROKE DOWN	

Seed Mix Submittal

Allendan Seed Company
1966 175th Lane
Winterset, IA 50273
Ph: (515) 462-1241

Lot No.: 23F RH2-Cyclone Short Grass 20-20

Total Acres:	6		
Total Bulk #:	60.00 lbs *	**Purity:**	95.23%
Total PLS #:	33.234 lbs	**Inert:**	4.75%
PLS:	75.77 %	**Other Crop:**	0.01%
Ttl Germ:	79.57 %	**Weed:**	0.01%
Bulk #/acre:	10 lbs		
PLS #/acre:	5.539 lbs		

Mix: CP 25 Cyclone Short Grass 20-20 (Yellow)

PLS #/ Acre	Mix %	PLS lb	Bulk lb	Lot Number	Common Name and Variety	Origin	Test Date	Purity	Germ	Hard/ Dorm.	TZ	Total Viable
0.908	15.55%	5.448	6.819	21-0500	Little Bluestem.	IA	06/21/23	82.36%	15%	82%	0%	97%
1.361	23.37%	8.166	10.251	23-0085	Side-oats Grama.	IA	09/14/23	95.97%	0%	0%	83%	83%
0.003	0.04%	0.018	0.020	21-0048	Broom Sedge.	IA	08/25/22	94.02%	4%	93%	0%	97%
0.019	0.27%	0.114	0.119	23-0009	Prairie Oval Sedge.	IA	08/02/23	96.70%	4%	95%	0%	99%
0.324	4.75%	1.944	2.085	22-0141	Virginia Wildrye.	IA	08/15/23	96.12%	91%	6%	0%	97%
0.017	0.26%	0.102	0.112	22-0228	Prairie Dropseed.	IA	01/18/23	99.91%	21%	70%	0%	91%
0.545	8.29%	3.270	3.638	21-0251	Rough Dropseed.	IA	09/05/23	99.88%	82%	8%	0%	90%
0.139	2.04%	0.834	0.893	22-0061	Fox Sedge.	IA	06/21/23	99.40%	7%	87%	0%	94%
0.115	1.66%	0.690	0.728	22-0128	Black-eyed Susan.	IA	07/18/23	99.77%	95%	0%	0%	95%
0.091	12.54%	0.546	5.498	19-0340	Grayheaded Coneflower.	IA	03/15/23	99.31%	10%	0%	0%	10%
0.065	0.91%	0.390	0.398	20-0441	Illinois Bundle Flower.	IA	08/16/23	99.94%	14%	84%	0%	98%
0.378	5.34%	2.268	2.341	20-0539	Purple Prairie Clover.	IA	09/14/23	99.87%	0%	0%	97%	97%
0.063	0.87%	0.378	0.383	22-0129	Illinois Ticktrefoil.	IA	07/24/23	99.77%	90%	9%	0%	99%
0.017	0.24%	0.102	0.103	22-0307	Roundheaded Bushclover.	IA	02/20/23	99.59%	93%	6%	0%	99%
0.358	5.10%	2.148	2.239	21-0051	White Prairie Clover.	IA	08/28/23	99.94%	5%	91%	0%	96%
0.010	0.16%	0.060	0.069	22-0184	Blue Sky Aster.	IA	08/28/23	93.15%	24%	70%	0%	94%
0.018	0.26%	0.108	0.115	22-0222	Rattlesnake Master.	IA	09/14/23	94.60%	0%	0%	99%	99%
0.083	1.62%	0.498	0.711	22-0169	Compass Plant.	IA	09/14/23	70.77%	0%	0%	99%	99%
0.019	0.50%	0.114	0.219	22-0273	Butterfly Weed.	IA	09/14/23	99.89%	0%	0%	52%	52%
0.003	0.04%	0.018	0.020	22-0059	Ohio Spiderwort.	IA	08/22/23	99.04%	24%	69%	0%	93%
0.019	0.38%	0.114	0.166	22-0300	Sweet Coneflower.	IA	09/14/23	96.99%	0%	0%	71%	71%
0.157	2.29%	0.942	1.003	21-0146	Pale Purple Coneflower.	IA	06/20/23	99.95%	80%	14%	0%	94%
0.034	0.54%	0.204	0.239	21-0463	Ironweed.	IA	09/14/23	87.19%	0%	0%	98%	98%
0.012	0.17%	0.072	0.075	22-0241	Wild Bergamot.	IA	08/22/23	99.44%	87%	10%	0%	97%
0.005	0.10%	0.030	0.043	22-0327	Old Field Goldenrod.	IA	09/14/23	71.36%	0%	0%	98%	98%
0.057	0.86%	0.342	0.378	20-0348	Swamp Milkweed.	IA	08/22/23	99.46%	11%	80%	0%	91%
0.004	0.06%	0.024	0.027	22-0249	Hairy Aster.	IA	09/14/23	99.96%	0%	0%	88%	88%
0.020	0.91%	0.120	0.401	21-0452	Stiff Goldenrod.	IA	06/07/23	96.58%	1%	30%	0%	31%
0.130	2.54%	0.780	1.115	20-0543	Oxeye Sunflower.	IA	09/14/23	99.93%	0%	0%	70%	70%
0.074	1.03%	0.444	0.450	21-0091	Golden Alexander.	IA	06/07/23	99.72%	0%	99%	0%	99%
0.031	0.52%	0.186	0.226	21-0111	Foxglove Beardtongue.	IA	06/27/23	95.71%	6%	80%	0%	86%
0.012	0.18%	0.072	0.077	21-0280	Virginia Mountain Mint.	IA	03/22/23	96.98%	96%	0%	0%	96%
0.012	0.17%	0.072	0.075	22-0206	Obedient Plant.	IA	09/14/23	99.49%	0%	0%	96%	96%
0.058	0.80%	0.348	0.352	20-0283	Large flowered Beardtongue.	IA	07/05/23	99.96%	18%	81%	0%	99%
0.009	0.18%	0.054	0.079	22-0238	Rough Blazing Star.	IA	09/14/23	72.20%	0%	0%	95%	95%
0.011	0.17%	0.066	0.076	22-0269	White Sage.	IA	09/14/23	96.40%	0%	0%	90%	90%
0.160	2.24%	0.960	0.980	23-0084	Canadian Milkvetch.	IA	09/14/23	99.93%	0%	0%	98%	98%
0.016	0.22%	0.096	0.098	21-0077	Prairie Cinquefoil.	IA	06/13/23	99.96%	82%	16%	0%	98%
0.064	0.96%	0.384	0.423	22-0286	Common Milkweed.	IA	09/12/23	97.65%	17%	76%	0%	93%
0.101	1.63%	0.606	0.714	17-1039	Partridge Pea.	IA	05/01/23	99.91%	15%	70%	0%	85%
0.017	0.24%	0.102	0.103	22-0410	Leadplant.	IA	04/27/23	99.76%	71%	28%	0%	99%

Noxious Weeds/lb: No Sale WI

*** Parboiled Rice Hulls have been added to this mix as additional inert material. Parboiled Rice Hulls are a natural, renewable plant material useful in a wide variety of applications including plant potting media in the greenhouse and nursery industry. Parboiled Rice Hulls have been subjected to a series of heat treatments that collectively sterilize and render any residual rice kernels and other seeds non-viable. This process includes steeping in water at temperatures in excess of 140°F, steaming under pressure to temperatures exceeding 212°F, and hot-air drying by combustion gasses at 500°F, or higher. While the hulls are rendered practically sterile at the conclusion of the heat treatments described above, it must be recognized that subsequent handling is not aseptic and that the material may not be sterile upon delivery to customers.**

Appendix C

Meeting Notes

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PRECONSTRUCTION CONFERENCE
CEDAR RAPIDS LINN COUNTY SOLID WASTE AGENCY
SITE 2 – 30 ACRE CELL IMPROVEMENTS PROJECT
JULY 11, 2023, 9:00 AM

Meeting Minutes in Bold Italics

1. INTRODUCTION OF PERSONNEL AND LINES OF COMMUNICATION

a.	Owner:	Cedar Rapids Linn County Solid Waste Agency (CRLCSWA)
	Primary Contact: Phone Number:	Garrett Prestegard, PE (319) 377-5290,116 GPrestegard@solidwasteagency.org
	Secondary Contact: Phone Number:	Jason Evans, Operations Manager (319) 377-5290 JEvans@solidwasteagency.org
b.	Engineer:	HDR Engineering, Inc.
	Primary Contact:	Morgan Mays, PE Email: Morgan.Mays@hdrinc.com Phone Number: (319) 423-6318 Cell Number: (319) 400-2718
	Secondary Contacts:	Jason Reichart, PE Email: Jason.Reichart@hdrinc.com Phone Number: (319) 423-6325 Cell Number: (712) 310-7372 Ty Leibold, PE Email: Ty.Leibold@hdrinc.com Phone Number: (319) 423-6316 Cell Number: (319) 480-9117 Katie Kinley, PE Design Engineer Email: Kathryn.Kinley@hdrinc.com Phone Number: (402) 392-6980
c.	Contractor:	Gensini Excavating, inc.
	Primary Contact: (Contract, Major Issues, Emergency, Submittals and Project Manager)	Name: ***Mike Garland*** Email: ***mikegarland1988@yahoo.com*** Phone Number: ***(815) 659-1660*** Fax Number: ***(815) 659-1661*** Cell Number: ***(815) 830-8029***
	Site Superintendent: (Secondary Contact –	***Joe Gensini*** Phone Number: (***815***) ***343-0642***

Site-Specific Issues) Fax Number: (____) _____-_____
Cell Number: (____) _____-_____

d. All email correspondence should use the following protocol for the subject line: CRLCSWA 30 Acre Cell Improvements – ((Topic)).

Discussion:

- ***Participants at the meeting:***
  - ***HDR: Morgan Mays, Jason Reichart, Katie Kinley, Ty Leibold, and Mike Walsh***
  - ***CRLCSWA: Garrett Prestegard, Greg Schrader, Jason Evans, and Mitzi Brunsvold***
  - ***Gensini: Joe Gensini and Mike Garland***
- ***Please use Jason Reichart and Ty Leibold as your primary contacts for HDR for Project related items.***

2. OWNER'S JOBSITE RULES AND REGULATIONS

a. Health and Safety

i. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work.

ii. Contractor shall be familiar with CRLCSWA's general safety rules and emergency call instructions provided in the project manual. Signage is placed around site to promote safety of visitors, haulers, contractors, and all people at the landfill. A site safety manual can be found at the CRLCSWA Landfill Office, if needed.

- All project contractor and subcontractor foreman must complete a vendor agreement form prior to working on site. See the Section 00 73 01 for the requirements and Section 00 73 01 Exhibit B for the required form.

- CRLCSWA's Vendor Agreement, will be signed by all Contractor/Subcontractor personnel entering Site-2. These signed agreements will be submitted to HDR.

iii. Contractor is advised that landfill gases including varying concentrations of methane and hydrogen sulfide gas are known to be present within the landfill. Such gases are explosive in certain concentrations and also represent a hazard to life under certain conditions including but not limited to confined areas such as leachate lines and tanks, manholes, trenches, and buildings.

iv. Contractor is also advised that leachate may be present in unknown quantities within the limits of the Project. The Contractor shall be responsible for determining the presence of potential hazards of any leachate encountered and shall be responsible for implementing safety measures as are appropriate.

v. CRLCSWA recommends the Contractor contact the Police (911) immediately if they suspect someone is on-site illegally and/or is putting workers in danger. Non-emergency number for the Linn County Sherriff's Office is 319-892-6100. Contractor shall contact Garrett Prestegard if the police office is contacted.

b. Site Access and Security

i. Jobsite hours of operation: *Monday-Friday 7:00 AM to 4:00 PM, Saturday 8:00 AM to 12:00 PM, Sunday closed.* Coordinate with owner for site access outside normal facility hours and for holidays observed by the Owner.

ii. Contractor, superintendent, and all subcontractors/suppliers should enter and exit through the Artesian Road entrance (back gate). The contractor's use of the Site shall be confined to the areas shown on the drawing. All large equipment and deliveries shall enter through the back gate off of Artesian Road and shall be coordinated with the owner.

iii. Owner personnel and customer traffic has the right-of-way. Owner's "Main Access Road" shall remain a two-lane, unobstructed road at all times except between the hours of 4:00 PM on Saturday and 6:00 AM on Monday. Other Access Roads on site must maintain a minimum of one lane of unrestricted traffic flow at all times. Where Work has the potential to restrict or obstruct roadways the Contractor must submit a traffic control plan, provide maintenance of traffic services, and coordinate with the owner and engineer.

iv. If Contractor is present on-site during non-public use hours, the site must be continually maintained secure from unauthorized access.

v. Contractor shall maintain a daily employee roster for all employees on-site.

vi. Prior to mobilization, coordinate with the Owner and Resident Project Representative to allow uninterrupted Owner traffic to flow smoothly while loading/unloading construction equipment on the existing site access roads. Traffic cones, and where necessary, flag men, must be used during all loading/unloading of equipment.

c. Permits, Fees, and Utilities

i. Contractor to provide temporary utilities. Locations of temporary facilities shall be shown on work plan and approved by Owner and Engineer.

ii. Contractor is responsible to comply with Owner's National Pollutant Discharge Elimination System (NPDES) General Permit No. 1.

iii. It is the Contractor's responsibility to locate and protect all utilities.

- Locating utilities will be completed by: _____

d. Wind/Weather Related Litter and Waste:

i. Contractor shall remove all wind or weather-related litter (solid waste) that enters the project area at no additional cost to the Owner and shall ensure such materials are not incorporated into the work.

ii. The Contractor should anticipate up to five (5) days when the volume of wind or weather-related litter will prevent construction. No extensions of the number of calendar days for completion will be granted for the first five (5) such events.

iii. Contractor shall be responsible for proper disposal of all solid waste generated. Degradable, non-hazardous solid waste generated on-site is approved for disposal at the active face of the landfill on site, at no cost to Contractor. The Contractor shall coordinate disposal procedures with the Owner.

e. Other:

i. Speed Limit: Speed limit inside property is 14 mph and is strictly enforced.

ii. Smoking – Smoking is not permitted on CRLCSWA property. If requirement is not followed, personnel may be banned from the site.

Discussion:

- ***HDR noted that Gensini needs to sign the Vendor Liability form before start of construction.***
- ***CRLCSWA mentioned it was a no smoking site. Smoking is limited to inside vehicles or off-site.***
- ***CRLCSWA stated that the site hours on Saturday are 7:00 am to 12:00 pm.***
- ***HDR noted that large equipment and material deliveries should come from the south access road or the access road from Artesian Road. The main access road should remain unobstructed.***
- ***Gensini would like to work 10-hour days Monday through Friday from 7:00 am to 5:30 pm.***
- ***CRLCSWA typically provides access through a padlock on the south access road.***
- ***Gensini confirmed the location of the staging area for storing and mobilizing equipment. Staging area to be the one suggested by plans.***
- ***CRLCSWA noted that access outside of site hours can only be made through the Artesian Road entrance.***

see 2.c.iii above

- ***HDR recommended the Gensini use Weber Communications for utility locating services since all utilities are private.***
- ***CRLCSWA noted that the safety meeting is a one-time occurrence and that Gensini should communicate the rules of the site to any new workers that arrive.***

3. CONSTRUCTION PROGRESS SCHEDULE

a. Construction Schedule Overview:

i. Notice to Proceed (NTP) Date or Missing Items: June 8, 2023 .

ii. Anticipated Start of Work Date: August 7, 2023.

iii. Latest Mobilization Date is Monday, **August 7th, 2023**.

iv. **Substantial Completion is on or before Friday, May 10th, 2024.**

v. **Final Completion and Demobilization is Friday, June 7th, 2024.**

vi. Liquidated Damages are $1,500.00 for each day for Substantial Completion and $1,000.00 for each day beyond Final Completion as stated in the signed Agreement between Owner and Contractor.

b. Prior to Construction:

i. Contractor to submit for approval a Gantt Bar chart baseline schedule. Submit within 15 days of award of contract.

ii. Contractor to discuss provided Work Plan including project schedules, sequencing, and other conditions and procedures. The Work plan requires

approval by the Owner and Engineer a minimum of two weeks prior to beginning to undertake the work.

iii. The Contractor shall verify with the Engineer that the proposed work will not impact the existing landfill liner, capping system, leachate conveyances or other environmental protection features.

iv. All pre-construction submittals shall be submitted and approved prior to construction.

v. Schedule of Values will be submitted to HDR with a breakdown of Lump Sum Items in the contract.

c. Site Mobilization:

i. Contractor to discuss the following:

- Anticipated working day, working hours, overtime.

  10-hr workdays, typically Monday-Friday, 7AM-5:30PM

- Use of Site and other areas; use of existing facilities.

  Staging area as shown on the Plans

- Field offices, storage trailers, and staging areas.

  No field office planned. A conex will be used for storage of construction equipment.

d. Payment Procedures:

i. An up-to-date schedule will be required before pay requests are processed as required per Specification Section 01 29 76

ii. All applications for payment shall be submitted electronically to the Engineer via email. Pay applications need to be reviewed with RPR for agreeable percent completion of work prior to submittal.

iii. See Specification Sections 01 29 73 and 01 29 76 for requirements and procedures.

e. Time extensions:

i. Time extensions will not be granted for rain, wind, flood, or other natural phenomena of normal intensity for the locality where Work is performed. For purpose of determining extent of delay attributable to unusual weather phenomena, a determination shall be made by comparing the weather for a minimum continuous period of at least one-fourth of the Contract Time involved with the average of the preceding 5-year climatic range during the same time interval based on U.S. Weather Bureau statistics for the locality where the Work is performed.

ii. If a time extension is requested, a subsequent Change Proposal Request will need to be submitted by the Contractor to the Engineer for approval.

Discussion:

- ***Pay applications will be monthly, need to be submitted and approved by the first Wednesday of the month. Board Meetings are the 3rd Tuesday of the month and financials need approved 10 workdays prior.***
- ***Gensini plans to mobilize on August 7th, 2023.***
- ***Gensini to have a workplan and schedule by end of the week to HDR.***
- ***Gensini plans to complete the project within the calendar year. Seeding could be the only portion to be completed during 2024.***
- ***Temporary seeding may need to occur outside the typically seeding window. HDR recommends following the SUDAS temporary seed mix.***
- ***Gensini to use HDR's suggested Pay Application Form.***

4. MAJOR SUBCONTRACTORS

SUBCONTRACTOR/SUPPLIER ROLE	**NAME/CONTACT**	**PHONE No.**
Electrical	***Price Electric***	
Aggregate	***Wendling Quarry***	
Erosion Control Matl's	***QC Storm Supply***	

Discussion:

5. CONSTRUCTION UTILITIES

    a. Contractor is reminded that location of utilities shown on drawings is believed to be reasonably accurate but is not guaranteed to be so. Contractor is responsible for locating and protecting all existing utilities prior to construction. Damage by Contractor will be repaired or replaced at Contractor's sole liability.

Discussion:

- ***Weber Communications information shared with Gensini for private utility locating services.***

6. SHOP DRAWINGS

    a. Pre-Construction Conference Submittals

        i. The names and telephone numbers of Contractor's Superintendent and Office Manager.

ii. Personnel authorized to sign change orders and receive progress payments.

iii. Emergency contacts of at least two (2) of the Contractor's employees.

iv. A list of all subcontractors that will work on the project, a description of the work they will perform, and contact information (phone number and address).

v. A draft of the proposed Construction Schedule.

vi. Materials Safety Data Sheets for all hazardous chemical products to be used by the Contractor on this project.

vii. Temporary Erosion and Sediment Control Plan.

viii. Traffic Control Plan.

b. Pre-Construction Submittals (Critical)

i. Preliminary Progress Schedule indicating the times (Number of days or dates) for starting and completing the various stages of the work, including any milestones specified in the Contract

ii. Preliminary Schedule of Submittals.

iii. Preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into components parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

iv. Work Plan (schedules, sequencing, and all other procedures)

v. Pre-construction Survey in all anticipated work areas

vi. Form of Contractor's site superintendent's daily reports.

- Contractor's daily reports will be provided to Engineer upon request. See Specification Section 01 71 23 for Contractor daily report required information.

c. All shop drawings and submittals shall be submitted electronically to the ***Engineer (Jason Reichart) at Jason.Reichart@hdrinc.com*** and Resident Project Representative (Ty Leibold) at Ty.Leibold@hdrinc.com. See Specification Section 01 33 00 of the project manual for submittal format, procedures, and requirements.

d. HDR has a goal of a 7 to 10-day turnaround on all shop drawings submitted in accordance with the Submittal Schedule. A shorter time frame will be attempted where HDR is provided advanced notice.

Discussion:

- ***HDR noted that Gensini needs submittals for seeding, roadway aggregate, bollards, and other materials/portions of the project.***

7. PROJECT MEETINGS

   a. Project progress meetings will be held at the jobsite on a monthly basis. Additional meetings will be called/scheduled as needed. The Contractor will provide an updated construction schedule and a two (2) week look ahead schedule each construction progress meeting. These schedules will be presented and discussed.

      i. Project meetings will be held on the ***last Thursday at 10 am*** of each month.

      ii. First ***Couple*** Progress ***Meetings*** will be held on ***August 24th and September 7th at 10 am***.

      iii. HDR will coordinate scheduling and send email invitations.

      iv. All project meeting invitations will be sent to the following:

         - **HDR:** RPR ***(Ty Leibold)***, Design Engineer (Katie Kinley), Project Manager (Morgan Mays), ***and Jason Reichart***.
         - **CRLCSWA:** ***Garrett Prestegard, Jason, Evans, Greg Schrader, and Karmin McShane***
         - **Gensini:** ***Mike Garland and Joe Gensini***

   b. Pre-Installation Meetings:
      i. Coordinate and schedule with Engineer for each material, product or system specified in the contract documents.
         - Conferences to be held prior to initiating installation, but not more than two weeks before scheduled initiation of installation.
         - Conferences may be combined if installation schedule of multiple components occurs with the same two-week interval.
         - Review and discuss manufacturers recommendations and contract Specification Sections during each meeting.

Discussion:

- ***Gensini recommends biweekly meetings for the first couple months and then a transition to a monthly.***
- ***Gensini plans to get work done quickly due to other work required to get done this fall.***

8. CONTRACTOR'S SITE RESPONSIBILITIES

   a. Appropriate personal protective equipment (PPE) to comply with safety requirements. Protection of Persons, Property and Work is Contractor's continuous and uninterrupted responsibility.

   b. Contractor shall remove and replace existing fences within or adjacent to the Limits of Construction as construction needs dictate. If necessary, Contractor shall provide temporary lockable gate or other means to allow the site to be secured when Contractor is not present on-site. Minimize time when litter fence is removed to minimize potential off-site litter problems. Restore or replace all removed fence to like new condition if removed or damaged during construction. Assist with clean-up of off-site litter to satisfaction of owner when litter fence is removed (See Section 2.d).

c. The Contractor shall comply with the Owner's Pollution Prevention Plan or create their own plan as detailed in the specifications

d. Contractor is responsible for maintaining adequate sanitary facilities and drinking water for Contractor and subcontractor personnel.

e. Contractor shall maintain a daily employee roster for all employees on-site.

f. Contractor is responsible for maintenance of all Owner provided and Contractor provided erosion and sediment control measures (unless noted otherwise) with the Limits of Construction.

g. Contractor shall provide dust control. The Engineer will determine the effectiveness of the dust control program and may request the Contractor to provide additional measures, at no additional cost to Owner.

Discussion:

- ***No discussion.***

9. EARTHWORK, TRENCHING, AND BACKFILLING

a. Adequate soils for backfilling and compaction will be available onsite in designated borrow areas. Borrow areas are also used by landfill operations for daily soil cover. In all cases Contractor traffic must yield to Owner and customer traffic.

b. The contractor shall protect all work from erosion and sediment cause by the existing landfill. Sediment accumulation within the work area shall be removed at the contractor's expense. It is the contractor's responsibility to ensure erosion control measures meet minimum federal, state, and local regulations.

c. Protect existing wells and piezometers, groundwater rises, standpipes, landfill gas wells, terraces, pump stations, leachate manholes, utility services and control panels, roadways and culverts, designated structures, trees and vegetation from damage.

~~d. Final acceptance of any material will be based on results of tests made on material samples taken from historic completed recompacted clay liner soil test pads, combined with the results of the Borrow Source Characterization Study. No test pad is planned with this project, previous test pad results from Phase 5A Construction will be utilized.~~

Discussion:

- ***No RCL work is planned (Leachate Forcemain work was removed from Contract).***
- ***HDR noted that the Stage 5 Stockpile should be used as the soil borrow area.***

~~10. FIELD OFFICES~~

~~a. Contractor is to maintain refusal bins/receptacles at their field office.~~

~~b. At the office, the contractor is to maintain complete field file of Shop Drawings, posted Contract Drawings and Specifications, and other files of field operations including provisions for maintaining "As Recorded Drawings."~~

~~***c. Field office to be removed from site upon acceptance of the entire work by the Owner.***~~

~~***d. Field Office Location: _____***~~

Discussion:

- ***No field office planned.***

11. EQUIPMENT AND MATERIALS

    a. Any changes from products listed in specifications will require approval.

    b. Furnish equipment, components or materials named in specifications. Requests for product substitutions will be considered on a case-by-case basis. See Specifications for submittal request procedure and conditions.

    c. Adhere to all manufacturers' storage recommendations.

    d. Ensure that all subcontractors comply with storage requirements.

Discussion:

- ***No discussion.***

12. FIELD ENGINEERING LAYOUT AND CONTROLS

    a. Prior to the start of construction, Contractor will be responsible to complete a preconstruction survey in all anticipated work areas and provide to the Owner's Construction Quality Assurance Representative. All questions or incongruences with Contract Documents to be immediately brought to the attention of Engineer and resolved.

    b. Contractor to provide, locate, preserve and protect established construction reference stakes, benchmarks and control points. Additional construction staking may be necessary to layout and complete construction.

    c. See Specification Sections 01 71 23 for contractor surveying requirements.

        i. Gravity and Pressure Pipeline Systems.

        ii. Cap System: Recompacted Clay Liner, Erosion Layer, and Vegetative Layer.

        iii. Structural Fill, Controlled Fill, and Embankments.

        iv. Site Improvements.

Discussion:

- ***No discussion.***

13. TESTING & QUALITY ASSURANCE

    a. Quality Assurance testing will be coordinated by RPR and completed by the Engineer's testing agency. Testing which indicates failed results will require rework and retesting. Contractor required to pay for all failed tests. Contractor and any subcontractors SHALL NOT attempt to make contact with Engineer's Quality Assurance testing agency for scheduling or any other reason.

    b. All Construction Quality Control Testing is the responsibility of the Contractor.

    c. Contractor to provide necessary means, to allow inspections to take place. Ensure excavations are safe for testing personnel.

    d. Contractor must coordinate work to accommodate testing needs and provide adequate advanced notice (at least 24 hours) of areas ready for testing, including all concrete pours.

    e. CQA documentation is extremely critical. Contractor shall allow RPR opportunity to observe and document all below ground foundations, utilities, and connections prior to covering or backfilling.

Discussion:

- ***No discussion.***

14. CORRELATION AND/OR INTERPRETATION OF DOCUMENTS

    a. No priority of documents (e.g., plans do not take precedence over specifications or vice-versa).

    b. Bring suspected errors or contradictions to Engineer for interpretation immediately upon identification.

Discussion:

- ***No discussion.***

15. MODIFICATIONS TO CONTRACT

    a. Field orders may be issued by the Engineer for minor changes not involving price or contract time changes.

    b. Changes or extra work may be requested by the Owner through the CQA Consultant/Engineer.

    c. Approved Change Proposal Requests will be grouped together and processed as Change Orders.

    d. Claims for extra costs are to be made in accordance with the Specifications to avoid prejudicing the position of the party to whom the claim is directed.

    e. No Contract Modifications by Verbal Communications.

Discussion:

- ***No discussion.***

16. RECORD DOCUMENTS

    a. Record documents, to be kept by Contractor, are required to reflect all changes during construction. See Specifications Section 01 78 39.

    b. Contractor to keep record documents up to date, monthly, for review as a condition precedent to submitting Application for Payment.

    c. Record documents, including QA/QC submittal/approval is a condition for Final Completion.

Discussion:

- ***No discussion.***

17. OTHER / OWNER COMMENTS

Discussion:

- ***No discussion.***

18. OTHER / CONTRACTOR COMMENTS

Discussion:

- ***HDR to send meeting minutes to Gensini and CRLCSWA.***
- ***Gensini requested to visit the stie on 7/12 for an additional walk through. CRLCSWA approved the visit.***

Meeting Attendance

Project: SITE 2 – 30-ACRE CELL IMPROVEMENTS PROJECT

Subject: PRECONSTRUCTION MEETING

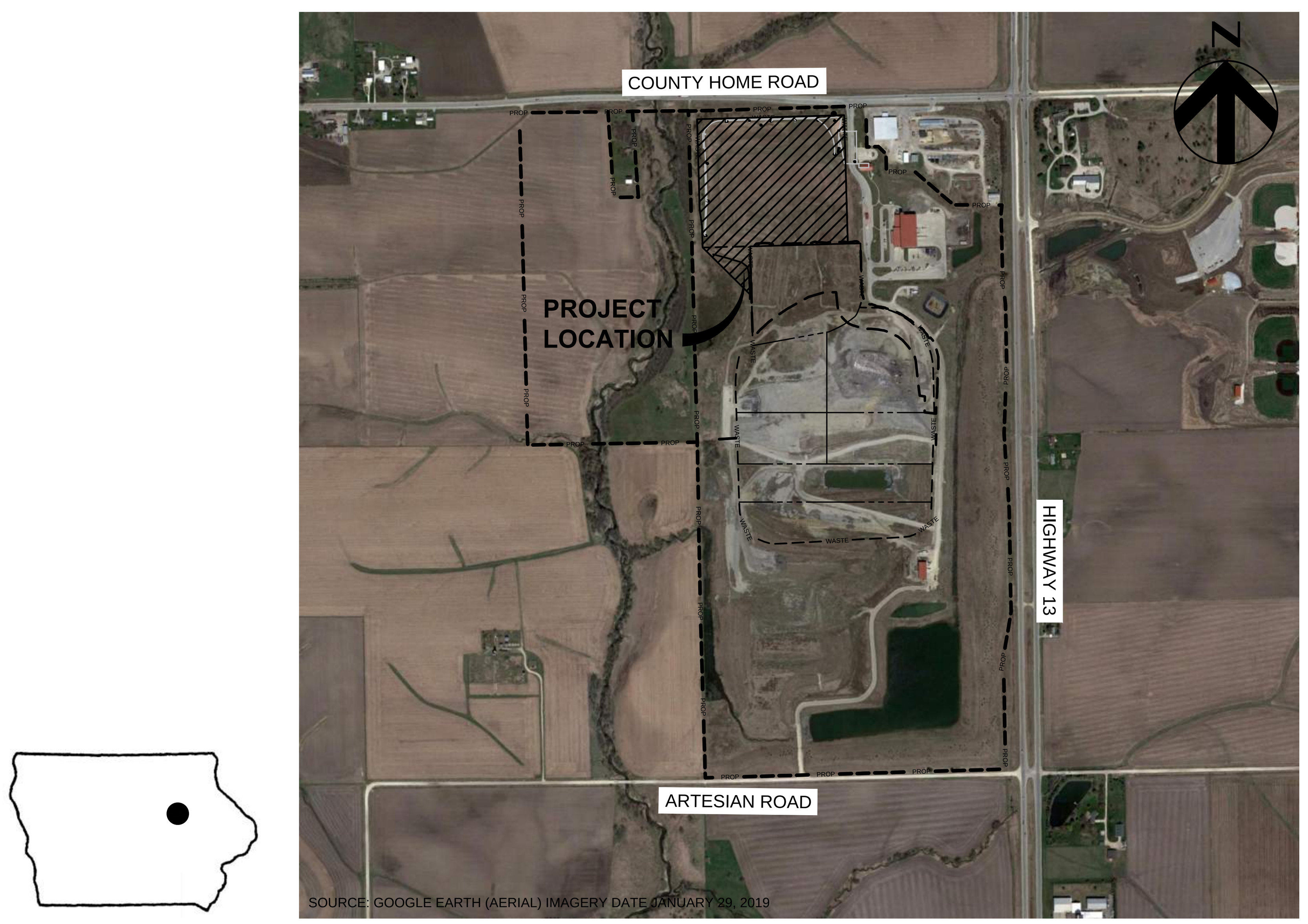
Date: Tuesday, July 11, 2023

Location: WEBEX

Attendee	Organization	Email	Phone
Garrett Prestegard	CRLCSWA – Site Engineer	gprestegard@solidwasteagency.org	(319)-377-5290
Jason Evans	CRLCSWA – Operations Mgr.	jevans@solidwasteagency.org	(319) 431-5438 (C)
Greg Schrader	CRLCSWA – Operations Foreman	gschrader@solidwasteagency.org	(319) 361-2758 (C)
Mitzi Brunsvold	CRLCSWA – Health and Safety Mgr.	mbrunsvold@solidwasteagency.org	(319) 400-1145 (C)
Morgan Mays	HDR – PM	Morgan.Mays@hdrinc.com	(319) 423-6318
Katie Kinley	HDR – Engineer	Katie.Kinley@hdrinc.com	(402) 392-6980
Jason Reichart	HDR	Jason.Reichart@hdrinc.com	(319) 423-6325
Ty Leibold	HDR – RPR	Ty.Leibold@hdrinc.com	(319) 480-9117 (C)
Mike Walsh	HDR	Mike.Walsh@hdrinc.com	(402) 399-4880
Mike Garland	Gensini Excavating, Inc.	mikegarland1988@yahoo.com gensini.excavating@gmail.com ^^(company-wide)	(815) 659-1660 (O) (815) 830-8029 (C)
Joe Gensini	Gensini Excavating, Inc.	gensini.excavating@gmail.com ^^(company-wide)	(815) 343-0662

Solid Waste Agency
Cedar Rapids • Linn County
living. together. green

September 7, 2023 Project Walk-through



CRLCSWA SITE 2 SITE LOCATION MAP

SCALE 1" = 1000'

Contract Drawings For

Cedar Rapids Linn County Solid Waste Agency Site 2

30 Acre Cell Improvements

Civil, Electrical

HDR Project No.
10362196

Marion, Iowa
August 2023

INDEX OF DRAWINGS

ISSUED FOR CONSTRUCTION

LICENSED PROFESSIONAL ENGINEER
KATHRYN KINLEY
P26021
IOWA

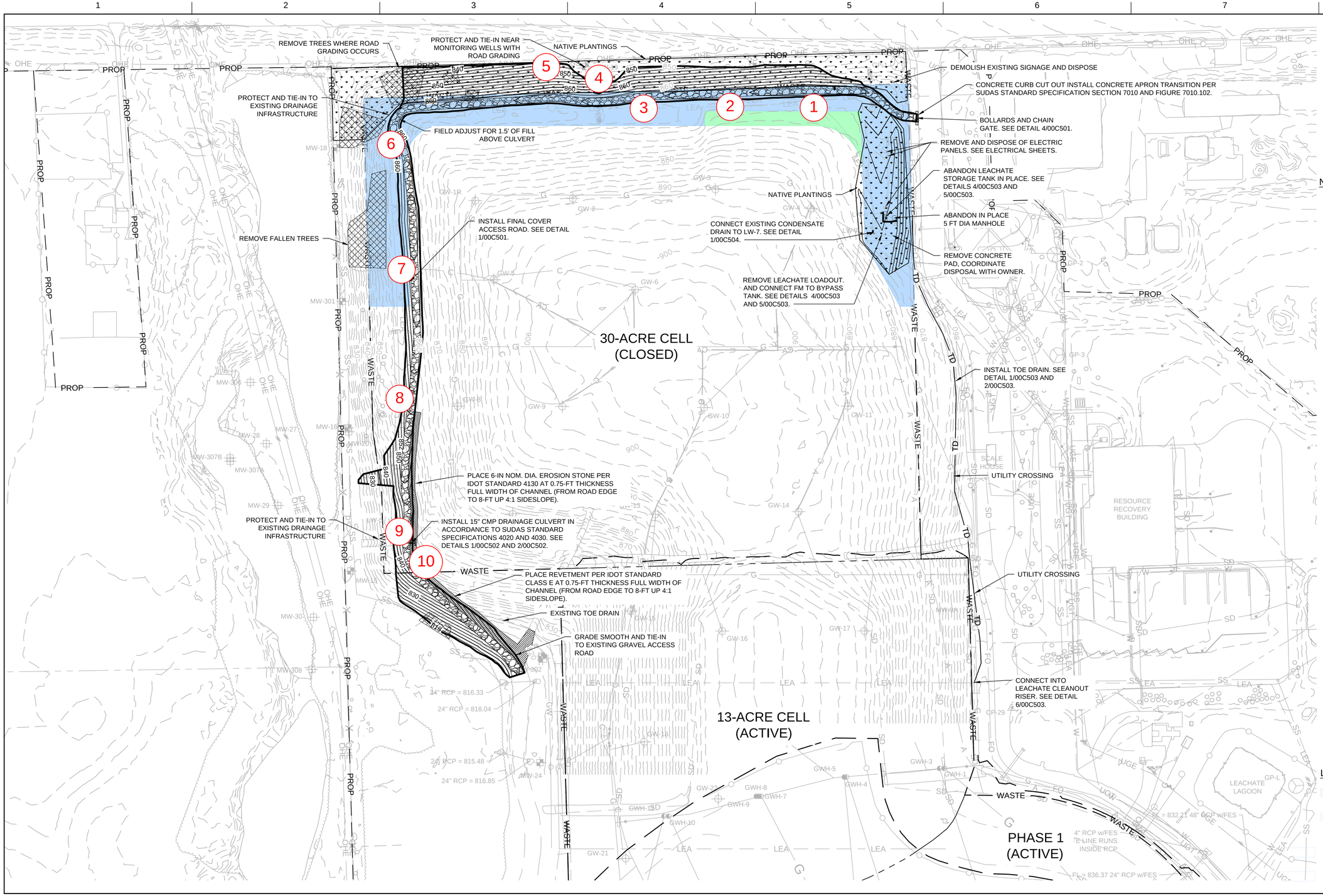
I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

Katie Kinley 8.29.2023
KATIE KINLEY, P.E. (DATE)

MY LICENSE RENEWAL DATE IS DECEMBER 31, 2021.

PAGES OR SHEETS COVERED BY THIS SEAL:

ALL CIVIL (C) SHEETS; ALL GENERAL (G) SHEETS



NOTES

1. EXISTING GRADE FROM AERIAL SURVEY PROVIDED BY AEROVIEW SERVICES, DATED OCTOBER 14, 2022.
2. PROPOSED GRADES OF FINAL COVER ACCESS ROAD REPRESENT TOP OF SUBGRADE SURFACE. SEE DETAILS ON SHEET 00C501 FOR MORE INFORMATION.
3. EXACT TOE DRAIN, FINAL COVER ACCESS ROAD PLACEMENT, AND NATIVE PLANTINGS MAY VARY AT THE TIME OF CONSTRUCTION BASED ON FIELD CONDITIONS.
4. DO NOT OBSTRUCT LANDFILL SITE ACCESS ROAD, MAIN ACCESS ROAD, OR PROJECT ACCESS-EGRESS ROUTES. COORDINATE ALL ROADWAY WORK AND PRODUCT DELIVERIES WITH THE OWNER TO ENSURE CONTINUOUS SITE ACCESS.
5. LOCATE AND PROTECT SITE UTILITIES AND STRUCTURES (INCLUDING MONITORING WELLS, PIEZOMETERS, GROUNDWATER CONTROL STANDPIPES, RISERS, TRENCHES, BURIED UTILITIES, LEACHATE MANHOLES, ELECTRICAL, ETC.). ANY STRUCTURES REMOVED OR DAMAGED SHALL BE REPAIRED AND REPLACED AT THE CONTRACTOR'S EXPENSE
6. PROTECT ALL WORK FROM EROSION AND SEDIMENT CAUSED BY THE EXISTING LANDFILL. SEDIMENT ACCUMULATION WITHIN THE WORK AREA SHALL BE REMOVED AT THE CONTRACTOR'S EXPENSE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE EROSION CONTROL MEASURES MEET MINIMUM FEDERAL, STATE, AND LOCAL REGULATIONS.
7. CONTRACTOR MUST COMPLY WITH THE OWNER'S NPDES GENERAL PERMIT #1 AND SWPPP FOR THE ENTIRE DURATION OF THE PROJECT.
8. IN ALL CASES, THE CONTRACTOR SHALL TAKE CARE TO PREVENT DAMAGE TO ESTABLISHED VEGETATION AND THE FINAL COVER SYSTEM DUE TO CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL REPAIR ALL VEGETATION AND SOIL DAMAGE CAUSED BY CONSTRUCTION ACTIVITIES IN A MANNER SUITABLE TO THE OWNER PRIOR TO COMPLETION OF THE PROJECT.
9. MONITOR AND MAINTAIN FUNCTION OF EXISTING DRAINAGE CHANNELS, CULVERTS, SEDIMENT BASINS, AND TRAPS AFFECTED BY THE WORK. CONTRACTOR SHALL REMOVE ACCUMULATED SEDIMENT AND DEBRIS FROM THE CONTROL STRUCTURES FOLLOWING COMPLETION OF THE WORK AND PLACE AT A LOCATION APPROVED BY THE OWNER.
10. OBTAIN ALL REQUIRED BORROW SOIL FROM THE APPROVED SOIL BORROW AREA, UNLESS OTHERWISE DIRECTED. COORDINATE ACCESS WITH ONGOING OWNER OPERATIONS WITHIN THE BORROW AREA.
11. THE FACILITY GENERALLY OPERATES FROM 7:00 AM TO 4:00 PM ON MONDAY THROUGH FRIDAY AND 7:00 AM TO 12:00 PM ON SATURDAY. THE CONTRACTOR SHALL COORDINATE ACCESS TO THE SITE WITH THE OWNER IF THE CONTRACTOR PLANS TO COMPLETE CONSTRUCTION ACTIVITIES OUTSIDE OF THE OWNER'S NORMAL OPERATING HOURS FOR THE SITE. THIS INCLUDES HOLIDAYS THAT ARE OBSERVED BY THE OWNER.

LEGEND

- PRE-1989 CLOSURE (2FT NOMINALLY COMPACTED SOIL CAP)
- 2008 CLOSURE (2 FT RECOMPACTED CLAY & 2 FT EROSION LAYER CAP)

ISSUE	DATE	DESCRIPTION
B	08/10/2023	ISSUED FOR CONSTRUCTION
A	03/27/2023	ISSUED FOR BID

PROJECT MANAGER	M.MAYS
CIVIL	K.KINLEY
ELECTRICAL	K.VANDER KOLK
DRAWN BY	M.WALSH
PROJECT NUMBER	10362196

SolidWaste Agency
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CRLCSWA SITE 2 SANITARY LANDFILL
30 ACRE CELL IMPROVEMENTS

PROPOSED CONSTRUCTION SITE LAYOUT PLAN

0 1" 2"

FILENAME	00C103.dwg
SCALE	1" = 100'
SHEET	00C103

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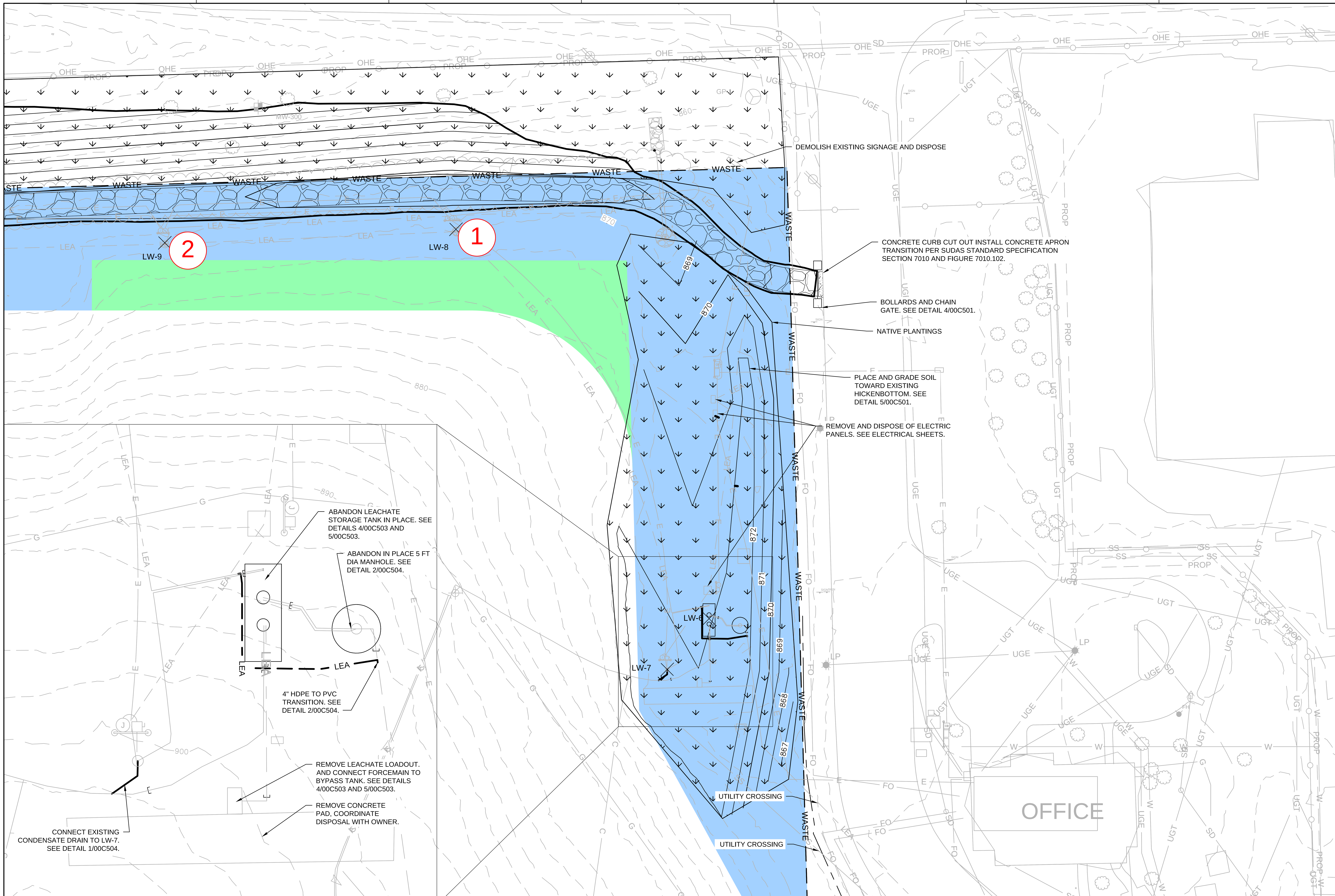

NOTES

1. EXISTING GRADE FROM AERIAL SURVEY PROVIDED BY AEROVIEW SERVICES, DATED OCTOBER 14, 2022
2. UTILITY INFORMATION BASED ON HISTORIC SURVEY AND AS-BUILTS. SUBJECT TO CHANGE BASED ON SITE NEEDS. CONTRACTOR TO VERIFY IN FIELD.
3. EXACT PLACEMENT OF IMPROVEMENTS MAY VARY AT THE TIME OF CONSTRUCTION BASED ON FIELD CONDITIONS.

PIPING CONSTRUCTION NOTES

1. TURN OFF PUMPS, PUMP OUT AND DRAIN TANK. REMOVE PUMPS AND APPURTENANCES FROM TANK.
2. EXCAVATE AT LEACHATE TANK ACCESS RISERS TO LOCATE INFLUENT LINES FROM LW-7 (2" SDR-11), CONDENSATE LINE (4" SDR-11), AND NORTH LEACHATE FORCEMAIN (2" SDR-11).
3. EXCAVATE ALONG 4" CONDENSATE LINE WEST TO ELBOW LOCATION SHOWN. PINCH AND CUT CONDENSATE LINE. INSTALL 4" ELBOW AND TIE-IN TO LW-7 BELOW GRADE AS SHOWN ON DETAIL. CUT AND CAP DOWNSTREAM SIDE TO ABANDON REMAINING LINE IN PLACE.
4. EXCAVATE ALONG 2" INFLUENT LINE FROM LW-7 AND INFLUENT LINE FROM THE NORTH. CUT LINES AND INSTALL 2"X4' REDUCER TO TRANSITION EACH LINE TO 4'. TEE LINES TOGETHER AS SHOWN ON THE PLAN SHEET. CUT AND CAP REMAINING DOWNSTREAM LINE TO ABANDON IN PLACE.
5. INSTALL 4" SDR-11 HDPE FORCEMAIN TO SOUTH OF THE EXISTING CONCRETE VALVE MANHOLE. LOCATE 4" PVC FORCEMAIN ON THE EFFLUENT SIDE OF THE MANHOLE. INSTALL HDPE TO PVC TRANSITION FITTING (POLY-CAM 735 SERIES OR APPROVED EQUIVALENT). CAP THE 4" PVC ON THE MANHOLE SIDE TO ABANDON IN PLACE.
6. REMOVE UPPER SECTION OF VALVE MANHOLE AND BACKFILL IN COMPACTED LIFTS TO ABANDON MANHOLE IN PLACE.
7. CUT AND CAP EXISTING EFFLUENT LINES AT THE LEACHATE TANK TO ABANDON IN PLACE.
8. BACKFILL TRENCHES AS DETAILED IN SPECIFICATIONS AND AS SHOWN ON DETAILS 2/00C501 AND 3/00C501 PER CAPPING REQUIREMENTS.
9. LOCATIONS ARE APPROXIMATE. VERIFY IN FIELD AND PROTECT INFRASTRUCTURE REMAINING IN PLACE.

LEGEND

- PRE-1989 CLOSURE (2FT NOMINALLY COMPACTED SOIL CAP)
- 2008 CLOSURE (2 FT RECOMPACTED CLAY & 2 FT EROSION LAYER CAP)

HDR

ISSUE	DATE	DESCRIPTION
B	08/10/2023	ISSUED FOR CONSTRUCTION
A	03/27/2023	ISSUED FOR BID

PROJECT MANAGER	M.MAYS
CIVIL	K.KINLEY
ELECTRICAL	K.VANDER KOLK
DRAWN BY	M.WALSH
PROJECT NUMBER	10362196

SolidWaste Agency
living. together. green

CRLCSWA SITE 2 SANITARY LANDFILL
30 ACRE CELL IMPROVEMENTS

NORTHEAST CORNER OF 30 ACRE CELL IMPROVEMENTS

0 1" 2"

FILENAME 00C104.dwg
SCALE 1" = 30'

SHEET **00C104**

c:\pwworking\central01\d3445955\00C104.dwg, Layout1, 8/28/2023 4:34:27 PM, MBICKFORD

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30-ACRE CELL (CLOSED)

ISSUE	DATE	DESCRIPTION
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PROJECT MANAGER	M.MAYS
CIVIL	K.KINLEY
ELECTRICAL	K.VANDER KOLK
DRAWN BY	M.WALSH
PROJECT NUMBER	10362196

Solid Waste Agency
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CRLCSWA SITE 2 SANITARY LANDFILL
30 ACRE CELL IMPROVEMENTS

NORTH SECTION OF 30 ACRE CELL IMPROVEMENTS

0 1" 2"

FILENAME 00C105.dwg
SCALE 1" = 30'

SHEET 00C105

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30-ACRE CELL (CLOSED)

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- 2008 CLOSURE (2 FT RECOMPACTED CLAY & 2 FT EROSION LAYER CAP)

7 RELOCATE EXISTING CONDENSATE ISOLATION VALVE 20-FT UPSLOPE OF EAST ROAD EDGE. FUSION WELD REPAIRED CONDENSATE LINE.

8 PLACE 6-IN NOM. DIA. EROSION STONE PER IDOT STANDARD 4130 AT 0.75-FT THICKNESS FULL WIDTH OF CHANNEL (FROM ROAD EDGE TO MIN. 8-FT UP 4:1 SIDESLOPE).

9 PROTECT AND TIE-IN TO EXISTING DRAINAGE INFRASTRUCTURE

10 INSTALL 15" CMP DRAINAGE CULVERT IN ACCORDANCE TO SUDAS STANDARD SPECIFICATIONS 4020 AND 4030. SEE DETAILS 1/00C502 AND 2/00C502.

INSTALL FINAL COVER ACCESS ROAD. SEE DETAIL 1/00C501.

PLACE REVETMENT PER IDOT STANDARD CLASS E AT 0.75-FT THICKNESS FULL WIDTH OF CHANNEL (FROM ROAD EDGE TO MIN. 8-FT UP 4:1 SIDESLOPE).

REMOVE FALLEN TREES

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ELECTRICAL	K.VANDER KOLK
DRAWN BY	M.WALSH
PROJECT NUMBER	10362196

SolidWaste Agency
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CRLCSWA SITE 2 SANITARY LANDFILL
30 ACRE CELL IMPROVEMENTS

WEST SECTION OF 30 ACRE CELL IMPROVEMENTS

0 1" 2"

FILENAME 00C106.dwg
SCALE 1" = 30'

SHEET 00C106

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1

A

B

1A - Fill around electrical panel and grade area to drain

1B - Repair broken electrical conduit

2

2 - Fill around electrical panel and grade area to drain

3

3 - Fill around electrical panel and grade area to drain

4

4 - Clean out existing culvert outlet

5

5 - Repair silt fence

6

6 - Fill around electrical panel and grade area to drain

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PROJECT MANAGER	M.MAYS
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ELECTRICAL	K.VANDER KOLK
DRAWN BY	M.WALSH
PROJECT NUMBER	10362196

SolidWaste Agency
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CRLCSWA SITE 2 SANITARY LANDFILL
30 ACRE CELL IMPROVEMENTS

SOUTHWEST SECTION OF 30 ACRE CELL IMPROVEMENTS

0 1" 2"

FILENAME 00C107.dwg
SCALE 1" = 30'

SHEET **00C107**

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7

7 - Add markers to riser near edge of road

10

10 - Reshape erosion stone to maintain existing drainage to south

8

8 - Fill around electrical panel and grade area to drain

9

9 - Raise electrical panel and fill and grade area to drain

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SolidWaste Agency

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CRLCSWA SITE 2 SANITARY LANDFILL
30 ACRE CELL IMPROVEMENTS

SOUTHWEST SECTION OF 30 ACRE CELL IMPROVEMENTS

FILENAME 00C107.dwg

SCALE 1" = 30'

SHEET 00C107

Appendix D

Record Drawings

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Solid Waste Agency
Cedar Rapids · Linn County
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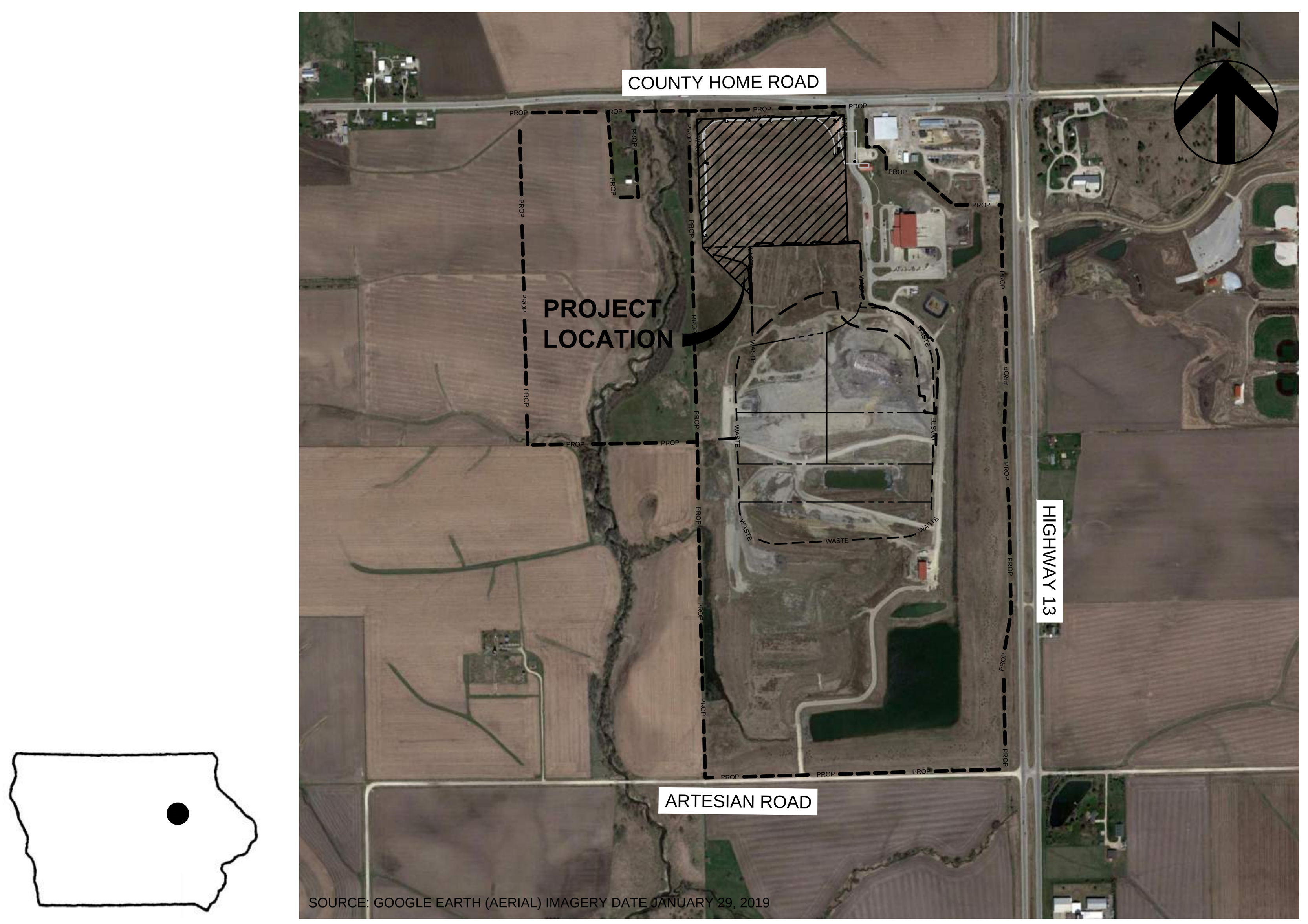

CRLCSWA SITE 2 SITE LOCATION MAP
SCALE 1" = 1000'

Contract Drawings For

Cedar Rapids Linn County Solid Waste Agency Site 2

30 Acre Cell Improvements

Civil, Electrical

HDR Project No.
10362196

Marion, Iowa
August 2023

ISSUED FOR CONSTRUCTION

AS-BUILT DRAWINGS 3.7.24

INDEX OF DRAWINGS

LICENSED PROFESSIONAL ENGINEER
KATHRYN KINLEY
P26021
IOWA

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

Katie Kinley 8.29.2023
KATIE KINLEY, P.E. (DATE)

MY LICENSE RENEWAL DATE IS DECEMBER 31, 2021.

PAGES OR SHEETS COVERED BY THIS SEAL:
ALL CIVIL (C) SHEETS; ALL GENERAL (G) SHEETS

GENERAL SYMBOLOGY

ARROW INDICATES DIRECTION OF PLAN NORTH

NORTH ARROW

PLAN
1/4" = 1'-0"
PLAN TITLE

SECTION LETTER
FLAG INDICATES DIRECTION OF SECTION CUT
X
XXX
SHEET WHERE SECTION IS LOCATED

SECTION CUT MARKER

SECTION LETTER
SECTION
X
XXX
3/8" = 1'-0"
SHEET WHERE SECTION VIEW IS FIRST CUT *

SECTION TITLE

DETAIL NUMBER
DETAIL
X
XXX
1/4" = 1'-0"
SHEET WHERE DETAIL IS LOCATED *

DETAIL TITLE

MATERIALS IN PLAN/SECTION

- ENGINEERED SOIL (SECTION)
- NATIVE SOIL (SECTION)
- WASTE (SECTION)
- DAILY / INTERMEDIATE COVER (SECTION)
- RECOMPACTED CLAY LINER (SECTION)
- EARTH (SECTION)
- RIP RAP / REVETMENT STONE (PLAN/SECTION)
- SEEDING AREA
- LETDOWN (PLAN)
- HAUL ROAD (PLAN)
- AGGREGATE (PLAN/SECTION)
- NATIVE PLANTING
- TREE REMOVAL

CIVIL MAPPING SYMBOLOGY

- EMBANKMENT SLOPE (CUT)
- EMBANKMENT SLOPE (FILL)
- H:V — EMBANKMENT SLOPE RIGHT ARROW RIGHT
- H:V — EMBANKMENT SLOPE LEFT ARROW LEFT
- 123 — SPOT ELEVATION/POINT #
- SURVEY BENCHMARK
- SURVEY CONTROL POINT
- HORIZONTAL CONTROL POINT
- VERTICAL CONTROL POINT
- SECTION CORNER MONUMENT
- SECTION CORNER NO MONUMENT
- IDENTIFICATION AND APPROXIMATE LOCATION OF SOIL TEST HOLE
- TP X — TEST PIT
- SOIL BORING
- BUOY
- FLOW ARROW
- WATER LEVEL IN SECTION/PROFILE
- TIDE GAUGE
- EXISTING UTILITY POLE
- DOWNGUY
- J — EXTERIOR UTILITY JUNCTION BOX
- INTERSTATE HIGHWAY SYMBOL
- US HIGHWAY SYMBOL
- STATE HIGHWAY SYMBOL
- HAY BALE SILT CHECK
- TEMPORARY SEDIMENT TRAP
- RR — RAIL SIGNAL
- RAIL SWITCH
- SIGN
- In — TIRE TREDDLE
- TRAFFIC ARM WITH CARD READER
- TRAFFIC ARM MECHANICAL SWING
- CO — CLEANOUT
- X — FIRE HYDRANT
- TREES / SHRUBBERY

- F — FUEL OIL METER
- F — FUEL OIL MANHOLE
- F — FUEL OIL VAULT
- GT — GREASE TRAP
- GC — GRIT CHAMBER
- HEADWALL
- G — NATURAL GAS METER
- G — NATURAL GAS RECEIVER
- G — NATURAL GAS TRAP
- G — NATURAL GAS LINE VAULT
- POST INDICATOR VALVE
- PS — PUMP STATION
- S — SANITARY MANHOLE
- ST — SEPTIC TANK
- TANK BELOW GROUND
- TANK HORIZONTAL ABOVE GROUND
- TANK VERTICAL ABOVE GROUND
- CB — STORM CATCH BASIN
- CB — STORM ROUND CATCH BASIN
- D — STORM DRAINAGE MANHOLE
- WATER/AIR VENT
- W — WATER BACKFLOW PREVENTER
- WATER BLOWOFF
- W — WATER METER
- WATER SHUTOFF
- WS — WATER SOFTENER
- W — WATER VALVE VAULT
- VALVE
- GROUNDWATER MONITORING WELL
- DELINEATION WELL
- BACKGROUND WELL
- GROUNDWATER UNDERDRAIN
- GAS EXTRACTION WELL (VERTICAL)
- GAS EXTRACTION WELL (HORIZONTAL)
- GAS MONITORING PROBE
- PIEZOMETER
- LEACHATE MONITORING POINT
- LEACHATE WELL

UTILITY/CIVIL LINE SYMBOLOGY

- PIPELINE
- LARGE PIPELINE
- UTILITY BENEATH STRUCTURE
- CENTERLINE
- BOTTOM OF DITCH
- PROP — PROPERTY LINE
- EASEMENT
- LIMITS OF CONSTRUCTION
- PHASE LIMITS
- EXISTING CONTOUR (MINOR)
- 25 — EXISTING CONTOUR W/ELEVATION (MAJOR)
- EXISTING FENCE
- EXISTING VEGETATION/BRUSH LINE
- UGE — EXISTING UNDERGROUND POWER
- OHE — EXISTING OVERHEAD POWER LINE
- G — EXISTING GAS LINE
- FENCE - BARB WIRE
- FENCE - CHAIN LINK
- FENCE - FIELD
- FENCE - OTHER
- FENCE - WOOD
- XX — XX — FENCE - WOVEN WIRE
- HIGHWAY GUARDRAIL
- NEW CONTOUR (MINOR)
- 25 — NEW CONTOUR (MAJOR)
- RB — RB — ROCK BERM
- SF — SILT FENCE
- FO — FIBER OPTIC
- FOS — FUEL OIL
- G — NATURAL GAS
- SS — SANITARY SEWER
- SD — STORM SEWER
- W — DOMESTIC WATER
- NPW — DOMESTIC WATER NON-POTABLE
- LEA — LEACHATE PIPE
- FM — LEACHATE FORCEMAIN
- TD — TOE DRAIN
- A — COMPRESSED AIR LINE
- C — CONDENSATE LINE
- >> — >> — DRAINAGE TERRACE
- GW — GROUNDWATER PIPE
- WASTE — LIMITS OF WASTE

GENERAL NOTES:

1. THIS IS A STANDARD SHEET SHOWING COMMON SYMBOLOGY. ALL SYMBOLS ARE NOT NECESSARILY USED ON THIS PROJECT.
2. SCREENING OR SHADING OF WORK IS USED TO INDICATE EXISTING COMPONENTS OR TO DE-EMPHASIZE PROPOSED IMPROVEMENTS TO HIGHLIGHT SELECTED TRADE WORK. REFER TO CONTEXT OF EACH SHEET FOR USAGE.

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DRAWN BY	M.WALSH
PROJECT NUMBER	10362196

AS-BUILT DRAWINGS
3.7.24

Solid Waste Agency
living. together. green

CRLCSWA SITE 2 SANITARY LANDFILL
30 ACRE CELL IMPROVEMENTS

CIVIL LEGEND

0 1" 2"

FILENAME 00G001.dwg
SCALE AS NOTED

SHEET 00G001

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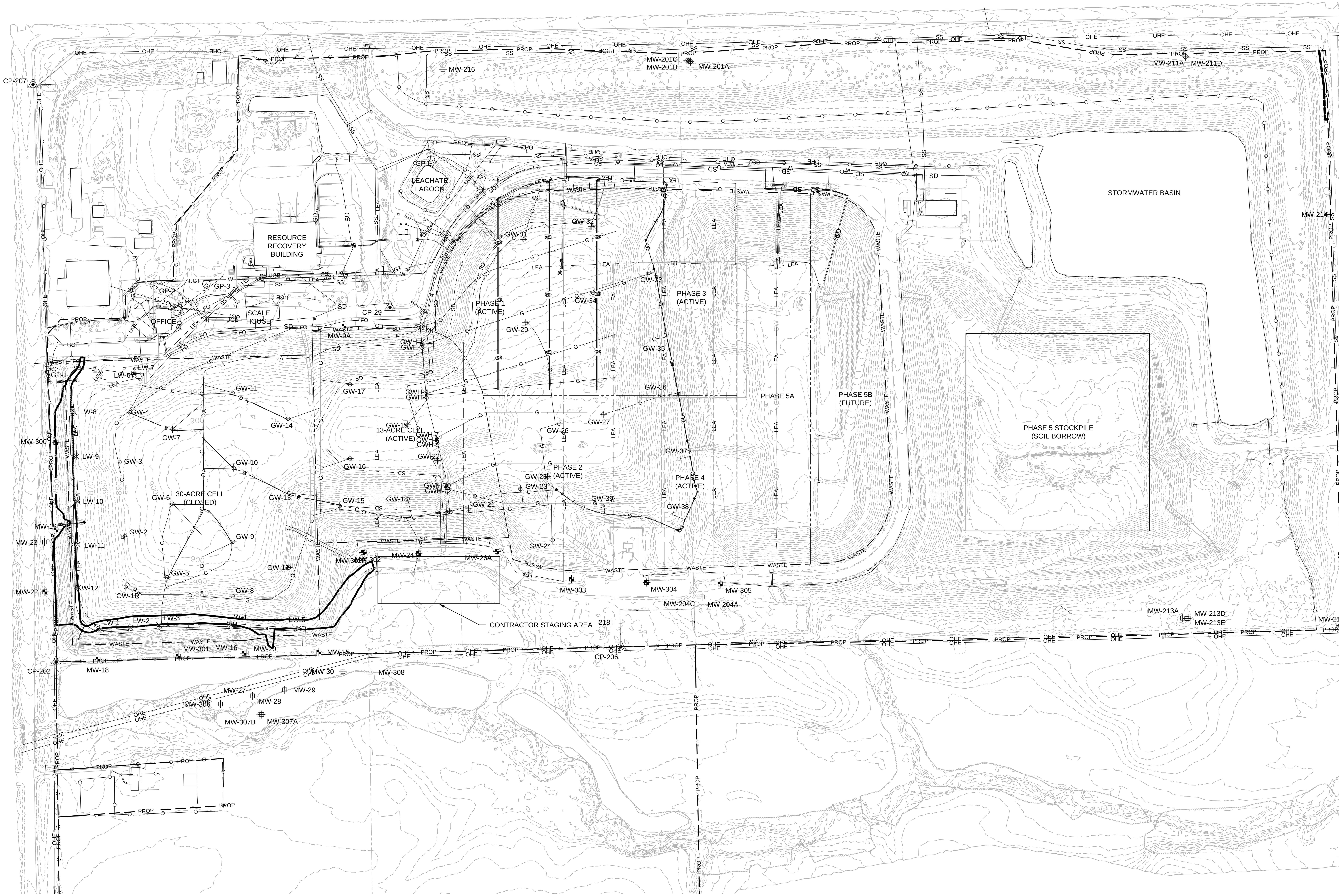

Z

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HDR

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AS-BUILT DRAWINGS
3.7.24

Solid Waste Agency
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CRLCSWA SITE 2 SANITARY LANDFILL
30 ACRE CELL IMPROVEMENTS

EXISTING FULL SITE LAYOUT PLAN

0 1" 2"

FILENAME 00C101.dwg
SCALE 1" = 200'

SHEET **00C101**

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HDR

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AS-BUILT DRAWINGS
3.7.24

Solid Waste Agency
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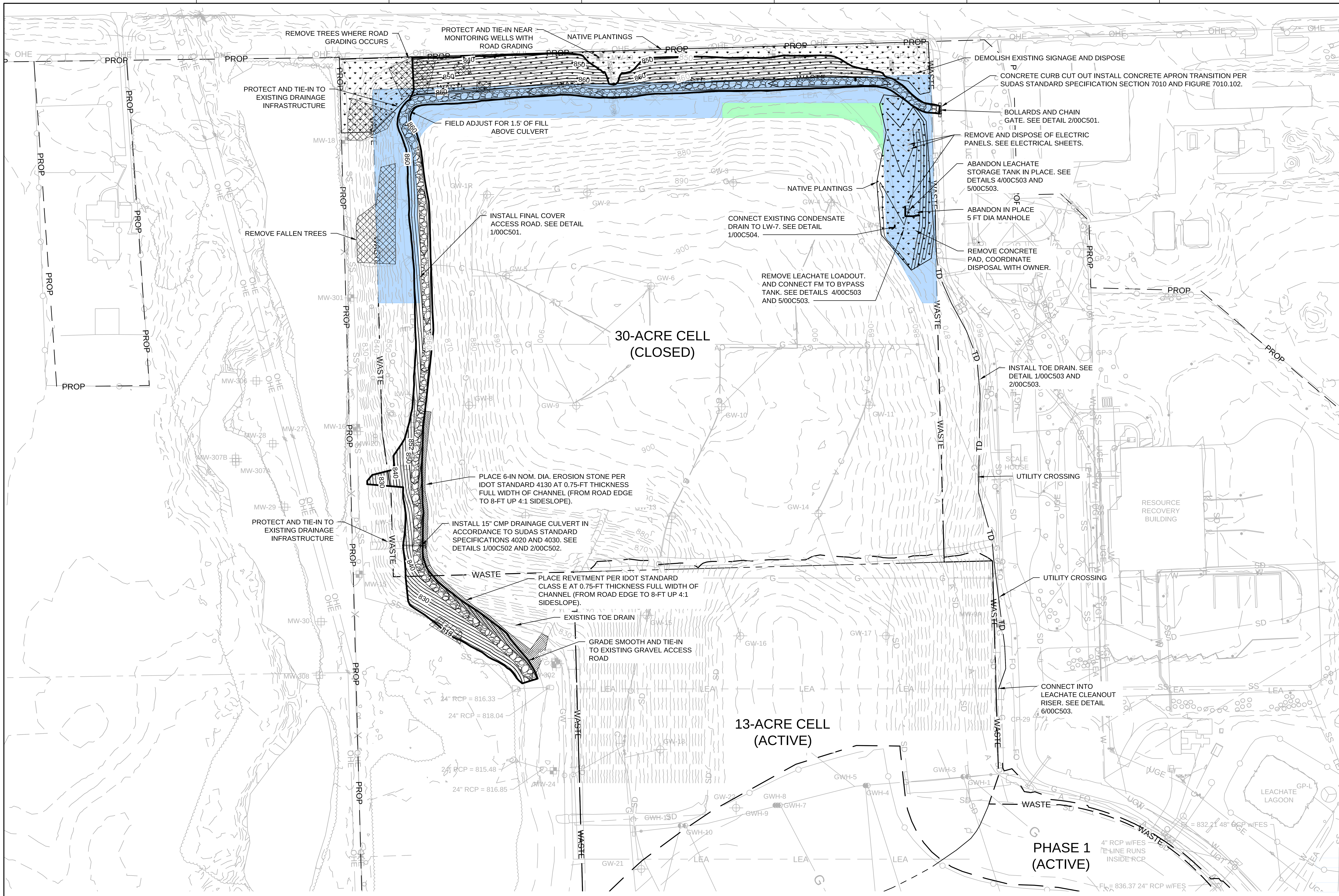
CRLCSWA SITE 2 SANITARY LANDFILL
30 ACRE CELL IMPROVEMENTS

EXISTING 30 ACRE SITE PLAN AND EROSION CONTROLS

0 1" 2"

FILENAME	00C102.dwg
SCALE	1" = 100'
SHEET	00C102



NOTES

1. EXISTING GRADE FROM AERIAL SURVEY PROVIDED BY AEROVIEW SERVICES, DATED OCTOBER 14, 2022.
2. PROPOSED GRADES OF FINAL COVER ACCESS ROAD REPRESENT TOP OF SUBGRADE SURFACE. SEE DETAILS ON SHEET 00C501 FOR MORE INFORMATION.
3. EXACT TOE DRAIN, FINAL COVER ACCESS ROAD PLACEMENT, AND NATIVE PLANTINGS MAY VARY AT THE TIME OF CONSTRUCTION BASED ON FIELD CONDITIONS.
4. DO NOT OBSTRUCT LANDFILL SITE ACCESS ROAD, MAIN ACCESS ROAD, OR PROJECT ACCESS-EGRESS ROUTES. COORDINATE ALL ROADWAY WORK AND PRODUCT DELIVERIES WITH THE OWNER TO ENSURE CONTINUOUS SITE ACCESS.
5. LOCATE AND PROTECT SITE UTILITIES AND STRUCTURES (INCLUDING MONITORING WELLS, PIEZOMETERS, GROUNDWATER CONTROL STANDPIPES, RISERS, TRENCHES, BURIED UTILITIES, LEACHATE MANHOLES, ELECTRICAL, ETC.). ANY STRUCTURES REMOVED OR DAMAGED SHALL BE REPAIRED AND REPLACED AT THE CONTRACTOR'S EXPENSE
6. PROTECT ALL WORK FROM EROSION AND SEDIMENT CAUSED BY THE EXISTING LANDFILL. SEDIMENT ACCUMULATION WITHIN THE WORK AREA SHALL BE REMOVED AT THE CONTRACTOR'S EXPENSE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE EROSION CONTROL MEASURES MEET MINIMUM FEDERAL, STATE, AND LOCAL REGULATIONS.
7. CONTRACTOR MUST COMPLY WITH THE OWNER'S NPDES GENERAL PERMIT #1 AND SWPPP FOR THE ENTIRE DURATION OF THE PROJECT.
8. IN ALL CASES, THE CONTRACTOR SHALL TAKE CARE TO PREVENT DAMAGE TO ESTABLISHED VEGETATION AND THE FINAL COVER SYSTEM DUE TO CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL REPAIR ALL VEGETATION AND SOIL DAMAGE CAUSED BY CONSTRUCTION ACTIVITIES IN A MANNER SUITABLE TO THE OWNER PRIOR TO COMPLETION OF THE PROJECT.
9. MONITOR AND MAINTAIN FUNCTION OF EXISTING DRAINAGE CHANNELS, CULVERTS, SEDIMENT BASINS, AND TRAPS AFFECTED BY THE WORK. CONTRACTOR SHALL REMOVE ACCUMULATED SEDIMENT AND DEBRIS FROM THE CONTROL STRUCTURES FOLLOWING COMPLETION OF THE WORK AND PLACE AT A LOCATION APPROVED BY THE OWNER.
10. OBTAIN ALL REQUIRED BORROW SOIL FROM THE APPROVED SOIL BORROW AREA, UNLESS OTHERWISE DIRECTED. COORDINATE ACCESS WITH ONGOING OWNER OPERATIONS WITHIN THE BORROW AREA.
11. THE FACILITY GENERALLY OPERATES FROM 7:00 AM TO 4:00 PM ON MONDAY THROUGH FRIDAY AND 7:00 AM TO 12:00 PM ON SATURDAY. THE CONTRACTOR SHALL COORDINATE ACCESS TO THE SITE WITH THE OWNER IF THE CONTRACTOR PLANS TO COMPLETE CONSTRUCTION ACTIVITIES OUTSIDE OF THE OWNER'S NORMAL OPERATING HOURS FOR THE SITE. THIS INCLUDES HOLIDAYS THAT ARE OBSERVED BY THE OWNER.

LEGEND

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AS-BUILT DRAWINGS
3.7.24

Solid Waste Agency
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CRLCSWA SITE 2 SANITARY LANDFILL
30 ACRE CELL IMPROVEMENTS

PROPOSED CONSTRUCTION SITE LAYOUT PLAN

0 1" 2"

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SCALE 1" = 100'

SHEET
00C103

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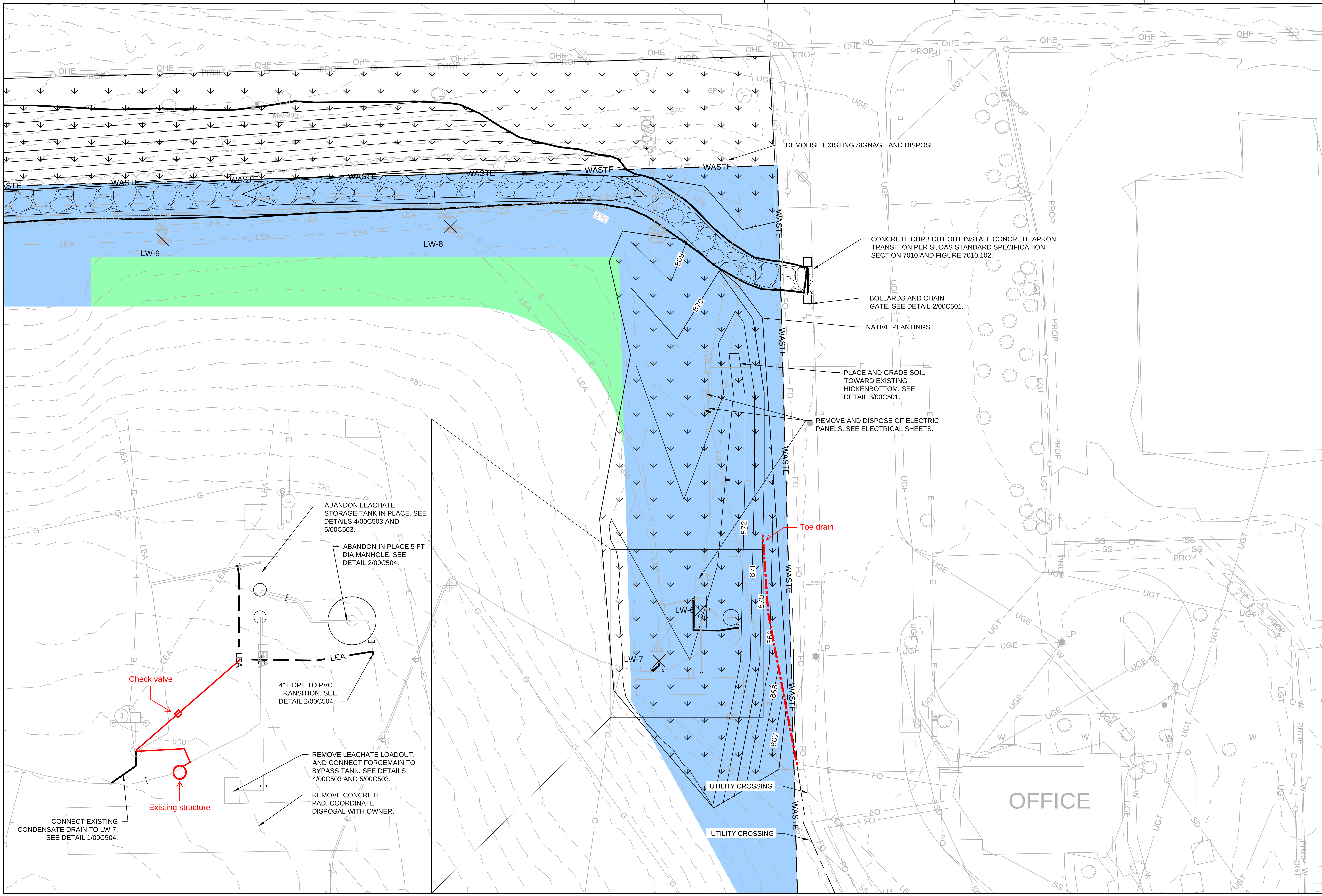

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9. LOCATIONS ARE APPROXIMATE. VERIFY IN FIELD AND PROTECT INFRASTRUCTURE REMAINING IN PLACE.

LEGEND

- PRE-1989 CLOSURE (2FT NOMINALLY COMPACTED SOIL CAP)
- 2008 CLOSURE (2 FT RECOMPACTED CLAY & 2 FT EROSION LAYER CAP)

HDR

ISSUE	DATE	DESCRIPTION
B	08/29/2023	ISSUED FOR CONSTRUCTION
A	03/27/2023	ISSUED FOR BID

PROJECT MANAGER	M.MAYS
CIVIL	K.KINLEY
ELECTRICAL	K.VANDER KOLK
DRAWN BY	M.WALSH
PROJECT NUMBER	10362196

AS-BUILT DRAWINGS
3.7.24

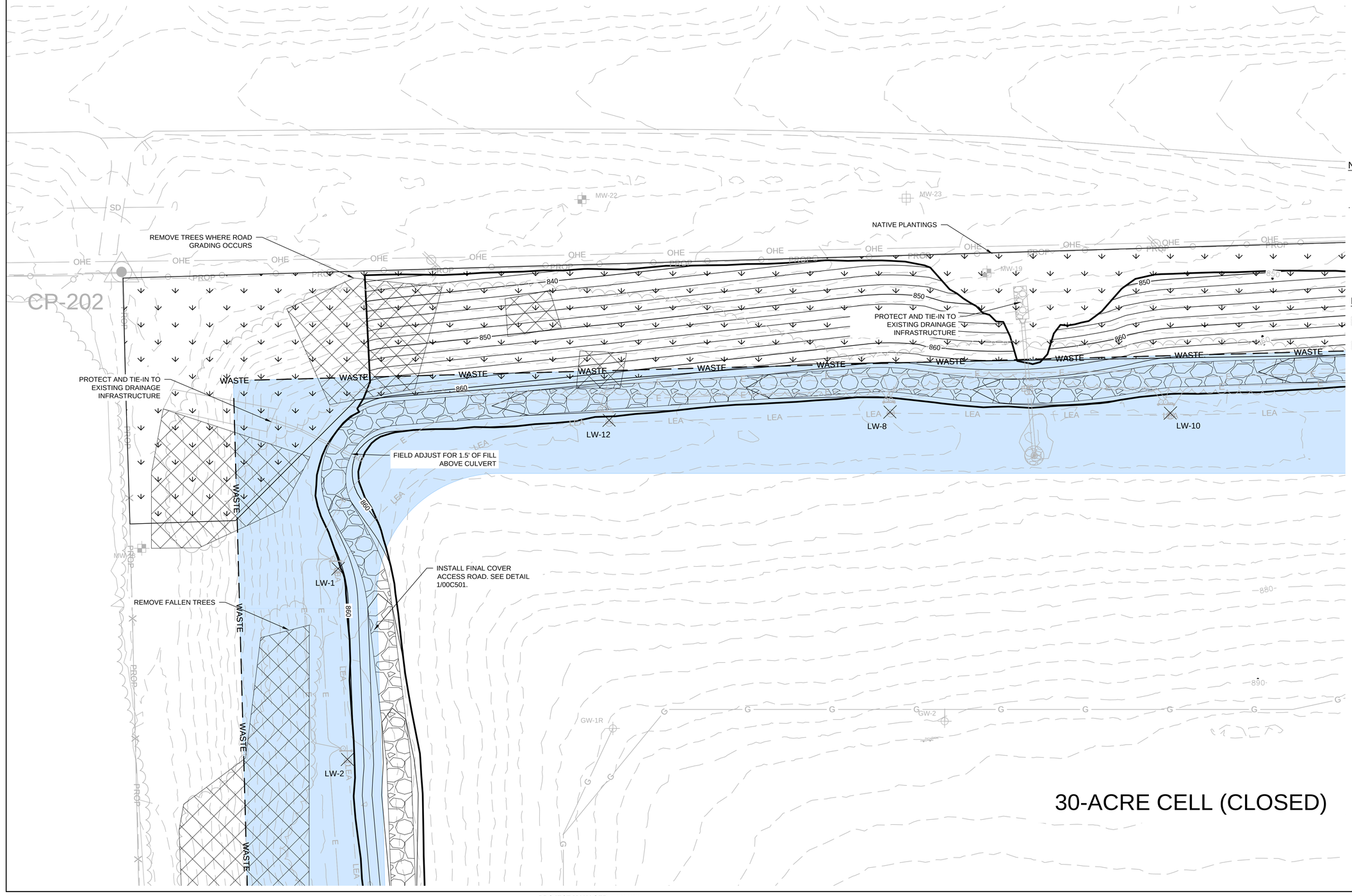
SolidWaste Agency
living. together. green

CRLCSWA SITE 2 SANITARY LANDFILL
30 ACRE CELL IMPROVEMENTS

NORTHEAST CORNER OF 30 ACRE CELL IMPROVEMENTS

FILENAME 00C104.dwg
SCALE 1" = 30'
SHEET **00C104**

c:\pwworking\central01\d3445955\00C104.dwg, Layout1, 8/28/2023 4:34:27 PM, MBICKFORD



NOTES

1. EXISTING GRADE FROM AERIAL SURVEY PROVIDED BY AEROVIEW SERVICES, DATED OCTOBER 14, 2022
2. UTILITY INFORMATION BASED ON HISTORIC SURVEY AND AS-BUILTS. SUBJECT TO CHANGE BASED ON SITE NEEDS.
3. EXACT PLACEMENT OF IMPROVEMENTS MAY VARY AT THE TIME OF CONSTRUCTION BASED ON FIELD CONDITIONS.

LEGEND

- PRE-1989 CLOSURE (2FT NOMINALLY COMPACTED SOIL CAP)
- 2008 CLOSURE (2 FT RECOMPACTED CLAY & 2 FT EROSION LAYER CAP)

30-ACRE CELL (CLOSED)

ISSUE	DATE	DESCRIPTION
B	08/29/2023	ISSUED FOR CONSTRUCTION
A	03/27/2023	ISSUED FOR BID

PROJECT MANAGER	M.MAYS
CIVIL	K.KINLEY
ELECTRICAL	K.VANDER KOLK
DRAWN BY	M.WALSH
PROJECT NUMBER	10362196

AS-BUILT DRAWINGS
3.7.24

Solid Waste Agency
living. together. green

CRLCSWA SITE 2 SANITARY LANDFILL
30 ACRE CELL IMPROVEMENTS

NORTH SECTION OF 30 ACRE CELL IMPROVEMENTS

0 1" 2"

FILENAME 00C105.dwg
SCALE 1" = 30'

SHEET 00C105

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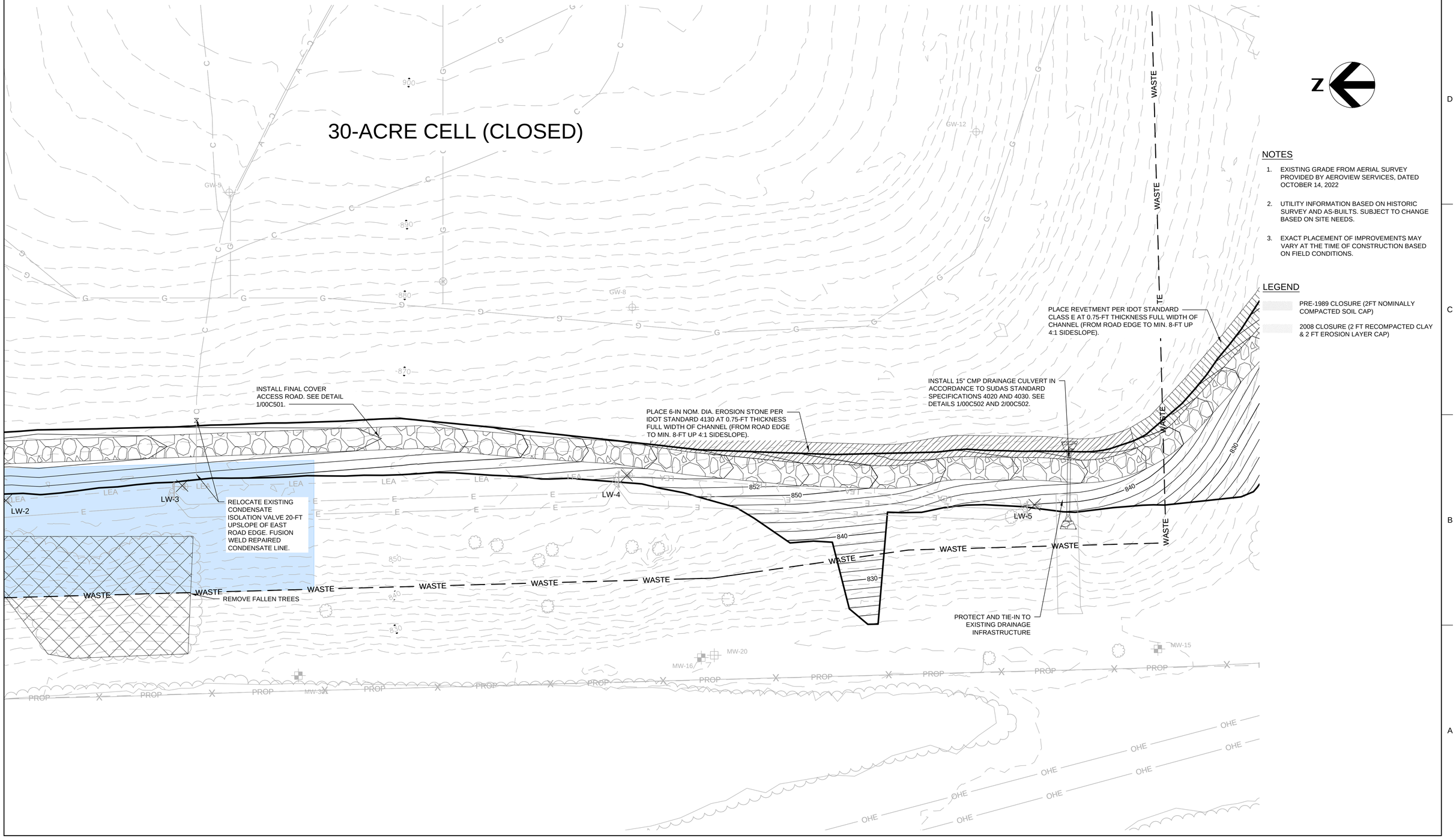
30-ACRE CELL (CLOSED)



NOTES

1. EXISTING GRADE FROM AERIAL SURVEY PROVIDED BY AEROVIEW SERVICES, DATED OCTOBER 14, 2022
2. UTILITY INFORMATION BASED ON HISTORIC SURVEY AND AS-BUILTS. SUBJECT TO CHANGE BASED ON SITE NEEDS.
3. EXACT PLACEMENT OF IMPROVEMENTS MAY VARY AT THE TIME OF CONSTRUCTION BASED ON FIELD CONDITIONS.

LEGEND

- PRE-1989 CLOSURE (2FT NOMINALLY COMPACTED SOIL CAP)
- 2008 CLOSURE (2 FT RECOMPACTED CLAY & 2 FT EROSION LAYER CAP)

ISSUE	DATE	DESCRIPTION
B	08/29/2023	ISSUED FOR CONSTRUCTION
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PROJECT MANAGER	M.MAYS
CIVIL	K.KINLEY
ELECTRICAL	K.VANDER KOLK
DRAWN BY	M.WALSH
PROJECT NUMBER	10362196

AS-BUILT DRAWINGS
3.7.24

Solid Waste Agency
Cedar Rapids / Linn County
living. together. green

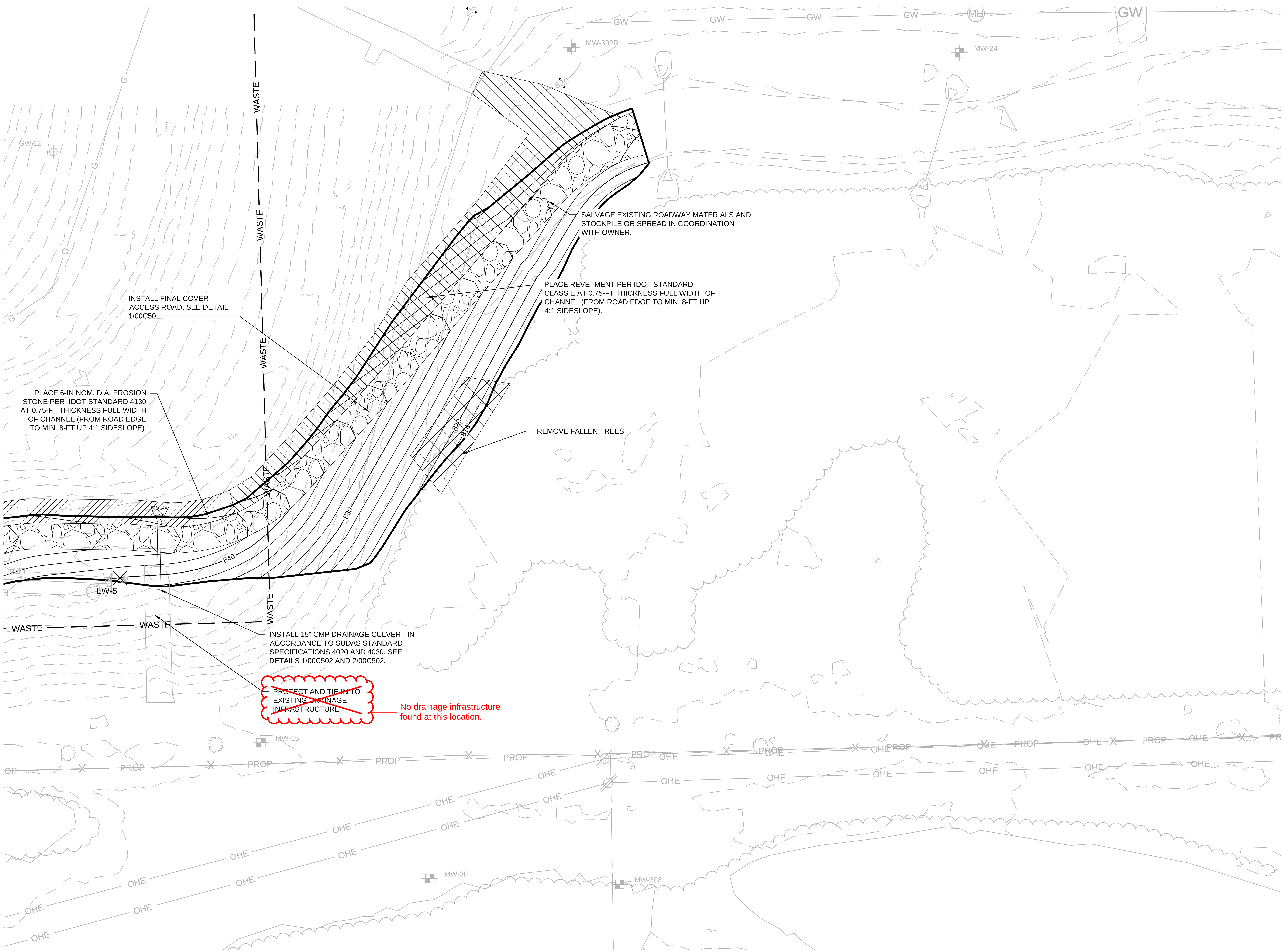
CRLCSWA SITE 2 SANITARY LANDFILL
30 ACRE CELL IMPROVEMENTS

WEST SECTION OF 30 ACRE CELL IMPROVEMENTS

0 1" 2"

FILENAME 00C106.dwg
SCALE 1" = 30'

SHEET 00C106



N

NOTES

1. EXISTING GRADE FROM AERIAL SURVEY PROVIDED BY AEROVIEW SERVICES, DATED OCTOBER 14, 2022
2. UTILITY INFORMATION BASED ON HISTORIC SURVEY AND AS-BUILTS. SUBJECT TO CHANGE BASED ON SITE NEEDS.
3. EXACT PLACEMENT OF IMPROVEMENTS MAY VARY AT THE TIME OF CONSTRUCTION BASED ON FIELD CONDITIONS.

HDR

ISSUE	DATE	DESCRIPTION
B	08/29/2023	ISSUED FOR CONSTRUCTION
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PROJECT MANAGER	M.MAYS
CIVIL	K.KINLEY
ELECTRICAL	K.VANDER KOLK
DRAWN BY	M.WALSH
PROJECT NUMBER	10362196

AS-BUILT DRAWINGS
3.7.24

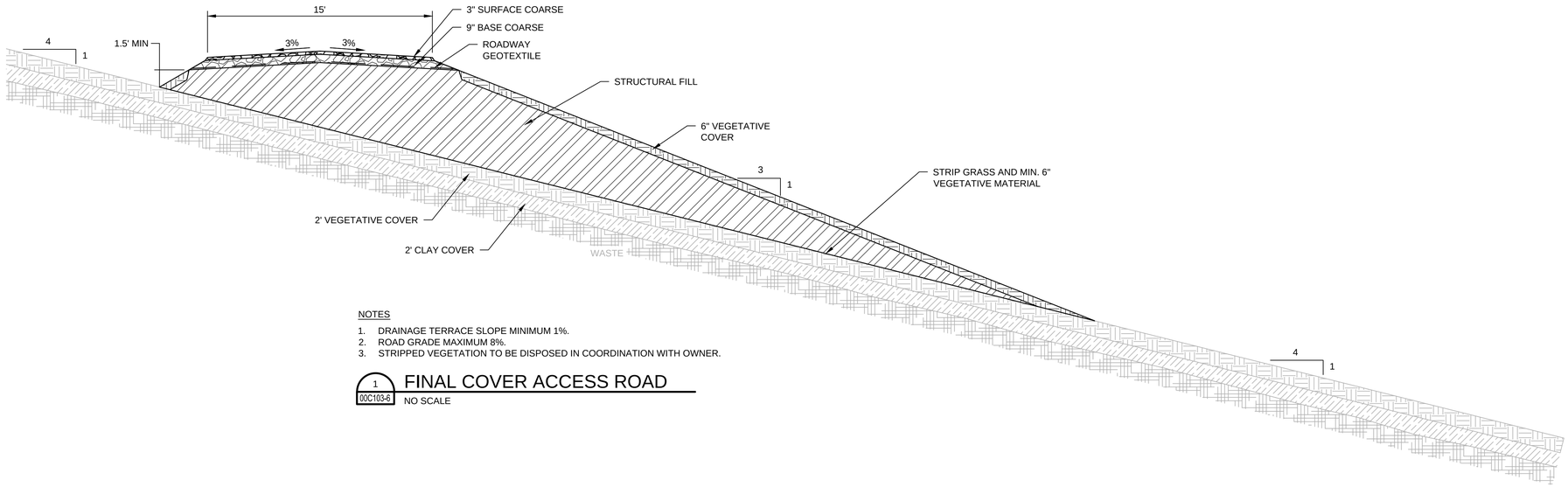
Solid Waste Agency
living. together. green

CRLCSWA SITE 2 SANITARY LANDFILL
30 ACRE CELL IMPROVEMENTS

SOUTHWEST SECTION OF 30 ACRE CELL IMPROVEMENTS

0 1" 2"

FILENAME 00C107.dwg
SCALE 1" = 30'
SHEET 00C107

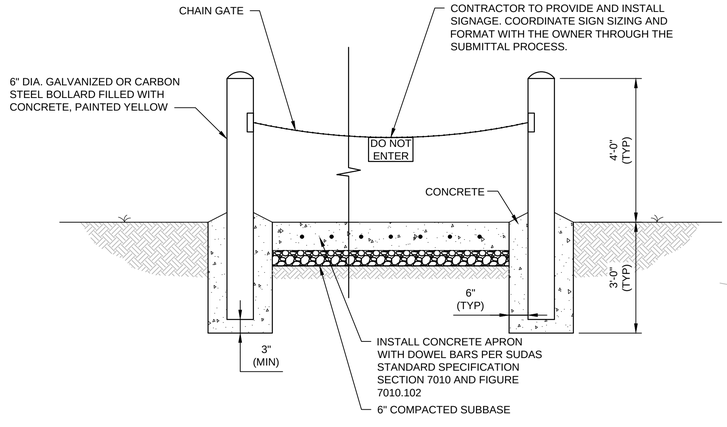


NOTES

1. DRAINAGE TERRACE SLOPE MINIMUM 1%.
2. ROAD GRADE MAXIMUM 8%.
3. STRIPPED VEGETATION TO BE DISPOSED IN COORDINATION WITH OWNER.

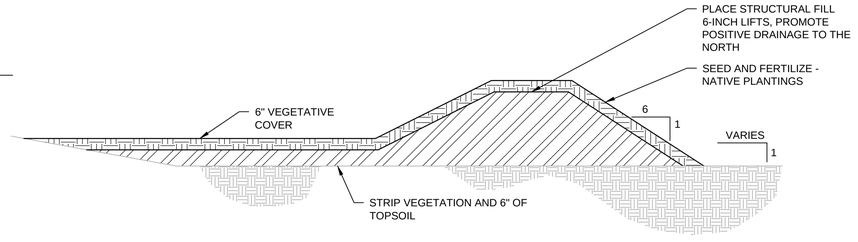
1 / 00C103-6 FINAL COVER ACCESS ROAD

NO SCALE



2 / 00C103/4 BOLLARD CHAIN GATE

NO SCALE



3 / 00C104 DRAINAGE STRUCTURAL FILL

NO SCALE

ISSUE	DATE	DESCRIPTION
B	08/29/2023	ISSUED FOR CONSTRUCTION
A	03/27/2023	ISSUED FOR BID

PROJECT MANAGER	M.MAYS
CIVIL	K.KINLEY
ELECTRICAL	K.VANDER KOLK
DRAWN BY	M.WALSH
PROJECT NUMBER	10362196

AS-BUILT DRAWINGS
3.7.24

Solid Waste Agency — Central Pierce County
living. together. green

CRLCSWA SITE 2 SANITARY LANDFILL
30 ACRE CELL IMPROVEMENTS

FINAL COVER ACCESS ROAD DETAILS

0 1" 2"

FILENAME 00C501.dwg
SCALE AS NOTED

SHEET 00C501

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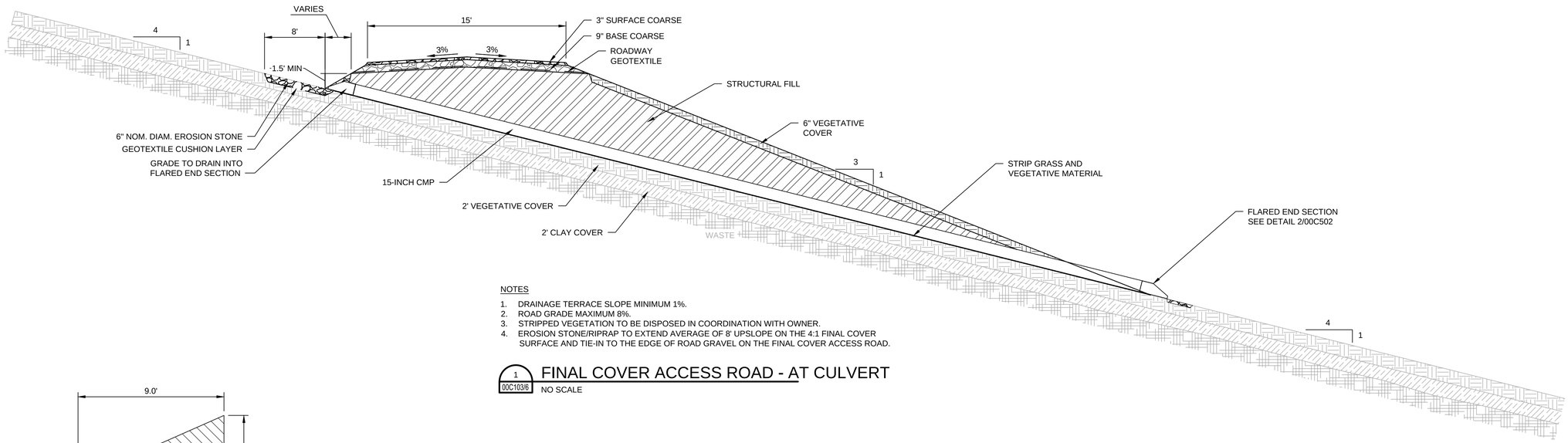


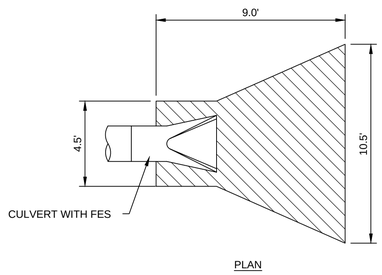
NOTES

1. DRAINAGE TERRACE SLOPE MINIMUM 1%.
2. ROAD GRADE MAXIMUM 8%.
3. STRIPPED VEGETATION TO BE DISPOSED IN COORDINATION WITH OWNER.
4. EROSION STONE/RIPRAP TO EXTEND AVERAGE OF 8' UPSLOPE ON THE 4:1 FINAL COVER SURFACE AND TIE-IN TO THE EDGE OF ROAD GRAVEL ON THE FINAL COVER ACCESS ROAD.

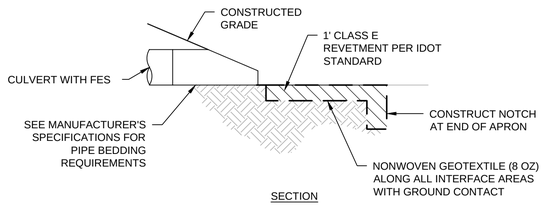
1 / 00C103/6

FINAL COVER ACCESS ROAD - AT CULVERT

NO SCALE



PLAN



SECTION

2 / 00C103/6

FLARED END SECTION AND REVETMENT STONE APRON DETAIL

NO SCALE

ISSUE	DATE	DESCRIPTION
B	08/29/2023	ISSUED FOR CONSTRUCTION
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PROJECT MANAGER	M.MAYS
CIVIL	K.KINLEY
ELECTRICAL	K.VANDER KOLK
DRAWN BY	M.WALSH
PROJECT NUMBER	10362196

AS-BUILT DRAWINGS
3.7.24

Solid Waste Agency
living. together. green

CRLCSWA SITE 2 SANITARY LANDFILL
30 ACRE CELL IMPROVEMENTS

CULVERT DETAILS

0 1" 2"

FILENAME 00C502.dwg
SCALE AS NOTED

SHEET 00C502

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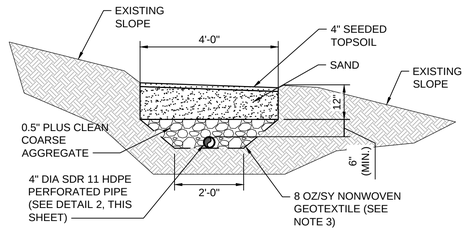
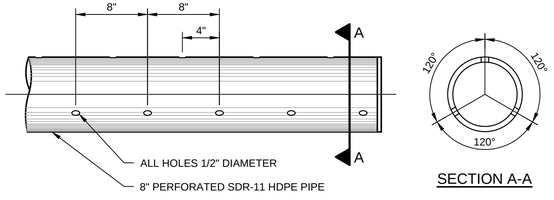


NOTES

1. ALL HDPE PIPE SHALL BE SDR 11 UNLESS OTHERWISE NOTED.
2. HDPE PIPE JOINTS SHALL BE THERMAL BUTT FUSION WELDED UNLESS NOTED OTHERWISE. ELECTRO-FUSION FITTINGS AND FLANGES ARE NOT ALLOWED UNLESS NOTED OTHERWISE OR AUTHORIZED BY AGENCY.
3. WRAP CLEAN COARSE AGGREGATE MATERIAL WITH GEOTEXTILE ON ALL SIDES. OVERLAP ON TOP MIN. 2-FT.
4. PERFORATED PIPE SHALL BE CLEANED OF ALL SHAVINGS AND BURRS PRIOR TO WELDING AND INSTALLATION.
5. PIPE SHALL MAINTAIN MINIMUM 0.5% SLOPE UNLESS OTHERWISE APPROVED BY ENGINEER.

1 / 00C103 — EAST TOE DRAIN
NO SCALE

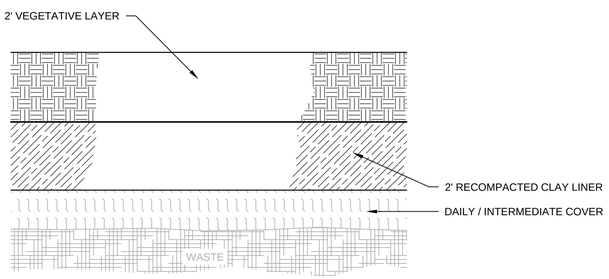


SECTION A-A

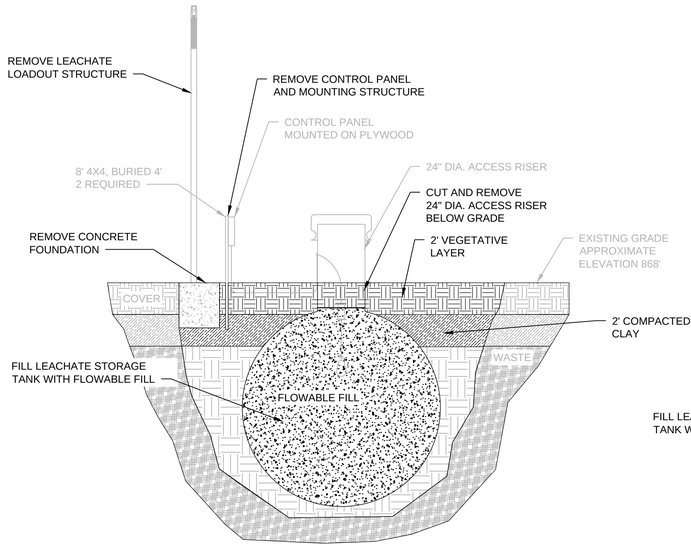
NOTES:

1. 1/2" DIAMETER HOLES, 6 ROWS EVENLY SPACED AROUND PERIMETER (60° APART). 12 T0 13 HOLES PER ROW, 4" CENTER-TO-CENTER STAGGERED 8" BETWEEN ROWS.

2 / 00C103 — PERFORATED COLLECTION PIPE
NO SCALE



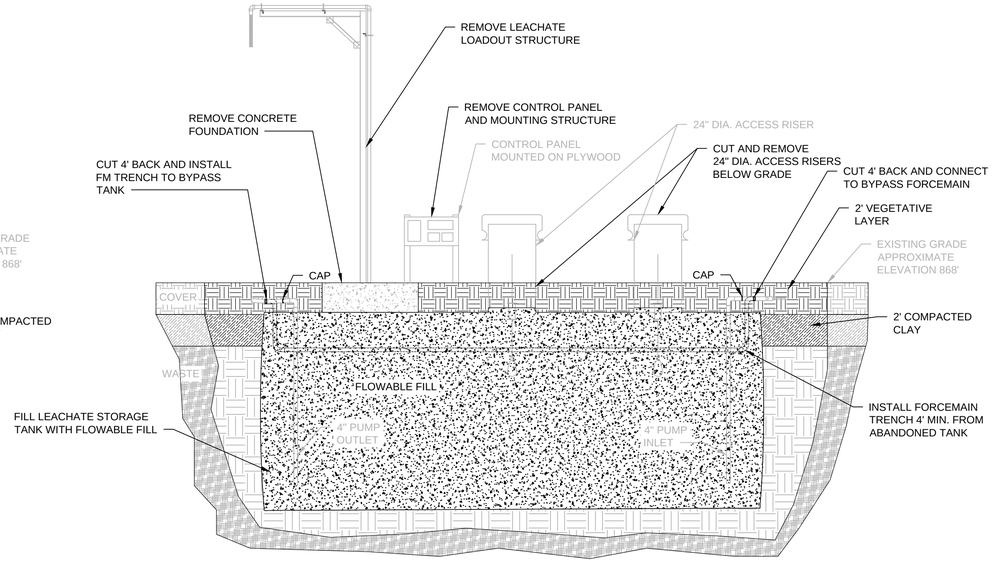
3 / - — 30 ACRE CELL CAP SECTION
NO SCALE



NOTES

1. CROSS-SECTION IS THROUGH TANK LOOKING NORTH.
2. LEACHATE TANK VOLUME IS APPROXIMATELY 12,000 GALLONS. EXACT DIMENSIONS MAY VARY.
3. CUT 24" DIAMETER ACCESS RISERS BELOW GRADE.
4. FILL LEACHATE STORAGE TANK WITH FLOWABLE FILL PER SPECIFICATIONS.
5. BACKFILL AREA WITH 2' COMPACTED CLAY AN THEN 2' VEGETATIVE LAYER. MAINTAIN POSITIVE DRAINAGE.

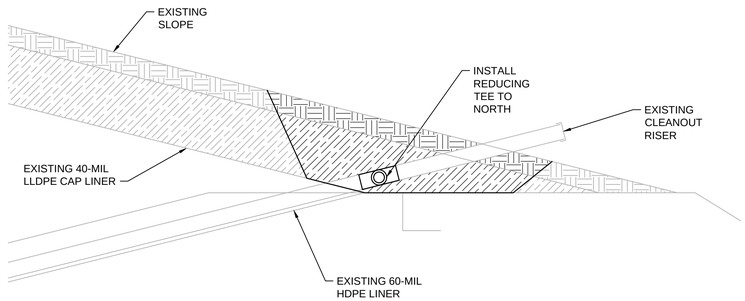
4 / 00C103/4 — LEACHATE TANK ABANDONMENT
NO SCALE



NOTES

1. CROSS-SECTION IS THROUGH TANK LOOKING WEST.
2. LEACHATE TANK VOLUME IS APPROXIMATELY 12,000 GALLONS. EXACT DIMENSIONS MAY VARY.
3. CUT 24" DIAMETER ACCESS RISERS BELOW GRADE.
4. FILL LEACHATE STORAGE TANK WITH FLOWABLE FILL PER SPECIFICATIONS.
5. REPAIR AREA WITH 2' COMPACTED CLAY AN THEN 2' VEGETATIVE LAYER, MAINTAIN POSITIVE DRAINAGE.
6. WHERE NEW FORCEMAIN IS INSTALLED, CUT AND CAP EXISTING FORCEMAIN TO ABANDON IN PLACE.
7. EXACT LOCATION OF TANK INLETS AND OUTLETS MAY VARY. SEE SHEET 00C104 FOR PROPOSED CONVEYANCE TO CAP ALL INLETS AND OUTLETS AT TANK AND BYPASS THE TANK AND VALVE MANHOLE WITH FORCEMAINS.

5 / 00C103/4 — LEACHATE TANK ABANDONMENT
NO SCALE



NOTES

1. TRANSITION TO SOLID 4" SDR-11 HDPE 40-FEET NORTH OF TIE-IN.
2. CAREFULLY EXCAVATE CLEANOUT TO LOCATE LOWEST POINT OF TIE-IN.
3. INSTALL AN HDPE TEE ON THE CLEANOUT RISER, MAINTAIN POSITIVE DRAINAGE ON PIPE.
4. REPAIR EROSION AND VEGETATIVE LAYER ON CAP.

6 / 00C103 — EAST TOE DRAIN
NO SCALE

ISSUE	DATE	DESCRIPTION
B	08/29/2023	ISSUED FOR CONSTRUCTION
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PROJECT MANAGER	M.MAYS
CIVIL	K.KINLEY
ELECTRICAL	K.VANDER KOLK
DRAWN BY	M.WALSH
PROJECT NUMBER	10362196

AS-BUILT DRAWINGS
3.7.24

Solid Waste Agency
living. together. green

CRLCSWA SITE 2 SANITARY LANDFILL
30 ACRE CELL IMPROVEMENTS

TOE DRAIN DETAILS

0 1" 2"

FILENAME 00C503.dwg
SCALE AS NOTED

SHEET 00C503

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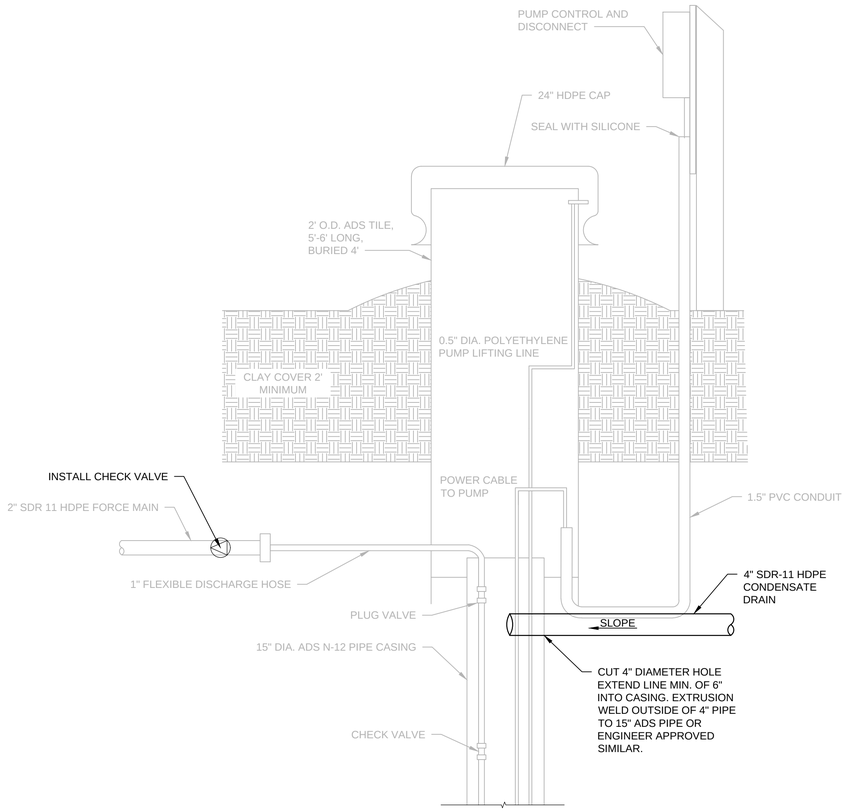
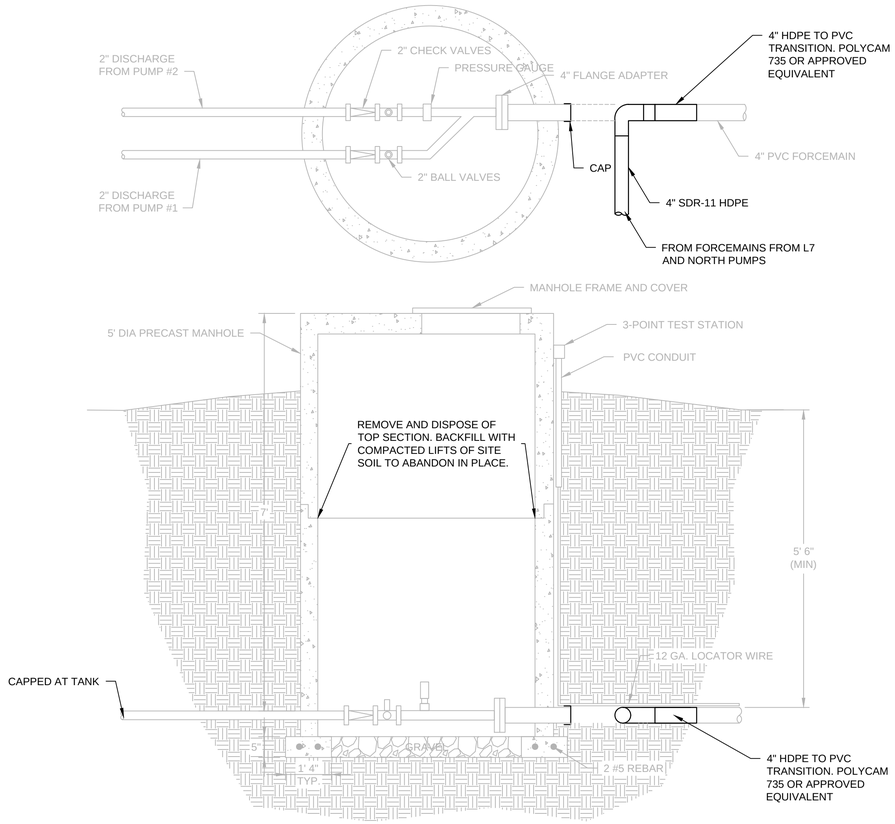


1 00C103/4 LW-7 CONDENSATE CONNECTION

NO SCALE



2 00C104 LEACHATE MANHOLE ABANDONMENT

NO SCALE

ISSUE	DATE	DESCRIPTION
B	08/29/2023	ISSUED FOR CONSTRUCTION
A	03/27/2023	ISSUED FOR BID

PROJECT MANAGER	M.MAYS
CIVIL	K.KINLEY
ELECTRICAL	K.VANDER KOLK
DRAWN BY	M.WALSH
PROJECT NUMBER	10362196

AS-BUILT DRAWINGS
3.7.24

Solid Waste Agency
living. together. green

CRLCSWA SITE 2 SANITARY LANDFILL
30 ACRE CELL IMPROVEMENTS

LEACHATE DETAILS

0 1" 2"

FILENAME 00C504.dwg
SCALE AS NOTED

SHEET 00C504

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GENERAL NOTES

1. EXISTING GRADE FROM AERIAL SURVEY PROVIDED BY AEROVIEW SERVICES, DATED OCTOBER 14, 2022.
2. UTILITY INFORMATION BASED ON HISTORIC SURVEY AND AS-BUILTS. SUBJECT TO CHANGE BASED ON SITE NEEDS.
3. EXACT PLACEMENT OF IMPROVEMENTS MAY VARY AT THE TIME OF CONSTRUCTION BASED ON FIELD CONDITIONS.
4. SEE ONE LINE DIAGRAMS ON SHEETS 00E601 AND 00E602 FOR CONDUIT AND WIRE SIZES BETWEEN WELL AND JUNCTION BOXES.

KEYNOTES #

1. DEMO EXISTING PUSHBUTTON FOR LEACHATE LOADOUT EQUIPMENT AND ALL ASSOCIATED WIRING. CUT CONDUITS BELOW GRADE, CAP, AND ABANDON IN PLACE. SEE PHOTO 2 ON SHEET 00E501.
2. DEMO EXISTING DISCONNECT, STARTER, EQUIPMENT RACK, AND ALL ASSOCIATED WIRING FOR THE LEACHATE LOADOUT EQUIPMENT. CUT CONDUITS BELOW GRADE, CAP, AND ABANDON IN PLACE. SEE PHOTO 3 ON SHEET 00E501.
3. DEMO EXISTING EQUIPMENT RACK AND ALL ASSOCIATED ELECTRICAL EQUIPMENT AND WIRING. CUT CONDUITS BELOW GRADE, CAP, AND ABANDON IN PLACE. SEE PHOTO 2 ON SHEET 00E501.
4. DEMO EXISTING UNDERGROUND STORAGE TANK ELECTRICAL BOX, EQUIPMENT RACK, AND ASSOCIATED WIRING. CUT CONDUITS BELOW GRADE, CAP, AND ABANDON IN PLACE. SEE PHOTO 1 ON SHEET 00E501.
5. REFER TO ONE-LINE DIAGRAMS ON SHEETS 00E601 AND 00E602 FOR DEMO AND NEW WORK RELATED TO THE EXISTING TANK CONTACTOR ENCLOSURE.

HDR

ISSUE	DATE	DESCRIPTION
A	03/2023	ISSUED FOR BID

PROJECT MANAGER	M.MAYS
CIVIL	K.KINLEY
ELECTRICAL	K.VANDER KOLK
DRAWN BY	M.WALSH
PROJECT NUMBER	10362196

AS-BUILT DRAWINGS
3.7.24

Solid Waste Agency
living. together. green

CRLCSWA SITE 2 SANITARY LANDFILL
30 ACRE CELL IMPROVEMENTS

ELECTRICAL LAYOUT PLAN

0 1" 2"

FILENAME 00E102.dwg
SCALE 1" = 30'

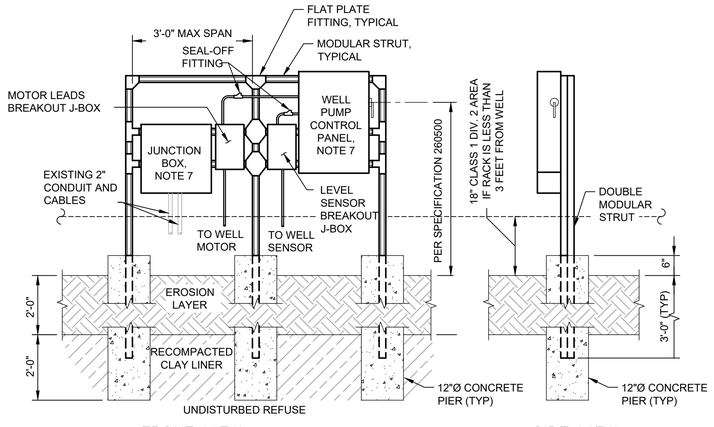
SHEET
00E102

C:\pwworking\central01\d3445953\00E102.dwg, Layout1, 3/24/2023 12:56:06 PM, SPOLK

1 / - EXISTING UNDERGROUND STORAGE TANK ELECTRICAL EQUIPMENT

2 / - EXISTING EQUIPMENT RACK AND LEACHATE LOADOUT PUSHBUTTON

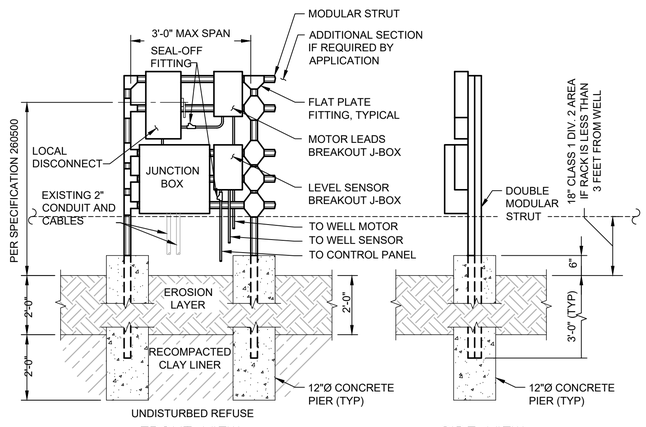
3 / - EXISTING LEACHATE LOADOUT DISCONNECT AND STARTER



1 / 00C102 TYPICAL J-BOX AND CONTROL PANEL MODULAR EQUIPMENT RACK

NOT TO SCALE

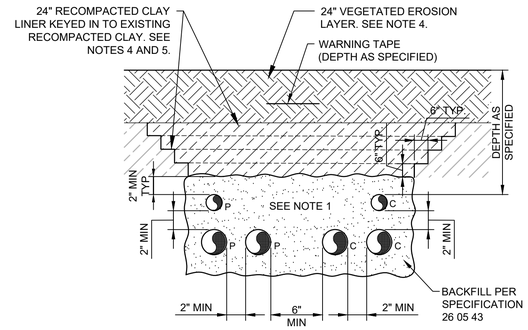
NOTES:
1. COMBINED EQUIPMENT LOADS PER 36" SPAN SHALL NOT EXCEED 500 LBS.
2. PROVIDE GROUNDING FOR OUTDOOR INSTALLATIONS.
3. MODULAR STRUT WIDTH: 1 5/8".
4. RACK ASSEMBLY MATERIAL: GALVANIZED.
5. PROTECT SURFACES WITH DISSIMILAR MATERIALS.
6. REPAIR CUT ENDS AND DAMAGED SURFACES.
7. SEE ONE LINE DIAGRAM (SHEET 00E602) FOR ACTUAL NUMBER OF CONDUITS ENTERING AND LEAVING J-BOX AND CONTROL PANEL.



2 / 00C102 TYPICAL J-BOX AND DISCONNECT MODULAR EQUIPMENT RACK

NOT TO SCALE

NOTES:
1. COMBINED EQUIPMENT LOADS PER 36" SPAN SHALL NOT EXCEED 500 LBS.
2. PROVIDE GROUNDING FOR OUTDOOR INSTALLATIONS.
3. MODULAR STRUT WIDTH: 1 5/8".
4. RACK ASSEMBLY MATERIAL: GALVANIZED.
5. PROTECT SURFACES WITH DISSIMILAR MATERIALS.
6. REPAIR CUT ENDS AND DAMAGED SURFACES.
7. SEE ONE LINE DIAGRAM (SHEET 00E602) FOR ACTUAL NUMBER OF CONDUITS ENTERING AND LEAVING J-BOX AND CONTROL PANEL.



3 / 00C102 DIRECT BURIED CONDUIT(S) TYPICAL SECTION

NOT TO SCALE

NOTES:
1. NUMBER OF EXISTING AND NEW CONDUITS AS REQUIRED FOR THE APPLICATION.
2. P SUBSCRIPT ELECTRICAL POWER OR CONTROL CONDUIT.
3. C SUBSCRIPT COMMUNICATION (INSTRUMENTATION) CONDUIT.
4. SEGREGATE EXISTING CLEAN VEGETATIVE COVER SOIL AND RCL FROM ANY ENCOUNTERED WASTE/SOIL MIXTURE FOR REUSE IN EROSION LAYER CONSTRUCTION. REPLACED RCL SHALL COME FROM SOIL BORROW AREA. MATERIAL CLASSIFIED AS UNSUITABLE SOIL AND MUST BE DISPOSED OF IN THE LANDFILL AT THE ACTIVE FACE. COORDINATE DISPOSAL OF SUCH MATERIAL WITH OWNER.
5. AS NOTED ON SHEET 01C03, BACKFILLED EXCAVATIONS WITHIN THE 2002 CLOSURE AREA WILL REQUIRE RECOMPACTION MEETING IAC CHAPTER 113 REQUIREMENTS (GENERALLY 1E-07 CM/S HYDRAULIC CONDUCTIVITY), OR SIMILAR METHOD (I.E. GCL) APPROVED BY ENGINEER. QUALITY ASSURANCE TESTING OF THIS PORTION OF BACKFILL WILL CONSIST OF ONE MOISTURE/DENSITY TEST PER 50 LINEAR FEET PER 6-INCH COMPACTED LIFT. ALL BACKFILLED EXCAVATIONS SHALL BE KEYED IN TO EXISTING FINAL COVER AS SHOWN.

ISSUE	DATE	DESCRIPTION
B	08/10/2023	ISSUED FOR CONSTRUCTION
A	03/27/2023	ISSUED FOR BID

PROJECT MANAGER	M.MAYS
CIVIL	K.KINLEY
ELECTRICAL	K.VANDER KOLK
DRAWN BY	M.WALSH
PROJECT NUMBER	10362196

AS-BUILT DRAWINGS
3.7.24

SolidWaste Agency
living. together. green

CRLCSWA SITE 2 SANITARY LANDFILL
30 ACRE CELL IMPROVEMENTS

ELECTRICAL DETAILS

0 1" 2"

FILENAME 00E501.dwg
SCALE NO SCALE

SHEET 00E501

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