NM1 - ___63_____

ENGINEERING CERTIFICATION REPORT

Cell 3-AB

Richardson Environmental Solutions & Design, LLC

June 9, 2022

Mr. Brad Jones
Environmental Scientist Specialist
Oil Conservation Division
New Mexico Energy, Minerals and Natural Resources
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Re: OWL NDBL SWMF Cell 3-AB CQA Certification Report
Document Received 5/16/2022

Dear Mr. Jones:

As per instructions received from the engineer of record, I have reviewed the Engineering Certification Report that describes Construction Quality Assurance (CQA) activities and procedures for Cell 3-AB for its engineering content, completeness, and accuracy in accordance with NMAC 19.15.36 and/or applicable federal standards and guidelines, and generally acceptable engineering practice. The engineer of record was Tyler Krueger of Parkhill, Inc. Contained herein are my observations and comments.

General:

Construction plans for Cell 3-AB and annotated specifications therein were previously provided by Parkhill, Inc. and reviewed (review letter sent September 12, 2021). The areas of CQA activity reviewed herein for general conformance with applicable regulations and guidelines include earthwork (mass excavation, subgrade fine grading and compaction, leachate trench, stormwater control and berm, and protective soil cover), geosynthetic installation (geosynthetic clay liner, smooth and textured secondary and primary HDPE geomembranes, geocomposites used for leak detection and cushion, and stormwater flap), and leachate pipe installation (trench aggregate, piping, geotextile filter). Note that this review parallels the previous CQA report for Cell 2-AB as the construction plans and liner installation elements for Cell 3-AB mirror those of Cell 2-AB.

The narrative portion of the document was well-written, detailed, and organized. Key items were bolded to provide easy reference. A summary record of the various CQA elements and requirements was provided as well-organized tables, appendices, and figures. Activities and responsibilities of entities involved in the project was delineated in associated tables provided in the report. The certification report indicated that the CQA oversight was provided continuously throughout Cell 3-AB construction.

A daily summary report was included in the engineering certification report, along with project photographs taken at various stages of Cell 3-AB liner installation. The observation reports were limited in narrative entries documenting specifics of daily activities and the degree of construction quality control and assurance activities provided by Parkhill, Inc. via the CQA certifying engineer and on-site CQA managers. However,

liner installation must have progressed smoothly as no corrective action entries were noted in the daily log. Limited photographs did show aspects of Cell 3-AB construction and liner installation. It is suggested that additional photographs detailing liner installation and various CQA activities be provided for future CQA certification of Cell 4-AB to provide a more visual assessment of liner certification.

ASTM Standards:

All testing associated with the CQA documentation (manufacturer's certification, conformance testing, non-destructive testing, destructive testing, etc.) was conducted in accordance with applicable ASTM standards. Documentation of applicable ASTM standards was provided throughout CQA report via associated tables and appendices.

Quality Control Certification:

For all site-delivered geosynthetic materials of construction, a manufacturer's certification for quality control/quality assurance (MOC/MOA) was required. These were supplied as various appendices to the CQA report. A manufacturer's inventory and a delivery checklist were also included. Each certification detailed the various engineering properties as per applicable ASTM standards. These certificates and associated documents were reviewed. No issues were noted. It is my professional opinion that this pre-construction quality control process (manufacturer's certification, delivery inventory logs, and delivery checklist) implemented by Parkhill, Inc. and overseen by the CQA certifying engineer and CQA site manager provides a high degree of confidence that the materials of construction used in the project meet or exceed the intended design specification and quality assurance.

Conformance Sampling and Testing:

For each geosynthetic material of construction used in the project, conformance sampling and testing were conducted. In each instance, a frequency of sampling was documented and compared for conformance with the quality control criterion. The frequency of sampling equaled or exceeded the recommended minimums for all materials of construction, given the quantities of materials involved liner installation as documented in the respective deployment logs.

All conformance testing was conducted with respect to the appropriate ASTM standard. Geotechnical testing (pre-construction and field monitoring) was performed in-house by Parkhill, Inc., with the exception of the grain size distribution and Standard Proctor for subgrade and berm compaction conducted by Wood Environmental & Infrastructure Solutions, Inc. and saturated hydraulic conductivity for protective soil cover performed by Geo-Test. MOC/MOA sampling and testing for the geosynthetics was done by the respective manufacturer prior to shipment of inventoried materials to the site. Samples for geosynthetic conformance testing (GCL, FML, and geocomposites) were collected prior to shipment by TRI Environmental, Inc. (TRI).

All geosynthetic testing for conformance was conducted using this outside contract laboratory. Complete test results were provided as appendices. These results were reviewed. No issues were noted with the results.

Mass Excavation:

Cell 3-AB mass excavation, soil stock piling, and subgrade fine grading, moisture addition, and subgrade compaction, as well as perimeter berm construction and compaction was performed by Enviroworks. Surveying services were provided by S3 Surveying. Parkhill, Inc. reviewed and verified the elevation tolerances for the cell base and sideslope and perimeter berm as meeting design based grade specification. Figure 3 was provided contrasting design grades versus as-built grades. No issues were noted.

Subgrade Preparation and Certification:

Fine grading and compaction of the subgrade of Cell 3-AB were also performed by Enviroworks. The liner subgrade was fine graded to the required construction elevations, smooth-rolled, and compacted to 90 % or greater of a Reference Standard Proctor (RSP). The same RSP was used for the berm compaction and anchor trench. Reference density results for three samples were reviewed. No issues were noted.

Parkhill, Inc. observed the subgrade preparation and conducted field monitoring of moisture content and density of the compacted subgrade, anchor trench, and perimeter berm using a InstroTex 3500 Moisture-Density Gauge. The location of each test was recorded and provided as a separate figure. The numerous field density tests performed by Parkhill, Inc. on the subgrade floor and sideslope, as well as the anchor trench and berm, exceeded the minimum frequency required. These compaction results were reviewed. Compaction exceeded the 90 % RSP specification. It is my professional opinion that the floor subgrade, anchor trench, perimeter berm compaction meets or exceeds the compaction criterion.

Upon completion of the finished subgrade, the cell was surveyed and its elevations verified. The CQA certifying engineer approved the as-built subgrade elevations for installation of the CGL. An as-built set of final subgrade contours was included in the engineering certification report as noted above.

The CQA site manager and Field Installation Superintendent (FIS) for Mustang Extreme Environmental Services (MEES) conducted a walk-over inspection of the subgrade prior to and during daily liner installation as an added layer of construction quality control. Enviroworks provided continual moisture conditioning and rolling of the subgrade ahead of liner installation as an added construction quality control.

Approval and Authorization to Proceed Form forms for acceptance of the subgrade at various stages of completion were included as part of the certification documentation. It is my professional opinion that the subgrade quality control implemented by Parkhill, Inc. meets or exceeds the intended design specification and quality assurance.

Installation of Geosynthetic Clay Liner (GCL) and Repair:

The CQA report detailed the deployment and joining of SOLMAX Bentoliner NSL® GCL panels and any subsequent repair of holes and tears by Southwest Liner Systems, Inc. The specified methodology for deployment, orientation and joining/shingling of floor and sideslope panels, minimum overlap for longitudinal seams and perpendicular end seams, and repair of damage or defects adheres to manufacturer's recommendation and standard practice for installing a GCL. Free granular bentonite at a rate of 0.25 lb_m/ft was specified for seaming and patching. It is my professional opinion that is was an acceptable corrective action taken by liner installer. Prior to the secondary

HDPE installation, the CQA engineer and the FIS inspected and approved the GCL installation. A deployment log and an as-built panel layout were provided.

It is my professional opinion that the quality control and corrective action implemented by Parkhill, Inc. meets or exceeds the intended design specification and quality assurance for the installation of the GCL.

Trial Seaming of Geomembrane:

The trial seaming protocol for fusion and extrusion seams, sampling of test seams, and field tensiometer procedures (peel test and shear test) in triplicate were reviewed. The minimum strength project criterion for each seam type and test procedures used are considered appropriate and within engineering norms/and or manufacturer's recommendations. Detailed results of the trial seaming were included. Additionally, a calibration certificate (Demtech Services, Inc.) for the field tensiometer used by MEES for seam testing was provided as an appendix with a dated certification of 3/29/21.

Installation of Geomembranes:

The CQA report detailed the handling, deployment, and placement of the smooth and textured secondary and primary 60 mil HDPE liner over Cell 3-AB. The minimum runout onto the cell floor from the sideslope, minimum overlap distance for fusion seaming, and placement orientation of panels with respect to the prevailing base grade slope and sideslope are consistent with standard industry procedures and manufacturer's recommendations. A deployment log and an as-built panel layout were provided for both secondary and primary FML (Figure 6 and 8, respectively).

Geomembrane Production Seaming:

Documentation of the production seaming was provided. Each panel and seam was inspected via a walk-over by the CQA site manager for potential or actual defects and identified for subsequent repair. All seams and repairs were required to pass the non-destructive testing specifications as described below. A vacuum test/defect repair log was included in the report. Each respective log was reviewed. No issues were noted except as noted below.

Non-destructive Seam Testing:

Each seam for the secondary and primary liner was tested non-destructively using either air pressure testing (double-wedge fusion seam) or vacuum box testing (extrusion seam, patches, and intersections of fusion welds). Air pressure testing was performed on all fusion welded seams. A log of seam testing, as well as a repair log, was provided as respective appendices, detailing the outcome of testing and repair. These logs were reviewed. All fusion welded seams tested passed the required maximum pressure drop with all secondary FML seams showing no drop from the initial 30 psi. It is noted for primary FML pressure tests 55 to 82 initial pressures indicated in the log ranged from 31 to 57 psi with final pressure of 30 psi. However, these tests were flagged as passing. These anomalous entries of initial pressures need to be reconciled for completeness of certification and for archival purposes. The majority of primary FML testing indicated a starting pressure of 30 psi. No re-testing of production seams was indicated in the log. No leaks were observed on the deflect repair log using the vacuum box method.

Destructive Seam Testing:

The destructive seam testing protocol for fusion and extrusion seams, sampling of field seams, and the destructive seam test procedures (peel test and shear test) were reviewed. Sampling was conducted at an appropriate frequency as per the regulations. The required number of samples collected exceeded the prescriptive requirement based on approximate lineal feet of installed seam of smooth and textured HDPE for the secondary and primary liners. Sample locations were noted on the previously mentioned panel layouts. Each sample along the seam was divided and distributed for owner archive, installer field testing, and outside same-day laboratory testing. Field test results (three replicate samples) are provided. These results were reviewed. Five replicate specimens were tested by an outside laboratory TRI, Environmental, Inc. (TRI) and are provided as separate appendices for all destructive test samples. These results were also reviewed. No issues were noted, although as noted by Parkhill, Inc. in the certification some TRI reports included a mix of secondary and primary DT results. Nonetheless, the tested seam strengths exceeded the minimum required specifications in both peel and shear for both secondary and primary FML. It is my professional opinion that the sampling protocol, frequency of sampling, method of destructive testing, and overall test results comply with applicable regulations and guidelines.

Geomembrane Repair:

The procedures used by the installer for geomembrane repair and repair testing and detailed within the CQA report are considered standard practice. A panel defect/repair log was provided as part of the vacuum testing log. No further comment is needed. It is my professional opinion that the quality control implemented by Parkhill, Inc. meets or exceeds the intended design specification and quality assurance for the installation and repair of the secondary and primary HDPE liner.

Geocomposite Leak Detection:

A double-sided 200 mil geonet heat laminated with a 10 oz/yd^2 nonwoven geotextile and a 200 mil geonet was placed over the secondary HDPE on the sideslope and floor, respectively, to facilitate leak detection. Minimum overlaps of 4 to 6 inches were used on longitudinal and perpendicular seams. Panels were seamed together using zip-ties at 5 ft and 6 in longitudinally and end-to-end spacing, respectively. For the double-sided geocomposite, the geotextile was heat tack bonded. Given the double-sided geocomposite transmissivity conformance specification provided in the certification report, collection and conveyance of any leakage along the sideslope should not be an issue. It is my professional opinion that a 200 mil geonet layer on the floor also provides adequacy for leak detection. A deployment log and an as-built panel layout were provided.

Geocomposite Cushion/Leachate Collection:

A double-sided 200 mil geonet heat laminated with a 10 oz/yd^2 nonwoven geotextile and a single-sided 200 mil geonet heat laminated with a 10 oz/yd^2 nonwoven geotextile was placed over the primary HDPE on the sideslope and floor, respectively, to facilitate leachate collection flow. Minimum overlaps of 4 to 6 inches were used on longitudinal and perpendicular seams. Panels were seamed together using zip-ties at 5 ft

and 6 in longitudinally and end-to-end spacing, respectively. For the double-sided and single-sided geocomposite, the geotextile was heat tack bonded. Given the double-sided geocomposite transmissivity conformance specification provided in the certification report, collection and conveyance of any leachate along the sideslope should not be an issue. It is my professional opinion that a single-sided geocomposite layer on the floor also provides adequacy for leachate collection and conveyance. A deployment log and an as-built panel layout were provided.

Leachate Pipe:

A 6 in diameter perforated SDR 13.5 HDPE pipe was installed on the floor by Enviroworks. MOC certifications for HDPE piping were provided as an appendix. Electro-fusion welding of sections is typical; however, no documentation was provided as per installation photographs or certification narrative. However, it is my professional opinion that the HDPE piping and riser ancillaries supplied meets the intended CQA plan specifications.

Additional details for placement of bedding aggregate, leachate pipe, and geotextile/aggregate covering were not provided. Conformation of bedding aggregate gradation was not provided. In liner construction certification reports, wherein collection piping is provided, these details have been provided. Conformance test results should be provided for completeness and for archival purposes.

An as-built survey by S3 Surveying of the leachate pipe slope along its alignment was provided, indicating a slope meeting a minimum prescriptive slope. It is my professional opinion that this slope provides longitudinal adequacy for leachate conveyance within Cell 3-AB.

Protective Soil Layer (PSL):

A minimum 2 ft thick layer of pre-screened, pre-qualified on-site soil was placed over the installed liner system. Eighteen samples were taken for grain size analysis and four samples for saturated hydraulic conductivity. Hydraulic conductivity ranged from a K_{sat} of 1.19×10^{-3} to 1.72×10^{-2} cm/s. On-site soil texture was classified as a sand. It is my professional opinion that the PSL provided for Cell 3-AB will provide adequate conveyance of leachate to the leachate collection pipe.

The final thickness of the PSL was field verified by S3 Surveying and provided as an as-built figure. These results indicate that the depth of PSL meets the prescriptive criterion of 2 ft. It is my professional opinion that the PSL as installed in Cell 3-AB will provide adequate protection for the liner system.

Stormwater and Liner Protection Berm/40 mil HDPE Flap:

In a few liner construction certification reports, wherein a stormwater berm and flap is provided for transition, these details have been provided; however, it is my professional opinion that this is not a major certification issue and oversight by ParkHill, Inc. as this stormwater management is temporary and will be removed as additional cells are installed. Photographic documentation for removal of the stormwater flap and berm for Cell 2-AB and tie-in to Cell 3-AB was provided. Similar construction of stormwater and liner protection within the transition zone for future tie-ins to Cell 3-AB was indicated in the narrative as shown in Figure 2.

Other:

Appendix B.1-B.8 lists the project name as Cell 1B. Appendix B.2 provides conformance test results for four GCL samples, whereas Appendix B.1 GCL Certification indicates six samples were taken. However, these four conformance tests demonstrate performance adequacy for installed GCL. No further comment is needed.

One conformance GCL roll 0242-361733 listed in Appendix B-1 GCL Certification is not indicated in Appendix B-2 as being tested by TRI. However, GCL roll 0242 -361734 was included as a tested conformance sample.

Leftover geosynthetic rolls from Cell 1A construction were used for part of the GCL, geonet, FML, and geocomposite liner installation as noted in the deployment logs in Appendices C.6, C.12, C13, and C.17. The report also noted that all residual rolls were inspected by the CQA site engineer and MEES manager prior to use in Cell 3-AB. In my professional opinion, this is an acceptable practice.

Summary:

With the exceptions as noted above, based on a review of the CQA documentation provided by Parkhill, Inc., it is my professional opinion that the Cell 3-AB composite liner system was constructed to high engineering standards and meets or exceeds the regulatory requirements established by the New Mexico Energy, Minerals and Natural Resources Department (NMEMNRD), Oil Conservation Division (OCD).

If you require additional information or clarification on this review, please contact me directly at 505-835-5467 (w) or 505-838-6227 (c), or email me at clinton.richardson@nmt.edu.

Sincerely,

Clinton P. Richardson, Ph.D.,P.E., BCEE

cc Tyler Krieger, PE

PBMaterials
DBA WALLACH CONCRETE Inc &
CROCKETT COUNTY MINING Ltd

Project: Spec for Drain Rock

Sample Date: 4/23/2021
Test Date: 4/28/2021

MATERIAL PROPERTIES OF CONCRETE AGGREGATES

Test Procedure: ASTM C-136

Material Description: Coarse Aggregate: Gravel

Location of Sample: Plant 323 Grisham Production Sample

SIEVE ANALYSIS

Sieve Size	Percent Passing	Specification % Passing
2 1/2"	100	90-100
1"	21	20-55
3/4"	3.3	<2

Adrian Flores
QC Technician Adrian Flores

Parkhill

333 Rio Rancho Blvd., Suite 400
Rio Rancho, New Mexico 87124
505.867.6990

FML SEAMING PRESSURE TEST LOG

PROJECT SPECIFICATIONS	
MIN START PSI:	30
TEST DURATION:	5 minutes
MAX PSI DROP:	30

PROJECT NAME: OWL, Landfill
PROJECT NUMBER: 6759-21
OWNER: Oilfield Water Logistics
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 2

PRESSURE TEST LOCATION: Primary

	DATE	PANEL #/PANEL #	TESTER	TIME		PRESSURE		MONITORED BY	PASS/FAIL
				START	FINISH	INITIAL	FINAL		
51	10/19/21	9-22	AS	855	860	30	30	Karl Ruiz	PASS
52	10/19/21	10-24	AS	905	910	30	30	Karl Ruiz	PASS
53	10/19/21	10-24	AS	905	910	30	30	Karl Ruiz	PASS
54	10/19/21	11-27	AS	915	920	30	30	Karl Ruiz	PASS
55	10/18/21	1-12	NY	949	954	30	30	Karl Ruiz	PASS
56	10/19/21	12-14	AS	820	825	30	30	Karl Ruiz	PASS
57	10/19/21	14-15	AS	705	710	30	30	Karl Ruiz	PASS
58	10/18/21	12-15	NY	948	953	30	30	Karl Ruiz	PASS
59	10/18/21	2-12	NY	938	943	30	30	Karl Ruiz	PASS
60	10/18/21	2-13	NY	936	941	30	30	Karl Ruiz	PASS
61	10/18/21	12-13	NY	937	942	30	30	Karl Ruiz	PASS
62	10/18/21	13-15	NY	947	952	30	30	Karl Ruiz	PASS
63	10/18/21	16-17	NY	1040	1045	30	30	Karl Ruiz	PASS
64	10/18/21	16-17	NY	1040	1045	30	30	Karl Ruiz	PASS
65	10/19/21	26-29	AS	730	735	30	30	Karl Ruiz	PASS
66	10/19/21	28-29	AS	730	735	30	30	Karl Ruiz	PASS
67	10/19/21	26-28	AS	735	740	30	30	Karl Ruiz	PASS
68	10/19/21	25-28	AS	740	745	30	30	Karl Ruiz	PASS
69	10/19/21	24-25	AS	725	730	30	30	Karl Ruiz	PASS
70	10/19/21	25-26	AS	730	735	30	30	Karl Ruiz	PASS
71	10/19/21	23-26	AS	730	735	30	30	Karl Ruiz	PASS
72	10/19/21	23-25	AS	725	730	30	30	Karl Ruiz	PASS
73	10/18/21	14-16	NY	1220	1225	30	30	Karl Ruiz	PASS
74	10/19/21	23-24	AS	810	815	30	30	Karl Ruiz	PASS
75	10/18/21	15-16	NY	1055	1060	30	30	Karl Ruiz	PASS
76	10/18/21	15-17	NY	1035	1040	30	30	Karl Ruiz	PASS
77	10/18/21	17-19	NY	1600	1605	30	30	Karl Ruiz	PASS
78	10/18/21	16-19	NY	1126	1131	30	30	Karl Ruiz	PASS
79	10/18/21	16-18	NY	1545	1550	30	30	Karl Ruiz	PASS
80	10/18/21	22-24	NY	810	815	30	30	Karl Ruiz	PASS
81	10/19/21	24-27	NY	915	920	30	30	Karl Ruiz	PASS
82	10/19/21	24-27	AS	915	920	30	30	Karl Ruiz	PASS
83	10/18/21	24-27	AS	1610	1615	30	30	Karl Ruiz	PASS
84	10/19/21	24-27	AS	750	755	30	30	Karl Ruiz	PASS
85	10/25/21	11-31	NY	1308	1313	30	30	Tyler Krueger	PASS
86	10/25/21	31-32	NY	1313	1318	30	30	Tyler Krueger	PASS
87	10/25/21	32-33	NY	1317	1322	30	30	Tyler Krueger	PASS
88	10/25/21	33-34	NY	1320	1325	30	30	Tyler Krueger	PASS
89	10/25/21	33-34	NY	1325	1330	30	30	Tyler Krueger	PASS
90	10/25/21	34-35	NY	1330	1335	30	30	Tyler Krueger	PASS
91	10/25/21	35-36	NY	1401	1406	30	30	Tyler Krueger	PASS
92	10/25/21	36-37	NY	1420	1425	30	30	Tyler Krueger	PASS
93	10/25/21	37-38	NY	1410	1415	30	30	Tyler Krueger	PASS
94	10/25/21	38-39	NY	1435	1440	30	30	Tyler Krueger	PASS
95	10/19/21	18-20	AS	845	850	30	30	Karl Ruiz	PASS
96	10/18/21	18-21	NY	1600	1605	30	30	Karl Ruiz	PASS
97	10/19/21	18-30	AS	710	715	30	30	Karl Ruiz	PASS
98	10/19/21	19-30	AS	720	725	30	30	Karl Ruiz	PASS
99	10/18/21	18-19	NY	1120	1125	30	30	Karl Ruiz	PASS
100	10/19/21	20-22	AS	850	855	30	30	Karl Ruiz	PASS

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May 16, 2022

Mr. Jim Griswold
Environmental Bureau Chief
Oil Conservation Division
NM Energy, Minerals and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Re: OWL Landfill Services, LLC Engineering Certification Report:
Landfill Cell 3 A/B Construction (01675921)

Dear Mr. Griswold:

This submittal is provided as engineering certification for the construction of Landfill Cell 3 A/B at OWL Landfill Services, LLC (OWL), located in Lea County, New Mexico. Specifically, this Certification Report demonstrates the double containment liner and leak detection system for Cell 3 A/B have been installed in compliance with the following applicable documents and regulatory requirements:

- Approved Construction Quality Assurance (CQA) Plan October 2016.
- Construction Plans and Project Technical Specifications (November 2017) for Landfill Cell 2 A/B Construction, OWL Landfill Services, LLC.
- New Mexico Energy, Minerals and Natural Resources Department Regulations (19.15.36.1-19.15.36.20).
- Approved Permit and Permit Conditions (August 2017).
- Geosynthetic Research Institute (GRI) and American Society of Testing Materials (ASTM) and Industry Standards.

Per Conditions of the Permit, the Division was notified "at least 30 days prior to the start of construction of the landfill cell…"; (Appendix F.1) and "at least 72 hours prior to liner installation" in advance of construction activities (Appendix F.2). The following Certification Report describes the activities and procedures performed during the construction of Cell 3 A/B to document compliance with the approved Engineering Design Plans, Project Specifications, and the CQA Plan. As done with the previous Cell (Cell 1A and 2A/B), we have provided a copy of this Report for a compliance review by Dr. Clint Richardson, PhD, for confirmation of compliance with Part 36 and the current Permit for this facility to OCD .We appreciate the opportunity to work with the OCD regarding the construction quality assurance for the construction of Cell 3 A/B at OWL Landfill Services, LLC. Please contact us with your questions and comments regarding this Engineering Certification Report. (tkrueger@parkhill.com; 325.227.0111)

Sincerely,

PARKHILL

By _____
Tyler S. Krueger, PE
Project Engineer

By _____
Matthew W. Kingsley, PE
Principal

TSK/sw
Enclosures

cc: Timothy Shreve, Director of Landfill Operations
OWL Landfill Services, LLC
Dr. Richardson, PhD, PE, BCEE, New Mexico Tech

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OILFIELD WATER LOGISTICS

ENGINEERING CERTIFICATION REPORT LANDFILL CELL 3 A/B CONSTRUCTION

OWL Landfill Services, LLC

Lea County, New Mexico



PARKHILL SMITH & COOPER, INC. F-560
STATE OF TEXAS
TYLER S. KRUEGER
130015
LICENSED PROFESSIONAL ENGINEER

05/16/2022

Submitted to:
New Mexico Oil Conservation Division
Environmental Bureau
1220 South St. Francis Dr. #3
Santa Fe, New Mexico 87505

Prepared for:
OWL Landfill Services, LLC
Lea County, New Mexico

May | 2022
Parkhill Project # 01675921

Parkhill

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1.0 INTRODUCTION

This Engineering Certification Report describes the Construction Quality Assurance (CQA) activities and procedures applied during the construction of Landfill Cell 3 A/B, henceforth known as *"Cell 3 A/B,"* at OWL Landfill Services, LLC (OWL) located in Lea County, New Mexico. The CQA activities performed document Cell 3 A/B was constructed in accordance with the approved Construction Plans, Project Technical Specifications, 2016 CQA Plan, Geosynthetic Research Institute (GRI) and American Society of Testing Materials (ASTM) Industry Standards, and New Mexico Energy, Minerals and Natural Resources Department (EMNRD), Oil Conservation Division (OCD) regulatory standards.

1.1 EMNRD OCD Notification

The EMNRD OCD was notified prior to Cell 3 A/B construction included in this report in **Appendix F.1**. Additionally, EMNRD OCD was notified prior to Cell 3 A/B liner installation included in this Report in **Appendix F.2.** Site development activities and landfill clearing initially began on August 16, 2021 with initial landfill perimeter berm construction continuing into early September 2021. This Engineering Certification Report satisfies the requirements of the applicable Permit Conditions.

1.2 Project Description

The OWL Landfill is located approximately 1.5 miles east of the intersection of Delaware Basin Rd. and NM Highway 128 at mile marker 31, as shown on the Site Location Map **(Figure 1)**. Mass excavation was performed by Enviroworks, with the excavation of soils, placement and compaction of perimeter berm soils, and subgrade fine grading and compaction, and anchor trench excavation, backfill, and compaction performed from March 4, 2021 through May 13, 2021. Geosynthetic Clay Liner (GCL), Secondary Flexible Membrane Liner (FML), Geonet, Leak Detection System, Primary FML, and Geosynthetic Cushion/Drainage Layer installation activities were performed by Mustang Extreme Environmental Services (MEES) from October 7, 2021 through November 8, 2021. Leachate system installation and protective soil later (PSL) placement were performed by Enviroworks from October 27, 2021 through November 8, 2021.

1.3 Project Overview

Landfill Cell 3 A/B was constructed at Oilfield Water Logistics Services, LLC, (OWL), located in Lea County, New Mexico. Parkhill developed Cell 3 A/B, Project Technical Specifications, and the CQA Plan (October 2016); and performed on-site CQA activities. Primary construction activities for Cell 3 A/B are as listed in **Table 1**.

TABLE 1 - Primary Construction Activities

Activity Number	Construction Activity
1	Mass Excavation
2	Construction of perimeter berm
3	Fine Grading
4	Compaction
5	Installation of the Geosynthetic Clay Liner (GCL)
6	Installation of the Secondary Flexible Membrane Liner (FML)
7	Installation of Geonet and Geocomposite Leak Detection System
8	Installation of the Primary Flexible Membrane Liner (FML)
9	Installation of the Geocomposite Cushion/Drainage Layer
10	Installation of Leachate Collection System
11	Installation of the protective soil layer (PSL)
12	Construction of the Landfill stormwater management system

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Mass excavation; placement and compaction of structural fill soils for the perimeter berm; fine grading and compaction to the design base grades were completed by Enviroworks under observation and soil density testing of Parkhill, Site CQA Engineer, (**Figure 2**). Upon review and approval of the subgrade by the Parkhill Site CQA Engineer and the geosynthetic installation contractor, the Parkhill Site CQA Engineer or manager was on-site during geosynthetics installation to observe, inspect, and record GCL, secondary FML (HDPE), geosynthetic leak detection, (geonet and geocomposite), primary FML (HDPE), geosynthetic cushion/drainage (geocomposite), leachate collection system, protective soils (PSL), and rain flap stormwater management system (HDPE) installation procedures. The purpose of the CQA work is to document that construction activities performed at OWL comply with the Cell 3 A/B Construction Plans, Project Technical Specifications, 2016 CQA Plan, Geosynthetic Research Institute (GRI) and American Society of Testing Materials (ASTM) Industry Standards, and EMNRD OCD regulatory requirements. The OWL Cell 3 A/B Construction Plans, Project Technical Specifications, 2016 CQA Plan, field observations, and tests were used to provide quantitative criteria with which to evaluate construction.

Parkhill personnel were responsible for the full range of CQA activities as listed in **Table 2.**

TABLE 2 - Parkhill CQA Activities

Activity Number	Parkhill CQA Activity
1	Collect select on-site soils to perform laboratory moisture/density tests, hydraulic conductivity tests, and grain size analyses
2	Review surveying results to confirm that the subgrade met design elevations and slope
3	Provide field density testing of compacted berm soil fill and subgrade soils
4	Review manufacturer's quality assurance and manufacturer's quality control testing results for geosynthetics
5	Review conformance testing results for FML, GCL, Geonet, and Geocomposite
6	Inspect delivered FML, GCL, Geonet, Geocomposite, and leachate collection pipe
7	Observe GCL, secondary FML, Leak Detection System, primary FML, and Geocomposite installation procedures
8	Observe GCL secondary FML, Leak Detection System, primary FML, and Geocomposite material seaming and testing procedures
9	Review documentation, including laboratory and field test results
10	Complete and submit this Engineering Certification Report of completed construction to OCD

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1.4 Report Organization

This Certification Report describes the CQA activities and procedures performed during the construction of Cell 3 A/B at OWL. The attached figures, appendices, photographs, and daily logs provide appropriate quantitative and qualitative documentation. Cross-reference to the Figures and Attachments are in **bold** type to facilitate the Division's review.

1.5 Qualifications

Mr. Charles W. Fiedler, P.E., Senior Practice Leader | Firm Principal

Mr. Charles W. Fiedler, P.E. is a Senior Practice Leader/Firm Principal for Parkhill with over 40 years of directly applicable experience in solid waste engineering. Mr. Fiedler is a registered professional engineer in New Mexico and Texas, and has supervised construction plans, bid documents, and CQA for over 1,800 acres of landfill development, including 30 Subtitle D landfill cells in New Mexico and Texas. The current resumé for Mr. Fiedler is included in the **Resumés** section (**Appendix G.1**).

Mr. Carl R. King, P.E., Senior Project Manager

Mr. Carl R. King, P.E. is a Senior Project Manager for Parkhill with over 30 years' experience developing and constructing lined landfill cells, geosynthetic impoundments, transfer and material recovery facilities, and waste-to-energy facilities. He has served as a Site Construction Quality Assurance (CQA) Engineer for over 1,280 acres of Subtitle D municipal solid waste landfill cells and Subtitle C hazardous waste landfill cells in Arizona, New Mexico, Oklahoma and Texas. Components included construction plan development, project technical specification development, CQA Plan development and updating, soil liner installation, GCL installation, HDPE geomembrane installation, leachate collection system installation, protective soil layer evaluation, and installation and construction management. Mr. King's duties included assessment and equivalency evaluation and calculations for liner and leak detection system components in compliance with the Construction Plans, CQA Plan and Project Technical Specifications. The current resumé for Mr. King is included in the **Resumés** section (**Appendix G.2**).

Mr. Tyler S. Krueger, PE, Engineer of Record, Site CQA Engineer/Manager

Mr. Tyler Krueger is a Site CQA Engineer/Manager for the OWL Cell 3 A/B project. He serves as the Site CQA Engineer/Manager for Parkhill, and is trained and certified on field instrumentation, industry standards, health and safety, etc. Krueger is a professional engineer and has served as a Site CQA Engineer/Manager at various Subtitle D municipal solid waste landfills. Mr. Krueger's duties included assessment and equivalency evaluation and calculations for liner and leak detection system components in compliance with Construction Plans, CQA Plan, and Project Technical Specifications. The current resumé for Mr. Krueger is included in the **Resumés** section (**Appendix G.3**).

Mr. Karl Ruiz Bernal, Engineering Technologist, Site CQA Manager

Mr. Mike Armendariz is the Site CQA Manager for the OWL Cell 3 A/B project. He serves as the Site CQA Manager for Parkhill, and is trained and certified on field instrumentation, industry standards, health and safety, etc. His primary duties are field CQA for cell subgrade soil testing and certification, observation and documentation for geosynthetics installation, leachate collection system installation, and PSL testing and installation. The current resumé for Mr. Ruiz is included in the **Resumés** section (**Appendix G.4**).

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2.0 LANDFILL CELL 3 A/B CONSTRUCTION

2.1 Summary

The OWL Landfill is an existing facility located in Lea County, New Mexico, and is complemented with process equipment, administrative offices, drying pads, evaporation ponds, and additional landfill cells. The total double lined project area of Cell 3 A/B, is approximately 7.62 acres in size as shown on the Subgrade Design Grades (**Figure 2**).

Mass excavation, berm construction, and fine-grading were conducted by Enviroworks; and MEES performed the installation of the GCL, Secondary FML, Leak Detection System, Primary FML, and a Geocomposite Cushion/Drainage. Conformance testing of geosynthetics was performed by TRI Environmental, while documentation and quality assurance were performed by Parkhill. **Tables 3** and **4** summarize these construction activities.

Enviroworks of Edgewood, New Mexico, performed the construction activities listed **Table 3**.

TABLE 3 – Enviroworks Construction Activities

Activity Number	Enviroworks Construction Activity
1	Mass excavation to overall design grades
2	Installation of perimeter berm
3	Fine grading of the cell floor, transition zone, and berm
4	Compaction of the landfill cell, surrounding areas, and berm
5	Construction of the site stormwater management system and site protection berm
6	Installation of Leachate Collection System (HDPE pipe, drainage aggregate, and geocomposite)
7	Installation of protective soil layer
8	Excavation, backfill, and compaction of liner anchor trenches

Mustang Extreme Environmental Services of Midland, Texas, performed the construction activities listed **Table 4**.

TABLE 4 – MEES Construction Activities

Activity Number	MEES Construction Activity
1	Installation of Geosynthetic Clay Liner (GCL)
2	Installation of 60-mil Secondary HDPE FML
3	Installation of the HDPE Geonet and Geocomposite material (Leak Detection Layer)
4	Installation of 60-mil Primary HDPE FML
5	Installation of the Geocomposite material (Geosynthetic Cushion/Drainage Layer)
6	Installation of 40-mil smooth HDPE FML stormwater flap

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Surveying services for the Contractor, as defined in the Contract Documents, were provided by S3 Surveying (S3). S3 is a licensed land surveyor in the State of New Mexico, and survey support activities are listed in **Table 5**.

TABLE 5 - Surveying Support Activities

Licensed Land Surveyor	Support Activity
S3 Surveying	Final grades of the Landfill Cell 3 A/B Top of all berm surrounding the project Leachate extraction line Edge of liner system Thickness conformation of PSL (Protective Soil Layer)

2.2 Subgrade Preparation

The following sections describe the activities performed during mass excavation, compacted berm soil fill placement, subgrade preparation, and CQA soil testing.

2.2.1 Clearing, Grubbing and Mass Excavation

Enviroworks performed the clearing and grubbing, mass excavation, subgrade fine grading and compaction in addition to placing and compacting perimeter berm soils using select materials from excavation activities. Perimeter berm located on the north was constructed to the design grades shown on the Construction Plans. Once design grades were attained and density testing was complete, S3 performed record certification surveys to document that the subgrade, berm elevations, and slopes met design requirements shown on the Construction Plans and as set forth in the Project Technical Specifications and 2016 CQA Plan.

2.2.2 Coordinate System

Project area was surveyed in a grid pattern so that the locations of sample and testing points used during construction were readily discernible by the Site CQA Engineer/Manager. The survey grid, shown on **Figure 3**, was established by S3 for use during construction and testing.

2.2.3 Subgrade and Berm Compaction

During excavation, a perimeter berm was constructed to contain Cell 3 A/B on the permanent north perimeter using excavated soils. Soils were placed in maximum one-foot thick lifts and compacted to 90% of Standard Proctor Dry Density as verified by field density tests. After berm construction, mass excavation, and fine grading to the elevations shown on **Figure 2** were completed, floor soils were compacted using a vibratory roller. The in-place density was measured at a minimum frequency of 4 tests per acre, using a InstroTek 3500 Xplorer®, requiring twenty-seven (27) tests for the 7.62-acre± footprint of Cell 3 A/B, and approximately five (5) tests for berm construction (**Figure 4**). All results passed the required specification of 90%, or higher, of the Reference Standard Proctor. The results for the Standard Proctor laboratory tests used as references are provided in **Appendix A.1**, and field compaction testing results are tabulated in **Appendix A.2** for Cell 3 A/B floor and north sidewall, and **Appendix A.3** for Cell 3 A/B perimeter berm. Moisture/Density Relationships are given in **Appendix A**. The type of soil encountered and stockpiled produced a composite soil that was placed for initial berm construction. As the project continued, berm was constructed either from the stockpile composite or direct placement from subgrade excavation. The maximum density references are labeled in **Appendix A.2** and **A.3**.

2.2.4 Subgrade Acceptance

Upon completion of subgrade construction, Cell 3 A/B was surveyed by S3. The topography of the subgrade was then verified and accepted by the Parkhill CQA Engineer/Manager prior to geosynthetic liner deployment. **Figure 2** shows the design grades, and **Figure 3** provides the as-built grades for the finished subgrade surface.

Parkhill Site CQA Engineer/Manager and MEES Field Installation Superintendent (FIS) conducted daily inspections of the subgrade surface prior to liner installation activities for the anticipated liner deployment area. The subgrade surface

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was found to be in good condition and free from sticks, sharp stones, vegetation and other deleterious material after each daily inspection. Parkhill CQA Engineer/Manager and FIS continued to inspect the subgrade surface during liner installation in areas immediately ahead of deployment to identify and remove any large or angular particles, sharp objects, etc. Enviroworks provided continual moisture conditioning and rolling of the subgrade ahead of the liner installation as requested by MEES' FIS and Parkhill Site CQA Engineer/Manager.

2.3 Geosynthetic Clay Liner

In accordance with the Construction Plans, Project Technical Specifications and 2016 CQA Plan, the Geosynthetic Clay Liner (GCL) was placed in direct contact with the prepared subgrade. The following sections describe the procedures and activities performed during the GCL installation, observation, and CQA testing to confirm compliance with the Project Specifications.

2.3.1 Geosynthetic Clay Liner Product

Approximately 332,013 ft^2 of Bentoliner NSL, the reinforced GCL material manufactured by Solmax, was used in the construction of Cell 3 A/B. Per Project Technical Specifications, granular bentonite was required to be placed between horizontal and longitudinal seams of deployed GCL panels. Copies of the manufacturer's quality assurance (MQA) and manufacturer's quality control (MQC) test results and certifications are included in **Appendix B.1** for the delivered Solmax Bentoliner NSL GCL.

2.3.2 Geosynthetic Clay Liner Installation

The guidelines specified in the Project Technical Specifications, 2016 CQA Plan, Construction Plans, and industry standards for GCL installation procedures were strictly followed during lining of Cell 3 A/B. Each roll of GCL was carefully transported from the Contractor's Staging Area to Cell 3 A/B using a rubber-tired forklift; as verified by the Parkhill Site CQA Engineer/Manager. As each roll was moved, the manufacturer's identification label was removed and submitted to the Parkhill Site CQA Engineer/Manager for documentation in the *GCL Deployment Log* (**Appendix C.6**) and the GCL Layout Drawing (**Figure 5**). These labels were compared with the shipping invoice to verify that the GCL delivered to OWL corresponded with GCL subjected to MQC and MQA (manufacturer) testing (see Section 2.3.3). Each GCL roll was placed in direct contact with the prepared subgrade with the nonwoven geotextile facing upward. GCL was not placed in standing water or deployed during rainfall.

After each roll had been deployed, adjoining rolls were positioned maintaining the minimum overlap used for the on-site GCL of nine (9) inches on the longitudinal seams and twelve (12) inches on the end seams as specified in the Project Technical Specifications and 2016 CQA Plan. Free bentonite was applied on each longitudinal and perpendicular seam at a minimum of 0.25 pounds per linear foot of seam. Material placement was observed by the Parkhill Site CQA Engineer/Manager and FIS for potential damage due to handling or installation.

2.3.3 Geosynthetic Clay Liner Testing

GCL testing included manufacturing quality control (MQC), manufacturing quality assurance (MQA), third-party conformance testing, construction quality control (CQC), and construction quality assurance (CQA). Each type of testing is described in the following sections.

2.3.3.1 Geosynthetic Clay Liner Manufacturing Quality Control (MQC) and Manufacturing Quality Assurance (MQA)

MQC and MQA testing of the bentonite and geotextile components, as well as the finished GCL, were performed by the manufacturer prior to shipment of the GCL to OWL.

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TABLE 6 – Solmax Bentoliner NSL GCL - MQC/MQA Testing

Bentoliner NSL GCL Property	**ASTM Method**
Free swell	ASTM D5890
Fluid loss	ASTM D5891
Mass per unit area	ASTM D5993
Grab strength	ASTM D6768 and ASTM D4632, Modified
Peel strength	ASTM D6496 and ASTM D4632, Modified
Moisture content	ASTM D4643
Nonwoven and Woven Geotextile Encapsulating Bentonite	**ASTM Method**
Grab strength	ASTM D4632
Mass per unit area	ASTM D5261

GCL quality control certification and GCL property values and testing frequencies for the on-site material delivered to OWL are provided in **Appendix B.1**.

2.3.3.2 Conformance Testing

Conformance sampling for GCL material was performed by TRI/Environmental, Inc. (TRI), Austin, Texas. TRI or Parkhill collected samples approximately two feet long from the entire roll width and performed conformance testing at the TRI laboratory in Austin, Texas. Conformance samples were collected at a frequency of at least one (1) per 100,000 ft^2 of GCL installed to verify that the GCL delivered to OWL met the minimum properties listed in the Project Technical Specifications and 2016 CQA Plan. Approximately 332,013 ft^2 of GCL material was deployed within the Landfill Cell 3 A/B, requiring a minimum of four (4) samples. Four (4) samples were tested by TRI for the properties listed in **Table 7**; as specified in the Project Technical Specifications and 2016 CQA Plan.

TABLE 7 – Solmax Bentoliner NSL GCL – Conformance Testing

Bentoliner NSL GCL Property	**ASTM Method**
Mass per unit area	ASTM D5993
Index Flux	ASTM D5887
Bentonite – Fluid Loss	ASTM D5891
Bentonite – Swell Index	ASTM D5890

Conformance test results were reviewed by the Parkhill CQA Engineer and accepted in accordance with Project Technical Specifications and 2016 CQA Plan. The conformance test results indicate that the GCL meets the minimum property requirements specified in the Project Technical Specifications and 2016 CQA Plan. The conformance test results for the four (4) samples are included in **Appendix B.2**.

2.3.3.3 Construction Quality Control (CQC) for Geosynthetic Clay Liner

CQC procedures specified in the Project Technical Specifications and 2016 CQA Plan were strictly followed in order to provide a method to measure and regulate the quality of GCL installation. Parkhill Site CQA Engineer/Manager and FIS observed and documented GCL panel placement activities to verify that the deployment and seaming procedures were performed in accordance with Project Technical Specifications and 2016 CQA Plan, including subgrade inspection, seam overlap, application of free bentonite, and precautions against potential GCL damage.

2.3.3.4 Construction Quality Assurance (CQA) for Geosynthetic Clay Liner

Parkhill Site CQA Engineer/Manager and the FIS inspected each roll of GCL transported to Cell 3 A/B from the staging area. GCL was inspected for potential damage and uniformity. The roll identification labels were compared with the shipping invoice to verify that the GCL delivered to OWL corresponded with GCL subjected to manufacturers' quality control and quality assurance testing (see Sections 2.3.3.1.).

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Parkhill Site CQA Engineer/Manager and the FIS visually inspected GCL rolls for potential damage during deployment. Any damaged portions of the GCL deployed were repaired by covering the defect with a GCL patch that provided a minimum twelve (12)-inch overlap on all sides of the defect with bentonite powder applied to the edges of the patch as specified in the Project Technical Specifications and 2016 CQA Plan.

2.3.4 Geosynthetic Clay Liner Deployment Records

Documentation of the GCL deployment and inspection of each panel for damage was required prior to approval and acceptance. GCL installation was not accepted until the deployment records (**Appendix C.6**), manufacturer's certification reports (**Appendix B.1**), and conformance test results (**Appendix B.2**) were submitted to and approved by Parkhill Site CQA Engineer. Cell 3 A/B GCL Layout is shown on **Figure 5**. Daily Summary Reports and documentation of GCL panel placement was recorded throughout each construction day. Copies of Daily Summary Reports, the day's GCL panel deployment approval, and photographs documenting GCL panel placement activities are provided in the **Field Logs** and **Photographs** section of this Report.

2.4 60-MIL SECONDARY FLEXIBLE MEMBRANE LINER

Secondary FML was installed in direct contact above the GCL in accordance with the Engineering Design Drawings, Project Specifications, and 2016 CQA Plan. The following sections describe the procedures and activities performed during FML installation, observation, and CQA testing.

2.4.1 Flexible Membrane Liner Product

FML utilized in Cell 3 A/B construction was 60-mil, high-density polyethylene (HDPE), manufactured by Solmax. Textured FML was designated for the berm/sideslopes and smooth FML was designated for the cell floor lining of Cell 3 A/B, and was delivered to OWL in rolls twenty-two and a half (22.5) feet wide by five hundred and sixty (560) feet long and five hundred twenty (520) feet long for smooth and textured liner, respectively. FML was stored in the Contractor's Staging Area and in accordance with the Project Technical Specifications and the 2016 CQA Plan. The stored FML was not stacked more than two (2) rolls high. Parkhill Site CQA Engineer/Manager compared roll identification labels with shipping invoices to verify that FML delivered to OWL corresponded with FML subjected to manufacturer's quality control and quality assurance testing (Section 2.4.3).

2.4.2 Flexible Membrane Liner Installation

FML installation activities were performed in accordance with the guidelines specified in the Construction Plans, Project Technical Specifications and 2016 CQA Plan; and industry standards for FML handling, placement, and testing. Each roll of FML was carefully moved from the Contractor's Staging Area southwest of Cell 3 A/B using a rubber-tired forklift, and FML was not placed in standing water or deployed during rainfall. Upon deployment, each roll identification label was removed and submitted to Parkhill Site CQA Engineer/Manager and then compared with the shipping invoices to verify that the FML delivered to OWL corresponds with FML subjected to manufacturers' quality control and quality assurance testing. FML being deployed was documented in the *Secondary FML Deployment Log* (**Appendix C.7**) and the Secondary 60-Mil Liner Panel Layout Drawing (**Figure 6**).

After each FML panel had been deployed, adjoining panels were positioned with a four (4) to six (6)-inch longitudinal overlap required for hot-wedge fusion welding. The overlap distance is required for proper seaming, and to allow peel and shear tests to be performed on the seams. Seams were oriented at approximately forty-five (45) degrees to the line of prevailing base grade slope on the Cell 3 A/B floor, and parallel to the Cell 3 A/B sideslopes, per Project Technical Specifications and 2016 CQA Plan (see Secondary 60-Mil Liner Panel Layout, **Figure 6**).

2.4.3 Flexible Membrane Liner Testing

FML testing included manufacturer's quality control (MQC) and manufacturer's quality assurance (MQA), conformance testing, construction quality control (CQC), CQA, and seam testing. Each type of testing methodology is discussed in the following sections.

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2.4.3.1 Manufacturer's Quality Control (MQC)

Formosa Plastics Corporation, Texas, performed resin testing on the raw materials used in the manufacturing of the FML. These test results and written certifications verified that FML delivered to OWL has been extruded from an acceptable resin meeting the properties specified in GRI-GM 13, "*Test Methods, Test Properties and Testing Frequency for High Density Polyethylene (HDPE) Smooth and Textured Geomembranes*," are included in **Appendix B.3**.

2.4.3.2 Manufacturer's Quality Assurance (MQA)

As a part of MQA testing, specific performance and characterization properties were evaluated on random samples collected from the manufactured FML rolls prior to their delivery to OWL as listed in **Table 8**.

TABLE 8 – Solmax HDPE FML - MQA Testing

60-mil HDPE Smooth/Textured HDPE FML Property	ASTM Method
Thickness	ASTM D5994
Asperity Height (Textured)	ASTM D7466
Density	ASTM D1505
Melt Flow Index	ASTM D1238, Condition E
Tensile Properties	ASTM D6693 and ASTM D 6693, Modified
Tear Resistance	ASTM D1004, Modified
Puncture Resistance	ASTM D4833, Modified
Carbon Black Content	ASTM D4218
Carbon Black Dispersion	ASTM D5596
Environmental Stress Crack Resistance using Notched Constant Tensile Load	ASTM D5397

MQA test results are included in **Appendix B.3**. These results were reviewed by Parkhill Site CQA Engineer and confirmed against Project Technical Specifications and 2016 CQA Plan requirements. MQA testing results met the requirements set forth in Project Technical Specifications and 2016 CQA Plan.

2.4.3.3 Conformance Testing

Conformance sampling for FML material was performed by TRI, Austin, Texas. TRI or Parkhill collected samples approximately two feet long from the entire roll width and performed conformance testing at the TRI laboratory in Austin, Texas. Conformance samples were collected at a frequency of at least one (1) per 100,000 ft^2 of FML installed to verify that the FML delivered to OWL met the minimum properties listed in Project Technical Specifications and 2016 CQA Plan. Approximately 332,013 ft^2 of HDPE Secondary FML was installed in the Landfill; requiring a minimum of four (4) conformance samples. A total of eighteen (18) samples of 60 mil HDPE FML were tested by TRI for conformance.

TRI tested the eighteen (18) FML samples for the properties listed in **Table 9**; as specified in Project Technical Specifications and 2016 CQA Plan.

TABLE 9 – Solmax HDPE FML – Conformance Testing

60-mil HDPE (Smooth/Textured) FML Property	ASTM Method
Thickness	ASTM D5994
Density	ASTM D1505
Tensile Properties	ASTM D6693 and ASTM D 6693, Modified
Tear Resistance	ASTM D1004, Modified
Carbon Black Content	ASTM D6693, Modified 4218
Carbon Black Dispersion	ASTM D5596
Puncture Strength	ASTM D4833

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Conformance test results were reviewed by Parkhill Site CQA Engineer and accepted in accordance with Project Technical Specifications and 2016 CQA Plan. Conformance test results indicated that the FML met the minimum property requirements specified in Project Technical Specifications and 2016 CQA Plan. Conformance testing results for the eighteen (18) samples are included in **Appendix B.4**.

2.4.3.4 Construction Quality Control (CQC)

Quality control procedures specified in Project Technical Specifications, 2016 CQA Plan, and industry standards were strictly followed in order to provide a method to measure and regulate the quality of Secondary FML installation. These procedures included such activities as start-up trial welds, destructive and non-destructive seam testing, and verification that the deployment and seaming procedures were performed in accordance with Project Technical Specifications, 2016 CQA Plan, and industry standards.

Trial welds were performed at the start and midpoint of each workday; after each break in seaming of one hour or more; and after any equipment shutdown. Trial welds were a minimum of ten (10) feet in length for fusion welders; and a minimum of three (3) feet in length for extrusion fillet welders. One-inch-wide cutouts of the trial welds were field-tested for shear and peel strength using an on-site tensiometer (MEES's tensiometer calibration certificate is provided in **Appendix C.18**) and testing was performed in the presence of Parkhill Site CQA Engineer/Manager. If the results of the trial weld testing did not comply with Project Technical Specifications and 2016 CQA Plan, the welder was not permitted to continue seaming until the deficiencies were corrected and an additional trial weld was performed which passed the field-testing requirements. Trial weld documentation is included in **Appendix C.8**.

Seam testing protocol for Cell 3 A/B deployed FML included peel and shear testing on mathematically random samples cut from the installed FML (destructive samples) and non-destructive testing (air pressure and/or vacuum box testing) on field seams. The seam-testing program is detailed in Section 2.4.3.5 of this Report.

Parkhill Site CQA Engineer/Manager and FIS observed FML placement activities to verify that the deployment and seaming procedures were performed in accordance with Project Technical Specifications and 2016 CQA Plan; which included the underlying GCL inspection and approval, seam cleaning, and precautions against potential FML damage during deployment and seaming.

2.4.3.5 Construction Quality Assurance (CQA)

Parkhill Site CQA Engineer/Manager and FIS visually inspected FML material for manufacturing and installation defects as the FML was deployed. No manufacturing flaws were observed in the deployed FML. Parkhill Site CQA Engineer/Manager inspected seamed and non-seamed areas of the FML for wrinkles, defects, holes, blisters, etc. After each panel was deployed, Parkhill Site CQA Engineer/Manager and FIS walked the length of each panel and identified any suspect areas (e.g., defects or blemishes) by marking these areas for repair with a highly visible paint.

2.4.3.6 Seam Testing

In accordance with Project Technical Specifications and 2016 CQA Plan, the field seam verification program consisted of both destructive and non-destructive testing. Sampling and field-testing were performed by FML installer (MEES) in the presence of Parkhill Site CQA Engineer/Manager. In addition to field-testing, destructive samples were sent to an independent quality assurance laboratory (TRI/Environmental, Inc., Austin, Texas) for peel and shear strength testing.

A. Destructive Seam Testing

In accordance with Project Technical Specifications and 2016 CQA Plan, a minimum of one (1) destructive test for every five hundred (500) linear feet of welded seam (an average taken throughout the entire project) was performed on the FML. There were approximately 13,965 lineal feet of welded seam during installation of the secondary liner, requiring a minimum of twenty-eight (28) destructive tests (SDT prefix tests). Twenty-eight (28) destructive test samples were collected and evaluated in accordance with Project Technical Specifications and 2016 CQA Plan.

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Each destructive test sample was divided into three segments. The first segment was tested in the field for peel and shear strength by the installer using an on-site tensiometer. The second segment was shipped to an independent quality assurance laboratory for laboratory testing. The third sample segment was retained by Parkhill Site CQA Engineer/Manager and delivered to OWL to be archived in the Facility Operating Record. Results of the field destructive tests are provided in **Appendix C.11**; and the independent quality assurance laboratory test results are included in **Appendix D.1**. The field destructive test results, and the independent quality assurance laboratory test results were reviewed by Parkhill Site CQA Engineer/Manager for conformance with Project Technical Specifications and 2016 CQA Plan. All peel and shear test results met the requirements of Project Technical Specifications and 2016 CQA Plan.

B. Non-Destructive Seam Testing

Air pressure testing was performed on double-wedge fusion welded seams except where a channel blockage occurred. Where channel blockages occurred, the seam was air tested on either side of the area that was extrusion-welded and vacuum box tested. An additional patch was extrusion welded over the repaired area and vacuum box tested. Vacuum box testing was performed on all extrusion-welded portions of seams and patches. Test results are documented on the Secondary FML Seam Pressure Test Log (**Appendix C.10**) and *FML Seam Vacuum Test and Defect-Repair Log* (**Appendix C.16**). Seams and repairs were required to pass the non-destructive testing specifications outlined in Project Technical Specifications, GRI test method GM-6, and 2016 CQA Plan before being accepted by the Parkhill Site CQA Engineer/Manager.

2.4.4 FML Deployment Records

Documentation for Secondary FML deployment and testing for each panel deployed was required prior to FML approval and acceptance. CQA documentation for FML deployed in Cell 3 A/B is listed in **Table 10**.

TABLE 10 - HDPE FML Deployment CQA Documentation

HDPE FML Deployment CQA Documentation	Certification Report Appendix Location
Secondary FML Deployment Log	Appendix C.7
Secondary and Primary FML Pre-Weld Qualification Test Record	Appendix C.8
Secondary FML Seaming Log	Appendix C.9
Secondary FML Seam Pressure Test Log	Appendix C.10
FML Seam Field Destructive Test Log	Appendix C.11
FML Seam Vacuum Test and Defect-Repair Log	Appendix C.16
Demtech Tensiometer Calibration Certification	Appendix C.18

FML installation was accepted after the data listed in **Table 10** was submitted to, reviewed by, and approved by Parkhill Site CQA Engineer. Cell 3 A/B As-built Secondary FML Panel Layout is included as **Figure 6**. Daily Summary Reports were completed after each construction day, and photo documentation recorded FML placement activity on Landfill floor and sideslopes. Daily Summary Reports and forms indicating approval of the previous day's FML installation and project photographs are provided in the **Field Logs** and **Photographs Section**.

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2.5 LEAK-DETECTION ZONE

Leak-detection zone material was installed directly above the Secondary FML in accordance with the engineering design Drawings, Project Specifications, and 2016 CQA Plan. This zone consists of a double-sided Geocomposite for sideslopes and a Geonet for the floor. The following sections describe the procedures and activities performed during the drainage layer installation, observation, and CQA testing.

2.5.1 Leak-Detection Zone Product

Geocomposite utilized in Cell 3 A/B construction is a 200-mil, high-density polyethylene (HDPE) encapsulated by Nonwoven Geotextile, manufactured by Solmax. Geonet utilized in Cell 3 A/B construction is a 200-mil, high-density polyethylene (HDPE), manufactured by Solmax. The leak-detection zone is specified to encompass the entire double lined system and materials were delivered on-site in rolls 15 feet wide by 288 feet long for Geocomposite and 15 feet wide by 290 feet long for Geonet. Rolls were staged along the western perimeter of Cell 3 A/B to provide easy access, and to minimize handling of the material. In accordance with CQA Plan and Project Specifications, material was not stacked more than two rolls high. Labels were compared with shipping invoice to verify that the materials received corresponded with materials subjected to manufactures quality control/manufactures quality assurance testing (see Section 2.6.3). The material was also inspected for damage during off-loading and staging.

2.5.2 Leak-Detection Zone Material Installation

Leak detection zone material installation activities were performed in accordance with guidelines stipulated in 2016 CQA Plan, Project Specifications, the engineering design Drawings, and industry standards for handling, and placement. Each roll was carefully moved from staging area to Cell 3 A/B using a rubber-tired extendable forklift. The forklift was not permitted on Secondary FML, and the material was placed by hand. Upon deployment, each roll label was removed and submitted to Parkhill Site CQA Engineer/Manager, and panel location documented (see **Figure 7**).

After each panel had been placed, adjoining panels were positioned with a 4 to 6-inch overlap. The overlap distance is required for proper attachment using zip ties placed at 5 feet and 6 inches, longitudinally and end-to-end seams respectively. Geotextile encapsulating the Geonet core of the Geocomposite were then fused together from panel to panel using industry standard heat tacking methods. Seams were oriented at approximately 45 degrees to the line of prevailing base grade slope, and perpendicular to the sideslopes.

2.5.3 Leak-Detection Zone Testing

Material testing included manufacturer's quality control (MQC) and quality assurance (MQA), conformance testing, construction quality control (CQC), CQA, and seam testing. Each type of testing is discussed in the following sections.

2.5.3.1 Manufacturer's Quality Control (MQC)

Formosa Plastics Corporation, Texas performed resin testing on the raw materials used in the manufacturing of the Geocomposite and Geonet. These test results and written certifications that the product delivered has been extruded from an acceptable resin are included in **Appendices B.5** and **B.7**.

2.5.3.2 Manufacturer's Quality Assurance (MQA)

As required by Project Technical Specifications and 2016 CQA Plan, the manufacturer (GSE) performed the Geocomposite and Geonet property testing listed in Table 11 prior to delivery of the materials to the site.

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TABLE 11 – Solmax Geocomposite and Geonet – MQC Testing

Geocomposite	Geonet	Test Property	ASTM Method
✓	✓	Thickness	ASTM D5199
✓	✓	Density	ASTM D1505
	✓	Melt Index	ASTM D1238
✓	✓	Carbon Black Content	ASTM D4218
✓	✓	Tensile Strength	ASTM D7179
✓		Peel Strength	ASTM D7005
✓		Mass Per Unit Area	ASTM D5261
✓	✓	Transmissivity (loaded)	ASTM D4716

Geocomposite and Geonet quality control certifications, property values and testing frequencies for the on-site material delivered to OWL are provided in **Appendix B.5** and **B.7**.

2.5.3.3 Conformance Testing

Conformance sampling for the Geocomposite and Geonet material was performed by TRI, Austin, Texas. TRI or Parkhill collected a sample approximately two feet long from the entire roll width and performed conformance testing at the TRI laboratory in Austin, Texas. Conformance samples were collected at a frequency of at least one (1) per 100,000 ft^2 of material installed to verify that the Geocomposite and Geonet delivered to the OWL met the minimum properties listed in the Project Technical Specifications and 2016 CQA Plan. Approximately 44,506 ft^2 of Geocomposite and approximately 287,507 ft^2 of Geonet material was installed in the Cell 3 A/B leak detection layer, requiring a minimum of one (1) Geocomposite and three (3) Geonet samples. TRI tested four (4) Geocomposite and six (6) Geonet conformances samples for the properties listed in **Table 12**; as specified in Project Technical Specifications and 2016 CQA Plan.

Table 12 – Solmax Geocomposite and Geonet – Conformance Testing

Geocomposite	Geonet	Test Property	ASTM Method
	✓	Thickness	ASTM D1777
✓	✓	Density	ASTM D1505
	✓	Wide Width Tensile Properties	ASTM D4595
	✓	Mass Per Unit Area	ASTM D3776
	✓	Carbon Black	ASTM D1603
✓		Melt Index	ASTM D1238
✓		Transmissivity	ASTM D4716
✓		Peel Strength	ASTM D7005
✓		Tensile Strength	ASTM D7179

Appendix B.6 and **B.8** provides the independent quality assurance laboratory test results. The results were reviewed by Parkhill CQA Engineer and compared with Project Technical Specifications and 2016 CQA Plan for geonet. The properties of the Geocomposite and Geonet meet or exceed Project Technical Specifications and 2016 CQA Plan requirements.

2.5.3.4 Construction Quality Control (CQC)

Quality control procedures specified in the project documents were strictly followed in order to provide a method to measure and regulate the quality of Geocomposite and Geonet installation. These procedures included such activities as proper overlap and correct zip-tie spacing on the floor and slopes.

Both Parkhill Site CQA Engineer/Manager and FIS observed placement activities to verify that deployment and seaming procedures were performed in accordance with CQA Plan and Project Specifications.

2.5.3.5 Construction Quality Assurance (CQA)

Parkhill Site CQA Engineer/Manager and FIM visually inspected all material for manufacturing and installation defects. No manufacturing flaws were observed in the installed Geocomposite and Geonet. Parkhill Site CQA Engineer/Manager

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inspected all seamed and non-seamed areas of the material for wrinkles, defects, etc. After each panel was deployed, Parkhill Site CQA Engineer/Manager and FIS walked the length of each panel to identify any suspect areas (e.g., defects or tears) by marking these areas for repair with a highly visible paint. No suspect areas were found.

2.5.4 Leak Detection Zone Deployment Records

Documentation for Leak Detection Zone material deployment was required prior to approval and acceptance. Deployment documentation for the materials deployed in Cell 3 A/B are provided in **Appendices C.12** and **C.17**.

Leak Detection Zone material installation was accepted after the above-listed data was submitted to, reviewed, and approved by Parkhill CQA Engineer. Leak Detection Zone Panel As-built for Cell 3 A/B is included as **Figure 7**. Daily Summary Reports were logged during each construction day, and photographs were taken showing the panel placement activity. Daily Summary Reports and project photographs are provided in the **Field Logs** and **Photographs** Section.

2.6 60-MIL PRIMARY FLEXIBLE MEMBRANE LINER

Primary FML was installed in direct contact above Leak Detection Zone materials in accordance with the Construction Plans, Project Technical Specifications, and 2016 CQA Plan. The following sections describe the procedures and activities performed during Primary FML installation, observation, and CQA testing.

2.6.1 Flexible Membrane Liner Product

Primary FML utilized in Cell 3 A/B construction was 60-mil, high-density polyethylene (HDPE), manufactured by Solmax. Smooth FML was designated for the floor and textured FML was designated for the sideslopes of Cell 3 A/B. The material was delivered to OWL in rolls twenty-two and a half (22.5) feet wide with by five hundred-sixty (560) feet long for the smooth and five hundred-twenty (520) feet long for the textured FML. FML was stored in Contractor's Staging Area and in accordance with Project Technical Specifications and 2016 CQA Plan. The stored FML was not stacked more than two (2) rolls high. Parkhill Site CQA Engineer/Manager compared roll identification labels with shipping invoices to verify that the FML delivered to OWL corresponded with FML subjected to manufacturer's quality control and quality assurance testing (Section 2.6.3).

2.6.2 Flexible Membrane Liner Installation

FML installation activities were performed in accordance with the guidelines specified in Construction Plans, Project Technical Specifications and 2016 CQA Plan; and industry standards for FML handling, placement, and testing. Each roll of FML was carefully moved from Contractor's Staging Area at the west end of OWL using a rubber-tired forklift; and FML was not placed in standing water or deployed during rainfall. The forklift was not allowed on Leak Detection Zone materials, the Primary HDPE Liner was placed by hand and aided with the use of wire rope and pulling equipment. Upon deployment, each role identification label was removed and submitted to Parkhill Site CQA Engineer/Manager and were compared with the shipping invoices to verify that the FML delivered to OWL corresponded with FML subjected to manufacturers' quality control and quality assurance testing. FML being deployed was documented in Primary FML Deployment Log (**Appendix C.13**) and Cell 3 A/B 60-Mil Primary Liner Panel Layout Drawing (**Figure 8**). After each FML panel had been deployed, adjoining panels were positioned with a four (4) to six (6) inch longitudinal overlap required for hot-wedge fusion welding. The overlap distance is required for proper seaming, and to allow peel and shear tests to be performed on the seams. Seams were oriented at approximately forty-five (45) degrees to the line of prevailing base grade slope on the Cell 3 A/B floor, and parallel to the Cell 3 A/B sideslopes, per the Project Technical Specifications and 2016 CQA Plan (see 60-Mil Primary Liner Panel Layout, **Figure 8**).

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2.6.3 Flexible Membrane Liner Testing

FML testing included manufacturer's quality control (MQC) and manufacturer's quality assurance (MQA), conformance testing, construction quality control (CQC), CQA, and seam testing. Each type of testing methodology is discussed in the following sections.

2.6.3.1 Manufacturer's Quality Control (MQC)

Formosa Plastics Corp, Texas performed resin testing on the raw materials used in the manufacturing of the smooth, and textured FML. These test results and written certifications verified that the FML delivered to OWL has been extruded from an acceptable resin meeting the properties specified in GRI-GM 13, "*Test Methods, Test Properties and Testing Frequency for High Density Polyethylene (HDPE) Smooth and Textured Geomembranes*," are included in **Appendix B.4**.

2.6.3.2 Manufacturer's Quality Assurance (MQA)

As a part of the MQA testing, specific performance and characterization properties were evaluated on random samples collected from the manufactured FML rolls prior to their delivery to OWL as listed in **Table 13**.

TABLE 13 – Solmax HDPE FML - MQA Testing

60-mil HDPE Double-Sided Textured and Smooth HDPE FML Property	ASTM Method
Thickness	ASTM D5994
Asperity Height (Textured)	ASTM D7466
Density	ASTM D1505
Melt Flow Index	ASTM D1238, Condition E
Tensile Properties	ASTM D6693 and ASTM D 6693, Modified
Tear Resistance	ASTM D1004, Modified
Puncture Resistance	ASTM D4833, Modified
Carbon Black Content	ASTM D4218
Carbon Black Dispersion	ASTM D5596
Environmental Stress Crack Resistance using Notched Constant Tensile Load	ASTM D5397

MQA test results are included in **Appendix B.3**. These results were reviewed by Parkhill Site CQA Engineer and confirmed against Project Technical Specifications and 2016 CQA Plan requirements. MQA testing results met the requirements set forth in Project Technical Specifications and 2016 CQA Plan.

2.6.3.3 Conformance Testing

Conformance sampling for FML material was performed by TRI, Austin, Texas. TRI or Parkhill collected samples approximately two feet long from the entire roll width and performed conformance testing at the TRI laboratory in Austin, Texas. Conformance samples were collected at a frequency of at least one (1) per 100,000 ft^2 of FML installed to verify that the FML delivered to the OWL met the minimum properties listed in Project Technical Specifications and 2016 CQA Plan. Approximately 332,013 ft^2 of primary HDPE FML were installed during Cell 3 A/B construction; requiring a minimum of four (4) HDPE FML conformance samples. Eighteen (18) samples of HDPE FML were tested by TRI for conformance.

TRI tested the FML samples for the properties listed in **Table 14**; as specified in Project Technical Specifications and 2016 CQA Plan.

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TABLE 14 – Solmax HDPE FML – Conformance Testing

60-mil HDPE Smooth and Double-sided Textured FML Property	ASTM Method
Thickness	ASTM D5994
Density	ASTM D1505
Mass per unit area	ASTM D5993
Tensile Properties	ASTM D6693 and ASTM D 6693, Modified
Tear Resistance	ASTM D1004, Modified
Carbon Black Content	ASTM D4218
Carbon Black Dispersion	ASTM D5596
Puncture Strength	ASTM D4833

Conformance test results were reviewed by Parkhill Site CQA Engineer and accepted in accordance with Project Technical Specifications and 2016 CQA Plan. Conformance test results indicated that the FML met the minimum property requirements specified in Project Technical Specifications and 2016 CQA Plan. Conformance testing results for the eighteen (18) samples are included in **Appendix B.4**.

2.6.3.4 Construction Quality Control (CQC)

Quality control procedures specified in Project Technical Specifications, 2016 CQA Plan; and industry standards were strictly followed in order to provide a method to measure and regulate the quality of FML installation. These procedures included such activities as start-up trial welds, destructive and non-destructive seam testing, and verification that deployment and seaming procedures were performed in accordance with Project Technical Specifications, 2016 CQA Plan, and industry standards.

Trial welds were performed at the start and midpoint of each workday; after each break in seaming of one hour or more; and after any equipment shutdown. Trial welds were a minimum of ten (10) feet in length for fusion welders; and a minimum of three (3) feet in length for extrusion fillet welders. One-inch-wide cutouts of the trial welds were field-tested for shear and peel strength using an on-site tensiometer (MEES's tensiometer calibration certificate is provided in **Appendix C.18**) and testing was performed in the presence of Parkhill Site CQA Engineer/Manager. If results of trial weld testing did not comply with Project Technical Specifications and 2016 CQA Plan, the welder was not permitted to continue seaming until the deficiencies were corrected and an additional trial weld was performed which passed the field-testing requirements. Primary trial weld documentation is included in **Appendix C.8**.

Seam testing protocol for the deployed FML included peel and shear testing on mathematically random samples cut from the installed FML (destructive samples) and non-destructive testing (air pressure and/or vacuum box testing) on field seams. The seam-testing program is detailed in Section 2.7.3.6 of this Report.

Parkhill Site CQA Engineer/Manager and FIS observed FML placement activities to verify that deployment and seaming procedures were performed in accordance with Project Technical Specifications and 2016 CQA Plan; which included the underlying Leak Detection Zone materials inspection and approval, seam cleaning, and precautions against potential FML damage during deployment and seaming.

2.6.3.5. Construction Quality Assurance (CQA)

Parkhill Site CQA Engineer/Manager and FIS visually inspected FML material for manufacturing and installation defects as the FML was deployed. No manufacturing flaws were observed in the deployed FML. Parkhill Site CQA Engineer/Manager inspected seamed and non-seamed areas of the FML for wrinkles, defects, holes, blisters, etc. After each panel was deployed, Parkhill Site CQA Engineer/Manager and FIS walked the length of each panel and identified any suspect areas (e.g., defects or blemishes) by marking these areas for repair with a highly visible paint.

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2.6.3.6 Seam Testing

In accordance with Project Technical Specifications and 2016 CQA Plan, the field seam verification program consisted of both destructive and non-destructive testing. Sampling and field-testing were performed by the FML installer (MEES) in the presence of Parkhill Site CQA Engineer/Manager. In addition to field-testing, destructive samples were sent to an independent quality assurance laboratory for peel and shear strength testing.

A. Destructive Seam Testing

In accordance with Project Technical Specifications and 2016 CQA Plan, a minimum of one (1) destructive test for every five hundred (500) linear feet of welded seam (an average taken throughout the entire project) was performed on the FML. There were approximately 14,850 lineal feet of welded seam in the Primary Liner requiring a minimum of twenty-nine (29) destructive tests. Thirty (30) destructive test samples were collected and evaluated in accordance with Project Technical Specifications and 2016 CQA Plan.

Each destructive test sample was divided into three segments. The first segment was tested in the field for peel and shear strength by the installer using an on-site tensiometer. The second segment was shipped to an independent quality assurance laboratory for laboratory testing. The third sample segment was retained by Parkhill Site CQA Engineer/Manager and delivered to OWL to be archived in Facility Operating Record. Results of the field destructive tests are provided in **Appendix C.11**; and the independent quality assurance laboratory test results are included in **Appendix D.2**. The field destructive test results, and the independent quality assurance laboratory test results were reviewed by Parkhill Site CQA Engineer/Manager for conformance with Project Technical Specifications and 2016 CQA Plan. All peel and shear test results met the requirements of Project Technical Specifications and 2016 CQA Plan.

B. Non-Destructive Seam Testing

Air pressure testing was performed on all double-wedge fusion welded seams in accordance with GRI GM6 "*Practice for Pressurized Air Channel Test for Dual Seamed Geomembranes*," except where a channel blockage occurred. Where channel blockages occurred, the seam was air tested on either side of the area was extrusion-welded and vacuum box tested. An additional patch was extrusion welded over the repaired area and vacuum box tested. Vacuum box testing was performed on all extrusion-welded portions of seams and patches. Test results are documented on the Primary FML Seam Pressure Test Log (**Appendix C.15**) and the FML Seam Vacuum Test and Defect-Repair Log (**Appendix C.16**). Seams and repairs were required to pass the non-destructive testing specifications outlined in Project Technical Specifications, GRI Test Method GM-6, and 2016 CQA Plan before being accepted by Parkhill Site CQA Engineer/Manager.

2.6.4 FML Deployment Records

Documentation for FML deployment and testing for each panel deployed was required prior to FML approval and acceptance. CQA documentation for the FML deployed in Cell 3 A/B are listed in **Table 15**.

TABLE 15 - HDPE Primary FML Deployment CQA Documentation

HDPE FML Deployment CQA Documentation	Certification Report Appendix Location
Secondary and Primary FML Pre-Weld Qualification Test Log	Appendix C.8
Primary FML Deployment Log	Appendix C.13
Primary FML Seaming Log	Appendix C.14
Primary FML Seam Pressure Test Log	Appendix C.15
FML Seam Vacuum Test and Defect-Repair Log	Appendix C.16
Demtech Tensiometer Calibration Certification	Appendix C.18

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FML installation was accepted after the data listed in **Table 15** was submitted to, reviewed by, and approved by Parkhill Site CQA Engineer. Cell 3 A/B As-built FML Panel Layout is included as **Figure 8**. Daily Summary Reports were completed after each construction day, and photo documentation recorded the FML placement activity on Cell 3 A/B floor and sideslopes.

2.7 GEOSYNTHETIC CUSHION/DRAINAGE LAYER

Geosynthetic Cushion/Drainage Layer was installed directly above the primary FML in accordance with engineering design Drawings, Project Specifications, and 2016 CQA Plan. This layer consists of a double-sided Geocomposite for the sideslopes and a single-sided Geocomposite for the floor. The following sections describe the procedures and activities performed during the drainage layer installation, observation, and CQA testing.

2.7.1 Geosynthetic Cushion/Drainage Layer Product

Geocomposite utilized in Cell 3 A/B construction is a 200-mil, high-density polyethylene (HDPE) encapsulated on both sides for double-sided and one side for a single-sided Geocomposite, manufactured by Solmax. Cushion/Drainage Layer material is specified to encompass the entire double-lined system and was delivered on-site in rolls 15 feet wide by 288 feet long for single-sided Geocomposite and 15 feet wide by 200 feet long for double-sided Geocomposite. Rolls were staged along the western perimeter of Cell 3 A/B to provide easy access, and to minimize handling of the material. In accordance with CQA Plan and Project Specifications, material was not stacked more than two rolls high. Labels were compared with shipping invoice to verify that the materials received corresponded with materials subjected to manufactures quality control/manufactures quality assurance testing (see Section 2.7.3). The material was also inspected for damage during off-loading and staging.

2.7.2 Geosynthetic Cushion/Drainage Layer Material Installation

Cushion/Drainage Layer material installation activities were performed in accordance with the guidelines stipulated in 2016 CQA Plan, Project Specifications, the engineering design Drawings, and industry standards for handling, and placement. Each roll was carefully moved from the staging area to Cell 3 A/B using a rubber-tired extendable forklift. The forklift was not permitted on Primary FML, and the material was placed by hand. Upon deployment, each roll label was removed and submitted to Parkhill Site CQA Engineer/Manager, and panel location documented (see **Figure 9**).

After each panel had been placed, adjoining panels were positioned with a 4 to 6-inch overlap. The overlap distance is required for proper attachment using zip ties placed at 5 feet and 6 inches, longitudinally and end-to-end seams respectively. The Geotextile encapsulating the Geonet core of the Geocomposite were then fused together using industry standard heat tacking methods. Seams were oriented at approximately 45 degrees to the line of prevailing base grade slope, and perpendicular to the sideslopes.

2.7.3 Geosynthetic Cushion/Drainage Layer Testing

Geocomposite testing included manufacturer's quality control (MQC) and quality assurance (MQA), conformance testing, construction quality control (CQC), CQA, and seam testing. Each type of testing is discussed in the following sections.

2.7.3.1 Manufacturer's Quality Control (MQC)

Formosa Plastics Corp, Texas performed resin testing on the raw materials used in the manufacturing of the Geocomposite. These test results and written certifications that the product delivered has been extruded from an acceptable resin are included in **Appendix B.7**.

2.7.3.2 Manufacturer's Quality Assurance (MQA)

As required by Project Technical Specifications and 2016 CQA Plan, the manufacturer performed the Geocomposite property testing listed in **Table 16** prior to delivery of the materials to the site.

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TABLE 16 – Solmax Geocomposite - MQC Testing

Geocomposite Property	ASTM Method
Thickness	ASTM D5199
Density	ASTM D792
Carbon Black Content	ASTM D4218
Tensile Strength	ASTM D7179
Peel Strength	ASTM D7005
Mass Per Unit Area	ASTM D5261
Transmissivity (loaded)	ASTM D4716

Geocomposite quality control certifications, property values, and testing frequencies for on-site material delivered to OWL are provided in **Appendix B.8**.

2.7.3.3 Conformance Testing

Conformance sampling for the Geocomposite material was performed by TRI, Austin, Texas. TRI or Parkhill collected a sample approximately two feet long from the entire roll width and performed conformance testing at the TRI laboratory in Austin, Texas. Conformance samples were collected at a frequency of at least one (1) per 100,000 ft^2 installed to verify that the Geocomposite delivered to the OWL met the minimum properties listed in the Project Technical Specifications and 2016 CQA Plan. Approximately 44,506 ft^2 of double-sided Geocomposite and approximately 287,506 ft^2 of single-sided Geocomposite material was installed in Cell 3 A/B requiring a minimum of one (1) double-sided Geocomposite and three (3) single-sided Geocomposite samples. TRI tested six (6) single-sided and four (4) double-sided Geocomposite conformance sample for the properties listed in **Table 17**; as specified in Project Technical Specifications and 2016 CQA Plan.

TABLE 17 - GSE Environmental Geocomposite - Conformance Testing

Geocomposite Property	ASTM Method
Density	ASTM D1505
Transmissivity	ASTM D4716
Peel Strength	ASTM D7005
Tensile Strength	ASTM D7179

Appendix B.8. provides the independent quality assurance laboratory test results. The results were reviewed by Parkhill CQA Engineer and compared with Project Technical Specifications and 2016 CQA Plan for Geocomposite. The properties of the Geocomposite meet or exceed Project Technical Specifications and 2016 CQA Plan requirements.

2.7.3.4 Construction Quality Control (CQC)

Quality control procedures specified in the project documents were strictly followed in order to provide a method to measure and regulate the quality of Geocomposite installation. These procedures included such activities as proper overlap and correct zip-tie spacing on the floor and sideslopes.

Both the Parkhill Site CQA Engineer/Manager and FIS observed placement activities to verify that deployment and seaming procedures were performed in accordance with the CQA Plan and Project Specifications.

2.7.3.5 Construction Quality Assurance (CQA)

Parkhill Site CQA Engineer/Manager and FIM visually inspected all material for manufacturing and installation defects. No manufacturing flaws were observed in the installed Geocomposite. Parkhill Site CQA Engineer/Manager inspected all seamed and non-seamed areas of the Geocomposite for wrinkles, defects, etc. After each panel was deployed, Parkhill Site CQA Engineer/Manager and FIS walked the length of each panel to identify any suspect areas (e.g., defects or tears) by marking these areas for repair with a highly visible paint. No suspect areas were found.

Parkhill

2.7.4 *Geosynthetic Cushion/Drainage Layer Deployment Records*

Documentation for Cushion/Drainage Layer material deployment was required prior to approval and acceptance. CQA documentation for Geocomposite deployed in Cell 3 A/B is provided in **Appendix C.17.**

Drainage/Cushion Layer material installation was accepted after above-listed data was submitted to, reviewed, and approved by Parkhill CQA Officer. Geosynthetic Cushion/Drainage Layer Panel As-built for Cell 3 A/B is included as **Figure 9**. Daily Summary Reports were logged during each construction day, and photographs were taken showing Geocomposite placement activity. Daily Summary Reports and project photographs are provided in **Field Logs** and **Photographs** Section. Upon installation of Drainage/cushion Layer, anchor trench was backfilled and compacted to Design Specifications (**Appendix A.4**).

2.8 LEACHATE COLLECTION SYSTEM

Upon completion of Liner System installation, and confirming that all repairs were adequately addressed, Enviroworks began installation of the leachate collection system which included placement of aggregate, pipe, and geocomposite.

Parkhill observed placement of the leachate collection system ensure that the methods and material used during construction did not damage the installed liner system.

2.9 PROTECTIVE SOIL LAYER

Upon completion of Liner System installation, and after confirming that all repairs were adequately addressed, Enviroworks began placing a minimum two (2) foot thickness of PSL on the cell floor and sideslope. Material for the PSL is comprised of on-site soil material pre-qualified by Parkhill Site CQA Engineer/Manager.

Parkhill observed placement of the PSL to ensure that the methods and material used during construction did not damage the installed liner system. The thickness of the PSL was verified by field survey measurements on June 11, 2021 conducted by S3 (**Figure 10**). The survey indicates that a minimum of two (2) feet of PSL was placed over the top of the cell floor and sideslope liner systems (**Figure 11**).

2.10 FUTURE LINER TIE-IN DETAILS, STORMWATER AND LINER PROTECTION BERM

Future liner tie-in will be to Cell 4 A/B directly to the west, and Cell 3 B directly to the south of Cell 3 A/B, and existing Cell 1 A remediation directly to the east of Cell 2 A/B. The design for the stormwater and liner protection berm constructed in the perimeter transition zones of Cell 3 A/B, as shown on **Figure 2**, serves the intended purpose to control stormwater run-on and to protect the installed liner system.

Contractor constructed the stormwater and liner protection berm by placing soil along the floor and sideslope of the cell until design grades were achieved. The stormwater and liner protection berm as-built is shown on **Figure 3**.

3.0 ENGINEERING CERTIFICATION

This Engineering Certification Report demonstrates that the composite liner and leak detection system for Cell 3 A/B has been installed in accordance with New Mexico Energy, Minerals and Natural Resources Department Regulations (19.15.36.11 – 19.15.36.112 NMAC). This Certification is sealed by Tyler S. Krueger, a New Mexico Professional Engineer with extensive applicable experience with waste engineering and geosynthetic liner systems (**Appendix G**).

Parkhill

FIGURES

Figure 1 OWL Landfill Services – Site Location Map

Figure 2 OWL Landfill Services – Subgrade Design Grades

Figure 3 OWL Landfill Services – Subgrade As-Built Exhibit

Figure 4 OWL Landfill Services – Field Density Test Locations

Figure 5 OWL Landfill Services – GCL Panel Layout

Figure 6 OWL Landfill Services – 60 Mil Secondary Liner Panel Layout

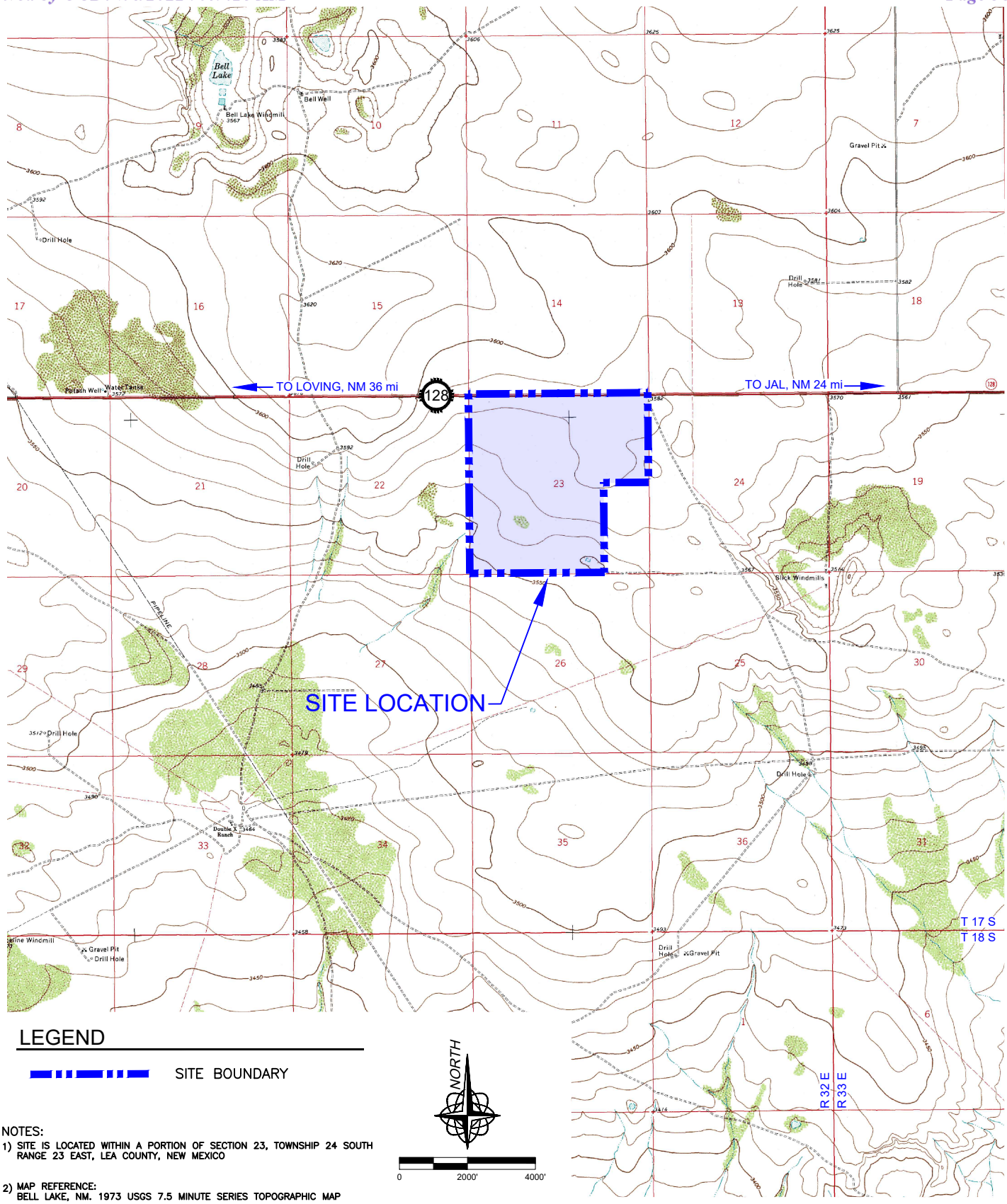
Figure 7 OWL Landfill Services – Geosynthetic Leak Detection Layer As-Built

Figure 8 OWL Landfill Services – 60 Mil Primary Liner Panel Layout

Figure 9 OWL Landfill Services – Geosynthetic Drainage Layer

Figure 10 OWL Landfill Services – Operations Layer As-Built Exhibit

Figure 11 OWL Landfill Services – Leachate Pipe and Liner As-Built Exhibit



LEGEND

SITE BOUNDARY

NORTH

0 2000' 4000'

NOTES:

1) SITE IS LOCATED WITHIN A PORTION OF SECTION 23, TOWNSHIP 24 SOUTH RANGE 23 EAST, LEA COUNTY, NEW MEXICO

2) MAP REFERENCE:
BELL LAKE, NM. 1973 USGS 7.5 MINUTE SERIES TOPOGRAPHIC MAP

A:\2021\6759.21\03_DSGN\01_DWG\050_CIVIL\02_CONTENT\CELL 3AB\FIGURE 1 SITE LOCATION.DWG, 3/31/2022 6:34:38 PM, ncrawley

OWL LANDFILL SERVICES

ENGINEERING CERTIFICATION REPORT

OILFIELD WATER LOGISTICS
JAL, NEW MEXICO
LEA COUNTY, NEW MEXICO

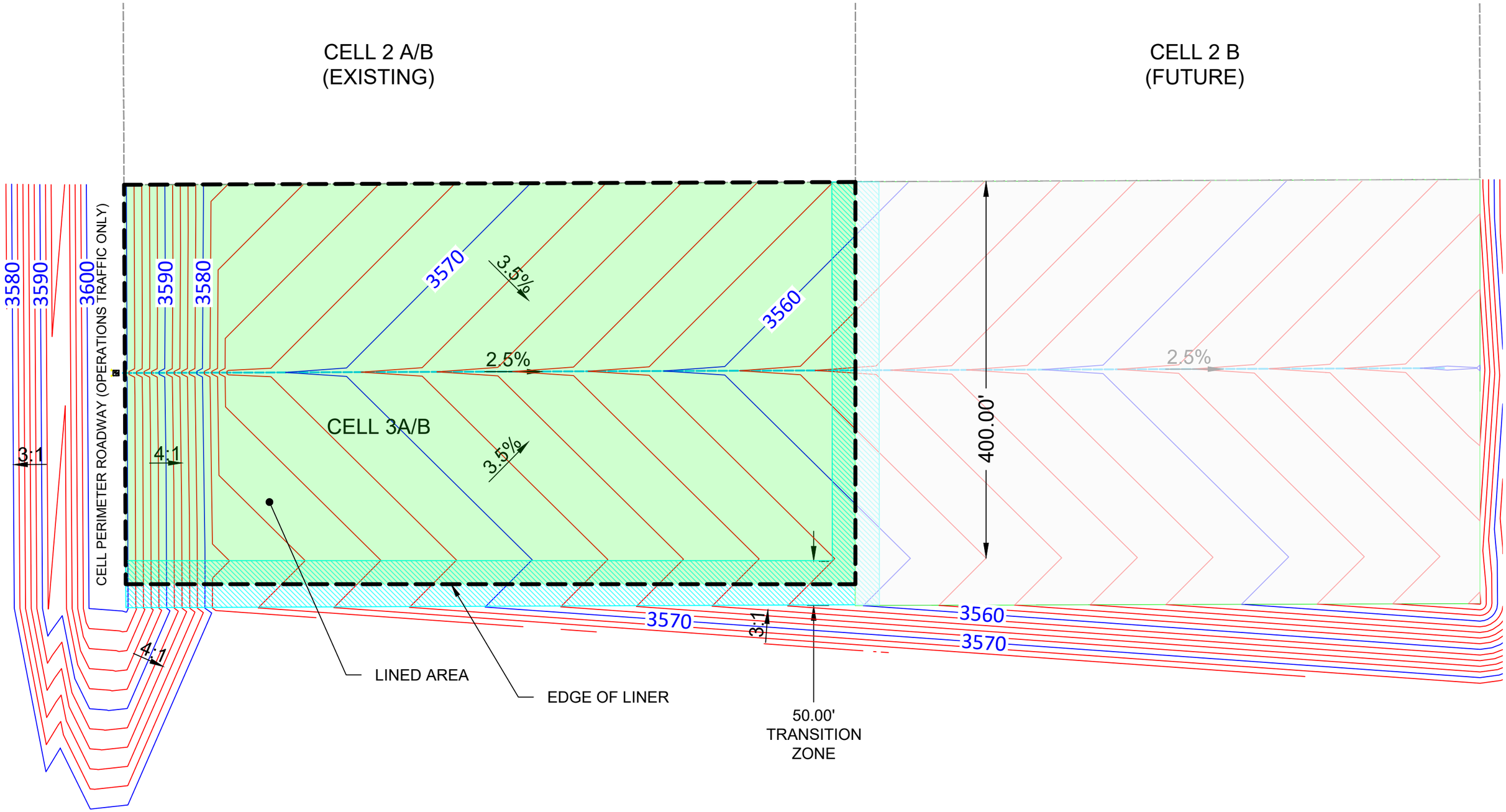
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SITE LOCATION MAP

Issue:	00
Date:	05/03/2022
Project No:	6759.21
Sheet:	FIGURE 1

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K:\2021\6759.21\03_DSGN\01_DWG\050_CIVIL\02_CONTENT\CELL 3AB\FIGURE 2 SUBGRADE.DWG, 5/5/2022 10:04:29 AM, ncrawley

Received by OCD: 7/6/2022 9:49:18 AM

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LEA COUNTY, NEW MEXICO

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SUBGRADE DESIGN GRADES

Issue:	00
Date:	05/03/2022
Project No:	6759.21
Sheet:	FIGURE 2

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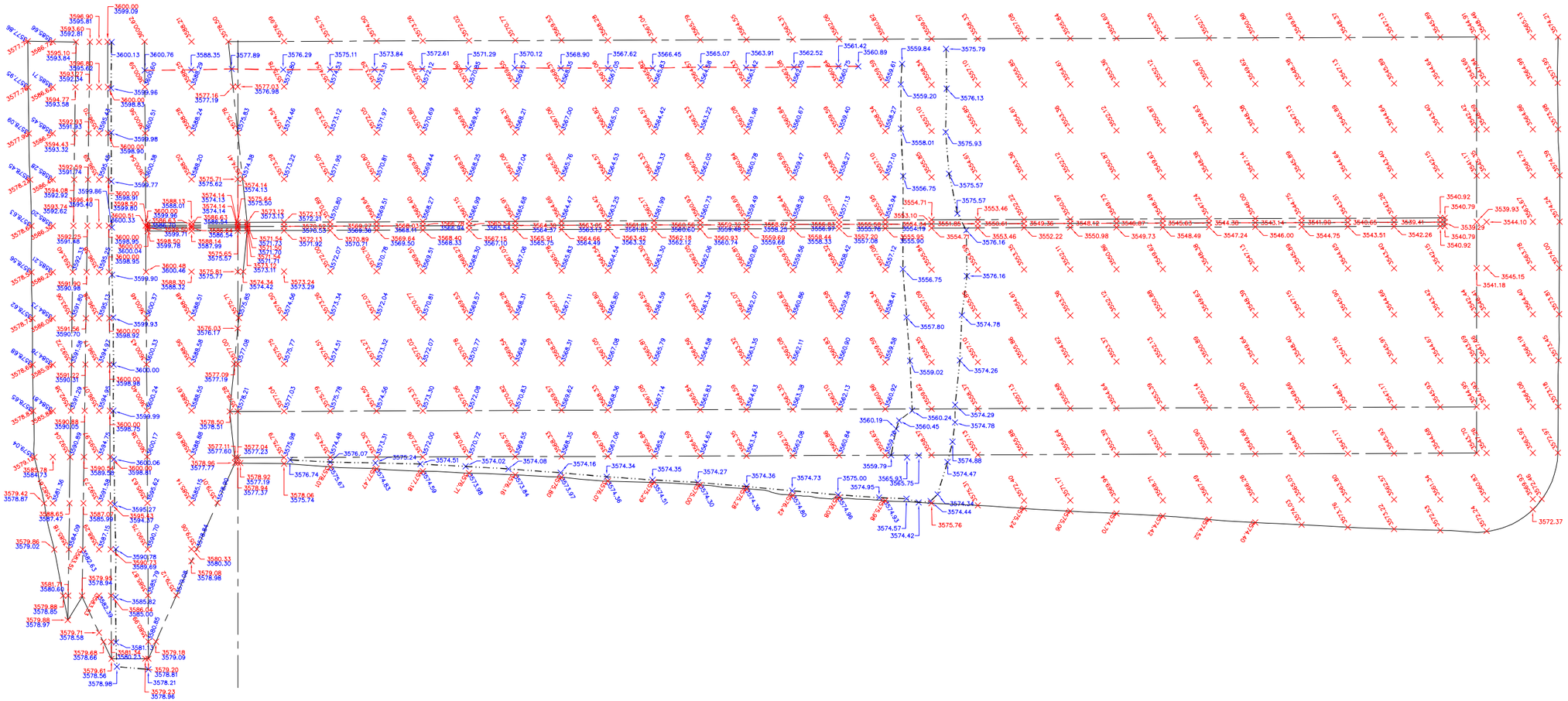


FIGURE 3

18213 E WARNER ROAD
BLDG A SUITE 5
GILBERT, AZ 85296
PHONE: (480) 414-4121
FAX: (888) 870-0203
EMAIL: s3survey@s3-az.com

REV.	DATE	BY
-		

DRAWN: JB
CHECKED: GR
DATE: 5/4/2021
DWG: -

OWL LANDFILL
CELL 3AB
SUBGRADE ASBUILT EXHIBIT

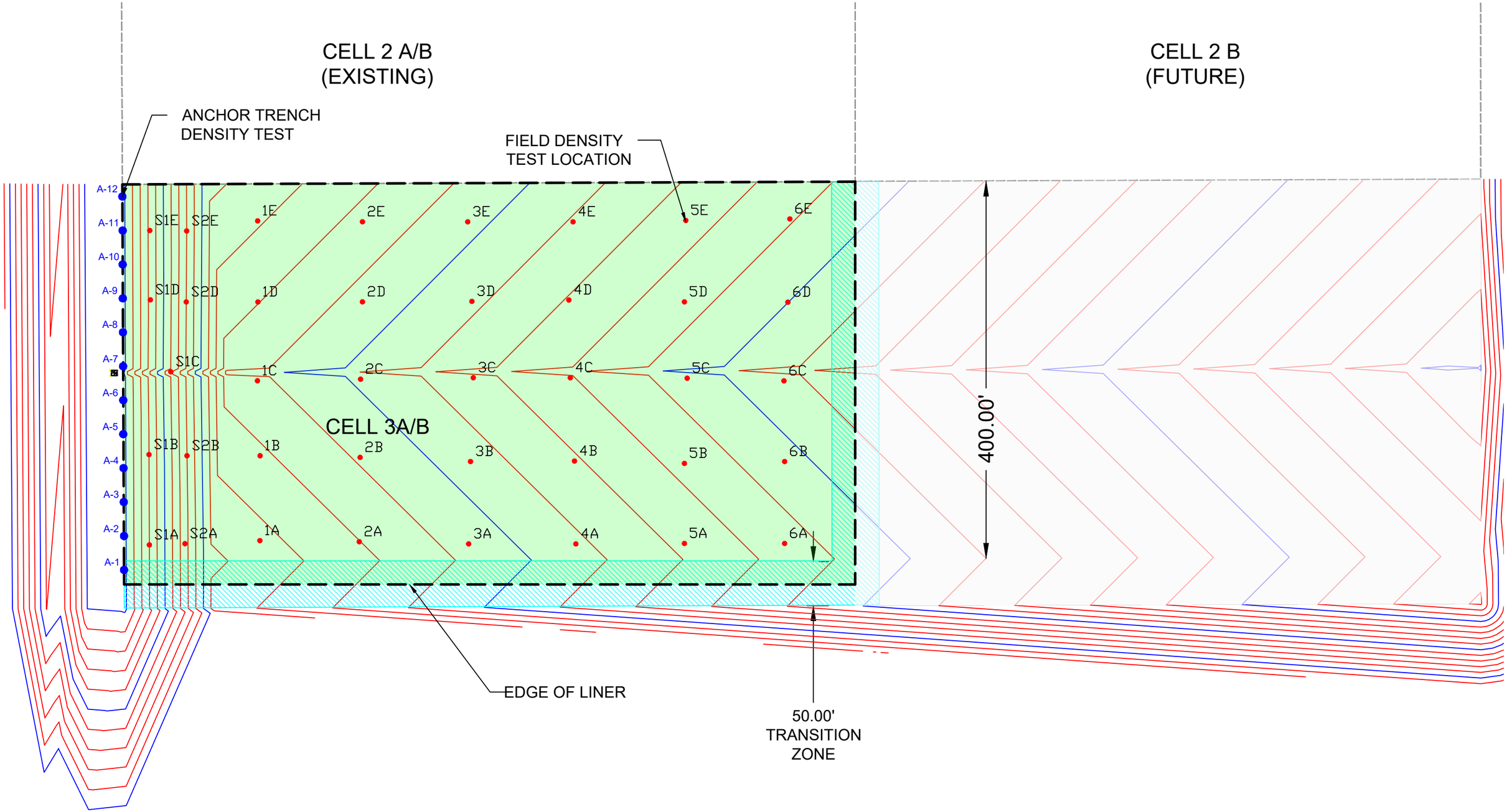
PROJECT NO.

SHEET NUMBER
1
1 OF 1

Received by OCD: 7/6/2022 9:49:18 AM

Released to Imaging: 7/6/2022 10:13:22 AM

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X:\2021\6759.21\03_DSGN\01_DWGS\050_CIVIL\02_CONTENT\CELL 3AB\FIGURE 4 FIELD DENSITY TEST_V2.DWG, 5/5/2022 10:04:21 AM, ncrawley

Received by OCD: 7/6/2022 9:49:18 AM

Released to Imaging: 7/6/2022 10:13:22 AM

OWL LANDFILL SERVICES
CELL 3A/B ENGINEERING CERTIFICATION REPORT
OILFIELD WATER LOGISTICS
JAL, NEW MEXICO
LEA COUNTY, NEW MEXICO

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FIELD DENSITY TEST LOCATIONS

Issue:	00
Date:	05/03/2022
Project No:	6759.21
Sheet:	FIGURE 4

P-1	P-2	P-3	P-4	P-5	P-6	
P-7	P-8	P-9	P-10	P-11	P-12	
P-18	P-17	P-16	P-15	P-14	P-13	
P-19	P-32 | P-33 | P-34 | P-35	P-36	P-37	P-38	P-39	
P-20	P-26	P-44	P-43	P-42	P-41	P-40
P-21	P-45	P-46	P-47	P-48	P-49 — P-50	
P-22	P-55	P-54	P-53	P-52	P-51	
P-23	P-56	P-57	P-58	P-59	P-60	
P-24	P-65	P-64	P-63	P-62	P-61	
P-25	P-66	P-67	P-68	P-69	P-70	P-71
P-27	P-76	P-75	P-74	P-73	P-72	
P-28	P-77	P-78	P-79	P-80	P-81	
P-29	P-82	P-83	P-84	P-85	P-86	P-87
P-30	P-100 | 101 | P-102 | P-109 | P-110	P-111	P-112	P-113	P-114	
P-31	103 | P-104 | P-105 | 119	P-118	P-117	P-116	P-115	
P-88	P-106 | P-107 | P-108	P-120	P-121	P-122	P-123	
P-89	P-124	P-125	P-126	P-127	P-128	
P-90	P-135	P-134	P-133	P-132	P-131	P-130 | P-129
P-91	P-136	P-137	P-138	P-139	P-140	
P-92	P-146	P-145	P-144	P-143	P-142	P-141
P-93	P-147	P-148	P-149	P-150	P-151	
P-94	P-157	P-156	P-155	P-154	P-153	P-152
P-95	P-158	P-159	P-160	P-161	P-162	
P-96	P-168	P-167	P-166	P-165	P-164	P-163
P-97	P-169	P-170	P-171	P-172	P-173	
P-98	P-179	P-178	P-177	P-176	P-175	P-174
P-99	P-180	P-181	P-182	P-183	P-184	P-185

N

LEGEND

P-10 GEOCOMPOSITE CLAY LINER PANEL

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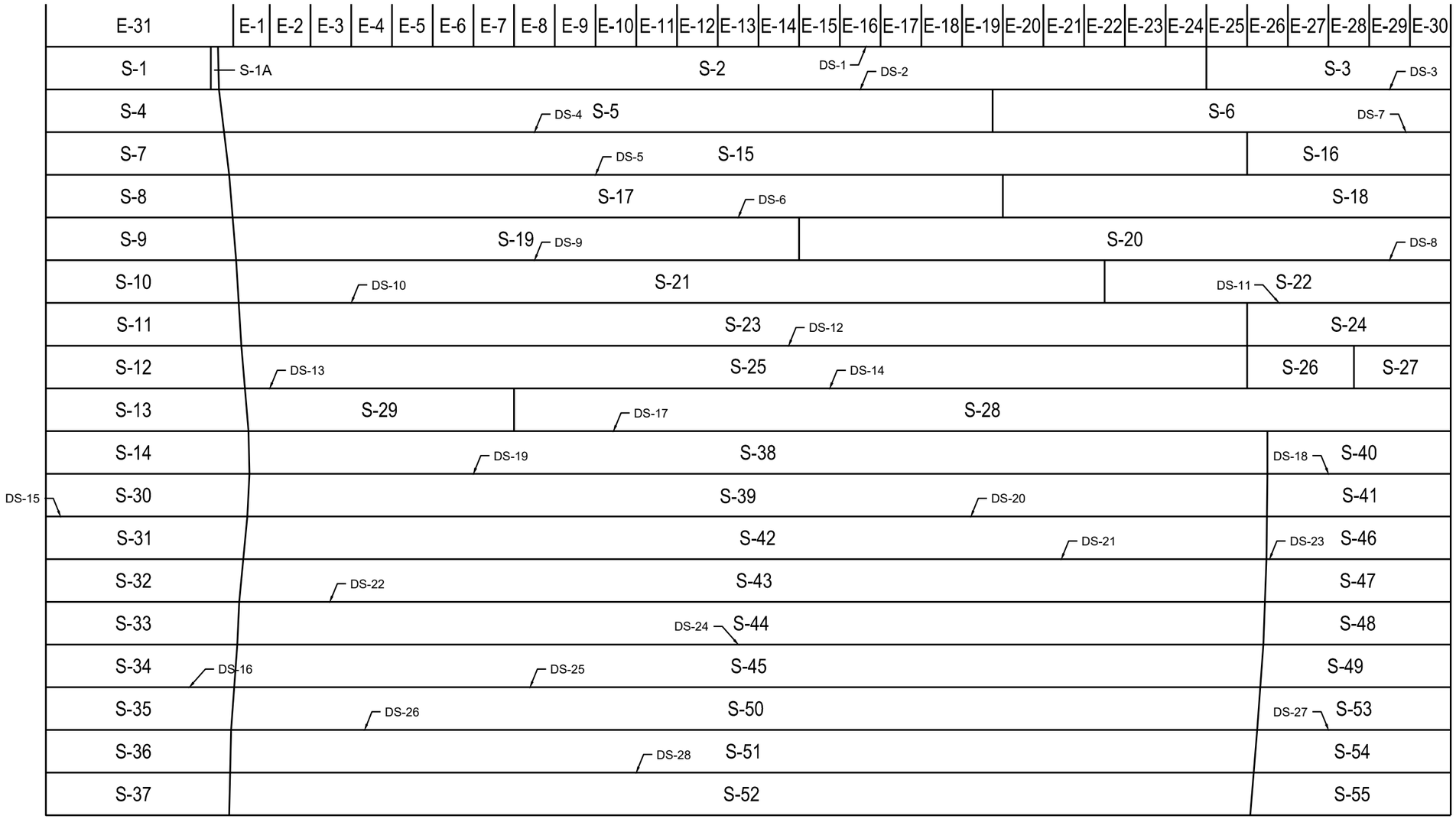
OWL LANDFILL SERVICES
CELL 3A/B ENGINEERING CERTIFICATION REPORT
OILFIELD WATER LOGISTICS
JAL, NEW MEXICO
LEA COUNTY, NEW MEXICO

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GCL PANEL LAYOUT

Issue:	00
Date:	05/03/2022
Project No:	6759.21
Sheet:	FIGURE 5

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LEGEND

P-10	HDPE LINER PANEL
DS-4	DESTRUCTIVE TEST LOCATION

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OILFIELD WATER LOGISTICS
JAL, NEW MEXICO
LEA COUNTY, NEW MEXICO

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60 MIL SECONDARY LINER PANEL LAYOUT

Issue:	00
Date:	05/03/2022
Project No:	6759.21
Sheet:	FIGURE 6

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1	1	2		
2	3	4		
3	5	6		
4	7	8		
5	9	10		
6	11	12		
7	13	14		
8	15	16		
9	17	18		
10	19	20		
11	21	22		
12	15	23	24	
13	25	26		
14	16	27	28	
17	29	30		55
18	31	32		56
19	33	34		57
20	35	36		58
21	37	38		59
22	39	40		60
23	41	42		61
24	43	44		62
25	45	46		63
26	47	48		64
27	49	50		65
28	51	52		66
29	53	54		67
30	68	69		70

31 32

Z

LEGEND

10	GEOCOMPOSITE LINER PANEL
10	GEONET LINER PANEL

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OWL LANDFILL SERVICES
CELL 3A/B ENGINEERING CERTIFICATION REPORT

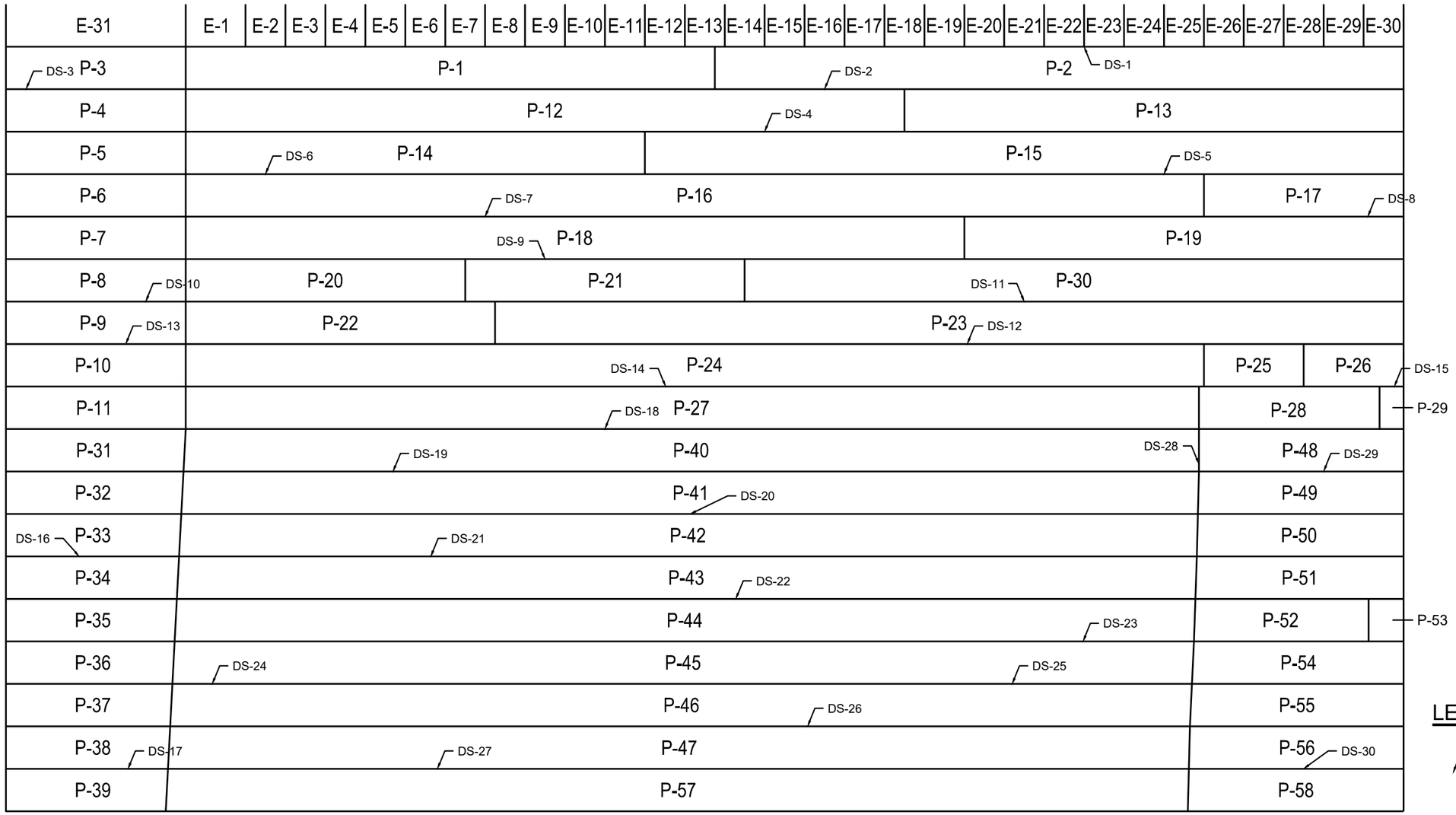
OILFIELD WATER LOGISTICS
JAL, NEW MEXICO
LEA COUNTY, NEW MEXICO

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GEOSYNTHETIC LEAK DETECTION LAYER

Issue:	00
Date:	05/03/2022
Project No:	6759.21
Sheet:	FIGURE 7

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CELL 3A/B ENGINEERING CERTIFICATION REPORT
OILFIELD WATER LOGISTICS
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LEA COUNTY, NEW MEXICO

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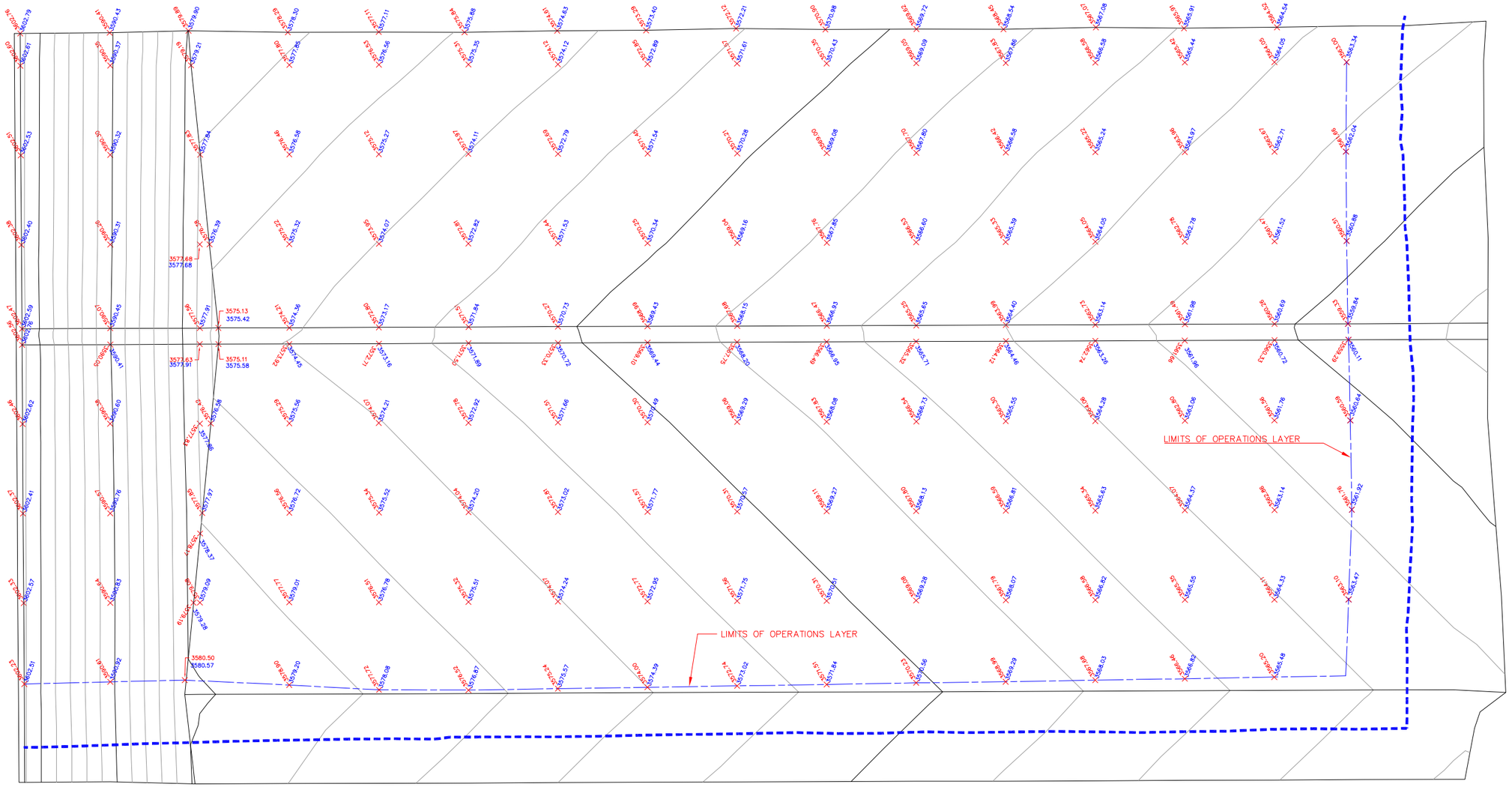
60 MIL PRIMARY LINER PANEL LAYOUT

Issue:	00
Date:	05/03/2022
Project No:	6759.21
Sheet:	FIGURE 8

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| | | |

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LEGEND

+3400.00 / 3400.00 = DESIGN SUBGRADE LAYER

= AS-BUILT SUBGRADE LAYER

= AS-BUILT LINER LIMIT

NORTH

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

FIGURE 10

REV.	DATE	BY
-		

18213 E WARNER ROAD
BLDG A SUITE 5
GILBERT, AZ 85296
PHONE: (480) 414-4121
FAX: (888) 8704203
EMAIL: 83survey@s3az.com

DRAWN: JB
CHECKED: GR
DATE: 11/22/2021
DWG: -

OWL LANDFILL
CELL 3AB
OPERATIONS LAYER ASBUILT EXHIBIT

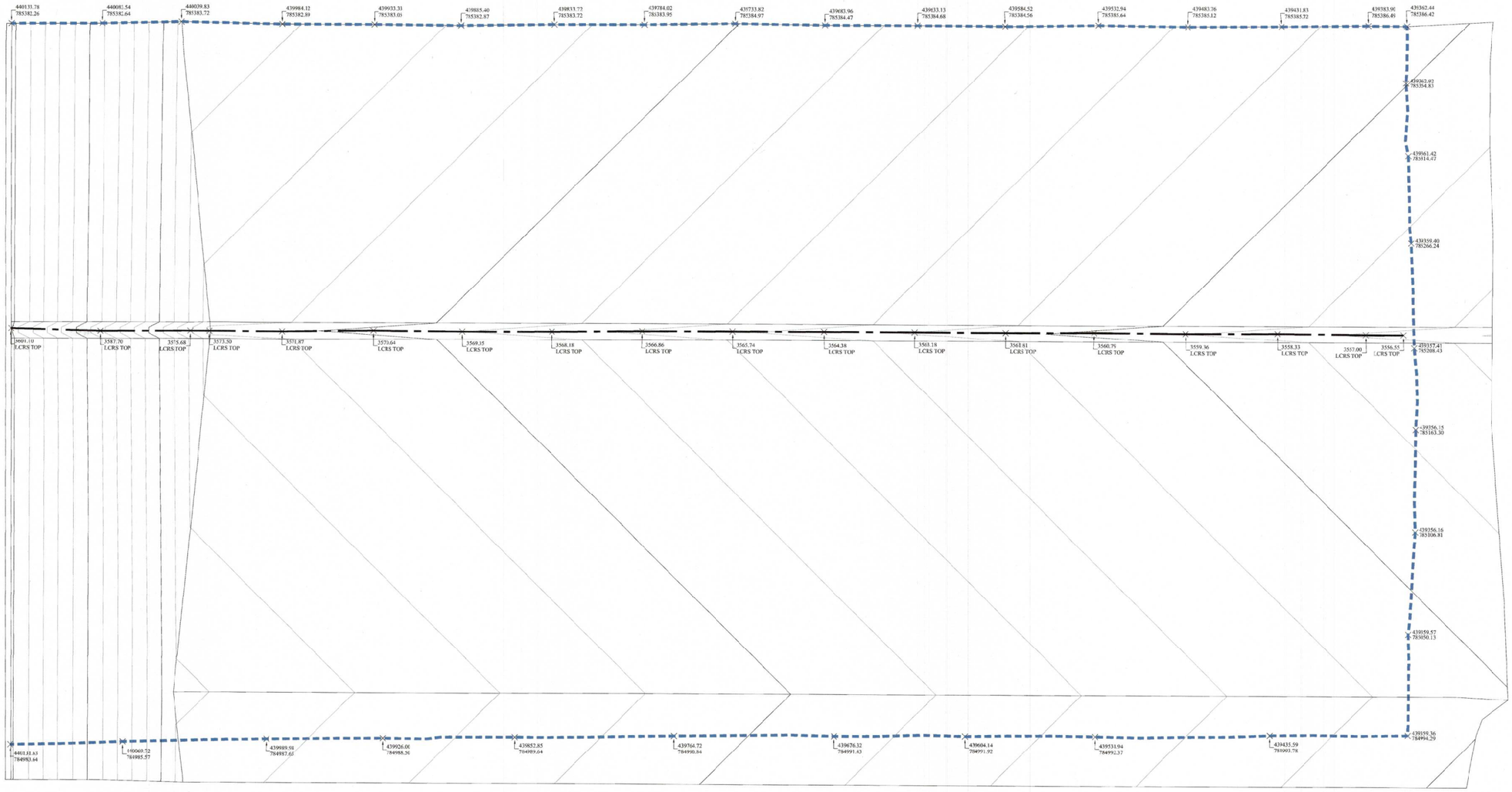
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1
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LEGEND

= AS-BUILT LINER LIMIT

= AS-BUILT LEACHATE PIPE

I HEREBY CERTIFY THAT ON THIS DATE 11-17-2021, A LINER AND LEACHATE PIPE AS-BUILT SURVEY WAS PERFORMED ON THE OWL LANDFILL IN HOBBS, NM UNDER MY DIRECT SUPERVISION. COORDINATE SYSTEM IS IN NM STATE PLANE, NAD 83, NEW MEXICO EAST ZONE (3001), NAVD 88. I FURTHER CERTIFY THAT ALL OBSERVED AS-BUILT ELEVATIONS ARE TRUE AND ACCURATE.

JAMES FLACK
NEW MEXICO
14942
2.10.22
REGISTERED PROFESSIONAL SURVEYOR

NORTH

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

FIGURE 11

REV.	DATE	BY
-		

18213 E WARNER ROAD
BLDG A SUITE 5
GILBERT, AZ 85296
PHONE: (480) 414-4121
FAX: (888) 870-6203
EMAIL: s3survey@s3-az.com

DRAWN: JB
CHECKED: GR
DATE: 01/31/22
DWG: -

OWL LANDFILL
CELL 3AB
LEACHATE PIPE & LINER ASBUILT EXHIBIT

PROJECT NO.

SHEET NUMBER
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1 OF 1

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FIELD LOGS AND PHOTOGRAPHS

Daily Summary Reports

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	9/15/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Wednesday
REMARKS:	Excavation and subgrade prep. Subgrade Densities		

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	82 °F	9 ESE mph	45 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Enviroworks, LLC	5	Excavation and Subgrade Preparation
TOTAL:	**5**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Karl Ruiz Bernal	☒		Observation of Earthwork and Subgrade Densities
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
water truck	1	Enviroworks		
front end loader	2	Enviroworks		
Dump Truck	1	Enviroworks		
Dozer	1	Enviroworks		
trackhoe	1	Enviroworks		
TOTAL:	**6**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	9/16/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Thursday
REMARKS:	Excavation and subgrade prep. Subgrade Densities		

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	86 °F	14 SSE mph	35 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Enviroworks, LLC	5	Excavation and Subgrade Preparation
TOTAL:	**5**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Karl Ruiz Bernal	☒		Observation of Earthwork and Subgrade Densities
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
Dump Truck	1	Enviroworks		
water truck	1	Enviroworks		
trackhoe	1	Enviroworks		
Dozer	1	Enviroworks		
front end loader	2	Enviroworks		
TOTAL:	**6**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	9/17/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Friday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	95 °F	8 N mph	14 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Enviroworks, LLC	5	Excavation and Subgrade Preparation
TOTAL:	**5**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Karl Ruiz Bernal	☒		Observation of Earthwork and Subgrade Densities
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
Dump Truck	1	Enviroworks		
trackhoe	1	Enviroworks		
front end loader	2	Enviroworks		
water truck	1	Enviroworks		
Dozer	1	Enviroworks		
TOTAL:	**6**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	9/20/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Monday
REMARKS:	Excavation and subgrade prep. Subgrade Densities		

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	91 °F	15 WSW mph	21 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Enviroworks, LLC	5	Excavation and Subgrade Preparation
TOTAL:	**5**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Karl Ruiz Bernal	☒		Observation of Earthwork and Subgrade Densities
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
trackhoe	1	Enviroworks		
front end loader	2	Enviroworks		
Dozer	1	Enviroworks		
Dump Truck	1	Enviroworks		
water truck	1	Enviroworks		
TOTAL:	**6**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	9/21/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Tuesday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	75 °F	20 NE mph	25 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Enviroworks, LLC	5	Excavation and Subgrade Preparation
TOTAL:	**5**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Karl Ruiz Bernal	☒		Observation of Earthwork and Subgrade Densities
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
Dump Truck	1	Enviroworks		
water truck	1	Enviroworks		
trackhoe	1	Enviroworks		
front end loader	2	Enviroworks		
Dozer	1	Enviroworks		
TOTAL:	**6**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	9/22/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Wednesday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	73 °F	9 SE mph	25 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Enviroworks, LLC	5	Excavation and Subgrade Preparation
TOTAL:	**5**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Karl Ruiz Bernal	☒		Observation of Earthwork and Subgrade Densities
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
front end loader	2	Enviroworks		
trackhoe	1	Enviroworks		
water truck	1	Enviroworks		
Dozer	1	Enviroworks		
Dump Truck	1	Enviroworks		
TOTAL:	**6**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	9/23/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Thursday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	81 °F	14 sse mph	17 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Enviroworks, LLC	5	Excavation and Subgrade Preparation
TOTAL:	**5**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Karl Ruiz Bernal	☒		Observation of Earthwork and Subgrade Densities
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
Dump Truck	1	Enviroworks		
water truck	1	Enviroworks		
trackhoe	1	Enviroworks		
Dozer	1	Enviroworks		
front end loader	2	Enviroworks		
TOTAL:	**6**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	9/24/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Friday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	84 °F	7 SE mph	20 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Enviroworks, LLC	5	Excavation and Subgrade Preparation
TOTAL:	**5**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Karl Ruiz Bernal	☒		Observation of Earthwork and Subgrade Densities
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
Dump Truck	1	Enviroworks		
trackhoe	1	Enviroworks		
Dozer	1	Enviroworks		
water truck	1	Enviroworks		
front end loader	2	Enviroworks		
TOTAL:	**6**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	9/27/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Monday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	84 °F	10 ssw mph	30 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Enviroworks, LLC	5	Excavation and Subgrade Preparation
TOTAL:	**5**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Karl Ruiz Bernal	☒		Observation of Earthwork and Subgrade Densities
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
trackhoe	1	Enviroworks		
front end loader	2	Enviroworks		
water truck	1	Enviroworks		
Dump Truck	1	Enviroworks		
Dozer	1	Enviroworks		
TOTAL:	**6**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	9/28/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Tuesday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
12:00 PM	82 °F	21 WSW mph	26 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Enviroworks, LLC	5	Excavation and Subgrade Preparation
TOTAL:	**5**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Karl Ruiz Bernal	☒		Observation of Earthwork and Subgrade Densities
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
Dozer	1	Enviroworks		
trackhoe	1	Enviroworks		
Dump Truck	1	Enviroworks		
front end loader	2	Enviroworks		
water truck	1	Enviroworks		
TOTAL:	**6**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	9/29/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Wednesday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	84 °F	15 wsw mph	25 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Enviroworks, LLC	5	Excavation and Subgrade Preparation
TOTAL:	**5**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Karl Ruiz Bernal	☒		Observation of Earthwork and Subgrade Densities
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
Dump Truck	1	Enviroworks		
water truck	1	Enviroworks		
Dozer	1	Enviroworks		
trackhoe	1	Enviroworks		
front end loader	2	Enviroworks		
TOTAL:	**6**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	9/30/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Thursday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	72 °F	21 NNW mph	43 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Enviroworks, LLC	5	Excavation and Subgrade Preparation
TOTAL:	**5**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Karl Ruiz Bernal	☒		Observation of Earthwork and Subgrade Densities
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
front end loader	2	Enviroworks		
Dump Truck	1	Enviroworks		
water truck	1	Enviroworks		
Dozer	1	Enviroworks		
trackhoe	1	Enviroworks		
TOTAL:	**6**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	10/1/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Friday
REMARKS:	Excavation & Subgrade Prep		

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	70 °F	0 mph	64 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Enviroworks, LLC	5	Excavation and Subgrade Preparation
TOTAL:	**5**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Karl Ruiz Bernal	☒		Observation of Earthwork and Subgrade Densities
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
Dozer	1	Enviroworks		
trackhoe	1	Enviroworks		
front end loader	2	Enviroworks		
water truck	1	Enviroworks		
Dump Truck	1	Enviroworks		
TOTAL:	**6**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	10/4/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Monday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	81 °F	6 S mph	26 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Enviroworks, LLC	5	Excavation and Subgrade Preparation
TOTAL:	**5**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Karl Ruiz Bernal	☒		Observation of Earthwork and Subgrade Densities
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
front end loader	2	Enviroworks		
water truck	1	Enviroworks		
Dump Truck	1	Enviroworks		
trackhoe	1	Enviroworks		
Dozer	1	Enviroworks		
TOTAL:	**6**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	10/5/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Tuesday
REMARKS:	Uncovering liner tie in		

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	84 °F	5 WSW mph	22 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Enviroworks, LLC	5	Excavation and Subgrade Preparation
TOTAL:	**5**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Karl Ruiz Bernal	☒		Observation of Earthwork and Subgrade Densities
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
front end loader	2	Enviroworks		
Dozer	1	Enviroworks		
trackhoe	1	Enviroworks		
Dump Truck	1	Enviroworks		
water truck	1	Enviroworks		
TOTAL:	**6**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	10/6/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Wednesday
REMARKS:	Uncovering liner tie in		

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	81 °F	0 mph	30 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Enviroworks, LLC	5	Excavation and Subgrade Preparation
TOTAL:	**5**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Karl Ruiz Bernal	☒		Observation of Earthwork and Subgrade Densities
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
Dozer	1	Enviroworks		
front end loader	2	Enviroworks		
Dump Truck	1	Enviroworks		
trackhoe	1	Enviroworks		
water truck	1	Enviroworks		
TOTAL:	**6**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	10/7/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Thursday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	88 °F	7 sw mph	19 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Mustang Extreme Environmental Services	6	Liner
Enviroworks, LLC	1	Assist liner crew
TOTAL:	**7**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Karl Ruiz Bernal	☒		Observation of liner construction
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
trackhoe	1	Enviroworks		
water truck	1	Enviroworks		
skid steer loader	2	mustang		
TOTAL:	**4**			

APPROVAL/ AUTHORIZATION TO PROCEED

TO:

FROM:

PROJECT NAME:

PROJECT NO.:

DATE: 10/07/2021

The following liner system surface is deemed acceptable on a visual inspection by Liner Contractor Representative:

LAYER:
1. Subgrade _____
2. Geosynthetic Clay Liner (GCL) _____
3. HDPE Geomembrane (FML) _____
4. Protective Soil Layer (PSL) _____

LOCATION: GCL N1 to _____

_____ to _____

REMARKS: _____

_____

_____

Authorized By: _____
(Liner Contractor Representative)

_____
(Authorized Signature)

_____
(Date)

Accepted By: Karl Lenz-Rue
(CQA Manager)

10/07/2021
(Authorized Signature)

_____
(Date)

☐ Attachments

Copies: ☐ Owner ☐ A/E ☐ Contractor ☐ Consultants ☐ _____ ☐ _____ ☐ File

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Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	10/8/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Friday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	88 °F	13 SW mph	21 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Mustang Extreme Environmental Services	6	Liner
Enviroworks, LLC	1	Assist Liner crew
TOTAL:	**7**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Karl Ruiz Bernal	☒		Observation of liner construction
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
skid steer loader	2	mustang		
smooth drum roller	2	Enviroworks		
TOTAL:	**4**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	10/9/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Saturday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	90 °F	12 SW mph	18 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Enviroworks, LLC	1	Assist liner crew as needed
Mustang Extreme Environmental Services	6	Liner
TOTAL:	**7**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Karl Ruiz Bernal	☒		Observation of liner construction
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
skid steer loader	2	mustang		
smooth drum roller	1	enviroworks		
TOTAL:	**3**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	10/11/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Monday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	75 °F	15 SSE mph	21 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Enviroworks, LLC	1	Assist Liner Crew
Mustang Extreme Environmental Services	6	Liner
TOTAL:	**7**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Karl Ruiz Bernal	☒		Observation of liner construction
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
skid steer loader	2	mustang		
smooth drum roller	1	Enviroworks		
TOTAL:	**3**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	10/12/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Tuesday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	84 °F	24 S mph	22 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Mustang Extreme Environmental Services	6	Liner
Enviroworks, LLC	1	Assist Liner Crew
TOTAL:	**7**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Karl Ruiz Bernal	☒		Observation of liner construction
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
smooth drum roller	1	Enviroworks		
skid steer loader	2	mustang		
TOTAL:	**3**			

APPROVAL/ AUTHORIZATION TO PROCEED

TO:

FROM:

PROJECT NAME:

PROJECT NO.:

DATE: 10/12/2021

The following liner system surface is deemed acceptable on a visual inspection by Liner Contractor Representative:

LAYER:
1. Subgrade
2. Geosynthetic Clay Liner (GCL)
3. HDPE Geomembrane (FML)
4. Protective Soil Layer (PSL)

LOCATION: GCL N9 to _____

_____ to _____

REMARKS: _____

Authorized By:

(Liner Contractor Representative)

(Authorized Signature)

10-13-2021

(Date)

Accepted By:

(CQA Manager)

Karl Lins PVR

(Authorized Signature)

10/12/2021

(Date)

☐ Attachments

Copies: ☐ Owner ☐ A/E ☐ Contractor ☐ Consultants ☐ _____ ☐ _____ ☐ File

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Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	10/13/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Wednesday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	75 °F	20 sw mph	22 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Enviroworks, LLC	1	Assist Liner Crew
Mustang Extreme Environmental Services	6	Liner
TOTAL:	**7**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Karl Ruiz Bernal	☒		Observation of liner construction
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
smooth drum roller	1	Enviroworks		
skid steer loader	2	mustang		
TOTAL:	**3**			

APPROVAL/ AUTHORIZATION TO PROCEED

TO:

FROM:

PROJECT NAME:

PROJECT NO.:

DATE: 10/13/2021

The following liner system surface is deemed acceptable on a visual inspection by Liner Contractor Representative:

LAYER:

1. Subgrade _____
2. Geosynthetic Clay Liner (GCL) _____
3. HDPE Geomembrane (FML) _____
4. Protective Soil Layer (PSL) _____

LOCATION: _____ to _____

_____ to _____

REMARKS: _____

_____

_____

Authorized By: _____
(Liner Contractor Representative)

_____
(Authorized Signature)

10-13-2021
(Date)

Accepted By: Kari Lin Kun
(CQA Manager)

10/13/2021
(Authorized Signature)

_____
(Date)

☐ Attachments

Copies: ☐ Owner ☐ A/E ☐ Contractor ☐ Consultants ☐ _____ ☐ _____ ☐ File

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Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	10/14/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Thursday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	77 °F	26 wsw mph	13 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Mustang Extreme Environmental Services	6	Liner
Enviroworks, LLC	1	Assist Liner Crew
TOTAL:	**7**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Karl Ruiz Bernal	☒		Observation of liner construction
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
smooth drum roller	1	Enviroworks		
skid steer loader	2	mustang		
TOTAL:	**3**			

APPROVAL/ AUTHORIZATION TO PROCEED

TO:

FROM:

PROJECT NAME:

PROJECT NO.:

DATE: 10/14/2021

The following liner system surface is deemed acceptable on a visual inspection by Liner Contractor Representative:

LAYER:
1. Subgrade _____
2. Geosynthetic Clay Liner (GCL) _____
3. HDPE Geomembrane (FML) _____
4. Protective Soil Layer (PSL) _____

LOCATION: _____ to _____

_____ to _____

REMARKS: _____

_____

_____

Authorized By:

(Liner Contractor Representative)

(Authorized Signature)

10-14-2021

(Date)

Accepted By: Karl Lutz, PG.? 10/14/2021

(CQA Manager)

(Authorized Signature)

(Date)

☐ Attachments

Copies: ☐ Owner ☐ A/E ☐ Contractor ☐ Consultants ☐ _____ ☐ _____ ☐ File

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Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	10/15/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Friday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	63 °F	12 nne mph	30 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Mustang Extreme Environmental Services	6	Liner
Enviroworks, LLC	1	Assist Liner Crew
TOTAL:	**7**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Karl Ruiz Bernal	☒		Observation of liner construction
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
smooth drum roller	1	Enviroworks		
skid steer loader	2	mustang		
TOTAL:	**3**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	10/16/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Saturday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	64 °F	12 sse mph	26 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Mustang Extreme Environmental Services	6	Liner
Enviroworks, LLC	1	Assist Liner Crew
TOTAL:	**7**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Karl Ruiz Bernal	☒		Observation of liner construction
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
skid steer loader	2	mustang		
smooth drum roller	1	Enviroworks		
TOTAL:	**3**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	10/18/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Monday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	73 °F	10 sse mph	33 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Enviroworks, LLC	1	Assist Liner Crew
Mustang Extreme Environmental Services	6	Liner
TOTAL:	**7**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Karl Ruiz Bernal	☒		Observation of liner construction
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
smooth drum roller	1	Enviroworks		
skid steer loader	2	mustang		
TOTAL:	**3**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	10/19/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Tuesday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	81 °F	15 sw mph	21 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Mustang Extreme Environmental Services	6	Liner
Enviroworks, LLC	1	Assist Liner Crew
TOTAL:	**7**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Karl Ruiz Bernal	☒		Observation of liner construction
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
skid steer loader	2	mustang		
smooth drum roller	1	Enviroworks		
TOTAL:	**3**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	10/20/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Wednesday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	77 °F	6 VAR mph	18 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Mustang Extreme Environmental Services	6	Liner
Enviroworks, LLC	1	Assist Liner Crew
TOTAL:	**7**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Tyler Krueger	☒	Civil Engineer	Observation of liner construction
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
smooth drum roller	1	Enviroworks		
skid steer loader	2	mustang		
TOTAL:	**3**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	10/21/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Thursday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	77 °F	9 s mph	44 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Enviroworks, LLC	1	Assist Liner Crew
Mustang Extreme Environmental Services	6	Liner
TOTAL:	**7**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Tyler Krueger	☒	Civil Engineer	Observation of Liner
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
smooth drum roller	1	Enviroworks		
skid steer loader	2	mustang		
TOTAL:	**3**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	10/22/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Friday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	72 °F	6 ssw mph	69 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Mustang Extreme Environmental Services	6	Liner
Enviroworks, LLC	1	Assist Liner Crew
TOTAL:	**7**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Tyler Krueger	☒	Civil Engineer	Observation of Liner Construction
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
smooth drum roller	1	Enviroworks		
skid steer loader	2	mustang		
TOTAL:	**3**			

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Parkhill

APPROVAL/ AUTHORIZATION TO PROCEED

TO:

FROM:

PROJECT NAME:

PROJECT NO.:

DATE: 10/22/2021

The following liner system surface is deemed acceptable on a visual inspection by Liner Contractor Representative:

LAYER:
1. Subgrade _____
2. Geosynthetic Clay Liner (GCL) _____
3. HDPE Geomembrane (FML) _____
4. Protective Soil Layer (PSL) _____

LOCATION: _____ to _____

_____ to _____

REMARKS: _____

_____

_____

Authorized By: _____
(Liner Contractor Representative)

_____
(Authorized Signature)

_____
(Date)

Accepted By: Tyler Krueger
(CQA Manager)

_____
(Authorized Signature)

10/22/2021
(Date)

☐ Attachments

Copies: ☐ Owner ☐ A/E ☐ Contractor ☐ Consultants ☐ _____ ☐ _____ ☐ File

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Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	10/23/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Saturday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	84 °F	14 ssw mph	30 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Mustang Extreme Environmental Services	6	Liner
Enviroworks, LLC	1	Assist Liner Crew
TOTAL:	**7**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Tyler Krueger	☒	Civil Engineer	Observation of Liner Construction
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
skid steer loader	2	mustang		
smooth drum roller	1	Enviroworks		
TOTAL:	**3**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	10/25/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Monday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	86 °F	10 s mph	14 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Enviroworks, LLC	1	Assist Liner Crew
Mustang Extreme Environmental Services	6	Liner
TOTAL:	**7**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Tyler Krueger	☒	Civil Engineer	Observation of Liner Construction
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
skid steer loader	2	mustang		
smooth drum roller	1	Enviroworks		
TOTAL:	**3**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	10/26/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Tuesday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	86 °F	18 sw mph	12 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Enviroworks, LLC	1	Assist Liner Crew
Mustang Extreme Environmental Services	6	Liner
TOTAL:	**7**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Tyler Krueger	☒	Civil Engineer	Observation of Liner Construction
Richard Salas	☒	Civil Engineer Intern	Observation of Liner Construction
TOTAL:	**2**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
skid steer loader	2	mustang		
smooth drum roller	1	Enviroworks		
TOTAL:	**3**			

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Parkhill

APPROVAL/ AUTHORIZATION TO PROCEED

TO:

FROM:

PROJECT NAME:

PROJECT NO.:

DATE: 10/26/2021

The following liner system surface is deemed acceptable on a visual inspection by Liner Contractor Representative:

LAYER:
1. Subgrade _____ 30,000 ft²
2. Geosynthetic Clay Liner (GCL) _____
3. HDPE Geomembrane (FML) _____
4. Protective Soil Layer (PSL) _____

LOCATION: _____ to _____

_____ to _____

REMARKS: _____

_____

_____

Authorized By: _____
(Liner Contractor Representative)

_____
(Authorized Signature)

_____
(Date)

Accepted By: Richard Sykes
(CQA Manager)

_____
(Authorized Signature)

10/26/2021
(Date)

☐ Attachments

Copies: ☐ Owner ☐ A/E ☐ Contractor ☐ Consultants ☐ _____ ☐ _____ ☐ File

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Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	10/27/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Wednesday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	66 °F	26 NNW mph	23 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Mustang Extreme Environmental Services	6	Liner
Enviroworks, LLC	6	Protective Soil Layer
TOTAL:	**12**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Tyler Krueger	☒	Civil Engineer	Observation of Liner Construction and PSL placement
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
front end loader	2	Enviroworks		
Dozer	1	enviroworks		
Dump truck	2	enviroworks		
smooth drum roller	1	Enviroworks		
skid steer loader	2	mustang		
TOTAL:	**8**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	10/28/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Thursday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	68 °F	14 w mph	13 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Enviroworks, LLC	6	Protective Soil Layer
Mustang Extreme Environmental Services	6	Liner
TOTAL:	**12**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Richard Salas	☒	Civil Engineer Intern	Observation of Liner Construction and PSL placement
Tyler Krueger	☒	Civil Engineer	Observation of Liner Construction and PSL placement
TOTAL:	**2**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
Dump truck	2	enviroworks		
Dozer	1	enviroworks		
skid steer loader	2	mustang		
smooth drum roller	1	Enviroworks		
front end loader	2	Enviroworks		
TOTAL:	**8**			

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Parkhill

APPROVAL/ AUTHORIZATION TO PROCEED

TO:

FROM:

PROJECT NAME:

PROJECT NO.:

DATE: 10/28/21

The following liner system surface is deemed acceptable on a visual inspection by Liner Contractor Representative:

LAYER:

1. Subgrade _____
2. Geosynthetic Clay Liner (GCL) _____ 62,000 ft²
3. HDPE Geomembrane (FML) _____
4. Protective Soil Layer (PSL) _____

LOCATION: _____ to _____

_____ to _____

REMARKS: _____

_____

_____

Authorized By: _____
(Liner Contractor Representative)

_____
(Authorized Signature)

_____
(Date)

Accepted By: Richard Salas
(CQA Manager)

_____
(Authorized Signature)

10/28/2021
(Date)

☐ Attachments

Copies: ☐ Owner ☐ A/E ☐ Contractor ☐ Consultants ☐ _____ ☐ _____ ☐ File

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Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	10/29/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Friday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	68 °F	13 sw mph	17 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Enviroworks, LLC	6	Protective Soil Layer
Mustang Extreme Environmental Services	6	Liner
TOTAL:	**12**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Richard Salas	☒	Civil Engineer Intern	Observation of Liner Construction and PSL placement
Tyler Krueger	☒	Civil Engineer	Observation of Liner Construction and PSL placement
TOTAL:	**2**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
front end loader	2	Enviroworks		
skid steer loader	2	mustang		
Dozer	1	enviroworks		
Dump truck	2	enviroworks		
smooth drum roller	1	Enviroworks		
TOTAL:	**8**			

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Parkhill

APPROVAL/ AUTHORIZATION TO PROCEED

TO:

FROM:

PROJECT NAME:

PROJECT NO.:

DATE: 10/29/2021

The following liner system surface is deemed acceptable on a visual inspection by Liner Contractor Representative:

LAYER:
1. Subgrade _____
2. Geosynthetic Clay Liner (GCL) _____
3. HDPE Geomembrane (FML) _____
4. Protective Soil Layer (PSL) _____

LOCATION: _____ to _____

_____ to _____

REMARKS: _____

_____

_____

Authorized By: _____
(Liner Contractor Representative)

_____
(Authorized Signature)

_____
(Date)

Accepted By: Richard Sabs
(CQA Manager)

_____
(Authorized Signature)

10/29/2021
(Date)

☐ Attachments

Copies: ☐ Owner ☐ A/E ☐ Contractor ☐ Consultants ☐ _____ ☐ _____ ☐ File

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Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	10/30/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Saturday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	82 °F	14 wsw mph	9 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Enviroworks, LLC	1	Assist Liner Crew
Mustang Extreme Environmental Services	6	Liner
TOTAL:	**7**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Tyler Krueger	☒	Civil Engineer	Observation of Liner Construction
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
smooth drum roller	1	Enviroworks		
skid steer loader	2	mustang		
TOTAL:	**3**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	11/1/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Monday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	64 °F	5 e mph	45 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Enviroworks, LLC	6	Protective Soil Layer
Mustang Extreme Environmental Services	6	Liner
TOTAL:	**12**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Tyler Krueger	☒	Civil Engineer	Observation of Liner Construction and PSL placement
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
Dozer	1	enviroworks		
skid steer loader	2	mustang		
smooth drum roller	1	Enviroworks		
Dump truck	2	enviroworks		
front end loader	2	Enviroworks		
TOTAL:	**8**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	11/2/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Tuesday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	52 °F	5 ene mph	71 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Enviroworks, LLC	6	Protective Soil Layer
Mustang Extreme Environmental Services	6	Liner
TOTAL:	**12**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Tyler Krueger	☒	Civil Engineer	Observation of Liner Construction and PSL placement
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
skid steer loader	2	mustang		
front end loader	2	Enviroworks		
Dump truck	2	enviroworks		
smooth drum roller	1	Enviroworks		
Dozer	1	enviroworks		
TOTAL:	**8**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	11/3/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Wednesday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	50 °F	9 nne mph	66 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Mustang Extreme Environmental Services	6	Liner
Enviroworks, LLC	6	Protective Soil Layer
TOTAL:	**12**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Tyler Krueger	☒	Civil Engineer	Observation of Liner Construction and PSL placement
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
Dump truck	2	enviroworks		
smooth drum roller	1	Enviroworks		
skid steer loader	2	mustang		
front end loader	2	Enviroworks		
Dozer	1	enviroworks		
TOTAL:	**8**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	11/4/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Thursday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	59 °F	7 ssw mph	45 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Enviroworks, LLC	6	Protective Soil Layer
Mustang Extreme Environmental Services	6	Liner
TOTAL:	**12**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Tyler Krueger	☒	Civil Engineer	Observation of Liner Construction and PSL placement
Richard Salas	☒	Civil Engineer Intern	Observation of Liner Construction and PSL placement
TOTAL:	**2**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
skid steer loader	2	mustang		
Dump truck	2	enviroworks		
smooth drum roller	1	Enviroworks		
Dozer	1	enviroworks		
front end loader	2	Enviroworks		
TOTAL:	**8**			

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Parkhill

APPROVAL/ AUTHORIZATION TO PROCEED

TO:

FROM:

PROJECT NAME:

PROJECT NO.:

DATE: 11/4/2021

The following liner system surface is deemed acceptable on a visual inspection by Liner Contractor Representative:

LAYER:
1. Subgrade _____
2. Geosynthetic Clay Liner (GCL) _____
3. HDPE Geomembrane (FML) _____
4. Protective Soil Layer (PSL) _____

LOCATION: _____ to _____

_____ to _____

REMARKS: _____

_____

_____

Authorized By: _____
(Liner Contractor Representative)

_____
(Authorized Signature)

_____
(Date)

Accepted By: Richard Sabs
(CQA Manager)

_____
(Authorized Signature)

11/4/2021
(Date)

☐ Attachments

Copies: ☐ Owner ☐ A/E ☐ Contractor ☐ Consultants ☐ _____ ☐ _____ ☐ File

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Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	11/5/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Friday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	68 °F	9 s mph	35 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Enviroworks, LLC	6	Protective Soil Layer
Mustang Extreme Environmental Services	6	Liner
TOTAL:	**12**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Tyler Krueger	☒	Civil Engineer	Observation of Liner Construction and PSL placement
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
Dump truck	2	enviroworks		
front end loader	2	Enviroworks		
skid steer loader	2	mustang		
Dozer	1	enviroworks		
smooth drum roller	1	Enviroworks		
TOTAL:	**8**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	11/6/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Saturday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	73 °F	8 mph	25 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Enviroworks, LLC	1	Assist Liner Crew
Mustang Extreme Environmental Services	6	Liner
TOTAL:	**7**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Tyler Krueger	☒	Civil Engineer	Observation of Liner Construction
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
skid steer loader	2	mustang		
smooth drum roller	1	Enviroworks		
TOTAL:	**3**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	11/7/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Sunday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	79 °F	10 s mph	18 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Mustang Extreme Environmental Services	6	Liner
Enviroworks, LLC	1	Assist Liner Crew
TOTAL:	**7**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Tyler Krueger	☒	Civil Engineer	Observation of Liner Construction
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
skid steer loader	2	mustang		
smooth drum roller	1	Enviroworks		
TOTAL:	**3**			

Parkhill

Daily Report

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	11/8/2021
AUTHOR:	Tyler Krueger	DAY OF WEEK:	Monday
REMARKS:			

WEATHER

TIME	TEMP	WIND SPEED	HUMIDITY	REMARKS
1:00 PM	84 °F	12 s mph	14 %	

PERSONNEL ON-SITE

SUBCONTRACTOR	HEADCOUNT	DESCRIPTION OF WORK & LOCATION
Enviroworks, LLC	6	Protective Soil Layer
Mustang Extreme Environmental Services	6	Liner
TOTAL:	**12**	

INTERNAL EMPLOYEE	ON SITE	JOB TITLE	NOTES
Tyler Krueger	☒	Civil Engineer	Observation of Liner Construction and PSL placement
TOTAL:	**1**		

ACTION ITEMS

EQUIPMENT

ITEM	COUNT	OWNED BY	TAG #	PLANNED RETURN DATE
front end loader	2	Enviroworks		
skid steer loader	2	mustang		
Dozer	1	enviroworks		
Dump truck	2	enviroworks		
smooth drum roller	1	Enviroworks		
TOTAL:	**8**			

Parkhill

FIELD LOGS AND PHOTOGRAPHS

Project Photograph

Parkhill



Beginning of excavation at the Cell 3A/B area. View looking to the south west.

Parkhill



Excavation of the Cell 3 A/B Area. View looking to the South.

Parkhill



Excavation of Cell 3 A/B. View to the south west.

Parkhill



Construction of northern berm. View to the west.

Parkhill



Northern berm constrution. View to the west.

Parkhill



Density testing the landfill subgrade.

Parkhill



Smooth drum rolling the subgrade of cell 3 A/B. View looking to the northwest

Parkhill



View of the excavated leachate trench. Looking south.

Parkhill



Removal of cell 2 A/B rain flap. View looking south.

Parkhill



Uncovering the liner tie in between cell 2 A/B and cell 3 A/B.

Parkhill



Anchor trench excavation. Looking west.

Parkhill



Surveyor checking subgrade elevations. Looking east.

Parkhill



Completing leachate trench excavation and fine grading. Looking northeast.

Parkhill



Installation of GCL at Cell 3 A/B. Looking north.

Parkhill



Installation of 60 mil HPDE Liner. Looking south.

Parkhill



Fusion welding of smooth HDPE Liner.

Parkhill



Geocomposite on cell 3 A/B slopes and geonet on cell 3 A/B floor. Looking south

Parkhill



Textured liner on slope and single sided Geocomposite on floor. Looking south.

Parkhill



Beginning of PSL Placement on southeast corner. Looking north.

Parkhill



PSL placement on slopes and floor. Looking south.

Parkhill

APPENDIX A: GEOTECHNICAL SOILS TESTING

A.1 Moisture/Density Relationships

Soils / Aggregates

Report Date: April 23, 2019

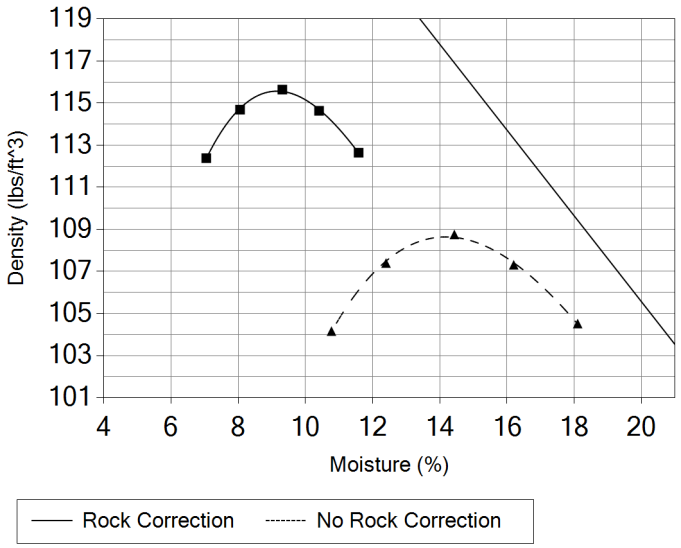
Client		Project	
Name:	ParkHill Smith & Cooper	**Name:**	(19-519-02232) OWL PSC #56018
Address:	4222 85th Street Lubbock, TX 79423	**Address:**	Jal, NM
Attention:	Don Gray	**Phase:**	**Task:**
PO Number:		**Manager:**	Roberto Balderrama
Sample Date:	4/17/2019 by Client	**Lab/Ref. #:**	2232-02L
Source:	Onsite native, blend of -5' and -8' over-ex	**Description:**	Field description: Tan/white silty sand with caliche ASTM D2487 lab description: Poorly graded gravel with silt and sand, Coarse to Fine grain, No PI

Type of Specification: No project specification was provided.

Sieve Analysis: (ASTM C117-13/C136-14)

200 Wash Procedure: A

	Sieve Size	Passing	Specification Min	Specification Max
Coarse Portion:	4in.	100%		
	3in.	98%		
	2in.	90%		
	1 1/2in.	83%		
	1in.	70%		
	3/4in.	62%		
	1/2in.	50%		
	3/8in.	44%		
	#4	32%		
Fine Portion:	#8	25%		
	#10	23%		
	#16	20%		
	#30	17%		
	#40	16%		
	#50	14%		
	#100	9%		
	#200	5.3%		



Plasticity Index (ASTM D4318-10) PI Air Dried.

Preparation Method: Dry **Liquid Limit Method:** A

Soil Classification (ASTM D2487-11) GP-GM

		Specification Min	Specification Max
Liquid Limit:	NV		
Plastic Limit:	NV		
Plasticity Index:	NP		

Correction Soil Containing Oversize Particles (ASTM D4718-15)

Moisture Density Relationship: (ASTM D698-12) Method: C

Preparation Method: Dry **Rammer Type:** Mechanical

Specific Gravity: 2.551 Assumed **Coarse Specific Gravity:** 2.065

Maximum Density (lbs/ft^3): 108.6 Rock Corrected: 115.6

Optimum Moisture (%): 14.2 Rock Corrected: 9.2

Remarks:

Distribution: Carl King, Don Gray

Reviewed By: Roberto Balderrama

This report relates only to the items inspected/tested and shall not be reproduced, except in full, without prior written consent

Wood Environment & Infrastructure Solutions, Inc. - 1104 Main Street Eunice, NM 88231 phone: (575) 394-0424 fax: (505) 821-7371

Soils / Aggregates

Report Date: October 11, 2019

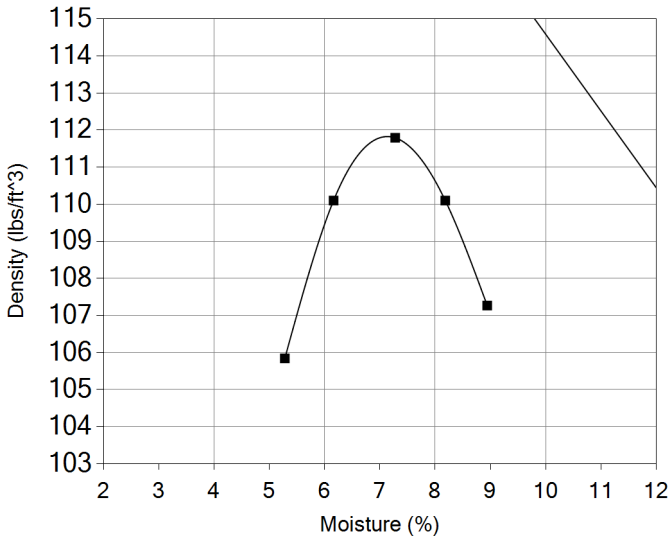
Client		Project	
Name:	ParkHill Smith & Cooper	**Name:**	(19-519-02368) Owl Landfill Services
Address:	4222 85th Street Lubbock, TX 79423	**Address:**	Hobbs, NM
Attention:	Carl King P.E.	**Phase:**	**Task:**
PO Number:	560.19.001.01	**Manager:**	Hugo Carreon
Sample Date:	10/4/2019 by Client / Contractor (Constructor's Inc.)	**Lab/Ref. #:**	2368-01L
Source:	Landfill berm material (current processed)	**Description:**	Tan Poorly Graded Gravel (durable caliche) w/Silt and Sand (Job 560-19), No PI

Type of Specification: No project specification was provided.

Sieve Analysis: (ASTM C117-13/C136-14)

200 Wash Procedure: A

	Sieve Size	Passing	Specification Min	Specification Max
Coarse Portion:	4in.	100%		
	3in.	96%		
	2in.	84%		
	1 1/2in.	73%		
	1in.	56%		
	3/4in.	49%		
	1/2in.	41%		
	3/8in.	36%		
	#4	28%		
Fine Portion:	#8	24%		
	#10	24%		
	#16	22%		
	#30	20%		
	#40	19%		
	#50	17%		
	#100	11%		
	#200	6.8%		



Plasticity Index (ASTM D4318-10) PI Air Dried.

Preparation Method: Dry **Liquid Limit Method:** A

Soil Classification (ASTM D2487-11) GP-GM

		Specification Min	Specification Max
Liquid Limit:	31		
Plastic Limit:	NV		
Plasticity Index:	NP		

Correction Soil Containing Oversize Particles (ASTM D4718-15)

Moisture Density Relationship: (ASTM D698-12) Method: C

Preparation Method: Moist **Rammer Type:** Manual

Specific Gravity: 2.251 **Coarse Specific Gravity:** 1.973

Rock Corrected Maximum Density (lbs/ft^3): 111.8

Rock Corrected Optimum Moisture (%): 7.1

Remarks: Material would not roll, flattens. Sandy non-plastic.

Distribution: Don Gray, Carl King P.E.

Reviewed By: Hugo Carreon

Hugo Carreon

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Wood Environment & Infrastructure Solutions, Inc. - 1104 Main Street Eunice, NM 88231 phone: (575) 394-0424 fax: (505) 821-7371

Soils / Aggregates

Report Date: April 18, 2019

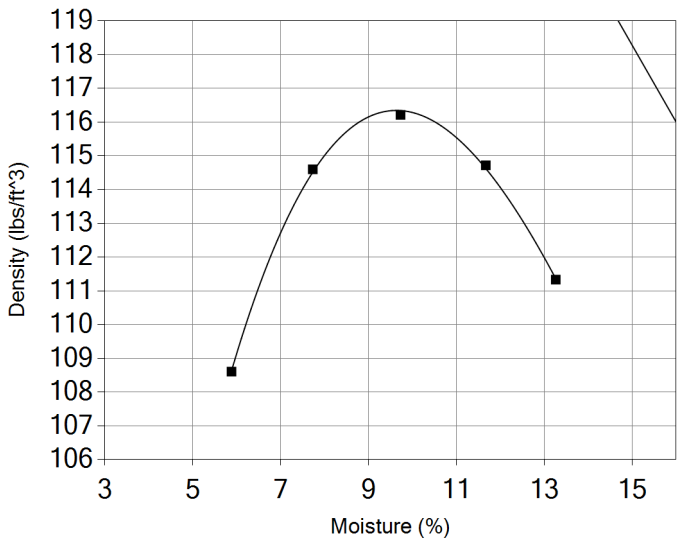
Client		Project	
Name:	ParkHill Smith & Cooper	**Name:**	(19-519-02232) OWL PSC #56018
Address:	4222 85th Street Lubbock, TX 79423	**Address:**	Jal, NM
Attention:	Don Gray	**Phase:**	**Task:**
PO Number:		**Manager:**	Roberto Balderrama
Sample Date:	4/17/2019 by Client	**Lab/Ref. #:**	2232-01L
Source:	Onsite native	**Description:**	Field description: Red silty sand ASTM D2487 lab description: Silty sand, Fine grain, No PI

Type of Specification: No project specification was provided.

Sieve Analysis: (ASTM C117-13/C136-14)

200 Wash Procedure: A

Sieve Size	Passing	Specification Min	Specification Max
#4	100%		
#8	100%		
#10	100%		
#16	100%		
#30	100%		
#40	98%		
#50	88%		
#100	42%		
#200	15%		



Plasticity Index (ASTM D4318-10) PI Air Dried.

Preparation Method: Dry **Liquid Limit Method:** A

Soil Classification (ASTM D2487-11) SM

		Specification Min	Specification Max
Liquid Limit:	NV		
Plastic Limit:	NV		
Plasticity Index:	NP		

Moisture Density Relationship: (ASTM D698-12) Method: A

Preparation Method: Dry **Rammer Type:** Mechanical

Specific Gravity: 2.651 Assumed

Maximum Density (lbs/ft^3): 116.3

Optimum Moisture (%): 9.6

Remarks:

Distribution: Wood

Reviewed By: Roberto Balderrama

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Parkhill

APPENDIX A: GEOTECHNICAL SOILS TESTING

A.2 Subgrade (Cell 3 A/B Floor) Test Results

Parkhill

FIELD COMPACTION TESTING FORM

PROJECT NAME: OWL Landfill Construction
OWNER: Oil Field Water Logistics
PROJECT LOCATION: Lea County, NM
LOCATION: Landfill Subgrade
PROJECT NO.: 01-6759-21
PAGE NO.: 1

TESTING INSTRUMENT: IntroTek 3500 Xplorer®
TECHNICIAN: Karl Ruiz

SOIL CLASSIFICATION		DESCRIPTION	REF STD PROCTOR		90% (PCF)	OPTIMAL MOISTURE
A	GP-GM	Caliche	108.6 pcf	90% optimum	97.7	14.2 % Moisture
B	GP-GM	Poorly Graded Gravel w/ Silt and Sand	111.8 pcf	90% optimum	100.6	7.1 % Moisture
C	SM	Silty Sand	116.3 pcf	90% optimum	104.7	9.6 % Moisture

Soil Type	TEST NUMBER	% RSP	DRY DENSGITY (PCF)	% MOISTURE	DATE COMPLETED	NOTES
C	B-1A	93%	107.7	7.1%	9/23/2021	FLOOR
C	B-2A	93%	108.2	8.2%	9/23/2021	FLOOR
A	B-3A	94%	101.6	7.3%	9/23/2021	FLOOR
A	B-4A	97%	105.3	8.8%	9/23/2021	FLOOR
A	B-5A	94%	102.3	9.0%	9/23/2021	FLOOR
A	B-6A	92%	99.7	8.0%	9/23/2021	FLOOR
C	B-1B	90%	104.7	9.6%	9/23/2021	FLOOR
C	B-2B	91%	105.9	11.0%	9/23/2021	FLOOR
A	B-3B	94%	101.9	8.9%	9/23/2021	FLOOR
C	B-4B	90%	104.7	10.8%	9/23/2021	FLOOR
C	B-5B	90%	104.8	10.3%	9/23/2021	FLOOR
A	B-6B	96%	104.1	12.1%	10/4/2021	FLOOR
B	B-1C	95%	106.3	6.6%	10/4/2021	FLOOR
C	B-2C	95%	111.0	8.5%	10/4/2021	FLOOR
C	B-3C	94%	109.5	8.2%	10/4/2021	FLOOR
B	B-4C	99%	110.7	7.1%	10/4/2021	FLOOR
C	B-5C	93%	108.1	8.2%	10/4/2021	FLOOR
C	B-6C	93%	108.1	9.1%	10/4/2021	FLOOR
B	B-1D	96%	107.8	7.0%	10/4/2021	FLOOR
B	B-2D	98%	109.2	6.7%	10/4/2021	FLOOR
C	B-3D	99%	114.9	8.1%	10/4/2021	FLOOR
C	B-4D	95%	110.2	8.0%	10/4/2021	FLOOR
C	B-5D	96%	111.8	7.7%	10/4/2021	FLOOR
C	B-6D	93%	108.0	10.7%	10/4/2021	FLOOR
B	B-1E	93%	103.9	6.4%	5/4/2021	FLOOR
B	B-2E	98%	114.4	6.5%	5/5/2021	FLOOR
B	B-3E	98%	109.4	8.8%	5/5/2021	FLOOR
C	B-4E	93%	108.2	10.3%	5/5/2021	FLOOR
C	B-5E	94%	109.0	10.4%	5/5/2021	FLOOR
C	B-6E	96%	111.1	10.8%	5/5/2021	FLOOR

Parkhill

APPENDIX A: GEOTECHNICAL SOILS TESTING

A.3 Berm Density Test Results

Parkhill

FIELD COMPACTION TESTING FORM

PROJECT NAME:	OWL Landfill Construction	**LOCATION:**	Landfill Subgrade
OWNER:	Oil Field Water Logistics	**PROJECT NO.:**	01-6759-21
PROJECT LOCATION:	Lea County, NM	**PAGE NO.:**	1
TESTING INSTRUMENT:	IntroTek 3500 Xplorer®	**TECHNICIAN:**	Karl Ruiz

SOIL CLASSIFICATION		DESCRIPTION	REF STD PROCTOR		90% (PCF)	OPTIMAL MOISTURE
A	GP-GM	Caliche	108.6 pcf	90% optimum	97.7	14.2 % Moisture
B	GP-GM	Poorly Graded Gravel w/ Silt and Sand	111.8 pcf	90% optimum	100.6	7.1 % Moisture
C	SM	Silty Sand	116.3 pcf	90% optimum	104.7	9.6 % Moisture

Soil Type	TEST NUMBER	% RSP	DRY DENSGITY (PCF)	% MOISTURE	DATE COMPLETED	NOTES
A	S-1A	92%	100.3	7.4%	9/23/2021	SLOPE
A	S-2A	93%	101.4	8.2%	9/23/2021	SLOPE
A	S-1B	92%	99.4	10.4%	10/4/2021	SLOPE
A	S-2B	91%	98.3	8.8%	10/4/2021	SLOPE
A	S-1C	90%	97.8	9.6%	10/4/2021	SLOPE
A	S-1D	92%	100.4	8.9%	10/4/2021	SLOPE
A	S-2D	91%	98.7	11.3%	10/4/2021	SLOPE
A	S-1E	94%	101.6	10.4%	10/5/2021	SLOPE
A	S-2E	91%	99.3	10.7%	10/5/2021	SLOPE

Parkhill

APPENDIX A: GEOTECHNICAL SOILS TESTING

A.4 Anchor Trench Density Test Results

Parkhill

FIELD COMPACTION TESTING FORM

PROJECT NAME: OWL Landfill Construction
OWNER: Oil Field Water Logistics
PROJECT LOCATION: Lea County, NM
LOCATION: Landfill Subgrade
PROJECT NO.: 01-6759-21
PAGE NO.: 1

TESTING INSTRUMENT: IntroTek 3500 Xplorer®
TECHNICIAN: Matt Kingsley

SOIL CLASSIFICATION		DESCRIPTION	REF STD PROCTOR		90% (PCF)	OPTIMAL MOISTURE
A	GP-GM	Caliche	108.6 pcf	90% optimum	97.7	14.2 % Moisture
B	GP-GM	Poorly Graded Gravel w/ Silt and Sand	111.8 pcf	90% optimum	100.6	7.1 % Moisture
C	SM	Silty Sand	116.3 pcf	90% optimum	104.7	9.6 % Moisture

Soil Type	TEST NUMBER	% RSP	DRY DENSGITY (PCF)	% MOISTURE	DATE COMPLETED	NOTES
A	1A	93%	100.5	10.5%	9/23/2021	SLOPE
A	2A	93%	100.9	10.7%	9/23/2021	SLOPE
A	3A	92%	99.6	11.4%	10/4/2021	SLOPE
A	4A	91%	98.6	13.6%	10/4/2021	SLOPE
A	5A	92%	99.7	13.1%	10/4/2021	SLOPE
A	6A	91%	99.3	13.3%	10/4/2021	SLOPE
A	7A	98%	106.2	12.3%	10/4/2021	SLOPE
A	8A	97%	105.2	12.3%	10/5/2021	SLOPE
A	9A	97%	105.3	12.8%	10/5/2021	SLOPE
A	10A	95%	102.7	14.7%	10/4/2021	SLOPE
A	11A	91%	98.7	12.3%	10/5/2021	SLOPE
A	12A	94%	102.4	15.1%	10/5/2021	SLOPE

Parkhill

APPENDIX A: GEOTECHNICAL SOILS TESTING

A.5 PSL Hydraulic Conductivity

Rigid Wall Falling-Head
Remold Permeability

GEO-TEST

Project:	Owl Cell 3A/B
Job #:	3-11023
Lab #:	4121
Location:	Owl 3A/B #1
Soil Description:	Sand
Remolded to:	80% of ASTM D-698

Aparatus Weight Empty:	257.2	grams	Weight of Sample:	371.9	grams
Apparartus Weight + Soil:	629.1	grams	Weight of Sample:	0.819885	lb
Mold Diameter:	6.413	cm	Mold Area:	32.30073	cm^2
Pipe Diameter:	1.27	cm	Pipe Area:	1.266769	cm^2
Length of Sample	6.99	cm	Area Factor:	0.039218	
Pressure Head Applied:	0	cm	Volume of Sample:	225.7821	cm^3
Can #:			Volume of Sample:	0.007973	ft^3
Wet Weight:	247.9	grams	**Unit Weight:**	**102.8**	**lb/ft^3**
Dry Weight:	225.3	grams	**Moisture Content:**	**10.0**	**%**
			Dry Unit Weight:	**93.5**	**lb/ft^3**

Time	Trial 1	Trial 2	Trial 3
Hour	0	0	0
Minute	0	0	0
Second	23	23	23
Total (hr)	0.006389	0.006389	0.006389
h_0	65 cm	65 cm	65 cm
h_1	10 cm	10 cm	10 cm
$Head_0$	71.99 cm	71.99 cm	71.99 cm
$Head_1$	16.99 cm	16.99 cm	16.99 cm
Ks (cm/hour)	61.95 cm/hr	61.95 cm/hr	61.95 cm/hr
Ks (cm/sec)	1.72E-02 cm/s	1.72E-02 cm/s	1.72E-02 cm/s

Saturated Hydraulic Conductivity, K_s:	**61.95 cm/hr**
Saturated Hydraulic Conductivity, K_s:	**1.72E-02 cm/s**

Rigid Wall Falling-Head
Remold Permeability

GEO-TEST

Project:	Owl Cell 3A/B
Job #:	3-11023
Lab #:	4122
Location:	Owl 3A/B #2
Soil Description:	Sand
Remolded to:	80% of ASTM D-698

Aparatus Weight Empty:	250.9	grams	Weight of Sample:	362.4	grams
Apparartus Weight + Soil:	613.3	grams	Weight of Sample:	0.798942	lb
Mold Diameter:	6.395	cm	Mold Area:	32.11966	cm^2
Pipe Diameter:	1.27	cm	Pipe Area:	1.266769	cm^2
Length of Sample	6.84	cm	Area Factor:	0.039439	
Pressure Head Applied:	0	cm	Volume of Sample:	219.6985	cm^3
Can #:			Volume of Sample:	0.007759	ft^3
Wet Weight:	248.3	grams	**Unit Weight:**	**103.0**	**lb/ft^3**
Dry Weight:	226.8	grams	**Moisture Content:**	**9.5**	**%**
			Dry Unit Weight:	**94.1**	**lb/ft^3**

Time	Trial 1	Trial 2	Trial 3
Hour	0	0	0
Minute	0	0	0
Second	47	47	47
Total (hr)	0.013056	0.013056	0.013056
h_0	65 cm	65 cm	65 cm
h_1	10 cm	10 cm	10 cm
$Head_0$	71.84 cm	71.84 cm	71.84 cm
$Head_1$	16.84 cm	16.84 cm	16.84 cm
Ks (cm/hour)	29.98 cm/hr	29.98 cm/hr	29.98 cm/hr
Ks (cm/sec)	8.33E-03 cm/s	8.33E-03 cm/s	8.33E-03 cm/s

Saturated Hydraulic Conductivity, K_s:	**29.98 cm/hr**
Saturated Hydraulic Conductivity, K_s:	**8.33E-03 cm/s**

Rigid Wall Falling-Head
Remold Permeability

GEO-TEST

Project:	Owl Cell 3A/B
Job #:	3-11023
Lab #:	4208
Location:	#1, Client Delivered on 11/24/21
Soil Description:	Sand
Remolded to:	80% of ASTM D-698

Aparatus Weight Empty:	256.8	grams	Weight of Sample:	372.9	grams
Apparartus Weight + Soil:	629.7	grams	Weight of Sample:	0.82209	lb
Mold Diameter:	6.413	cm	Mold Area:	32.30073	cm^2
Pipe Diameter:	1.27	cm	Pipe Area:	1.266769	cm^2
Length of Sample	6.99	cm	Area Factor:	0.039218	
Pressure Head Applied:	0	cm	Volume of Sample:	225.7821	cm^3
Can #:			Volume of Sample:	0.007973	ft^3
Wet Weight:	250.2	grams	**Unit Weight:**	**103.1**	**lb/ft^3**
Dry Weight:	227.1	grams	**Moisture Content:**	**10.2**	**%**
			Dry Unit Weight:	**93.6**	**lb/ft^3**

Time	Trial 1	Trial 2	Trial 3
Hour	0	0	0
Minute	1	1	1
Second	1	3	3
Total (hr)	0.016944	0.0175	0.0175
h_0	65 cm	65 cm	65 cm
h_1	10 cm	10 cm	10 cm
$Head_0$	71.99 cm	71.99 cm	71.99 cm
$Head_1$	16.99 cm	16.99 cm	16.99 cm
Ks (cm/hour)	23.36 cm/hr	22.62 cm/hr	22.62 cm/hr
Ks (cm/sec)	6.49E-03 cm/s	6.28E-03 cm/s	6.28E-03 cm/s

Saturated Hydraulic Conductivity, K_s:	**22.87 cm/hr**
Saturated Hydraulic Conductivity, K_s:	**6.35E-03 cm/s**

Rigid Wall Falling-Head
Remold Permeability

GEO-TEST

Project:	Owl Cell 3A/B
Job #:	3-11023
Lab #:	4209
Location:	#2, Client Delivered on 11/24/21
Soil Description:	Sand
Remolded to:	80% of ASTM D-698

Aparatus Weight Empty:	250.9	grams	Weight of Sample:	358.6	grams
Apparartus Weight + Soil:	609.5	grams	Weight of Sample:	0.790564	lb
Mold Diameter:	6.395	cm	Mold Area:	32.11966	cm^2
Pipe Diameter:	1.27	cm	Pipe Area:	1.266769	cm^2
Length of Sample	6.84	cm	Area Factor:	0.039439	
Pressure Head Applied:	0	cm	Volume of Sample:	219.6985	cm^3
Can #:			Volume of Sample:	0.007759	ft^3
Wet Weight:	292.0	grams	**Unit Weight:**	**101.9**	**lb/ft^3**
Dry Weight:	263.5	grams	**Moisture Content:**	**10.8**	**%**
			Dry Unit Weight:	**92.0**	**lb/ft^3**

Time	Trial 1	Trial 2	Trial 3
Hour	0	0	0
Minute	3	3	3
Second	43	35	32
Total (hr)	0.061944	0.059722	0.058889
h_0	65 cm	65 cm	65 cm
h_1	10 cm	10 cm	10 cm
$Head_0$	71.84 cm	71.84 cm	71.84 cm
$Head_1$	16.84 cm	16.84 cm	16.84 cm
Ks (cm/hour)	6.32 cm/hr	6.55 cm/hr	6.65 cm/hr
Ks (cm/sec)	1.75E-03 cm/s	1.82E-03 cm/s	1.85E-03 cm/s

Saturated Hydraulic Conductivity, K_s:	**6.51 cm/hr**
Saturated Hydraulic Conductivity, K_s:	**1.81E-03 cm/s**

Rigid Wall Falling-Head
Remold Permeability

GEO-TEST

Project:	Owl Cell 3A/B
Job #:	3-11023
Lab #:	4210
Location:	#3, Client Delivered on 11/24/21
Soil Description:	Sand
Remolded to:	80% of ASTM D-698

Aparatus Weight Empty:	256.8	grams	Weight of Sample:	373.9	grams
Apparartus Weight + Soil:	630.7	grams	Weight of Sample:	0.824295	lb
Mold Diameter:	6.413	cm	Mold Area:	32.30073	cm^2
Pipe Diameter:	1.27	cm	Pipe Area:	1.266769	cm^2
Length of Sample	6.99	cm	Area Factor:	0.039218	
Pressure Head Applied:	0	cm	Volume of Sample:	225.7821	cm^3
Can #:			Volume of Sample:	0.007973	ft^3
Wet Weight:	304.1	grams	**Unit Weight:**	**103.4**	**lb/ft^3**
Dry Weight:	275.7	grams	**Moisture Content:**	**10.3**	**%**
			Dry Unit Weight:	**93.7**	**lb/ft^3**

Time	Trial 1	Trial 2	Trial 3
Hour	0	0	0
Minute	1	1	1
Second	9	7	7
Total (hr)	0.019167	0.018611	0.018611
h_0	65 cm	65 cm	65 cm
h_1	10 cm	10 cm	10 cm
$Head_0$	71.99 cm	71.99 cm	71.99 cm
$Head_1$	16.99 cm	16.99 cm	16.99 cm
Ks (cm/hour)	20.65 cm/hr	21.27 cm/hr	21.27 cm/hr
Ks (cm/sec)	5.74E-03 cm/s	5.91E-03 cm/s	5.91E-03 cm/s

Saturated Hydraulic Conductivity, K_s:	**21.06 cm/hr**
Saturated Hydraulic Conductivity, K_s:	**5.85E-03 cm/s**

Rigid Wall Falling-Head
Remold Permeability

GEO-TEST

Project:	Owl Cell 3A/B
Job #:	3-11023
Lab #:	4211
Location:	#4, Client Delivered on 11/24/21
Soil Description:	Sand
Remolded to:	80% of ASTM D-698

Aparatus Weight Empty:	250.9	grams	Weight of Sample:	364.6	grams
Apparartus Weight + Soil:	615.5	grams	Weight of Sample:	0.803792	lb
Mold Diameter:	6.395	cm	Mold Area:	32.11966	cm^2
Pipe Diameter:	1.27	cm	Pipe Area:	1.266769	cm^2
Length of Sample	6.84	cm	Area Factor:	0.039439	
Pressure Head Applied:	0	cm	Volume of Sample:	219.6985	cm^3
Can #:			Volume of Sample:	0.007759	ft^3
Wet Weight:	327.6	grams	**Unit Weight:**	**103.6**	**lb/ft^3**
Dry Weight:	295.0	grams	**Moisture Content:**	**11.1**	**%**
			Dry Unit Weight:	**93.3**	**lb/ft^3**

Time	Trial 1	Trial 2	Trial 3
Hour	0	0	0
Minute	5	5	5
Second	32	32	25
Total (hr)	0.092222	0.092222	0.090278
h_0	65 cm	65 cm	65 cm
h_1	10 cm	10 cm	10 cm
$Head_0$	71.84 cm	71.84 cm	71.84 cm
$Head_1$	16.84 cm	16.84 cm	16.84 cm
Ks (cm/hour)	4.24 cm/hr	4.24 cm/hr	4.33 cm/hr
Ks (cm/sec)	1.18E-03 cm/s	1.18E-03 cm/s	1.20E-03 cm/s

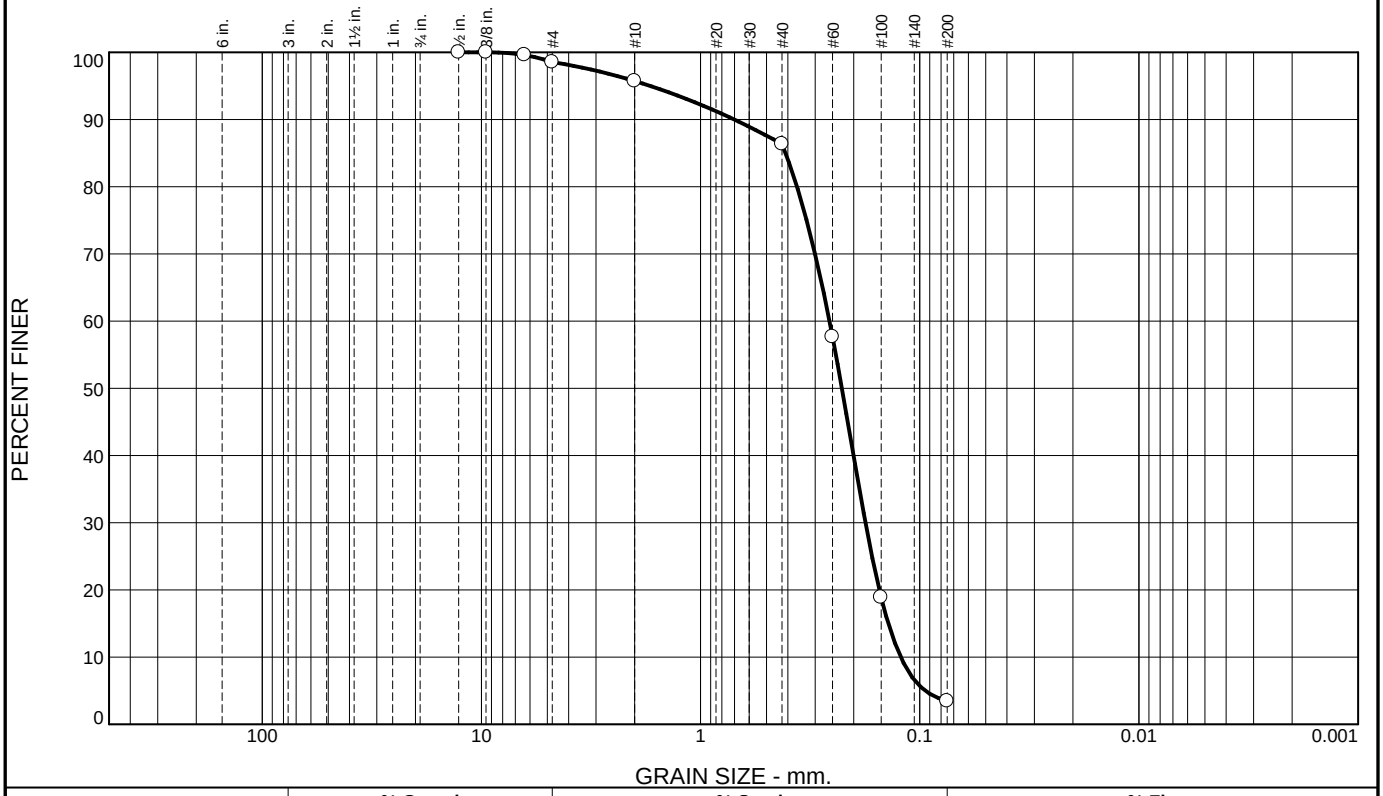
Saturated Hydraulic Conductivity, K_s:	**4.27 cm/hr**
Saturated Hydraulic Conductivity, K_s:	**1.19E-03 cm/s**

Parkhill

APPENDIX A: GEOTECHNICAL SOILS TESTING

A.6 PSL Grain Size Distribution Test Results

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.5	2.8	9.4	82.9	3.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2 in	100.0		
3/8 in	100.0		
1/4 in	99.6		
#4	98.5		
#10	95.7		
#40	86.3		
#60	57.7		
#100	18.9		
#200	3.4		

* (no specification provided)

Material Description

PSL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.7029 D_{85}= 0.4096 D_{60}= 0.2581
D_{50}= 0.2266 D_{30}= 0.1768 D_{15}= 0.1392
D_{10}= 0.1222 C_u= 2.11 C_c= 0.99

Classification

USCS= SP AASHTO=

Remarks

Location: Cell 3AB
Sample Number: 3AB-1.1

Date: 11/23/2021

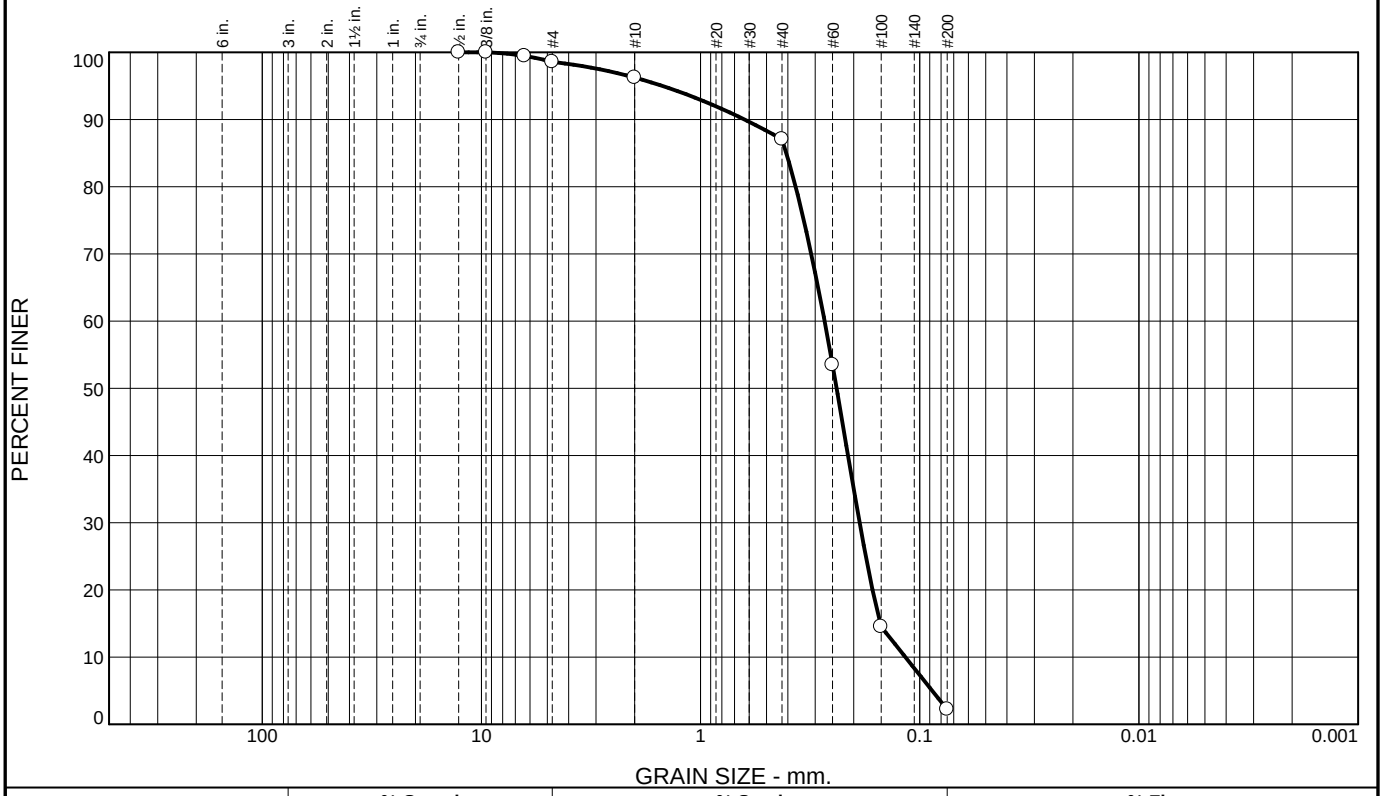
Parkhill

Client: OWL
Project: Cell 3AB Construction

Project No: 6759.21 **Figure** 1

Tested By: RS **Checked By:** TK

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.4	2.4	9.2	84.8	2.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2 in	100.0		
3/8 in	100.0		
1/4 in	99.4		
#4	98.6		
#10	96.2		
#40	87.0		
#60	53.5		
#100	14.5		
#200	2.2		

* (no specification provided)

Material Description

PSL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.6308 D_{85}= 0.4063 D_{60}= 0.2717
D_{50}= 0.2395 D_{30}= 0.1881 D_{15}= 0.1514
D_{10}= 0.1163 C_u= 2.34 C_c= 1.12

Classification

USCS= SP AASHTO=

Remarks

Location: Cell 3AB
Sample Number: 3AB-1.2

Date: 11/23/2021

Parkhill

Client: OWL
Project: Cell 3AB Construction

Project No: 6759.21 **Figure** 2

Tested By: RS **Checked By:** TK

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.6	2.7	8.7	84.3	2.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2 in	100.0		
3/8 in	100.0		
1/4 in	99.1		
#4	98.4		
#10	95.7		
#40	87.0		
#60	57.8		
#100	17.8		
#200	2.7		

* (no specification provided)

Material Description

PSL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.6670 D_{85}= 0.4027 D_{60}= 0.2573
D_{50}= 0.2268 D_{30}= 0.1785 D_{15}= 0.1425
D_{10}= 0.1268 C_u= 2.03 C_c= 0.98

Classification

USCS= SP AASHTO=

Remarks

Location: Cell 3AB
Sample Number: 3AB-1.3

Date: 11/23/2021

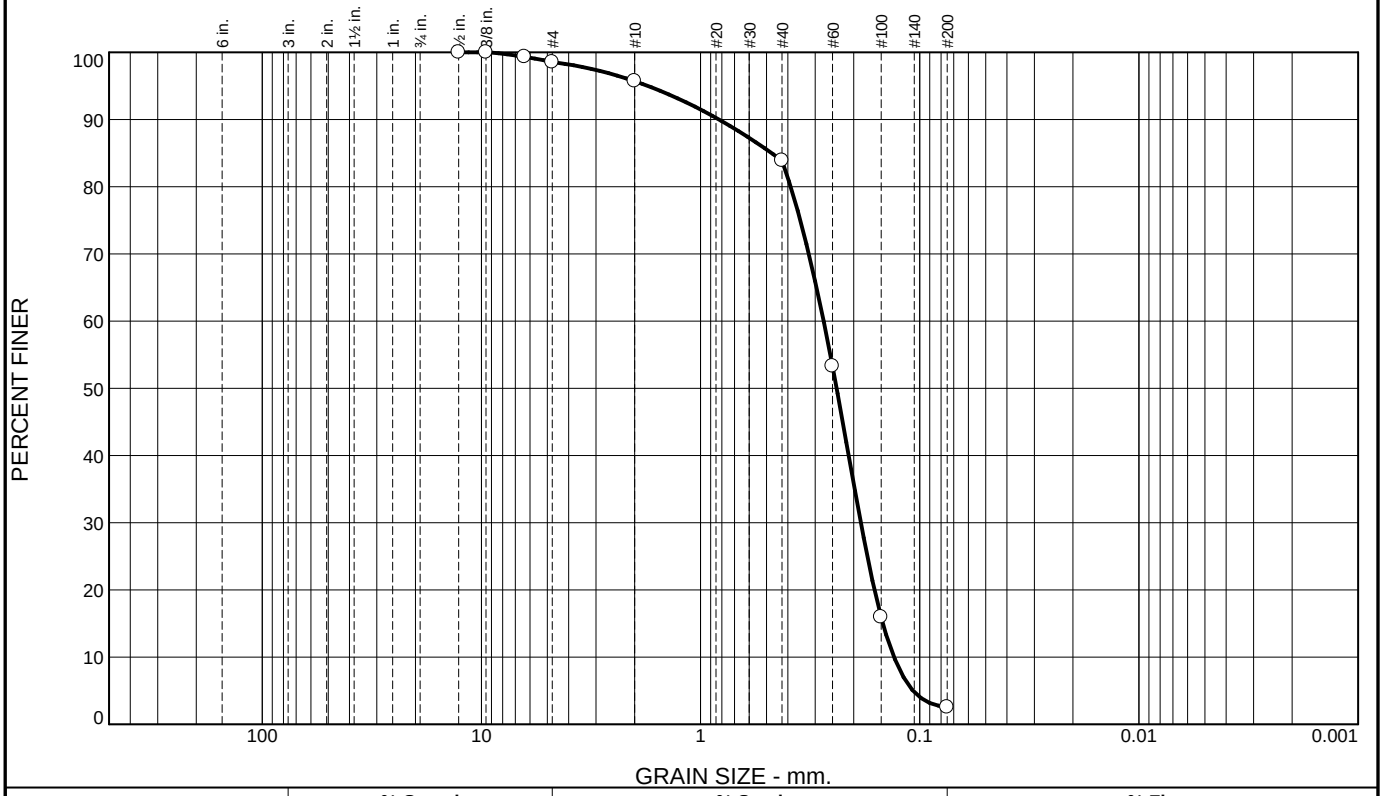
Parkhill

Client: OWL
Project: Cell 3AB Construction

Project No: 6759.21 **Figure** 3

Tested By: RS **Checked By:** TK

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.5	2.8	11.8	81.4	2.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2 in	100.0		
3/8 in	100.0		
1/4 in	99.3		
#4	98.5		
#10	95.7		
#40	83.9		
#60	53.3		
#100	15.9		
#200	2.5		

* (no specification provided)

Material Description

PSL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.8253 D_{85}= 0.4746 D_{60}= 0.2745
D_{50}= 0.2395 D_{30}= 0.1857 D_{15}= 0.1473
D_{10}= 0.1311 C_u= 2.09 C_c= 0.96

Classification

USCS= SP AASHTO=

Remarks

Location: Cell 3AB
Sample Number: 3AB-2.1

Date: 11/22/2021

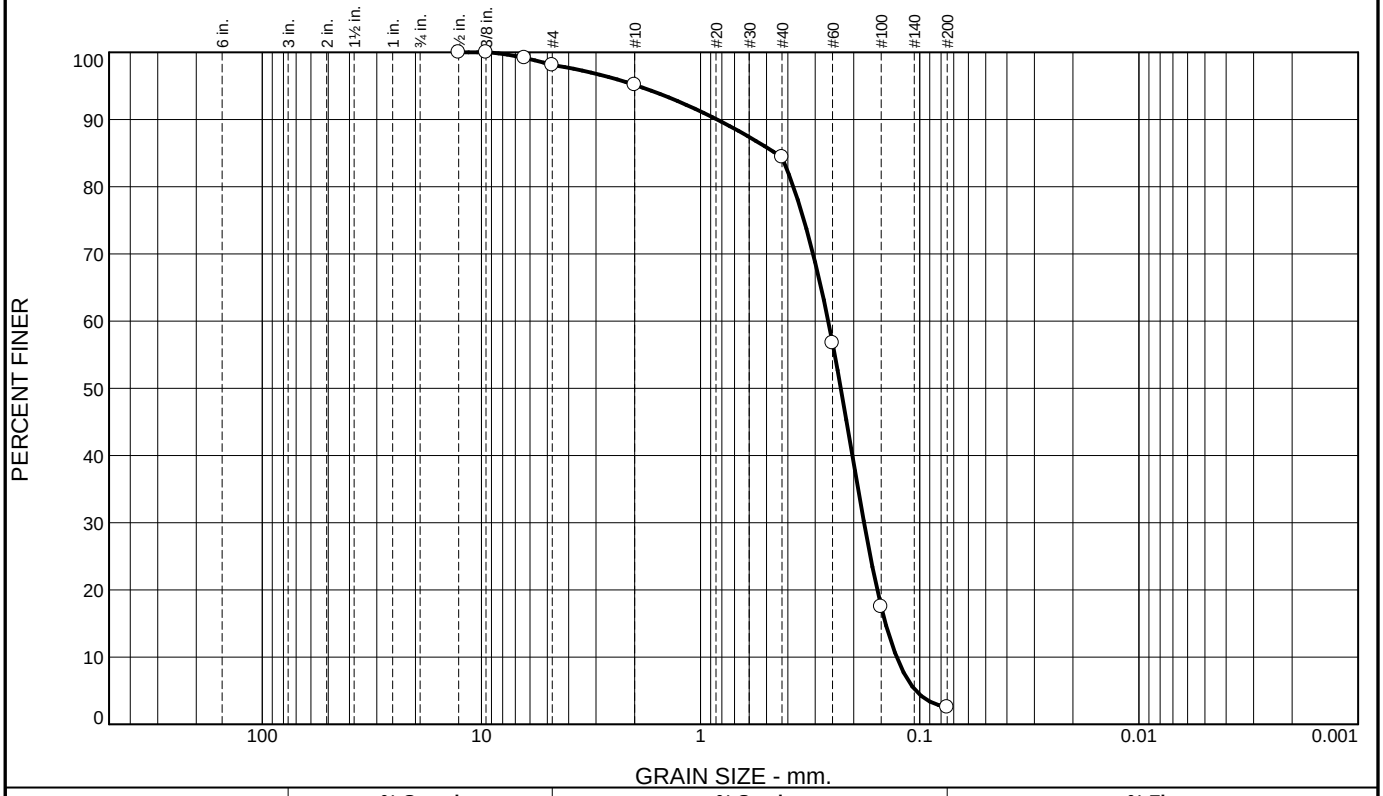
Parkhill

Client: OWL
Project: Cell 3AB Construction

Project No: 6759.21 **Figure** 4

Tested By: RS **Checked By:** TK

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.9	3.0	10.7	81.9	2.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2 in	100.0		
3/8 in	100.0		
1/4 in	99.2		
#4	98.1		
#10	95.1		
#40	84.4		
#60	56.8		
#100	17.5		
#200	2.5		

* (no specification provided)

Material Description

PSL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.8416 D_{85}= 0.4545 D_{60}= 0.2615
D_{50}= 0.2292 D_{30}= 0.1795 D_{15}= 0.1432
D_{10}= 0.1275 C_u= 2.05 C_c= 0.97

Classification

USCS= SP AASHTO=

Remarks

Location: Cell 3AB
Sample Number: 3AB-2.2

Date: 11/22/2021

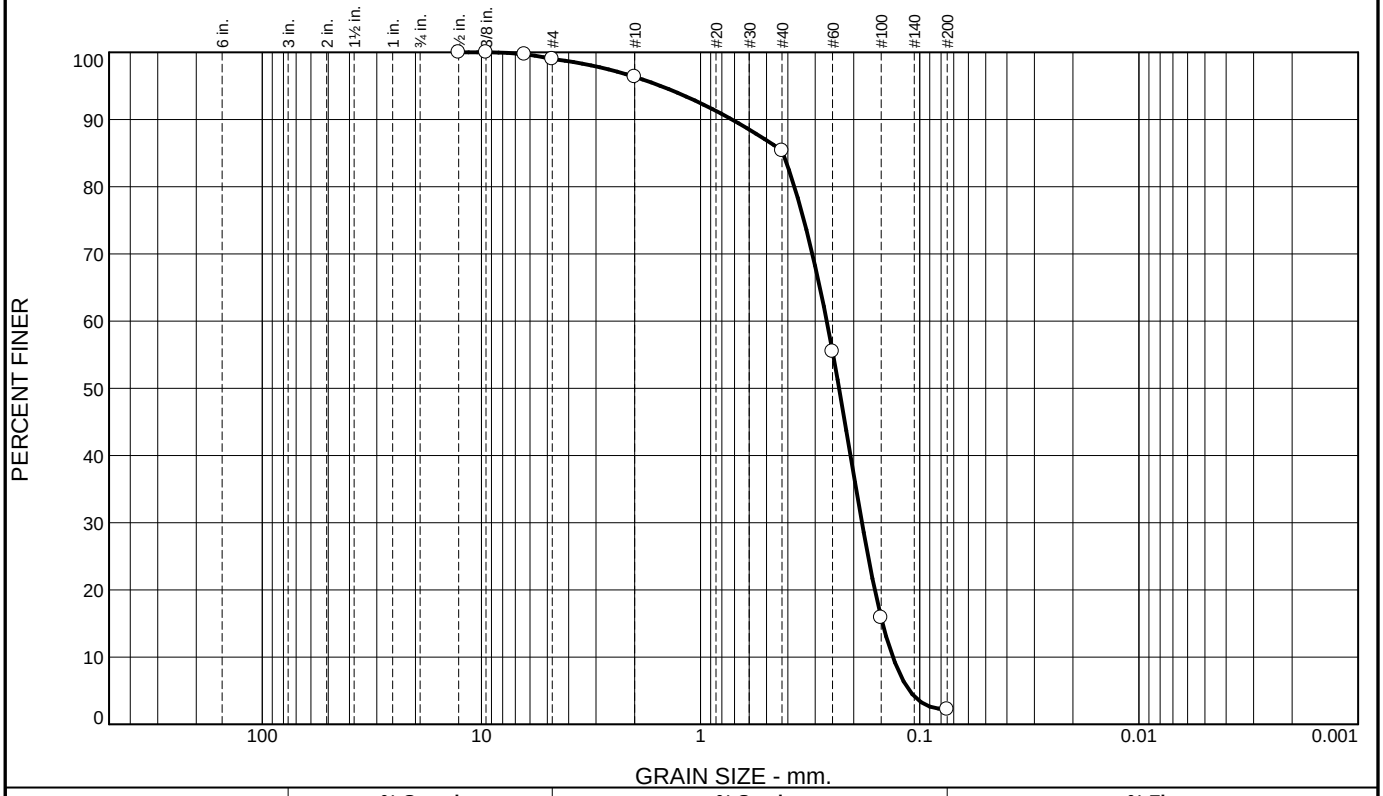
Parkhill

Client: OWL
Project: Cell 3AB Construction

Project No: 6759.21 **Figure** 5

Tested By: RS **Checked By:** TK

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.0	2.7	10.9	83.2	2.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2 in	100.0		
3/8 in	100.0		
1/4 in	99.7		
#4	99.0		
#10	96.3		
#40	85.4		
#60	55.5		
#100	15.9		
#200	2.2		

* (no specification provided)

Material Description

PSL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.7199 D_{85}= 0.4209 D_{60}= 0.2656
D_{50}= 0.2333 D_{30}= 0.1835 D_{15}= 0.1477
D_{10}= 0.1327 C_u= 2.00 C_c= 0.96

Classification

USCS= SP AASHTO=

Remarks

Location: Cell 3AB
Sample Number: 3AB-2.3

Date: 11/22/2021

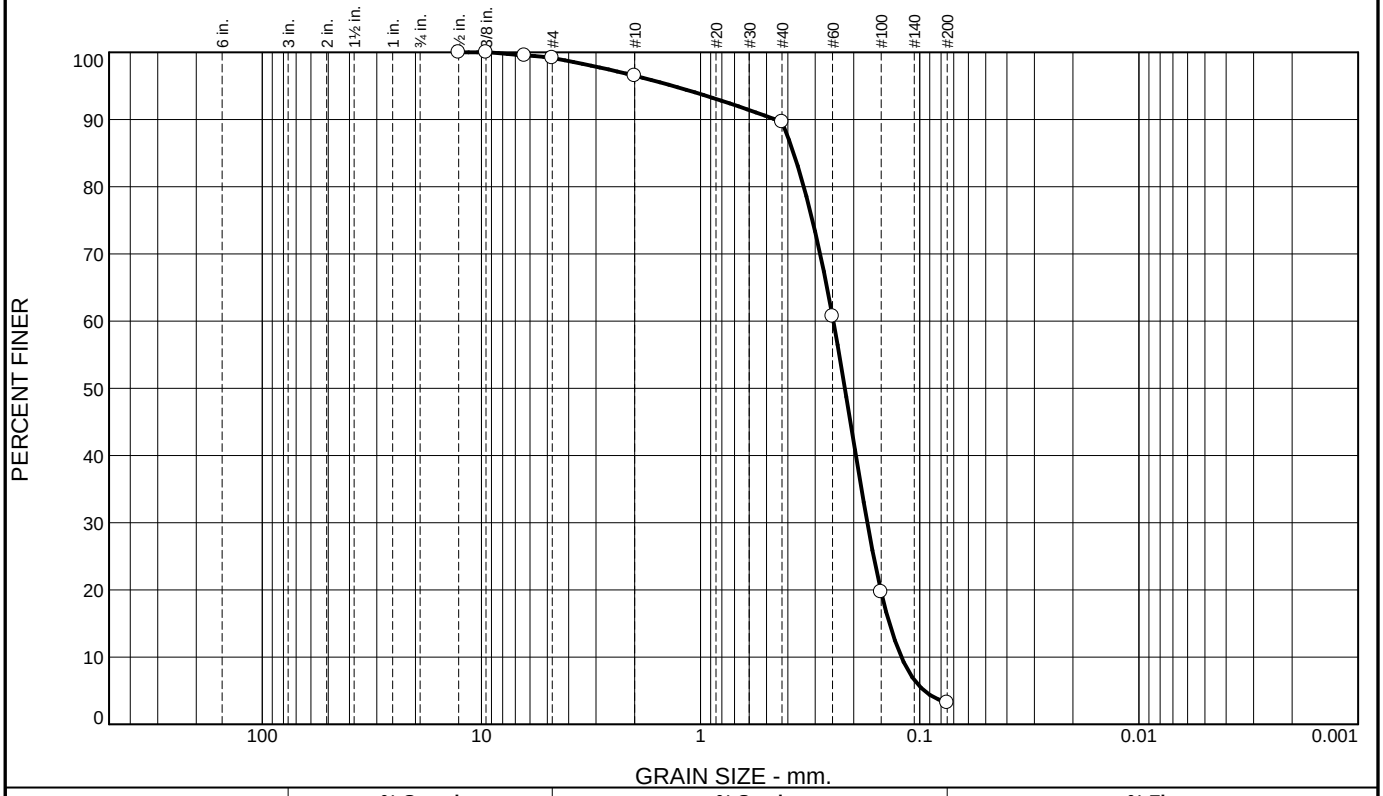
Parkhill

Client: OWL
Project: Cell 3AB Construction

Project No: 6759.21 **Figure** 6

Tested By: RS **Checked By:** TK

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	2.7	6.9	86.4	3.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2 in	100.0		
3/8 in	100.0		
1/4 in	99.5		
#4	99.2		
#10	96.5		
#40	89.6		
#60	60.7		
#100	19.7		
#200	3.2		

* (no specification provided)

Material Description

PSL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4556 D_{85}= 0.3765 D_{60}= 0.2478
D_{50}= 0.2196 D_{30}= 0.1734 D_{15}= 0.1376
D_{10}= 0.1213 C_u= 2.04 C_c= 1.00

Classification

USCS= SP AASHTO=

Remarks

Location: Cell 3AB
Sample Number: 3AB-3.1

Date: 11/22/2021

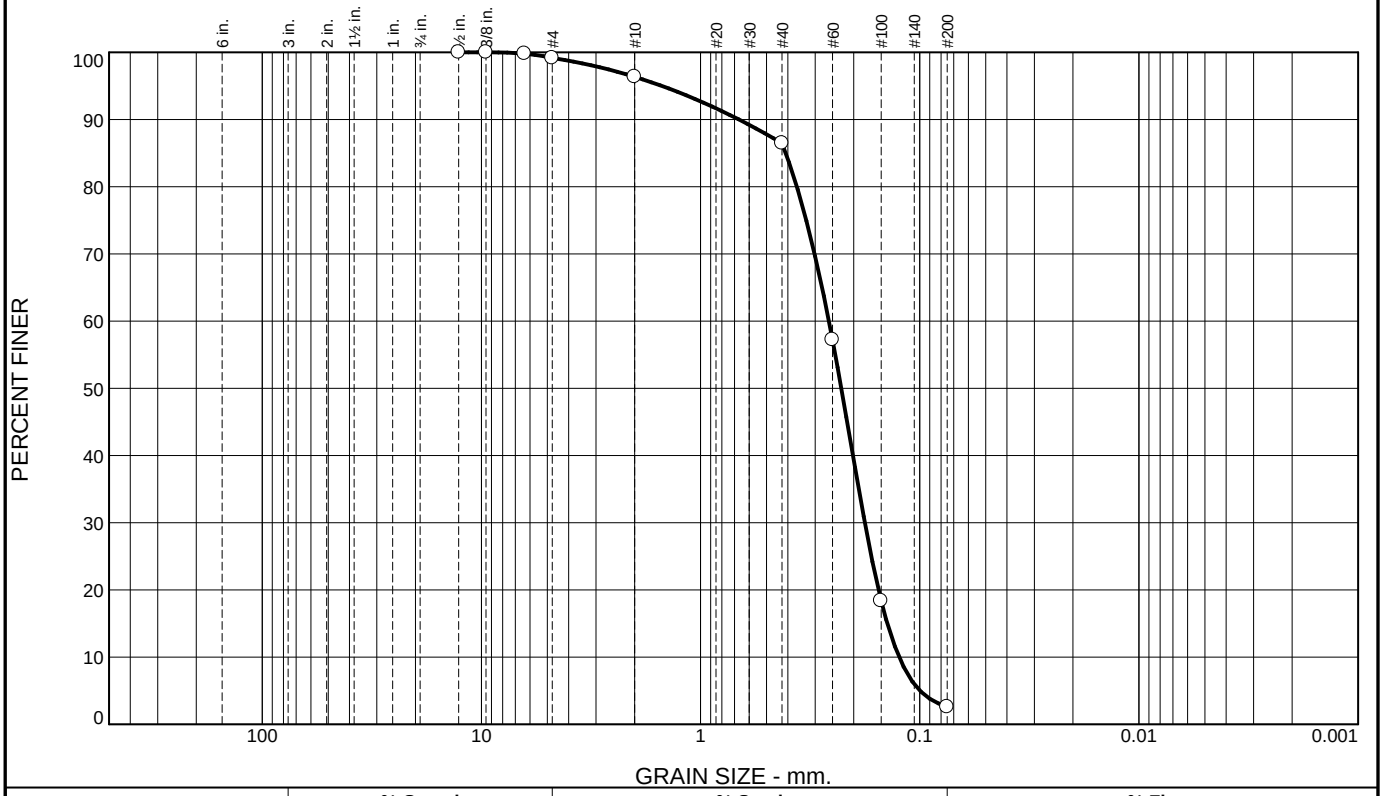
Parkhill

Client: OWL
Project: Cell 3AB Construction

Project No: 6759.21 **Figure** 7

Tested By: RS **Checked By:** TK

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.9	2.8	9.8	83.9	2.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2 in	100.0		
3/8 in	100.0		
1/4 in	99.8		
#4	99.1		
#10	96.3		
#40	86.5		
#60	57.2		
#100	18.4		
#200	2.6		

* (no specification provided)

Material Description

PSL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.6691 D_{85}= 0.4089 D_{60}= 0.2597
D_{50}= 0.2280 D_{30}= 0.1780 D_{15}= 0.1407
D_{10}= 0.1242 C_u= 2.09 C_c= 0.98

Classification

USCS= SP AASHTO=

Remarks

Location: Cell 3AB
Sample Number: 3AB-3.2

Date: 11/22/2021

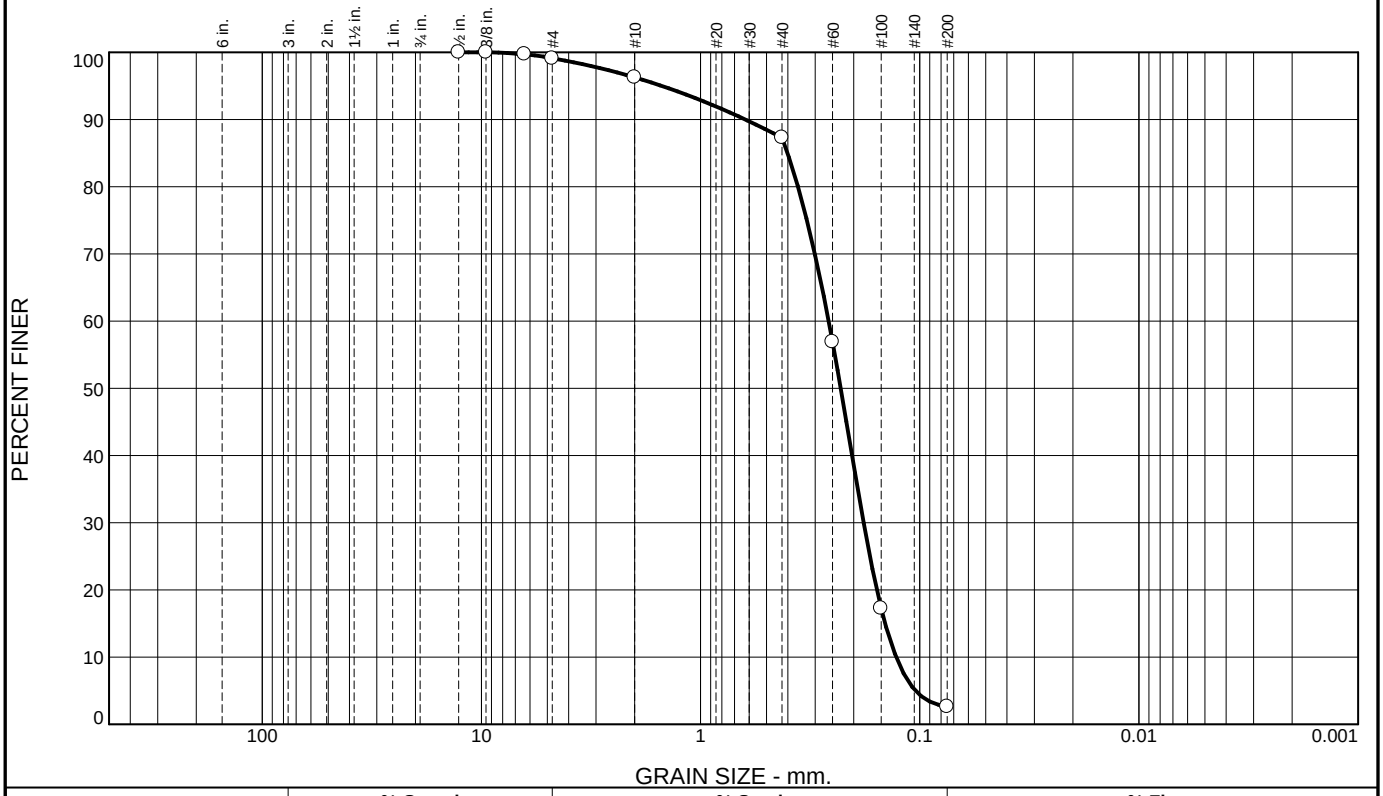
Parkhill

Client: OWL
Project: Cell 3AB Construction

Project No: 6759.21 **Figure** 8

Tested By: RS **Checked By:** TK

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.9	2.8	9.0	84.7	2.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2 in	100.0		
3/8 in	100.0		
1/4 in	99.7		
#4	99.1		
#10	96.3		
#40	87.3		
#60	56.9		
#100	17.3		
#200	2.6		

* (no specification provided)

Material Description

PSL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.6257 D_{85}= 0.4011 D_{60}= 0.2604
D_{50}= 0.2294 D_{30}= 0.1802 D_{15}= 0.1439
D_{10}= 0.1281 C_u= 2.03 C_c= 0.97

Classification

USCS= SP AASHTO=

Remarks

Location: Cell 3AB
Sample Number: 3AB-3.3

Date: 11/22/2021

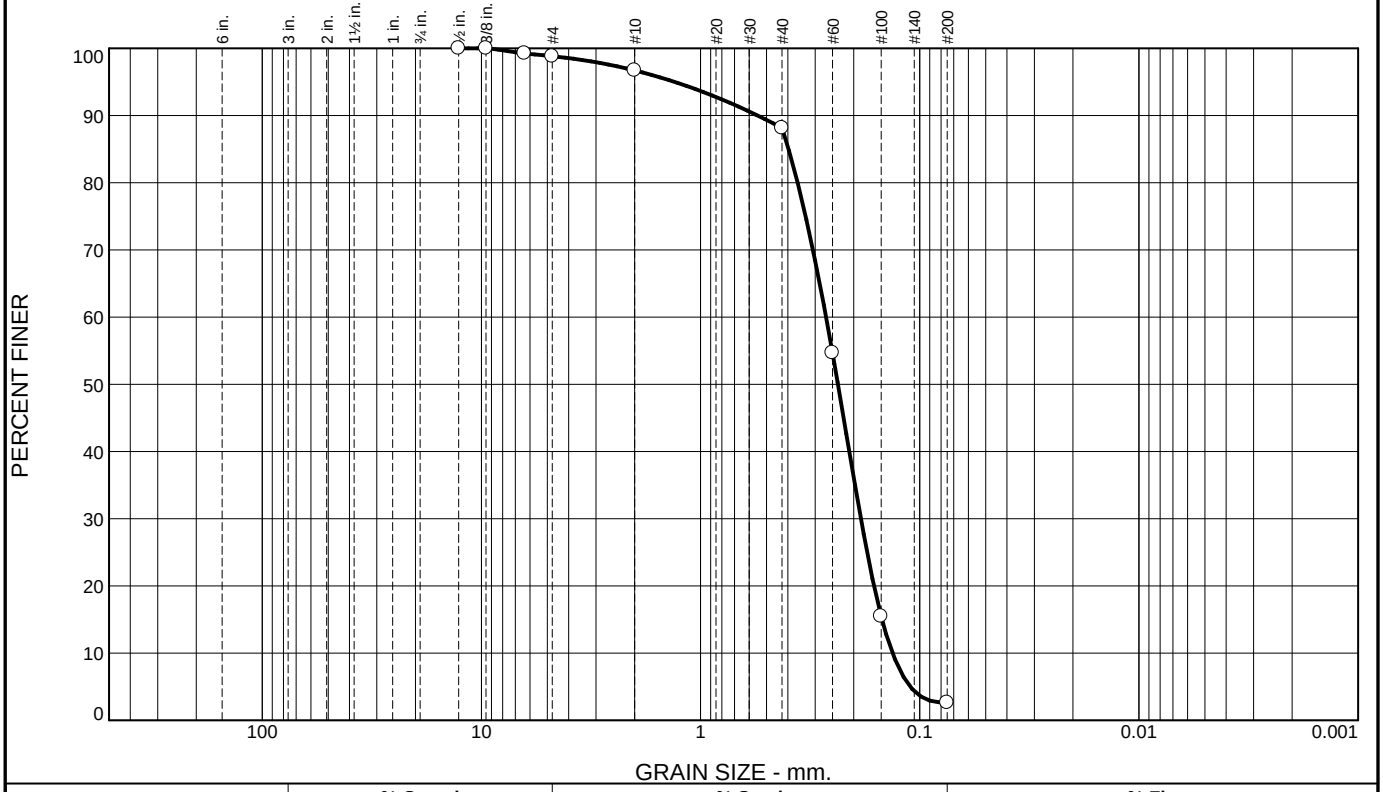
Parkhill

Client: OWL
Project: Cell 3AB Construction

Project No: 6759.21 **Figure** 9

Tested By: RS **Checked By:** TK

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.2	2.1	8.6	85.5	2.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2 in	100.0		
3/8 in	100.0		
1/4 in	99.2		
#4	98.8		
#10	96.7		
#40	88.1		
#60	54.7		
#100	15.5		
#200	2.6		

* (no specification provided)

Material Description

PSL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.5500 D_{85}= 0.3969 D_{60}= 0.2676
D_{50}= 0.2362 D_{30}= 0.1855 D_{15}= 0.1487
D_{10}= 0.1331 C_u= 2.01 C_c= 0.97

Classification

USCS= SP AASHTO=

Remarks

Location: Cell 3AB
Sample Number: 3AB-4.1

Date: 11/22/2021

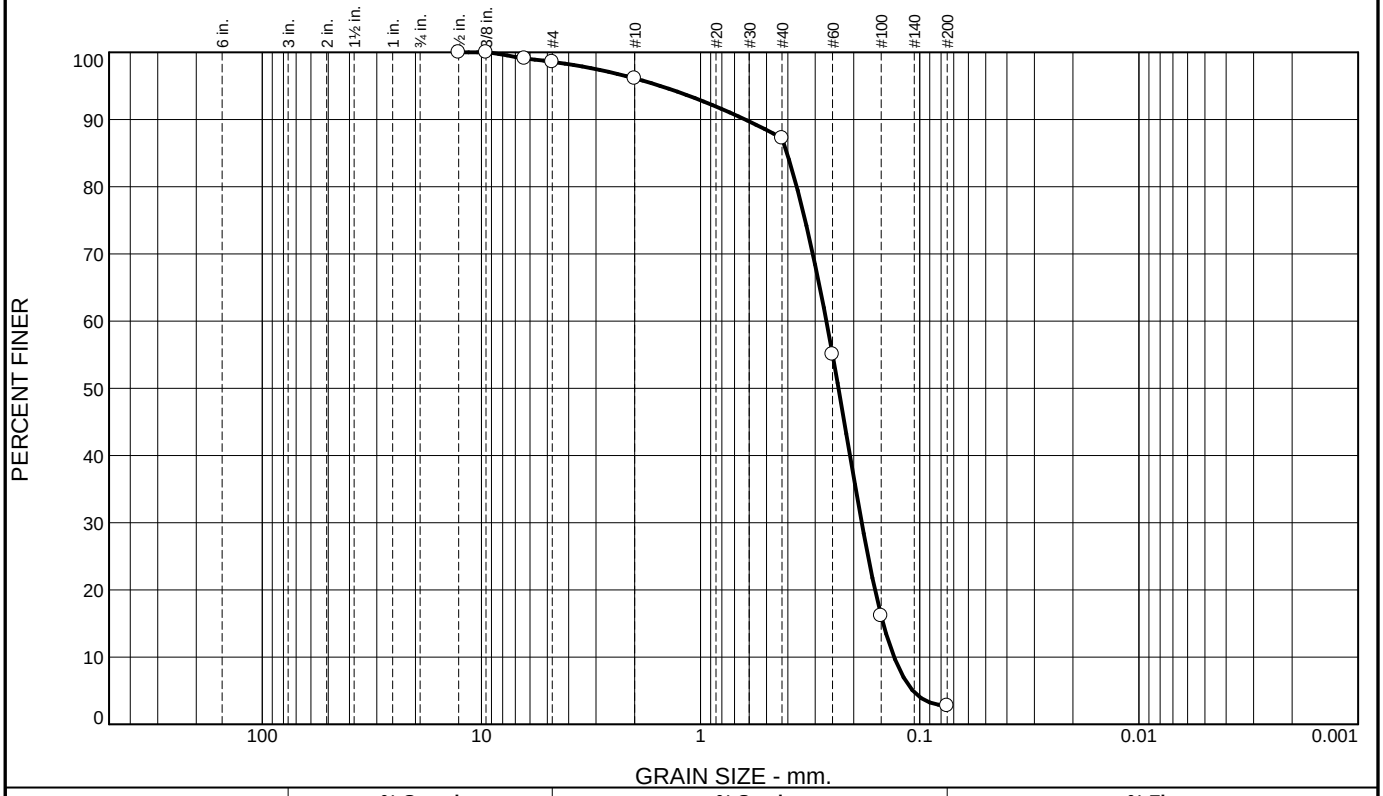
Parkhill

Client: OWL
Project: Cell 3AB Construction

Project No: 6759.21 **Figure** 10

Tested By: RS **Checked By:** TK

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.4	2.5	8.9	84.4	2.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2 in	100.0		
3/8 in	100.0		
1/4 in	99.1		
#4	98.6		
#10	96.1		
#40	87.2		
#60	55.1		
#100	16.1		
#200	2.8		

* (no specification provided)

Material Description

PSL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.6265 D_{85}= 0.4035 D_{60}= 0.2666
D_{50}= 0.2348 D_{30}= 0.1839 D_{15}= 0.1468
D_{10}= 0.1310 C_u= 2.04 C_c= 0.97

Classification

USCS= SP AASHTO=

Remarks

Location: Cell 3AB
Sample Number: 3AB-4.2

Date: 11/22/2021

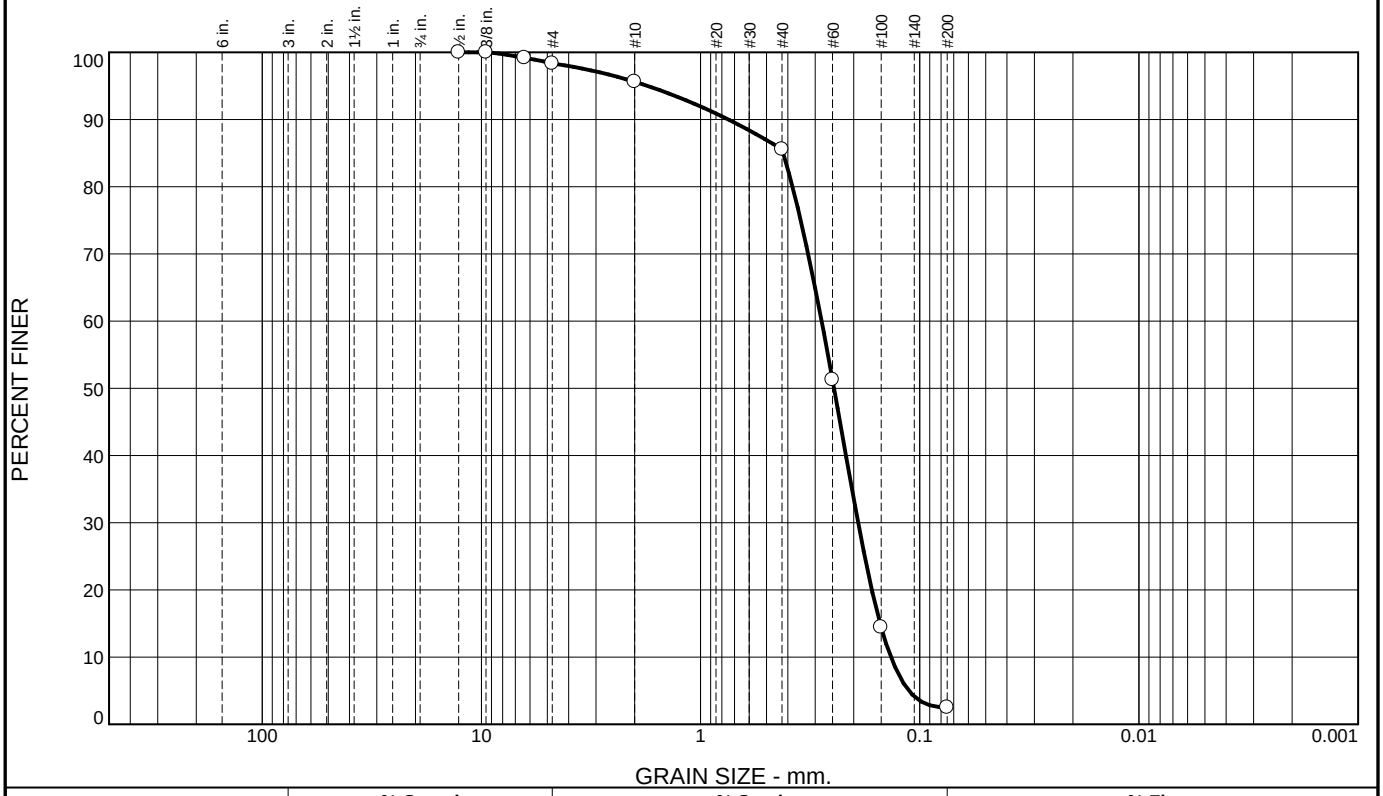
Parkhill

Client: OWL
Project: Cell 3AB Construction

Project No: 6759.21 **Figure** 11

Tested By: RS **Checked By:** TK

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.7	2.7	10.0	83.1	2.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2 in	100.0		
3/8 in	100.0		
1/4 in	99.2		
#4	98.3		
#10	95.6		
#40	85.6		
#60	51.3		
#100	14.4		
#200	2.5		

* (no specification provided)

Material Description

PSL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.7481 D_{85}= 0.4199 D_{60}= 0.2803
D_{50}= 0.2461 D_{30}= 0.1910 D_{15}= 0.1517
D_{10}= 0.1355 C_u= 2.07 C_c= 0.96

Classification

USCS= SP AASHTO=

Remarks

Location: Cell 3AB
Sample Number: 3AB-4.3

Date: 11/22/2021

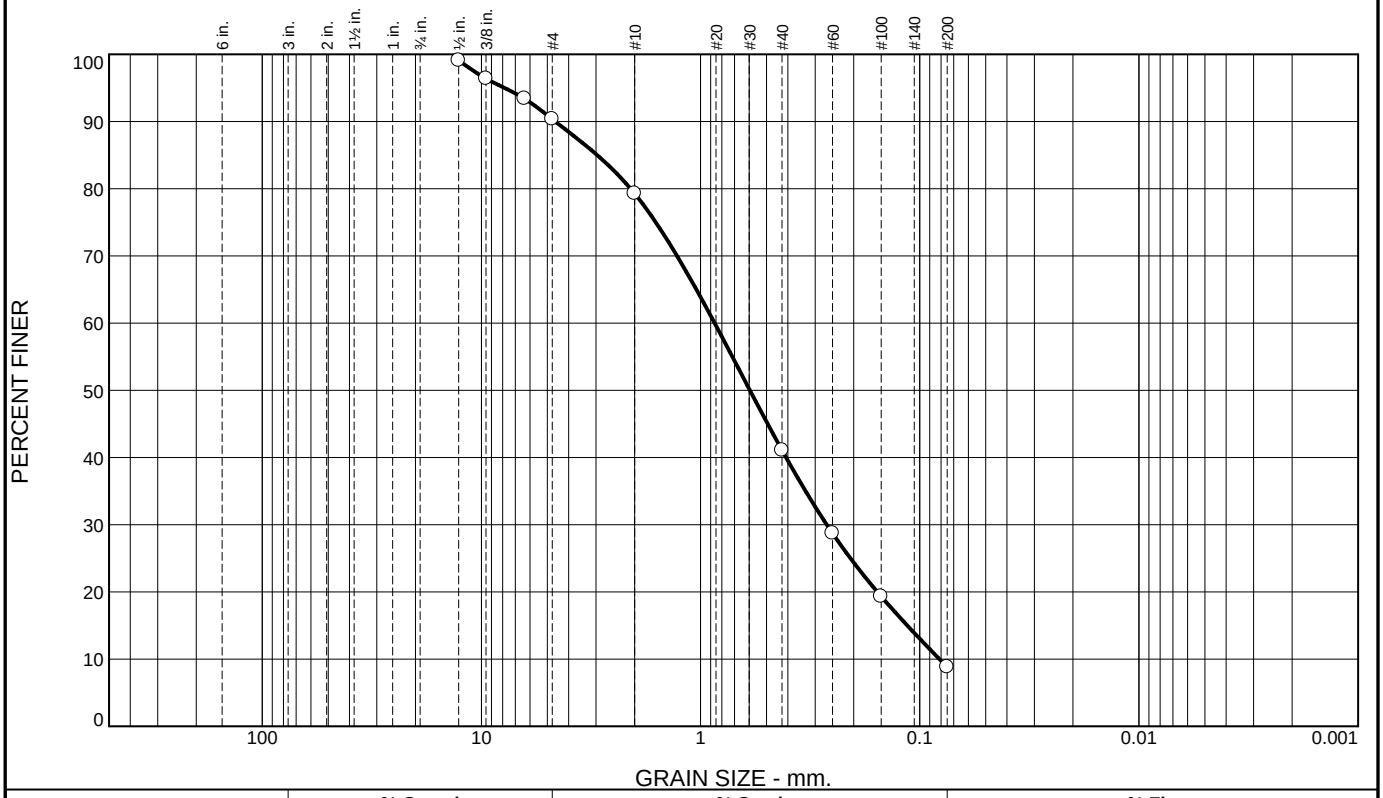
Parkhill

Client: OWL
Project: Cell 3AB Construction

Project No: 6759.21 **Figure** 12

Tested By: RS **Checked By:** TK

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
			11.0	38.2	32.3	8.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2 in	99.1		
3/8 in	96.4		
1/4 in	93.4		
#4	90.3		
#10	79.3		
#40	41.1		
#60	28.7		
#100	19.3		
#200	8.8		

* (no specification provided)

Material Description

PSL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 4.6092 D_{85}= 2.9632 D_{60}= 0.8629
D_{50}= 0.5957 D_{30}= 0.2657 D_{15}= 0.1140
D_{10}= 0.0813 C_u= 10.61 C_c= 1.01

Classification

USCS= AASHTO=

Remarks

Location: Cell 3AB
Sample Number: PSL-03.1

Date: 11/22/2021

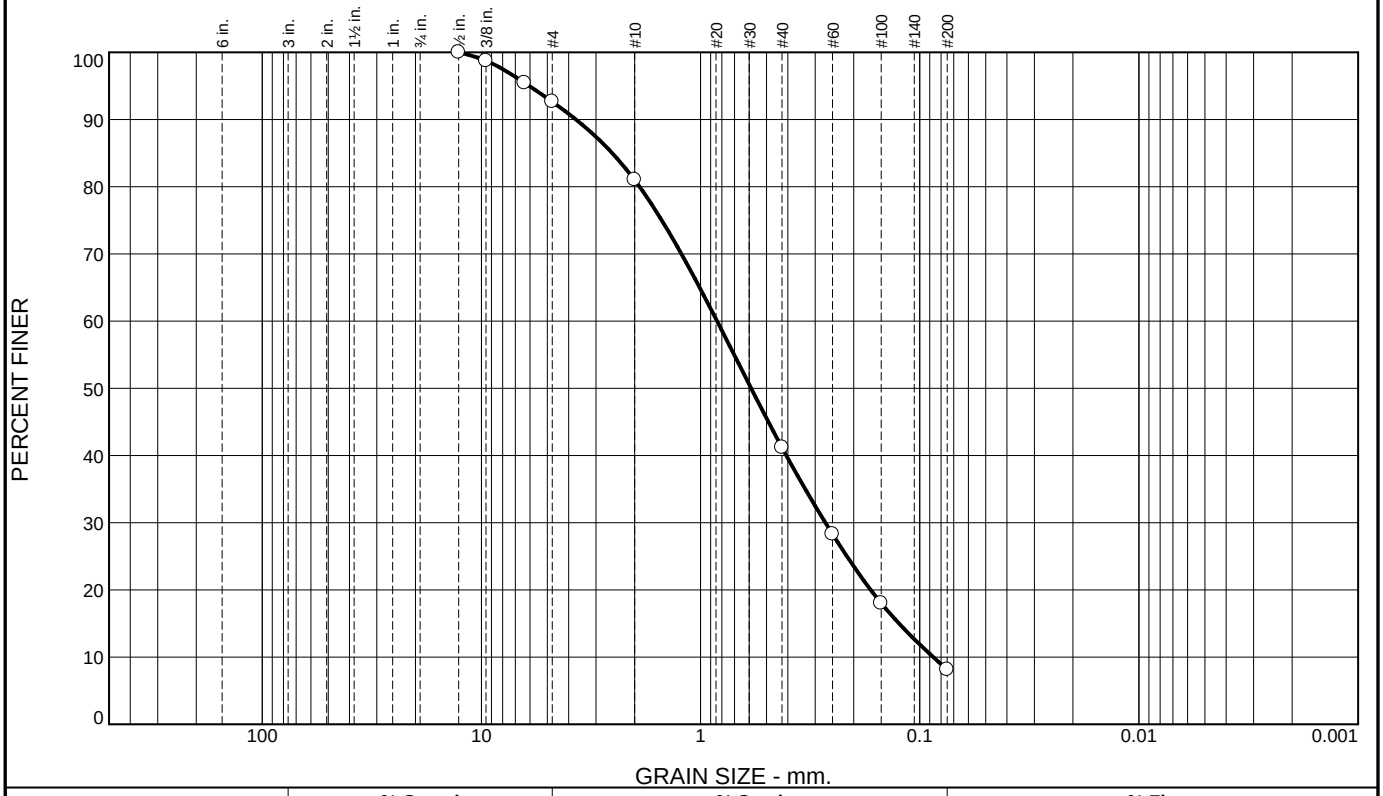
Parkhill

Client: OWL
Project: Cell 3AB Construction

Project No: 6759.21 **Figure** 13

Tested By: RS **Checked By:** TK

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	7.4	11.6	39.8	33.1	8.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2 in	100.0		
3/8 in	98.7		
1/4 in	95.4		
#4	92.6		
#10	81.0		
#40	41.2		
#60	28.3		
#100	18.0		
#200	8.1		

* (no specification provided)

Material Description

PSL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 3.7059 D_{85}= 2.5305 D_{60}= 0.8410
D_{50}= 0.5879 D_{30}= 0.2695 D_{15}= 0.1244
D_{10}= 0.0867 C_u= 9.70 C_c= 1.00

Classification

USCS= AASHTO=

Remarks

Location: Cell 3AB
Sample Number: PSL-03.2

Date: 11/22/2021

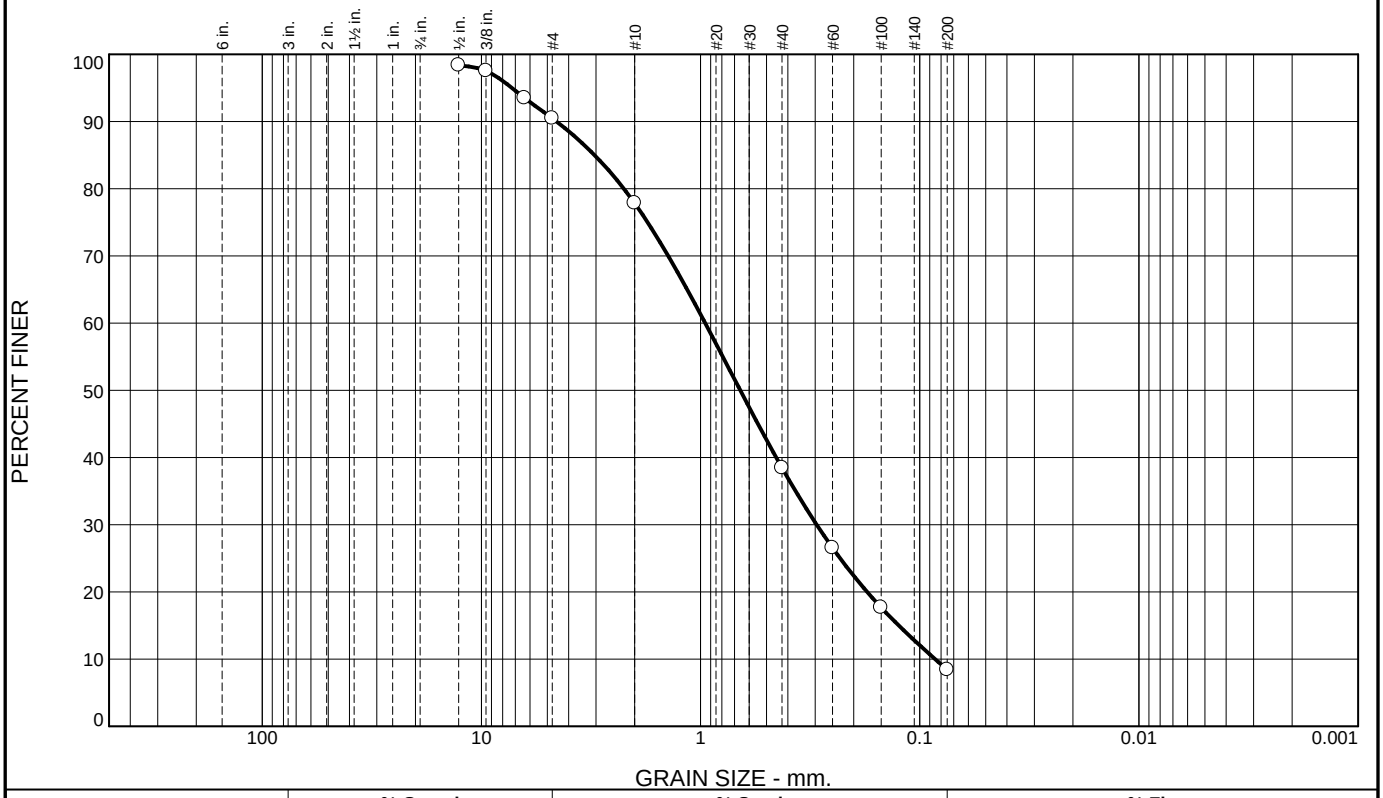
Parkhill

Client: OWL
Project: Cell 3AB Construction

Project No: 6759.21 **Figure** 14

Tested By: RS **Checked By:** TK

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
			12.7	39.3	30.1	8.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2 in	98.4		
3/8 in	97.5		
1/4 in	93.5		
#4	90.5		
#10	77.8		
#40	38.5		
#60	26.6		
#100	17.7		
#200	8.4		

* (no specification provided)

Material Description

PSL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 4.5440 D_{85}= 3.0479 D_{60}= 0.9527
D_{50}= 0.6594 D_{30}= 0.2953 D_{15}= 0.1247
D_{10}= 0.0851 C_u= 11.19 C_c= 1.08

Classification

USCS= AASHTO=

Remarks

Location: Cell 3AB
Sample Number: PSL-03.3

Date: 11/22/2021

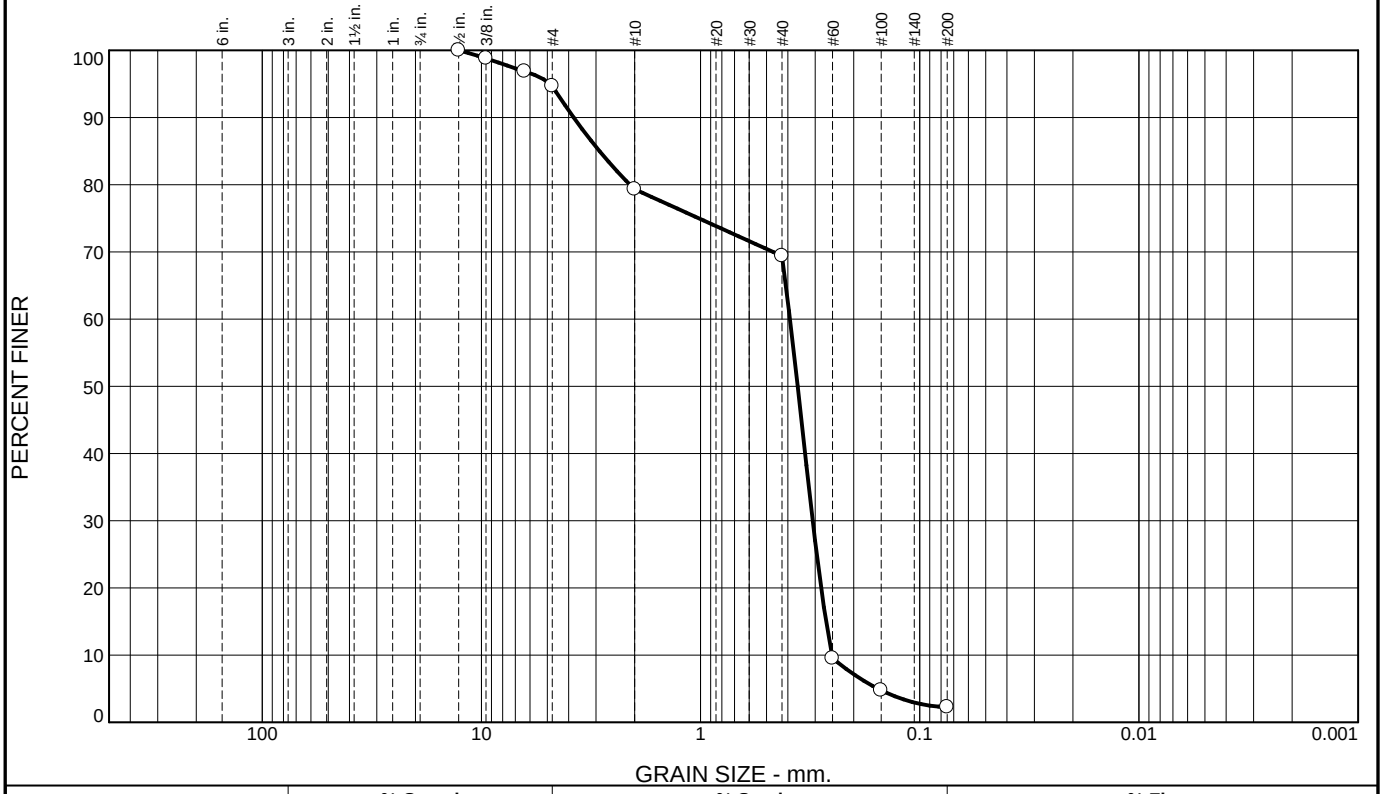
Parkhill

Client: OWL
Project: Cell 3AB Construction

Project No: 6759.21 **Figure** 15

Tested By: RS **Checked By:** TK

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.3	15.4	9.9	67.1	2.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2 in	100.0		
3/8 in	98.8		
1/4 in	96.8		
#4	94.7		
#10	79.3		
#40	69.4		
#60	9.5		
#100	4.8		
#200	2.3		

* (no specification provided)

Material Description

PSL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 3.7928 D_{85}= 2.8910 D_{60}= 0.3909
D_{50}= 0.3606 D_{30}= 0.3079 D_{15}= 0.2678
D_{10}= 0.2517 C_u= 1.55 C_c= 0.96

Classification

USCS= SP AASHTO=

Remarks

Location: Cell 3AB
Sample Number: PSL-04.1

Date: 11/22/2021

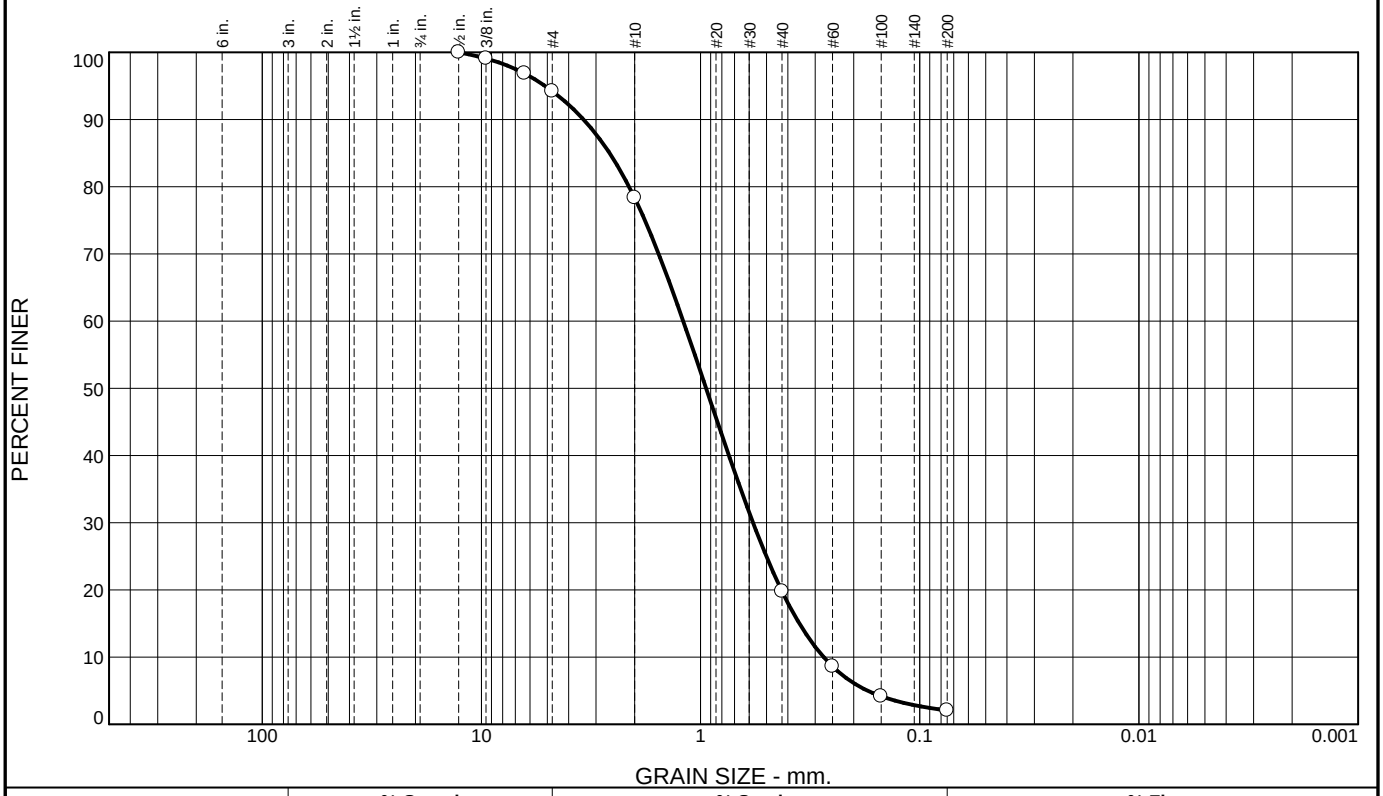
Parkhill

Client: OWL
Project: Cell 3AB Construction

Project No: 6759.21 **Figure** 16

Tested By: RS **Checked By:** TK

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.8	15.9	58.5	17.8	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2 in	100.0		
3/8 in	99.1		
1/4 in	96.8		
#4	94.2		
#10	78.3		
#40	19.8		
#60	8.6		
#100	4.2		
#200	2.0		

* (no specification provided)

Material Description

PSL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 3.4194 D_{85}= 2.6022 D_{60}= 1.2001
D_{50}= 0.9435 D_{30}= 0.5763 D_{15}= 0.3541
D_{10}= 0.2745 C_u= 4.37 C_c= 1.01

Classification

USCS= SP AASHTO=

Remarks

Location: Cell 3AB
Sample Number: PSL-04.2

Date: 11/22/2021

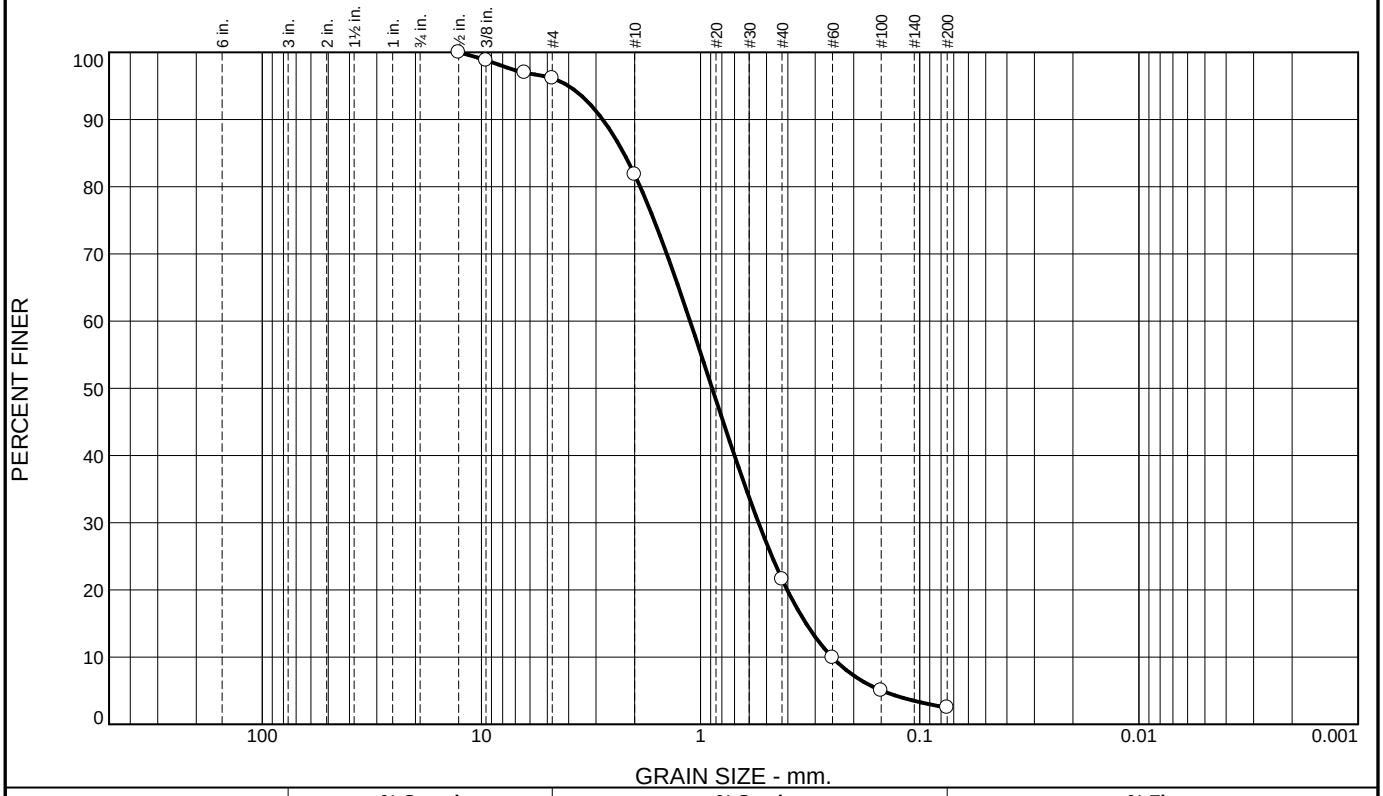
Parkhill

Client: OWL
Project: Cell 3AB Construction

Project No: 6759.21 **Figure** 17

Tested By: RS **Checked By:** TK

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	3.9	14.3	60.2	19.1	2.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2 in	100.0		
3/8 in	98.8		
1/4 in	97.0		
#4	96.1		
#10	81.8		
#40	21.6		
#60	9.9		
#100	5.1		
#200	2.5		

* (no specification provided)

Material Description

PSL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 2.7965 D_{85}= 2.2415 D_{60}= 1.1172
D_{50}= 0.8855 D_{30}= 0.5443 D_{15}= 0.3300
D_{10}= 0.2513 C_u= 4.45 C_c= 1.06

Classification

USCS= SP AASHTO=

Remarks

Location: Cell 3AB
Sample Number: PSL-04.3

Date: 11/22/2021

Parkhill

Client: OWL
Project: Cell 3AB Construction

Project No: 6759.21 **Figure** 18

Tested By: RS **Checked By:** TK

Parkhill

APPENDIX B: MATERIAL MANUFACTURER CERTIFICATION AND COMFORMANCE TESTING RESULTS

B.1 GCL Certifications

SOLMAX

MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-6

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

ROLL NUMBER	MANUFACT. DATE	BENTONITE LOT NUMBER	TOP LAYER 1	BOTTOM LAYER 1	CONFORMANCE
Product Code : 1109263-10668-6					
Bentoliner 0.75 lbs/ft², NS, Peel 35					
TRI Austin - Patricia Zabaleta					
1 ft x RW, 1/100,000 sf, min 1/Lot					
One additional 2 ft x RW sample for interface testing					
Provide final roll list to TRI					
0242-361726	2021-04-14	1040521A	2330-534283	FDWE02069-004	
0242-361727	2021-04-14	1040521A	2330-534283	FDWE02069-004	
0242-361728	2021-04-14	1040521A	2330-534283	FDWE02069-004	
0242-361729	2021-04-14	1040521A	2330-534283	FDWE01885-012	
0242-361730	2021-04-14	1040521A	2330-534283	FDWE01885-012	
0242-361731	2021-04-14	1040521A	2330-534283	FDWE01885-012	
0242-361732	2021-04-14	1040521A	2330-534283	FDWE01885-012	
0242-361733	2021-04-14	1040521A	2330-534283	FDWE01885-012	1' Conformance
0242-361734	2021-04-14	1040521A	2330-534281	FDWE01885-012	
0242-361735	2021-04-14	1040521A	2330-534281	FDWE01885-012	
0242-361736	2021-04-14	1040521A	2330-534281	FDWE01885-012	
0242-361737	2021-04-14	1040521A	2330-534281	FDWE01885-012	
0242-361738	2021-04-14	1040521A	2330-534281	FDWE01885-012	
0242-361739	2021-04-14	1040521A	2330-534281	FDWE01885-012	
0242-361740	2021-04-14	1040521A	2330-534281	FDWE01885-012	
0242-361741	2021-04-14	1040521A	2330-534281	FDWE01885-012	

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MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-6

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

0242-361742	2021-04-14	1040521A	2330-534281	FDWE01885-012	2' Interface	
0242-361743	2021-04-14	1040521A	2330-534281	FDWE01885-012		
0242-361744	2021-04-14	1040521A	2330-529741	FDWE01885-012		
0242-361745	2021-04-14	1040521B	2330-529741	FDWE01885-012		
0242-361746	2021-04-14	1040521B	2330-529741	FDWE01885-012		
0242-361747	2021-04-14	1040521B	2330-529741	FDWE01885-012		
0242-361748	2021-04-14	1040521B	2330-529741	FDWE01885-012		
0242-361749	2021-04-14	1040521B	2330-529741	FDWE01885-012		
0242-361750	2021-04-14	1040521B	2330-529741	FDWE01885-012		
0242-361751	2021-04-14	1040521B	2330-534271	FDWE01885-012		
0242-361752	2021-04-14	1040521B	2330-534271	FDWE01885-012		
0242-361753	2021-04-14	1040521B	2330-534271	FDWE01885-012		
0242-361754	2021-04-14	1040521B	2330-534271	FDWE01885-012		
0242-361755	2021-04-14	1040521B	2330-534271	FDWE02044-013		
0242-361756	2021-04-15	1040521B	2330-534271	FDWE02044-013		
0242-361757	2021-04-15	1040521B	2330-534271	FDWE02044-013		
0242-361758	2021-04-15	1040521B	2330-534271	FDWE02044-013		
0242-361759	2021-04-15	1040521B	2330-534271	FDWE02044-013		
0242-361760	2021-04-15	1040521B	2330-534271	FDWE02044-013		
0242-361761	2021-04-15	1040521B	2330-532669	FDWE02044-013		
0242-361762	2021-04-15	1040521B	2330-532669	FDWE02044-013		
0242-361763	2021-04-15	1040521B	2330-532669	FDWE02044-013		
0242-361764	2021-04-15	1040521B	2330-532669	FDWE02044-013		
0242-361765	2021-04-15	1040521B	2330-532669	FDWE02044-013		
0242-361766	2021-04-15	1040521B	2330-532669	FDWE02044-013		
0242-361767	2021-04-15	1040521B	2330-532669	FDWE02044-013		
0242-361768	2021-04-15	1040521B	2330-532669	FDWE02044-013		
0242-361769	2021-04-15	1040521B	2330-532669	FDWE02044-013		
0242-361770	2021-04-15	1040521B	2330-532669	FDWE02044-013		

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SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-6

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

0242-361771	2021-04-15	1040521B	2330-534266	FDWE02044-013		
0242-361772	2021-04-15	1040521B	2330-534266	FDWE02044-013		
0242-361773	2021-04-15	1040521B	2330-534266	FDWE02044-013		
0242-361774	2021-04-15	1040521B	2330-534266	FDWE02044-013	1' Conformance	
0242-361775	2021-04-15	1040521B	2330-534266	FDWE02044-013		
0242-361776	2021-04-15	1040521C	2330-534266	FDWE02044-013		
0242-361777	2021-04-15	1040521C	2330-534266	FDWE02044-013		
0242-361778	2021-04-15	1040521C	2330-534266	FDWE02044-013		
0242-361779	2021-04-15	1040521C	2330-534266	FDWE02044-013		
0242-361780	2021-04-15	1040521C	2330-532661	FDWE01986-001		
0242-361781	2021-04-15	1040521C	2330-532661	FDWE01986-001		
0242-361782	2021-04-15	1040521C	2330-532661	FDWE01986-001		
0242-361783	2021-04-15	1040521C	2330-532661	FDWE01986-001		
0242-361784	2021-04-15	1040521C	2330-532661	FDWE01986-001		
0242-361785	2021-04-15	1040521C	2330-532661	FDWE01986-001		
0242-361786	2021-04-15	1040521C	2330-532661	FDWE01986-001		
0242-361787	2021-04-15	1040521C	2330-532661	FDWE01986-001		
0242-361788	2021-04-15	1040521C	2330-532661	FDWE01986-001		
0242-361789	2021-04-15	1040521C	2330-532661	FDWE01986-001		
0242-361790	2021-04-15	1040521C	2330-532680	FDWE01986-001		
0242-361791	2021-04-15	1040521C	2330-532680	FDWE01986-001		
0242-361792	2021-04-15	1040521C	2330-532680	FDWE01986-001		
0242-361793	2021-04-15	1040521C	2330-532680	FDWE01986-001		
0242-361794	2021-04-15	1040521C	2330-532680	FDWE01986-001		
0242-361795	2021-04-15	1040521C	2330-532680	FDWE01986-001		
0242-361796	2021-04-15	1040521C	2330-532680	FDWE01986-001		
0242-361797	2021-04-15	1040521C	2330-532680	FDWE01986-001		
0242-361798	2021-04-15	1040521C	2330-532680	FDWE01986-001		
0242-361799	2021-04-15	1040521C	2330-532680	FDWE01986-001		

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PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-6

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

0242-361800	2021-04-15	1040521C	2330-532676	FDWE01986-001		
0242-361801	2021-04-15	1040521C	2330-532676	FDWE01986-001		
0242-361802	2021-04-15	1040521C	2330-532676	FDWE01986-001		
0242-361803	2021-04-15	1040521C	2330-532676	FDWE01986-001		
0242-361804	2021-04-15	1040521C	2330-532676	FDWE01986-001		
0242-361805	2021-04-15	1040521C	2330-532676	FDWE02069-006		
0242-361806	2021-04-15	1040521C	2330-532676	FDWE02069-006		
0242-361807	2021-04-15	1040521C	2330-532676	FDWE02069-006		
0242-361808	2021-04-15	1040521D	2330-532676	FDWE02069-006		
0242-361809	2021-04-15	1040521D	2330-532676	FDWE02069-006		
0242-361810	2021-04-15	1040521D	2330-534265	FDWE02069-006		
0242-361811	2021-04-15	1040521D	2330-534265	FDWE02069-006		
0242-361812	2021-04-15	1040521D	2330-534265	FDWE02069-006		
0242-361813	2021-04-15	1040521D	2330-534265	FDWE02069-006		
0242-361814	2021-04-15	1040521D	2330-534265	FDWE02069-006	1' Conformance	
0242-361815	2021-04-15	1040521D	2330-534265	FDWE02069-006		
0242-361816	2021-04-15	1040521D	2330-534265	FDWE02069-006		
0242-361817	2021-04-15	1040521D	2330-534265	FDWE02069-006		
0242-361818	2021-04-15	1040521D	2330-534265	FDWE02069-006		
0242-361819	2021-04-16	1040521D	2330-534265	FDWE02069-006		
0242-361820	2021-04-16	1040521D	2330-532681	FDWE02069-006		
0242-361821	2021-04-16	1040521D	2330-532681	FDWE02069-006		
0242-361822	2021-04-16	1040521D	2330-532681	FDWE02069-006		
0242-361823	2021-04-16	1040521D	2330-532681	FDWE02069-006		
0242-361824	2021-04-16	1040521D	2330-532681	FDWE02069-006		
0242-361825	2021-04-16	1040521D	2330-532681	FDWE02069-006		
0242-361826	2021-04-16	1040521D	2330-532681	FDWE02069-006		
0242-361827	2021-04-16	1040521D	2330-532681	FDWE02069-006		
0242-361828	2021-04-16	1040521D	2330-532681	FDWE02069-006		

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PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-6

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

0242-361829	2021-04-16	1040521D	2330-532681	FDWE02069-006		
0242-361830	2021-04-16	1040521D	2330-532662	FDWE02069-006		
0242-361831	2021-04-16	1040521D	2330-532662	FDWE02044-001		
0242-361832	2021-04-16	1040521D	2330-532662	FDWE02044-001		
0242-361833	2021-04-16	1040521D	2330-532662	FDWE02044-001		
0242-361834	2021-04-16	1040521D	2330-532662	FDWE02044-001		
0242-361835	2021-04-16	1040821A	2330-532662	FDWE02044-001		
0242-361836	2021-04-16	1040821A	2330-532662	FDWE02044-001		
0242-361837	2021-04-16	1040821A	2330-532662	FDWE02044-001		
0242-361838	2021-04-16	1040821A	2330-532677	FDWE02044-001		
0242-361839	2021-04-16	1040821A	2330-532677	FDWE02044-001		
0242-361840	2021-04-16	1040821A	2330-532677	FDWE02044-001		
0242-361841	2021-04-16	1040821A	2330-532677	FDWE02044-001		
0242-361842	2021-04-16	1040821A	2330-532677	FDWE02044-001		
0242-361843	2021-04-16	1040821A	2330-532677	FDWE02044-001		
0242-361844	2021-04-16	1040821A	2330-532677	FDWE02044-001		
0242-361845	2021-04-16	1040821A	2330-532677	FDWE02044-001		
0242-361846	2021-04-16	1040821A	2330-532677	FDWE02044-001		
0242-361847	2021-04-16	1040821A	2330-532677	FDWE02044-001		
0242-361848	2021-04-16	1040821A	2330-532677	FDWE02044-001		
0242-361849	2021-04-16	1040821A	2330-529783	FDWE02044-001		
0242-361850	2021-04-16	1040821A	2330-529783	FDWE02044-001		
0242-361851	2021-04-16	1040821A	2330-529783	FDWE02044-001		
0242-361852	2021-04-16	1040821A	2330-529783	FDWE02044-001		
0242-361853	2021-04-16	1040821A	2330-529783	FDWE02044-001		
0242-361854	2021-04-16	1040821A	2330-529783	FDWE02044-001		
0242-361855	2021-04-16	1040821A	2330-529783	FDWE02044-001		
0242-361856	2021-04-16	1040821A	2330-529783	FDWE01062-007		
0242-361857	2021-04-16	1040821A	2330-529783	FDWE01062-007		

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SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-6

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

0242-361858	2021-04-16	1040821A	2330-529783	FDWE01062-007		
0242-361859	2021-04-16	1040821A	2330-529773	FDWE01062-007		
0242-361860	2021-04-16	1040821A	2330-529773	FDWE01062-007		
0242-361861	2021-04-16	1040821A	2330-529773	FDWE01062-007		
0242-361862	2021-04-16	1040821A	2330-529773	FDWE01062-007	1' Conformance	
0242-361863	2021-04-16	1040821A	2330-529773	FDWE01062-007		
0242-361864	2021-04-16	1040821A	2330-529773	FDWE01062-007		
0242-361865	2021-04-16	1040821A	2330-529773	FDWE01062-007		
0242-361866	2021-04-16	1040821B	2330-529773	FDWE01062-007		
0242-361867	2021-04-16	1040821B	2330-529773	FDWE01062-007		
0242-361868	2021-04-16	1040821B	2330-529773	FDWE01062-007		
0242-361869	2021-04-16	1040821B	2330-534270	FDWE01062-007		
0242-361870	2021-04-16	1040821B	2330-534270	FDWE01062-007		
0242-361871	2021-04-16	1040821B	2330-534270	FDWE01062-007		
0242-361872	2021-04-16	1040821B	2330-534270	FDWE01062-007		
0242-361873	2021-04-16	1040821B	2330-534270	FDWE01062-007		
0242-361874	2021-04-16	1040821B	2330-534270	FDWE01062-007		
0242-361875	2021-04-16	1040821B	2330-534270	FDWE01062-007		
0242-361876	2021-04-16	1040821B	2330-534270	FDWE01062-007		
0242-361877	2021-04-16	1040821B	2330-534270	FDWE01062-007		
0242-361878	2021-04-16	1040821B	2330-534270	FDWE01062-007		
0242-361879	2021-04-16	1040821B	2330-534252	FDWE01062-007		
0242-361880	2021-04-16	1040821B	2330-534252	FDWE01062-007		
0242-361881	2021-04-16	1040821B	2330-534252	FDWE01062-007		
0242-361882	2021-04-16	1040821B	2330-534252	FDWE01011-010		
0242-361883	2021-04-16	1040821B	2330-534252	FDWE01011-010		
0242-361884	2021-04-19	1040821B	2330-534252	FDWE01011-010		
0242-361885	2021-04-19	1040821B	2330-534252	FDWE01011-010		
0242-361886	2021-04-19	1040821B	2330-534252	FDWE01011-010		

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MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-6

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

0242-361887	2021-04-19	1040821B	2330-534252	FDWE01011-010	
0242-361888	2021-04-19	1040821B	2330-534252	FDWE01011-010	
0242-361889	2021-04-19	1040821B	2330-532660	FDWE01011-010	
0242-361890	2021-04-19	1040821B	2330-532660	FDWE01011-010	
0242-361891	2021-04-19	1040821B	2330-532660	FDWE01011-010	
0242-361892	2021-04-19	1040821B	2330-532660	FDWE01011-010	
0242-361893	2021-04-19	1040821B	2330-532660	FDWE01011-010	
0242-361894	2021-04-19	1040821B	2330-532660	FDWE01011-010	
0242-361895	2021-04-19	1040821B	2330-532660	FDWE01011-010	
0242-361896	2021-04-19	1040821B	2330-532660	FDWE01011-010	
0242-361897	2021-04-19	1040821B	2330-532660	FDWE01011-010	
0242-361898	2021-04-19	1040821B	2330-532660	FDWE01011-010	
0242-361899	2021-04-19	1040821C	2330-532671	FDWE01011-010	
0242-361900	2021-04-19	1040821C	2330-532671	FDWE01011-010	
0242-361901	2021-04-19	1040821C	2330-532671	FDWE01011-010	
0242-361902	2021-04-19	1040821C	2330-532671	FDWE01011-010	1' Conformance
0242-361903	2021-04-19	1040821C	2330-532671	FDWE01011-010	
0242-361904	2021-04-19	1040821C	2330-532671	FDWE01011-010	
0242-361905	2021-04-19	1040821C	2330-532671	FDWE01011-010	
0242-361906	2021-04-19	1040821C	2330-532671	FDWE01885-013	
0242-361907	2021-04-19	1040821C	2330-532671	FDWE01885-013	
0242-361908	2021-04-19	1040821C	2330-534269	FDWE01885-013	
0242-361909	2021-04-19	1040821C	2330-534269	FDWE01885-013	
0242-361910	2021-04-19	1040821C	2330-534269	FDWE01885-013	
0242-361911	2021-04-19	1040821C	2330-534269	FDWE01885-013	
0242-361912	2021-04-19	1040821C	2330-534269	FDWE01885-013	
0242-361913	2021-04-19	1040821C	2330-534269	FDWE01885-013	

QUANTITY (ROLLS): 188

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MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: SW2107
REFERENCE NUMBER: SO-091646
PACKING SLIP NUMBER: Pre-SO-091646-6

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

PRODUCT: 1109263-10668-6
Bentoliner 0.75 lbs/ft², NS, Peel 35

Test	Property	Direction	Test Method	Frequency	Unit
1	Bentonite Mass (0% moisture)		ASTM D5993	1/40,000 ft²	lbs/ft²
2	Peel Strength (min.avg.)	MD	ASTM D4632	1/40,000 ft²	lbf
3	Peel Strength (min.avg.)	MD	ASTM D6496	1/40,000 ft²	lbf/in
4	Tensile Strength MD (min. avg.)	MD	ASTM D6768	1/40,000 ft²	lbf/in

Test	1	2	3	4
SPECIFICATIONS	**0.75**	**35**	**5.3**	**30**
0242-361726	0.77	56	11	55
0242-361727	0.77	56	11	55
0242-361728	0.77	56	11	55
0242-361729	0.77	56	11	55
0242-361730	0.77	56	11	55
0242-361731	0.77	56	11	55
0242-361732	0.77	56	11	55
0242-361733	0.77	56	11	55
0242-361734	0.77	56	11	55
0242-361735	0.77	56	11	55
0242-361736	0.77	56	11	55
0242-361737	0.77	56	11	55
0242-361738	0.77	56	11	55
0242-361739	0.77	56	11	55
0242-361740	0.77	56	11	55
0242-361741	0.77	56	11	55
0242-361742	0.84	38	7	57
0242-361743	0.84	38	7	57
0242-361744	0.84	38	7	57
0242-361745	0.84	38	7	57
0242-361746	0.84	38	7	57
0242-361747	0.84	38	7	57
0242-361748	0.84	38	7	57
0242-361749	0.84	38	7	57
0242-361750	0.84	38	7	57
0242-361751	0.84	38	7	57
0242-361752	0.84	38	7	57

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MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: SW2107
REFERENCE NUMBER: SO-091646
PACKING SLIP NUMBER: Pre-SO-091646-6

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

Test	1	2	3	4
0242-361753	0.84	38	7	57
0242-361754	0.84	38	7	57
0242-361755	0.84	38	7	57
0242-361756	0.84	38	7	57
0242-361757	0.84	38	7	57
0242-361758	0.89	49	10	54
0242-361759	0.89	49	10	54
0242-361760	0.89	49	10	54
0242-361761	0.89	49	10	54
0242-361762	0.89	49	10	54
0242-361763	0.89	49	10	54
0242-361764	0.89	49	10	54
0242-361765	0.89	49	10	54
0242-361766	0.89	49	10	54
0242-361767	0.89	49	10	54
0242-361768	0.89	49	10	54
0242-361769	0.89	49	10	54
0242-361770	0.89	49	10	54
0242-361771	0.89	49	10	54
0242-361772	0.89	49	10	54
0242-361773	0.89	49	10	54
0242-361774	0.86	54	11	53
0242-361775	0.86	54	11	53
0242-361776	0.86	54	11	53
0242-361777	0.86	54	11	53
0242-361778	0.86	54	11	53
0242-361779	0.86	54	11	53
0242-361780	0.86	54	11	53
0242-361781	0.86	54	11	53
0242-361782	0.86	54	11	53
0242-361783	0.86	54	11	53
0242-361784	0.86	54	11	53
0242-361785	0.86	54	11	53
0242-361786	0.86	54	11	53
0242-361787	0.86	54	11	53
0242-361788	0.86	54	11	53
0242-361789	0.86	54	11	53

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MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: SW2107
REFERENCE NUMBER: SO-091646
PACKING SLIP NUMBER: Pre-SO-091646-6

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

Test	1	2	3	4
0242-361790	0.80	61	12	37
0242-361791	0.80	61	12	37
0242-361792	0.80	61	12	37
0242-361793	0.80	61	12	37
0242-361794	0.80	61	12	37
0242-361795	0.80	61	12	37
0242-361796	0.80	61	12	37
0242-361797	0.80	61	12	37
0242-361798	0.80	61	12	37
0242-361799	0.80	61	12	37
0242-361800	0.80	61	12	37
0242-361801	0.80	61	12	37
0242-361802	0.80	61	12	37
0242-361803	0.80	61	12	37
0242-361804	0.80	61	12	37
0242-361805	0.80	61	12	37
0242-361806	0.84	44	9	40
0242-361807	0.84	44	9	40
0242-361808	0.84	44	9	40
0242-361809	0.84	44	9	40
0242-361810	0.84	44	9	40
0242-361811	0.84	44	9	40
0242-361812	0.84	44	9	40
0242-361813	0.84	44	9	40
0242-361814	0.84	44	9	40
0242-361815	0.84	44	9	40
0242-361816	0.84	44	9	40
0242-361817	0.84	44	9	40
0242-361818	0.84	44	9	40
0242-361819	0.84	44	9	40
0242-361820	0.84	44	9	40
0242-361821	0.84	44	9	40
0242-361822	0.83	43	8	47
0242-361823	0.83	43	8	47
0242-361824	0.83	43	8	47
0242-361825	0.83	43	8	47
0242-361826	0.83	43	8	47

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MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: SW2107
REFERENCE NUMBER: SO-091646
PACKING SLIP NUMBER: Pre-SO-091646-6

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

Test	1	2	3	4
0242-361827	0.83	43	8	47
0242-361828	0.83	43	8	47
0242-361829	0.83	43	8	47
0242-361830	0.83	43	8	47
0242-361831	0.83	43	8	47
0242-361832	0.83	43	8	47
0242-361833	0.83	43	8	47
0242-361834	0.83	43	8	47
0242-361835	0.83	43	8	47
0242-361836	0.83	43	8	47
0242-361837	0.83	43	8	47
0242-361838	0.83	44	9	40
0242-361839	0.83	44	9	40
0242-361840	0.83	44	9	40
0242-361841	0.83	44	9	40
0242-361842	0.83	44	9	40
0242-361843	0.83	44	9	40
0242-361844	0.83	44	9	40
0242-361845	0.83	44	9	40
0242-361846	0.83	44	9	40
0242-361847	0.83	44	9	40
0242-361848	0.83	44	9	40
0242-361849	0.83	44	9	40
0242-361850	0.83	44	9	40
0242-361851	0.83	44	9	40
0242-361852	0.83	44	9	40
0242-361853	0.83	44	9	40
0242-361854	0.87	52	10	57
0242-361855	0.87	52	10	57
0242-361856	0.87	52	10	57
0242-361857	0.87	52	10	57
0242-361858	0.87	52	10	57
0242-361859	0.87	52	10	57
0242-361860	0.87	52	10	57
0242-361861	0.87	52	10	57
0242-361862	0.87	52	10	57
0242-361863	0.87	52	10	57

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SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: SW2107
REFERENCE NUMBER: SO-091646
PACKING SLIP NUMBER: Pre-SO-091646-6

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

Test	1	2	3	4
0242-361864	0.87	52	10	57
0242-361865	0.87	52	10	57
0242-361866	0.87	52	10	57
0242-361867	0.87	52	10	57
0242-361868	0.87	52	10	57
0242-361869	0.87	52	10	57
0242-361870	0.83	39	8	52
0242-361871	0.83	39	8	52
0242-361872	0.83	39	8	52
0242-361873	0.83	39	8	52
0242-361874	0.83	39	8	52
0242-361875	0.83	39	8	52
0242-361876	0.83	39	8	52
0242-361877	0.83	39	8	52
0242-361878	0.83	39	8	52
0242-361879	0.83	39	8	52
0242-361880	0.83	39	8	52
0242-361881	0.83	39	8	52
0242-361882	0.83	39	8	52
0242-361883	0.83	39	8	52
0242-361884	0.83	39	8	52
0242-361885	0.83	39	8	52
0242-361886	0.85	62	13	47
0242-361887	0.85	62	13	47
0242-361888	0.85	62	13	47
0242-361889	0.85	62	13	47
0242-361890	0.85	62	13	47
0242-361891	0.85	62	13	47
0242-361892	0.85	62	13	47
0242-361893	0.85	62	13	47
0242-361894	0.85	62	13	47
0242-361895	0.85	62	13	47
0242-361896	0.85	62	13	47
0242-361897	0.85	62	13	47
0242-361898	0.85	62	13	47
0242-361899	0.85	62	13	47
0242-361900	0.85	62	13	47

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MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-6

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

Test	1	2	3	4
0242-361901	0.85	62	13	47
0242-361902	0.81	54	11	51
0242-361903	0.81	54	11	51
0242-361904	0.81	54	11	51
0242-361905	0.81	54	11	51
0242-361906	0.81	54	11	51
0242-361907	0.81	54	11	51
0242-361908	0.81	54	11	51
0242-361909	0.81	54	11	51
0242-361910	0.81	54	11	51
0242-361911	0.81	54	11	51
0242-361912	0.81	54	11	51
0242-361913	0.81	54	11	51

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TEST RESULTS - ROLLS

PROJECT NUMBER: SW2107
REFERENCE NUMBER: SO-091646
PACKING SLIP NUMBER: Pre-SO-091646-6

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

PRODUCT: 1109263-10668-6
Bentoliner 0.75 lbs/ft², NS, Peel 35

Test	Property	Direction	Test Method	Frequency	Unit
1	Mass per Unit Area (min. avg.)		ASTM D5261	1/200,000 ft²	oz/yd²
	Grab Tensile Properties (min. avg)		ASTM D4632	1/200,000 ft²	
2	Strength (MD)				lbf
3	Strength (TD)				lbf
4	Elongation (MD)				%
5	Elongation (TD)				%

Test	1	2	3	4	5
Specification	**6**	**22**	**22**	**130**	**100**
2330-529741	6.7	53	47	204	230
2330-529773	6.6	54	43	215	221
2330-529783	6.8	40	49	215	224
2330-532660	6.5	48	51	190	264
2330-532661	6.5	48	51	190	264
2330-532662	6.5	48	51	190	264
2330-532669	7.2	48	57	188	227
2330-532671	7.2	48	57	188	227
2330-532676	6.8	50	67	218	215
2330-532677	6.8	50	67	218	215
2330-532680	6.8	50	67	218	215
2330-532681	6.8	50	67	218	215
2330-534252	6.9	69	118	158	186
2330-534265	6.6	63	105	205	188
2330-534266	6.6	63	105	205	188
2330-534269	6.7	76	111	203	210
2330-534270	6.7	76	111	203	210
2330-534271	6.7	76	111	203	210
2330-534281	6.8	71	106	213	195
2330-534283	6.8	71	106	213	195

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MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: SW2107
REFERENCE NUMBER: SO-091646
PACKING SLIP NUMBER: Pre-SO-091646-6

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

Test	Property	Direction	Test Method	Frequency	Unit
1	Swell Index (min.)		ASTM D5890		ml/2 g
2	Moisture Content (max.)		ASTM D4643		%
3	Fluid Loss (max.)		ASTM D5891		ml

Test	1	2	3
Specification	**24**	**12**	**18**
1040521A	30.0	11.2	15
1040521B	29.0	10.0	15
1040521C	30.0	10.1	15
1040521D	30.0	10.1	15
1040821A	31.0	9.9	13
1040821B	29.0	10.0	14
1040821C	30.0	9.8	15

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MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: SW2107
REFERENCE NUMBER: SO-091646
PACKING SLIP NUMBER: Pre-SO-091646-6

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

Test	Property	Direction	Test Method	Frequency	Unit
1	Mass per Unit Area (min. avg.)		ASTM D5261	1/200,000 ft^2	oz/yd^2
	Grab Tensile Properties (min. avg)		ASTM D4632	1/200,000 ft^2	
2	Strength (MD)				lbf
3	Strength (TD)				lbf
4	Elongation (MD)				%
5	Elongation (TD)				%

Test	1	2	3	4	5
Specification	**3**	**135**	**100**	**10**	**10**
FDWE01011-010	3.2	170	121	18	12
FDWE01062-007	3.2	176	133	18	13
FDWE01885-012	3.2	199	140	20	14
FDWE01885-013	3.3	187	131	19	13
FDWE01986-001	3.2	190	128	20	14
FDWE02044-001	3.2	186	124	19	12
FDWE02044-013	3.2	173	122	17	12
FDWE02069-004	3.3	199	152	20	14
FDWE02069-006	3.3	199	152	20	14

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GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2021

PRODUCT : NATIONAL® 30

SHIPPED FRO **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
B0004538826	**04-05-21**	**1040521A**	**10.1**	**0.07**	**4.05**	**13.8**	**114**	**36**	**1004**

APRIL		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	0 FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **7**	M AVG	**8.74**	**0.26**	**4.73**	**13.15**	**114.25**	**33.75**	**970.00**
	STD DEV	**0.71**	**0.32**	**1.90**	**0.85**	**2.11**	**2.44**	**38.14**

DATE
04-*

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	0 FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **155**	M AVG	**8.92**	**0.22**	**4.54**	**13.00**	**114.59**	**32.63**	**993.02**
	STD DEV	**0.82**	**0.35**	**2.16**	**0.68**	**3.45**	**1.72**	**37.27**

SOLD TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

For any questions contact.
Q.A. SUPERVISOR
Tucker Goodvin

Attn: **Bob Stadler (rstadler@gseworld.com)**
Chuck Taylor (ctaylor@gseworld.com)
Cheryl Hofer (chofer@gseworld.com)
(ezimmel@gseworld.com)

SHIPPED TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

Prepared by: TO
04/06/21

CC: Thomas Anderson
Jason Tawse
Thomas Cortner
File

GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2021

PRODUCT : NATIONAL® 30

SHIPPED FRO **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
B0004538829	**04-05-21**	**1040521B**	**9.6**	**0.03**	**6.21**	**13.2**	**110**	**34**	**999**

APRIL		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	0 FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **8**	M AVG	**8.83**	**0.23**	**4.90**	**13.16**	**113.78**	**33.78**	**973.22**
	STD DEV	**0.72**	**0.31**	**1.85**	**0.80**	**2.39**	**2.30**	**37.10**

DATE
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YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	0 FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **156**	M AVG	**8.93**	**0.22**	**4.55**	**13.00**	**114.56**	**32.64**	**993.06**
	STD DEV	**0.82**	**0.35**	**2.16**	**0.67**	**3.45**	**1.71**	**37.16**

SOLD TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

For any questions contact.
Q.A. SUPERVISOR
Tucker Goodvin

Attn: **Bob Stadler (rstadler@gseworld.com)**
Chuck Taylor (ctaylor@gseworld.com)
Cheryl Hofer (chofer@gseworld.com)
(ezimmel@gseworld.com)

SHIPPED TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

Prepared by: TO
04/06/21

CC: Thomas Anderson
Jason Tawse
Thomas Cortner
File

GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2021

PRODUCT : NATIONAL® 30

SHIPPED FRO **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
B0004538830	**04-06-21**	**1040521C**	**8.9**	**0.05**	**9.49**	**13.0**	**116**	**30**	**929**

APRIL		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	0 FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **9**	M AVG	**8.84**	**0.21**	**5.36**	**13.14**	**114.00**	**33.40**	**968.80**
	STD DEV	**0.69**	**0.30**	**2.23**	**0.76**	**2.37**	**2.46**	**37.61**

DATE
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YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	0 FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **157**	M AVG	**8.93**	**0.21**	**4.58**	**13.00**	**114.57**	**32.62**	**992.67**
	STD DEV	**0.81**	**0.35**	**2.19**	**0.67**	**3.45**	**1.72**	**37.38**

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(ezimmel@gseworld.com)

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3150 FIRST AVENUE
SPEARFISH, SD 57783

Prepared by: TO
04/07/21

CC: Thomas Anderson
Jason Tawse
Thomas Cortner
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GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2021

PRODUCT : NATIONAL® 30

SHIPPED FRO **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
B0004538834	**04-07-21**	**1040521D**	**8.8**	**0.04**	**3.45**	**13.6**	**118**	**32**	**968**

APRIL		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	0 FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **10**	M AVG	**8.84**	**0.20**	**5.18**	**13.18**	**114.36**	**33.27**	**968.73**
	STD DEV	**0.65**	**0.29**	**2.20**	**0.74**	**2.53**	**2.38**	**35.86**

DATE
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YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	0 FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **158**	M AVG	**8.93**	**0.21**	**4.57**	**13.00**	**114.59**	**32.62**	**992.52**
	STD DEV	**0.81**	**0.35**	**2.18**	**0.67**	**3.45**	**1.72**	**37.32**

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(ezimmel@gseworld.com)

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3150 FIRST AVENUE
SPEARFISH, SD 57783

Prepared by: TO
04/08/21

CC: Thomas Anderson
Jason Tawse
Thomas Cortner
File

GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2021

PRODUCT : NATIONAL® 30

SHIPPED FRO **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
B0004538835	**04-08-21**	**1040821A**	**9.0**	**0.01**	**4.18**	**13.0**	**124**	**35**	**929**

APRIL		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	0 FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **11**	M AVG	**8.85**	**0.18**	**5.10**	**13.17**	**115.17**	**33.42**	**965.42**
	STD DEV	**0.63**	**0.28**	**2.12**	**0.71**	**3.60**	**2.33**	**36.05**

DATE
04-*

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	0 FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **159**	M AVG	**8.93**	**0.21**	**4.57**	**13.00**	**114.65**	**32.63**	**992.14**
	STD DEV	**0.81**	**0.35**	**2.18**	**0.67**	**3.51**	**1.72**	**37.53**

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3150 FIRST AVENUE
SPEARFISH, SD 57783

Prepared by: TO
04/08/21

CC: Thomas Anderson
Jason Tawse
Thomas Cortner
File

GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2021

PRODUCT : NATIONAL® 30

SHIPPED FRO **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	LOT CODE	% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	FL 18 MAX	MBC MEQ 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
B0004538836	**04-08-21**	**1040821B**	**9.0**	**0.02**	**5.12**	**14.0**	**114**	**31**	**987**

APRIL		% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	0 FL 18 MAX	MBC meq 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
No. of CARS	M AVG	**8.86**	**0.17**	**5.10**	**13.23**	**115.08**	**33.23**	**967.08**
12	STD DEV	**0.60**	**0.28**	**2.04**	**0.71**	**3.47**	**2.33**	**35.11**

YTD		% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	0 FL 18 MAX	MBC meq 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
No. of CARS	M AVG	**8.93**	**0.21**	**4.57**	**13.01**	**114.64**	**32.63**	**992.11**
160	STD DEV	**0.81**	**0.35**	**2.17**	**0.67**	**3.50**	**1.72**	**37.42**

DATE
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3150 FIRST AVENUE
SPEARFISH, SD 57783

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(ezimmel@gseworld.com)

SHIPPED TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

Prepared by: TO
04/09/21

CC: Thomas Anderson
Jason Tawse
Thomas Cortner
File

GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2021

PRODUCT : NATIONAL® 30

SHIPPED FRO **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
B0004538837	**04-08-21**	**1040821C**	**9.1**	**0.06**	**5.20**	**13.8**	**116**	**33**	**961**

APRIL		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	0 FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **13**	M AVG	**8.88**	**0.16**	**5.11**	**13.27**	**115.14**	**33.21**	**966.64**
	STD DEV	**0.59**	**0.27**	**1.97**	**0.70**	**3.36**	**2.24**	**33.87**

DATE
04-*

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	0 FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **161**	M AVG	**8.93**	**0.21**	**4.57**	**13.01**	**114.65**	**32.63**	**991.93**
	STD DEV	**0.80**	**0.34**	**2.17**	**0.67**	**3.49**	**1.72**	**37.38**

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SHIPPED TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

Prepared by: TO
04/09/21

CC: Thomas Anderson
Jason Tawse
Thomas Cortner
File

SOLMAX

MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

PROJECT NUMBER: 305282

SALES ORDER: SO-092548

PACKING SLIP NUMBER: Pre-SO-092548-2

PROJECT NAME : OWL NDBL SWMF PH2

ROLL NUMBER	MANUFACT. DATE	BENTONITE LOT NUMBER	TOP LAYER 1	BOTTOM LAYER 1	
Product Code : 1109263-20267-4 **Bentoliner 0.75 lbs/ft², NS, Peel 35** ****AS OF 10/15/2021**** **TRI Pickup - Patricia Zabaleta** **- 1 ft x RW, 1/100,000 sf, min 1/Lot** **- Additional 2 ft x RW sample for interface testing**					
0242-370573	2021-10-15	1093021B	2026826802	2026928642	
0242-370574	2021-10-15	1093021B	2026826802	2026928642	
0242-370575	2021-10-15	1093021B	2026826802	2026928642	
0242-370576	2021-10-15	1093021B	2026826802	2026928642	
0242-370577	2021-10-15	1093021B	2026826802	2026928642	
0242-370578	2021-10-15	1093021B	2026826802	2026928642	
0242-370579	2021-10-15	1093021B	2026826802	2026928642	
0242-370580	2021-10-15	1093021B	2026826802	2026928642	
0242-370581	2021-10-15	1093021B	2026796894	2026928642	
0242-370582	2021-10-15	1093021B	2026796894	2026928642	
0242-370583	2021-10-15	1093021B	2026796894	2026928642	
0242-370584	2021-10-15	1093021B	2026796894	2026928642	
0242-370585	2021-10-15	1093021B	2026796894	2026928642	
0242-370586	2021-10-15	1093021C	2026796894	2026928642	
0242-370587	2021-10-15	1093021C	2026796894	2026928642	
0242-370588	2021-10-15	1093021C	2026796894	2026928642	
0242-370589	2021-10-15	1093021C	2026796894	2026928642	1' conformance, 2' shear
0242-370590	2021-10-15	1093021C	2026796894	2026928642	

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Solmax Geosynthetics LLC
19103 GUNDLE RD,, HOUSTON, TX, UNITED STATES, 77073

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18 Oct 2021

MANUFACTURING QUALITY CONTROL

SOLMAX
Charles Taylor
APPROVED
QUALITY ASSURANCE

PROJECT NUMBER: 305282
SALES ORDER: SO-092548
PACKING SLIP NUMBER: Pre-SO-092548-2

PROJECT NAME : OWL NDBL SWMF PH2

0242-370591	2021-10-15	1093021C	2026923022	2026928642
0242-370592	2021-10-15	1093021C	2026923022	3021090781
0242-370593	2021-10-15	1093021C	2026923022	3021090781
0242-370594	2021-10-15	1093021C	2026923022	3021090781
0242-370595	2021-10-15	1093021C	2026923022	3021090781
0242-370596	2021-10-15	1093021C	2026923022	3021090781
0242-370597	2021-10-15	1093021C	2026923022	3021090781
0242-370598	2021-10-15	1093021C	2026923022	3021090781
0242-370599	2021-10-15	1093021C	2026923022	3021090781
0242-370600	2021-10-15	1093021C	2026797053	3021090781
0242-370601	2021-10-15	1093021C	2026797053	3021090781
0242-370602	2021-10-15	1093021C	2026797053	3021090781
0242-370603	2021-10-15	1093021C	2026797053	3021090781
0242-370604	2021-10-15	1093021C	2026797053	3021090781
0242-370605	2021-10-15	1093021C	2026797053	3021090781
0242-370606	2021-10-15	1093021C	2026797053	3021090781
0242-370607	2021-10-15	1093021C	2026797053	3021090781
0242-370608	2021-10-15	1093021C	2026797053	3021090781
0242-370611	2021-10-18	1093021C	2026923017	3021090781
0242-370612	2021-10-18	1093021C	2026923017	3021090781
0242-370613	2021-10-18	1093021C	2026923017	3021090781
0242-370614	2021-10-18	1093021C	2026923017	3021090781
0242-370615	2021-10-18	1093021C	2026923017	3021090781
0242-370616	2021-10-18	1093021C	2026923017	3021090781

QUANTITY (ROLLS): 42

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18 Oct 2021

SOLMAX

MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: 305282
SALES ORDER: SO-092548
PACKING SLIP NUMBER: Pre-SO-092548-2

PROJECT NAME : OWL NDBL SWMF PH2

PRODUCT: 1109263-20267-4
Bentoliner 0.75 lbs/ft², NS, Peel 35

Test	Property	Direction	Test Method	Frequency	Unit
1	Bentonite Mass (0% moisture)		ASTM D5993	1/40,000 ft²	lbs/ft²
2	Peel Strength (min.avg.)	MD	ASTM D4632	1/40,000 ft²	lbf
3	Peel Strength (min.avg.)	MD	ASTM D6496	1/40,000 ft²	lbf/in
4	Tensile Strength MD (min. avg.)	MD	ASTM D6768	1/40,000 ft²	lbf/in
5	Grab Strength (min. avg)	MD	ASTM D4632	1/40,000 ft²	lbf
6	Puncture Resistance (min. avg.)		ASTM D4833	1/200,000 ft²	lbf
7	Moisture Content (max)		ASTM D5993	1/40,000 ft²	%
8	Finished Good Mass (0% moisture)		ASTM D5993	1/40,000 ft²	lbs/ft²

Test	1	2	3	4	5	6	7	8
SPECIFICATIONS	**0.75**	**35**	**5.3**	**30**	**90**	**90**	**12**	**0.81**
0242-370573	0.78	52	10	46	229	113	9.2	0.86
0242-370574	0.78	52	10	46	229	113	9.2	0.86
0242-370575	0.78	52	10	46	229	113	9.2	0.86
0242-370576	0.78	52	10	46	229	113	9.2	0.86
0242-370577	0.78	52	10	46	229	113	9.2	0.86
0242-370578	0.78	52	10	46	229	113	9.2	0.86
0242-370579	0.78	52	10	46	229	113	9.2	0.86
0242-370580	0.78	52	10	46	229	113	9.2	0.86
0242-370581	0.78	52	10	46	229	113	9.2	0.86
0242-370582	0.78	52	10	46	229	113	9.2	0.86
0242-370583	0.78	52	10	46	229	113	9.2	0.86
0242-370584	0.78	52	10	46	229	113	9.2	0.86
0242-370585	0.78	52	10	46	229	113	9.2	0.86
0242-370586	0.78	52	10	46	229	113	9.2	0.86
0242-370587	0.78	52	10	46	229	113	9.2	0.86
0242-370588	0.78	52	10	46	229	113	9.2	0.86
0242-370589	0.80	59	13	45	179	113	9.3	0.88
0242-370590	0.80	59	13	45	179	113	9.3	0.88
0242-370591	0.80	59	13	45	179	113	9.3	0.88
0242-370592	0.80	59	13	45	179	113	9.3	0.88
0242-370593	0.80	59	13	45	179	113	9.3	0.88
0242-370594	0.80	59	13	45	179	113	9.3	0.88
0242-370595	0.80	59	13	45	179	113	9.3	0.88

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SOLMAX

MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: 305282

SALES ORDER: SO-092548

PACKING SLIP NUMBER: Pre-SO-092548-2

PROJECT NAME : OWL NDBL SWMF PH2

Test	1	2	3	4	5	6	7	8
0242-370596	0.80	59	13	45	179	113	9.3	0.88
0242-370597	0.80	59	13	45	179	113	9.3	0.88
0242-370598	0.80	59	13	45	179	113	9.3	0.88
0242-370599	0.80	59	13	45	179	113	9.3	0.88
0242-370600	0.80	59	13	45	179	113	9.3	0.88
0242-370601	0.80	59	13	45	179	113	9.3	0.88
0242-370602	0.80	59	13	45	179	113	9.3	0.88
0242-370603	0.80	59	13	45	179	113	9.3	0.88
0242-370604	0.80	59	13	45	179	113	9.3	0.88
0242-370605	0.82	56	11	47	185	113	9.7	0.90
0242-370606	0.82	56	11	47	185	113	9.7	0.90
0242-370607	0.82	56	11	47	185	113	9.7	0.90
0242-370608	0.82	56	11	47	185	113	9.7	0.90
0242-370611	0.82	56	11	47	185	113	9.7	0.90
0242-370612	0.82	56	11	47	185	113	9.7	0.90
0242-370613	0.82	56	11	47	185	113	9.7	0.90
0242-370614	0.82	56	11	47	185	113	9.7	0.90
0242-370615	0.82	56	11	47	185	113	9.7	0.90
0242-370616	0.82	56	11	47	185	113	9.7	0.90

Solmax is not a design professional and has not performed any design services to determine if Solmax's goods comply with any project plans or specifications, or with the application or use of Solmax's goods to any particular system, project, purpose, installation or specification.

Solmax Geosynthetics LLC
19103 GUNDLE RD,, HOUSTON, TX, UNITED STATES, 77073

SOLMAX

MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: 305282
SALES ORDER: SO-092548
PACKING SLIP NUMBER: Pre-SO-092548-2

PROJECT NAME : OWL NDBL SWMF PH2

PRODUCT: 1109263-20267-4
Bentoliner 0.75 lbs/ft², NS, Peel 35

Test	Property	Direction	Test Method	Frequency	Unit
1	Swell Index (min.)		ASTM D5890		ml/2 g
2	Moisture Content (max.)		ASTM D4643		%
3	Fluid Loss (max.)		ASTM D5891		ml

Test	1	2	3
Specification	**24**	**12**	**18**
1093021B	34.5	10.2	13
1093021C	35.0	9.8	13

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MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: 305282
SALES ORDER: SO-092548
PACKING SLIP NUMBER: Pre-SO-092548-2

PROJECT NAME : OWL NDBL SWMF PH2

Test	Property	Direction	Test Method	Frequency	Unit
1	Mass per Unit Area (min. avg.)		ASTM D5261	1/200,000 ft²	oz/yd²
2	Strength (MD)				lbf
3	Strength (TD)				lbf
4	Elongation (MD)				%
5	Elongation (TD)				%

Test	1	2	3	4	5
Specification	**6**	**22**	**22**	**100**	**100**
2026796894	8.6	98	220	148	138
2026797053	7.7	124	251	147	135
2026826802	7.7	79	201	167	132
2026923017	8.0	101	255	136	129
2026923022	7.7	118	231	131	130

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SOLMAX

MANUFACTURING QUALITY CONTROL

SOLMAX Charles Taylor APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: 305282
SALES ORDER: SO-092548
PACKING SLIP NUMBER: Pre-SO-092548-2

PROJECT NAME : OWL NDBL SWMF PH2

Test	Property	Direction	Test Method	Frequency	Unit
1	Mass per Unit Area (min. avg.)		ASTM D5261		oz/yd^2
	Grab Tensile Properties (min. avg)		ASTM D4632	1/200,000 ft^2	
2	Strength (MD)				lbf
3	Strength (TD)				lbf
4	Elongation (MD)				%
5	Elongation (TD)				%

Test	1	2	3	4	5
Specification	**3**	**135**	**100**	**10**	**10**
2026928642	3.5	172	163	37	30
3021090781	3.3	158	131	36	17

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SOLMAX.COM

GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2021

PRODUCT : NATIONAL® 30

SHIPPED FRO **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	LOT CODE	% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	FL 18 MAX	MBC MEQ 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
B0004612005	**09-30-21**	**1093021A**	**8.4**	**0.02**	**4.99**	**12.2**	**116**	**32**	**986**
B0004612006	**09-30-21**	**1093021B**	**9.4**	**0.05**	**3.95**	**12.4**	**116**	**33**	**991**

SEPTEMBER		% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	0 FL 18 MAX	MBC meq 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
No. of CARS	M AVG	**9.29**	**0.23**	**3.50**	**12.25**	**115.15**	**33.27**	**961.63**
50	STD DEV	**0.80**	**0.55**	**1.39**	**0.72**	**3.07**	**2.32**	**50.39**

DATE
09-*

YTD		% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	0 FL 18 MAX	MBC meq 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
No. of CARS	M AVG	**9.06**	**0.16**	**4.09**	**12.67**	**114.58**	**32.65**	**964.42**
460	STD DEV	**0.71**	**0.43**	**1.86**	**0.67**	**3.65**	**2.00**	**51.48**

SOLD TO: **Solmax**
19103 Gundle RD
Houston, TX 77073

For any questions contact.
Q.A. SUPERVISOR
Tucker Goodvin

Attn: **Bob Stadler (rstadler@gseworld.com)**
Chuck Taylor (ctaylor@gseworld.com)
Cheryl Hofer (chofer@gseworld.com)
(ezimmel@gseworld.com)

SHIPPED TO: **Solmax**
3150 FIRST AVENUE
SPEARFISH, SD 57783

Prepared by: TO
10/04/21

CC: Thomas Anderson
Jason Tawse

File

GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2021

PRODUCT : NATIONAL® 30

SHIPPED FRO **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	LOT CODE	% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	FL 18 MAX	MBC MEQ 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
B0004612007	10-03-21	1093021C	8.6	0.03	2.67	12.0	114	34	893

OCTOBER

No. of CARS		% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	0 FL 18 MAX	MBC meq 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
3	M AVG	8.30	0.03	2.85	12.20	114.67	33.67	921.33
	STD DEV	0.50	0.01	0.44	0.16	0.94	0.47	21.20

DATE
10-*

YTD

No. of CARS		% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	0 FL 18 MAX	MBC meq 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
463	M AVG	9.05	0.15	4.08	12.67	114.58	32.66	964.15
	STD DEV	0.72	0.42	1.85	0.67	3.64	2.00	51.45

SOLD TO: **Solmax**
19103 Gundle RD
Houston, TX 77073

For any questions contact.
Q.A. SUPERVISOR
Tucker Goodvin

Attn: **Bob Stadler (rstadler@gseworld.com)**
Chuck Taylor (ctaylor@gseworld.com)
Cheryl Hofer (chofer@gseworld.com)
(ezimmel@gseworld.com)

SHIPPED TO: **Solmax**
3150 FIRST AVENUE
SPEARFISH, SD 57783

Prepared by: TO
10/04/21

CC: Thomas Anderson
Jason Tawse

File

Parkhill

APPENDIX B: MATERIAL MANUFACTURER CERTIFICATION AND COMFORMANCE TESTING RESULTS

B.2 GCL Conformance Testing Results

TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
Austin, TX - USA | CA - USA | SC - USA | Gold Coast - Australia | Suzhou - China | Sao Paulo, Brazil | Johannesburg - Africa

May 5, 2021

Mail To:

Juan Zazpe
Southwest Liner Systems
P.O Box 1972 , 301 Calle Industrial
Bernalillo, NM 87004

jzazpe.sls@gmail.com

Bill To:

<= Same

Greetings,

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

Project:	**Owl Landfill Cell 1B**
TRI Job Reference Number:	63194
Material(s) Tested:	Three Solmax Bentoliner NS GCLs
Test(s) Requested:	Mass Per Unit Area (ASTM D5993) Bentonite - Fluid Loss (ASTM D5891) Bentonite - Swell Index (ASTM D5890) Index Flux (ASTM D5887)

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

Sincerely,

Mansukh Patel, Ph.D.

Geosynthetic Services Division

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

TRI Environmental, Inc.
9063 Bee Caves Rd. – Austin, TX 78733 – USA | Ph: 800.880.TEST or 512.263.2101

TRI ENVIRONMENTAL

TESTING, RESEARCH, CONSULTING AND FIELD SERVICES

Austin, TX - USA | CA - USA | SC - USA | Gold Coast - Australia | Suzhou - China | Sao Paulo, Brazil | Johannesburg - Africa

GCL TEST RESULTS
TRI Client: Southwest Liner Systems
Project: Owl Landfill Cell 1B

Material: GCL
Sample Identification: 0242-361734
TRI Log #: 63194

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.	PROJ. SPEC.
Bentonite - Mass/Unit Area (ASTM D5993, result @ 0% M.C.)													
Mass/unit area (lbs/ft^2)													
GCL (ω = 0%)	0.86	0.89	0.97	0.92	0.92						**0.91**	0.04	
Non-Bentonite Components	0.063	(Assumed Material-Specific Value)											
Bentonite (ω = 0%)	0.79	0.83	0.90	0.85	0.85						**0.85**	0.04	0.75 MIN
Moisture Content (%)	9.9	9.8	9.9	9.8	10.2						**9.9**	0.2	35 MAX
Bentonite - Fluid Loss (ASTM D5891)													
Slurry temperature at test intiation:		25.0 ° C			Slurry temperature at test completion:				21.4 ° C				
Fluid Loss (mL)		14.2									**14.2**		18 MAX
Note: Bentonite sample tested is taken from finished GCL product.													
Bentonite - Swell Index (ASTM D5890)													
Swell index (mL/2g)		37									**37**		24 MIN
Note: Bentonite sample tested is taken from finished GCL product.													
Index Flux (ASTM D5887)													
Index Flux (m^3/m^2/sec)		1.4E-09									**1.4E-09**		-
Index Flux (cm^3/cm^2/sec)		1.4E-07									**1.4E-07**		1.0E-06
Hydraulic Conductivity (cm/sec)		5.0E-10									**5.0E-10**		5.0E-09

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GCL TEST RESULTS
TRI Client: Southwest Liner Systems
Project: Owl Landfill Cell 1B

Material: GCL
Sample Identification: 0242-361774
TRI Log #: 63194

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.	PROJ. SPEC.
Bentonite - Mass/Unit Area (ASTM D5993, result @ 0% M.C.)													
Mass/unit area (lbs/ft^2)													
GCL (ω = 0%)	0.99	0.91	0.94	0.85	0.90						**0.92**	0.05	
Non-Bentonite Components	0.063	(Assumed Material-Specific Value)											
Bentonite (ω = 0%)	0.92	0.84	0.88	0.78	0.84						**0.85**	0.05	0.75 MIN
Moisture Content (%)	9.2	9.3	9.4	9.4	9.3						**9.3**	0.1	35 MAX
Bentonite - Fluid Loss (ASTM D5891)													
Slurry temperature at test intiation:		25.0 ° C			Slurry temperature at test completion:				21.4 ° C				
Fluid Loss (mL)		13.4									**13.4**		18 MAX
Note: Bentonite sample tested is taken from finished GCL product.													
Bentonite - Swell Index (ASTM D5890)													
Swell index (mL/2g)		38									**38**		24 MIN
Note: Bentonite sample tested is taken from finished GCL product.													
Index Flux (ASTM D5887)													
Index Flux (m^3/m^2/sec)		4.5E-09									**4.5E-09**		-
		4.5E-07									**4.5E-07**		1.0E-06
Hydraulic Conductivity (cm/sec)		1.6E-09									**1.6E-09**		5.0E-09

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GCL TEST RESULTS
TRI Client: Southwest Liner Systems
Project: Owl Landfill Cell 1B

Material: GCL
Sample Identification: 0242-361814
TRI Log #: 63194

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.	PROJ. SPEC.
Bentonite - Mass/Unit Area (ASTM D5993, result @ 0% M.C.)													
Mass/unit area (lbs/ft^2)													
GCL (ω = 0%)	0.87	0.78	0.86	0.91	0.94						**0.87**	0.06	
Non-Bentonite Components	0.063	(Assumed Material-Specific Value)											
Bentonite (ω = 0%)	0.81	0.71	0.79	0.85	0.88						**0.81**	0.06	0.75 MIN
Moisture Content (%)	10.4	10.4	10.5	10.5	11.1						**10.6**	0.3	35 MAX
Bentonite - Fluid Loss (ASTM D5891)													
Slurry temperature at test intiation:		25.0 ° C			Slurry temperature at test completion:				21.4 ° C				
Fluid Loss (mL)		12.6									**12.6**		18 MAX
Note: Bentonite sample tested is taken from finished GCL product.													
Bentonite - Swell Index (ASTM D5890)													
Swell index (mL/2g)		36									**36**		24 MIN
Note: Bentonite sample tested is taken from finished GCL product.													
Index Flux (ASTM D5887)													
Index Flux (m^3/m^2/sec)		6.5E-09									**6.5E-09**		-
		6.5E-07									**6.5E-07**		1.0E-06
Hydraulic Conductivity (cm/sec)		6.2E-10									**6.2E-10**		5.0E-09

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9063 BEE CAVES RD. – AUSTIN, TX 78733 – USA | PH: 800.880.TEST OR 512.263.2101

TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
Austin, TX - USA | CA - USA | SC - USA | Gold Coast - Australia | Suzhou - China | Sao Paulo, Brazil | Johannesburg - Africa

November 4, 2021 update index flux

Mail To:

Tyler Krueger
Parkhill Smith & Cooper
4222 85th Street
Lubbock, TX 79422

tkrueger@team-psc.com

Bill To:

<= Same

Greetings,

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

Project: **Owl Cell 3AB**

TRI Job Reference Number: 67983

Material(s) Tested: One Solmax Bentoliner NS GCL

Test(s) Requested:

Mass Per Unit Area (ASTM D5993)
Bentonite - Fluid Loss (ASTM D5891)
Bentonite - Swell Index (ASTM D5890)
Index Flux (ASTM D5887)

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

Sincerely,

Mansukh Patel, Ph.D.

Geosynthetic Services Division

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TRI ENVIRONMENTAL

TESTING, RESEARCH, CONSULTING AND FIELD SERVICES

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GCL TEST RESULTS
TRI Client: Parkhill Smith & Cooper
Project: Owl Cell 3AB

Material: Solmax Bentoliner NS GCL
Sample Identification: 0242-370589
TRI Log #: 67983

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.	PROJ. SPEC.
Bentonite - Mass/Unit Area (ASTM D5993, result @ 0% M.C.)													
Mass/unit area (lbs/ft^2)													
GCL (ω = 0%)	1.08	0.98	1.00	0.97	0.97						1.00	0.05	
Non-Bentonite Components	0.063	(Assumed Material-Specific Value)											
Bentonite (ω = 0%)	1.02	0.92	0.93	0.91	0.91						0.94	0.05	0.75 MIN
Moisture Content (%)	8.9	8.7	8.8	8.9	8.8						8.8	0.1	-
Bentonite - Fluid Loss (ASTM D5891)													
Slurry temperature at test intiation:		24.2 ° C			Slurry temperature at test completion:				21.3 ° C				
Fluid Loss (mL)		12.6									12.6		18 MAX
Note: Bentonite sample tested is taken from finished GCL product.													
Bentonite - Swell Index (ASTM D5890)													
Swell index (mL/2g)		41									41		24 MIN
Note: Bentonite sample tested is taken from finished GCL product.													
Index Flux (ASTM D5887)													
Index Flux (m^3/m^2/sec)		1.7E-09									1.7E-09		-
Hydraulic Conductivity (cm/sec)		7.5E-10									7.5E-10		5.0E-09

MD Machine Direction

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

TRI ENVIRONMENTAL, INC.
9063 BEE CAVES RD. – AUSTIN, TX 78733 – USA | PH: 800.880.TEST OR 512.263.2101

Parkhill

APPENDIX B: MATERIAL MANUFACTURER CERTIFICATION AND COMFORMANCE TESTING RESULTS

B.3 FML Certifications

SOLMAX

LIST OF GEOMEMBRANE ROLLS

SOLMAX APPROVED QUALITY ASSURANCE

PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-4

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

ROLL NUMBER	RESIN LOT NUMBER	MANUFACT. DATE	RESIN MELT INDEX 190/2.16 g/10 min D1238	RESIN DENSITY g/cc D1505	OIT min D3895	HPOIT min D5885	ESCR SP-NCTL hours D5397
Product Code : 1101438-10668-7							
HDPE 60 mil Black Smooth			**1.0**	**> 0.932**	**100**		**500**
0108-207238	PMN820680	2021-04-07	0.10	0.937	120		>500 Certified 0108-207225
0108-207239	PMN820680	2021-04-07	0.10	0.937	120		>500 Certified 0108-207225
0108-207240	PMN820680	2021-04-07	0.10	0.937	120		>500 Certified 0108-207225
0108-207241	PMN820680	2021-04-07	0.10	0.937	120		>500 Certified 0108-207225
0108-207242	PMN820680	2021-04-07	0.10	0.937	120		>500 Certified 0108-207225
0108-207243	PMN820680	2021-04-07	0.10	0.937	120		>500 Certified 0108-207225
0108-207244	PMN820680	2021-04-07	0.10	0.937	120		>500 Certified 0108-207225
0108-207245	PMN820680	2021-04-07	0.10	0.937	120		>500 Certified 0108-207225
0108-207246	PMN820680	2021-04-07	0.10	0.937	120		>500 Certified 0108-207225
0108-207247	PMN820680	2021-04-07	0.10	0.937	120		>500 Certified 0108-207225
0108-207248	PMN820680	2021-04-07	0.10	0.937	120		>500 Certified 0108-207225
0108-207249	PMN820680	2021-04-07	0.10	0.937	120		>500 Certified 0108-207225
0108-207250	PMN820680	2021-04-07	0.10	0.937	120		>500 Certified 0108-207225
0108-207251	PMN820680	2021-04-07	0.10	0.937	120		>500 Certified 0108-207225
0108-207252	PMN820680	2021-04-07	0.10	0.937	120		>500 Certified 0108-207225
0108-207253	PMN820680	2021-04-07	0.10	0.937	120		>500 Certified 0108-207225

Solmax is not a design professional and has not performed any design services to determine if Solmax's goods comply with any project plans or specifications, or with the application or use of Solmax's goods to any particular system, project, purpose, installation or specification.

Solmax Geosynthetics LLC
19103 GUNDLE RD,, HOUSTON, TX, UNITED STATES, 77073

SOLMAX.COM

SOLMAX

LIST OF GEOMEMBRANE ROLLS

SOLMAX APPROVED QUALITY ASSURANCE

PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-4

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

0108-207254	D661L3PL3C	2021-04-08	0.10	0.936	120		>500 Certified 0108-207256
0108-207255	D661L3PL3C	2021-04-08	0.10	0.936	120		>500 Certified 0108-207256
0108-207256	D661L3PL3C	2021-04-08	0.10	0.936	120		>500 Certified 0108-207256
0108-207257	D661L3PL3C	2021-04-08	0.10	0.936	120		>500 Certified 0108-207256
0108-207258	D661L3PL3C	2021-04-08	0.10	0.936	120		>500 Certified 0108-207256
0108-207259	D661L3PL3C	2021-04-08	0.10	0.936	120		>500 Certified 0108-207256
0108-207260	D661L3PL3C	2021-04-08	0.10	0.936	120		>500 Certified 0108-207256
0108-207261	D661L3PL3C	2021-04-08	0.10	0.936	120		>500 Certified 0108-207256
0108-207262	D661L3PL3C	2021-04-08	0.10	0.936	120		>500 Certified 0108-207256
0108-207263	D661L3PL3C	2021-04-08	0.10	0.936	120		>500 Certified 0108-207256
0108-207264	D661L3PL3C	2021-04-08	0.10	0.936	120		>500 Certified 0108-207256
0108-207265	D661L3PL3C	2021-04-08	0.10	0.936	120		>500 Certified 0108-207256
0108-207266	D661L3PL3C	2021-04-08	0.10	0.936	120		>500 Certified 0108-207256
0108-207267	D661L3PL3C	2021-04-09	0.10	0.936	120		>500 Certified 0108-207256
0108-207268	D661L3PL3C	2021-04-09	0.10	0.936	120		>500 Certified 0108-207256
0108-207269	D661L3PL3C	2021-04-09	0.10	0.936	120		>500 Certified 0108-207256
0108-207270	D661L3PL3C	2021-04-09	0.10	0.936	120		>500 Certified 0108-207256
0108-207271	D661L3PL3C	2021-04-09	0.10	0.936	120		>500 Certified 0108-207256
0108-207272	D661L3PL3C	2021-04-09	0.10	0.936	120		>500 Certified 0108-207256
0108-207273	D661L3PL3C	2021-04-09	0.10	0.936	120		>500 Certified 0108-207256
0108-207274	D661L3PL3C	2021-04-09	0.10	0.936	120		>500 Certified 0108-207256

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Solmax Geosynthetics LLC
19103 GUNDLE RD,, HOUSTON, TX, UNITED STATES, 77073

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LIST OF GEOMEMBRANE ROLLS

SOLMAX APPROVED QUALITY ASSURANCE

PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-4

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

0108-207275	D661L3PL3C	2021-04-09	0.10	0.936	120		>500 Certified 0108-207256
0108-207276	D661L3PL3C	2021-04-09	0.10	0.936	120		>500 Certified 0108-207256
0108-207277	D661L3PL3C	2021-04-09	0.10	0.936	120		>500 Certified 0108-207256
0108-207278	D661L3PL3C	2021-04-09	0.10	0.936	120		>500 Certified 0108-207256
0108-207279	D661L3PL3C	2021-04-09	0.10	0.936	120		>500 Certified 0108-207256
0108-207280	D661L3PL3C	2021-04-09	0.10	0.936	120		>500 Certified 0108-207256
0108-207281	D661L3PL3C	2021-04-10	0.10	0.936	120		>500 Certified 0108-207256
0108-207282	D661L3PL3C	2021-04-10	0.10	0.936	120		>500 Certified 0108-207256
0108-207283	D661L3PL3C	2021-04-10	0.10	0.936	120		>500 Certified 0108-207256
0108-207284	D661L3PL3C	2021-04-10	0.10	0.936	120		>500 Certified 0108-207256
0108-207285	D661L3PL3C	2021-04-10	0.10	0.936	120		>500 Certified 0108-207256
0108-207286	D661L3PL3C	2021-04-10	0.10	0.936	120		>500 Certified 0108-207256
0108-207287	D661L3PL3C	2021-04-10	0.10	0.936	120		>500 Certified 0108-207256
0108-207288	D661L3PL3C	2021-04-10	0.10	0.936	120		>500 Certified 0108-207256
0108-207289	D661L3PL3B	2021-04-10	0.11	0.937	120		>500 Certified 0108-207291
0108-207290	D661L3PL3B	2021-04-10	0.11	0.937	120		>500 Certified 0108-207291
0108-207291	D661L3PL3B	2021-04-10	0.11	0.937	120		>500 Certified 0108-207291

QUANTITY (ROLLS): 54

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MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-4

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

PRODUCT: 1101438-10668-7
HDPE 60 mil Black Smooth

Properties		Thickness ave/min.	GeoM Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension Stability	Asperity Height In/Out
Unit		mils	g/cc	%	Cat 1 and 2	ppi	%	ppi	%	lbs	lbs	%	mils
Test Method		D5199	D792	D4218	D5596	D6693				D1004	D4833	D1204	
Frequency		Each roll	1/100,000 ft²	Every 2 rolls	1 / 20,000 lb	Every 2 rolls				Every 5 rolls	Every 5 rolls		
Specification		60.0 / 54.0	≥ 0.940	2.0 - 3.0	Cat. 1 & Cat. 2	132	13	243	700	42	120		
0108-207238	MD	62.4 / 60.5	0.944	2.17	10/10 views	141.1	20.0	299	786	47	154		
	XD					154.0	17.2	293	808	52			
0108-207239	MD	61.3 / 59.0	0.944	2.17	10/10 views	141.1	20.0	299	786	47	154		
	XD					154.0	17.2	293	808	52			
0108-207240	MD	62.2 / 59.0	0.944	2.16	10/10 views	142.0	19.7	295	785	47	154		
	XD					153.1	16.8	290	795	52			
0108-207241	MD	61.7 / 57.0	0.944	2.16	10/10 views	142.0	19.7	295	785	49	155		
	XD					153.1	16.8	290	795	51			
0108-207242	MD	62.8 / 56.5	0.944	2.24	10/10 views	143.1	20.0	301	790	49	155		
	XD					150.4	17.9	273	765	51			
0108-207243	MD	63.0 / 59.0	0.944	2.24	10/10 views	143.1	20.0	301	790	49	155		
	XD					150.4	17.9	273	765	51			
0108-207244	MD	62.2 / 59.5	0.944	2.41	10/10 views	143.4	20.1	294	770	49	155		
	XD					149.6	16.7	284	804	51			
0108-207245	MD	63.5 / 60.0	0.944	2.41	10/10 views	143.4	20.1	294	770	49	155		
	XD					149.6	16.7	284	804	51			
0108-207246	MD	62.6 / 61.5	0.943	2.34	10/10 views	142.1	19.7	289	775	51	150		
	XD					160.7	16.9	289	801	47			
0108-207247	MD	61.8 / 60.0	0.943	2.34	10/10 views	142.1	19.7	289	775	51	150		
	XD					160.7	16.9	289	801	47			
0108-207248	MD	63.0 / 60.0	0.943	2.60	10/10 views	145.0	20.0	296	781	51	150		
	XD					158.9	16.9	292	792	47			
0108-207249	MD	62.4 / 61.0	0.943	2.60	10/10 views	145.0	20.0	296	781	51	150		
	XD					158.9	16.9	292	792	47			
0108-207250	MD	63.3 / 60.5	0.943	2.42	10/10 views	147.0	19.2	288	762	51	150		
	XD					158.6	16.5	287	788	47			
0108-207251	MD	62.6 / 60.0	0.943	2.42	10/10 views	147.0	19.2	288	762	51	148		
	XD					158.6	16.5	287	788	48			

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19103 GUNDLE RD,, HOUSTON, TX, UNITED STATES, 77073

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MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-4

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

0108-207252	MD	63.1 / 61.0	0.943	2.52	10/10 views	147.7	19.7	303	784	51	148		
	XD					157.0	17.3	299	847	48			
0108-207253	MD	64.1 / 61.0	0.943	2.52	10/10 views	147.7	19.7	303	784	51	148		
	XD					157.0	17.3	299	847	48			
0108-207254	MD	61.8 / 59.0	0.943	2.51	10/10 views	139.9	20.9	289	760	51	148		
	XD					154.3	17.6	295	802	48			
0108-207255	MD	62.1 / 60.0	0.943	2.51	10/10 views	139.9	20.9	289	760	51	148		
	XD					154.3	17.6	295	802	48			
0108-207256	MD	62.2 / 56.5	0.942	2.28	10/10 views	144.4	19.7	290	777	48	148		
	XD					155.7	16.9	289	803	53			
0108-207257	MD	60.7 / 58.0	0.942	2.28	10/10 views	144.4	19.7	290	777	48	148		
	XD					155.7	16.9	289	803	53			
0108-207258	MD	63.1 / 59.0	0.942	2.21	10/10 views	141.0	20.5	306	821	48	148		
	XD					153.1	17.7	284	825	53			
0108-207259	MD	62.7 / 60.0	0.942	2.21	10/10 views	141.0	20.5	306	821	48	148		
	XD					153.1	17.7	284	825	53			
0108-207260	MD	61.6 / 59.5	0.942	2.36	10/10 views	149.9	20.5	291	777	48	148		
	XD					158.7	17.5	281	805	53			
0108-207261	MD	63.4 / 62.0	0.942	2.36	10/10 views	149.9	20.5	291	777	48	145		
	XD					158.7	17.5	281	805	50			
0108-207262	MD	63.3 / 61.5	0.942	2.41	10/10 views	151.7	19.8	316	824	48	145		
	XD					154.8	17.6	291	818	50			
0108-207263	MD	62.9 / 60.5	0.942	2.41	10/10 views	151.7	19.8	316	824	48	145		
	XD					154.8	17.6	291	818	50			
0108-207264	MD	63.5 / 61.0	0.942	2.21	10/10 views	153.5	20.2	302	790	48	145		
	XD					152.6	17.7	295	840	50			
0108-207265	MD	64.3 / 62.0	0.942	2.21	10/10 views	153.5	20.2	302	790	48	145		
	XD					152.6	17.7	295	840	50			
0108-207266	MD	63.9 / 61.0	0.947	2.53	10/10 views	157.5	19.8	316	813	50	148		
	XD					172.0	16.8	307	846	52			
0108-207267	MD	63.7 / 60.0	0.947	2.53	10/10 views	157.5	19.8	316	813	50	148		
	XD					172.0	16.8	307	846	52			
0108-207268	MD	64.4 / 61.5	0.947	2.55	10/10 views	149.5	20.9	298	788	50	148		
	XD					161.2	18.1	297	830	52			
0108-207269	MD	63.2 / 61.0	0.947	2.55	10/10 views	149.5	20.9	298	788	50	148		
	XD					161.2	18.1	297	830	52			
0108-207270	MD	62.0 / 59.0	0.947	2.52	10/10 views	150.5	21.3	293	782	50	148		
	XD					161.1	17.5	294	826	52			
0108-207271	MD	62.7 / 61.0	0.947	2.52	10/10 views	150.5	21.3	293	782	47	153		
	XD					161.1	17.5	294	826	52			
0108-207272	MD	62.5 / 61.0	0.947	2.46	10/10 views	150.5	20.1	297	781	47	153		

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MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-4

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

	XD					165.0	17.5	304	835	52			
0108-207273	MD	60.3 / 59.0	0.947	2.46	10/10 views	150.5	20.1	297	781	47	153		
	XD					165.0	17.5	304	835	52			
0108-207274	MD	62.7 / 60.0	0.947	2.24	10/10 views	151.9	19.9	313	830	47	153		
	XD					154.8	17.7	295	836	52			
0108-207275	MD	64.1 / 59.5	0.947	2.24	10/10 views	151.9	19.9	313	830	47	153		
	XD					154.8	17.7	295	836	52			
0108-207276	MD	63.7 / 60.0	0.946	2.44	10/10 views	154.0	19.9	287	766	49	151		
	XD					157.1	18.6	296	831	52			
0108-207277	MD	63.6 / 60.5	0.946	2.44	10/10 views	154.0	19.9	287	766	49	151		
	XD					157.1	18.6	296	831	52			
0108-207278	MD	62.7 / 61.0	0.946	2.38	10/10 views	158.1	19.5	312	810	49	151		
	XD					159.3	17.6	299	839	52			
0108-207279	MD	62.3 / 60.5	0.946	2.38	10/10 views	158.1	19.5	312	810	49	151		
	XD					159.3	17.6	299	839	52			
0108-207280	MD	62.9 / 60.0	0.946	2.39	10/10 views	152.5	21.0	315	817	49	151		
	XD					166.7	17.7	310	840	52			
0108-207281	MD	62.7 / 60.0	0.946	2.39	10/10 views	152.5	21.0	315	817	49	151		
	XD					166.7	17.7	310	840	52			
0108-207282	MD	63.5 / 59.5	0.946	2.73	10/10 views	146.9	21.3	307	810	49	151		
	XD					163.6	18.0	303	837	52			
0108-207283	MD	63.4 / 59.5	0.946	2.73	10/10 views	146.9	21.3	307	810	50	151		
	XD					163.6	18.0	303	837	52			
0108-207284	MD	63.4 / 60.5	0.946	2.48	10/10 views	147.1	21.0	311	819	50	151		
	XD					165.9	18.6	309	848	52			
0108-207285	MD	65.4 / 63.0	0.946	2.48	10/10 views	147.1	21.0	311	819	50	151		
	XD					165.9	18.6	309	848	52			
0108-207286	MD	63.9 / 60.0	0.946	2.83	10/10 views	157.9	20.6	313	807	50	151		
	XD					171.6	18.6	315	838	52			
0108-207287	MD	64.4 / 63.0	0.946	2.83	10/10 views	157.9	20.6	313	807	50	151		
	XD					171.6	18.6	315	838	52			
0108-207288	MD	62.2 / 58.0	0.946	2.30	10/10 views	155.2	20.4	309	815	51	144		
	XD					163.3	17.5	300	833	48			
0108-207289	MD	64.1 / 61.5	0.946	2.30	10/10 views	155.2	20.4	309	815	51	144		
	XD					163.3	17.5	300	833	48			
0108-207290	MD	61.8 / 58.0	0.946	2.61	10/10 views	154.0	20.6	301	804	51	144		
	XD					163.6	17.6	304	842	48			
0108-207291	MD	63.1 / 60.0	0.946	2.61	10/10 views	154.0	20.6	301	804	51	144		
	XD					163.6	17.6	304	842	48			

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Solmax Geosynthetics LLC

19103 GUNDLE RD,, HOUSTON, TX, UNITED STATES, 77073

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CoA Date: 02/08/2021

Certificate of Analysis

Shipped To: GSE ENVIRONMENTAL, LLC
19103 GUNDLE ROAD
HOUSTON TX 77073
USA

Recipient: Morales
Fax:

Delivery #: 80374345
PO #: 602278
Weight: 177100.000 LB
Ship Date: 02/08/2021
Package: BULK
Mode: Hopper Car
Car #: CPCX815013
Seal No: 234227

Product:
MARLEX K306 POLYETHYLENE in Bulk
Additive levels have been tested and meet minimum the specification for this lot.
As a result, Standard OIT (by ASTM D 3895) is greater than 120 minutes (nominal value, not tested on every lot).
As a result, High Pressure OIT (by ASTM D 5885) is greater than 1000 minutes (nominal value, not tested on every lot).

Lot Number: PMN820680

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.1	g/10min
HLMI Flow Rate	ASTM D1238	12.0	g/10min
Density	D1505 or D4883	0.937	g/cm3
Production Date		12/14/2020	

The data set forth herein have been carefully compiled by Chevron Phillips Chemical Company LP (CPChem).
However, there is no warranty of any kind, either expressed or implied, applicable to its use, and the user assumes all risk and liability in connection therewith.

Erin Xiao
Quality Systems Coordinator

For CoA questions contact Shannon Blacknall at +1-832-813-4807

Date 2021-03-29 (YYYY-MM-DD) Time 15:25:52 (Greenwich Mean Time) Page 1 of 1

THE DOW CHEMICAL COMPANY

GSE ENVIRONMENTAL LLC
19103 GUNDLE RD.
HOUSTON TX 77073-3515

Ship From: SEADRIFT
Texas, United States

Certificate of Analysis

Product Name

DOW™ DGDA-5310 NT MDPE GMB Resin

Delivery No.	820678659 / 000010
Order Number	112310528
Shipping Units	192799.999 LB
Date Shipped	2021-03-29 (YYYY-MM-DD)
Shipment No.	38587214

Customer Information

Customer Name	GSE ENVIRONMENTAL LLC
Customer PO number	602533-5
Container ID	ACFX066973
Specification Number	000000456148

Batch Number	D661L3PL3C
Manufacturing Date	2021-03-25 (YYYY-MM-DD)
Net Weight	192799.999 LB / 87452.537 KG

Test	Unit	Lower Limit	Upper Limit	Value	Method
Melt Flow Rate @190degC/21.6kg	**dg/min**	**9.0**	**12.0**	**10.5**	**ASTM D1238**
Melt Flow Ratio I21.6/I5.0		**20.0**	**40.0**	**27.6**	**ASTM D1238**
Density ASTM D4703, A1 Proc C, Test within 1 hr	**g/cm3**	**0.9350**	**0.9390**	**0.9373**	**ASTM D792**

For inquiries please contact Customer Service or local sales

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Date 2021-03-29 (YYYY-MM-DD) Time 15:25:48 (Greenwich Mean Time) Page 1 of 1

THE DOW CHEMICAL COMPANY

GSE ENVIRONMENTAL LLC
19103 GUNDLE RD.
HOUSTON TX 77073-3515

Ship From: SEADRIFT
Texas, United States

Certificate of Analysis

Product Name

DOW™ DGDA-5310 NT MDPE GMB Resin

Delivery No.	820678658 / 000010
Order Number	112310527
Shipping Units	193449.999 LB
Date Shipped	2021-03-29 (YYYY-MM-DD)
Shipment No.	38587213

Customer Information

Customer Name	GSE ENVIRONMENTAL LLC
Customer PO number	602533-4
Container ID	DOWX060185
Specification Number	000000456148

Batch Number	D661L3PL3B
Manufacturing Date	2021-03-25 (YYYY-MM-DD)
Net Weight	193449.999 LB / 87747.372 KG

Test	Unit	Lower Limit	Upper Limit	Value	Method
Melt Flow Rate @190degC/21.6kg	**dg/min**	**9.0**	**12.0**	**10.5**	**ASTM D1238**
Melt Flow Ratio I21.6/I5.0		**20.0**	**40.0**	**27.7**	**ASTM D1238**
Density ASTM D4703, A1 Proc C, Test within 1 hr	**g/cm3**	**0.9350**	**0.9390**	**0.9375**	**ASTM D792**

For inquiries please contact Customer Service or local sales

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SOLMAX

LIST OF GEOMEMBRANE ROLLS

SOLMAX APPROVED QUALITY ASSURANCE

PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-2

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

ROLL NUMBER	RESIN LOT NUMBER	MANUFACT. DATE	RESIN MELT INDEX 190/2.16 g/10 min D1238	RESIN DENSITY g/cc D1505	OIT min D3895	HPOIT min D5885	ESCR SP-NCTL hours D5397
Product Code : 1101477-10668-1							
HDPE 60 mil Black Textured RT			**1.0**	**> 0.932**	**100**		**500**
0102-200286	20J1249	2021-04-03	0.08	0.939	120		>500 Certified 0102-200286
0102-200287	20J1249	2021-04-03	0.08	0.939	120		>500 Certified 0102-200286
0102-200288	20J1249	2021-04-04	0.08	0.939	120		>500 Certified 0102-200286
0102-200289	20J1249	2021-04-04	0.08	0.939	120		>500 Certified 0102-200286
0102-200290	20J1249	2021-04-04	0.08	0.939	120		>500 Certified 0102-200286
0102-200291	20J1249	2021-04-04	0.08	0.939	120		>500 Certified 0102-200286
0102-200292	20J1249	2021-04-04	0.08	0.939	120		>500 Certified 0102-200286
0102-200293	20J1251	2021-04-04	0.08	0.938	120		>500 Certified 0108-207200
0102-200294	20J1251	2021-04-04	0.08	0.938	120		>500 Certified 0108-207200
0102-200295	20J1251	2021-04-04	0.08	0.938	120		>500 Certified 0108-207200
0102-200296	20J1251	2021-04-04	0.08	0.938	120		>500 Certified 0108-207200
0102-200297	20J1251	2021-04-04	0.08	0.938	120		>500 Certified 0108-207200
0102-200298	20J1251	2021-04-04	0.08	0.938	120		>500 Certified 0108-207200
0102-200299	20J1251	2021-04-04	0.08	0.938	120		>500 Certified 0108-207200
0102-200300	20J1251	2021-04-04	0.08	0.938	120		>500 Certified 0108-207200
0102-200301	20J1251	2021-04-04	0.08	0.938	120		>500 Certified 0108-207200

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Solmax Geosynthetics LLC
19103 GUNDLE RD,, HOUSTON, TX, UNITED STATES, 77073

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LIST OF GEOMEMBRANE ROLLS

SOLMAX APPROVED QUALITY ASSURANCE

PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-2

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

0102-200302	20J1251	2021-04-05	0.08	0.938	120		>500 Certified 0108-207200
0102-200303	20J1251	2021-04-05	0.08	0.938	120		>500 Certified 0108-207200
0102-200304	20J1251	2021-04-05	0.08	0.938	120		>500 Certified 0108-207200
0102-200305	20J1251	2021-04-05	0.08	0.938	120		>500 Certified 0108-207200
0102-200306	20J1251	2021-04-05	0.08	0.938	120		>500 Certified 0108-207200
0102-200307	20J1251	2021-04-05	0.08	0.938	120		>500 Certified 0108-207200
0102-200308	20J1251	2021-04-05	0.08	0.938	120		>500 Certified 0108-207200
0102-200309	20J1251	2021-04-05	0.08	0.938	120		>500 Certified 0108-207200
0102-200310	20J1251	2021-04-05	0.08	0.938	120		>500 Certified 0108-207200
0102-200311	20J1251	2021-04-05	0.08	0.938	120		>500 Certified 0108-207200
0102-200312	20J1251	2021-04-05	0.08	0.938	120		>500 Certified 0108-207200
0102-200313	20J1251	2021-04-05	0.08	0.938	120		>500 Certified 0108-207200
0102-200314	20J1251	2021-04-05	0.08	0.938	120		>500 Certified 0108-207200
0102-200315	20J1251	2021-04-05	0.08	0.938	120		>500 Certified 0108-207200
0102-200316	20J1251	2021-04-05	0.08	0.938	120		>500 Certified 0108-207200
0102-200317	20J1251	2021-04-06	0.08	0.938	120		>500 Certified 0108-207200
0102-200318	PMN820680	2021-04-06	0.10	0.937	120		>500 Certified
0102-200319	PMN820680	2021-04-06	0.10	0.937	120		>500 Certified
0102-200320	PMN820680	2021-04-06	0.10	0.937	120		>500 Certified
0102-200321	PMN820680	2021-04-06	0.10	0.937	120		>500 Certified
0102-200322	PMN820680	2021-04-06	0.10	0.937	120		>500 Certified

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Solmax Geosynthetics LLC
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LIST OF GEOMEMBRANE ROLLS

SOLMAX APPROVED QUALITY ASSURANCE

PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-2

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

0102-200323	PMN820680	2021-04-06	0.10	0.937	120		>500 Certified

QUANTITY (ROLLS): 38

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Solmax Geosynthetics LLC
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MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-2

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

PRODUCT: 1101477-10668-1
HDPE 60 mil Black Textured RT

Properties		Thickness ave/min.	GeoM Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension Stability	Asperity Height In/Out
Unit		mils	g/cc	%	Cat 1 and 2	ppi	%	ppi	%	lbs	lbs	%	mils
Test Method		D5994	D792	D4218	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll	1/100,000 ft²	Every 2 rolls	1 / 20,000 lb	Every 2 rolls				Every 5 rolls	Every 5 rolls		Every roll
Specification		60.0 / 54.0	≥ 0.940	2.0 - 3.0	Cat. 1 & Cat. 2	132	13	132	150	45	120		20 / 20
0102-200286	MD	60.7 / 58.5	0.947	2.26	10/10 views	173.2	17.2	211	512	56	145		23.5 / 23.6
	XD					182.4	15.9	198	501	58			
0102-200287	MD	63.8 / 60.0	0.947	2.26	10/10 views	173.2	17.2	211	512	56	145		22.4 / 28.0
	XD					182.4	15.9	198	501	58			
0102-200288	MD	63.7 / 60.5	0.947	2.36	10/10 views	181.8	17.8	229	539	56	145		23.5 / 24.4
	XD					183.3	16.2	206	494	58			
0102-200289	MD	62.4 / 60.0	0.947	2.36	10/10 views	181.8	17.8	229	539	56	145		23.8 / 24.1
	XD					183.3	16.2	206	494	58			
0102-200290	MD	65.7 / 61.5	0.947	2.45	10/10 views	176.5	18.8	229	559	56	145		23.9 / 24.8
	XD					177.3	16.8	205	534	58			
0102-200291	MD	61.6 / 60.0	0.947	2.45	10/10 views	176.5	18.8	229	559	55	147		22.4 / 23.2
	XD					177.3	16.8	205	534	59			
0102-200292	MD	66.7 / 62.5	0.947	2.40	10/10 views	176.7	17.6	224	478	55	147		23.1 / 24.2
	XD					178.2	16.3	190	479	59			
0102-200293	MD	66.0 / 63.0	0.947	2.40	10/10 views	176.7	17.6	224	478	55	147		22.9 / 23.9
	XD					178.2	16.3	190	479	59			
0102-200294	MD	62.6 / 60.5	0.947	2.21	10/10 views	170.5	18.6	227	573	55	147		22.9 / 23.2
	XD					178.4	15.5	189	407	59			
0102-200295	MD	63.4 / 60.5	0.947	2.21	10/10 views	170.5	18.6	227	573	55	147		28.9 / 27.9
	XD					178.4	15.5	189	407	59			
0102-200296	MD	63.4 / 60.5	0.948	2.43	10/10 views	186.9	17.2	226	527	58	145		29.3 / 27.3
	XD					195.5	16.0	210	398	60			
0102-200297	MD	62.4 / 58.5	0.948	2.43	10/10 views	186.9	17.2	226	527	58	145		28.2 / 24.5
	XD					195.5	16.0	210	398	60			
0102-200298	MD	61.9 / 55.0	0.948	2.44	10/10 views	187.6	17.5	233	550	58	145		29.8 / 25.0
	XD					192.3	16.2	203	430	60			
0102-200299	MD	62.7 / 60.5	0.948	2.44	10/10 views	187.6	17.5	233	550	58	145		27.2 / 24.7
	XD					192.3	16.2	203	430	60			

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Solmax Geosynthetics LLC
19103 GUNDLE RD,, HOUSTON, TX, UNITED STATES, 77073

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MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-2

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

0102-200300	MD	65.1 / 63.0	0.948	2.23	10/10 views	193.7	17.1	237	563	58	145		27.9 / 27.1
	XD					185.5	15.8	214	527	60			
0102-200301	MD	61.7 / 60.0	0.948	2.23	10/10 views	193.7	17.1	237	563	58	165		22.7 / 23.6
	XD					185.5	15.8	214	527	61			
0102-200302	MD	61.8 / 60.0	0.948	2.46	10/10 views	181.0	17.4	244	605	58	165		22.9 / 23.8
	XD					188.3	16.6	206	447	61			
0102-200303	MD	66.5 / 63.0	0.948	2.46	10/10 views	181.0	17.4	244	605	58	165		22.9 / 23.7
	XD					188.3	16.6	206	447	61			
0102-200304	MD	66.3 / 62.5	0.948	2.52	10/10 views	184.8	18.6	240	563	58	165		21.4 / 23.2
	XD					195.4	16.8	222	458	61			
0102-200305	MD	63.7 / 62.0	0.948	2.52	10/10 views	184.8	18.6	240	563	58	165		22.4 / 23.5
	XD					195.4	16.8	222	458	61			
0102-200306	MD	65.2 / 62.5	0.942	2.65	10/10 views	182.4	19.0	243	568	59	164		22.4 / 23.5
	XD					194.6	17.4	225	470	60			
0102-200307	MD	65.6 / 61.5	0.942	2.65	10/10 views	182.4	19.0	243	568	59	164		22.1 / 24.6
	XD					194.6	17.4	225	470	60			
0102-200308	MD	64.1 / 60.0	0.942	2.58	10/10 views	193.8	17.3	247	583	59	164		22.9 / 24.8
	XD					198.5	16.3	206	491	60			
0102-200309	MD	64.2 / 62.0	0.942	2.58	10/10 views	193.8	17.3	247	583	59	164		28.0 / 32.1
	XD					198.5	16.3	206	491	60			
0102-200310	MD	65.4 / 62.5	0.942	2.51	10/10 views	192.5	16.4	255	587	59	164		26.3 / 25.3
	XD					191.3	16.1	217	540	60			
0102-200311	MD	63.8 / 61.0	0.942	2.51	10/10 views	192.5	16.4	255	587	58	166		30.3 / 25.8
	XD					191.3	16.1	217	540	60			
0102-200312	MD	63.8 / 59.5	0.942	2.58	10/10 views	191.7	16.9	227	519	58	166		27.7 / 22.1
	XD					193.5	15.4	201	422	60			
0102-200313	MD	62.8 / 59.0	0.942	2.58	10/10 views	191.7	16.9	227	519	58	166		24.7 / 21.6
	XD					193.5	15.4	201	422	60			
0102-200314	MD	65.7 / 63.0	0.942	2.27	10/10 views	187.9	16.9	246	566	58	166		22.5 / 23.4
	XD					185.8	16.8	218	533	60			
0102-200315	MD	65.6 / 63.5	0.942	2.27	10/10 views	187.9	16.9	246	566	58	166		22.3 / 22.9
	XD					185.8	16.8	218	533	60			
0102-200316	MD	64.3 / 61.5	0.942	2.39	10/10 views	186.9	17.7	250	582	57	160		22.1 / 23.4
	XD					193.0	16.1	233	571	60			
0102-200317	MD	62.0 / 60.0	0.942	2.61	10/10 views	186.9	17.7	250	582	57	160		21.8 / 23.5
	XD					193.0	16.1	233	571	60			
0102-200318	MD	61.7 / 60.0	0.942	2.50	10/10 views	182.1	18.7	245	580	57	160		21.5 / 23.5
	XD					190.5	18.5	205	582	60			
0102-200319	MD	66.8 / 63.0	0.942	2.50	10/10 views	182.1	18.7	245	580	57	160		22.5 / 24.0
	XD					190.5	18.5	205	582	60			
0102-200320	MD	65.9 / 62.5	0.942	2.29	10/10 views	183.2	17.5	224	522	57	160		21.8 / 23.2

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Solmax Geosynthetics LLC

19103 GUNDLE RD,, HOUSTON, TX, UNITED STATES, 77073

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MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-2

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

	XD					187.3	16.7	221	533	60			
0102-200321	MD	62.9 / 59.5	0.942	2.29	10/10 views	183.2	17.5	224	522	56	156		22.4 / 23.6
	XD					187.3	16.7	221	533	61			
0102-200322	MD	62.4 / 60.0	0.942	2.56	10/10 views	182.8	18.4	229	536	56	156		21.6 / 23.5
	XD					188.1	17.0	224	541	61			
0102-200323	MD	64.5 / 62.0	0.942	2.56	10/10 views	182.8	18.4	229	536	56	156		25.0 / 27.6
	XD					188.1	17.0	224	541	61			

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Solmax Geosynthetics LLC

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Formosa Plastics

FORMOSA PLASTICS CORPORATION, TEXAS

201 FORMOSA DRIVE
PO BOX 700
POINT COMFORT TX 77978

PHONE:(888)FPCUSA3

Certificate of Analysis

(CONFIDENTIAL)

CUSTOMER:GSE ENVIRONMENTAL, LLC
19103 GUNDLE RD

HOUSTON TX 77073

PRODUCT :HL3812
RAILCAR FPAX980221

S/O NO : EW3A119
CUSTOMER PO : 602395
DATE SHIPPED: 3/15/21
LOT NO : 20J1249
WEIGHT (LB) : 195,400.00
CUSTID:FT03112 SPIDM6
DATE OF PROD: 10/26/20

TEST ITEM	REFERENCE METHOD	TEST VALUE
Melt Index,g/10min	ASTM D1238	.075
HLMI, g/10 min.	ASTM D1238	12.2
Density, g/cm3	ASTM D1505	.9385

Notes:
the OIT (>120 min.) and HP-OIT (>1000 min.) Values are based on the l
ot having the Minimum Additive Levels (Antioxidants and UV) in the HL
3812 specification. OIT and HP-OIT values are not tested for every lo
t.

Linda Kao

QC SUPERVISOR: LINDA KAO

Formosa Plastics

FORMOSA PLASTICS CORPORATION, TEXAS

201 FORMOSA DRIVE
PO BOX 700
POINT COMFORT TX 77978

PHONE:(888)FPCUSA3

Certificate of Analysis
(CONFIDENTIAL)

CUSTOMER:GSE ENVIRONMENTAL, LLC
19103 GUNDLE RD

HOUSTON TX 77073

PRODUCT :HL3812
RAILCAR FPAX950125

S/O NO : EW3A122
CUSTOMER PO : 602395
DATE SHIPPED: 3/22/21
LOT NO : 20J1251
WEIGHT (LB) : 183,250.00
CUSTID:FT03112 SPIDM6
DATE OF PROD: 10/30/20

TEST ITEM	REFERENCE METHOD	TEST VALUE
Melt Index,g/10min	ASTM D1238	.083
HLMI, g/10 min.	ASTM D1238	13.6
Density, g/cm3	ASTM D1505	.9383

Notes:
the OIT (>120 min.) and HP-OIT (>1000 min.) Values are based on the l
ot having the Minimum Additive Levels (Antioxidants and UV) in the HL
3812 specification. OIT and HP-OIT values are not tested for every lo
t.

Linda Kao

QC SUPERVISOR: LINDA KAO

CoA Date: 02/08/2021

Certificate of Analysis

Shipped To: GSE ENVIRONMENTAL, LLC
19103 GUNDLE ROAD
HOUSTON TX 77073
USA

Recipient: Morales
Fax:

Delivery #: 80374345
PO #: 602278
Weight: 177100.000 LB
Ship Date: 02/08/2021
Package: BULK
Mode: Hopper Car
Car #: CPCX815013
Seal No: 234227

Product:
MARLEX K306 POLYETHYLENE in Bulk
Additive levels have been tested and meet minimum the specification for this lot.
As a result, Standard OIT (by ASTM D 3895) is greater than 120 minutes (nominal value, not tested on every lot).
As a result, High Pressure OIT (by ASTM D 5885) is greater than 1000 minutes (nominal value, not tested on every lot).

Lot Number: PMN820680

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.1	g/10min
HLMI Flow Rate	ASTM D1238	12.0	g/10min
Density	D1505 or D4883	0.937	g/cm3
Production Date		12/14/2020	

The data set forth herein have been carefully compiled by Chevron Phillips Chemical Company LP (CPChem).
However, there is no warranty of any kind, either expressed or implied, applicable to its use, and the user assumes all risk and liability in connection therewith.

Erin Xiao
Quality Systems Coordinator

For CoA questions contact Shannon Blacknall at +1-832-813-4807

SOLMAX

LIST OF GEOMEMBRANE ROLLS

SOLMAX APPROVED QUALITY ASSURANCE

PROJECT NUMBER: 305282

SALES ORDER: SO-092548

PACKING SLIP NUMBER: RR-078388

PROJECT NAME : OWL NDBL SWMF PH2

ROLL NUMBER	RESIN LOT NUMBER	MANUFACT. DATE	RESIN MELT INDEX 190/2.16 g/10 min D1238	RESIN DENSITY g/cc D1505	OIT min D3895	HPOIT min D5885	ESCR SP-NCTL hours D5397
Product Code : 1101438-20267-3							
HDPE 60 mil Black Smooth			**1.0**	**> 0.932**	**100**		**500**
0105-205059	PNJ610230	2021-10-05	0.10	0.937	120		>500 Certified 0101-203514
0105-205073	PNJ610330	2021-10-06	0.10	0.937	120		>500 Certified 0105-205070
0105-205075	PNJ610330	2021-10-06	0.10	0.937	120		>500 Certified 0105-205070
0105-205076	PNJ610330	2021-10-06	0.10	0.937	120		>500 Certified 0105-205070
0105-205077	PNJ610330	2021-10-06	0.10	0.937	120		>500 Certified 0105-205070

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MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: 305282
SALES ORDER: SO-092548
PACKING SLIP NUMBER: RR-078388

PROJECT NAME : OWL NDBL SWMF PH2

PRODUCT: 1101438-20267-3
HDPE 60 mil Black Smooth

Properties		Thickness ave/min.	GeoM Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension Stability	Asperity Height In/Out
Unit		mils	g/cc	%	Cat 1 and 2	ppi	%	ppi	%	lbs	lbs	%	mils
Test Method		D5199	D792	D4218	D5596	D6693				D1004	D4833	D1204	
Frequency		Each roll	Every 5 rolls	Every 2 rolls	Every 5 rolls	Every 2 rolls				Every 5 rolls	Every 5 rolls		
Specification		60.0 / 54.0	≥ 0.940	2.0 - 3.0	Cat. 1 & Cat. 2	132	13	243	700	42	120		
0105-205059	MD	63.7 / 60.5	0.942	2.51	10/10 views	137.9	19.6	304	778	44	142		
	XD					147.9	17.7	268	775	45			
0105-205073	MD	62.3 / 60.5	0.944	2.48	10/10 views	148.5	19.9	340	855	46	146		
	XD					147.3	17.7	317	886	47			
0105-205075	MD	62.9 / 60.0	0.941	2.53	10/10 views	137.1	20.8	293	778	49	142		
	XD					141.0	18.3	276	766	58			
0105-205076	MD	65.0 / 62.0	0.941	2.44	10/10 views	137.5	19.3	302	818	49	142		
	XD					143.2	17.4	315	853	58			
0105-205077	MD	64.6 / 63.0	0.941	2.44	10/10 views	137.5	19.3	302	818	49	142		
	XD					143.2	17.4	315	853	58			

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Solmax Geosynthetics LLC
19103 GUNDLE RD,, HOUSTON, TX, UNITED STATES, 77073

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CoA Date: 09/08/2021

Certificate of Analysis

Shipped To: SOLMAX GEOSYNTHETICS, LLC
19103 GUNDLE ROAD
HOUSTON TX 77073
USA

Recipient: Morales
Fax:

Delivery #: 80509947
PO #: 603566
Weight: 180900.000 LB
Ship Date: 09/08/2021
Package: BULK
Mode: Hopper Car
Car #: PSPX002444
Seal No: 236107

Product:
MARLEX K306 POLYETHYLENE in Bulk
Additive levels have been tested and meet minimum the specification for this lot.
As a result, Standard OIT (by ASTM D 3895) is greater than 120 minutes (nominal value, not tested on every lot).
As a result, High Pressure OIT (by ASTM D 5885) is greater than 1000 minutes (nominal value, not tested on every lot).

Lot Number: PNJ610230

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.1	g/10min
HLMI Flow Rate	ASTM D1238	11.1	g/10min
Density	D1505 or D4883	0.937	g/cm3
Production Date		09/05/2021	

The data set forth herein have been carefully compiled by Chevron Phillips Chemical Company LP (CPChem).
However, there is no warranty of any kind, either expressed or implied, applicable to its use, and the user assumes all risk and liability in connection therewith.

Erin Xiao
Quality Systems Coordinator

For CoA questions contact Shannon Blacknall at +1-832-813-4807

CoA Date: 09/11/2021

Certificate of Analysis

Shipped To: SOLMAX GEOSYNTHETICS, LLC
19103 GUNDLE ROAD
HOUSTON TX 77073
USA

Recipient: Morales
Fax:

Delivery #: 80512621
PO #: 603566
Weight: 184300.000 LB
Ship Date: 09/11/2021
Package: BULK
Mode: Hopper Car
Car #: SHQX041458
Seal No: 235838

Product:
MARLEX K306 POLYETHYLENE in Bulk
Additive levels have been tested and meet minimum the specification for this lot.
As a result, Standard OIT (by ASTM D 3895) is greater than 120 minutes (nominal value, not tested on every lot).
As a result, High Pressure OIT (by ASTM D 5885) is greater than 1000 minutes (nominal value, not tested on every lot).

Lot Number: PNJ610330

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.1	g/10min
HLMI Flow Rate	ASTM D1238	10.9	g/10min
Density	D1505 or D4883	0.937	g/cm3
Production Date		09/07/2021	

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Erin Xiao
Quality Systems Coordinator

For CoA questions contact Shannon Blacknall at +1-832-813-4807

SOLMAX

LIST OF GEOMEMBRANE ROLLS

SOLMAX APPROVED QUALITY ASSURANCE

PROJECT NUMBER: 305282

SALES ORDER: SO-092548

PACKING SLIP NUMBER: RR-078385

PROJECT NAME : OWL NDBL SWMF PH2

ROLL NUMBER	RESIN LOT NUMBER	MANUFACT. DATE	RESIN MELT INDEX 190/2.16 g/10 min D1238	RESIN DENSITY g/cc D1505	OIT min D3895	HPOIT min D5885	ESCR SP-NCTL hours D5397
Product Code : 1101438-20267-3							
HDPE 60 mil Black Smooth			**1.0**	**> 0.932**	**100**		**500**
0105-205058	PNJ610230	2021-10-05	0.10	0.937	120		>500 Certified 0101-203514
0105-205060	PNJ610230	2021-10-05	0.10	0.937	120		>500 Certified 0101-203514
0105-205061	PNJ610230	2021-10-05	0.10	0.937	120		>500 Certified 0101-203514
0105-205062	PNJ610230	2021-10-05	0.10	0.937	120		>500 Certified 0101-203514
0105-205066	PNJ610230	2021-10-05	0.10	0.937	120		>500 Certified 0101-203514
0105-205067	PNJ610230	2021-10-05	0.10	0.937	120		>500 Certified 0101-203514
0105-205068	PNJ610330	2021-10-06	0.10	0.937	120		>500 Certified 0105-205070
0105-205069	PNJ610330	2021-10-06	0.10	0.937	120		>500 Certified 0105-205070
0105-205070	PNJ610330	2021-10-06	0.10	0.937	120		>500 Certified 0105-205070
0105-205071	PNJ610330	2021-10-06	0.10	0.937	120		>500 Certified 0105-205070
0105-205072	PNJ610330	2021-10-06	0.10	0.937	120		>500 Certified 0105-205070
0105-205074	PNJ610330	2021-10-06	0.10	0.937	120		>500 Certified 0105-205070

QUANTITY (ROLLS): 12

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Solmax Geosynthetics LLC
19103 GUNDLE RD,, HOUSTON, TX, UNITED STATES, 77073

SOLMAX.COM

SOLMAX

MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: 305282
SALES ORDER: SO-092548
PACKING SLIP NUMBER: RR-078385

PROJECT NAME : OWL NDBL SWMF PH2

PRODUCT: 1101438-20267-3
HDPE 60 mil Black Smooth

Properties	Thickness ave/min.	GeoM Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension Stability	Asperity Height In/Out
Unit	mils	g/cc	%	Cat 1 and 2	ppi	%	ppi	%	lbs	lbs	%	mils
Test Method	D5199	D792	D4218	D5596	D6693				D1004	D4833	D1204	
Frequency	Each roll	Every 5 rolls	Every 2 rolls	Every 5 rolls	Every 2 rolls				Every 5 rolls	Every 5 rolls		
Specification	60.0 / 54.0	≥ 0.940	2.0 - 3.0	Cat. 1 & Cat. 2	132	13	243	700	42	120		
0105-205058 MD	65.0 / 61.5	0.941	2.51	10/10 views	137.9	19.6	304	778	44	127		
XD					147.9	17.7	268	775	44			
0105-205060 MD	63.5 / 61.0	0.944	2.39	10/10 views	136.6	20.2	288	785	45	142		
XD					143.3	16.8	249	797	46			
0105-205061 MD	63.8 / 62.5	0.944	2.39	10/10 views	136.6	20.2	288	785	45	142		
XD					143.3	16.8	249	797	46			
0105-205062 MD	61.9 / 60.0	0.944	2.50	10/10 views	135.4	19.6	306	845	45	142		
XD					145.8	17.1	295	824	46			
0105-205066 MD	61.7 / 60.5	0.943	2.56	10/10 views	138.6	20.5	305	813	43	146		
XD					151.8	17.3	299	823	44			
0105-205067 MD	62.8 / 60.0	0.943	2.56	10/10 views	138.6	20.5	305	813	43	146		
XD					151.8	17.3	299	823	44			
0105-205068 MD	62.4 / 61.0	0.943	2.38	10/10 views	138.7	19.9	274	755	43	146		
XD					145.0	18.0	300	837	44			
0105-205069 MD	61.9 / 60.0	0.944	2.38	10/10 views	138.7	19.9	274	755	46	146		
XD					145.0	18.0	300	837	47			
0105-205070 MD	61.9 / 60.5	0.944	2.44	10/10 views	133.2	20.3	281	776	46	146		
XD					144.9	17.6	292	820	47			
0105-205071 MD	62.1 / 60.5	0.944	2.44	10/10 views	133.2	20.3	281	776	46	146		
XD					144.9	17.6	292	820	47			
0105-205072 MD	61.9 / 60.0	0.944	2.48	10/10 views	148.5	19.9	340	855	46	146		
XD					147.3	17.7	317	886	47			
0105-205074 MD	64.3 / 60.5	0.941	2.53	10/10 views	137.1	20.8	293	778	49	142		
XD					141.0	18.3	276	766	58			

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Solmax Geosynthetics LLC
19103 GUNDLE RD,, HOUSTON, TX, UNITED STATES, 77073

SOLMAX.COM

18 Oct 2021

CoA Date: 09/08/2021

Certificate of Analysis

Shipped To: SOLMAX GEOSYNTHETICS, LLC
19103 GUNDLE ROAD
HOUSTON TX 77073
USA

Recipient: Morales
Fax:

Delivery #: 80509947
PO #: 603566
Weight: 180900.000 LB
Ship Date: 09/08/2021
Package: BULK
Mode: Hopper Car
Car #: PSPX002444
Seal No: 236107

Product:
MARLEX K306 POLYETHYLENE in Bulk
Additive levels have been tested and meet minimum the specification for this lot.
As a result, Standard OIT (by ASTM D 3895) is greater than 120 minutes (nominal value, not tested on every lot).
As a result, High Pressure OIT (by ASTM D 5885) is greater than 1000 minutes (nominal value, not tested on every lot).

Lot Number: PNJ610230

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.1	g/10min
HLMI Flow Rate	ASTM D1238	11.1	g/10min
Density	D1505 or D4883	0.937	g/cm3
Production Date		09/05/2021	

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Erin Xiao
Quality Systems Coordinator

For CoA questions contact Shannon Blacknall at +1-832-813-4807

CoA Date: 09/11/2021

Certificate of Analysis

Shipped To: SOLMAX GEOSYNTHETICS, LLC
19103 GUNDLE ROAD
HOUSTON TX 77073
USA

Recipient: Morales
Fax:

Delivery #: 80512621
PO #: 603566
Weight: 184300.000 LB
Ship Date: 09/11/2021
Package: BULK
Mode: Hopper Car
Car #: SHQX041458
Seal No: 235838

Product:
MARLEX K306 POLYETHYLENE in Bulk
Additive levels have been tested and meet minimum the specification for this lot.
As a result, Standard OIT (by ASTM D 3895) is greater than 120 minutes (nominal value, not tested on every lot).
As a result, High Pressure OIT (by ASTM D 5885) is greater than 1000 minutes (nominal value, not tested on every lot).

Lot Number: PNJ610330

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.1	g/10min
HLMI Flow Rate	ASTM D1238	10.9	g/10min
Density	D1505 or D4883	0.937	g/cm3
Production Date		09/07/2021	

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SOLMAX

LIST OF GEOMEMBRANE ROLLS

SOLMAX APPROVED QUALITY ASSURANCE

PROJECT NUMBER: 305282

SALES ORDER: SO-092548

PACKING SLIP NUMBER: RR-078386

PROJECT NAME : OWL NDBL SWMF PH2

ROLL NUMBER	RESIN LOT NUMBER	MANUFACT. DATE	RESIN MELT INDEX 190/2.16 g/10 min D1238	RESIN DENSITY g/cc D1505	OIT min D3895	HPOIT min D5885	ESCR SP-NCTL hours D5397
Product Code : 1101438-20267-3							
HDPE 60 mil Black Smooth			**1.0**	**> 0.932**	**100**		**500**
0105-205056	PNJ610230	2021-10-04	0.10	0.937	120		>500 Certified 0101-203514
0105-205057	PNJ610230	2021-10-05	0.10	0.937	120		>500 Certified 0101-203514
0105-205063	PNJ610230	2021-10-05	0.10	0.937	120		>500 Certified 0101-203514
0105-205064	PNJ610230	2021-10-05	0.10	0.937	120		>500 Certified 0101-203514
0105-205065	PNJ610230	2021-10-05	0.10	0.937	120		>500 Certified 0101-203514
0105-205078	PNJ610330	2021-10-06	0.10	0.937	120		>500 Certified 0105-205070
0105-205079	PNJ610330	2021-10-07	0.10	0.937	120		>500 Certified 0105-205070
0105-205080	PNJ610330	2021-10-07	0.10	0.937	120		>500 Certified 0105-205070
0105-205081	PNJ610330	2021-10-07	0.10	0.937	120		>500 Certified 0105-205070
0105-205082	PNJ610330	2021-10-07	0.10	0.937	120		>500 Certified 0105-205070
0105-205083	PNJ610330	2021-10-07	0.10	0.937	120		>500 Certified 0105-205070
0105-205084	PNJ610330	2021-10-07	0.10	0.937	120		>500 Certified 0105-205070

QUANTITY (ROLLS): 12

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Solmax Geosynthetics LLC
19103 GUNDLE RD,, HOUSTON, TX, UNITED STATES, 77073

SOLMAX.COM

MANUFACTURING QUALITY CONTROL

TEST RESULTS - ROLLS

PROJECT NUMBER: 305282
SALES ORDER: SO-092548
PACKING SLIP NUMBER: RR-078386

PROJECT NAME : OWL NDBL SWMF PH2

PRODUCT: 1101438-20267-3
HDPE 60 mil Black Smooth

Properties	Thickness ave/min.	GeoM Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension Stability	Asperity Height In/Out
Unit	mils	g/cc	%	Cat 1 and 2	ppi	%	ppi	%	lbs	lbs	%	mils
Test Method	D5199	D792	D4218	D5596	D6693				D1004	D4833	D1204	
Frequency	Each roll	Every 5 rolls	Every 2 rolls	Every 5 rolls	Every 2 rolls				Every 5 rolls	Every 5 rolls		
Specification	60.0 / 54.0	≥ 0.940	2.0 - 3.0	Cat. 1 & Cat. 2	132	13	243	700	42	120		
0105-205056 MD	62.5 / 60.5	0.941	2.52	10/10 views	138.2	20.6	291	772	44	127		
XD					145.8	17.5	244	774	44			
0105-205057 MD	65.6 / 63.0	0.941	2.52	10/10 views	138.2	20.6	291	772	44	127		
XD					145.8	17.5	244	774	44			
0105-205063 MD	60.7 / 59.0	0.944	2.50	10/10 views	135.4	19.6	306	845	45	142		
XD					145.8	17.1	295	824	46			
0105-205064 MD	62.0 / 59.5	0.943	2.52	10/10 views	134.8	19.4	292	795	43	146		
XD					174.1	21.4	310	881	44			
0105-205065 MD	62.3 / 60.0	0.943	2.52	10/10 views	134.8	19.4	292	795	43	146		
XD					174.1	21.4	310	881	44			
0105-205078 MD	69.2 / 66.0	0.941	2.54	10/10 views	140.6	19.2	320	848	49	142		
XD					167.6	21.4	280	785	58			
0105-205079 MD	62.7 / 61.0	0.943	2.54	10/10 views	140.6	19.2	320	848	48	144		
XD					167.6	21.4	280	785	48			
0105-205080 MD	63.0 / 61.5	0.943	2.41	10/10 views	135.4	20.3	272	725	48	144		
XD					142.2	18.4	315	840	48			
0105-205081 MD	63.2 / 61.0	0.943	2.41	10/10 views	135.4	20.3	272	725	48	144		
XD					142.2	18.4	315	840	48			
0105-205082 MD	62.0 / 60.0	0.943	2.22	10/10 views	135.4	20.7	260	710	48	144		
XD					142.4	18.2	283	794	48			
0105-205083 MD	61.9 / 60.0	0.943	2.22	10/10 views	135.4	20.7	260	710	48	144		
XD					142.4	18.2	283	794	48			
0105-205084 MD	62.4 / 60.5	0.943	2.26	10/10 views	140.3	19.6	289	794	49	142		
XD					141.3	18.2	303	837	48			

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Solmax Geosynthetics LLC
19103 GUNDLE RD,, HOUSTON, TX, UNITED STATES, 77073

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18 Oct 2021

CoA Date: 09/08/2021

Certificate of Analysis

Shipped To: SOLMAX GEOSYNTHETICS, LLC
19103 GUNDLE ROAD
HOUSTON TX 77073
USA

Recipient: Morales
Fax:

Delivery #: 80509947
PO #: 603566
Weight: 180900.000 LB
Ship Date: 09/08/2021
Package: BULK
Mode: Hopper Car
Car #: PSPX002444
Seal No: 236107

Product:
MARLEX K306 POLYETHYLENE in Bulk
Additive levels have been tested and meet minimum the specification for this lot.
As a result, Standard OIT (by ASTM D 3895) is greater than 120 minutes (nominal value, not tested on every lot).
As a result, High Pressure OIT (by ASTM D 5885) is greater than 1000 minutes (nominal value, not tested on every lot).

Lot Number: PNJ610230

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.1	g/10min
HLMI Flow Rate	ASTM D1238	11.1	g/10min
Density	D1505 or D4883	0.937	g/cm3
Production Date		09/05/2021	

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Erin Xiao
Quality Systems Coordinator

For CoA questions contact Shannon Blacknall at +1-832-813-4807

CoA Date: 09/11/2021

Certificate of Analysis

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HOUSTON TX 77073
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Recipient: Morales
Fax:

Delivery #: 80512621
PO #: 603566
Weight: 184300.000 LB
Ship Date: 09/11/2021
Package: BULK
Mode: Hopper Car
Car #: SHQX041458
Seal No: 235838

Product:
MARLEX K306 POLYETHYLENE in Bulk
Additive levels have been tested and meet minimum the specification for this lot.
As a result, Standard OIT (by ASTM D 3895) is greater than 120 minutes (nominal value, not tested on every lot).
As a result, High Pressure OIT (by ASTM D 5885) is greater than 1000 minutes (nominal value, not tested on every lot).

Lot Number: PNJ610330

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.1	g/10min
HLMI Flow Rate	ASTM D1238	10.9	g/10min
Density	D1505 or D4883	0.937	g/cm3
Production Date		09/07/2021	

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Erin Xiao
Quality Systems Coordinator

For CoA questions contact Shannon Blacknall at +1-832-813-4807

Parkhill

APPENDIX B: MATERIAL MANUFACTURER CERTIFICATION AND COMFORMANCE TESTING RESULTS

B.4 FML Conformance Testing Results

TRI ENVIRONMENTAL

TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
Austin, TX - USA | Anaheim, CA - USA | Anderson, SC - USA | Gold Coast - Australia | Suzhou - China

April 22, 2021

Mail To:

Juan Zazpe
Southwest Liner Systems
301 Calle Industrial
Bernalillo NM 87004

email: jzazpe.sls@gmail.com

Bill To:

<= Same

Greetings

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs.
TRI is pleased to submit this final report of the laboratory testing for the sample(s) listed below.

Project:	**OWL Landfill Cell 1B**
TRI Job Reference Number:	63072
Material(s) Tested:	Three, Solmax 60 mil Smooth HDPE Geomembrane
Test(s) Requested:	Thickness (ASTM D 5199) Density (ASTM D 1505) Carbon Black Content (ASTM D 4218) Carbon Dispersion (ASTM D 5596) Tensile Properties (ASTM D 6693) Puncture Strength (ASTM D 4833) Tear Resistance (ASTM D 1004)

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

Sincerely,

Mansukh Patel
Laboratory Manager
Geosynthetic Services Division
www.GeosyntheticTesting.com

*Signature is on file

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

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GEOMEMBRANE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: OWL Landfill Cell 1B

Material: Solmax 60 mil Smooth HDPE Geomembrane
Sample Identification: 0108-207280
TRI Log #: 63072

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5199)												
Thickness (mils)	63.0	63.7	63.5	66.2	65.1	65.5	64.7	62.8	61.4	60.7	**63.7**	1.8
											60.7	<< min
Density (ASTM D 1505)												
Density (g/cm3)	0.947	0.947	0.948								**0.947**	0.001
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.49	2.47									**2.48**	0.01
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	164	157	156	158	155						**158**	4
TD Yield Strength (ppi)	163	178	166	172	157						**167**	8
MD Break Strength (ppi)	324	310	325	322	262						**309**	27
TD Break Strength (ppi)	298	316	311	300	327						**310**	12
MD Yield Elongation (%)	21	21	21	21	23						**21**	1
TD Yield Elongation (%)	19	18	18	18	19						**18**	1
MD Break Elongation (%)	852	846	886	860	722						**833**	64
TD Break Elongation (%)	856	863	888	842	954						**881**	44
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	137	136	132	131	125						**132**	5
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	48	51	50	50	47	48	51	49	49	46	**49**	2
TD Tear Strength (lbs)	50	53	51	53	51	50	53	51	52	48	**51**	2

MD Machine Direction TD Transverse Direction

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

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GEOMEMBRANE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: OWL Landfill Cell 1B

Material: Solmax 60 mil Smooth HDPE Geomembrane
Sample Identification: 0108-207286
TRI Log #: 63072

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5199)												
Thickness (mils)	61.6	62.6	62.9	64.7	67.4	67.8	67.4	64.0	61.5	65.8	**64.6**	2.4
											61.5	<< min
Density (ASTM D 1505)												
Density (g/cm3)	0.947	0.947	0.947								**0.947**	0.000
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.49	2.45									**2.47**	0.03
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	159	156	160	163	165						**161**	4
TD Yield Strength (ppi)	173	171	173	166	165						**170**	4
MD Break Strength (ppi)	319	300	315	315	315						**313**	7
TD Break Strength (ppi)	224	310	313	311	312						**294**	39
MD Yield Elongation (%)	23	21	22	22	23						**22**	1
TD Yield Elongation (%)	18	19	19	18	20						**19**	1
MD Break Elongation (%)	834	813	834	820	810						**822**	11
TD Break Elongation (%)	645	868	854	875	896						**828**	103
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	136	135	132	132	133						**134**	2
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	51	50	51	50	50	47	48	49	48	47	**49**	2
TD Tear Strength (lbs)	52	53	53	51	51	52	52	52	51	51	**52**	1

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: OWL Landfill Cell 1B

Material: Solmax 60 mil Smooth HDPE Geomembrane
Sample Identification: 0108-207289
TRI Log #: 63072

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5199)												
Thickness (mils)	63.9	64.5	68.7	64.1	63.7	66.2	67.1	63.6	63.0	66.2	**65.1**	1.8
											63.0	<< min
Density (ASTM D 1505)												
Density (g/cm3)	0.946	0.947	0.947								**0.947**	0.001
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.45	2.46									**2.46**	0.01
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	154	161	160	166	155						**159**	5
TD Yield Strength (ppi)	180	165	162	172	158						**167**	9
MD Break Strength (ppi)	298	303	303	318	285						**301**	12
TD Break Strength (ppi)	320	302	300	307	296						**305**	9
MD Yield Elongation (%)	22	21	21	21	23						**22**	1
TD Yield Elongation (%)	20	18	17	19	19						**19**	1
MD Break Elongation (%)	810	804	799	813	773						**800**	16
TD Break Elongation (%)	859	851	861	850	866						**857**	7
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	129	129	129	129	130						**129**	0
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	48	52	48	50	48	52	48	50	48	48	**49**	2
TD Tear Strength (lbs)	49	53	51	56	51	55	51	53	52	51	**52**	2

MD Machine Direction TD Transverse Direction

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May 13, 2021

Mail To:

Juan Zazpe
Southwest Liner Systems
PO Box 1972
301 Calle Industrial
Bernalillo, NM 87004

email: jzazpe.sls@gmail.com

Bill To:

<= Same (P.O. # 02107-OWL LF CEL)

Dear Mr. Zazpe:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs.
TRI is pleased to submit this final report of the laboratory testing for the sample(s) listed below.

Project:	**Owl Landfill Cell 1B**
TRI Job Reference Number:	63019
Material(s) Tested:	Four, Solmax 60 mil Smooth HDPE Geomembrane(s)
Test(s) Requested:	Thickness (ASTM D 5199) Density (ASTM D 1505) Carbon Black Content (ASTM D 4218) Carbon Dispersion (ASTM D 5596) Tensile Properties (ASTM D 6693) Puncture Strength (ASTM D 4833) Tear Resistance (ASTM D 1004)

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

Sincerely,

Mansukh Patel
Laboratory Manager
Geosynthetic Services Division

*Signature is on file

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GEOMEMBRANE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: Owl Landfill Cell 1B

Material: Solmax 60 mil Smooth HDPE Geomembrane
Sample Identification: 0108207238
TRI Log #: 63019

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5199)												
Thickness (mils)	62	60	62	65	67	64	62	64	62	63	**63**	1.9
											60	<< min
Density (ASTM D 1505)												
Density (g/cm3)	0.945	0.945	0.945								**0.945**	0.000
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.14	2.16									**2.15**	0.01
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	162	158	154	155	157						**157**	3
TD Yield Strength (ppi)	162	158	160	157	152						**158**	4
MD Break Strength (ppi)	295	291	268	272	282						**282**	12
TD Break Strength (ppi)	314	296	313	303	293						**304**	10
MD Yield Elongation (%)	22	21	20	20	23						**21**	1
TD Yield Elongation (%)	18	19	19	19	18						**19**	1
MD Break Elongation (%)	767	774	740	738	750						**754**	16
TD Break Elongation (%)	825	819	834	825	808						**822**	10
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	139	137	133	149	143						**140**	6
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	57	56	53	56	55	53	55	54	51	54	**54**	2
TD Tear Strength (lbs)	56	56	56	53	56	57	56	56	54	55	**56**	1

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: Owl Landfill Cell 1B

Material: Solmax 60 mil Smooth HDPE Geomembrane
Sample Identification: 0108207244
TRI Log #: 63019

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5199)												
Thickness (mils)	62	62	63	64	66	64	62	61	62	61	**63**	1.6
											61	<< min
Density (ASTM D 1505)												
Density (g/cm3)	0.946	0.946	0.946								**0.946**	0.000
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.33	2.39									**2.36**	0.04
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	167	161	159	157	153						**159**	5
TD Yield Strength (ppi)	166	164	156	154	154						**159**	6
MD Break Strength (ppi)	306	237	290	283	284						**280**	26
TD Break Strength (ppi)	287	306	273	295	283						**289**	12
MD Yield Elongation (%)	19	20	21	18	21						**20**	1
TD Yield Elongation (%)	18	17	17	19	20						**18**	1
MD Break Elongation (%)	753	614	740	737	745						**718**	58
TD Break Elongation (%)	794	839	787	847	804						**814**	27
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	142	138	136	136	133						**137**	3
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	54	53	54	49	50	53	53	52	51	52	**52**	2
TD Tear Strength (lbs)	53	53	54	55	55	56	58	57	56	55	**55**	1

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: Owl Landfill Cell 1B

Material: Solmax 60 mil Smooth HDPE Geomembrane
Sample Identification: 0108207251
TRI Log #: 63019

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5199)												
Thickness (mils)	62	62	63	63	64	65	62	60	61	62	**63**	1.3
											60	<< min
Density (ASTM D 1505)												
Density (g/cm3)	0.947	0.947	0.947								**0.947**	0.000
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.51	2.50									**2.51**	0.01
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	157	162	159	152	144						**155**	7
TD Yield Strength (ppi)	174	178	165	170	167						**171**	5
MD Break Strength (ppi)	313	318	304	247	261						**289**	32
TD Break Strength (ppi)	308	322	213	302	300						**289**	43
MD Yield Elongation (%)	21	21	21	21	21						**21**	0
TD Yield Elongation (%)	18	18	18	19	19						**18**	1
MD Break Elongation (%)	787	781	759	643	699						**734**	62
TD Break Elongation (%)	837	863	637	840	832						**802**	93
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	133	131	130	129	129						**130**	2
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	53	51	50	54	54	56	55	56	54	55	**54**	2
TD Tear Strength (lbs)	51	57	54	57	55	56	57	57	56	58	**56**	2

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: Owl Landfill Cell 1B

Material: Solmax 60 mil Smooth HDPE Geomembrane
Sample Identification: 0108207258
TRI Log #: 63019

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5199)												
Thickness (mils)	62	64	62	62	62	69	66	62	60	62	**63**	2.6
											60	<< min
Density (ASTM D 1505)												
Density (g/cm3)	0.946	0.946	0.946								**0.946**	0.000
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.35	2.31									**2.33**	0.03
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	137	149	154	150	159						**150**	8
TD Yield Strength (ppi)	162	168	170	158	169						**165**	5
MD Break Strength (ppi)	279	314	325	288	317						**305**	20
TD Break Strength (ppi)	248	318	315	259	298						**288**	32
MD Yield Elongation (%)	20	20	17	21	21						**20**	2
TD Yield Elongation (%)	19	18	19	17	19						**18**	1
MD Break Elongation (%)	780	801	826	786	817						**802**	20
TD Break Elongation (%)	742	911	889	772	863						**835**	74
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	136	135	134	135	135						**135**	0
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	56	54	52	53	53	54	53	50	53	55	**53**	2
TD Tear Strength (lbs)	56	55	53	56	54	56	59	52	56	53	**55**	2

MD Machine Direction TD Transverse Direction

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May 13, 2021

Mail To:

Juan Zazpe
Southwest Liner Systems
PO Box 1972
301 Calle Industrial
Bernalillo, NM 87004

email: jzazpe.sls@gmail.com

Bill To:

<= Same (P.O. # 02107-OWL LF CEL)

Dear Mr. Zazpe:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs.
TRI is pleased to submit this final report of the laboratory testing for the sample(s) listed below.

Project:	**Owl Landfill Cell 1B**
TRI Job Reference Number:	63058
Material(s) Tested:	Two, Solmax 60 mil Smooth HDPE Geomembrane(s)
Test(s) Requested:	Thickness (ASTM D 5199) Density (ASTM D 1505) Carbon Black Content (ASTM D 4218) Carbon Dispersion (ASTM D 5596) Tensile Properties (ASTM D 6693) Puncture Strength (ASTM D 4833) Tear Resistance (ASTM D 1004)

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

Sincerely,

Mansukh Patel
Laboratory Manager
Geosynthetic Services Division

*Signature is on file

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GEOMEMBRANE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: Owl Landfill Cell 1B

Material: Solmax 60 mil Smooth HDPE Geomembrane
Sample Identification: 0108-207265
TRI Log #: 63058

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5199)												
Thickness (mils)	65	65	61	64	60	62	63	64	66	67	**64**	2.1
											60	<< min
Density (ASTM D 1505)												
Density (g/cm3)	0.950	0.950	0.950								**0.950**	0.000
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.11	2.04									**2.08**	0.05
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	136	160	169	168	156						**158**	13
TD Yield Strength (ppi)	172	166	157	168	158						**164**	6
MD Break Strength (ppi)	220	2294	313	307	297						**686**	900
TD Break Strength (ppi)	320	317	235	314	294						**296**	36
MD Yield Elongation (%)	20	20	20	21	22						**21**	1
TD Yield Elongation (%)	19	20	17	20	20						**19**	1
MD Break Elongation (%)	692	801	817	800	809						**784**	52
TD Break Elongation (%)	862	890	726	878	859						**843**	67
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	138	140	140	138	139						**139**	1
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	49	50	51	49	55	49	49	50	49	55	**51**	2
TD Tear Strength (lbs)	53	54	53	53	58	53	55	52	55	58	**54**	2

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: Owl Landfill Cell 1B

Material: Solmax 60 mil Smooth HDPE Geomembrane
Sample Identification: 01082-07272
TRI Log #: 63058

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5199)												
Thickness (mils)	65	65	64	63	63	63	63	64	66	68	**64**	1.7
											63	<< min
Density (ASTM D 1505)												
Density (g/cm3)	0.946	0.946	0.946								**0.946**	0.000
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.35	2.32									**2.34**	0.02
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	158	148	165	166	151						**158**	8
TD Yield Strength (ppi)	151	159	168	161	160						**160**	6
MD Break Strength (ppi)	277	263	297	244	282						**273**	20
TD Break Strength (ppi)	270	292	299	294	306						**292**	14
MD Yield Elongation (%)	22	22	22	22	23						**22**	0
TD Yield Elongation (%)	16	17	17	17	17						**17**	0
MD Break Elongation (%)	762	762	793	664	797						**756**	54
TD Break Elongation (%)	816	868	846	863	871						**853**	23
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	142	140	139	138	137						**139**	2
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	50	49	51	48	49	50	49	51	48	50	**50**	1
TD Tear Strength (lbs)	54	53	54	52	53	56	54	54	49	53	**53**	2

MD Machine Direction TD Transverse Direction

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TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
Austin, TX - USA | CA - USA | SC - USA | Gold Coast - Australia | Suzhou - China | Sao Paulo, Brazil | Johannesburg - Africa

October 25, 2021

Mail To:

Tyler Krueger
Parkhill Smith & Cooper
4222 85th Street
Lubbock, TX 79422

email: tkrueger@team-psc.com

Bill To:

<= Same

Dear Mr. Krueger:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs.
TRI is pleased to submit this final report of the laboratory testing for the sample(s) listed below.

Project:	**Owl Cell 3AB**
TRI Job Reference Number:	68006
Material(s) Tested:	Four, Solmax 60 mil Smooth HDPE Geomembrane(s)
Test(s) Requested:	Thickness (ASTM D 5199) Density (ASTM D 1505) Carbon Black Content (ASTM D 4218) Carbon Dispersion (ASTM D 5596) Tensile Properties (ASTM D 6693) Puncture Strength (ASTM D 4833) Tear Resistance (ASTM D 1004)

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

Sincerely,

Mansukh Patel
Laboratory Manager
Geosynthetic Services Division

*Signature is on file

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GEOMEMBRANE TEST RESULTS
TRI Client: Parkhill Smith & Cooper
Project: Owl Cell 3AB

Material: Solmax 60 mil Smooth HDPE Geomembrane
Sample Identification: 0105-205068
TRI Log #: 68006

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5199)													
Thickness (mils)	62.8	62.7	61.0	60.4	62.8	62.3	61.5	62.1	61.6	61.5	**61.9**	0.8	60 min ave
											60.4	<< min	54 min
Density (ASTM D 1505)													
Density (g/cm3)	0.942	0.942	0.943								**0.942**	0.001	0.940 min
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.23	2.27									**2.25**	0.03	2.0 min
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 Cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 Cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Yield Strength (ppi)	146	150	151	153	150						**150**	3	126 min
TD Yield Strength (ppi)	155	160	156	158	156						**157**	2	126 min
MD Break Strength (ppi)	296	317	193	293	289						**278**	49	228 min
TD Break Strength (ppi)	320	332	328	326	317						**325**	6	228 min
MD Yield Elongation (%)	19	23	20	23	23						**22**	2	12 min
TD Yield Elongation (%)	18	18	18	17	19						**18**	1	12 min
MD Break Elongation (%)	829	862	543	800	803						**767**	128	700 min
TD Break Elongation (%)	851	883	886	887	854						**872**	18	700 min
Puncture Resistance (ASTM D 4833)													
Puncture Strength (lbs)	142	138	136	132	132						**136**	4	108 min
Tear Resistance (ASTM D 1004)													
MD Tear Strength (lbs)	49	50	48	51	52	52	54	49	50	50	**50**	2	42 min
TD Tear Strength (lbs)	52	51	52	52	50	51	52	55	51	50	**52**	1	42 min

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS
TRI Client: Parkhill Smith & Cooper
Project: Owl Cell 3AB

Material: Solmax 60 mil Smooth HDPE Geomembrane
Sample Identification: 0105-205069
TRI Log #: 68006

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5199)													
Thickness (mils)	61.4	62.8	61.0	62.4	61.2	62.5	62.7	63.8	61.8	62.4	**62.2**	0.9	60 min ave
											61.0	<< min	54 min
Density (ASTM D 1505)													
Density (g/cm3)	0.944	0.944	0.945								**0.944**	0.001	0.940 min
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.35	2.31									**2.33**	0.03	2.0 min
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 Cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 Cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Yield Strength (ppi)	154	159	160	156	168						**159**	5	126 min
TD Yield Strength (ppi)	158	167	174	163	164						**165**	6	126 min
MD Break Strength (ppi)	316	312	321	248	258						**291**	35	228 min
TD Break Strength (ppi)	300	267	294	319	329						**302**	24	228 min
MD Yield Elongation (%)	21	21	24	23	22						**22**	1	12 min
TD Yield Elongation (%)	18	18	19	18	19						**18**	1	12 min
MD Break Elongation (%)	858	837	855	674	670						**779**	98	700 min
TD Break Elongation (%)	824	727	777	886	891						**821**	71	700 min
Puncture Resistance (ASTM D 4833)													
Puncture Strength (lbs)	137	136	136	135	134						**136**	1	108 min
Tear Resistance (ASTM D 1004)													
MD Tear Strength (lbs)	50	54	52	51	53	56	53	51	54	52	**53**	2	42 min
TD Tear Strength (lbs)	53	54	55	53	52	56	56	55	55	53	**54**	1	42 min

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS
TRI Client: Parkhill Smith & Cooper
Project: Owl Cell 3AB

Material: Solmax 60 mil Smooth HDPE Geomembrane
Sample Identification: 0105-205080
TRI Log #: 68006

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5199)													
Thickness (mils)	64.7	65.1	65.3	64.3	65.4	64.8	63.9	64.4	61.3	63.4	**64.3**	1.2	60 min ave
											61.3	<< min	54 min
Density (ASTM D 1505)													
Density (g/cm3)	0.943	0.944	0.944								**0.944**	0.001	0.940 min
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.24	2.18									**2.21**	0.04	2.0 min
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 Cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 Cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Yield Strength (ppi)	161	159	166	154	166						**161**	5	126 min
TD Yield Strength (ppi)	160	176	167	166	167						**167**	6	126 min
MD Break Strength (ppi)	327	311	325	269	273						**301**	28	228 min
TD Break Strength (ppi)	302	349	314	334	310						**322**	19	228 min
MD Yield Elongation (%)	21	21	21	25	23						**22**	2	12 min
TD Yield Elongation (%)	18	19	18	18	17						**18**	1	12 min
MD Break Elongation (%)	812	785	810	711	690						**762**	57	700 min
TD Break Elongation (%)	795	878	796	846	780						**819**	41	700 min
Puncture Resistance (ASTM D 4833)													
Puncture Strength (lbs)	133	135	139	139	136						**137**	3	108 min
Tear Resistance (ASTM D 1004)													
MD Tear Strength (lbs)	55	53	53	53	52	53	53	53	56	52	**53**	1	42 min
TD Tear Strength (lbs)	54	56	56	56	54	54	56	55	55	56	**55**	1	42 min

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS
TRI Client: Parkhill Smith & Cooper
Project: Owl Cell 3AB

Material: Solmax 60 mil Smooth HDPE Geomembrane
Sample Identification: 0105-205084
TRI Log #: 68006

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5199)													
Thickness (mils)	62.8	63.3	63.4	62.1	60.8	61.3	65.1	64.8	60.7	61.2	**62.6**	1.6	60 min ave
											60.7	<< min	54 min
Density (ASTM D 1505)													
Density (g/cm3)	0.943	0.943	0.943								**0.943**	0.000	0.940 min
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.16	2.15									**2.16**	0.01	2.0 min
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 Cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 Cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Yield Strength (ppi)	153	155	158	164	156						**157**	4	126 min
TD Yield Strength (ppi)	163	163	170	161	159						**163**	4	126 min
MD Break Strength (ppi)	288	256	304	330	277						**291**	28	228 min
TD Break Strength (ppi)	329	307	354	300	320						**322**	21	228 min
MD Yield Elongation (%)	21	22	22	22	21						**22**	1	12 min
TD Yield Elongation (%)	18	18	18	19	19						**18**	1	12 min
MD Break Elongation (%)	793	724	831	870	760						**796**	57	700 min
TD Break Elongation (%)	914	851	932	828	897						**884**	44	700 min
Puncture Resistance (ASTM D 4833)													
Puncture Strength (lbs)	140	136	136	134	133						**135**	3	108 min
Tear Resistance (ASTM D 1004)													
MD Tear Strength (lbs)	51	53	50	53	52	52	49	52	52	51	**51**	1	42 min
TD Tear Strength (lbs)	54	57	55	52	54	51	54	53	51	53	**53**	2	42 min

MD Machine Direction TD Transverse Direction

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April 20, 2021

Mail To:

Juan Zazpe
Southwest Liner Systems
301 Calle Industrial
Bernalillo NM 87004

email: jzazpe.sls@gmail.com

Bill To:

<= Same

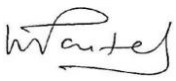
Greetings

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs.
TRI is pleased to submit this final report of the laboratory testing for the sample(s) listed below.

Project:	**OWL Landfill Cell 1B**
TRI Job Reference Number:	62919
Material(s) Tested:	Three, Solmax 60 mil Textured HDPE Geomembrane
Test(s) Requested:	Thickness (ASTM D 5994) Density (ASTM D 1505) Carbon Black Content (ASTM D 4218) Carbon Dispersion (ASTM D 5596) Tensile Properties (ASTM D 6693) Puncture Strength (ASTM D 4833) Tear Resistance (ASTM D 1004)

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

Sincerely,



Mansukh Patel
Laboratory Manager
Geosynthetic Services Division
www.GeosyntheticTesting.com

*Signature is on file

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GEOMEMBRANE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: OWL Landfill Cell 1B

Material: Solmax 60 mil Textured HDPE Geomembrane
Sample Identification: 0102-200286
TRI Log #: 62919

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.	PROJ. SPEC.
Thickness (ASTM D 5994)													
													57 min ave
Thickness (mils)	60	60	67	60	69	60..2	62	60	65	64	**63**	3	54, 8 of 10
											60	<< min	51 min ind
Density (ASTM D 1505)													
Density (g/cm3)	0.948	0.948	0.949								**0.948**	0.001	0.94 min
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.30	2.22									**2.26**	0.06	2.0 min
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 Cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 Cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Yield Strength (ppi)	169	187	181	197	192						**185**	11	126 min
TD Yield Strength (ppi)	200	202	183	197	206						**198**	9	126 min
MD Break Strength (ppi)	249	156	255	219	210						**218**	39	90 min
TD Break Strength (ppi)	155	212	184	202	148						**180**	28	90 min
MD Yield Elongation (%)	18	19	17	21	19						**19**	1	12 min
TD Yield Elongation (%)	16	17	17	16	16						**16**	1	12 min
MD Break Elongation (%)	636	146	596	478	484						**468**	193	100 min
TD Break Elongation (%)	252	552	511	511	180						**401**	172	100 min
Puncture Resistance (ASTM D 4833)													
Puncture Strength (lbs)	158	158	153	161	154						**157**	3	90 min
Tear Resistance (ASTM D 1004)													
MD Tear Strength (lbs)	58	54	58	62	52	57	60	59	58	60	**58**	3	42 min
TD Tear Strength (lbs)	63	64	63	57	57	59	63	61	67	62	**62**	3	42 min

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: OWL Landfill Cell 1B

Material: Solmax 60 mil Textured HDPE Geomembrane
Sample Identification: 0102-200294
TRI Log #: 62919

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.	PROJ. SPEC.
Thickness (ASTM D 5994)													
													57 min ave
Thickness (mils)	66	65	66	61	60	63	66	63	67	63	**64**	2	54, 8 of 10
											60	<< min	51 min ind
Density (ASTM D 1505)													
Density (g/cm3)	0.948	0.949	0.949								**0.949**	0.001	0.94 min
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.38	2.36									**2.37**	0.01	2.0 min
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 Cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 Cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Yield Strength (ppi)	182	194	194	197	191						**192**	6	126 min
TD Yield Strength (ppi)	191	184	197	200	209						**196**	9	126 min
MD Break Strength (ppi)	151	220	250	220	205						**209**	36	90 min
TD Break Strength (ppi)	205	197	135	214	223						**195**	35	90 min
MD Yield Elongation (%)	18	21	18	17	19						**19**	2	12 min
TD Yield Elongation (%)	17	17	17	17	18						**17**	0	12 min
MD Break Elongation (%)	414	538	622	511	498						**517**	75	100 min
TD Break Elongation (%)	548	546	288	547	561						**498**	118	100 min
Puncture Resistance (ASTM D 4833)													
Puncture Strength (lbs)	159	156	152	150	162						**156**	5	90 min
Tear Resistance (ASTM D 1004)													
MD Tear Strength (lbs)	65	66	67	55	56	63	61	58	65	65	**62**	4	42 min
TD Tear Strength (lbs)	59	58	61	53	60	61	58	60	63	54	**59**	3	42 min

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: OWL Landfill Cell 1B

Material: Solmax 60 mil Textured HDPE Geomembrane
Sample Identification: 0102-200304
TRI Log #: 62919

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.	PROJ. SPEC.
Thickness (ASTM D 5994)													
													57 min ave
Thickness (mils)	64	60	61	65	60	68	65	68	65	67	**64**	3	54, 8 of 10
											60	<< min	51 min ind
Density (ASTM D 1505)													
Density (g/cm3)	0.948	0.948	0.949								**0.948**	0.001	0.94 min
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.33	2.38									**2.36**	0.04	2.0 min
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 Cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 Cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Yield Strength (ppi)	207	178	203	196	207						**198**	12	126 min
TD Yield Strength (ppi)	192	204	201	183	202						**196**	9	126 min
MD Break Strength (ppi)	225	229	243	258	241						**239**	13	90 min
TD Break Strength (ppi)	196	221	219	192	134						**192**	35	90 min
MD Yield Elongation (%)	17	16	16	16	16						**16**	0	12 min
TD Yield Elongation (%)	17	17	16	17	17						**17**	0	12 min
MD Break Elongation (%)	505	583	553	630	531						**560**	48	100 min
TD Break Elongation (%)	509	576	569	529	387						**514**	76	100 min
Puncture Resistance (ASTM D 4833)													
Puncture Strength (lbs)	155	153	149	151	148						**151**	3	90 min
Tear Resistance (ASTM D 1004)													
MD Tear Strength (lbs)	62	66	64	56	57	59	62	64	62	56	**61**	4	42 min
TD Tear Strength (lbs)	60	61	61	62	54	62	64	73	69	70	**64**	6	42 min

MD Machine Direction TD Transverse Direction

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TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
Austin, TX - USA | Anaheim, CA - USA | Anderson, SC - USA | Gold Coast - Australia | Suzhou - China

April 20, 2021

Mail To:

Juan Zazpe
Southwest Liner Systems
301 Calle Industrial
Bernalillo NM 87004

email: jzazpe.sls@gmail.com

Bill To:

<= Same

Greetings

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs.
TRI is pleased to submit this final report of the laboratory testing for the sample(s) listed below.

Project:	**OWL Landfill Cell 1B**
TRI Job Reference Number:	62967
Material(s) Tested:	Two, Solmax 60 mil Textured HDPE Geomembrane
Test(s) Requested:	Thickness (ASTM D 5994) Density (ASTM D 1505) Carbon Black Content (ASTM D 4218) Carbon Dispersion (ASTM D 5596) Tensile Properties (ASTM D 6693) Puncture Strength (ASTM D 4833) Tear Resistance (ASTM D 1004)

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

Sincerely,

Mansukh Patel
Laboratory Manager
Geosynthetic Services Division
www.GeosyntheticTesting.com

*Signature is on file

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GEOMEMBRANE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: OWL Landfill Cell 1B

Material: Solmax 60 mil Textured HDPE Geomembrane
Sample Identification: 0102-200314
TRI Log #: 62967

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.	PROJ. SPEC.
Thickness (ASTM D 5994)													
													57 min ave
Thickness (mils)	65	62	68	60	65	70	68	64	63	62	**65**	3	54, 8 of 10
											60	<< min	51 min ind
Density (ASTM D 1505)													
Density (g/cm3)	0.946	0.947	0.947								**0.947**	0.001	0.94 min
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.40	2.37									**2.39**	0.02	2.0 min
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 Cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 Cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Yield Strength (ppi)	187	193	191	192	178						**188**	6	126 min
TD Yield Strength (ppi)	199	189	201	202	200						**198**	5	126 min
MD Break Strength (ppi)	230	228	242	238	228						**233**	6	90 min
TD Break Strength (ppi)	149	200	220	229	200						**200**	31	90 min
MD Yield Elongation (%)	17	19	17	18	20						**18**	1	12 min
TD Yield Elongation (%)	16	18	17	16	19						**17**	1	12 min
MD Break Elongation (%)	549	558	584	556	574						**564**	14	100 min
TD Break Elongation (%)	431	530	556	573	501						**518**	56	100 min
Puncture Resistance (ASTM D 4833)													
Puncture Strength (lbs)	163	160	165	157	161						**161**	3	90 min
Tear Resistance (ASTM D 1004)													
MD Tear Strength (lbs)	58	62	61	61	57	55	61	58	59	59	**59**	2	42 min
TD Tear Strength (lbs)	58	70	67	62	63	59	70	62	62	60	**63**	4	42 min

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: OWL Landfill Cell 1B

Material: Solmax 60 mil Textured HDPE Geomembrane
Sample Identification: 0102-200323
TRI Log #: 62967

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.	PROJ. SPEC.
Thickness (ASTM D 5994)													
													57 min ave
Thickness (mils)	63	61	69	69	69	63	68	62	62	66	**65**	3	54, 8 of 10
											61	<< min	51 min ind
Density (ASTM D 1505)													
Density (g/cm3)	0.945	0.946	0.946								**0.946**	0.001	0.94 min
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.37	2.38									**2.38**	0.01	2.0 min
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								9 Cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								1 Cat 3
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Yield Strength (ppi)	169	189	183	181	181						**181**	7	126 min
TD Yield Strength (ppi)	191	192	194	199	173						**190**	10	126 min
MD Break Strength (ppi)	231	269	226	230	263						**244**	20	90 min
TD Break Strength (ppi)	213	204	222	212	151						**200**	28	90 min
MD Yield Elongation (%)	20	18	19	19	19						**19**	1	12 min
TD Yield Elongation (%)	16	17	18	17	18						**17**	1	12 min
MD Break Elongation (%)	552	595	512	535	613						**561**	42	100 min
TD Break Elongation (%)	546	501	560	524	416						**509**	57	100 min
Puncture Resistance (ASTM D 4833)													
Puncture Strength (lbs)	154	152	152	154	154						**153**	1	90 min
Tear Resistance (ASTM D 1004)													
MD Tear Strength (lbs)	54	52	59	58	58	59	58	59	57	57	**57**	2	42 min
TD Tear Strength (lbs)	57	60	63	64	60	60	61	63	60	61	**61**	2	42 min

MD Machine Direction TD Transverse Direction

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

TRI Environmental | 9063 Bee Cave Rd., Austin, TX 78733, USA | 512-263-5944 | www.tri-env.com

Parkhill

APPENDIX B: MATERIAL MANUFACTURER CERTIFICATION AND COMFORMANCE TESTING RESULTS

B.5 Geonet Certifications

SOLMAX

MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-3

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

ROLL NUMBER	MANUFACT. DATE	RESIN LOT NUMBER
Product Code : 1106474-10668-4		
HyperNet 200 mil		
TRI Austin - Patricia Zabaleta **3 ft x RW, 1/100,000 sf, min 1/Lot**		
One additional 2 ft x RW sample for interface testing		
Provide final roll list to TRI		
0116-003094	2021-03-31	D664L19L4B
0116-003100	2021-04-01	D664L19L4B
0116-003101	2021-04-01	D664L19L4B
0116-003102	2021-04-01	D664L19L4B
0116-003103	2021-04-01	D664L19L4B
0116-003104	2021-04-01	D664L19L4B
0116-003105	2021-04-01	D664L19L4B
0116-003106	2021-04-01	D664L19L4B
0116-003107	2021-04-01	D664L19L4B
0116-003108	2021-04-01	D664L19L4B
0116-003109	2021-04-01	D664L19L4B
0116-003110	2021-04-01	D664L19L4B
0116-003111	2021-04-01	D664L19L4B
0116-003112	2021-04-01	D664L19L4B
0116-003113	2021-04-01	D664L19L4B
0116-003114	2021-04-01	D664L19L4B

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Solmax Geosynthetics LLC
19103 GUNDLE RD,, HOUSTON, TX, UNITED STATES, 77073

SOLMAX.COM

12 Apr 2021

SOLMAX

MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-3

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

0116-003115	2021-04-01	D664L19L4B
0116-003116	2021-04-01	D664L19L4B
0116-003117	2021-04-01	D664L19L4B
0116-003118	2021-04-01	D664L19L4B
0116-003119	2021-04-01	D664L19L4B
0116-003120	2021-04-01	D664L19L4B
0116-003121	2021-04-01	D664L19L4B
0116-003122	2021-04-01	D664L19L4B
0116-003123	2021-04-01	D664L19L4B
0116-003124	2021-04-01	D664L19L4B
0116-003125	2021-04-01	D664L19L4B
0116-003126	2021-04-01	D664L19L4B
0116-003127	2021-04-01	D664L19L4B
0116-003128	2021-04-01	D664L19L4B
0116-003129	2021-04-01	D664L19L4B
0116-003188	2021-04-03	D664L19L4D
0116-003189	2021-04-03	D664L19L4D
0116-003190	2021-04-03	D664L19L4D
0116-003191	2021-04-03	D664L19L4D
0116-003192	2021-04-03	D664L19L4D
0116-003193	2021-04-03	D664L19L4D
0116-003194	2021-04-03	D664L19L4D
0116-003195	2021-04-03	D664L19L4D
0116-003196	2021-04-03	D664L19L4D
0116-003197	2021-04-03	D664L19L4D
0116-003198	2021-04-03	D664L19L4D
0116-003199	2021-04-03	D664L19L4D
0116-003200	2021-04-03	D664L19L4D
0116-003201	2021-04-03	D664L19L4D

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MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-3

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

0116-003202	2021-04-03	D664L19L4D
0116-003224	2021-04-04	D664L19L4D
0116-003225	2021-04-04	D664L19L4D
0116-003226	2021-04-04	D664L19L4D
0116-003227	2021-04-04	D664L19L4D
0116-003228	2021-04-04	D664L19L4D
0116-003229	2021-04-04	D664L19L4D
0116-003230	2021-04-04	D664L19L4D
0116-003231	2021-04-04	D664L19L4D
0116-003232	2021-04-04	D664L19L4D
0116-003233	2021-04-04	D664L19L4D
0116-003234	2021-04-04	D664L19L4D
0116-003235	2021-04-04	D664L19L4D
0116-003236	2021-04-04	D664L19L4D
0116-003237	2021-04-04	D664L19L4D
0116-003332	2021-04-06	D664L2NL3E
0116-003333	2021-04-06	D664L2NL3E
0116-003334	2021-04-06	D664L2NL3E
0116-003406	2021-04-07	D664L2NL3E
0116-003407	2021-04-08	D664L2NL3E
0116-003408	2021-04-08	D664L2NL3E
0116-003409	2021-04-08	D664L2NL3E

QUANTITY (ROLLS): 67

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12 Apr 2021

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MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: SW2107
REFERENCE NUMBER: SO-091646
PACKING SLIP NUMBER: Pre-SO-091646-3

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

PRODUCT: 1106474-10668-4
HyperNet 200 mil

Test	Property	Direction	Test Method	Frequency	Unit
1	Thickness (min. avg.)		ASTM D5199	1/50,000 ft²	mils
2	Carbon Black Content		ASTM D4218	1/50,000 ft²	%
3	Density (min.)		ASTM D792	1/50,000 ft²	g/cc
4	Tensile Stength (MD)	MD	ASTM D7179	1/50,000 ft²	lbf/in

Test	1	2	3	4
SPECIFICATIONS	**200**	**2.0**	**0.94**	**45**
0116-003094	222	2.54	0.951	51
0116-003100	211	2.48	0.954	46
0116-003101	211	2.48	0.954	46
0116-003102	211	2.48	0.954	46
0116-003103	211	2.48	0.954	46
0116-003104	211	2.48	0.954	46
0116-003105	230	2.44	0.954	46
0116-003106	230	2.44	0.954	46
0116-003107	230	2.44	0.954	46
0116-003108	230	2.44	0.954	46
0116-003109	230	2.44	0.954	46
0116-003110	232	2.44	0.954	46
0116-003111	232	2.44	0.954	46
0116-003112	232	2.44	0.954	46
0116-003113	232	2.44	0.954	46
0116-003114	232	2.44	0.954	46
0116-003115	232	2.41	0.954	46
0116-003116	232	2.41	0.954	46
0116-003117	232	2.41	0.954	46
0116-003118	232	2.41	0.954	46
0116-003119	232	2.41	0.954	46
0116-003120	225	2.51	0.959	51
0116-003121	225	2.51	0.959	51
0116-003122	225	2.51	0.959	51
0116-003123	225	2.51	0.959	51
0116-003124	225	2.51	0.959	51
0116-003125	232	2.46	0.959	51

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MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: SW2107
REFERENCE NUMBER: SO-091646
PACKING SLIP NUMBER: Pre-SO-091646-3

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

Test	1	2	3	4
0116-003126	232	2.46	0.959	51
0116-003127	232	2.46	0.959	51
0116-003128	232	2.46	0.959	51
0116-003129	232	2.46	0.959	51
0116-003188	239	2.48	0.955	51
0116-003189	239	2.48	0.955	51
0116-003190	239	2.48	0.955	51
0116-003191	239	2.48	0.955	51
0116-003192	239	2.48	0.955	51
0116-003193	227	2.60	0.955	51
0116-003194	227	2.60	0.955	51
0116-003195	227	2.60	0.955	51
0116-003196	227	2.60	0.955	51
0116-003197	227	2.60	0.955	51
0116-003198	229	2.57	0.953	52
0116-003199	229	2.57	0.953	52
0116-003200	229	2.57	0.953	52
0116-003201	229	2.57	0.953	52
0116-003202	229	2.57	0.953	52
0116-003224	226	2.48	0.956	53
0116-003225	226	2.48	0.956	53
0116-003226	226	2.48	0.956	53
0116-003227	226	2.48	0.956	53
0116-003228	226	2.48	0.956	53
0116-003229	231	2.86	0.956	53
0116-003230	231	2.86	0.956	53
0116-003231	231	2.86	0.956	53
0116-003232	231	2.86	0.956	53
0116-003233	231	2.86	0.956	53
0116-003234	243	2.43	0.956	53
0116-003235	231	2.43	0.956	53
0116-003236	231	2.43	0.956	53
0116-003237	231	2.43	0.956	53
0116-003332	239	2.44	0.947	70
0116-003333	239	2.44	0.947	70
0116-003334	239	2.44	0.947	70
0116-003406	226	2.52	0.955	61

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MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-3

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

Test	1	2	3	4
0116-003407	226	2.52	0.955	61
0116-003408	226	2.52	0.955	61
0116-003409	226	2.52	0.955	61

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SOLMAX APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: SW2107
REFERENCE NUMBER: SO-091646
PACKING SLIP NUMBER: Pre-SO-091646-3

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

PRODUCT: 1106474-10668-4
HyperNet 200 mil

Test	Property	Direction	Test Method	Frequency	Unit
1	Melt Index - 190/2.16 (max.)		ASTM D1238	1/Batch	g/10 min
2	Density (min.)		ASTM D1505	1/Batch	g/cc

Test	1	2
Specification	**0.40**	**0.940**
D664L19L4B	0.29	0.9545
D664L19L4D	0.29	0.9540
D664L2NL3E	0.27	0.953

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Date 2021-01-29 (YYYY-MM-DD) Time 21:20:57 (Greenwich Mean Time) Page 1 of 1

THE DOW CHEMICAL COMPANY

GSE ENVIRONMENTAL LLC
19103 GUNDLE RD.
HOUSTON TX 77073-3515

Ship From: TAFT
Louisiana, United States

Certificate of Analysis

Product Name

XDMDA-6601 NT 7 Experimental High Density Polyethylene Resin

Delivery No.	820309208 / 000010
Order Number	112117193
Shipping Units	188500.000 LB
Date Shipped	2021-01-29 (YYYY-MM-DD)
Shipment No.	38270069

Customer Information

Customer Name	GSE ENVIRONMENTAL LLC
Customer PO number	602237-1
Customer Product Code	RES-NET-6601
Container ID	TCIX104109
Specification Number	000000080495

Batch Number	D664L19L4B
Manufacturing Date	2021-01-09 (YYYY-MM-DD)
Net Weight	188500.000 LB / 85502.092 KG

Test	Unit	Lower Limit	Upper Limit	Value	Method
Density ASTM D4703, A1 Proc C, Test within 1 hr	g/cm3	0.9520	0.9560	0.9545	ASTM D792
Melt Flow Rate @190degC/21.6kg	dg/min	24.0	30.0	28.3	ASTM D1238
Melt Index @190degC/2.16kg	dg/min	0.22	0.38	0.29	ASTM D1238
Melt Flow Ratio I21.6/I2.16		80.0	110.0	97.6	ASTM D1238
Gel Area (GI 400) per 24.6 cm3	mm2	-	4.0	0.7	DOWM 102796

For inquiries please contact Customer Service or local sales

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Date 2021-01-29 (YYYY-MM-DD) Time 21:59:41 (Greenwich Mean Time) Page 1 of 1

THE DOW CHEMICAL COMPANY

GSE ENVIRONMENTAL LLC
19103 GUNDLE RD.
HOUSTON TX 77073-3515

Ship From: TAFT
Louisiana, United States

Certificate of Analysis

Product Name

XDMDA-6601 NT 7 Experimental High Density Polyethylene Resin

Delivery No.	820309557 / 000010
Order Number	112117195
Shipping Units	195199.999 LB
Date Shipped	2021-01-29 (YYYY-MM-DD)
Shipment No.	38269844

Customer Information

Customer Name	GSE ENVIRONMENTAL LLC
Customer PO number	602237-3
Customer Product Code	RES-NET-6601
Container ID	DOWX068550
Specification Number	000000080495

Batch Number	D664L19L4D
Manufacturing Date	2021-01-09 (YYYY-MM-DD)
Net Weight	195199.999 LB / 88541.158 KG

Test	Unit	Lower Limit	Upper Limit	Value	Method
Density ASTM D4703, A1 Proc C, Test within 1 hr	**g/cm3**	**0.9520**	**0.9560**	**0.9540**	**ASTM D792**
Melt Flow Rate @190degC/21.6kg	**dg/min**	**24.0**	**30.0**	**27.0**	**ASTM D1238**
Melt Index @190degC/2.16kg	**dg/min**	**0.22**	**0.38**	**0.29**	**ASTM D1238**
Melt Flow Ratio I21.6/I2.16		**80.0**	**110.0**	**93.1**	**ASTM D1238**
Gel Area (GI 400) per 24.6 cm3	**mm2**	**-**	**4.0**	**0.8**	**DOWM 102796**

For inquiries please contact Customer Service or local sales

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THE DOW CHEMICAL COMPANY

GSE ENVIRONMENTAL LLC
19103 GUNDLE RD.
HOUSTON TX 77073-3515

Ship From: TAFT
Louisiana, United States

Certificate of Analysis

Product Name

XDMDA-6601 NT 7 Experimental High Density Polyethylene Resin

Delivery No.	820481332 / 000010
Order Number	112160540
Shipping Units	195899.998 LB
Date Shipped	2021-02-26 (YYYY-MM-DD)
Shipment No.	38417313

Customer Information

Customer Name	GSE ENVIRONMENTAL LLC
Customer PO number	602280-1
Customer Product Code	RES-NET-6601
Container ID	DCLX008194
Specification Number	000000080495

Batch Number	D664L2NL3E
Manufacturing Date	2021-02-23 (YYYY-MM-DD)
Net Weight	195899.998 LB / 88858.672 KG

Test	Unit	Lower Limit	Upper Limit	Value	Method
Density ASTM D4703, A1 Proc C, Test within 1 hr	g/cm3	0.9520	0.9560	0.9541	ASTM D792
Melt Flow Rate @190degC/21.6kg	dg/min	24.0	30.0	27.0	ASTM D1238
Melt Index @190degC/2.16kg	dg/min	0.22	0.38	0.29	ASTM D1238
Melt Flow Ratio I21.6/I2.16		80.0	110.0	93.0	ASTM D1238
Gel Area (GI 400) per 24.6 cm3	mm2	-	4.0	2.1	DOWM 102796

For inquiries please contact Customer Service or local sales

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Date: **November 3, 2021**

Reference: **Mustang Extreme Env Services,**
Customer: **Mustang Extreme Environmental Services**
Customer's PO:
Product: **TN 220**

We hereby certify that the TN 220 drainage geonet, meets or exceeds the project requirements as stated in the specifications. The properties listed in this section are:

Property	Test Method	Unit	Value	Qualifier
Geonet				
Thickness	ASTM D 5199	mil	200	MAV
Carbon Black	ASTM D 4218	%	2.0	MAV
Tensile Strength	ASTM D 7179	lbs/in	45	MAV
Melt Flow	ASTM D 1238[2]	g/10 min	1.0	Maximum
Density	ASTM D 1505	g/cm^3	0.94	MAV
Transmissivity[1]	ASTM D 4716	m^2/sec	2.0×10^{-3}	MAV[3]

Notes:

1. *Transmissivity measured using water at 21 ± 2 ° C (70 ± 4 ° F) with a gradient of 0.1 and a confining pressure of 10,000 psf between steel plates after 15 minutes.*
2. *Condition 190/2.16*
3. *Minimum average value*

Sincerely,
Rajesh Patel
Rajesh Patel
QA Manager

APPROVED 5 QA

571 Industrial Parkway, Commerce, GA 30529 * Ph : 706-336-7000 * Fax : 706-336-7007 * Email : contact@skaps.com

Product : **TN 220**
Project : **Mustang Extreme Env Services,**

We hereby certify the following test results for the above referenced product/project :

Geonet Roll Number	Resin Lot Number	Density (g/cm^3)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
09202100000541	DOWX 069964	0.9571	226	2.68	54	3.03×10^{-3}
09202100000945	ECUX 882616	0.9152	219	2.47	56	3.06×10^{-3}
10202100001154	NCIX 008336	0.9538	220	2.36	53	2.96×10^{-3}
10202100001240	NCIX 008336	0.9538	231	2.54	54	3.24×10^{-3}
10202100001265	XOMX 720908	0.9522	225	2.51	52	3.02×10^{-3}
10202100001390	XOMX 720908	0.9522	221	2.29	57	3.26×10^{-3}
10202100002044	EQUX 016572	0.9527	222	2.73	52	3.38×10^{-3}
10202100002223	EQUX 016572	0.9527	231	2.68	55	3.11×10^{-3}
10202100002227	EQUX 016572	0.9527	231	2.68	55	3.11×10^{-3}
10202100002255	EQUX 016572	0.9527	222	2.35	51	3.19×10^{-3}
10202100002268	EQUX 621209	0.9556	232	2.42	55	3.28×10^{-3}
10202100002269	EQUX 621209	0.9556	232	2.42	55	3.28×10^{-3}
10202100002275	EQUX 621209	0.9556	228	2.69	52	3.28×10^{-3}
10202100002301	EQUX 621209	0.9556	225	2.70	57	2.82×10^{-3}
10202100002302	EQUX 621209	0.9556	225	2.70	57	2.82×10^{-3}
10202100002303	EQUX 621209	0.9556	225	2.70	57	2.82×10^{-3}
10202100002304	EQUX 621209	0.9556	225	2.70	57	2.82×10^{-3}
10202100002307	EQUX 621209	0.9556	225	2.70	57	2.82×10^{-3}
10202100002309	EQUX 621209	0.9556	225	2.70	57	2.82×10^{-3}
10202100002316	EQUX 621209	0.9556	234	2.27	53	2.82×10^{-3}
10202100002318	EQUX 621209	0.9556	234	2.27	53	2.82×10^{-3}
10202100002323	EQUX 621209	0.9556	221	2.65	59	2.95×10^{-3}
10202100002324	EQUX 621209	0.9556	221	2.65	59	2.95×10^{-3}
10202100002327	EQUX 621209	0.9556	221	2.65	59	2.95×10^{-3}
10202100002328	EQUX 621209	0.9556	221	2.65	59	2.95×10^{-3}
10202100002329	EQUX 621209	0.9556	221	2.65	59	2.95×10^{-3}
10202100002332	EQUX 621209	0.9556	233	2.57	52	2.95×10^{-3}
10202100002335	EQUX 621209	0.9556	233	2.57	52	2.95×10^{-3}
10202100002336	EQUX 621209	0.9556	233	2.57	52	2.95×10^{-3}
10202100002338	EQUX 621209	0.9556	233	2.57	52	2.95×10^{-3}
10202100002365	EQUX 621209	0.9556	223	2.77	58	3.29×10^{-3}
10202100002366	EQUX 621209	0.9556	223	2.77	58	3.29×10^{-3}
10202100002367	EQUX 621209	0.9556	223	2.77	58	3.29×10^{-3}
10202100002368	EQUX 621209	0.9556	223	2.77	58	3.29×10^{-3}

POLYETHYLENE RESIN CERTIFICATION

Customer Name : Mustang Extreme Environmental Services
Project Name : Mustang Extreme Env Services,
Geocomposite Manufacturer : SKAPS Industries
Geocomposite Production Plant : Commerce, GA
Geocomposite Brand Name : TN 220

We hereby certify the following test results for the above referenced product/project:

Resin Manufacturer	Resin Lot Number	Property	Test Method	Units	Resin Manuf Value	Tested Value*
Osterman & Company	DOWX 069964	Density	ASTM D1505	g/cm^3	0.9450	0.9424
		Melt flow Index	ASTM D1238[(a)]	g/10 min	0.20	0.19
Osterman & Company	ECUX 882616	Density	ASTM D1505	g/cm^3	0.9460	0.9463
		Melt flow Index	ASTM D1238[(a)]	g/10 min	0.26	0.28
M. Holland & Company	NCIX 008336	Density	ASTM D1505	g/cm^3	0.9490	0.9487
		Melt flow Index	ASTM D1238[(a)]	g/10 min	0.20	0.18
Trademark Plastic Corp.	XOMX 720908	Density	ASTM D1505	g/cm^3	0.9460	0.9473
		Melt flow Index	ASTM D1238[(a)]	g/10 min	0.17	0.19
Osterman & Company	EQUX 016572	Density	ASTM D1505	g/cm^3	0.9480	0.9478
		Melt flow Index	ASTM D1238[(a)]	g/10 min	0.24	0.26
Osterman & Company	EQUX 621209	Density	ASTM D1505	g/cm^3	0.9520	0.9509
		Melt flow Index	ASTM D1238[(a)]	g/10 min	0.19	0.22

(a) Condition 190/2.16

* Data from SKAPS Quality Control

571 Industrial Parkway, Commerce, GA 30529 * Ph : 706-336-7000 * Fax : 706-336-7007 * Email : contact@skaps.com

Parkhill

APPENDIX B: MATERIAL MANUFACTURER CERTIFICATION AND COMFORMANCE TESTING RESULTS

B.6 Geonet Conformance Testing Results

TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
Austin, TX - USA | Anaheim, CA - USA | Anderson, SC - USA | Gold Coast - Australia | Suzhou - China

April 23, 2021

Mail To:

Juan Zazpe
Southwest Liner Systems
301 Calle Industrial
Bernalillo NM 87004

email: jzazpe.sls@gmail.com

Bill To:

<= Same

Greetings

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs.
TRI is pleased to submit this final report of the laboratory testing for the sample(s) listed below.

Project:	**OWL Landfill Cell 1B**
TRI Job Reference Number:	63110
Material(s) Tested:	Four, Solmax 200E-00-00-E-00 Geonet
Test(s) Requested:	Mass/Unit Area (ASTM D 3776) Thickness (ASTM D 1777) Density (ASTM D 1505) Carbon Black Content (ASTM D 1603, mod.) Wide Width Tensile (ASTM D4595)

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

Sincerely,

Mansukh Patel
Laboratory Manager
Geosynthetic Services Division
www.GeosyntheticTesting.com

*Signature is on file

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

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GEONET TEST RESULTS
TRI Client: Southwest Liner Systems
Project: OWL Landfill Cell 1B

Material: Solmax 200E-00-00-E-00 Geonet
Sample Identification: 0116-003094
TRI Log #: 63110

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 1777)					GEONET COMPONENT								
Thickness (mils)	229	233	222	224	215	216	218	223	232	236	**225** **215**	7 << min	200 min
Mass/Unit Area (ASTM D 3776)					GEONET COMPONENT								
5" diameter Circle - Mass (g)	11.04	10.38	9.6	8.75	8.77	8.48	9.04	10.88	10.22	9.87			
Mass/unit area (lbs./sq.ft)	0.18	0.17	0.16	0.14	0.14	0.14	0.15	0.18	0.17	0.16	**0.16**	0.01	0.16 min
Density (ASTM D 1505)					GEONET COMPONENT								
Density (g/cm3)	0.949	0.949	0.949								**0.949**	0.000	0.94 min
Carbon Black Content (ASTM D 1603, mod.)					GEONET COMPONENT								
% Carbon Black	2.24	2.31									**2.28**	0.05	2.0 - 3.0

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TRI ENVIRONMENTAL

TESTING, RESEARCH, CONSULTING AND FIELD SERVICES

Austin, TX - USA | Anaheim, CA - USA | Anderson, SC - USA | Gold Coast - Australia | Suzhou - China

GEONET TEST RESULTS
TRI Client: Southwest Liner Systems
Project: OWL Landfill Cell 1B

Material: Solmax 200E-00-00-E-00 Geonet
Sample Identification: 0116-003094
TRI Log #: 63110

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Wide Width Tensile Properties (ASTM D 4595)													
MD Specimen Width (inches)	8												
MD Specimen Width (mm)	203												
MD Ultimate Strength (lbs)	444	325	434	381	360	363					**385**	46	
MD Ultimate Strength (N)	1977	1447	1930	1693	1603	1615					**1711**	205	
MD Ultimate Strength (ppi)	55.5	40.7	54.2	47.6	45.0	45.4					**48.1**	5.7	
MD Ultimate Strength (kN/m)	9.73	7.12	9.50	8.33	7.89	7.95					**8.42**	1.01	
MD Break Elongation (%)	22.2	124	23.3	19.4	135	77.6					**66.9**	53.3	
TD Specimen Width (in)	8												
TD Specimen Width (mm)	203												
TD Ultimate Strength (lbs)	176	162	191	178	205	202					**186**	17	
TD Ultimate Strength (N)	784	720	851	790	910	900					**826**	74	
TD Ultimate Strength (ppi)	22.0	20.2	23.9	22.2	25.6	25.3					**23.2**	2.1	
TD Ultimate Strength (kN/m)	3.86	3.55	4.19	3.89	4.48	4.4					**4.1**	0.4	
TD Break Elongation (%)	133	189	157	193	133	140					**158**	27	

MD Machine Direction TD Transverse Direction

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GEONET TEST RESULTS
TRI Client: Southwest Liner Systems
Project: OWL Landfill Cell 1B

Material: Solmax 200E-00-00-E-00 Geonet
Sample Identification: 0116-003119
TRI Log #: 63110

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 1777)					GEONET COMPONENT								
Thickness (mils)	234	230	231	223	216	215	215	218	226	223	**223** **215**	7 << min	200 min
Mass/Unit Area (ASTM D 3776)					GEONET COMPONENT								
5" diameter Circle - Mass (g)	9.48	9.80	10.52	8.63	8.59	8.32	9.62	10.05	10.20	10.52			
Mass/unit area (lbs./sq.ft)	0.15	0.16	0.17	0.14	0.14	0.13	0.16	0.16	0.17	0.17	**0.16**	0.01	0.16 min
Density (ASTM D 1505)					GEONET COMPONENT								
Density (g/cm3)	0.948	0.948	0.949								**0.948**	0.001	0.94 min
Carbon Black Content (ASTM D 1603, mod.)					GEONET COMPONENT								
% Carbon Black	2.30	2.35									**2.33**	0.04	2.0 - 3.0

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

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GEONET TEST RESULTS
TRI Client: Southwest Liner Systems
Project: OWL Landfill Cell 1B

Material: Solmax 200E-00-00-E-00 Geonet
Sample Identification: 0116-003119
TRI Log #: 63110

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Wide Width Tensile Properties (ASTM D 4595)													
MD Specimen Width (inches)	8												
MD Specimen Width (mm)	203												
MD Ultimate Strength (lbs)	464	436	406	384	347	317					**392**	55	
MD Ultimate Strength (N)	2063	1941	1807	1710	1544	1411					**1746**	244	
MD Ultimate Strength (ppi)	57.9	54.5	50.8	48.0	43.4	39.6					**49.0**	6.8	
MD Ultimate Strength (kN/m)	10.2	9.55	8.89	8.42	7.60	6.94					**8.59**	1.20	
MD Break Elongation (%)	24.0	19.4	24.8	22.0	44.0	24.1					**26.4**	8.8	
TD Specimen Width (in)	8												
TD Specimen Width (mm)	203												
TD Ultimate Strength (lbs)	171	154	152	163	196	174					**168**	16	
TD Ultimate Strength (N)	759	684	677	726	874	775					**749**	72	
TD Ultimate Strength (ppi)	21.3	19.2	19.0	20.4	24.5	21.8					**21.0**	2.0	
TD Ultimate Strength (kN/m)	3.7	3.4	3.3	3.6	4.3	3.8					**3.7**	0.4	
TD Break Elongation (%)	122	141	203	135	148	136					**148**	28	

MD Machine Direction TD Transverse Direction

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GEONET TEST RESULTS
TRI Client: Southwest Liner Systems
Project: OWL Landfill Cell 1B

Material: Solmax 200E-00-00-E-00 Geonet
Sample Identification: 0116-003197
TRI Log #: 63110

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 1777)					GEONET COMPONENT								
Thickness (mils)	238	237	232	231	217	215	215	218	223	226	**225**	9	200 min
											215	<< min	
Mass/Unit Area (ASTM D 3776)					GEONET COMPONENT								
5" diameter Circle - Mass (g)	10.10	9.57	8.94	8.93	8.36	8.35	10.18	10.39	11.11	11.15			
Mass/unit area (lbs./sq.ft)	0.16	0.16	0.14	0.14	0.14	0.14	0.16	0.17	0.18	0.18	**0.16**	0.02	0.16 min
Density (ASTM D 1505)					GEONET COMPONENT								
Density (g/cm3)	0.951	0.951	0.951								**0.951**	0.000	0.94 min
Carbon Black Content (ASTM D 1603, mod.)					GEONET COMPONENT								
% Carbon Black	2.40	2.37									**2.39**	0.02	2.0 - 3.0

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GEONET TEST RESULTS
TRI Client: Southwest Liner Systems
Project: OWL Landfill Cell 1B

Material: Solmax 200E-00-00-E-00 Geonet
Sample Identification: 0116-003197
TRI Log #: 63110

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Wide Width Tensile Properties (ASTM D 4595)													
MD Specimen Width (inches)	8												
MD Specimen Width (mm)	203												
MD Ultimate Strength (lbs)	489	511	441	469	655	347					**485**	101	
MD Ultimate Strength (N)	2176	2274	1961	2088	2914	1545					**2160**	448	
MD Ultimate Strength (ppi)	61.1	63.9	55.1	58.6	81.9	43.4					**60.7**	12.6	
MD Ultimate Strength (kN/m)	10.7	11.2	9.7	10.3	14.3	7.60					**10.6**	2.2	
MD Break Elongation (%)	14.8	18.2	16.2	16.7	16.4	212					**49.1**	80.0	
TD Specimen Width (in)	8												
TD Specimen Width (mm)	203												
TD Ultimate Strength (lbs)	166	171	184	190	187	201					**183**	13	
TD Ultimate Strength (N)	740	762	817	847	833	894					**815**	57	
TD Ultimate Strength (ppi)	20.8	21.4	22.9	23.8	23.4	25.1					**22.9**	1.6	
TD Ultimate Strength (kN/m)	3.64	3.75	4.02	4.17	4.10	4.40					**4.01**	0.28	
TD Break Elongation (%)	136	137	117	124	116	112					**123**	11	

MD Machine Direction TD Transverse Direction

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GEONET TEST RESULTS
TRI Client: Southwest Liner Systems
Project: OWL Landfill Cell 1B

Material: Solmax 200E-00-00-E-00 Geonet
Sample Identification: 0116-003332
TRI Log #: 63110

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 1777)					GEONET COMPONENT								
Thickness (mils)	240	226	235	216	212	217	223	234	236	233	**227** **212**	10 << min	200 min
Mass/Unit Area (ASTM D 3776)					GEONET COMPONENT								
5" diameter Circle - Mass (g)	11.07	10.40	10.00	9.14	8.23	8.44	9.93	9.27	11.13	11.08			
Mass/unit area (lbs./sq.ft)	0.18	0.17	0.16	0.15	0.13	0.14	0.16	0.15	0.18	0.18	**0.16**	0.02	0.16 min
Density (ASTM D 1505)					GEONET COMPONENT								
Density (g/cm3)	0.954	0.954	0.954								**0.954**	0.000	0.94 min
Carbon Black Content (ASTM D 1603, mod.)					GEONET COMPONENT								
% Carbon Black	2.42	2.43									**2.43**	0.01	2.0 - 3.0

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

GEONET TEST RESULTS
TRI Client: Southwest Liner Systems
Project: OWL Landfill Cell 1B

Material: Solmax 200E-00-00-E-00 Geonet
Sample Identification: 0116-003332
TRI Log #: 63110

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Wide Width Tensile Properties (ASTM D 4595)													
MD Specimen Width (inches)	8												
MD Specimen Width (mm)	203												
MD Ultimate Strength (lbs)	463	476	443	429	376	347					**422**	51	
MD Ultimate Strength (N)	2060	2116	1970	1911	1674	1542					**1879**	225	
MD Ultimate Strength (ppi)	57.9	59.5	55.3	53.7	47.0	43.3					**52.8**	6.3	
MD Ultimate Strength (kN/m)	10.1	10.4	9.69	9.40	8.24	7.59					**9.25**	1.11	
MD Break Elongation (%)	18.8	14.8	14.3	27.0	17.0	17.9					**18.3**	4.6	
TD Specimen Width (in)	8												
TD Specimen Width (mm)	203												
TD Ultimate Strength (lbs)	206	182	162	220	189	166					**187**	23	
TD Ultimate Strength (N)	918	808	720	979	840	737					**834**	101	
TD Ultimate Strength (ppi)	25.8	22.7	20.2	27.5	23.6	20.7					**23.4**	2.8	
TD Ultimate Strength (kN/m)	4.52	3.98	3.54	4.82	4.13	3.63					**4.10**	0.50	
TD Break Elongation (%)	148	172	143	123	161	172					**153**	19	

MD Machine Direction TD Transverse Direction

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TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
Austin, TX - USA | CA - USA | SC - USA | Gold Coast - Australia | Suzhou - China | Sao Paulo, Brazil | Johannesburg - Africa

November 11, 2021

Mail To:

Tyler Krueger
Parkhill Smith & Cooper
4222 85th Street
Lubbock, TX 79422

email: tkrueger@team-psc.com

Bill To:

<= Same

Dear Mr. Krueger:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs.
TRI is pleased to submit this final report of the laboratory testing for the sample(s) listed below.

Project:	**Owl Cell 3AB**
TRI Job Reference Number:	68169
Material(s) Tested:	Two, Skaps TN220 Geonet(s)
Test(s) Requested:	Mass/Unit Area (ASTM D 3776) Thickness (ASTM D 5199) Density (ASTM D 1505) Carbon Black Content (ASTM D 1603, mod.) Melt Flow Index (ASTM D 1238) Wide Width Tensile Properties (ASTM D 4595, mod.)

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

Sincerely,

Mansukh Patel
Laboratory Manager
Geosynthetic Services Division

*Signature is on file

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

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GEONET TEST RESULTS
TRI Client: Parkhill Smith & Cooper
Project: Owl Cell 3AB

Material: Skaps TN220 Geonet
Sample Identification: 10202100002223
TRI Log #: 68169

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5199)													
Thickness (mils)	231	241	235	241	234	231	230	231	229	227	**233**	5	200 min
											227	<< min	
Mass/Unit Area (ASTM D 3776)													
5" diameter Circle - Mass (g)	9.35	9.65	10.14	10.44	10.46	11.05	11.63	10.40	10.60	9.61			
Mass/unit area (lbs./sq.ft)	0.15	0.16	0.16	0.17	0.17	0.18	0.19	0.17	0.17	0.16	**0.17**	0.01	0.16 min
Density (ASTM D 1505)													
Density (g/cm3)	0.949	0.949	0.949								**0.949**	0.000	0.940 min
Carbon Black Content (ASTM D 1603, mod.)													
% Carbon Black	2.59	2.61									**2.60**	0.01	2.0 - 3.0
Melt Flow Index (ASTM D 1238, Method A, 190°C / 2.16 kg)													
Melt Flow Index (g/10 min)	0.10	0.10									**0.10**		0.1 - 1.1
Wide Width Tensile Properties (ASTM D 4595)													
MD Specimen Width (in)	8												
MD Ultimate Strength (lbs)	407	417	398	403	446	455					**421**	24	
MD Ultimate Strength (lbs/ft)	610	625	597	605	669	683					**632**	36	
MD Ultimate Strength (kN/m)	8.91	9.13	8.72	8.83	9.77	9.97					**9.22**	0.53	
MD Strength @ 2% Strain (lbs)	169	168	156	170	191	206					**177**	18.3	
MD Strength @ 2% Strain (lbs/ft)	253	252	234	255	286	309					**265**	27	
MD Strength at 2% Strain (kN/m)	3.69	3.68	3.41	3.73	4.18	4.51					**3.87**	0.40	
MD Strength @ 5% Strain (lbs)	277	275	260	273	305	337					**288**	28.4	
MD Strength @ 5% Strain (lbs/ft)	415	412	391	409	457	506					**432**	43	
MD Strength at 5% Strain (kN/m)	6.06	6.02	5.70	5.97	6.68	7.39					**6.30**	0.62	
MD Strength @ 10% Strain (lbs)	350	355	343	355	395	429					**371**	34	
MD Strength @ 10% Strain (lbs/ft)	526	532	514	532	593	644					**557**	51	
MD Strength at 10% Strain (kN/m)	7.68	7.77	7.51	7.77	8.66	9.40					**8.13**	0.74	
MD Elongation at Max Load (%)	18.5	21.0	22.1	19.0	18.7	14.0					**18.9**	2.8	
TD Specimen Width (in)	8												
TD Ultimate Strength (lbs)	148	149	158	169	156	160					**156**	8	
TD Ultimate Strength (lbs/ft)	222	224	237	253	233	240					**235**	12	
TD Ultimate Strength (kN/m)	3.23	3.27	3.46	3.69	3.41	3.50					**3.43**	0.17	
TD Strength @ 2% Strain (lbs)	18.7	19.7	13.2	14.7	16.9	20.2					**17.2**	2.8	
TD Strength @ 2% Strain (lbs/ft)	28.0	29.5	19.8	22.1	25.4	30.3					**25.8**	4.2	
TD Strength at 2% Strain (kN/m)	0.41	0.43	0.29	0.32	0.37	0.44					**0.38**	0.06	
TD Strength @ 5% Strain (lbs)	32.3	34.9	25.1	27.3	29.7	35.3					**30.8**	4.1	
TD Strength @ 5% Strain (lbs/ft)	48.4	52.3	37.6	40.9	44.5	52.9					**46.1**	6.2	
TD Strength at 5% Strain (kN/m)	0.71	0.76	0.55	0.60	0.65	0.77					**0.67**	0.09	
TD Strength @ 10% Strain (lbs)	44.0	49.9	37.6	40.3	41.7	48.3					**43.6**	4.7	
TD Strength @ 10% Strain (lbs/ft)	66.0	74.8	56.4	60.4	62.6	72.5					**65.4**	7.1	
TD Strength at 10% Strain (kN/m)	0.96	1.09	0.82	0.88	0.91	1.06					**0.96**	0.10	
TD Elongation at Max Load (%)	80.5	87.7	91.4	106.3	104.3	104.8					**95.8**	10.8	

MD Machine Direction TD Transverse Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Parkhill Smith & Cooper
Project: Owl Cell 3AB

Material: Skaps TN220 Geonet
Sample Identification: 10202100002309
TRI Log #: 68169

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5199)													
Thickness (mils)	215	210	310	212	219	214	215	209	203	203	**221**	32	200 min
											203	<< min	
Mass/Unit Area (ASTM D 3776)													
5" diameter Circle - Mass (g)	7.87	7.84	8.68	9.08	9.26	9.45	9.29	9.10	9.14	8.45			
Mass/unit area (lbs./sq.ft)	0.13	0.13	0.14	0.15	0.15	0.15	0.15	0.15	0.15	0.14	**0.14**	0.01	0.16 min
Density (ASTM D 1505)													
Density (g/cm3)	0.953	0.953	0.953								**0.953**	0.000	0.940 min
Carbon Black Content (ASTM D 1603, mod.)													
% Carbon Black	2.49	2.53									**2.51**	0.03	2.0 - 3.0
Melt Flow Index (ASTM D 1238, Method A, 190°C / 2.16 kg)													
Melt Flow Index (g/10 min)	0.13	0.13									**0.13**		0.1 - 1.1
Wide Width Tensile Properties (ASTM D 4595)													
MD Specimen Width (in)	8												
MD Ultimate Strength (lbs)	426	442	394	412	420	466					**427**	25	
MD Ultimate Strength (lbs/ft)	639	663	591	618	631	699					**640**	37	
MD Ultimate Strength (kN/m)	9.34	9.68	8.63	9.03	9.21	10.21					**9.35**	0.55	
MD Strength @ 2% Strain (lbs)	202	200	171	184	194	207					**193**	13.5	
MD Strength @ 2% Strain (lbs/ft)	304	300	256	277	291	311					**290**	20	
MD Strength at 2% Strain (kN/m)	4.43	4.38	3.74	4.04	4.25	4.53					**4.23**	0.30	
MD Strength @ 5% Strain (lbs)	312	324	279	299	312	344					**312**	22.0	
MD Strength @ 5% Strain (lbs/ft)	468	486	418	449	468	516					**467**	33	
MD Strength at 5% Strain (kN/m)	6.84	7.09	6.11	6.55	6.83	7.53					**6.82**	0.48	
MD Strength @ 10% Strain (lbs)	393	409	358	378	388	430					**393**	25	
MD Strength @ 10% Strain (lbs/ft)	590	613	537	567	582	645					**589**	37	
MD Strength at 10% Strain (kN/m)	8.61	8.95	7.84	8.28	8.50	9.41					**8.60**	0.54	
MD Elongation at Max Load (%)	16.4	17.7	17.8	16.4	16.0	16.3					**16.8**	0.8	
TD Specimen Width (in)	8												
TD Ultimate Strength (lbs)	110	116	112	165	148	142					**132**	23	
TD Ultimate Strength (lbs/ft)	165	174	168	248	222	213					**198**	34	
TD Ultimate Strength (kN/m)	2.41	2.54	2.46	3.62	3.24	3.11					**2.90**	0.50	
TD Strength @ 2% Strain (lbs)	11.2	12.3	10.93	11.45	11.16	10.9					**11**	0.5	
TD Strength @ 2% Strain (lbs/ft)	16.8	18.5	16.4	17.2	16.7	16.4					**17.0**	0.8	
TD Strength at 2% Strain (kN/m)	0.25	0.27	0.24	0.25	0.24	0.24					**0.25**	0.01	
TD Strength @ 5% Strain (lbs)	21.61	22.18	20.81	21.16	20.6	20.69					**21**	0.6	
TD Strength @ 5% Strain (lbs/ft)	32.4	33.3	31.2	31.7	30.9	31.0					**31.8**	0.9	
TD Strength at 5% Strain (kN/m)	0.47	0.49	0.46	0.46	0.45	0.45					**0.46**	0.01	
TD Strength @ 10% Strain (lbs)	31.71	31.36	30.7	31.46	30.39	30.32					**31**	0.6	
TD Strength @ 10% Strain (lbs/ft)	47.6	47.0	46.1	47.2	45.6	45.5					**46.5**	0.9	
TD Strength at 10% Strain (kN/m)	0.69	0.69	0.67	0.69	0.67	0.66					**0.68**	0.01	
TD Elongation at Max Load (%)	95.7	96.3	93.8	131.4	129.8	120.2					**111.2**	17.9	

MD Machine Direction TD Transverse Direction

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Parkhill

APPENDIX B: MATERIAL MANUFACTURER CERTIFICATION AND COMFORMANCE TESTING RESULTS

B.7 Geocomposite Certifications

SOLMAX

MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-8

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

ROLL NUMBER	MANUFACT. DATE	RESIN LOT NUMBER	TOP LAYER 1
Product Code : 1106338			
FabriNet 200 mil, Single Sided Top 10 oz/yd², Nonwoven Cal.			
TRI Austin - Patricia Zabaleta **1/100,000 sf, min 1/Lot** **Geocomposite: 2 ft x RW** **Geonet: 1 ft x RW** **Geotextile: 3 ft x RW** **One additional 2 ft x RW sample for interface testing** **Provide final roll list to TRI**			
0116-004022	2021-04-29	D625L1N108	2330-534967
0116-004023	2021-04-29	D625L1N108	2330-534967
0116-004024	2021-04-29	D625L1N108	2330-534967
0116-004025	2021-04-29	D625L1N108	2330-534979
0116-004026	2021-04-29	D625L1N108	2330-534979
0116-004030	2021-04-29	D625L1N108	2330-534979
0116-004031	2021-04-29	D625L1N108	2330-534979
0116-004032	2021-04-29	D625L1N108	2330-534979
0116-004033	2021-04-29	D625L1N108	2330-534979
0116-004034	2021-04-29	D625L1N108	2330-534979
0116-004036	2021-04-29	D625L1N108	2330-534979
0116-004037	2021-04-29	D625L1N108	2330-534979
0116-004038	2021-04-29	D625L1N108	2330-534979
0116-004039	2021-04-29	D625L1N108	2330-534979

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SOLMAX APPROVED QUALITY ASSURANCE

PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-8

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

0116-004040	2021-04-29	D625L1N108	2330-534979
0116-004041	2021-04-29	D625L1N108	2330-534979
0116-004042	2021-04-29	D625L1N108	2330-534979
0116-004043	2021-04-29	D625L1N108	2330-534979
0116-004044	2021-04-29	D625L1N108	2330-534981
0116-004045	2021-04-29	D625L1N108	2330-534981
0116-004046	2021-04-29	D625L1N108	2330-534981
0116-004047	2021-04-29	D625L1N108	2330-534981
0116-004048	2021-04-29	D625L1N108	2330-534981
0116-004049	2021-04-29	D625L1N108	2330-534981
0116-004050	2021-04-29	D625L1N108	2330-534981
0116-004051	2021-04-29	D625L1N108	2330-534981
0116-004052	2021-04-29	D625L1N108	2330-534981
0116-004053	2021-04-29	D625L1N108	2330-534981
0116-004054	2021-04-29	D625L1N108	2330-534981
0116-004055	2021-04-29	D625L1N108	2330-534981
0116-004056	2021-04-29	D625L1N108	2330-534981
0116-004057	2021-04-29	D625L1N108	2330-534958
0116-004058	2021-04-29	D625L1N108	2330-534938
0116-004059	2021-04-29	D625L1N108	2330-534938
0116-004060	2021-04-29	D625L1N108	2330-534938
0116-004061	2021-04-29	D625L1N108	2330-534939
0116-004062	2021-04-29	D625L1N108	2330-534939
0116-004063	2021-04-29	D625L1N108	2330-534939
0116-004082	2021-04-30	D625L1N108	2330-534946
0116-004083	2021-04-30	D625L1N108	2330-534946
0116-004084	2021-04-30	D625L1N108	2330-534946
0116-004085	2021-04-30	D625L1N108	2330-534946
0116-004086	2021-04-30	D625L1N108	2330-534957

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MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-8

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

0116-004087	2021-04-30	D625L1N108	2330-534957
0116-004088	2021-04-30	D625L1N108	2330-534957
0116-004089	2021-04-30	D625L1N108	2330-534959
0116-004090	2021-04-30	D625L1N108	2330-534959
0116-004091	2021-05-01	D625L1N108	2330-534959
0116-004099	2021-05-01	D625L1N108	2330-534950
0116-004100	2021-05-01	D625L1N108	2330-534950
0116-004101	2021-05-01	D625L1N108	2330-534950
0116-004102	2021-05-01	D625L1N108	2330-534950
0116-004103	2021-05-01	D625L1N108	2330-534937
0116-004104	2021-05-01	D625L1N108	2330-534937
0116-004105	2021-05-01	D625L1N108	2330-534937
0116-004106	2021-05-01	D625L1N108	2330-534937
0116-004107	2021-05-01	D625L1N108	2330-534948
0116-004108	2021-05-01	D625L1N108	2330-534948
0116-004112	2021-05-01	D625L1N108	2330-534945
0116-004113	2021-05-01	D625L1N108	2330-534945
0116-004114	2021-05-01	D625L1N108	2330-534945
0116-004115	2021-05-01	D625L1N108	2330-534945
0116-004116	2021-05-01	D625L1N108	2330-534945
0116-004117	2021-05-01	D625L1N108	2330-534977
0116-004118	2021-05-01	D625L1N108	2330-534977
0116-004119	2021-05-01	D625L1N108	2330-534977
0116-004120	2021-05-01	D625L1N108	2330-534977
0116-004121	2021-05-01	D625L1N108	2330-534982
0116-004124	2021-05-01	D625L1N108	2330-534982
0116-004125	2021-05-01	D625L1N108	2330-534982
0116-004126	2021-05-01	D625L1N108	2330-534982
0116-004127	2021-05-01	D625L1N108	2330-534982

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MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-8

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

0116-004128	2021-05-01	D625L1N108	2330-534980
0116-004129	2021-05-01	D625L1N108	2330-534980
0116-004130	2021-05-01	D625L1N108	2330-534951
0116-004131	2021-05-01	D625L1N108	2330-534951
0116-004132	2021-05-01	D625L1N108	2330-534951
0116-004133	2021-05-01	D625L1N108	2330-534951

QUANTITY (ROLLS): 78

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SOLMAX APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: SW2107
REFERENCE NUMBER: SO-091646
PACKING SLIP NUMBER: Pre-SO-091646-8

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

PRODUCT: 1106338
FabriNet 200 mil, Single Sided Top 10 oz/yd², Nonwoven Cal.

Test	Property	Direction	Test Method	Frequency	Unit
1	Thickness (min. avg.)		ASTM D5199	1/50,000 ft²	mils
2	Carbon Black Content		ASTM D4218	1/50,000 ft²	%
3	Density (min.)		ASTM D792	1/50,000 ft²	g/cc
4	Tensile Stength (MD)	MD	ASTM D7179	1/50,000 ft²	lbf/in
5	Ply Adhesion Average (min. avg.) Top	Top	ASTM D7005	1/50,000 ft²	lbf/in

Test	1	2	3	4	5
SPECIFICATIONS	**200**	**2.0**	**0.94**	**45**	**1.0**
0116-004022	266	2.33	0.952	79	6.10
0116-004023	266	2.33	0.952	79	6.10
0116-004024	266	2.33	0.952	79	6.10
0116-004025	266	2.33	0.952	79	6.10
0116-004026	266	2.33	0.952	79	6.10
0116-004030	245	2.28	0.951	67	5.98
0116-004031	245	2.28	0.951	67	5.98
0116-004032	245	2.28	0.951	67	5.98
0116-004033	245	2.28	0.951	67	5.98
0116-004034	245	2.28	0.951	67	5.98
0116-004036	244	2.17	0.951	67	5.98
0116-004037	244	2.17	0.951	67	5.98
0116-004038	244	2.17	0.951	67	5.98
0116-004039	244	2.17	0.951	67	5.98
0116-004040	245	2.19	0.952	70	4.68
0116-004041	245	2.19	0.952	70	4.68
0116-004042	245	2.19	0.952	70	4.68
0116-004043	245	2.19	0.952	70	4.68
0116-004044	245	2.19	0.952	70	4.68
0116-004045	243	2.33	0.952	70	4.68
0116-004046	243	2.33	0.952	70	4.68
0116-004047	243	2.33	0.952	70	4.68
0116-004048	243	2.33	0.952	70	4.68
0116-004049	243	2.33	0.952	70	4.68
0116-004050	232	2.33	0.951	60	4.54
0116-004051	232	2.33	0.951	60	4.54

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SOLMAX APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: SW2107
REFERENCE NUMBER: SO-091646
PACKING SLIP NUMBER: Pre-SO-091646-8

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

Test	1	2	3	4	5
0116-004052	232	2.33	0.951	60	4.54
0116-004053	232	2.33	0.951	60	4.54
0116-004054	232	2.33	0.951	60	4.54
0116-004055	234	2.28	0.951	60	4.54
0116-004056	234	2.28	0.951	60	4.54
0116-004057	234	2.28	0.951	60	4.54
0116-004058	234	2.28	0.951	60	4.54
0116-004059	234	2.28	0.951	60	4.54
0116-004060	240	2.26	0.951	56	3.48
0116-004061	240	2.26	0.951	56	3.48
0116-004062	240	2.26	0.951	56	3.48
0116-004063	240	2.26	0.951	56	3.48
0116-004082	246	2.26	0.951	71	4.98
0116-004083	246	2.26	0.951	71	4.98
0116-004084	246	2.26	0.951	71	4.98
0116-004085	246	2.26	0.951	71	4.98
0116-004086	246	2.26	0.951	71	4.98
0116-004087	253	2.25	0.951	71	4.98
0116-004088	253	2.25	0.951	71	4.98
0116-004089	253	2.25	0.951	71	4.98
0116-004090	253	2.25	0.951	71	4.98
0116-004091	253	2.25	0.951	71	4.98
0116-004099	257	2.31	0.957	76	1.09
0116-004100	257	2.31	0.957	76	1.09
0116-004101	257	2.31	0.957	76	1.09
0116-004102	257	2.31	0.957	76	1.09
0116-004103	257	2.31	0.957	76	1.09
0116-004104	250	2.28	0.957	76	1.09
0116-004105	250	2.28	0.957	76	1.09
0116-004106	250	2.28	0.957	76	1.09
0116-004107	250	2.28	0.957	76	1.09
0116-004108	250	2.28	0.957	76	1.09
0116-004112	252	2.33	0.959	79	3.63
0116-004113	252	2.33	0.959	79	3.63
0116-004114	252	2.33	0.959	79	3.63
0116-004115	252	2.33	0.959	79	3.63
0116-004116	252	2.33	0.959	79	3.63

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MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-8

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

Test	1	2	3	4	5
0116-004117	251	2.35	0.959	79	3.63
0116-004118	251	2.35	0.959	79	3.63
0116-004119	251	2.35	0.959	79	3.63
0116-004120	251	2.35	0.959	79	3.63
0116-004121	251	2.35	0.959	79	3.63
0116-004124	245	2.32	0.954	71	6.29
0116-004125	245	2.32	0.954	71	6.29
0116-004126	245	2.32	0.954	71	6.29
0116-004127	245	2.32	0.954	71	6.29
0116-004128	245	2.32	0.954	71	6.29
0116-004129	244	2.20	0.954	71	6.29
0116-004130	244	2.20	0.954	71	6.29
0116-004131	244	2.20	0.954	71	6.29
0116-004132	244	2.20	0.954	71	6.29
0116-004133	246	2.38	0.951	72	3.90

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SOLMAX APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: SW2107
REFERENCE NUMBER: SO-091646
PACKING SLIP NUMBER: Pre-SO-091646-8

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

PRODUCT: 1106338
FabriNet 200 mil, Single Sided Top 10 oz/yd², Nonwoven Cal.

Test	Property	Direction	Test Method	Frequency	Unit
1	Mass per Unit Area (min. avg.)		ASTM D5261	1/90,000 ft²	oz/yd²
	Grab Tensile Properties (min. avg)		ASTM D4632	1/90,000 ft²	
2	Strength (MD)				lbf
3	Strength (TD)				lbf
4	Elongation (MD)				%
5	Elongation (TD)				%
6	Trapezoidal Tear Strength	MD	ASTM D4533	1/90,000 ft²	lbf
7	Trapezoidal Tear Strength	TD	ASTM D4533	1/90,000 ft²	lbf
8	Puncture Resistance		ASTM D4833		lbf
9	CBR Puncture Strength		ASTM D6241	1/540,000 ft²	lbf
10	Apparent Opening Size (max.)		ASTM D4751	1/540,000 ft²	mm
11	Permittivity		ASTM D4491	1/540,000 ft²	sec⁻¹
12	Water Flow Rate		ASTM D4491	1/540,000 ft²	gpm/ft²

Test	1	2	3	4	5	6	7	8	9	10	11
Specification	**10**	**270**	**270**	**50**	**50**	**105**	**105**	**165**	**725**	**0.150**	**1.0**
2330-534937	10.8	321	364	88	127	208	297	209	864	0.150	1.4
2330-534938	10.8	321	364	88	127	208	297	209	864	0.150	1.4
2330-534939	10.8	321	364	88	127	208	297	209	864	0.150	1.4
2330-534945	11.3	319	344	76	110	147	218	188	926	0.150	1.6
2330-534946	11.3	319	344	76	110	147	218	188	926	0.150	1.6
2330-534948	11.3	319	344	76	110	147	218	188	926	0.150	1.6
2330-534950	10.6	293	359	82	91	131	219	174	854	0.150	1.6
2330-534951	10.6	293	359	82	91	131	219	174	854	0.150	1.6
2330-534957	11.8	333	362	81	92	152	196	188	867	0.150	1.6
2330-534958	11.8	333	362	81	92	152	196	188	867	0.150	1.6
2330-534959	11.8	333	362	81	92	152	196	188	867	0.150	1.6
2330-534967	10.8	307	325	92	101	163	198	188	1,062	0.150	1.5
2330-534977	10.9	339	328	76	107	151	157	190	907	0.150	1.7
2330-534979	10.9	339	328	76	107	151	157	190	907	0.150	1.7
2330-534980	10.9	339	328	76	107	151	157	190	907	0.150	1.7
2330-534981	11.1	341	323	76	105	157	174	204	884	0.150	1.5
2330-534982	11.1	341	323	76	105	157	174	204	884	0.150	1.5

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SOLMAX

MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: SW2107
REFERENCE NUMBER: SO-091646
PACKING SLIP NUMBER: Pre-SO-091646-8

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

Test	**12**
Specification	**75**
2330-534937	106
2330-534938	106
2330-534939	106
2330-534945	122
2330-534946	122
2330-534948	122
2330-534950	117
2330-534951	117
2330-534957	120
2330-534958	120
2330-534959	120
2330-534967	110
2330-534977	129
2330-534979	129
2330-534980	129
2330-534981	114
2330-534982	114

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SOLMAX

MANUFACTURING QUALITY CONTROL

TEST RESULTS - Transmissivity



PROJECT NUMBER: SW2107
REFERENCE NUMBER: SO-091646

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

PRODUCT: 1106338
FabriNet 200 mil, Single Sided Top 10 oz/yd², Nonwoven Cal.

Test	Property	Test Method	Frequency		Unit
	Transmissivity	ASTM D4716	1/540,000	ft²	*(m²/sec)*

Specification: Geocomposite

Roll Number	Pressure (psf)	Gradient	Net/Composite	Transmissivity Results (m²/sec)	(gal/min/ft)	Seat Time (min)	Boundary
0116-004022	10,000	0.10	Geocomposite	3.55E-03	17.15	15	Steel plates
Geonet	10,000	0.10	Geonet	6.57E-03	31.74	15	Steel plates

SOLMAX

MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: SW2107
REFERENCE NUMBER: SO-091646
PACKING SLIP NUMBER: Pre-SO-091646-8

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

Test	Property	Direction	Test Method	Frequency	Unit
1	Melt Index - 190/2.16 (max.)		ASTM D1238	1/Batch	g/10 min
2	Density (min.)		ASTM D1505	1/Batch	g/cc

Test	1	2
Specification	**0.40**	**0.940**
D625L1N108	0.35	0.9528

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Date 2021-01-28 (YYYY-MM-DD) Time 19:37:06 (Greenwich Mean Time) Page 1 of 1

THE DOW CHEMICAL COMPANY

GSE ENVIRONMENTAL LLC
19103 GUNDLE RD.
HOUSTON TX 77073-3515

Ship From: PRENTISS
Alberta, Canada

Certificate of Analysis

Product Name

UNIVAL™ DMDB-6200 NT 7 High Density Polyethylene Resin

Delivery No.	820308445 / 000010
Order Number	112116615
Shipping Units	96340.000 KG
Date Shipped	2021-01-28 (YYYY-MM-DD)
Shipment No.	38269840

Customer Information

Customer Name	GSE ENVIRONMENTAL LLC
Customer PO number	602241-2
Customer Product Code	RES-NET-6200
Container ID	DCLX008120
Specification Number	000000118162

Batch Number	D625L1N108
Manufacturing Date	2021-01-23 (YYYY-MM-DD)
Net Weight	212393.517 LB / 96340.000 KG

Test	Unit	Lower Limit	Upper Limit	Value	Method
Density ASTM D4703, A1 Proc C, Test within 1 hr	**g/cm3**	**0.9515**	**0.9545**	**0.9528**	**ASTM D792**
Melt Flow Rate @190degC/21.6kg	**dg/min**	**29.0**	**37.0**	**32.0**	**ASTM D1238**
Melt Flow Ratio I21.6/I2.16		**70.0**	**100.0**	**91.3**	**ASTM D1238**
Melt Index @190degC/2.16kg	**dg/min**			**0.35**	**ASTM D1238**

For inquiries please contact Customer Service or local sales

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SOLMAX

MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-7

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

ROLL NUMBER	MANUFACT. DATE	RESIN LOT NUMBER	TOP LAYER 1	BOTTOM LAYER 1
Product Code : 1106376				
FabriNet 200 mil, Double Sided 10 oz/yd², Nonwoven Cal.				
TRI Austin - Patricia Zabaleta **1/100,000 sf, min 1/Lot** **Geocomposite: 2 ft x RW** **Geonet: 1 ft x RW** **Geotextile: 3 ft x RW** **One additional 2 ft x RW sample for interface testing** **Provide final roll list to TRI**				
0116-004152	2021-05-02	D625L1N108	2330-534949	2330-534954
0116-004153	2021-05-02	D625L1N108	2330-534949	2330-534954
0116-004154	2021-05-02	D625L1N108	2330-534949	2330-534954
0116-004155	2021-05-02	D625L1N108	2330-534949	2330-534954
0116-004156	2021-05-02	D625L1N108	2330-534949	2330-534954
0116-004157	2021-05-02	D625L1N108	2330-534949	2330-534954
0116-004158	2021-05-02	D625L1N108	2330-534949	2330-534954
0116-004159	2021-05-02	D625L1N108	2330-534949	2330-534954
0116-004160	2021-05-02	D625L1N108	2330-534961	2330-534954
0116-004161	2021-05-02	D625L1N108	2330-534961	2330-534969
0116-004162	2021-05-02	D625L1N108	2330-534961	2330-534969
0116-004163	2021-05-02	D625L1N108	2330-534961	2330-534969
0116-004164	2021-05-02	D625L1N108	2330-534961	2330-534969
0116-004165	2021-05-02	D625L1N108	2330-534960	2330-534969

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MANUFACTURING QUALITY CONTROL

PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-7

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

0116-004166	2021-05-02	D625L1N108	2330-534960	2330-534969
0116-004167	2021-05-02	D625L1N108	2330-534960	2330-534969
0116-004168	2021-05-02	D625L1N108	2330-534960	2330-534964
0116-004169	2021-05-02	D625L1N108	2330-534960	2330-534964
0116-004170	2021-05-02	D625L1N108	2330-534952	2330-534964
0116-004171	2021-05-02	D625L1N108	2330-534952	2330-534964
0116-004172	2021-05-02	D625L1N108	2330-534952	2330-534962
0116-004173	2021-05-02	D625L1N108	2330-534952	2330-534962
0116-004174	2021-05-02	D625L1N108	2330-534952	2330-534962
0116-004175	2021-05-02	D625L1N108	2330-534943	2330-534962
0116-004176	2021-05-02	D625L1N108	2330-534943	2330-534947
0116-004177	2021-05-02	D625L1N108	2330-534943	2330-534947
0116-004178	2021-05-02	D625L1N108	2330-534943	2330-534947
0116-004179	2021-05-02	D625L1N108	2330-534943	2330-534947
0116-004180	2021-05-02	D625L1N108	2330-534997	2330-534996
0116-004181	2021-05-02	D625L1N108	2330-534997	2330-534996
0116-004182	2021-05-02	D625L1N108	2330-534997	2330-534996
0116-004183	2021-05-02	D625L1N108	2330-534997	2330-534996
0116-004189	2021-05-02	D625L1N108	2330-534986	2330-534992
0116-004190	2021-05-02	D625L1N108	2330-534986	2330-534992
0116-004191	2021-05-02	D625L1N108	2330-534986	2330-534992
0116-004192	2021-05-02	D625L1N108	2330-534986	2330-534992
0116-004193	2021-05-02	D625L1N108	2330-534986	2330-534992
0116-004194	2021-05-02	D625L1N108	2330-534985	2330-534990
0116-004195	2021-05-03	D625L1N108	2330-534985	2330-534990
0116-004196	2021-05-03	D625L1N108	2330-534985	2330-534990
0116-004197	2021-05-03	D625L1N108	2330-534985	2330-534990
0116-004198	2021-05-03	D625L1N108	2330-534985	2330-534990
0116-004199	2021-05-03	D625L1N108	2330-534985	2330-534990

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MANUFACTURING QUALITY CONTROL

PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-7

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

0116-004200	2021-05-03	D625L1N108	2330-534985	2330-534990
0116-004201	2021-05-03	D625L1N108	2330-534974	2330-534968
0116-004202	2021-05-03	D625L1N108	2330-534974	2330-534968
0116-004203	2021-05-03	D625L1N108	2330-534974	2330-534968
0116-004204	2021-05-03	D625L1N108	2330-534974	2330-534968
0116-004205	2021-05-03	D625L1N108	2330-534974	2330-534968
0116-004206	2021-05-03	D625L1N108	2330-534974	2330-534973
0116-004207	2021-05-03	D625L1N108	2330-534974	2330-534973
0116-004208	2021-05-03	D625L1N108	2330-534993	2330-534973
0116-004209	2021-05-03	D625L1N108	2330-534993	2330-534973
0116-004210	2021-05-03	D625L1N108	2330-534993	2330-534973
0116-004211	2021-05-03	D625L1N108	2330-534993	130523331
0116-004212	2021-05-03	D625L1N108	2330-534993	130523331
0116-004215	2021-05-03	D625L1N108	2330-534970	2330-534971
0116-004216	2021-05-03	D625L1N108	2330-534970	2330-534971
0116-004217	2021-05-03	D625L1N108	2330-534970	2330-534971
0116-004218	2021-05-03	D625L1N108	2330-534970	2330-534971
0116-004219	2021-05-03	D625L1N108	2330-534965	2330-534971
0116-004220	2021-05-03	D625L1N108	2330-534965	2330-534994
0116-004221	2021-05-03	D625L1N108	2330-534965	2330-534994
0116-004222	2021-05-03	D625L1N108	2330-534965	2330-534994
0116-004223	2021-05-03	D625L1N108	2330-534965	2330-534994
0116-004224	2021-05-03	D625L1N108	2330-534965	2330-534994
0116-004226	2021-05-03	D625L1N108	2330-534988	2330-534995
0116-004227	2021-05-03	D625L1N108	2330-534988	2330-534995
0116-004228	2021-05-03	D625L1N108	2330-534988	2330-534995
0116-004229	2021-05-03	D625L1N108	2330-534988	2330-534995
0116-004230	2021-05-03	D625L1N108	2330-534998	2330-534991
0116-004231	2021-05-03	D625L1N108	2330-534998	2330-534991

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MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-7

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

0116-004232	2021-05-03	D625L1N108	2330-534998	2330-534991
0116-004233	2021-05-03	D625L1N108	2330-534998	2330-534991
0116-004301	2021-05-05	D625L1N108	2330-534941	2330-534940
0116-004302	2021-05-05	D625L1N108	2330-534941	2330-534940
0116-004303	2021-05-05	D625L1N108	2330-534941	2330-534940
0116-004304	2021-05-05	D625L1N108	2330-534941	2330-534940
0116-004309	2021-05-05	D625L1N108	2330-534942	2330-534953
0116-004310	2021-05-05	D625L1N108	2330-534942	2330-534953
0116-004311	2021-05-05	D625L1N108	2330-534942	2330-534953
0116-004312	2021-05-05	D625L1N108	2330-534942	2330-534953

QUANTITY (ROLLS): 82

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MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: SW2107
REFERENCE NUMBER: SO-091646
PACKING SLIP NUMBER: Pre-SO-091646-7

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

PRODUCT: 1106376
FabriNet 200 mil, Double Sided 10 oz/yd², Nonwoven Cal.

Test	Property	Direction	Test Method	Frequency	Unit
1	Thickness (min. avg.)		ASTM D5199	1/50,000 ft²	mils
2	Carbon Black Content		ASTM D4218	1/50,000 ft²	%
3	Density (min.)		ASTM D792	1/50,000 ft²	g/cc
4	Tensile Stength (MD)	MD	ASTM D7179	1/50,000 ft²	lbf/in
5	Ply Adhesion Average (min. avg.)	Top	ASTM D7005	1/50,000 ft²	lbf/in
6	Ply Adhesion Average (min. avg.)	Bottom	ASTM D7005	1/50,000 ft²	lbf/in

Test	1	2	3	4	5	6
SPECIFICATIONS	**200**	**2.0**	**0.94**	**45**	**1.0**	**1.0**
0116-004152	252	2.34	0.960	77	5.18	5.20
0116-004153	252	2.34	0.960	77	5.18	5.20
0116-004154	252	2.34	0.960	77	5.18	5.20
0116-004155	252	2.34	0.960	77	5.18	5.20
0116-004156	252	2.34	0.960	77	5.18	5.20
0116-004157	239	2.36	0.960	77	5.18	5.20
0116-004158	239	2.36	0.960	77	5.18	5.20
0116-004159	239	2.36	0.960	77	5.18	5.20
0116-004160	239	2.36	0.960	77	5.18	5.20
0116-004161	239	2.36	0.960	77	5.18	5.20
0116-004162	238	2.34	0.960	77	5.18	5.20
0116-004163	238	2.34	0.960	77	5.18	5.20
0116-004164	238	2.34	0.960	77	5.18	5.20
0116-004165	238	2.34	0.960	77	5.18	5.20
0116-004166	238	2.34	0.960	77	5.18	5.20
0116-004167	238	2.81	0.956	71	3.60	3.61
0116-004168	238	2.81	0.956	71	3.60	3.61
0116-004169	238	2.81	0.956	71	3.60	3.61
0116-004170	238	2.81	0.956	71	3.60	3.61
0116-004171	238	2.81	0.956	71	3.60	3.61
0116-004172	238	2.81	0.956	71	3.60	3.61
0116-004173	235	2.39	0.956	71	3.60	3.61
0116-004174	235	2.39	0.956	71	3.60	3.61
0116-004175	235	2.39	0.956	71	3.60	3.61
0116-004176	235	2.39	0.956	71	3.60	3.61

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MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: SW2107
REFERENCE NUMBER: SO-091646
PACKING SLIP NUMBER: Pre-SO-091646-7

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

Test	1	2	3	4	5	6
0116-004177	235	2.39	0.956	71	3.60	3.61
0116-004178	240	2.76	0.956	71	3.60	3.61
0116-004179	240	2.76	0.956	71	3.60	3.61
0116-004180	240	2.76	0.956	71	3.60	3.61
0116-004181	240	2.76	0.956	71	3.60	3.61
0116-004182	229	2.72	0.956	71	3.60	3.61
0116-004183	229	2.72	0.956	71	3.60	3.61
0116-004189	238	2.70	0.957	66	6.22	3.58
0116-004190	238	2.70	0.957	66	6.22	3.58
0116-004191	238	2.70	0.957	66	6.22	3.58
0116-004192	238	2.70	0.957	66	6.22	3.58
0116-004193	238	2.70	0.957	66	6.22	3.58
0116-004194	233	2.63	0.957	66	6.22	3.58
0116-004195	233	2.63	0.957	66	6.22	3.58
0116-004196	233	2.63	0.957	66	6.22	3.58
0116-004197	233	2.63	0.957	66	6.22	3.58
0116-004198	233	2.63	0.957	66	6.22	3.58
0116-004199	245	2.32	0.957	66	6.22	3.58
0116-004200	245	2.32	0.957	66	6.22	3.58
0116-004201	245	2.32	0.957	66	6.22	3.58
0116-004202	245	2.32	0.957	66	6.22	3.58
0116-004203	245	2.32	0.957	66	6.22	3.58
0116-004204	239	2.31	0.958	67	3.83	4.22
0116-004205	239	2.31	0.958	67	3.83	4.22
0116-004206	239	2.31	0.958	67	3.83	4.22
0116-004207	239	2.31	0.958	67	3.83	4.22
0116-004208	239	2.31	0.958	67	3.83	4.22
0116-004209	236	2.32	0.958	67	3.83	4.22
0116-004210	236	2.32	0.958	67	3.83	4.22
0116-004211	236	2.32	0.958	67	3.83	4.22
0116-004212	236	2.32	0.958	67	3.83	4.22
0116-004215	234	2.27	0.958	67	3.83	4.22
0116-004216	234	2.27	0.958	67	3.83	4.22
0116-004217	234	2.27	0.958	67	3.83	4.22
0116-004218	234	2.27	0.958	67	3.83	4.22
0116-004219	234	2.27	0.958	67	3.83	4.22
0116-004220	233	2.33	0.958	67	3.83	4.22

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Solmax Geosynthetics LLC
19103 GUNDLE RD,, HOUSTON, TX, UNITED STATES, 77073

SOLMAX

MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-7

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

Test	1	2	3	4	5	6
0116-004221	233	2.33	0.958	67	3.83	4.22
0116-004222	233	2.33	0.958	67	3.83	4.22
0116-004223	233	2.33	0.958	67	3.83	4.22
0116-004224	233	2.33	0.958	67	3.83	4.22
0116-004226	237	2.32	0.955	68	2.81	1.67
0116-004227	237	2.32	0.955	68	2.81	1.67
0116-004228	237	2.32	0.955	68	2.81	1.67
0116-004229	237	2.32	0.955	68	2.81	1.67
0116-004230	237	2.32	0.955	68	2.81	1.67
0116-004231	236	2.47	0.955	68	2.81	1.67
0116-004232	236	2.47	0.955	68	2.81	1.67
0116-004233	236	2.47	0.955	68	2.81	1.67
0116-004301	251	2.75	0.949	76	4.68	5.32
0116-004302	251	2.75	0.949	76	4.68	5.32
0116-004303	251	2.75	0.949	76	4.68	5.32
0116-004304	251	2.75	0.949	76	4.68	5.32
0116-004309	252	2.59	0.956	70	4.68	5.94
0116-004310	252	2.59	0.956	70	4.68	5.94
0116-004311	252	2.59	0.956	70	4.68	5.94
0116-004312	252	2.59	0.956	70	4.68	5.94

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MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: SW2107
REFERENCE NUMBER: SO-091646
PACKING SLIP NUMBER: Pre-SO-091646-7

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

PRODUCT: 1106376
FabriNet 200 mil, Double Sided 10 oz/yd², Nonwoven Cal.

Test	Property	Direction	Test Method	Frequency	Unit
1	Mass per Unit Area (min. avg.)		ASTM D5261	1/90,000 ft²	oz/yd²
	Grab Tensile Properties (min. avg)		ASTM D4632	1/90,000 ft²	
2	Strength (MD)				lbf
3	Strength (TD)				lbf
4	Elongation (MD)				%
5	Elongation (TD)				%
6	Trapezoidal Tear Strength	MD	ASTM D4533	1/90,000 ft²	lbf
7	Trapezoidal Tear Strength	TD	ASTM D4533	1/90,000 ft²	lbf
8	Puncture Resistance		ASTM D4833		lbf
9	CBR Puncture Strength		ASTM D6241	1/540,000 ft²	lbf
10	Apparent Opening Size (max.)		ASTM D4751	1/540,000 ft²	mm
11	Permittivity		ASTM D4491	1/540,000 ft²	sec^{-1}
12	Water Flow Rate		ASTM D4491	1/540,000 ft²	gpm/ft²

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Solmax Geosynthetics LLC
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SOLMAX

MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: SW2107
REFERENCE NUMBER: SO-091646
PACKING SLIP NUMBER: Pre-SO-091646-7

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

Test	1	2	3	4	5	6	7	8	9	10	11
Specification	**10**	**270**	**270**	**50**	**50**	**105**	**105**	**165**	**725**	**0.150**	**1.0**
2330-534941	10.8	311	364	89	149	218	263	196	901	0.150	1.4
2330-534942	10.8	311	364	89	149	218	263	196	901	0.150	1.4
2330-534943	10.8	311	364	89	149	218	263	196	901	0.150	1.4
2330-534949	10.6	293	359	82	91	131	219	174	854	0.150	1.6
2330-534952	10.6	293	359	82	91	131	219	174	854	0.150	1.6
2330-534960	11.8	333	362	81	92	152	196	188	867	0.150	1.6
2330-534961	11.8	333	362	81	92	152	196	188	867	0.150	1.6
2330-534965	10.8	307	325	92	101	163	198	188	1,062	0.150	1.5
2330-534970	11.3	318	363	75	98	177	202	198	975	0.150	1.5
2330-534974	11.0	335	356	78	98	160	214	205	964	0.150	1.3
2330-534985	12.0	354	350	77	103	149	171	198	946	0.150	1.6
2330-534986	12.0	354	350	77	103	149	171	198	946	0.150	1.6
2330-534988	12.0	354	350	77	103	149	171	198	946	0.150	1.6
2330-534993	10.8	319	324	78	107	137	183	204	894	0.150	1.7
2330-534997	10.8	321	338	77	85	173	184	191	997	0.150	1.7
2330-534998	10.8	321	338	77	85	173	184	191	997	0.150	1.7
Specification	**10**	**270**	**270**	**50**	**50**	**105**	**105**	**165**	**725**	**0.150**	**1.0**
130523331	11.2	345	427	76	126	189	241	215	966	0.150	1.4
2330-534940	10.8	321	364	88	127	208	297	209	864	0.150	1.4
2330-534947	11.3	319	344	76	110	147	218	188	926	0.150	1.6
2330-534953	10.8	295	367	80	93	134	165	188	869	0.150	1.6
2330-534954	10.8	295	367	80	93	134	165	188	869	0.150	1.6
2330-534962	11.8	333	362	81	92	152	196	188	867	0.150	1.6
2330-534964	10.8	307	325	92	101	163	198	188	1,062	0.150	1.5
2330-534968	11.3	318	363	75	98	177	202	198	975	0.150	1.5
2330-534969	11.3	318	363	75	98	177	202	198	975	0.150	1.5
2330-534971	11.3	318	363	75	98	177	202	198	975	0.150	1.5
2330-534973	11.0	335	356	78	98	160	214	205	964	0.150	1.3
2330-534990	11.4	340	352	77	85	161	165	185	1,095	0.150	1.5
2330-534991	11.4	340	352	77	85	161	165	185	1,095	0.150	1.5
2330-534992	11.4	340	352	77	85	161	165	185	1,095	0.150	1.5
2330-534994	10.8	319	324	78	107	137	183	204	894	0.150	1.7
2330-534995	10.8	319	324	78	107	137	183	204	894	0.150	1.7
2330-534996	10.8	319	324	78	107	137	183	204	894	0.150	1.7

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Solmax Geosynthetics LLC
19103 GUNDLE RD,, HOUSTON, TX, UNITED STATES, 77073

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MANUFACTURING QUALITY CONTROL

TEST RESULTS - ROLLS

PROJECT NUMBER: SW2107
REFERENCE NUMBER: SO-091646
PACKING SLIP NUMBER: Pre-SO-091646-7

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

Test	**12**
Specification	**75**
2330-534941	102
2330-534942	102
2330-534943	102
2330-534949	117
2330-534952	117
2330-534960	120
2330-534961	120
2330-534965	110
2330-534970	112
2330-534974	94
2330-534985	117
2330-534986	117
2330-534988	117
2330-534993	130
2330-534997	124
2330-534998	124
Specification	**75**
130523331	101
2330-534940	106
2330-534947	122
2330-534953	122
2330-534954	122
2330-534962	120
2330-534964	110
2330-534968	112
2330-534969	112
2330-534971	112
2330-534973	94
2330-534990	116
2330-534991	116
2330-534992	116
2330-534994	130
2330-534995	130
2330-534996	130

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MANUFACTURING QUALITY CONTROL

TEST RESULTS - Transmissivity

SOLMAX APPROVED QUALITY ASSURANCE

PROJECT NUMBER: SO-091646
REFERENCE NUMBER: SW2107

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

PRODUCT: 1106376
FabriNet 200 mil, Double Sided 10 oz

Test	Property	Test Method	Frequency		Unit
	Transmissivity	ASTM D4716	1/540,000	ft^2	(m^2/sec)

Specification: Geocomposite

Roll Number	Pressure (psf)	Gradient	Net/Composite	Transmissivity Results (m^2/sec)	(gal/min/ft)	Seat Time (min)	Boundary
0116-004195	10,000	0.10	Geocomposite	6.54E-03	31.59	15	Steel plates
Geonet	10,000	0.10	Geonet	7.53E-03	36.38	15	Steel plates

SOLMAX

MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: SW2107

REFERENCE NUMBER: SO-091646

PACKING SLIP NUMBER: Pre-SO-091646-7

PROJECT NAME : OWL LF CELL 1B - PARKHILL PROJECT

Test	Property	Direction	Test Method	Frequency	Unit
1	Melt Index - 190/2.16 (max.)		ASTM D1238	1/Batch	g/10 min
2	Density (min.)		ASTM D1505	1/Batch	g/cc

Test	1	2
Specification	**0.40**	**0.940**
D625L1N108	0.35	0.9528

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Solmax Geosynthetics LLC

19103 GUNDLE RD,, HOUSTON, TX, UNITED STATES, 77073

Date 2021-01-28 (YYYY-MM-DD) Time 19:37:06 (Greenwich Mean Time) Page 1 of 1

THE DOW CHEMICAL COMPANY

GSE ENVIRONMENTAL LLC
19103 GUNDLE RD.
HOUSTON TX 77073-3515

Ship From: PRENTISS
Alberta, Canada

Certificate of Analysis

Product Name

UNIVAL™ DMDB-6200 NT 7 High Density Polyethylene Resin

Delivery No.	820308445 / 000010
Order Number	112116615
Shipping Units	96340.000 KG
Date Shipped	2021-01-28 (YYYY-MM-DD)
Shipment No.	38269840

Customer Information

Customer Name	GSE ENVIRONMENTAL LLC
Customer PO number	602241-2
Customer Product Code	RES-NET-6200
Container ID	DCLX008120
Specification Number	000000118162

Batch Number	D625L1N108
Manufacturing Date	2021-01-23 (YYYY-MM-DD)
Net Weight	212393.517 LB / 96340.000 KG

Test	Unit	Lower Limit	Upper Limit	Value	Method
Density ASTM D4703, A1 Proc C, Test within 1 hr	**g/cm3**	**0.9515**	**0.9545**	**0.9528**	**ASTM D792**
Melt Flow Rate @190degC/21.6kg	**dg/min**	**29.0**	**37.0**	**32.0**	**ASTM D1238**
Melt Flow Ratio I21.6/I2.16		**70.0**	**100.0**	**91.3**	**ASTM D1238**
Melt Index @190degC/2.16kg	**dg/min**			**0.35**	**ASTM D1238**

For inquiries please contact Customer Service or local sales

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SOLMAX

MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

PROJECT NUMBER: 305282

SALES ORDER: SO-092548

PACKING SLIP NUMBER: RR-078388

PROJECT NAME : OWL NDBL SWMF PH2

ROLL NUMBER	MANUFACT. DATE	RESIN LOT NUMBER	TOP LAYER 1
Product Code : 1106338-20267-7			
FabriNet 200 mil, Single Sided Top 10 oz/yd², Nonwoven Cal.			
****AS OF 10/15/2021**** **TRI Pickup - Patricia Zabaleta** **1/100,000 sf, min 1/Lot** **- Geocomposite: 2 ft x RW** **- Geonet: 1 ft x RW** **- Geotextile: 3 ft x RW** **Additional 2 ft x RW sample for interface testing**			
0116-009683	2021-10-05	21G1308	130523373
0116-009689	2021-10-05	21G1308	2330-534933
0116-009691	2021-10-05	21G1308	2330-534933
0116-009692	2021-10-05	21G1308	2330-534935
0116-009693	2021-10-05	21G1308	2330-534935
0116-009694	2021-10-05	21G1308	2330-534935
0116-009695	2021-10-05	21G1308	2330-534935
0116-009696	2021-10-05	21G1308	130519729
0116-009697	2021-10-05	21G1308	130519729
0116-009698	2021-10-05	21G1308	130519729
0116-009699	2021-10-05	21G1308	130519729
0116-009700	2021-10-05	21G1308	2330-534936

QUANTITY (ROLLS): 17

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Solmax Geosynthetics LLC
19103 GUNDLE RD,, HOUSTON, TX, UNITED STATES, 77073

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19 Oct 2021

SOLMAX

MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: 305282
SALES ORDER: SO-092548
PACKING SLIP NUMBER: RR-078388

PROJECT NAME : OWL NDBL SWMF PH2

PRODUCT: 1106338-20267-7
FabriNet 200 mil, Single Sided Top 10 oz/yd², Nonwoven Cal.

Test	Property	Direction	Test Method	Frequency	Unit
1	Thickness (min. avg.)		ASTM D5199	1/50,000 ft²	mils
2	Carbon Black Content		ASTM D4218	1/50,000 ft²	%
3	Density (min.)		ASTM D792	1/50,000 ft²	g/cc
4	Tensile Stength (MD)	MD	ASTM D7179	1/50,000 ft²	lbf/in
5	Ply Adhesion Average (min. avg.) Top	Top	ASTM D7005	1/50,000 ft²	lbf/in
6	Mass avg.		ASTM D5261	1/50,000 ft²	lbs/ft²

Test	1	2	3	4	5	6
SPECIFICATIONS	**200**	**2.0**	**0.94**	**45**	**1.0**	**0.160**
0116-009683	222	2.59	0.953	69	5	0.171
0116-009689	226	2.67	0.956	75	6	0.174
0116-009691	226	2.67	0.956	75	6	0.174
0116-009692	226	2.67	0.956	75	6	0.174
0116-009693	226	2.67	0.956	75	6	0.174
0116-009694	219	2.58	0.956	75	6	0.174
0116-009695	219	2.58	0.956	75	6	0.174
0116-009696	219	2.58	0.956	75	6	0.174
0116-009697	219	2.58	0.956	75	6	0.174
0116-009698	219	2.58	0.956	75	6	0.174
0116-009699	235	2.52	0.956	75	5	0.182
0116-009700	235	2.52	0.956	75	5	0.182

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SOLMAX

MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: 305282
SALES ORDER: SO-092548
PACKING SLIP NUMBER: RR-078388

PROJECT NAME : OWL NDBL SWMF PH2

PRODUCT: 1106338-20267-7
FabriNet 200 mil, Single Sided Top 10 oz/yd², Nonwoven Cal.

Test	Property	Direction	Test Method	Frequency	Unit
1	Mass per Unit Area (min. avg.)		ASTM D5261	1/90,000 ft²	oz/yd²
	Grab Tensile Properties (min. avg)		ASTM D4632	1/90,000 ft²	
2	Strength (MD)				lbf
3	Strength (TD)				lbf
4	Elongation (MD)				%
5	Elongation (TD)				%
6	Trapezoidal Tear Strength	MD	ASTM D4533	1/90,000 ft²	lbf
7	Trapezoidal Tear Strength	TD	ASTM D4533	1/90,000 ft²	lbf
8	Puncture Resistance		ASTM D4833		lbf
9	CBR Puncture Strength		ASTM D6241	1/540,000 ft²	lbf
10	Apparent Opening Size (max.)		ASTM D4751	1/540,000 ft²	mm
11	Permittivity		ASTM D4491	1/540,000 ft²	sec^{-1}
12	Water Flow Rate		ASTM D4491	1/540,000 ft²	gpm/ft²

Test	1	2	3	4	5	6	7	8	9	10	11
Specification	**10**	**270**	**270**	**50**	**50**	**105**	**105**	**165**	**725**	**0.150**	**1.0**
130519729	11.4	352	384	86	105	172	256	209	882	0.150	1.1
130523373	11.2	362	425	87	135	169	266	223	987	0.150	1.4
2330-534933	11.1	346	387	81	95	198	313	218	891	0.150	1.4
2330-534935	11.1	346	387	81	95	198	313	218	891	0.150	1.4
2330-534936	11.1	346	387	81	95	198	313	218	891	0.150	1.4

Test	12
Specification	**75**
130519729	85
130523373	108
2330-534933	103
2330-534935	103
2330-534936	103

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Solmax Geosynthetics LLC
19103 GUNDLE RD,, HOUSTON, TX, UNITED STATES, 77073

Formosa Plastics

FORMOSA PLASTICS CORPORATION, TEXAS

201 FORMOSA DRIVE
PO BOX 700
POINT COMFORT TX 77978

PHONE:(888)FPCUSA3

Certificate of Analysis

(CONFIDENTIAL)

CUSTOMER:SOLMAX GEOSYNTHETICS LLC
19103 GUNDLE ROAD

HOUSTON TX 77073

PRODUCT :HB5502B
RAILCAR FPAX200848
CLEANING/INSPECTION NO: 200848073021

S/O NO : EW8A125
CUSTOMER PO : PO-603627
DATE SHIPPED: 8/12/21
LOT NO : 21G1308
WEIGHT (LB) : 197,550.00
CUSTID:FT03112 SPIDM6

TEST ITEM	REFERENCE METHOD	TEST VALUE
Melt Index,g/10min	ASTM D1238	.35
Density, g/cm3	ASTM D1505	.9539

Linda Kao

QC SUPERVISOR: LINDA KAO

CoA Date: 09/08/2021

Certificate of Analysis

Shipped To: SOLMAX GEOSYNTHETICS, LLC
19103 GUNDLE ROAD
HOUSTON TX 77073
USA

Recipient: Morales
Fax:

Delivery #: 80509947
PO #: 603566
Weight: 180900.000 LB
Ship Date: 09/08/2021
Package: BULK
Mode: Hopper Car
Car #: PSPX002444
Seal No: 236107

Product:
MARLEX K306 POLYETHYLENE in Bulk
Additive levels have been tested and meet minimum the specification for this lot.
As a result, Standard OIT (by ASTM D 3895) is greater than 120 minutes (nominal value, not tested on every lot).
As a result, High Pressure OIT (by ASTM D 5885) is greater than 1000 minutes (nominal value, not tested on every lot).

Lot Number: PNJ610230

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.1	g/10min
HLMI Flow Rate	ASTM D1238	11.1	g/10min
Density	D1505 or D4883	0.937	g/cm3
Production Date		09/05/2021	

The data set forth herein have been carefully compiled by Chevron Phillips Chemical Company LP (CPChem).
However, there is no warranty of any kind, either expressed or implied, applicable to its use, and the user assumes all risk and liability in connection therewith.

Erin Xiao
Quality Systems Coordinator

For CoA questions contact Shannon Blacknall at +1-832-813-4807

CoA Date: 09/11/2021

Certificate of Analysis

Shipped To: SOLMAX GEOSYNTHETICS, LLC
19103 GUNDLE ROAD
HOUSTON TX 77073
USA

Recipient: Morales
Fax:

Delivery #: 80512621
PO #: 603566
Weight: 184300.000 LB
Ship Date: 09/11/2021
Package: BULK
Mode: Hopper Car
Car #: SHQX041458
Seal No: 235838

Product:
MARLEX K306 POLYETHYLENE in Bulk
Additive levels have been tested and meet minimum the specification for this lot.
As a result, Standard OIT (by ASTM D 3895) is greater than 120 minutes (nominal value, not tested on every lot).
As a result, High Pressure OIT (by ASTM D 5885) is greater than 1000 minutes (nominal value, not tested on every lot).

Lot Number: PNJ610330

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.1	g/10min
HLMI Flow Rate	ASTM D1238	10.9	g/10min
Density	D1505 or D4883	0.937	g/cm3
Production Date		09/07/2021	

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Erin Xiao
Quality Systems Coordinator

For CoA questions contact Shannon Blacknall at +1-832-813-4807

SOLMAX

MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

PROJECT NUMBER: 305282

SALES ORDER: SO-092548

PACKING SLIP NUMBER: RR-078387

PROJECT NAME : OWL NDBL SWMF PH2

ROLL NUMBER	MANUFACT. DATE	RESIN LOT NUMBER	TOP LAYER 1
Product Code : 1106338-20267-7			
FabriNet 200 mil, Single Sided Top 10 oz/yd², Nonwoven Cal.			
****AS OF 10/15/2021**** **TRI Pickup - Patricia Zabaleta** **1/100,000 sf, min 1/Lot** **- Geocomposite: 2 ft x RW** **- Geonet: 1 ft x RW** **- Geotextile: 3 ft x RW** **Additional 2 ft x RW sample for interface testing**			
0116-009679	2021-10-04	21G1308	2330-534934
0116-009680	2021-10-04	21G1308	2330-534934
0116-009681	2021-10-05	21G1308	2330-534934
0116-009682	2021-10-05	21G1308	2330-534934
0116-009684	2021-10-05	21G1308	130523373
0116-009685	2021-10-05	21G1308	130523373
0116-009686	2021-10-05	21G1308	130523373
0116-009687	2021-10-05	21G1308	2330-534933
0116-009688	2021-10-05	21G1308	2330-534933
0116-009690	2021-10-05	21G1308	2330-534933
0116-009701	2021-10-05	21G1308	2330-534936
0116-009702	2021-10-05	21G1308	2330-534936
0116-009703	2021-10-05	21G1308	2330-534936
0116-010044	2021-10-15	21E1340	2330-537232
0116-010045	2021-10-15	21E1340	2330-540258

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Solmax Geosynthetics LLC
19103 GUNDLE RD,, HOUSTON, TX, UNITED STATES, 77073

SOLMAX.COM

18 Oct 2021

SOLMAX

MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

PROJECT NUMBER: 305282

SALES ORDER: SO-092548

PACKING SLIP NUMBER: RR-078387

PROJECT NAME : OWL NDBL SWMF PH2

0116-010046	2021-10-15	21E1340	2330-540258
0116-010047	2021-10-15	21E1340	2330-540263
0116-010049	2021-10-15	21E1340	2330-540263
0116-010050	2021-10-15	21E1340	2330-540263
0116-010051	2021-10-15	21E1340	2330-540265
0116-010052	2021-10-15	21E1340	2330-540265
0116-010053	2021-10-15	21E1340	2330-540265
0116-010054	2021-10-15	21E1340	2330-540265
0116-010061	2021-10-16	21E1340	2330-540264

QUANTITY (ROLLS): 24

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18 Oct 2021

SOLMAX

MANUFACTURING QUALITY CONTROL

TEST RESULTS - ROLLS

SOLMAX APPROVED QUALITY ASSURANCE

PROJECT NUMBER: 305282
SALES ORDER: SO-092548
PACKING SLIP NUMBER: RR-078387

PROJECT NAME : OWL NDBL SWMF PH2

PRODUCT: 1106338-20267-7
FabriNet 200 mil, Single Sided Top 10 oz/yd², Nonwoven Cal.

Test	Property	Direction	Test Method	Frequency	Unit
1	Thickness (min. avg.)		ASTM D5199	1/50,000 ft²	mils
2	Carbon Black Content		ASTM D4218	1/50,000 ft²	%
3	Density (min.)		ASTM D792	1/50,000 ft²	g/cc
4	Tensile Stength (MD)	MD	ASTM D7179	1/50,000 ft²	lbf/in
5	Ply Adhesion Average (min. avg.) Top	Top	ASTM D7005	1/50,000 ft²	lbf/in
6	Mass avg.		ASTM D5261	1/50,000 ft²	lbs/ft²

Test	1	2	3	4	5	6
SPECIFICATIONS	**200**	**2.0**	**0.94**	**45**	**1.0**	**0.160**
0116-009679	222	2.59	0.953	69	5	0.171
0116-009680	222	2.59	0.953	69	5	0.171
0116-009681	222	2.59	0.953	69	5	0.171
0116-009682	222	2.59	0.953	69	5	0.171
0116-009684	228	2.66	0.953	69	5	0.171
0116-009685	228	2.66	0.953	69	5	0.171
0116-009686	228	2.66	0.953	69	5	0.171
0116-009687	228	2.66	0.953	69	5	0.171
0116-009688	228	2.66	0.953	69	5	0.171
0116-009690	226	2.67	0.956	75	6	0.174
0116-009701	235	2.52	0.956	75	5	0.182
0116-009702	235	2.52	0.956	75	5	0.182
0116-009703	235	2.52	0.956	75	5	0.182
0116-010044	224	2.58	0.953	67	4	0.169
0116-010045	224	2.58	0.953	67	4	0.169
0116-010046	224	2.58	0.953	67	4	0.169
0116-010047	224	2.58	0.953	67	4	0.169
0116-010049	224	2.58	0.953	67	4	0.169
0116-010050	218	2.63	0.953	67	4	0.169
0116-010051	218	2.63	0.953	67	4	0.169
0116-010052	218	2.63	0.953	67	4	0.169
0116-010053	218	2.63	0.953	67	4	0.169
0116-010054	218	2.63	0.953	67	4	0.169
0116-010061	229	2.86	0.956	74	6	0.178

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SOLMAX

MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: 305282
SALES ORDER: SO-092548
PACKING SLIP NUMBER: RR-078387

PROJECT NAME : OWL NDBL SWMF PH2

PRODUCT: 1106338-20267-7
FabriNet 200 mil, Single Sided Top 10 oz/yd², Nonwoven Cal.

Test	Property	Direction	Test Method	Frequency	Unit
1	Mass per Unit Area (min. avg.)		ASTM D5261	1/90,000 ft²	oz/yd²
	Grab Tensile Properties (min. avg)		ASTM D4632	1/90,000 ft²	
2	Strength (MD)				lbf
3	Strength (TD)				lbf
4	Elongation (MD)				%
5	Elongation (TD)				%
6	Trapezoidal Tear Strength	MD	ASTM D4533	1/90,000 ft²	lbf
7	Trapezoidal Tear Strength	TD	ASTM D4533	1/90,000 ft²	lbf
8	Puncture Resistance		ASTM D4833		lbf
9	CBR Puncture Strength		ASTM D6241	1/540,000 ft²	lbf
10	Apparent Opening Size (max.)		ASTM D4751	1/540,000 ft²	mm
11	Permittivity		ASTM D4491	1/540,000 ft²	sec⁻¹
12	Water Flow Rate		ASTM D4491	1/540,000 ft²	gpm/ft²

Test	1	2	3	4	5	6	7	8	9	10	11
Specification	**10**	**270**	**270**	**50**	**50**	**105**	**105**	**165**	**725**	**0.150**	**1.0**
130523373	11.2	362	425	87	135	169	266	223	987	0.150	1.4
2330-534933	11.1	346	387	81	95	198	313	218	891	0.150	1.4
2330-534934	11.1	346	387	81	95	198	313	218	891	0.150	1.4
2330-534936	11.1	346	387	81	95	198	313	218	891	0.150	1.4
2330-537232	11.2	309	348	90	101	189	270	201	967	0.150	1.8
2330-540258	11.6	355	389	75	115	154	208	199	1,044	0.150	1.4
2330-540263	10.4	313	359	89	104	155	202	210	943	0.150	1.7
2330-540264	10.4	313	359	89	104	155	202	210	943	0.150	1.7
2330-540265	10.4	313	359	89	104	155	202	210	943	0.150	1.7

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SOLMAX

MANUFACTURING QUALITY CONTROL

SOLMAX APPROVED QUALITY ASSURANCE

TEST RESULTS - ROLLS

PROJECT NUMBER: 305282
SALES ORDER: SO-092548
PACKING SLIP NUMBER: RR-078387

PROJECT NAME : OWL NDBL SWMF PH2

Test	**12**
Specification	**75**
130523373	108
2330-534933	103
2330-534934	103
2330-534936	103
2330-537232	131
2330-540258	102
2330-540263	125
2330-540264	125
2330-540265	125

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Solmax Geosynthetics LLC
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Formosa Plastics

FORMOSA PLASTICS CORPORATION, TEXAS

201 FORMOSA DRIVE
PO BOX 700
POINT COMFORT TX 77978

PHONE:(888)FPCUSA3

Certificate of Analysis

(CONFIDENTIAL)

CUSTOMER:SOLMAX GEOSYNTHETICS LLC
19103 GUNDLE ROAD

HOUSTON TX 77073

PRODUCT :HB5502B
RAILCAR FPAX200969

S/O NO : EW6A100
CUSTOMER PO : 603140
DATE SHIPPED: 6/04/21
LOT NO : 21E1340
WEIGHT (LB) : 197,950.00
CUSTID:FT03112 SPIDM6

TEST ITEM	REFERENCE METHOD	TEST VALUE
Melt Index,g/10min	ASTM D1238	.34
Density, g/cm3	ASTM D1505	.9548

Linda Kao

QC SUPERVISOR: LINDA KAO

Formosa Plastics

FORMOSA PLASTICS CORPORATION, TEXAS

201 FORMOSA DRIVE
PO BOX 700
POINT COMFORT TX 77978

PHONE:(888)FPCUSA3

Certificate of Analysis

(CONFIDENTIAL)

CUSTOMER:SOLMAX GEOSYNTHETICS LLC
19103 GUNDLE ROAD

HOUSTON TX 77073

PRODUCT :HB5502B
RAILCAR FPAX200848
CLEANING/INSPECTION NO: 200848073021

S/O NO : EW8A125
CUSTOMER PO : PO-603627
DATE SHIPPED: 8/12/21
LOT NO : 21G1308
WEIGHT (LB) : 197,550.00
CUSTID:FT03112 SPIDM6

TEST ITEM	REFERENCE METHOD	TEST VALUE
Melt Index,g/10min	ASTM D1238	.35
Density, g/cm3	ASTM D1505	.9539

Linda Kao

QC SUPERVISOR: LINDA KAO

Parkhill

APPENDIX B: MATERIAL MANUFACTURER CERTIFICATION AND COMFORMANCE TESTING RESULTS

B.8 Geocomposite Test Results

TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
Austin, TX - USA | CA - USA | SC - USA | Gold Coast - Australia | Suzhou - China | Sao Paulo, Brazil | Johannesburg - Africa

June 3, 2021

Mail To:

Juan Zazpe
Southwest Liner Systems
P.O. Box 1972
301 Calle Industrial
Bernalillo, NM 87004

email: jzazpe.sls@gmail.com

Bill To:

<= Same (PO # 02107-OWL LF CEL)

Dear Mr. Zazpe:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs.
TRI is pleased to submit this final report of the laboratory testing for the sample(s) listed below.

Project: **Owl Landfill Cell 1B**

TRI Job Reference Number: 63639

Material(s) Tested: Four, Solmax FS1-200E-10-00-FA-00 Single Sided Geocomposite(s)

Test(s) Requested:
Transmissivity (ASTM D 4716) - GC
Transmissivity (ASTM D 4716) - GN
Thickness (ASTM D 5199) - GN
Mass/Unit Area (ASTM D 3776) - GN
Density (ASTM D 1505) - GN
Carbon Black Content (ASTM D 1603, mod.) - GN
Melt Flow Index (ASTM D 1238, 190/2.16)
Tensile Properties (ASTM D 7179, 12 ipm strain rate) - GN
Mass/Unit Area (ASTM D 5261) - GT
Grab Tensile (ASTM D 4632) - GT
Puncture Strength (ASTM D 4833) - GT
Trapezoidal Tear (ASTM D 4533) - GT
Apparent Opening Size (ASTM D 4751) - GT
Permittivity (ASTM D 4491) - GT

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

Sincerely,

Mansukh Patel
Laboratory Manager
Geosynthetic Services Division

*Signature is on file

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

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GEOCOMPOSITE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: Owl Landfill Cell 1B

Material: Solmax FS1-200E-10-00-FA-00 Single Sided Geocomposite
Sample Identification: 0116-004022
TRI Log #: 63639

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Peel Strength (ASTM D 7005)													
MD Average Peel Strength (ppi)	6.85	7.52	6.00	5.87	3.65						**5.98**	1.46	1.0 min
MD Average Peel Strength (g/in)	3110	3414	2724	2665	1657						**2714**	665	

MD Machine Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: Owl Landfill Cell 1B

Material: Solmax FS1-200E-10-00-FA-00 Single Sided Geocomposite
Sample Identification: 0116-004022
TRI Log #: 63639

GEONET COMPONENT

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.	PROJ. SPEC.
Thickness (ASTM D 5199)													
Thickness (mils)	251	251	239	242	231	230	246	246	246	255	**244** **230**	8 << min	200 min
Mass/Unit Area (ASTM D 3776)													
5" diameter Circle - Mass (g)	11.80	11.73	12.21	12.49	10.84	10.75	11.33	11.42	12.39	12.50			
Mass/unit area (lbs./sq.ft)	0.19	0.19	0.20	0.20	0.18	0.17	0.18	0.19	0.20	0.20	**0.19**	0.01	0.16 min
Density (ASTM D 1505)													
Density (g/cm3)	0.952	0.952	0.952								**0.952**	0.000	0.940 min
Carbon Black Content (ASTM D 1603, mod.)													
% Carbon Black	2.17	2.18									**2.18**	0.01	2.0 - 3.0
Melt Flow Index (ASTM D 1238, 190/2.16)													
Melt Flow Index (g/10 min)	0.24	0.25									0.24		<1.0
Tensile Properties (ASTM D 7179, 12 ipm strain rate)													
MD Max. Strength (ppi)	72	73	73	78	62						**71**	6	45 min
MD Elong. @ Max. Strength (%)	21	24	21	25	21						**22**	2	

MD Machine Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: Owl Landfill Cell 1B

Material: Solmax FS1-200E-10-00-FA-00 Single Sided Geocomposite
Sample Identification: 0116-004022
TRI Log #: 63639

GEOTEXTILE COMPONENT

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Mass/Unit Area (ASTM D 5261)													
5" diameter Circle - Mass (g)	4.40	4.79	4.60	4.60	5.18	4.46	4.83	4.14	3.89	4.17	**4.51**	0.38	
Mass/Unit Area (oz/sq.yd)	10.2	11.1	10.7	10.7	12.0	10.4	11.2	9.6	9.0	9.7	**10.5**	0.88	9.1 min
Grab Tensile Properties (ASTM D 4632)													
MD - Tensile Strength (lbs)	375	371	274	270	325	301	330	289	322	317	**317**	36	230 min
TD - Tensile Strength (lbs)	379	399	322	315	275	258	308	393	368	421	**344**	56	230 min
MD - Elong. @ Max. Load (%)	83	83	84	90	69	79	99	94	91	76	**85**	9	50 min
TD - Elong. @ Max. Load (%)	89	94	89	99	102	96	101	101	93	94	**96**	5	50 min
Puncture Resistance (ASTM D 4833)													
Puncture Strength (lbs)	144	167	163	167	170						**162**	11	120 min
Trapezoidal Tear (ASTM D 4533)													
MD - Tear Strength (lbs)	150	126	115	128	120	160	169	158	113	109	**135**	22	90 min
TD - Tear Strength (lbs)	212	179	187	143	187	207	212	170	153	159	**181**	25	90 min
Apparent Opening Size (ASTM D 4751, Method B)													
Opening Size Diameter (mm)	0.135	0.140	0.103	0.122	0.125						**0.125**	0.014	
Sieve No.	100	100	140	100	100						**100**		80 min
Permittivity (ASTM D 4491,Method C)													
Thickness (mil)	125	108	125	121	120	129	117	124	114	105	**119**	8	
Thickness (mm)	3.18	2.74	3.18	3.07	3.05	3.28	2.97	3.15	2.90	2.67	**3.02**	0.20	
Permittivity (Sec-1)	1.02	1.39	0.56	0.86	0.95	0.90	0.95	0.74	1.09	1.16	**0.96**	0.23	0.9 min
Permittivity (GPM/ft2)	76.3	104.0	41.9	64.3	71.1	67.3	71.1	55.4	81.5	86.8	**72.0**	17.0	95 min
Flow rate (LPM/m2)	3109	4236	1707	2621	2895	2743	2895	2255	3322	3535	**2932**	695	
Permittivity (cm/sec)	0.324	0.381	0.178	0.264	0.290	0.295	0.282	0.233	0.316	0.309	**0.287**	0.055	

MD Machine Direction TD Transverse Direction

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

GEOCOMPOSITE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: Owl Landfill Cell 1B

Material: Solmax FS1-200E-10-00-FA-00 Single Sided Geocomposite
Sample Identification: 0116-004045
TRI Log #: 63639

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Peel Strength (ASTM D 7005)													
MD Average Peel Strength (ppi)	5.52	5.88	3.07	3.69	6.20						**4.87**	1.40	1.0 min
MD Average Peel Strength (g/in)	2506	2670	1394	1675	2815						**2212**	636	

MD Machine Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: Owl Landfill Cell 1B

Material: Solmax FS1-200E-10-00-FA-00 Single Sided Geocomposite
Sample Identification: 0116-004045
TRI Log #: 63639

GEONET COMPONENT

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.	PROJ. SPEC.
Thickness (ASTM D 5199)													
Thickness (mils)	249	247	243	241	229	232	241	240	246	248	**242** **229**	7 << min	200 min
Mass/Unit Area (ASTM D 3776)													
5" diameter Circle - Mass (g)	12.08	11.98	11.75	11.66	10.66	10.75	11.64	11.82	12.07	12.05			
Mass/unit area (lbs./sq.ft)	0.20	0.19	0.19	0.19	0.17	0.17	0.19	0.19	0.20	0.20	**0.19**	0.01	0.16 min
Density (ASTM D 1505)													
Density (g/cm3)	0.952	0.952	0.952								**0.952**	0.000	0.940 min
Carbon Black Content (ASTM D 1603, mod.)													
% Carbon Black	2.17	2.14									**2.16**	0.02	2.0 - 3.0
Melt Flow Index (ASTM D 1238, 190/2.16)													
Melt Flow Index (g/10 min)	0.24	0.26									0.25		<1.0
Tensile Properties (ASTM D 7179, 12 ipm strain rate)													
MD Max. Strength (ppi)	71	69	66	73	72						**70**	3	45 min
MD Elong. @ Max. Strength (%)	22	20	23	21	22						**21**	1	

MD Machine Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: Owl Landfill Cell 1B

Material: Solmax FS1-200E-10-00-FA-00 Single Sided Geocomposite
Sample Identification: 0116-004045
TRI Log #: 63639

GEOTEXTILE COMPONENT

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Mass/Unit Area (ASTM D 5261)													
5" diameter Circle - Mass (g)	5.39	4.82	4.56	4.95	4.61	4.13	4.35	4.72	5.33	5.79	**4.87**	0.51	
Mass/Unit Area (oz/sq.yd)	12.5	11.2	10.6	11.5	10.7	9.6	10.1	11.0	12.4	13.5	**11.3**	1.19	9.1 min
Grab Tensile Properties (ASTM D 4632)													
MD - Tensile Strength (lbs)	341	344	241	278	399	329	335	356	339	258	**322**	48	230 min
TD - Tensile Strength (lbs)	307	276	374	469	468	319	404	427	408	378	**383**	66	230 min
MD - Elong. @ Max. Load (%)	79	79	83	79	83	68	82	91	77	84	**80**	6	50 min
TD - Elong. @ Max. Load (%)	91	96	83	100	97	103	91	101	98	87	**95**	6	50 min
Puncture Resistance (ASTM D 4833)													
Puncture Strength (lbs)	215	175	192	163	154						**180**	24	120 min
Trapezoidal Tear (ASTM D 4533)													
MD - Tear Strength (lbs)	160	142	110	116	110	158	124	133	115	140	**131**	19	90 min
TD - Tear Strength (lbs)	188	222	191	290	197	205	136	192	184	181	**199**	39	90 min
Apparent Opening Size (ASTM D 4751, Method B)													
Opening Size Diameter (mm)	0.120	0.135	0.131	0.133	0.125						**0.129**	0.006	
Sieve No.	100	100	100	100	100						**100**		80 min
Permittivity (ASTM D 4491,Method C)													
Thickness (mil)	131	110	111	104	110	101	114	116	118	130	**115**	10	
Thickness (mm)	3.33	2.79	2.82	2.64	2.79	2.57	2.90	2.95	3.00	3.30	**2.91**	0.25	
Permittivity (Sec-1)	0.76	1.14	1.03	1.24	1.04	1.26	1.13	0.90	1.06	0.88	**1.04**	0.16	0.9 min
Permittivity (GPM/ft2)	56.8	85.3	77.0	92.8	77.8	94.2	84.5	67.3	79.3	65.8	**78.1**	12.0	95 min
Flow rate (LPM/m2)	2316	3474	3139	3779	3170	3840	3444	2743	3231	2682	**3182**	488	
Permittivity (cm/sec)	0.253	0.319	0.290	0.328	0.291	0.323	0.327	0.265	0.318	0.291	**0.300**	0.027	

MD Machine Direction TD Transverse Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: Owl Landfill Cell 1B

Material: Solmax FS1-200E-10-00-FA-00 Single Sided Geocomposite
Sample Identification: 0116-004086
TRI Log #: 63639

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Peel Strength (ASTM D 7005)													
MD Average Peel Strength (ppi)	3.34	2.10	2.47	1.88	0.95						**2.15**	0.87	1.0 min
MD Average Peel Strength (g/in)	1516	953	1121	854	433						**975**	395	

MD Machine Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: Owl Landfill Cell 1B

Material: Solmax FS1-200E-10-00-FA-00 Single Sided Geocomposite
Sample Identification: 0116-004086
TRI Log #: 63639

GEONET COMPONENT

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.	PROJ. SPEC.
Thickness (ASTM D 5199)													
Thickness (mils)	245	248	249	237	246	233	233	232	237	247	**241** **232**	7 << min	200 min
Mass/Unit Area (ASTM D 3776)													
5" diameter Circle - Mass (g)	12.03	12.19	11.35	11.92	10.64	10.75	10.62	11.05	11.91	11.75			
Mass/unit area (lbs./sq.ft)	0.19	0.20	0.18	0.19	0.17	0.17	0.17	0.18	0.19	0.19	**0.19**	0.01	0.16 min
Density (ASTM D 1505)													
Density (g/cm3)	0.952	0.952	0.952								**0.952**	0.000	0.940 min
Carbon Black Content (ASTM D 1603, mod.)													
% Carbon Black	2.15	2.16									**2.16**	0.01	2.0 - 3.0
Melt Flow Index (ASTM D 1238, 190/2.16)													
Melt Flow Index (g/10 min)	0.25	0.24									0.25		<1.0
Tensile Properties (ASTM D 7179, 12 ipm strain rate)													
MD Max. Strength (ppi)	71	59	63	70	69						**66**	5	45 min
MD Elong. @ Max. Strength (%)	21	25	21	21	19						**21**	2	

MD Machine Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: Owl Landfill Cell 1B

Material: Solmax FS1-200E-10-00-FA-00 Single Sided Geocomposite
Sample Identification: 0116-004086
TRI Log #: 63639

GEOTEXTILE COMPONENT

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Mass/Unit Area (ASTM D 5261)													
5" diameter Circle - Mass (g)	3.52	4.70	4.59	5.74	4.67	5.75	4.64	4.41	4.51	4.71	**4.72**	0.64	
Mass/Unit Area (oz/sq.yd)	8.2	10.9	10.7	13.4	10.9	13.4	10.8	10.3	10.5	11.0	**11.0**	1.49	9.1 min
Grab Tensile Properties (ASTM D 4632)													
MD - Tensile Strength (lbs)	370	392	354	239	348	300	275	307	369	356	**331**	49	230 min
TD - Tensile Strength (lbs)	450	525	325	417	293	326	328	383	388	381	**382**	70	230 min
MD - Elong. @ Max. Load (%)	81	75	85	73	79	63	70	79	78	82	**77**	7	50 min
TD - Elong. @ Max. Load (%)	91	101	106	102	93	101	86	95	90	91	**96**	6	50 min
Puncture Resistance (ASTM D 4833)													
Puncture Strength (lbs)	148	172	195	217	248						**196**	39	120 min
Trapezoidal Tear (ASTM D 4533)													
MD - Tear Strength (lbs)	134	116	117	232	163	221	209	104	135	155	**159**	47	90 min
TD - Tear Strength (lbs)	158	133	157	201	213	210	207	180	211	166	**184**	29	90 min
Apparent Opening Size (ASTM D 4751, Method B)													
Opening Size Diameter (mm)	0.126	0.124	0.155	0.116	0.115						**0.127**	0.016	
Sieve No.	100	100	70	100	100						**100**		80 min
Permittivity (ASTM D 4491,Method C)													
Thickness (mil)	118	106	106	120	142	130	126	106	89	99	**114**	16	
Thickness (mm)	3.00	2.69	2.69	3.05	3.61	3.30	3.20	2.69	2.26	2.51	**2.90**	0.40	
Permittivity (Sec-1)	0.92	0.89	1.51	0.84	0.66	0.96	0.60	0.80	1.48	1.35	**1.00**	0.33	0.9 min
Permittivity (GPM/ft2)	68.8	66.6	112.9	62.8	49.4	71.8	44.9	59.8	110.7	101.0	**74.9**	24.6	95 min
Flow rate (LPM/m2)	2804	2712	4602	2560	2011	2926	1829	2438	4511	4114	**3051**	1003	
Permittivity (cm/sec)	0.276	0.240	0.407	0.256	0.238	0.317	0.192	0.215	0.335	0.339	**0.281**	0.066	

MD Machine Direction TD Transverse Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: Owl Landfill Cell 1B

Material: Solmax FS1-200E-10-00-FA-00 Single Sided Geocomposite
Sample Identification: 0116-004119
TRI Log #: 63639

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Peel Strength (ASTM D 7005)													
MD Average Peel Strength (ppi)	6.53	4.59	2.46	3.49	5.93						**4.60**	1.68	1.0 min
MD Average Peel Strength (g/in)	2965	2084	1117	1584	2692						**2088**	763	

MD Machine Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: Owl Landfill Cell 1B

Material: Solmax FS1-200E-10-00-FA-00 Single Sided Geocomposite
Sample Identification: 0116-004119
TRI Log #: 63639

GEONET COMPONENT

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.	PROJ. SPEC.
Thickness (ASTM D 5199)													
Thickness (mils)	235	232	241	243	247	246	230	234	223	226	**236** **223**	8 << min	200 min
Mass/Unit Area (ASTM D 3776)													
5" diameter Circle - Mass (g)	11.18	11.23	11.60	11.81	11.82	11.64	9.74	10.32	10.26	10.25			
Mass/unit area (lbs./sq.ft)	0.18	0.18	0.19	0.19	0.19	0.19	0.16	0.17	0.17	0.17	**0.18**	0.01	0.16 min
Density (ASTM D 1505)													
Density (g/cm3)	0.952	0.952	0.952								**0.952**	0.000	0.940 min
Carbon Black Content (ASTM D 1603, mod.)													
% Carbon Black	2.13	2.14									**2.14**	0.01	2.0 - 3.0
Melt Flow Index (ASTM D 1238, 190/2.16)													
Melt Flow Index (g/10 min)	0.23	0.24									0.23		<1.0
Tensile Properties (ASTM D 7179, 12 ipm strain rate)													
MD Max. Strength (ppi)	74	65	51	70	68						**65**	9	45 min
MD Elong. @ Max. Strength (%)	22	24	21	23	20						**22**	1	

MD Machine Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: Owl Landfill Cell 1B

Material: Solmax FS1-200E-10-00-FA-00 Single Sided Geocomposite
Sample Identification: 0116-004119
TRI Log #: 63639

GEOTEXTILE COMPONENT

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Mass/Unit Area (ASTM D 5261)													
5" diameter Circle - Mass (g)	4.78	4.59	4.58	5.07	4.27	4.10	4.31	4.55	4.22	5.36	**4.58**	0.40	
Mass/Unit Area (oz/sq.yd)	11.1	10.7	10.7	11.8	9.9	9.5	10.0	10.6	9.8	12.5	**10.7**	0.92	9.1 min
Grab Tensile Properties (ASTM D 4632)													
MD - Tensile Strength (lbs)	203	274	292	284	366	360	347	311	346	322	**311**	50	230 min
TD - Tensile Strength (lbs)	336	327	420	430	344	438	444	456	505	377	**408**	59	230 min
MD - Elong. @ Max. Load (%)	67	77	92	84	81	84	82	82	82	71	**80**	7	50 min
TD - Elong. @ Max. Load (%)	91	91	87	94	87	88	85	88	88	84	**88**	3	50 min
Puncture Resistance (ASTM D 4833)													
Puncture Strength (lbs)	143	172	187	221	229						**190**	35	120 min
Trapezoidal Tear (ASTM D 4533)													
MD - Tear Strength (lbs)	166	142	141	152	187	121	143	159	194	183	**159**	24	90 min
TD - Tear Strength (lbs)	177	177	245	144	171	218	160	130	220	216	**186**	37	90 min
Apparent Opening Size (ASTM D 4751, Method B)													
Opening Size Diameter (mm)	0.121	0.133	0.121	0.101	0.119						**0.119**	0.011	
Sieve No.	100	100	100	140	100						**100**		80 min
Permittivity (ASTM D 4491,Method C)													
Thickness (mil)	116	106	104	113	114	94	91	111	103	117	**107**	9	
Thickness (mm)	2.95	2.69	2.64	2.87	2.90	2.39	2.31	2.82	2.62	2.97	**2.72**	0.23	
Permittivity (Sec-1)	0.94	1.13	1.02	0.61	0.91	1.11	1.14	1.00	1.03	0.76	**0.97**	0.17	0.9 min
Permittivity (GPM/ft2)	70.3	84.5	76.3	45.6	68.1	83.0	85.3	74.8	77.0	56.8	**72.2**	12.7	95 min
Flow rate (LPM/m2)	2865	3444	3109	1859	2773	3383	3474	3048	3139	2316	**2941**	517	
Permittivity (cm/sec)	0.277	0.304	0.269	0.175	0.263	0.265	0.263	0.282	0.269	0.226	**0.260**	0.035	

MD Machine Direction TD Transverse Direction

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TESTING, RESEARCH, CONSULTING AND FIELD SERVICES

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June 16, 2021

Mail To:

Juan Zazpe
Southwest Liner Systems
PO Box 1972
Bernalillo, NM 87004

email: jzazpe.sls@gmail.com

Bill To:

<= Same (P.O. # 02107-OWL LF CEL)

Dear Mr. Zazpe:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs.
TRI is pleased to submit this final report of the laboratory testing for the sample(s) listed below.

Project:	**OWL Landfill Cell 1B**
TRI Job Reference Number:	63673
Material(s) Tested:	Three, Solmax FS2-200E-10-10-LC-00 Double Sided Geocomposite(s)
Test(s) Requested:	Transmissivity (ASTM D 4716) - GC Peel Strength (ASTM D 7005) - GC Thickness (ASTM D 5199) - GN Mass/Unit Area (ASTM D 3776) Density (ASTM D 1505) - GN Carbon Black Content (ASTM D 1603, mod.) - GN Melt Flow Index (ASTM D 1238, Method A, 190°C / 2.16 kg) Tensile Properties (ASTM D 7179, 12 ipm strain rate) - GN Mass/Unit Area (ASTM D 5261) - GT Grab Tensile (ASTM D 4632) - GT Puncture Strength (ASTM D 4833) - GT Trapezoidal Tear (ASTM D 4533) - GT Apparent Opening Size (ASTM D 4751) - GT Permittivity (ASTM D 4491) - GT

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

Sincerely,

Mansukh Patel
Laboratory Manager
Geosynthetic Services Division

*Signature is on file

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GEOCOMPOSITE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: OWL Landfill Cell 1B

Material: Solmax FS2-200E-10-10-LC-00 Double Sided Geocomposite
Sample Identification: 0116-004152
TRI Log #: 63673

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.	PROJ. SPEC.
Peel Strength (ASTM D 7005)													
A - MD Average Peel Strength (ppi)	7.25	4.68	3.16	6.44	7.30						**5.77**	1.80	1.0 min
A - MD Average Peel Strength (g/in)	3292	2125	1435	2924	3314						**2618**	818	
B - MD Average Peel Strength (ppi)	3.60	8.24	1.69	6.05	10.10						**5.94**	3.40	1.0 min
B - MD Average Peel Strength (g/in)	1634	3741	767	2747	4585						**2695**	1542	
Note: A and B represent a randomly assigned top and bottom of the sample													
Thickness (ASTM D 5199)					GEONET COMPONENT								
Thickness (mils)	242	247	237	235	227	232	245	248	245	246	**240**	7	200 min
											227	<< min	
Mass/Unit Area (ASTM D 3776)					GEONET COMPONENT								
5" diameter circle (grams)	9.84	9.85	10.12	10.66	11.55	11.73	10.98	11.02	11.60	11.52	**10.89**	0.74	
Mass/Unit Area (oz/sq.yd)	22.89	22.91	23.54	24.80	26.87	27.28	25.54	25.63	26.98	26.80	**25.32**	1.72	
Mass/Unit Area (lb/ft2)	0.16	0.16	0.16	0.17	0.19	0.19	0.18	0.18	0.19	0.19	**0.18**	0.01	0.16 min
Density (ASTM D 1505)					GEONET COMPONENT								
Density (g/cm3)	0.952	0.952	0.952								**0.952**	0.000	0.940 min
Carbon Black Content (ASTM D 1603, mod.)					GEONET COMPONENT								
% Carbon Black	2.20	2.19									**2.20**	0.01	2.0 - 3.0
Melt Flow Index (ASTM D 1238, Method A, 190°C / 2.16 kg)					GEONET COMPONENT								
Melt Flow Index (g/10 min)	0.23	0.24									**0.24**		1.0 max
Tensile Properties (ASTM D 7179, 12 ipm strain rate)					GEONET COMPONENT								
MD Max. Strength (ppi)	73	61	51	68	71						**65**	9	45 min
MD Elong. @ Max. Strength (%)	19	25	20	21	21						**21**	2	

MD Machine Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: OWL Landfill Cell 1B

Material: Solmax FS2-200E-10-10-LC-00 Double Sided Geocomposite
Sample Identification: 0116-004152
TRI Log #: 63673

GEOTEXTILE - SIDE A

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Mass/Unit Area (ASTM D 5261)													
5" diameter Circle - Mass (g)	4.66	4.58	4.92	5.16	3.96	4.61	4.19	4.08	4.18	4.06	**4.44**	0.41	
Mass/Unit Area (oz/sq.yd)	10.84	10.65	11.44	12.00	9.21	10.72	9.75	9.49	9.72	9.44	**10.33**	0.94	9.1 min
Grab Tensile Properties (ASTM D 4632)													
MD - Tensile Strength (lbs)	315	302	320	343	336	348	302	322	284	340	**321**	21	230 min
TD - Tensile Strength (lbs)	363	361	407	384	270	387	419	453	435	447	**392**	54	230 min
MD - Elong. @ Max. Load (%)	82	97	90	89	83	87	87	91	87	79	**87**	5	50 min
TD - Elong. @ Max. Load (%)	86	85	88	89	99	97	92	90	88	91	**90**	5	50 min
Puncture Resistance (ASTM D 4833)													
Puncture Strength (lbs)	158	190	192	155	188						**176**	18	120 min
Trapezoidal Tear (ASTM D 4533)													
MD - Tear Strength (lbs)	142	147	138	166	166	172	149	165	131	192	**157**	19	90 min
TD - Tear Strength (lbs)	179	167	166	173	248	162	259	344	267	155	**212**	64	90 min
Apparent Opening Size (ASTM D 4751)													
Opening Size Diameter (mm)	0.136	0.120	0.127	0.111	0.126						**0.124**	0.009	
Sieve No.	100	100	100	100	100						**100**		80 min
Permittivity (ASTM D 4491,Method C)													
Thickness (mil)	109	117	114	121	139	113	120	104	95	99	**113**	13	
Thickness (mm)	2.77	2.97	2.90	3.07	3.53	2.87	3.05	2.64	2.41	2.51	**2.87**	0.32	
Permittivity (Sec-1)	1.27	0.83	1.06	0.68	0.95	0.79	1.04	1.44	1.52	1.42	**1.10**	0.30	0.9 min
Permittivity (GPM/ft2)	95.0	62.1	79.3	50.9	71.1	59.1	77.8	107.7	113.7	106.2	**82.3**	22.3	
Flow rate (LPM/m2)	3871	2530	3231	2072	2895	2408	3170	4389	4633	4328	**3352**	907	
Permittivity (cm/sec)	0.352	0.247	0.307	0.209	0.335	0.227	0.317	0.380	0.367	0.357	**0.310**	0.061	

MD Machine Direction TD Transverse Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: OWL Landfill Cell 1B

Material: Solmax FS2-200E-10-10-LC-00 Double Sided Geocomposite
Sample Identification: 0116-004152
TRI Log #: 63673

GEOTEXTILE - SIDE B

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Mass/Unit Area (ASTM D 5261)													
5" diameter Circle - Mass (g)	5.63	4.56	4.35	4.19	3.98	4.06	4.13	4.33	5.05	5.39	**4.57**	0.58	
Mass/Unit Area (oz/sq.yd)	13.10	10.61	10.12	9.75	9.26	9.44	9.61	10.08	11.75	12.54	**10.62**	1.36	9.1 min
Grab Tensile Properties (ASTM D 4632)													
MD - Tensile Strength (lbs)	293	210	244	276	448	324	288	283	316	347	**303**	64	230 min
TD - Tensile Strength (lbs)	319	302	459	473	402	311	417	481	400	390	**395**	66	230 min
MD - Elong. @ Max. Load (%)	73	75	81	92	81	85	81	79	83	74	**80**	6	50 min
TD - Elong. @ Max. Load (%)	89	92	95	95	97	93	107	92	89	93	**94**	5	50 min
Puncture Resistance (ASTM D 4833)													
Puncture Strength (lbs)	211	176	148	134	171						**168**	29	120 min
Trapezoidal Tear (ASTM D 4533)													
MD - Tear Strength (lbs)	233	210	164	132	190	142	103	148	168	203	**169**	40	90 min
TD - Tear Strength (lbs)	322	259	297	175	187	257	201	185	238	249	**237**	50	90 min
Apparent Opening Size (ASTM D 4751)													
Opening Size Diameter (mm)	0.120	0.142	0.132	0.135	0.142						**0.134**	0.009	
Sieve No.	100	100	100	100	100						**100**		80 min
Permittivity (ASTM D 4491,Method C)													
Thickness (mil)	126	120	116	90	94	117	115	122	130	116	**115**	13	
Thickness (mm)	3.20	3.05	2.95	2.29	2.39	2.97	2.92	3.10	3.30	2.95	**2.91**	0.33	
Permittivity (Sec-1)	0.79	1.25	1.15	1.31	1.49	0.96	1.06	1.20	0.69	0.83	**1.07**	0.25	0.9 min
Permittivity (GPM/ft2)	59.1	93.5	86.0	98.0	111.5	71.8	79.3	89.8	51.6	62.1	**80.3**	19.0	
Flow rate (LPM/m2)	2408	3810	3505	3992	4541	2926	3231	3657	2103	2530	**3270**	775	
Permittivity (cm/sec)	0.253	0.381	0.339	0.299	0.356	0.285	0.310	0.372	0.228	0.245	**0.307**	0.054	

MD Machine Direction TD Transverse Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: OWL Landfill Cell 1B

Material: Solmax FS2-200E-10-10-LC-00 Double Sided Geocomposite
Sample Identification: 0116-004181
TRI Log #: 63673

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Peel Strength (ASTM D 7005)													
A - MD Average Peel Strength (ppi)	2.05	1.76	2.09	1.28	5.23						**2.48**	1.57	1.0 min
A - MD Average Peel Strength (g/in)	931	799	949	581	2374						**1127**	713	
B - MD Average Peel Strength (ppi)	5.43	5.06	3.25	1.78	6.65						**4.43**	1.92	1.0 min
B - MD Average Peel Strength (g/in)	2465	2297	1476	808	3019						**2013**	872	
Note: A and B represent a randomly assigned top and bottom of the sample													
Thickness (ASTM D 5199)					GEONET COMPONENT								
Thickness (mils)	232	231	232	233	216	215	231	232	232	231	**228**	7	200 min
											215	<< min	
Mass/Unit Area (ASTM D 3776)					GEONET COMPONENT								
5" diameter circle (grams)	10.72	10.93	10.38	10.54	8.86	9.26	11.01	11.19	10.34	10.05	**10.33**	0.76	
Mass/Unit Area (oz/sq.yd)	24.93	25.42	24.14	24.52	20.61	21.54	25.61	26.03	24.05	23.38	**24.02**	1.76	
Mass/Unit Area (lb/ft2)	0.17	0.18	0.17	0.17	0.14	0.15	0.18	0.18	0.17	0.16	**0.17**	0.01	0.16 min
Density (ASTM D 1505)					GEONET COMPONENT								
Density (g/cm3)	0.952	0.952	0.952								**0.952**	0.000	0.940 min
Carbon Black Content (ASTM D 1603, mod.)					GEONET COMPONENT								
% Carbon Black	2.21	2.16									**2.19**	0.04	2.0 - 3.0
Melt Flow Index (ASTM D 1238, Method A, 190°C / 2.16 kg)					GEONET COMPONENT								
Melt Flow Index (g/10 min)	0.24	0.24									**0.24**		1.0 max
Tensile Properties (ASTM D 7179, 12 ipm strain rate)					GEONET COMPONENT								
MD Max. Strength (ppi)	67	68	51	57	65						**61**	7	45 min
MD Elong. @ Max. Strength (%)	23	22	26	23	23						**23**	1	

MD Machine Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: OWL Landfill Cell 1B

Material: Solmax FS2-200E-10-10-LC-00 Double Sided Geocomposite
Sample Identification: 0116-004181
TRI Log #: 63673

GEOTEXTILE - SIDE A

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Mass/Unit Area (ASTM D 5261)													
5" diameter Circle - Mass (g)	4.69	4.80	5.06	5.01	4.65	3.94	4.71	4.99	4.57	5.46	**4.79**	0.40	
Mass/Unit Area (oz/sq.yd)	10.91	11.16	11.77	11.65	10.82	9.16	10.96	11.61	10.63	12.70	**11.14**	0.92	9.1 min
Grab Tensile Properties (ASTM D 4632)													
MD - Tensile Strength (lbs)	267	300	327	326	352	248	256	318	321	298	**301**	34	230 min
TD - Tensile Strength (lbs)	317	358	429	401	455	352	401	502	453	336	**400**	60	230 min
MD - Elong. @ Max. Load (%)	71	77	83	84	77	75	67	91	92	76	**79**	8	50 min
TD - Elong. @ Max. Load (%)	87	87	87	87	95	83	83	90	90	90	**88**	3	50 min
Puncture Resistance (ASTM D 4833)													
Puncture Strength (lbs)	175	160	203	181	165						**177**	17	120 min
Trapezoidal Tear (ASTM D 4533)													
MD - Tear Strength (lbs)	151	117	139	129	132	107	131	146	173	143	**137**	18	90 min
TD - Tear Strength (lbs)	164	193	209	255	157	211	267	201	207	153	**202**	38	90 min
Apparent Opening Size (ASTM D 4751)													
Opening Size Diameter (mm)	0.141	0.123	0.122	0.120	0.120						**0.125**	0.009	
Sieve No.	100	100	100	100	100						**100**		80 min
Permittivity (ASTM D 4491,Method C)													
Thickness (mil)	102	113	127	101	103	99	108	100	97	124	**107**	11	
Thickness (mm)	2.59	2.87	3.23	2.57	2.62	2.51	2.74	2.54	2.46	3.15	**2.73**	0.27	
Permittivity (Sec-1)	1.33	0.92	0.86	0.99	1.00	1.13	1.04	1.32	1.03	0.56	**1.02**	0.22	0.9 min
Permittivity (GPM/ft2)	99.5	68.8	64.3	74.1	74.8	84.5	77.8	98.7	77.0	41.9	**76.1**	16.7	
Flow rate (LPM/m2)	4053	2804	2621	3017	3048	3444	3170	4023	3139	1707	**3103**	679	
Permittivity (cm/sec)	0.345	0.264	0.277	0.254	0.262	0.284	0.285	0.335	0.254	0.176	**0.274**	0.047	

MD Machine Direction TD Transverse Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: OWL Landfill Cell 1B

Material: Solmax FS2-200E-10-10-LC-00 Double Sided Geocomposite
Sample Identification: 0116-004181
TRI Log #: 63673

GEOTEXTILE - SIDE B

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Mass/Unit Area (ASTM D 5261)													
5" diameter Circle - Mass (g)	5.32	4.92	3.99	4.36	3.83	4.84	4.88	4.89	5.04	3.97	**4.60**	0.52	
Mass/Unit Area (oz/sq.yd)	12.37	11.44	9.28	10.14	8.91	11.26	11.35	11.37	11.72	9.23	**10.71**	1.21	9.1 min
Grab Tensile Properties (ASTM D 4632)													
MD - Tensile Strength (lbs)	301	334	301	290	284	336	317	216	271	294	**294**	35	230 min
TD - Tensile Strength (lbs)	400	480	458	402	304	484	454	375	344	378	**408**	60	230 min
MD - Elong. @ Max. Load (%)	86	85	79	76	71	89	97	73	85	85	**83**	8	50 min
TD - Elong. @ Max. Load (%)	89	95	87	80	93	89	82	83	89	95	**88**	5	50 min
Puncture Resistance (ASTM D 4833)													
Puncture Strength (lbs)	231	198	163	174	209						**195**	27	120 min
Trapezoidal Tear (ASTM D 4533)													
MD - Tear Strength (lbs)	181	262	96	113	144	170	171	186	145	137	**160**	46	90 min
TD - Tear Strength (lbs)	214	284	195	193	130	196	265	205	238	192	**211**	43	90 min
Apparent Opening Size (ASTM D 4751)													
Opening Size Diameter (mm)	0.104	0.111	0.153	0.128	0.128						**0.125**	0.019	
Sieve No.	140	100	70	100	100						**100**		80 min
Permittivity (ASTM D 4491,Method C)													
Thickness (mil)	123	124	113	110	107	119	120	113	105	110	**114**	7	
Thickness (mm)	3.12	3.15	2.87	2.79	2.72	3.02	3.05	2.87	2.67	2.79	**2.91**	0.17	
Permittivity (Sec-1)	0.64	0.74	1.40	1.12	1.10	0.88	0.97	0.92	0.92	1.14	**0.98**	0.22	0.9 min
Permittivity (GPM/ft2)	47.9	55.4	104.7	83.8	82.3	65.8	72.6	68.8	68.8	85.3	**73.5**	16.3	
Flow rate (LPM/m2)	1951	2255	4267	3413	3352	2682	2956	2804	2804	3474	**2996**	663	
Permittivity (cm/sec)	0.200	0.233	0.402	0.313	0.299	0.266	0.296	0.264	0.245	0.319	**0.284**	0.056	

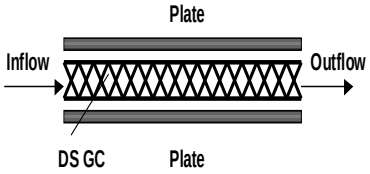
MD Machine Direction TD Transverse Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: OWL Landfill Cell 1B

Material: Solmax FS2-200E-10-10-LC-00 Double Sided Geocomposite
Sample Identification: 0116-004217
TRI Log #: 63673

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.	PROJ. SPEC.
Hydraulic Transmissivity (ASTM D 4716)													
Direction Tested: Machine Direction													
Normal Load (psf): 10,000													
Hydraulic Gradient: 0.1													
Test Length (in) 12													
Test Width (in) 12													
Plate / Sample / Plate													
Seat Time (hours)	Specimen		1			2							
Volume (cc)		619	612	606	591	591	586						
Time (s)		80.36	80.37	80.36	60.47	60.47	60.40						
Flow Rate (GPM/ft width)		0.12	0.12	0.12	0.15	0.15	0.15						
0.25 Transmissivity (m^2/s)		2.50E-04	2.47E-04	2.44E-04	3.19E-04	3.19E-04	3.17E-04				**0.14**	0.02	
Transmissivity (GPM/ft)		1.2	1.2	1.2	1.5	1.5	1.5				**2.83E-04**	3.90E-05	1.00E-04
Test Temp (C)			20.7			20.4					**1.4**	0.2	0.5 min
Temp. Corr. Factor			0.988			0.995							
Peel Strength (ASTM D 7005)													
A - MD Average Peel Strength (ppi)	5.09	4.35	2.41	2.02	2.87						**3.35**	1.31	1.0 min
A - MD Average Peel Strength (g/in)	2311	1975	1094	917	1303						**1520**	597	
B - MD Average Peel Strength (ppi)	4.56	4.19	3.41	3.38	4.47						**4.00**	0.57	1.0 min
B - MD Average Peel Strength (g/in)	2070	1902	1548	1535	2029						**1817**	259	
Note: A and B represent a randomly assigned top and bottom of the sample													
Thickness (ASTM D 5199)					GEONET COMPONENT								
Thickness (mils)	245	244	242	242	233	230	224	223	236	235	**235**	8	200 min
											223	<< min	
Mass/Unit Area (ASTM D 3776)					GEONET COMPONENT								
5" diameter circle (grams)	11.73	12.12	12.33	11.16	11.86	12.45	10.73	10.80	10.82	11.46	**11.55**	0.65	
Mass/Unit Area (oz/sq.yd)	27.28	28.19	28.68	25.96	27.59	28.96	24.96	25.12	25.17	26.66	**26.86**	1.51	
Mass/Unit Area (lb/ft2)	0.19	0.20	0.20	0.18	0.19	0.20	0.17	0.17	0.17	0.19	**0.19**	0.01	0.16 min
Density (ASTM D 1505)					GEONET COMPONENT								
Density (g/cm3)	0.952	0.952	0.952								**0.952**	0.000	0.940 min
Carbon Black Content (ASTM D 1603, mod.)					GEONET COMPONENT								
% Carbon Black	2.19	2.18									**2.19**	0.01	2.0 - 3.0
Melt Flow Index (ASTM D 1238, Method A, 190°C / 2.16 kg)					GEONET COMPONENT								
Melt Flow Index (g/10 min)	0.23	0.24									**0.24**		1.0 max
Tensile Properties (ASTM D 7179, 12 ipm strain rate)					GEONET COMPONENT								
MD Max. Strength (ppi)	71	76	61	71	76						**71**	6	45 min
MD Elong. @ Max. Strength (%)	22	22	20	21	23						**21**	1	



MD Machine Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: OWL Landfill Cell 1B

Material: Solmax FS2-200E-10-10-LC-00 Double Sided Geocomposite
Sample Identification: 0116-004217
TRI Log #: 63673

GEOTEXTILE - SIDE A

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Mass/Unit Area (ASTM D 5261)													
5" diameter Circle - Mass (g)	4.90	4.51	3.67	4.58	4.17	4.22	4.44	4.80	4.59	4.00	**4.39**	0.38	
Mass/Unit Area (oz/sq.yd)	11.40	10.49	8.54	10.65	9.70	9.82	10.33	11.16	10.68	9.30	**10.21**	0.87	9.1 min
Grab Tensile Properties (ASTM D 4632)													
MD - Tensile Strength (lbs)	277	339	308	297	351	413	291	305	301	279	**316**	42	230 min
TD - Tensile Strength (lbs)	374	324	414	418	291	364	373	384	324	265	**353**	51	230 min
MD - Elong. @ Max. Load (%)	75	89	80	94	93	83	89	89	89	85	**86**	6	50 min
TD - Elong. @ Max. Load (%)	106	86	97	105	105	117	107	100	100	93	**102**	9	50 min
Puncture Resistance (ASTM D 4833)													
Puncture Strength (lbs)	178	145	161	150	183						**163**	16	120 min
Trapezoidal Tear (ASTM D 4533)													
MD - Tear Strength (lbs)	184	132	132	147	140	200	148	128	138	98	**145**	29	90 min
TD - Tear Strength (lbs)	132	167	153	170	118	154	160	130	153	138	**147**	17	90 min
Apparent Opening Size (ASTM D 4751)													
Opening Size Diameter (mm)	0.137	0.136	0.146	0.129	0.151						**0.140**	0.009	
Sieve No.	100	100	100	100	70						**100**		80 min
Permittivity (ASTM D 4491,Method C)													
Thickness (mil)	133	126	109	110	106	121	126	117	96	111	**116**	11	
Thickness (mm)	3.38	3.20	2.77	2.79	2.69	3.07	3.20	2.97	2.44	2.82	**2.93**	0.28	
Permittivity (Sec-1)	1.09	1.14	1.45	1.19	1.52	0.81	0.82	1.11	1.71	1.37	**1.22**	0.29	0.9 min
Permittivity (GPM/ft2)	81.5	85.3	108.5	89.0	113.7	60.6	61.3	83.0	127.9	102.5	**91.3**	21.9	
Flow rate (LPM/m2)	3322	3474	4419	3627	4633	2469	2499	3383	5212	4175	**3721**	891	
Permittivity (cm/sec)	0.368	0.365	0.401	0.332	0.409	0.249	0.262	0.330	0.417	0.386	**0.352**	0.059	

MD Machine Direction TD Transverse Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: OWL Landfill Cell 1B

Material: Solmax FS2-200E-10-10-LC-00 Double Sided Geocomposite
Sample Identification: 0116-004217
TRI Log #: 63673

GEOTEXTILE - SIDE B

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Mass/Unit Area (ASTM D 5261)													
5" diameter Circle - Mass (g)	4.24	4.38	4.38	4.91	5.15	4.95	4.53	4.85	4.82	5.03	**4.72**	0.32	
Mass/Unit Area (oz/sq.yd)	9.86	10.19	10.19	11.42	11.98	11.51	10.54	11.28	11.21	11.70	**10.99**	0.73	9.1 min
Grab Tensile Properties (ASTM D 4632)													
MD - Tensile Strength (lbs)	336	313	293	348	312	292	321	306	337	305	**316**	19	230 min
TD - Tensile Strength (lbs)	316	362	329	451	386	328	351	389	385	369	**367**	40	230 min
MD - Elong. @ Max. Load (%)	93	88	93	111	86	71	88	90	89	87	**89**	10	50 min
TD - Elong. @ Max. Load (%)	108	103	94	105	109	96	103	95	93	104	**101**	6	50 min
Puncture Resistance (ASTM D 4833)													
Puncture Strength (lbs)	166	235	167	189	132						**178**	38	120 min
Trapezoidal Tear (ASTM D 4533)													
MD - Tear Strength (lbs)	181	170	175	231	248	191	202	199	202	179	**198**	25	90 min
TD - Tear Strength (lbs)	227	203	183	148	169	212	194	216	133	140	**182**	34	90 min
Apparent Opening Size (ASTM D 4751)													
Opening Size Diameter (mm)	0.140	0.142	0.131	0.135	0.135						**0.137**	0.004	
Sieve No.	100	100	100	100	100						**100**		80 min
Permittivity (ASTM D 4491,Method C)													
Thickness (mil)	118	112	122	120	141	114	127	131	122	125	**123**	8	
Thickness (mm)	3.00	2.84	3.10	3.05	3.58	2.90	3.23	3.33	3.10	3.18	**3.13**	0.22	
Permittivity (Sec-1)	1.24	1.28	1.04	1.07	1.03	1.17	0.93	1.01	0.92	0.85	**1.05**	0.14	0.9 min
Permittivity (GPM/ft2)	92.8	95.7	77.8	80.0	77.0	87.5	69.6	75.5	68.8	63.6	**78.8**	10.5	
Flow rate (LPM/m2)	3779	3901	3170	3261	3139	3566	2834	3078	2804	2591	**3212**	427	
Permittivity (cm/sec)	0.372	0.364	0.322	0.326	0.369	0.339	0.300	0.336	0.285	0.270	**0.328**	0.035	

MD Machine Direction TD Transverse Direction

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TESTING, RESEARCH, CONSULTING AND FIELD SERVICES

Austin, TX - USA | CA - USA | SC - USA | Gold Coast - Australia | Suzhou - China | Sao Paulo, Brazil | Johannesburg - Africa

June 18, 2021

Mail To:

Juan Zazpe
Southwest Liner Systems
PO Box 1972
Bernalillo, NM 87004

email: jzazpe.sls@gmail.com

Bill To:

<= Same (P.O. # 02107-OWL LF CEL)

Dear Mr. Zazpe:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs.
TRI is pleased to submit this final report of the laboratory testing for the sample(s) listed below.

Project:	**OWL Landfill Cell 1B**
TRI Job Reference Number:	63775
Material(s) Tested:	One, Solmax FS2-200E-10-10-LC-00 Double Sided Geocomposite(s)
Test(s) Requested:	Peel Strength (ASTM D 7005) - GC Thickness (ASTM D 5199) - GN Mass/Unit Area (ASTM D 3776) Density (ASTM D 1505) - GN Carbon Black Content (ASTM D 1603, mod.) - GN Melt Flow Index (ASTM D 1238, Method A, 190°C / 2.16 kg) Tensile Properties (ASTM D 7179, 12 ipm strain rate) - GN Mass/Unit Area (ASTM D 5261) - GT Grab Tensile (ASTM D 4632) - GT Puncture Strength (ASTM D 4833) - GT Trapezoidal Tear (ASTM D 4533) - GT Apparent Opening Size (ASTM D 4751) - GT Permittivity (ASTM D 4491) - GT

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

Sincerely,

Mansukh Patel
Laboratory Manager
Geosynthetic Services Division

*Signature is on file

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GEOCOMPOSITE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: OWL Landfill Cell 1B

Material: Solmax FS2-200E-10-10-LC-00 Double Sided Geocomposite
Sample Identification: 0116-004301
TRI Log #: 63775

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.	PROJ. SPEC.
Peel Strength (ASTM D 7005)													
A - MD Average Peel Strength (ppi)	7.00	6.05	5.02	3.67	5.96						**5.54**	1.26	1.0 min
A - MD Average Peel Strength (g/in)	3178	2747	2279	1666	2706						**2515**	571	
B - MD Average Peel Strength (ppi)	7.72	5.23	6.40	3.17	7.04						**5.91**	1.79	1.0 min
B - MD Average Peel Strength (g/in)	3505	2374	2906	1439	3196						**2684**	811	
Note: A and B represent a randomly assigned top and bottom of the sample													
Thickness (ASTM D 5199)					GEONET COMPONENT								
Thickness (mils)	245	243	245	245	244	240	242	242	248	248	**244**	2	200 min
											240	<< min	
Mass/Unit Area (ASTM D 3776)					GEONET COMPONENT								
5" diameter circle (grams)	12.41	12.30	12.09	12.14	11.98	12.36	12.23	11.88	12.00	11.61	**12.10**	0.24	
Mass/Unit Area (oz/sq.yd)	28.87	28.61	28.12	28.24	27.87	28.75	28.45	27.63	27.91	27.00	**28.14**	0.57	
Mass/Unit Area (lb/ft2)	0.20	0.20	0.20	0.20	0.19	0.20	0.20	0.19	0.19	0.19	**0.20**	0.00	0.16 min
Density (ASTM D 1505)					GEONET COMPONENT								
Density (g/cm3)	0.952	0.952	0.952								**0.952**	0.000	0.940 min
Carbon Black Content (ASTM D 1603, mod.)					GEONET COMPONENT								
% Carbon Black	2.23	2.24									**2.24**	0.01	2.0 - 3.0
Melt Flow Index (ASTM D 1238, Method A, 190°C / 2.16 kg)					GEONET COMPONENT								
Melt Flow Index (g/10 min)	0.24	0.25									**0.25**		1.0 max
Tensile Properties (ASTM D 7179, 12 ipm strain rate)					GEONET COMPONENT								
MD Max. Strength (ppi)	76	74	70	68	77						**73**	4	45 min
MD Elong. @ Max. Strength (%)	25	22	24	24	24						**23**	1	

MD Machine Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: OWL Landfill Cell 1B

Material: Solmax FS2-200E-10-10-LC-00 Double Sided Geocomposite
Sample Identification: 0116-004301
TRI Log #: 63775

GEOTEXTILE - SIDE A

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Mass/Unit Area (ASTM D 5261)													
5" diameter Circle - Mass (g)	4.85	4.89	4.59	4.61	4.78	5.89	4.75	4.65	4.30	4.48	**4.78**	0.43	
Mass/Unit Area (oz/sq.yd)	11.28	11.37	10.68	10.72	11.12	13.70	11.05	10.82	10.00	10.42	**11.12**	1.00	9.1 min
Grab Tensile Properties (ASTM D 4632)													
MD - Tensile Strength (lbs)	261	286	285	296	343	332	288	276	258	269	**289**	28	230 min
TD - Tensile Strength (lbs)	340	376	441	366	479	328	439	421	453	433	**408**	51	230 min
MD - Elong. @ Max. Load (%)	71	79	94	91	88	64	85	89	93	84	**84**	10	50 min
TD - Elong. @ Max. Load (%)	94	96	86	86	90	97	87	87	99	85	**91**	5	50 min
Puncture Resistance (ASTM D 4833)													
Puncture Strength (lbs)	134	154	157	181	179						**161**	20	120 min
Trapezoidal Tear (ASTM D 4533)													
MD - Tear Strength (lbs)	144	158	159	159	168	158	145	147	128	147	**151**	11	90 min
TD - Tear Strength (lbs)	237	159	270	222	176	236	265	219	182	165	**213**	41	90 min
Apparent Opening Size (ASTM D 4751)													
Opening Size Diameter (mm)	0.127	0.128	0.123	0.113	0.147						**0.128**	0.012	
Sieve No.	100	100	100	100	100						**100**		80 min
Permittivity (ASTM D 4491,Method C)													
Thickness (mil)	105	108	109	119	117	103	117	122	138	130	**117**	11	
Thickness (mm)	2.67	2.74	2.77	3.02	2.97	2.62	2.97	3.10	3.51	3.30	**2.97**	0.28	
Permittivity (Sec-1)	1.10	1.15	0.99	0.78	1.30	1.04	1.03	0.81	0.94	0.67	**0.98**	0.19	0.9 min
Permittivity (GPM/ft2)	82.3	86.0	74.1	58.3	97.2	77.8	77.0	60.6	70.3	50.1	**73.4**	14.1	
Flow rate (LPM/m2)	3352	3505	3017	2377	3962	3170	3139	2469	2865	2042	**2990**	573	
Permittivity (cm/sec)	0.293	0.315	0.274	0.236	0.386	0.272	0.306	0.251	0.329	0.221	**0.288**	0.049	

MD Machine Direction TD Transverse Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Southwest Liner Systems
Project: OWL Landfill Cell 1B

Material: Solmax FS2-200E-10-10-LC-00 Double Sided Geocomposite
Sample Identification: 0116-004301
TRI Log #: 63775

GEOTEXTILE - SIDE B

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Mass/Unit Area (ASTM D 5261)													
5" diameter Circle - Mass (g)	5.52	4.32	5.00	4.67	4.81	4.52	4.71	3.83	3.81	4.10	**4.53**	0.53	
Mass/Unit Area (oz/sq.yd)	12.84	10.05	11.63	10.86	11.19	10.51	10.96	8.91	8.86	9.54	**10.53**	1.24	9.1 min
Grab Tensile Properties (ASTM D 4632)													
MD - Tensile Strength (lbs)	250	296	254	269	329	393	268	265	314	321	**296**	44	230 min
TD - Tensile Strength (lbs)	310	369	289	324	412	274	421	407	404	375	**358**	55	230 min
MD - Elong. @ Max. Load (%)	81	81	85	101	85	86	79	83	94	88	**86**	7	50 min
TD - Elong. @ Max. Load (%)	85	85	95	97	97	99	89	87	91	80	**90**	6	50 min
Puncture Resistance (ASTM D 4833)													
Puncture Strength (lbs)	157	100	239	155	216						**173**	55	120 min
Trapezoidal Tear (ASTM D 4533)													
MD - Tear Strength (lbs)	127	122	139	157	132	147	171	147	161	126	**143**	17	90 min
TD - Tear Strength (lbs)	236	215	162	194	159	258	180	185	175	164	**193**	34	90 min
Apparent Opening Size (ASTM D 4751)													
Opening Size Diameter (mm)	0.130	0.121	0.141	0.145	0.134						**0.134**	0.009	
Sieve No.	100	100	100	100	100						**100**		80 min
Permittivity (ASTM D 4491,Method C)													
Thickness (mil)	113	112	103	102	115	122	121	114	101	116	**112**	8	
Thickness (mm)	2.87	2.84	2.62	2.59	2.92	3.10	3.07	2.90	2.57	2.95	**2.84**	0.19	
Permittivity (Sec-1)	1.11	0.95	1.37	1.50	1.11	0.97	0.96	1.10	1.45	1.01	**1.15**	0.21	0.9 min
Permittivity (GPM/ft2)	83.0	71.1	102.5	112.2	83.0	72.6	71.8	82.3	108.5	75.5	**86.2**	15.7	
Flow rate (LPM/m2)	3383	2895	4175	4572	3383	2956	2926	3352	4419	3078	**3514**	638	
Permittivity (cm/sec)	0.319	0.270	0.358	0.389	0.324	0.301	0.295	0.319	0.372	0.298	**0.324**	0.038	

MD Machine Direction TD Transverse Direction

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TRI ENVIRONMENTAL

TESTING, RESEARCH, CONSULTING AND FIELD SERVICES

Austin, TX - USA | CA - USA | SC - USA | Gold Coast - Australia | Suzhou - China | Sao Paulo, Brazil | Johannesburg - Africa

November 16, 2021

Mail To:

Tyler Krueger
Parkhill Smith & Cooper
4222 85th Street
Lubbock, TX 79422

email: tkrueger@team-psc.com

Bill To:

<= Same

Dear Mr. Krueger:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs.
TRI is pleased to submit this final report of the laboratory testing for the sample(s) listed below.

Project:	**Owl Cell 3AB**
TRI Job Reference Number:	68007
Material(s) Tested:	Two, Solmax FS1-200E-10-00-FA-00 Single sided Geocomposite(s)
Test(s) Requested:	Transmissivity (ASTM D 4716) - GC Peel Strength (ASTM D 7005) - GC Transmissivity (ASTM D 4716) - GN Mass/Unit Area (ASTM D 5261) - GN Thickness (ASTM D 5199) - GN Density (ASTM D 1505) - GN Carbon Black Content (ASTM D 1603, mod.) - GN Melt Flow Index (ASTM D 1238, Method A, 190°C / 2.16 kg) Tensile Properties (ASTM D 7179, 12 ipm strain rate) - GN Mass/Unit Area (ASTM D 5261) - GT Grab Tensile (ASTM D 4632) - GT Puncture Strength (ASTM D 4833) - GT Trapezoidal Tear (ASTM D 4533) - GT Apparent Opening Size (ASTM D 4751) - GT Permittivity (ASTM D 4491) - GT

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

Sincerely,

Jarrett A. Nelson

Jarrett A. Nelson
Technical Director
Geosynthetic Services Division

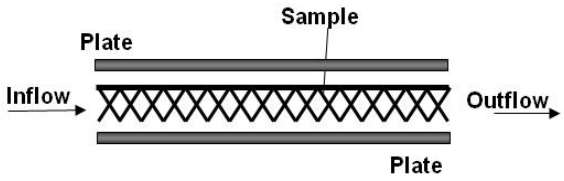
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GEOCOMPOSITE TEST RESULTS
TRI Client: Parkhill Smith & Cooper
Project: Owl Cell 3AB

Material: Solmax FS1-200E-10-00-FA-00 Single sided Geocomposite
Sample Identification: 0116-009681
TRI Log #: 68007

PARAMETER		TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
		1	2	3	4	5	6	7	8	9	10			
Hydraulic Transmissivity (ASTM D 4716)														
Direction Tested: Machine Direction														
Normal Load (psf):	10,000													
Hydraulic Gradient:	0.1													
Test Length (in)	12													
Test Width (in)	12													
Plate / Sample / Plate														
Seat Time (hours)	Specimen			1			2							
	Volume (cc)		881	877	872	984	965	967						
	Time (s)		10.44	10.40	10.46	10.56	10.34	10.32						
	Flow Rate (GPM/ft width)		1.36	1.36	1.35	1.60	1.60	1.61				**1.48**	0.13	
0.25	Transmissivity (m^2/s)		2.82E-03	2.82E-03	2.79E-03	3.31E-03	3.32E-03	3.33E-03				**3.07E-03**	2.79E-04	1.00E-04
	Transmissivity (GPM/ft)		13.6	13.6	13.5	16.0	16.0	16.1				**14.8**	1.3	0.5 min
	Test Temp (C)			19.3			16.5							
	Temp. Corr. Factor			1.020			1.083							
Peel Strength (ASTM D 7005)														
A - MD Average Peel Strength (ppi)		5.70	2.77	2.32	3.92	5.67						**4.08**	1.58	1.0 min
A - MD Average Peel Strength (g/in)		2588	1258	1053	1780	2574						**1851**	718	



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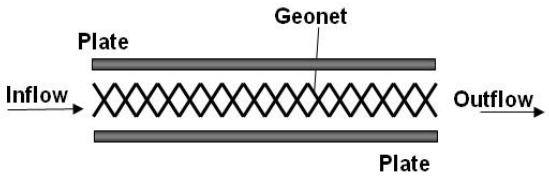
GEOCOMPOSITE TEST RESULTS
TRI Client: Parkhill Smith & Cooper
Project: Owl Cell 3AB

Material: Solmax FS1-200E-10-00-FA-00 Single sided Geocomposite
Sample Identification: 0116-009681
TRI Log #: 68007

GEONET COMPONENT

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Hydraulic Transmissivity (ASTM D 4716)													
Direction Tested: Machine Direction													
Normal Load (psf): 10,000													
Hydraulic Gradient: 0.1													
Test Length (in) 12													
Test Width (in) 12													
Plate / GN Sample / Plate													
Seat Time (hours)	Specimen		1			2							
Volume (cc)		839	823	815	767	767	772						
Time (s)		5.49	5.43	5.35	5.36	5.37	5.43						
0.25 Flow Rate (GPM/ft width)		2.45	2.43	2.44	2.30	2.29	2.28				**2.37**	0.08	
0.25 Transmissivity (m^2/s)		5.08E-03	5.04E-03	5.06E-03	4.76E-03	4.75E-03	4.72E-03				**4.90E-03**	1.74E-04	2.00E-03
Test Temp (C)			19.6			19.6							
Temp. Corr. Factor			1.013			1.013							
Thickness (ASTM D 5199)													
Thickness (mils)	222	226	224	228	232	226	229	225	228	223	**226**	3	200 min
											222	<< min	
Mass/Unit Area (ASTM D 5261)													
5" diameter Circle - Mass (g)	10.80	10.91	11.05	10.82	10.52	11.08	11.40	10.83	11.40	10.93			
Mass/unit area (lbs./sq.ft)	0.17	0.18	0.18	0.18	0.17	0.18	0.18	0.18	0.18	0.18	**0.18**	0.00	0.16 min
Density (ASTM D 1505)													
Density (g/cm3)	0.958	0.958	0.958								**0.958**	0.000	0.940 min
Carbon Black Content (ASTM D 1603, mod.)													
% Carbon Black	2.50	2.54									**2.52**	0.03	2.0 - 3.0
Melt Flow Index (ASTM D 1238, Method A, 190°C / 2.16 kg)													
Melt Flow Index (g/10 min)	0.46	0.46									**0.46**	0.00	1.0 max
Tensile Properties (ASTM D 7179, 12 ipm strain rate)													
MD Max. Strength (ppi)	83	79	82	84	77						**81**	3	45 min
MD Elong. @ Max. Strength (%)	22	20	21	22	18						**20**	2	

MD Machine Direction



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GEOCOMPOSITE TEST RESULTS
TRI Client: Parkhill Smith & Cooper
Project: Owl Cell 3AB

Material: Solmax FS1-200E-10-00-FA-00 Single sided Geocomposite
Sample Identification: 0116-009681
TRI Log #: 68007

GEOTEXTILE COMPONENT

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Mass/Unit Area (ASTM D 5261)													
5" diameter Circle - Mass (g)	5.56	4.87	5.23	5.43	5.42	5.29	5.55	4.88	5.52	6.23	**5.40**	0.39	
Mass/Unit Area (oz/sq.yd)	12.93	11.33	12.16	12.63	12.61	12.30	12.91	11.35	12.84	14.49	**12.56**	0.90	9.1 min
Grab Tensile Properties (ASTM D 4632)													
MD - Tensile Strength (lbs)	321	300	315	285	299	365	285	254	341	300	**306**	31	230 min
TD - Tensile Strength (lbs)	457	489	438	541	431	451	372	351	406	332	**427**	64	230 min
MD - Elong. @ Max. Load (%)	99	98	87	91	85	95	79	82	99	65	**88**	11	50 min
TD - Elong. @ Max. Load (%)	87	90	90	95	83	85	91	87	103	82	**89**	6	50 min
Puncture Resistance (ASTM D 4833)													
Puncture Strength (lbs)	214	187	207	212	189						**202**	13	120 min
Trapezoidal Tear (ASTM D 4533)													
MD - Tear Strength (lbs)	188	194	164	177	143	140	183	123	130	127	**157**	27	90 min
TD - Tear Strength (lbs)	166	217	218	221	256	169	162	163	196	200	**197**	32	90 min
Apparent Opening Size (ASTM D 4751)													
Opening Size Diameter (mm)	0.122	0.144	0.121	0.110	0.118						**0.123**	0.013	
Sieve No.	100	100	100	100	100						**100**		80 max
Permittivity (ASTM D 4491,Method C)													
Thickness (mil)	122	110	129	136	133	133	115	126	126	120	**125**	8	
Thickness (mm)	3.10	2.79	3.28	3.45	3.38	3.38	2.92	3.20	3.20	3.05	**3.18**	0.21	
Permittivity (Sec-1)	0.86	1.26	0.79	0.63	0.68	0.66	1.13	0.77	0.82	0.96	**0.9**	0.2	0.9 min
Permittivity (GPM/ft2)	64.3	94.2	59.1	47.1	50.9	49.4	84.5	57.6	61.3	71.8	**64.0**	15.4	
Flow rate (LPM/m2)	2621	3840	2408	1920	2072	2011	3444	2347	2499	2926	**2609**	628	
Permittivity (cm/sec)	0.266	0.352	0.259	0.218	0.230	0.223	0.330	0.246	0.262	0.293	**0.268**	0.045	

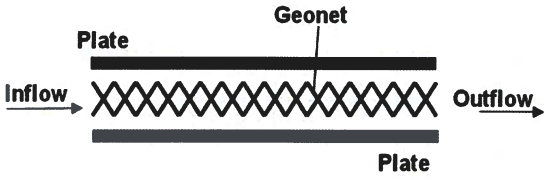
MD Machine Direction TD Transverse Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Parkhill Smith & Cooper
Project: Owl Cell 3AB

Material: Solmax FS1-200E-10-00-FA-00 Single sided Geocomposite
Sample Identification: 0116-010051
TRI Log #: 68007

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.	PROJ. SPEC.
Peel Strength (ASTM D 7005)													
A - MD Average Peel Strength (ppi)	8.20	7.71	6.64	6.57	6.15						7.05	0.86	1.0 min
A - MD Average Peel Strength (g/in)	3723	3500	3015	2983	2792						3203	391	
Hydraulic Transmissivity (ASTM D 4716)					GEONET COMPONENT								
Direction Tested: Machine Direction													
Normal Load (psf):	10,000												
Hydraulic Gradient:	0.1												
Test Length (in)	12												
Test Width (in)	12												
Plate / GN Sample / Plate													
Seat Time (hours)	Specimen		1			2							
	Volume (cc)	802	793	808	879	885	878						
	Time (s)	5.37	5.37	5.58	5.37	5.46	5.41						
0.25	Flow Rate (GPM/ft width)	2.39	2.36	2.31	2.61	2.59	2.59				2.48	0.14	
	Transmissivity (m^2/s)	4.94E-03	4.89E-03	4.79E-03	5.41E-03	5.36E-03	5.37E-03				5.13E-03	2.83E-04	2.00E-03
	Test Temp (C)		19.8			19.8							
	Temp. Corr. Factor		1.008			1.008							
Thickness (ASTM D 5199)					GEONET COMPONENT								
Thickness (mils)	224	227	234	232	232	235	236	234	234	231	232	4	200 min
											224	<< min	
Mass/Unit Area (ASTM D 5261)					GEONET COMPONENT								
5" diameter Circle - Mass (g)	11.00	11.06	11.46	11.40	11.39	11.28	11.76	11.77	11.71	11.70			
Mass/unit area (lbs./sq.ft)	0.18	0.18	0.19	0.18	0.18	0.18	0.19	0.19	0.19	0.19	0.19	0.00	0.16 min
Density (ASTM D 1505)					GEONET COMPONENT								
Density (g/cm3)	0.955	0.955	0.955								0.955	0.000	0.940 min
Carbon Black Content (ASTM D 1603, mod.)					GEONET COMPONENT								
% Carbon Black	2.59	2.57									2.58	0.01	2.0 - 3.0
Melt Flow Index (ASTM D 1238, Method A, 190°C / 2.16 kg)					GEONET COMPONENT								
Melt Flow Index (g/10 min)	0.47	0.46									0.47	0.01	1.0 max
Tensile Properties (ASTM D 7179, 12 ipm strain rate)					GEONET COMPONENT								
MD Max. Strength (ppi)	73	72	64	71	70						70	4	45 min
MD Elong. @ Max. Strength (%)	21	19	20	15	21						19	2	



MD Machine Direction TD Transverse Direction

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GEOCOMPOSITE TEST RESULTS
TRI Client: Parkhill Smith & Cooper
Project: Owl Cell 3AB

Material: Solmax FS1-200E-10-00-FA-00 Single sided Geocomposite
Sample Identification: 0116-010051
TRI Log #: 68007

GEOTEXTILE COMPONENT

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Mass/Unit Area (ASTM D 5261)													
5" diameter Circle - Mass (g)	5.70	5.13	6.02	5.53	5.67	5.40	5.13	4.91	4.78	4.92	5.32	0.41	
Mass/Unit Area (oz/sq.yd)	13.26	11.93	14.00	12.86	13.19	12.56	11.93	11.42	11.12	11.44	12.37	0.95	9.1 min
Grab Tensile Properties (ASTM D 4632)													
MD - Tensile Strength (lbs)	285	288	298	293	320	331	225	310	250	289	289	31	230 min
TD - Tensile Strength (lbs)	389	465	469	412	366	384	444	403	391	440	416	36	230 min
MD - Elong. @ Max. Load (%)	79	91	79	93	88	87	79	83	117	84	88	11	50 min
TD - Elong. @ Max. Load (%)	82	91	88	94	83	92	87	87	95	92	89	4	50 min
Puncture Resistance (ASTM D 4833)													
Puncture Strength (lbs)	247	204	190	173	180						199	30	120 min
Trapezoidal Tear (ASTM D 4533)													
MD - Tear Strength (lbs)	157	136	121	155	129	201	156	140	116	128	144	25	90 min
TD - Tear Strength (lbs)	158	201	154	225	199	246	213	153	185	219	195	32	90 min

MD Machine Direction TD Transverse Direction

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

Received by OCD: 7/6/2022 9:49:18 AM

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Parkhill

APPENDIX C: CELL 3 A/B LINER INSTALLATION DOCUMENTATION

C.1 GCL Inventory Control Log

Parkhill

333 Rio Rancho Blvd. NE, Suite 400
Rio Rancho, New Mexico 87124
505.867.6990

GCL INVENTORY CONTROL LOG

PROJECT NAME: OWL,Landfill
PROJECT NUMBER: 6759-21
CLIENT: OWL
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 1
MATERIAL MANUFACTURER: Solmax
MONITOR: Karl Ruiz/Tyler Krueger

ROLL NUMBER	LOT NO.	LENGTH (FT)	WIDTH (FT)	AREA (FT^2)	MANUF. QC CERT (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
0242361867	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361858	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361861	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361862	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361866	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361864	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361737	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361736	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361738	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361865	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361859	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361853	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361852	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
242361728	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361854	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361851	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361845	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361766	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361770	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361727	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361729	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361757	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361773	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361851	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361860	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361848	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361765	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361774	1109263-10668-6	150	15.5	2,325.0	Y	Y	5/14/21
0242361756	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361765	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361724	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361851	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361756	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361763	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361760	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361734	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21
0242361863	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/21

Parkhill

333 Rio Rancho Blvd. NE, Suite 400
Rio Rancho, New Mexico 87124
505.867.6990

GCL INVENTORY CONTROL LOG

PROJECT NAME: OWL,Landfill
PROJECT NUMBER: 6759-21
CLIENT: OWL
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 1

MATERIAL MANUFACTURER: Solmax
MONITOR: Karl Ruiz/Tyler Krueger

ROLL NUMBER	LOT NO.	LENGTH (FT)	WIDTH (FT)	AREA (FT^2)	MANUF. QC CERT (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
0242361857	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/2021
0242361731	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/2021
0242361732	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/2021
0242361777	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/2021
0242361856	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/2021
0242361857	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/2021
0242361850	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/2021
0242361768	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/2021
0242361735	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/2021
0242361769	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/2021
0242361730	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/2021
0242361733	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/2021
0242361762	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/2021
0242361726	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/2021
0242361759	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/2021
0242361842	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/2021
0242361841	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/2021
0242361844	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/2021
0242361846	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/2021
0242361843	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/2021
0242361849	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/2021
0242361813	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/2021
0242361811	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/2021
0242361838	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/2021
0242361753	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/2021
0242361751	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/2021
0242361747	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/2021
0242361832	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/2021
0242361840	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/2021
0242361835	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/2021
0242361834	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/2021
0242361750	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/2021
0242361833	1109263-10668-6	150	15.5	2,325.0	Y	N	5/14/2021

Parkhill

333 Rio Rancho Blvd. NE, Suite 400
Rio Rancho, New Mexico 87124
505.867.6990

GCL INVENTORY CONTROL LOG

PROJECT NAME: OWL,Landfill
PROJECT NUMBER: 6759-21
CLIENT: OWL
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 1

MATERIAL MANUFACTURER: Solmax
MONITOR: Karl Ruiz/Tyler Krueger

ROLL NUMBER	LOT NO.	LENGTH (FT)	WIDTH (FT)	AREA (FT^2)	MANUF. QC CERT (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
0242361772	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361810	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361749	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361746	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361836	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361755	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361740	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361812	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361739	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361767	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361776	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361771	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361775	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361761	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361764	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361747	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361758	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361748	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361771	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361767	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361758	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361739	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361747	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361764	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361761	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361775	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361776	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361740	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361812	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361799	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361806	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361781	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361807	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361742	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361800	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361752	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361839	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021

Parkhill

333 Rio Rancho Blvd. NE, Suite 400
Rio Rancho, New Mexico 87124
505.867.6990

GCL INVENTORY CONTROL LOG

PROJECT NAME: OWL,Landfill
PROJECT NUMBER: 6759-21
CLIENT: OWL
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 1

MATERIAL MANUFACTURER Solmax
MONITOR: Karl Ruiz/Tyler Krueger

ROLL NUMBER	LOT NO.	LENGTH (FT)	WIDTH (FT)	AREA (FT^2)	MANUF. QC CERT (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
0242361754	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361744	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361808	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361755	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361805	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361837	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361743	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361795	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361808	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361783	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361798	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361745	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361803	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361804	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242370613	1093021C	150	15.5	2325.0	Y	N	5/14/2021
0242361809	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242360587	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361797	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242361801	1109263-10668-6	150	15.5	2325.0	Y	N	5/14/2021
0242360614	1093021C	150	15.5	2325.0	Y	N	5/14/2021
0242360606	1093021C	150	15.5	2325.0	Y	N	5/14/2021
0242360605	1093021C	150	15.5	2325.0	Y	N	5/14/2021
0242360591	1093021C	150	15.5	2325.0	Y	N	5/14/2021
0242360612	1093021C	150	15.5	2325.0	Y	N	5/14/2021
0242360586	1093021C	150	15.5	2325.0	Y	N	5/14/2021
0242361802	1093021C	150	15.5	2325.0	Y	N	5/14/2021
0242360587	1093021C	150	15.5	2325.0	Y	N	5/14/2021
0242360599	1093021C	150	15.5	2325.0	Y	N	5/14/2021
0242360602	1093021C	150	15.5	2325.0	Y	N	5/14/2021
0242361748	1093021C	150	15.5	2325.0	Y	N	5/14/2021
0242360615	1093021C	150	15.5	2325.0	Y	N	5/14/2021
0242360589	1093021C	150	15.5	2325.0	Y	Y	5/14/2021
0242360600	1093021C	150	15.5	2325.0	Y	N	5/14/2021

Parkhill

333 Rio Ra
NE
Rio Ra
Me
505

GCL INVENTORY CONTROL LOG

PROJECT NAME: OWL,Landfill
PROJECT NUMBER: 6759-21
CLIENT: OWL
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 1

MATERIAL MANUFACTURER Solmax
MONITOR: Karl Ruiz/Tyler Krueger

ROLL NUMBER	LOT NO.	LENGTH (FT)	WIDTH (FT)	AREA (FT^2)	MANUF. QC CERT (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
0242370595	1093021C	150	15.5	2325.0	Y	N	10/18/2022
0242370608	1093021C	150	15.5	2325.0	Y	N	10/18/2022
0242370598	1093021C	150	15.5	2325.0	Y	N	10/18/2022
0242370596	1093021C	150	15.5	2325.0	Y	N	10/18/2022
0242370590	1093021C	150	15.5	2325.0	Y	N	10/18/2022
0242370592	1093021C	150	15.5	2325.0	Y	N	10/18/2022
0242370593	1093021C	150	15.5	2325.0	Y	N	10/18/2022
0242370597	1093021C	150	15.5	2325.0	Y	N	10/18/2022
0242370604	1093021C	150	15.5	2325.0	Y	N	10/18/2022
0242370594	1093021C	150	15.5	2325.0	Y	N	10/18/2022
0242370588	1093021C	150	15.5	2325.0	Y	N	10/18/2022
0242370607	1093021C	150	15.5	2325.0	Y	N	10/18/2022
0242370603	1093021C	150	15.5	2325.0	Y	N	10/18/2022
0242370616	1093021C	150	15.5	2325.0	Y	N	10/18/2022
0242370601	1093021C	150	15.5	2325.0	Y	N	10/18/2022
0242370613	1093021C	150	15.5	2325.0	Y	N	10/18/2022
0242370611	1093021C	150	15.5	2325.0	Y	N	10/18/2022
0242361748	1093021C	150	15.5	2325.0	Y	N	10/18/2022

Parkhill

APPENDIX C: CELL 3 A/B LINER INSTALLATION DOCUMENTATION

C.2 Geonet Inventory Control Log

Parkhill

333 Rio Rancho Blvd. NE, Suite 400
Rio Rancho, New Mexico 87124
505.867.6990

GEONET INVENTORY LOG

PROJECT NAME: OWL, Landfill
CLIENT: OWL Landfill Services, LLC
PROJECT LOCATION: Lea County, New Mexico

PROJECT NUMBER: 6759-21
CONTRACTOR: Mustang Extreme
SHEET NUMBER:

MANUFACTURER: SOLMAX/SKAPS

MONITOR: Karl Ruiz/Tyler Krueger

ROLL NUMBER	LOT NO.	LENGTH (FT)	WIDTH (FT)	THICKNESS	MANUF. QC CERT. (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
0116003109	D664L19L4B	330	15	200 MIL	Y	N	5/15/21
0116003094	D664L19L4B	330	15	200 MIL	Y	Y	5/15/21
0116003126	D664L19L4B	330	15	200 MIL	Y	N	5/15/21
0116003125	D664L19L4B	330	15	200 MIL	Y	N	5/15/21
0116003110	D664L19L4B	330	15	200 MIL	Y	N	5/15/21
0116003190	D664L19L4B	330	15	200 MIL	Y	N	5/15/21
0116003117	D664L19L4B	330	15	200 MIL	Y	N	5/15/21
0116003127	D664L19L4B	330	15	200 MIL	Y	N	5/15/21
0116003135	D664L19L4B	330	15	200 MIL	Y	N	5/15/21
0116003237	D664L19L4B	330	15	200 MIL	Y	N	5/15/21
0116003108	D664L19L4B	330	15	200 MIL	Y	N	5/15/21
0116003115	D664L19L4B	330	15	200 MIL	Y	N	5/15/21
0116003111	D664L19L4B	330	15	200 MIL	Y	N	5/15/21
0116003102	D664L19L4B	330	15	200 MIL	Y	N	5/15/21
0116003121	D664L19L4B	330	15	200 MIL	Y	N	5/15/21
0116003188	D664L19L4B	330	15	200 MIL	Y	N	5/15/21
0116003119	D664L19L4B	330	15	200 MIL	Y	Y	5/15/21
0116003333	D664L19L4B	330	15	200 MIL	Y	N	5/15/21
0116003407	D664L19L4B	330	15	200 MIL	Y	N	5/15/21
0116003189	D664L19L4B	330	15	200 MIL	Y	N	5/15/21
0116003236	D664L19L4B	330	15	200 MIL	Y	N	5/15/21
0116003332	D664L19L4B	330	15	200 MIL	Y	Y	5/15/21
0116003122	D664L19L4B	330	15	200 MIL	Y	N	5/15/21
0116003224	D664L19L4B	330	15	200 MIL	Y	N	5/15/21
0116003406	D664L19L4B	330	15	200 MIL	Y	N	5/15/21
0116003118	D664L19L4B	330	15	200 MIL	Y	N	5/15/21
0116003334	D664L19L4B	330	15	200 MIL	Y	N	5/15/21
0116003408	D664L19L4B	330	15	200 MIL	Y	N	5/15/21
0116003129	D664L19L4B	330	15	200 MIL	Y	N	5/15/21
0116003123	D664L19L4B	330	15	200 MIL	Y	N	5/15/21
09202100002309	EQUX 621209	300	14.5	200 MIL	Y	N	10/18/21
10202100002335	EQUX 621209	300	14.5	200 MIL	Y	N	10/18/21
10202100002336	EQUX 621209	300	14.5	200 MIL	Y	N	10/18/21
10202100002227	EQUX 621209	300	14.5	200 MIL	Y	N	10/18/21
10202100002301	EQUX 621209	300	14.5	200 MIL	Y	N	10/18/21
10202100002338	EQUX 621209	300	14.5	200 MIL	Y	N	10/18/21
10202100002275	EQUX 621209	300	14.5	200 MIL	Y	N	10/18/21
10202100002324	EQUX 621209	300	14.5	200 MIL	Y	N	10/18/21
10202100002303	EQUX 621209	300	14.5	200 MIL	Y	N	10/18/21
10202100002365	EQUX 621209	300	14.5	200 MIL	Y	N	10/18/21
10202100002302	EQUX 621209	300	14.5	200 MIL	Y	N	10/18/21
10202100002328	EQUX 621209	300	14.5	200 MIL	Y	N	10/18/21
10202100002304	EQUX 621209	300	14.5	200 MIL	Y	N	10/18/21
10202100002316	EQUX 621209	300	14.5	200 MIL	Y	N	10/18/21
10202100002323	EQUX 621209	300	14.5	200 MIL	Y	N	10/18/21
10202100002367	EQUX 621209	300	14.5	200 MIL	Y	N	10/18/21
10202100002332	EQUX 621209	300	14.5	200 MIL	Y	N	10/18/21
10202100002223	EQUX 621209	300	14.5	200 MIL	Y	Y	10/18/21
10202100002044	EQUX 621209	300	14.5	200 MIL	Y	N	10/18/21
10202100002255	EQUX 621209	300	14.5	200 MIL	Y	N	10/18/21
10202100002327	EQUX 621209	300	14.5	200 MIL	Y	N	10/18/21
10202100002269	EQUX 621209	300	14.5	200 MIL	Y	N	10/18/21
10202100002307	EQUX 621209	300	14.5	200 MIL	Y	N	10/18/21
10202100002368	EQUX 621209	300	14.5	200 MIL	Y	N	10/18/21
10202100002268	EQUX 621209	300	14.5	200 MIL	Y	N	10/18/21

Parkhill

APPENDIX C: CELL 3 A/B LINER INSTALLATION DOCUMENTATION

C.3 FML Inventory Control Log

Parkhill

333 Rio Rancho Blvd. NE, Suite 400
Rio Rancho, New Mexico 87124
505.867.6990

FML DEPLOYMENT LOG

PROJECT NAME: OWL, Landfill
CLIENT: OWL
PROJECT LOCATION: Lea County, New Mexico

PROJECT NUMBER: 6759-21
CONTRACTOR: Mustang Extreme
SHEET NUMBER:

MANUFACTURER: Solmax

MONITOR: Karl Ruiz/Tyler Krueger

ROLL NUMBER	LOT NO.	LENGTH (FT)	WIDTH (FT)	AREA (FT^2)	MANUF. QC CERT. (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
0102200287	20J1251	560	22.5	12,600.0	Y	N	4/26/21
0102200299	20J1251	560	22.5	12,600.0	Y	N	4/26/21
0102200303	20J1251	560	22.5	12,600.0	Y	N	4/26/21
0102200306	20J1251	560	22.5	12,600.0	Y	N	4/26/21
0102200310	20J1251	560	22.5	12,600.0	Y	N	4/26/21
0102200311	20J1251	560	22.5	12,600.0	Y	N	4/26/21
0102200312	20J1251	560	22.5	12,600.0	Y	N	4/26/21
0102200314	20J1251	560	22.5	12,600.0	Y	Y	4/26/21
0102200315	20J1251	560	22.5	12,600.0	Y	N	4/26/21
0102200321	PMN820680	560	22.5	12,600.0	Y	N	4/26/21
0102200322	PMN820680	560	22.5	12,600.0	Y	N	4/26/21
0105205059	PNJ610230	560	22.5	12,600.0	Y	N	4/26/21
0105205067	PNJ610230	560	22.5	12,600.0	Y	N	4/26/21
0105205068	PNJ610330	560	22.5	12,600.0	Y	Y	4/26/21
0108207242	PMN820680	560	22.5	12,600.0	Y	N	4/26/21
0108207243	PMN820680	560	22.5	12,600.0	Y	N	4/26/21
0108207247	PMN820680	560	22.5	12,600.0	Y	N	4/26/21
0108207249	PMN820680	560	22.5	12,600.0	Y	N	4/26/21
0108207250	PMN820680	560	22.5	12,600.0	Y	N	4/26/21
0108207251	PMN820680	560	22.5	12,600.0	Y	Y	4/26/21
0108207252	PMN820680	560	22.5	12,600.0	Y	N	4/26/21
0108207257	D661L3PL3C	560	22.5	12,600.0	Y	N	4/26/21
0108207258	D661L3PL3C	560	22.5	12,600.0	Y	Y	4/26/21
0108207259	D661L3PL3C	560	22.5	12,600.0	Y	N	4/26/21
0108207260	D661L3PL3C	560	22.5	12,600.0	Y	N	4/26/21
0108207261	D661L3PL3C	560	22.5	12,600.0	Y	N	4/26/21
0108207270	D661L3PL3C	560	22.5	12,600.0	Y	N	4/26/21
0108207273	D661L3PL3C	560	22.5	12,600.0	Y	N	4/26/21
0108207275	D661L3PL3C	560	22.5	12,600.0	Y	N	4/26/21
0108207288	D661L3PL3C	560	22.5	12,600.0	Y	N	4/26/21
0108207289	D661L3PL3C	560	22.5	12,600.0	Y	Y	4/26/21
0108207290	D661L3PL3C	560	22.5	12,600.0	Y	N	4/26/21
0108207291	D661L3PL3C	560	22.5	12,600.0	Y	N	4/26/21
1052005083	PNJ610330	560	22.5	12,600.0	Y	N	

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FML DEPLOYMENT LOG

PROJECT NAME: OWL, Landfill
CLIENT: OWL
PROJECT LOCATION: Lea County, New Mexico

PROJECT NUMBER: 6759-21
CONTRACTOR: Mustang Extreme
SHEET NUMBER:

MANUFACTURER: Solmax

MONITOR: Karl Ruiz/Tyler Krueger

ROLL NUMBER	LOT NO.	LENGTH (FT)	WIDTH (FT)	AREA (FT^2)	MANUF. QC CERT. (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
0102200288	20J1251	560	22.5	12,600.0	Y	N	4/26/21
0102200294	20J1251	560	22.5	12,600.0	Y	Y	4/26/21
0105205056	PNJ610230	560	22.5	12,600.0	Y	N	4/26/21
0105205057	PNJ610230	560	22.5	12,600.0	Y	N	10/6/21
0105205058	PNJ610230	560	22.5	12,600.0	Y	N	10/6/21
0105205060	PNJ610230	560	22.5	12,600.0	Y	N	10/6/21
0105205061	PNJ610230	560	22.5	12,600.0	Y	N	10/6/21
0105205062	PNJ610230	560	22.5	12,600.0	Y	N	10/6/21
0105205063	PNJ610230	560	22.5	12,600.0	Y	N	10/6/21
0105205072	PNJ610330	560	22.5	12,600.0	Y	N	10/6/21
0105205073	PNJ610330	560	22.5	12,600.0	Y	N	10/6/21
0105205074	PNJ610330	560	22.5	12,600.0	Y	N	10/6/21
0105205075	PNJ610330	560	22.5	12,600.0	Y	N	10/6/21
0105205076	PNJ610330	560	22.5	12,600.0	Y	N	10/6/21
0105205077	PNJ610330	560	22.5	12,600.0	Y	N	10/6/21
0105205078	PNJ610330	560	22.5	12,600.0	Y	N	10/6/21
0105205079	PNJ610330	560	22.5	12,600.0	Y	N	10/6/21
0105205081	PNJ610330	560	22.5	12,600.0	Y	N	10/6/21
0105205082	PNJ610330	560	22.5	12,600.0	Y	N	10/6/21
0105205083	PNJ610330	560	22.5	12,600.0	Y	N	10/6/21
0105205084	PNJ610330	560	22.5	12,600.0	Y	Y	10/6/21
0105205064	PNJ610230	560	22.5	12,600.0	Y	N	10/6/21
0108207239	PMN820680	560	22.5	12,600.0	Y	N	4/26/21
0108207244	PMN820680	560	22.5	12,600.0	Y	Y	4/26/21
0108207246	PMN820680	560	22.5	12,600.0	Y	N	4/26/21

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APPENDIX C: CELL 3 A/B LINER INSTALLATION DOCUMENTATION

C.4 Geocomposite Inventory Control Log

Parkhill

333 Rio Rancho Blvd. NE, Suite 400
Rio Rancho, New Mexico 87124
505.867.6990

GEOCOMPOSITE DEPLOYMENT LOG

PROJECT NAME:	OWL,Landfill	**PROJECT NUMBER:**	6759-21
CLIENT:	OWL	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	
MATERIAL ID:	Double-sided Fabrinet 200 mil		
MANUFACTURER:	SOLMAX	**MONITOR:**	Karl Ruiz/Tyler Krueger

ROLL NUMBER	LOT NO.	LENGTH (FT)	WIDTH (FT)	AREA (FT^2)	MANUF. QC CERT. (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
0116004176	D625L1N108	232	14.75	3422	Y	N	5/17/21
0116004116	D625L1N108	232	14.75	3422	Y	N	5/17/21
0116004222	D625L1N108	232	14.75	3422	Y	N	5/17/21
0116004211	D625L1N108	232	14.75	3422	Y	N	5/17/21
0116004210	D625L1N108	232	14.75	3422	Y	N	5/17/21
0116004195	D625L1N108	232	14.75	3422	Y	N	5/17/21
0116004199	D625L1N108	232	14.75	3422	Y	N	5/17/21
0116004205	D625L1N108	232	14.75	3422	Y	N	5/17/21
0116004220	D625L1N108	232	14.75	3422	Y	N	5/17/21
0116004202	D625L1N108	232	14.75	3422	Y	N	5/17/21
0116004200	D625L1N108	232	14.75	3422	Y	N	5/17/21
0116004198	D625L1N108	232	14.75	3422	Y	N	5/17/21
0116004207	D625L1N108	232	14.75	3422	Y	N	5/17/21

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Rio Rancho, New Mexico 87124
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GEOCOMPOSITE DEPLOYMENT LOG

PROJECT NAME:	OWL,Landfill	**PROJECT NUMBER:**	6759-21
CLIENT:	OWL	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	
MATERIAL ID:	Single-sided Fabrinet 200 mil		
MANUFACTURER:	SOLMAX	**MONITOR:**	Karl Ruiz/Tyler Krueger

ROLL NUMBER	LOT NO.	LENGTH (FT)	WIDTH (FT)	AREA (FT^2)	MANUF. QC CERT. (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
0116004195	D625L1N108	288	14.75	4248.0	Y	N	5/18/21
0116004192	D625L1N108	288	14.75	4248.0	Y	N	5/18/21
0116004233	D625L1N108	288	14.75	4248.0	Y	N	5/18/21
0116004212	D625L1N108	288	14.75	4248.0	Y	N	5/18/21
0116004193	D625L1N108	288	14.75	4248.0	Y	N	5/18/21
0116004231	D625L1N108	288	14.75	4248.0	Y	N	5/18/21
0116004219	D625L1N108	288	14.75	4248.0	Y	N	5/18/21
0116004201	D625L1N108	288	14.75	4248.0	Y	N	5/18/21
0116004207	D625L1N108	288	14.75	4248.0	Y	N	5/18/21
0116004208	D625L1N108	288	14.75	4248.0	Y	N	5/18/21
0116004194	D625L1N108	288	14.75	4248.0	Y	N	5/18/21
0116004204	D625L1N108	288	14.75	4248.0	Y	N	5/18/21
0116004157	D625L1N108	288	14.75	4248.0	Y	N	5/18/21
0116004179	D625L1N108	288	14.75	4248.0	Y	N	5/18/21
0116004190	D625L1N108	288	14.75	4248.0	Y	N	5/18/21
0116004054	D625L1N108	288	14.75	4248.0	Y	N	5/18/21
0116004090	D625L1N108	288	14.75	4248.0	Y	N	5/18/21
0116004025	D625L1N108	288	14.75	4248.0	Y	N	5/18/21
0116004036	D625L1N108	288	14.75	4248.0	Y	N	5/18/21
0116004105	D625L1N108	288	14.75	4248.0	Y	N	5/18/21
0116004047	D625L1N108	288	14.75	4248.0	Y	N	5/18/21
0116004108	D625L1N108	288	14.75	4248.0	Y	N	5/18/21
0116004117	D625L1N108	288	14.75	4248.0	Y	N	5/18/21
0131576670	D625L1N108	288	14.75	4248.0	Y	N	5/18/21
0116004113	D625L1N108	288	14.75	4248.0	Y	N	5/18/21
0116004052	D625L1N108	288	14.75	4248.0	Y	N	5/18/21
0116004031	D625L1N108	288	14.75	4248.0	Y	N	5/18/21
0116004091	D625L1N108	288	14.75	4248.0	Y	N	5/18/21

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Rio Rancho, New Mexico 87124
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GEOCOMPOSITE DEPLOYMENT LOG

PROJECT NAME:	OWL,Landfill	**PROJECT NUMBER:**	6759-21
CLIENT:	OWL	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	
MATERIAL ID:	Single-sided Fabrinet 200 mil		
MANUFACTURER:	SOLMAX	**MONITOR:**	Karl Ruiz/Tyler Krueger

ROLL NUMBER	LOT NO.	LENGTH (FT)	WIDTH (FT)	AREA (FT^2)	MANUF. QC CERT. (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
0116004106	D625L1N108	288	14.75	#####	Y	N	5/18/21
0116004050	D625L1N108	288	14.75	#####	Y	N	5/18/21
0116004038	D625L1N108	288	14.75	#####	Y	N	5/18/21
0116004024	D625L1N108	288	14.75	#####	Y	N	5/18/21
0116004051	D625L1N108	288	14.75	#####	Y	N	5/18/21
0116004053	D625L1N108	288	14.75	#####	Y	N	5/18/21
0116004025	D625L1N108	288	14.75	#####	Y	N	5/18/21
0116004115	D625L1N108	288	14.75	#####	Y	N	5/18/21
0116004131	D625L1N108	288	14.75	#####	Y	N	5/18/21
0116004022	D625L1N108	288	14.75	#####	Y	Y	5/18/21
0116004040	D625L1N108	288	14.75	#####	Y	N	5/18/21
0116004090	D625L1N108	288	14.75	#####	Y	N	5/18/21
0116004023	D625L1N108	288	14.75	#####	Y	N	5/18/21
0116004083	D625L1N108	288	14.75	#####	Y	N	5/18/21
0116004082	D625L1N108	288	14.75	#####	Y	N	5/18/21
0116004057	D625L1N108	288	14.75	#####	Y	N	5/18/21
0116004048	D625L1N108	288	14.75	#####	Y	N	5/18/21
0116004061	D625L1N108	288	14.75	#####	Y	N	5/18/21
0116004026	D625L1N108	288	14.75	#####	Y	N	5/18/21
0116004043	D625L1N108	288	14.75	#####	Y	N	5/18/21
0116004042	D625L1N108	288	14.75	#####	Y	N	5/18/21
0116004041	D625L1N108	288	14.75	#####	Y	N	5/18/21
0116004062	D625L1N108	288	14.75	#####	Y	N	5/18/21
0116004058	D625L1N108	288	14.75	#####	Y	N	5/18/21
0116004044	D625L1N108	288	14.75	#####	Y	N	5/18/21
0116004063	D625L1N108	288	14.75	#####	Y	N	5/18/21
0116004060	D625L1N108	288	14.75	#####	Y	N	5/18/21
0116004112	D625L1N108	288	14.75	#####	Y	N	5/18/21
0116004118	D625L1N108	288	14.75	#####	Y	N	5/18/21
0116004106	D625L1N108	288	14.75	#####	Y	N	5/18/21

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333 Rio Rancho Blvd. NE, Suite 400
Rio Rancho, New Mexico 87124
505.867.6990

GEOCOMPOSITE DEPLOYMENT LOG

PROJECT NAME:	OWL,Landfill	**PROJECT NUMBER:**	6759-21
CLIENT:	OWL	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	
MATERIAL ID:	Single-sided Fabrinet 200 mil		
MANUFACTURER:	SOLMAX	**MONITOR:**	Karl Ruiz/Tyler Krueger

ROLL NUMBER	LOT NO.	LENGTH (FT)	WIDTH (FT)	AREA (FT^2)	MANUF. QC CERT. (Y/N)	CONFORMANCE SAMPLE (Y/N)	DATE OF INVENTORY
0116010044	21E1340	288	14.75	4248.0	Y	N	10/18/21
0116004036	D625L1N108	288	14.75	4248.0	Y	N	10/18/21
0116009679	21G1308	288	14.75	4248.0	Y	N	10/18/21
0116009680	21G1308	288	14.75	4248.0	Y	N	10/18/21
0116009681	21G1308	288	14.75	4248.0	Y	Y	10/18/21
0116009683	21G1308	288	14.75	4248.0	Y	N	10/18/21
0116009684	21G1308	288	14.75	4248.0	Y	N	10/18/21
0116009688	21G1308	288	14.75	4248.0	Y	N	10/18/21
0116009689	21G1308	288	14.75	4248.0	Y	N	10/18/21
0116009691	21G1308	288	14.75	4248.0	Y	N	10/18/21
0116009692	21G1308	288	14.75	4248.0	Y	N	10/18/21
0116009693	21G1308	288	14.75	4248.0	Y	N	10/18/21
0116009694	21G1308	288	14.75	4248.0	Y	N	10/18/21
0116009695	21G1308	288	14.75	4248.0	Y	N	10/18/21
0116009696	21G1308	288	14.75	4248.0	Y	N	10/18/21
0116009697	21G1308	288	14.75	4248.0	Y	N	10/18/21
0116009698	21G1308	288	14.75	4248.0	Y	N	10/18/21
0116009699	21G1308	288	14.75	4248.0	Y	N	10/18/21
0116009700	21G1308	288	14.75	4248.0	Y	N	10/18/21
0116009702	21G1308	288	14.75	4248.0	Y	N	10/18/21
0116009703	21G1308	288	14.75	4248.0	Y	N	10/18/21
0116010046	21E1340	288	14.75	4248.0	Y	N	10/18/21
0116010049	21E1340	288	14.75	4248.0	Y	N	10/18/21
0116010051	21E1340	288	14.75	4248.0	Y	Y	10/18/21
0116010052	21E1340	288	14.75	4248.0	Y	N	10/18/21
0116010053	21E1340	288	14.75	4248.0	Y	N	10/18/21
0116010055	21E1340	288	14.75	4248.0	Y	N	10/18/21
0116010061	21E1340	288	14.75	4248.0	Y	N	10/18/21

Parkhill

APPENDIX C: CELL 3 A/B LINER INSTALLATION DOCUMENTATION

C.5 Leachate Pipe and Riser Pipe Inventory Control Log

Parkhill

333 Rio Rancho Blvd. NE, Suite 400
Rio Rancho, New Mexico 87124
505.867.6990

LEACHATE COLLECTION AND RISER PIPE INVENTROY CONTROL LOG

PROJECT NAME: OWL, Landfill
CLIENT: OWL Landfill Services, LLC
PROJECT LOCATION: Lea County, New Mexico

PROJECT NUMBER: 6759-21
CONTRACTOR: Mustang Extreme
SHEET NUMBER: 1

MATERIAL TYPE Pipe Inventory

DATE OF INVENTORY: See Below

MATERIAL IDENTIFICATION: See Below
MATERIAL MANUFACTURER: See Below

INVENTORY MONITOR: Karl Ruiz/Tyler Krueger
UNLOADING METHOD Forklift and Sling

EQUIPMENT TYPE	QUANITY	MATERIAL DIMENSIONS			MANUF. QC CERT. (Y/N)	TOTAL LENGTH (FT)	DATE OF INVENTORY
		LENGTH (FT)	DIAMETER (FT)	PIPE SDR			
Solid HDPE	22	40	0.5	14.0	Y	880	10/7/2021
End Cap	1	6	0.5	14.0	N	NA	10/7/2021
Tee	1	6	0.5	14.0	N	NA	10/7/2021
HDPE Blind Flange 6" Thick	1	6	0.5	14.0	N	NA	10/7/2021
Stainless Steel Rod 36"	1	NA	0.5	NA	N	3	10/7/2021
Stainless Steel Nuts	16	NA	0.5	NA	N	NA	10/7/2021
Stainless Steel Washers	16	NA	0.5	NA	N	NA	10/7/2021
Stainless Steel Backup Ring	1	NA	0.5	NA	N	NA	10/7/2021
Neoprene Gasket	1	NA	0.5	NA	N	NA	10/7/2021
6" Rubber Cap	1	NA	0.5	NA	N	NA	10/7/2021

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APPENDIX C: CELL 3 A/B LINER INSTALLATION DOCUMENTATION

C.6 GCL Deployment Log

Parkhill

333 Rio Rancho Blvd. NE, Suite 400
Rio Rancho, New Mexico 87124
505.867.6990

GCL DEPLOYMENT LOG

PROJECT NAME:	OWL,Landfill	**PROJECT NUMBER:**	6759-21
CLIENT:	OWL	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	1
DEPLOYMENT LOCATION:		**MONITOR:**	Karl Ruiz/Tyler Krueger

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
1	0242361867	150	15.5	2,325.0	10/7/21
2	0242361858	150	15.5	2,325.0	10/7/21
3	0242361861	150	15.5	2,325.0	10/7/21
4	0242361862	150	15.5	2,325.0	10/7/21
5	0242361866	150	15.5	2,325.0	10/7/21
6	0242361864	35	15.5	542.5	10/7/21
7	0242361864	115	15.5	1,782.5	10/7/21
8	0242361737	150	15.5	2,325.0	10/7/21
9	0242361736	150	15.5	2,325.0	10/7/21
10	0242361738	150	15.5	2,325.0	10/7/21
11	0242361865	145	15.5	2,247.5	10/7/21
12	0242361859	77	15.5	1,193.5	10/7/21
13	0242361859	73	15.5	1,131.5	10/7/21
14	0242361853	150	15.5	2,325.0	10/7/21
15	0242361852	150	15.5	2,325.0	10/7/21
16	242361728	150	15.5	2,325.0	10/7/21
17	0242361854	150	15.5	2,325.0	10/7/21
18	0242361851	113	15.5	1,751.5	10/7/21
19	0242361845	150	15.5	2,325.0	10/12/21
20	0242361766	142	15.5	2,201.0	10/12/21
21	0242361770	150	15.5	2,325.0	10/12/21
22	0242361727	150	15.5	2,325.0	10/12/21
23	0242361729	150	15.5	2,325.0	10/12/21
24	0242361757	150	15.5	2,325.0	10/12/21
25	0242361773	150	15.5	2,325.0	10/12/21
26	0242361851	8	15.5	124.0	10/12/21
27	0242361860	150	15.5	2,325.0	10/12/21
28	0242361848	150	15.5	2,325.0	10/12/21
29	0242361765	125	15.5	1,937.5	10/12/21
30	0242361774	125	15.5	1,937.5	10/12/21
31	0242361756	125	15.5	1,937.5	10/12/21
32	0242361765	25	15.5	387.5	10/13/21
33	0242361724	25	15.5	387.5	10/13/21
34	0242361851	25	15.5	387.5	10/13/21
35	0242361756	25	15.5	387.5	10/13/21
36	0242361763	150	15.5	2,325.0	10/13/21
37	0242361760	150	15.5	2,325.0	10/13/21
38	0242361734	150	15.5	2,325.0	10/13/21
39	0242361863	86	15.5	1,333.0	10/13/21
40	0242361863	64	15.5	992.0	10/13/21
			TOTAL LINER PLACED (FT^2):	74,136.5	

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GCL DEPLOYMENT LOG

PROJECT NAME:	OWL,Landfill	**PROJECT NUMBER:**	6759-21
CLIENT:	OWL	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	2
DEPLOYMENT LOCATION:		**MONITOR:**	Karl Ruiz/Tyler Krueger

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
41	0242361857	150	15.5	2,325.0	10/13/21
42	0242361731	150	15.5	2,325.0	10/13/21
43	0242361732	150	15.5	2,325.0	10/13/21
44	0242361777	122	15.5	1,891.0	10/13/21
45	0242361777	28	15.5	434.0	10/13/21
46	0242361856	150	15.5	2,325.0	10/13/21
47	0242361857	150	15.5	2,325.0	10/13/21
48	0242361850	150	15.5	2,325.0	10/13/21
49	0242361768	150	15.5	2,325.0	10/13/21
50	0242361735	10	15.5	155.0	10/13/21
51	0242361735	140	15.5	2,170.0	10/13/21
52	0242361769	150	15.5	2,325.0	10/13/21
53	0242361730	150	15.5	2,325.0	10/13/21
54	0242361733	150	15.5	2,325.0	10/13/21
55	0242361762	46	15.5	713.0	10/13/21
56	0242361762	104	15.5	1,612.0	10/13/21
57	0242361726	150	15.5	2,325.0	10/13/21
58	0242361759	150	15.5	2,325.0	10/13/21
59	0242361842	150	15.5	2,325.0	10/13/21
60	0242361841	92	15.5	1,426.0	10/13/21
61	0242361841	58	15.5	899.0	10/13/21
62	0242361844	150	15.5	2,325.0	10/13/21
63	0242361846	150	15.5	2,325.0	10/13/21
64	0242361843	150	15.5	2,325.0	10/13/21
65	0242361849	132	15.5	2,046.0	10/13/21
66	0242361849	18	15.5	279.0	10/13/21
67	0242361813	150	15.5	2,325.0	10/14/21
68	0242361811	150	15.5	2,325.0	10/14/21
69	0242361838	150	15.5	2,325.0	10/14/21
70	0242361753	150	15.5	2,325.0	10/14/21
71	0242361751	28	15.5	434.0	10/14/21
72	0242361751	122	15.5	1,891.0	10/14/21
73	0242361747	150	15.5	2,325.0	10/14/21
74	0242361832	150	15.5	2,325.0	10/14/21
75	0242361840	150	15.5	2,325.0	10/14/21
76	0242361835	72	15.5	1,116.0	10/14/21
77	0242361835	78	15.5	1,209.0	10/14/21
78	0242361834	150	15.5	2,325.0	10/14/21
79	0242361750	150	15.5	2,325.0	10/14/21
80	0242361833	150	15.5	2,325.0	10/14/21
			TOTAL LINER PLACED (FT^2):	76,725.0	

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333 Rio Rancho Blvd. NE, Suite 400
Rio Rancho, New Mexico 87124
505.867.6990

GCL DEPLOYMENT LOG

PROJECT NAME:	OWL,Landfill	**PROJECT NUMBER:**	6759-21
CLIENT:	OWL	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	3
DEPLOYMENT LOCATION:		**MONITOR:**	Karl Ruiz/Tyler Krueger

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
81	0242361772	115	15.5	1,782.5	10/14/21
82	0242361772	35	15.5	542.5	10/14/21
83	0242361810	150	15.5	2,325.0	10/14/21
84	0242361749	150	15.5	2,325.0	10/14/21
85	0242361746	150	15.5	2,325.0	10/14/21
86	0242361836	150	15.5	2,325.0	10/14/21
87	0242361755	38	15.5	589.0	10/14/21
88	0242361740	114	15.5	1,767.0	10/22/21
89	0242361812	115	15.5	1,782.5	10/22/21
90	0242361739	120	15.5	1,860.0	10/22/21
91	0242361767	118	15.5	1,829.0	10/22/21
92	0242361776	117	15.5	1,813.5	10/22/21
93	0242361771	110	15.5	1,705.0	10/22/21
94	0242361775	110	15.5	1,705.0	10/22/21
95	0242361761	107	15.5	1,658.5	10/22/21
96	0242361764	106	15.5	1,643.0	10/22/21
97	0242361747	105	15.5	1,627.5	10/22/21
98	0242361758	104	15.5	1,612.0	10/22/21
99	0242361748	104	6.6	686.4	10/22/21
100	0242361771	40	15.5	620.0	10/26/21
101	0242361767	32	15.5	496.0	10/26/21
102	0242361758	46	15.5	713.0	10/26/21
103	0242361739	30	15.5	465.0	10/26/21
104	0242361747	45	15.5	697.5	10/26/21
105	0242361764	44	15.5	682.0	10/26/21
106	0242361761	43	15.5	666.5	10/26/21
107	0242361775	40	15.5	620.0	10/26/21
108	0242361776	33	15.5	511.5	10/26/21
109	0242361740	36	15.5	558.0	10/26/21
110	0242361812	35	15.5	542.5	10/26/21
111	0242361799	150	15.5	2,325.0	10/26/21
112	0242361806	150	15.5	2,325.0	10/26/21
113	0242361781	150	15.5	2,325.0	10/26/21
114	0242361807	56	15.5	868.0	10/26/21
115	0242361807	95	15.5	1,472.5	10/26/21
116	0242361742	150	15.5	2,325.0	10/26/21
117	0242361800	150	15.5	2,325.0	10/26/21
118	0242361752	150	15.5	2,325.0	10/26/21
119	0242361839	15	15.5	232.5	10/26/21
120	0242361839	135	15.5	2,092.5	10/26/21
			TOTAL LINER PLACED (FT^2):	57,090.9	

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333 Rio Rancho Blvd. NE, Suite 400
Rio Rancho, New Mexico 87124
505.867.6990

GCL DEPLOYMENT LOG

PROJECT NAME:	OWL,Landfill	**PROJECT NUMBER:**	6759-21
CLIENT:	OWL	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	4
DEPLOYMENT LOCATION:		**MONITOR:**	Karl Ruiz/Tyler Krueger

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
121	0242361754	150	15.5	2,325.0	10/26/21
122	0242361744	150	15.5	2,325.0	10/26/21
123	0242361808	133	15.5	2,061.5	10/26/21
124	0242361755	114	15.5	1,767.0	10/28/21
125	0242361805	150	15.5	2,325.0	10/28/21
126	0242361837	150	15.5	2,325.0	10/28/21
127	0242361743	150	15.5	2,325.0	10/28/21
128	0242361795	110	15.5	1,705.0	10/28/21
129	0242361795	40	15.5	620.0	10/28/21
130	0242361808	17	15.5	263.5	10/28/21
131	0242361783	150	15.5	2,325.0	10/28/21
132	0242361798	150	15.5	2,325.0	10/28/21
133	0242361745	150	15.5	2,325.0	10/28/21
134	0242361803	150	15.5	2,325.0	10/28/21
135	0242361804	18	15.5	279.0	10/28/21
136	0242361804	132	15.5	2,046.0	10/28/21
137	0242370613	150	15.5	2,325.0	10/28/21
138	0242361809	150	15.5	2,325.0	10/28/21
139	0242360587	150	15.5	2,325.0	10/28/21
140	0242361797	93	15.5	1,441.5	10/28/21
141	0242361797	57	15.5	883.5	10/28/21
142	0242361801	150	15.5	2,325.0	10/28/21
143	0001	150	15.5	2,325.0	10/28/21
144	0002	150	15.5	2,325.0	10/28/21
145	0242360614	150	15.5	2,325.0	10/28/21
146	0242360606	19	15.5	294.5	10/28/21
147	0242360606	147	15.5	2,278.5	10/28/21
148	0242360605	150	15.5	2,325.0	10/28/21
149	0242360591	150	15.5	2,325.0	10/28/21
150	0242360612	150	15.5	2,325.0	10/28/21
151	0242360586	99	15.5	1,534.5	10/28/21
152	0242360586	51	15.5	790.5	10/28/21
153	0242361802	150	15.5	2,325.0	10/28/21
154	0242360587	150	15.5	2,325.0	10/28/21
155	0242360599	150	15.5	2,325.0	10/28/21
156	0242360602	150	15.5	2,325.0	10/28/21
157	0242361748	29	15.5	449.5	10/28/21
158	0242360615	150	15.5	2,325.0	10/29/21
159	0242360589	150	15.5	2,325.0	10/29/21
160	0242360600	150	15.5	2,325.0	10/29/21
			TOTAL LINER PLACED (FT^2):	76,864.5	

Rolls 0001-0002 are from the Cell 1A project. All rolls used were inspected by the Site CQA Manager as well as the liner installer CQA manager before use.

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333 Rio Rancho Blvd. NE, Suite 400
Rio Rancho, New Mexico 87124
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GCL DEPLOYMENT LOG

PROJECT NAME:	OWL,Landfill	**PROJECT NUMBER:**	6759-21
CLIENT:	OWL	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	5
DEPLOYMENT LOCATION:		**MONITOR:**	Karl Ruiz/Tyler Krueger

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
161	0242370595	150	15.5	2,325.0	10/29/21
162	0242370608	85	15.5	1,317.5	10/29/21
163	0242370608	65	15.5	1,007.5	10/29/21
164	0242370598	150	15.5	2,325.0	10/29/21
165	0242370596	150	15.5	2,325.0	10/29/21
166	0242370590	150	15.5	2,325.0	10/29/21
167	0242370592	150	15.5	2,325.0	10/29/21
168	0242370593	17	15.5	263.5	10/29/21
169	0242370597	133	15.5	2,061.5	10/29/21
170	0242370604	150	15.5	2,325.0	10/29/21
171	0242370594	150	15.5	2,325.0	10/29/21
172	0242370588	150	15.5	2,325.0	10/29/21
173	0242370607	99	15.5	1,534.5	10/29/21
174	0242370607	51	15.5	790.5	10/29/21
175	0242370603	150	15.5	2,325.0	10/29/21
176	0242370616	150	15.5	2,325.0	10/29/21
177	0242370601	150	15.5	2,325.0	10/29/21
178	0242370613	150	15.5	2,325.0	10/29/21
179	0242370611	35	15.5	542.5	10/29/21
180	0242361748	120	7	840.0	10/29/21
181	0242370611	114	6	684.0	11/4/21
182	0242370611	114	5	570.0	11/4/21
183	0242370611	114	4	456.0	11/4/21
184	0242370611	114	3	342.0	11/4/21
185	0242370611	111	3	333.0	11/4/21
			TOTAL LINER PLACED (FT^2):	38,642.5	

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APPENDIX C: CELL 3 A/B LINER INSTALLATION DOCUMENTATION

C.7 Secondary FML Deployment Log

Parkhill

333 Rio Rancho Blvd. NE, Suite 400
Rio Rancho, New Mexico 87124
505.867.6990

FML DEPLOYMENT LOG

PROJECT NAME: OWL, Landfill
CLIENT: OWL
PROJECT LOCATION: Lea County, New Mexico
PROJECT NUMBER: 6759-21
CONTRACTOR: Mustang Extreme
SHEET NUMBER:

DEPLOYMENT LOCATION: Secondary
MONITOR: Karl Ruiz/Tyler Krueger

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
1	010220288	111	22.5	2,497.5	10/7/21
2	010827244	544	22.5	12,240.0	10/7/21
3	010827246	125	22.5	2,812.5	10/7/21
4	010220294	117	22.5	2,632.5	10/7/21
5	010827246	430	22.5	9,675.0	10/7/21
6	010827239	242	22.5	5,445.0	10/7/21
7	010220312	117	22.5	2,632.5	10/12/21
8	010220312	121	22.5	2,722.5	10/12/21
9	010220287	121	22.5	2,722.5	10/12/21
10	010220287	121	22.5	2,722.5	10/12/21
11	010220287	123	22.5	2,767.5	10/12/21
12	010220299	123	22.5	2,767.5	10/12/21
13	010220299	123	22.5	2,767.5	10/12/21
14	010220299	125	22.5	2,812.5	10/12/21
15	010827249	552	22.5	12,420.0	10/13/21
16	010827291	119	22.5	2,677.5	10/13/21
17	010827291	430	22.5	9,675.0	10/13/21
18	010827258	241	22.5	5,422.5	10/13/21
19	010827258	302	22.5	6,795.0	10/13/21
20	010827250	369	22.5	8,302.5	10/13/21
21	010827259	485	22.5	10,912.5	10/13/21
22	010827250	186	22.5	4,185.0	10/13/21
23	010827290	552	22.5	12,420.0	10/14/21
24	010827250	119	22.5	2,677.5	10/14/21
25	010827257	514	22.5	11,565.0	10/14/21
26	010827259	78	22.5	1,755.0	10/14/21
27	010827288	42	22.5	945.0	10/14/21
28	010827288	509	22.5	11,452.5	10/14/21
29	010827289	157	22.5	3,532.5	10/14/21
30	010220310	125	22.5	2,812.5	10/22/21
31	010220322	124	22.5	2,790.0	10/22/21
32	010220322	121	22.5	2,722.5	10/22/21
33	010220322	121	22.5	2,722.5	10/22/21
34	010220315	111	22.5	2,497.5	10/22/21
35	010220315	111	22.5	2,497.5	10/22/21
36	010220315	110	22.5	2,475.0	10/22/21
37	010220315	110	22.5	2,475.0	10/22/21
38	0105205067	559	22.5	12,577.5	10/26/21
39	0105205068	559	22.5	12,577.5	10/26/21
40	0105205083	107	22.5	2,407.5	10/26/21
			TOTAL LINER PLACED (FT^2):	210,510.0	

Parkhill

333 Rio Rancho Blvd. NE, Suite 400
Rio Rancho, New Mexico 87124
505.867.6990

FML DEPLOYMENT LOG

PROJECT NAME: OWL, Landfill
CLIENT: OWL
PROJECT LOCATION: Lea County, New Mexico
PROJECT NUMBER: 6759-21
CONTRACTOR: Mustang Extreme
SHEET NUMBER:

DEPLOYMENT LOCATION: Secondary
MONITOR: Karl Ruiz/Tyler Krueger

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
41	0105205083	107	22.5	2,407.5	10/26/21
42	0105205062	560	22.5	12,600.0	10/28/21
43	0105205072	560	22.5	12,600.0	10/28/21
44	0105205061	560	22.5	12,600.0	10/28/21
45	0105205073	560	22.5	12,600.0	10/28/21
46	0105205083	109	22.5	2,452.5	10/28/21
47	0105205084	109	22.5	2,452.5	10/28/21
48	0105205064	109	22.5	2,452.5	10/28/21
49	0105205084	109	22.5	2,452.5	10/28/21
50	0105205058	558	22.5	12,555.0	10/29/21
51	0105205060	558	22.5	12,555.0	10/29/21
52	0105205074	558	22.5	12,555.0	10/29/21
53	0105205084	115	22.5	2,587.5	10/29/21
54	0105205084	115	22.5	2,587.5	10/29/21
55	0105205084	115	22.5	2,587.5	10/29/21
			TOTAL LINER PLACED (FT^2):	108,045.0	

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APPENDIX C: CELL 3 A/B LINER INSTALLATION DOCUMENTATION

C.8 Secondary and Primary FML Pre-Weld Qualification Test Logs

Parkhill

333 Rio Rancho Blvd., Suite 400
Rio Rancho, New Mexico 87124

FML TRIAL SEAMING TEST LOG

PROJECT NAME: OWL Cell 3AB
OWNER: OWL
PROJECT LOCATION: Lea County, New Mexico
PROJECT NUMBER: 6759-21
CONTRACTOR: Mustang Extreme
SHEET NUMBER: 1

PROJECT SPECIFICATIONS

FUSION	TEXTURED:	PEEL	90	lbs/in	SHEAR	120	lbs/in
	TEXTURED:	PEEL	90	lbs/in	SHEAR	120	lbs/in
EXTRUSION	TEXTURED:	PEEL	78	lbs/in	SHEAR		lbs/in
	TEXTURED:	PEEL	78	lbs/in	SHEAR		lbs/in

DATE	TIME	QC INITIALS	WELDER'S INITIALS	MACHINE NUMBER	WEDGE WELDS		EXTRUSION WELDS		FIELD TEST RESULTS								COMMENTS
					Temperature	Speed	Barrel Temp	Pre-Heat Temp	PEEL #1		PEEL #2		PEEL #3		SHEAR		
10/7/21	1315	NY	AZ	18	850	6.0			109	113	117	112	121	109	171	178	
10/7/21	1355	NY	AZ	18	850	6.0			129	136	123	117	122	126	160	148	
10/8/21	0900	NY	AS	02	850	6.0			119	120	113	103	128	117	141	159	
10/8/21	0910	NY	AZ	15	850	6.0			125	111	124	114	122	118	152	155	
10/8/21	0945	NY	AS	02	850	6.0			112	105	113	110	118	107	153	147	
10/8/21	1100	NY	KC	407			500	350	93		96		109		152	143	
10/8/21	1300	NY	AZ	15	850	6.0			116	128	125	118	139	123	139	145	
10/8/21	1305	NY	AZ	15	850	6.0			118	116	123	114	120	112	174	179	
10/8/21	1315	NY	JS	209			500	500	115		105		116		148	140	
10/9/21	0740	NY	JS	209			500	500	93		111		117		180	189	
10/9/21	0840	NY	KC	407			500	350	98		101		105		162	152	
10/12/21	0900	NY	AS	01	850	6.0			133	132	136	130	132	154	144	149	
10/12/21	0905	NY	AZ	02	850	6.0			140	125	125	123	136	124	195	200	
10/12/21	1225	NY	AZ	02	850	6.0			134	120	121	110	129	123	147	151	
10/12/21	1230	NY	AS	01	850	6.0			109	96	105	101	107	106	150	149	
10/13/21	0730	NY	AZ	02	850	6.0			149	120	146	130	151	138	192	178	
10/13/21	0735	NY	AZ	02	850	6.0			143	140	151	138	145	138	180	170	
10/13/21	0750	NY	AS	01	850	6.0			135	125	129	125	124	122	187	186	
10/13/21	1230	NY	AS	01	850	6.0			139	131	137	127	133	112	165	164	
10/13/21	1300	NY	AZ	02	850	6.0			128	118	133	129	122	113	147	155	
10/13/21	1305	NY	AZ	02	850	6.0			141	123	136	126	147	126	156	142	
10/14/21	0900	NY	AZ	02	850	6.0			117	123	117	114	131	141	144	151	
10/14/21	0905	NY	AZ	02	850	6.0			146	148	133	121	140	121	162	173	
10/14/21	0915	NY	AS	01	850	6.0			118	117	131	105	117	99	144	136	
10/14/21	1000	NY	NM	209			500	500	107		142		133		170	170	
10/14/21	1230	NY	AS	01	850	6.0			114	108	122	101	97	119	133	130	
10/14/21	1240	NY	AZ	02	850	6.0			134	150	139	127	134	126	150	160	
10/14/21	1245	NY	AZ	02	850	6.0			136	133	138	118	127	125	152	169	
10/14/21	1245	NY	NM	209			500	500	117		123		123		164	161	
10/15/21	0720	NY	JS	209			500	550	97		96		94		170	178	
10/15/21	0830	NY	KC	407			400	530	80		95		82		156	157	
10/15/21	0955	NY	JS	209			500	550	112		128		141		182	153	
10/15/21	1005	NY	AZ	02	850	6.0			123	120	123	126	130	114	180	197	
10/15/21	1015	NY	JS	209			500	550	112		128		141		182	153	
10/15/21	1020	NY	JS	209			500	550	118		120		107		169	188	
10/16/21	0718	NY	NM	209			500	550	113		112		159		177	198	
10/22/21	1200	NY	AZ	02	850	6.0			139	128	137	115	142	112	192	178	
10/22/21	1205	NY	AS	01	850	6.0			137	127	140	118	126	126	135	156	
10/23/21	0730	NY	KC	407			535	350	122		147		153		186	189	
10/26/21	1040	NY	AZ	02	850	6.0			127	125	118	115	124	121	146	144	
10/26/21	1110	NY	AS	01	850	6.0			136	124	122	129	114	120	205	201	
10/26/21	1045	NY	AZ	02	850	6.0			146	119	122	130	125	127	161	156	
10/28/21	1200	NY	AS	01	850	6.0			142	118	135	109	135	120	165	175	
10/28/21	1230	NY	AZ	02	850	6.0			126	115	126	117	113	127	161	142	
10/29/21	0940	NY	AS	01	850	6.0			138	123	147	132	151	132	213	211	
10/29/21	0955	NY	AZ	02	850	6.0			119	111	123	115	119	113	145	129	
10/29/21	1230	NY	AS	01	850	6.0			137	138	125	119	125	134	166	151	
10/29/21	1230	NY	AZ	02	850	6.0			132	121	131	113	139	131	150	153	
10/29/21	1235	NY	AZ	02	850	6.0			128	110	132	115	139	119	157	141	
10/29/21	1450	NY	JS	209			500	550	119		113		114		166	155	
10/30/21	0715	NY	JS	209			500	550	114		116		96		169	174	
10/30/21	0740	NY	KC	407			535	350	105		110		103		171	136	
10/30/21	1025	NY	AZ	02	850	6.0			123	112	122	103	109	100	163	168	
10/30/21	1300	NY	JS	209			500	550	114		138		140		150	154	
10/30/21	1315	NY	KC	407			535	350	138		123		127		140	148	

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333 Rio Rancho Blvd., Suite 400
Rio Rancho, New Mexico 87124

FML TRIAL SEAMING TEST LOG

PROJECT NAME: OWL Cell 3AB
OWNER: OWL
PROJECT LOCATION: Lea County, New Mexico
PROJECT NUMBER: 6759-21
CONTRACTOR: Mustang Extreme
SHEET NUMBER: 2

PROJECT SPECIFICATIONS

FUSION	TEXTURED:	PEEL	90	lbs/in	SHEAR	120	lbs/in
	TEXTURED:	PEEL	90	lbs/in	SHEAR	120	lbs/in
EXTRUSION	TEXTURED:	PEEL	78	lbs/in	SHEAR		lbs/in
	TEXTURED:	PEEL	78	lbs/in	SHEAR		lbs/in

DATE	TIME	QC INITIALS	WELDER'S INITIALS	MACHINE NUMBER	WEDGE WELDS		EXTRUSION WELDS		FIELD TEST RESULTS								COMMENTS
					Temperature	Speed	Barrel Temp	Pre-Heat Temp	PEEL #1		PEEL #2		PEEL #3		SHEAR		
10/10/21	0715	NY	AS	01	850	6.0			130	129	140	135	135	126	180	176	
10/10/21	0718	NY	AS	01	850	6.0			125	120	132	122	131	124	180	185	
10/11/21	0730	NY	KC	407			535	400	120		110		123		190	204	
10/11/21	0805	NY	AZ	01	850	6.0			148	146	150	130	137	129	183	183	
10/11/21	0830	NY	JS	209			550	550	109		107		99		149	166	
10/11/21	1255	NY	JS	209			500	550	126		127		124		154	156	
10/16/21	1425	NY	AS	01	850	6.0			101	93	94	129	128	108	172	169	
10/16/21	1450	NY	AZ	02	850	6.0			144	120	134	131	136	133	204	201	
10/18/21	0730	NY	AZ	02	850	6.0			125	131	136	117	141	127	193	176	
10/18/21	0735	NY	AS	01	850	6.0			125	109	132	99	130	116	165	162	
10/18/21	1257	NY	AS	01	850	6.0			127	124	135	124	126	133	168	155	
10/18/21	1313	NY	AZ	02	850	6.0			131	130	138	127	130	121	160	151	
10/18/21	1455	NY	AZ	02	850	6.0			125	107	130	106	159	127	123	156	
10/19/21	0740	NY	AZ	02	850	6.0			146	125	134	132	131	124	184	153	
10/19/21	0830	NY	KC	407			535	350	120		119		112		171	172	
10/19/21	0913	NY	JS	209			500	550	117		117		124		167	160	
10/19/21	1227	NY	JS	209			500	550	121		121		127		143	148	
10/19/21	1229	NY	KC	407			535	350	100		106		133		160	162	
10/20/21	0735	NY	JS	209			500	550	114		114		117		189	177	
10/21/21	0715	NY	JS	209			500	550	129		137		145		178	182	
10/25/21	0850	NY	JS	407			500	535	135		138		113		181	170	
10/25/21	1145	NY	AS	01	850	6.0			123	109	111	96	134	101	142	149	
10/25/21	1150	NY	AZ	02	850	6.0			133	128	131	121	134	136	195	197	
11/1/21	1454	NY	JS	209			500	550	111		144		145		164	175	
11/1/21	1015	NY	AS	01	850	6.0			122	112	125	123	128	113	180	188	
11/1/21	1030	NY	AZ	02	850	6.0			126	125	129	105	131	122	150	150	
11/1/21	1400	NY	AZ	02	850	6.0			141	124	120	115	134	122	135	143	
11/1/21	1415	NY	AS	01	850	6.0			123	114	129	115	126	121	161	149	
11/1/21	1440	NY	AZ	02	850	6.0			126	122	127	113	138	113	177	136	
11/2/21	0730	NY	AS	01	850	6.0			142	114	129	92	131	107	193	172	
11/2/21	0810	NY	AZ	02	850	6.0			134	135	135	149	120	137	166	169	
11/2/21	1230	NY	AS	01	850	6.0			142	140	137	127	128	124	186	169	
11/4/21	0920	NY	AS	01	850	6.0			132	127	128	120	124	119	178	178	
11/4/21	1244	NY	JS	209			500	550	123		118		132		155	145	
11/4/21	1420	NY	AS	01	850	6.0			139	128	151	142	136	131	165	162	
11/4/21	1445	NY	KC	407			535	350	105		137		111		141	135	
11/5/21	1000	NY	KC	407			535	350	112		120		109		137	141	
11/5/21	1010	NY	JS	209			500	550	117		118		94		171	159	

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APPENDIX C: CELL 3 A/B LINER INSTALLATION DOCUMENTATION

C.9 Secondary FML Seaming Log

Parkhill

333 Rio Rancho Blvd. NE, Suite 400
Rio Rancho, New Mexico 87124
505.867.6990

FML SEAMING LOG

PROJECT NAME: OWL, Landfill
OWNER: OWL
PROJECT LOCATION: Lea County, New Mexico
SEAMING LOCATION: Secondary

PROJECT NUMBER: 6759-21
CONTRACTOR: Mustang Extreme
SHEET NUMBER:

	DATE	PANEL #/PANEL #	APPROX. LENGTH WELDED	START TIME	SEAMER INITIALS	MACHINE #	TEMP SETTING	SPEED SETTING	DESTRUCTIVE TEST	MONITORED BY
1	10/7/21	1-E31	104	1528	AZ	18	850	6.0		Karl Ruiz
2	10/7/21	2-E1	22	1524	AZ	18	850	6.0		Karl Ruiz
3	10/7/21	2-E2	22	1522	AZ	18	850	6.0		Karl Ruiz
4	10/7/21	2-E3	22	1515	AZ	18	850	6.0		Karl Ruiz
5	10/7/21	2-E4	22	1515	AZ	18	850	6.0		Karl Ruiz
6	10/7/21	2-E5	22	1513	AZ	18	850	6.0		Karl Ruiz
7	10/7/21	2-E6	22	1510	AZ	18	850	6.0		Karl Ruiz
8	10/7/21	2-E7	22	1507	AZ	18	850	6.0		Karl Ruiz
9	10/9/21	2-E8	22	1504	AZ	18	850	6.0		Karl Ruiz
10	10/7/21	2-E9	22	1500	AZ	18	850	6.0		Karl Ruiz
11	10/7/21	2-E10	22	1457	AZ	18	850	6.0		Karl Ruiz
12	10/7/21	2-E11	22	1454	AZ	18	850	6.0		Karl Ruiz
13	10/7/21	2-E12	22	1451	AZ	18	850	6.0		Karl Ruiz
14	10/9/21	2-E13	22	1448	AZ	18	850	6.0		Karl Ruiz
15	10/7/21	2-E14	22	1445	AZ	18	850	6.0		Karl Ruiz
16	10/7/21	2-E15	22	1442	AZ	18	850	6.0		Karl Ruiz
17	10/7/21	2-E16	22	1439	AZ	18	850	6.0	DS-1	Karl Ruiz
18	10/7/21	2-E17	22	1436	AZ	18	850	6.0		Karl Ruiz
19	10/7/21	2-E18	22	1433	AZ	18	850	6.0		Karl Ruiz
20	10/7/21	2-E19	22	1430	AZ	18	850	6.0		Karl Ruiz
21	10/7/21	2-E20	22	1427	AZ	18	850	6.0		Karl Ruiz
22	10/7/21	2-E21	22	1424	AZ	18	850	6.0		Karl Ruiz
23	10/7/21	2-E22	22	1421	AZ	18	850	6.0		Karl Ruiz
24	10/7/21	2-E23	22	1418	AZ	18	850	6.0		Karl Ruiz
25	10/7/21	2-E24	22	1415	AZ	18	850	6.0		Karl Ruiz
26	10/7/21	3-E25	22	1606	AZ	18	850	6.0		Karl Ruiz
27	10/7/21	3-E26	22	1603	AZ	18	850	6.0		Karl Ruiz
28	10/7/21	3-E27	22	1558	AZ	18	850	6.0		Karl Ruiz
29	10/7/21	3-E28	22	1553	AZ	18	850	6.0		Karl Ruiz
30	10/7/21	3-E29	22	1550	AZ	18	850	6.0		Karl Ruiz
31	10/9/21	3-E30	22	1540	AZ	18	850	6.0		Karl Ruiz

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333 Rio Rancho Blvd. NE, Suite 400
Rio Rancho, New Mexico 87124
505.867.6990

FML SEAMING LOG

PROJECT NAME: OWL, Landfill
PROJECT NUMBER: 6759-21
OWNER: OWL
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER:

SEAMING LOCATION: Secondary

	DATE	PANEL #/PANEL #	APPROX. LENGTH WELDED	START TIME	SEAMER INITIALS	MACHINE #	TEMP SETTING	SPEED SETTING	DESTRUCTIVE TEST	MONITORED BY
1	10/7/21	1-4	103	1735	AZ	18	850	6.0		Karl Ruiz
2	10/12/21	4-7	103	0915	AZ	18	850	6.0		Karl Ruiz
3	10/12/21	7-8	103	0930	AS	01	850	6.0		Karl Ruiz
4	10/12/21	8-9	103	0936	AZ	02	850	6.0		Karl Ruiz
5	10/12/21	9-10	103	0947	AS	01	850	6.0		Karl Ruiz
6	10/12/21	10-11	103	1000	AZ	02	850	6.0		Karl Ruiz
7	10/12/21	11-12	103	1040	AS	01	850	6.0		Karl Ruiz
8	10/12/21	12-13	53	1330	AS	01	850	6.0		Karl Ruiz
9	10/12/21	12-13	53	1340	AS	01	850	6.0		Karl Ruiz
10	10/12/21	13-14	103	1400	AS	01	850	6.0		Karl Ruiz
11	10/8/21	3-6	85	0920	AS	01	850	6.0	DS 3	Karl Ruiz
12	10/7/21	2-6	109	1800	AZ	15	850	6.0		Karl Ruiz
13	10/7/21	2-5	298	1835	AZ	18	850	6.0		Karl Ruiz
14	10/8/21	2-5	64	1020	AZ	18	850	6.0	DS 2	Karl Ruiz
15	10/8/21	4-5	22	1334	AZ	15	850	6.0		Karl Ruiz
16	10/13/21	6-15	60	0935	AZ	15	850	6.0		Karl Ruiz
17	10/13/21	6-16	68	0940	AZ	15	850	6.0	DS 7	Karl Ruiz
18	10/13/21	5-15	430	0925	AZ	15	850	6.0	DS 4	Karl Ruiz
19	10/7/21	5-6	22	1831	AS	01	850	6.0		Karl Ruiz
20	10/13/21	15-16	22	0900	AS	01	850	6.0		Karl Ruiz
21	10/13/21	16-18	75	1130	AS	01	850	6.0		Karl Ruiz
22	10/13/21	15-18	122	1145	AZ	02	850	6.0		Karl Ruiz
23	10/13/21	15-17	430	1055	AZ	18	850	6.0	DS 5	Karl Ruiz
24	10/13/21	17-18	22	1011	AS	01	850	6.0		Karl Ruiz
25	10/13/21	18-20	215	1400	AS	01	850	6.0		Karl Ruiz
26	10/13/21	17-20	128	1436	AS	01	850	6.0		Karl Ruiz

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333 Rio Rancho Blvd. NE, Suite 400
Rio Rancho, New Mexico 87124
505.867.6990

FML SEAMING LOG

PROJECT NAME: OWL, Landfill
PROJECT NUMBER: 6759-21
OWNER: OWL
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER:

SEAMING LOCATION: Secondary

	DATE	PANEL #/PANEL #	APPROX. LENGTH WELDED	START TIME	SEAMER INITIALS	MACHINE #	TEMP SETTING	SPEED SETTING	DESTRUCTIVE TEST	MONITORED BY
27	10/13/21	17-19	302	1346	AZ	850	850	6.0	DS 6	Karl Ruiz
28	10/13/21	19-20	22	1502	AS	850	850	6.0		Karl Ruiz
29	10/13/21	20-22	186	1450	AS	850	850	6.0	DS 8	Karl Ruiz
30	10/13/21	20-21	183	1510	AS	850	850	6.0		Karl Ruiz
31	10/13/21	19-21	302	1437	AZ	850	850	6.0	DS 9	Karl Ruiz
32	10/13/21	21-22	22	1518	AS	850	850	6.0		Karl Ruiz
33	10/14/21	21-23	485	0921	AS	850	850	6.0	DS 10	Karl Ruiz
34	10/14/21	22-23	66	0948	AS	850	850	6.0		Karl Ruiz
35	10/14/21	22-24	75	0930	AZ	850	850	6.0	DS 11	Karl Ruiz
36	10/14/21	23-24	22	1250	AS	850	850	6.0		Karl Ruiz
37	10/14/21	24-26	55	1055	AZ	850	850	6.0		Karl Ruiz
38	10/14/21	24-27	22	1045	AS	850	850	6.0		Karl Ruiz
39	10/14/21	26-27	22	1040	AS	850	850	6.0		Karl Ruiz
40	10/14/21	25-26	22	1032	AZ	850	850	6.0		Karl Ruiz
41	10/14/21	23-25	342	1030	AZ	850	850	6.0	DS 12	Karl Ruiz
42	10/14/21	23-25	210	1000	AZ	850	850	6.0		Karl Ruiz
43	10/14/21	27-28	22	1420	AZ	850	850	6.0		Karl Ruiz
44	10/14/21	26-28	58	1400	AZ	850	850	6.0		Karl Ruiz
45	10/14/21	25-28	242	1350	AS	850	850	6.0		Karl Ruiz
46	10/14/21	25-28	147	1300	AS	850	850	6.0	DS 14	Karl Ruiz
47	10/13/21	7-15	22	1540	AS	850	850	6.0		Karl Ruiz
48	10/13/21	8-17	22	1543	AS	850	850	6.0		Karl Ruiz
49	10/13/21	9-19	22	1550	AS	850	850	6.0		Karl Ruiz
50	10/13/21	10-21	22	1555	AS	850	850	6.0		Karl Ruiz
51	10/14/21	11-23	22	1324	AZ	850	850	6.0		Karl Ruiz

Parkhill

333 Rio Rancho Blvd. NE, Suite 400
Rio Rancho, New Mexico 87124
505.867.6990

FML SEAMING LOG

PROJECT NAME: OWL, Landfill
PROJECT NUMBER: 6759-21
OWNER: OWL
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER:

SEAMING LOCATION: Secondary

	DATE	PANEL #/PANEL #	APPROX. LENGTH WELDED	START TIME	SEAMER INITIALS	MACHINE #	TEMP SETTING	SPEED SETTING	DESTRUCTIVE TEST	MONITORED BY
52	10/14/21	12-25	22	1329	AZ	02	850	6.0		Karl Ruiz
53	10/15/21	13-29	22	1000	AZ	02	850	6.0		Karl Ruiz
54	10/14/21	25-29	152	1230	AZ	02	850	6.0	DS 13	Karl Ruiz
55	10/14/21	28-29	22	1440	AZ	02	850	6.0		Karl Ruiz
56	10/22/21	14-30	85	1228	AZ	02	850	6.0		Karl Ruiz
57	10/22/21	14-30	20	1225	AS	01	850	6.0		Karl Ruiz
58	10/22/21	30-31	105	1240	AS	01	850	6.0	DS 15	Karl Ruiz
59	10/22/21	31-32	105	1258	AZ	02	850	6.0		Tyler Krueger
60	10/22/21	32-33	43	1310	AZ	02	850	6.0		Tyler Krueger
61	10/22/21	32-33	61	1320	AS	01	850	6.0		Tyler Krueger
62	10/22/21	33-34	103	1330	AZ	02	850	6.0		Tyler Krueger
63	10/22/21	34-35	103	1340	AS	01	850	6.0	DS 16	Tyler Krueger
64	10/22/21	35-36	103	1405	AS	01	850	6.0		Tyler Krueger
65	10/22/21	36-37	103	1425	AS	01	850	6.0		Tyler Krueger
66	10/26/21	28-40	90	1355	AZ	02	850	6.0		Tyler Krueger
67	10/26/21	28-38	140	1300	AS	01	850	6.0		Tyler Krueger
68	10/26/21	28-38	68	1052	AZ	02	850	6.0	DS 17	Tyler Krueger
69	10/26/21	28-38	20	1100	AZ	02	850	6.0		Tyler Krueger
70	10/26/21	28-38	158	1105	AZ	02	850	6.0		Tyler Krueger
71	10/26/21	29-38	146	1110	AZ	02	850	6.0		Tyler Krueger
72	10/26/21	38-40	22	1352	AZ	02	850	6.0		Tyler Krueger
73	10/26/21	38-39	560	1330	AZ	02	850	6.0	DS 19	Tyler Krueger
74	10/26/21	39-41	22	1410	AZ	02	850	6.0		Tyler Krueger
75	10/26/21	40-41	82	1400	AZ	02	850	6.0	DS 18	Tyler Krueger
76	10/28/21	39-42	385	1245	AS	01	850	6.0		Tyler Krueger

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FML SEAMING LOG

PROJECT NAME: OWL, Landfill
PROJECT NUMBER: 6759-21
OWNER: OWL
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER:

SEAMING LOCATION: Secondary

	DATE	PANEL #/PANEL #	APPROX. LENGTH WELDED	START TIME	SEAMER INITIALS	MACHINE #	TEMP SETTING	SPEED SETTING	DESTRUCTIVE TEST	MONITORED BY
77	10/28/21	39-42	162	1245	AS	01	850	6.0	DS 20	Tyler Krueger
78	10/28/21	42-43	560	1317	AS	01	850	6.0	DS 21	Tyler Krueger
79	10/28/21	41-46	82	1507	AS	01	850	6.0		Tyler Krueger
80	10/28/21	46-47	82	1523	AZ	02	850	6.0		Tyler Krueger
81	10/28/21	47-48	82	1540	AZ	02	850	6.0	DS 23	Tyler Krueger
82	10/28/21	48-49	82	1545	AS	01	850	6.0		Tyler Krueger
83	10/29/21	49-53	82	1346	AS	01	850	6.0		Tyler Krueger
84	10/29/21	53-54	82	1405	AS	01	850	6.0	DS 27	Tyler Krueger
85	10/29/21	54-55	82	1417	AS	01	850	6.0		Tyler Krueger
86	10/28/21	42-46	22	1558	AZ	02	850	6.0		Tyler Krueger
87	10/28/21	43-47	22	1603	AS	01	850	6.0		Tyler Krueger
88	10/28/21	44-48	22	1608	AS	01	850	6.0		Tyler Krueger
89	10/28/21	45-49	22	1613	AS	01	850	6.0		Tyler Krueger
90	10/29/21	50-53	22	1440	AZ	02	850	6.0		Tyler Krueger
91	10/29/21	51-54	22	1443	AS	01	850	6.0		Tyler Krueger
92	10/29/21	52-55	22	1448	AS	01	850	6.0		Tyler Krueger
93	10/29/21	51-52	560	1240	AS	01	850	6.0	DS 28	Tyler Krueger
94	10/29/21	50-51	560	1030	AS	01	850	6.0	DS 26	Tyler Krueger
95	10/29/21	45-50	560	1000	AS	01	850	6.0	DS 25	Tyler Krueger
96	10/28/21	44-45	560	1430	AS	01	850	6.0	DS 24	Tyler Krueger
97	10/28/21	43-44	560	1400	AS	01	850	6.0	DS 22	Tyler Krueger
98	10/29/21	14-38	22	1317	AS	01	850	6.0		Tyler Krueger
99	10/29/21	30-39	22	1323	AS	01	850	6.0		Tyler Krueger
100	10/29/21	31-42	22	1327	AS	01	850	6.0		Tyler Krueger
101	10/29/21	32-43	22	1331	AS	01	850	6.0		Tyler Krueger

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FML SEAMING LOG

PROJECT NAME: OWL, Landfill
PROJECT NUMBER: 6759-21
OWNER: OWL
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER:

SEAMING LOCATION: Secondary

	DATE	PANEL #/PANEL #	APPROX. LENGTH WELDED	START TIME	SEAMER INITIALS	MACHINE #	TEMP SETTING	SPEED SETTING	DESTRUCTIVE TEST	MONITORED BY
102	10/29/21	33-44	22	1335	AZ	02	850	6.0		Tyler Krueger
103	10/29/21	34-45	22	1339	AS	01	850	6.0		Tyler Krueger
104	10/29/21	35-50	22	1344	AZ	02	850	6.0		Tyler Krueger
105	10/29/21	36-51	22	1349	AS	01	850	6.0		Tyler Krueger
106	10/29/21	37-52	22	1354	AZ	02	850	6.0		Tyler Krueger

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APPENDIX C: CELL 3 A/B LINER INSTALLATION DOCUMENTATION

C.10 Secondary FML Seam Pressure Test Log

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FML SEAMING PRESSURE TEST LOG

PROJECT NAME:	OWL, Landfill	**PROJECT NUMBER:**	6759-21
OWNER:	Oilfield Water Logistics	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	

PROJECT SPECIFICATIONS	
MIN START PSI:	30
TEST DURATION:	5 minutes
MAX PSI DROP:	30

PRESSURE TEST LOCATION: Secondary

	DATE	PANEL #/PANEL #	TESTER	TIME		PRESSURE		MONITORED BY	PASS/FAIL
				START	FINISH	INITIAL	FINAL		
1	10/7/21	1-E31	AS	1500	1505	30	30	Karl Ruiz	PASS
2	10/7/21	2-E1	AS	1555	1560	30	30	Karl Ruiz	PASS
3	10/7/21	2-E2	AS	1530	1535	30	30	Karl Ruiz	PASS
4	10/7/21	2-E3	AS	1545	1550	30	30	Karl Ruiz	PASS
5	10/7/21	2-E4	AS	1550	1555	30	30	Karl Ruiz	PASS
6	10/7/21	2-E5	AS	1560	1565	30	30	Karl Ruiz	PASS
7	10/7/21	2-E6	AS	1540	1545	30	30	Karl Ruiz	PASS
8	10/7/21	2-E7	AS	1540	1545	30	30	Karl Ruiz	PASS
9	10/8/21	2-E8	AS	1540	1545	30	30	Karl Ruiz	PASS
10	10/9/21	2-E9	AS	1535	1540	30	30	Karl Ruiz	PASS
11	10/10/21	2-E10	AS	1530	1535	30	30	Karl Ruiz	PASS
12	10/11/21	2-E11	AS	1530	1535	30	30	Karl Ruiz	PASS
13	10/12/21	2-E12	AS	1650	1655	30	30	Karl Ruiz	PASS
14	10/13/21	2-E13	AS	1655	1700	30	30	Karl Ruiz	PASS
15	10/14/21	2-E14	AS	1645	1650	30	30	Karl Ruiz	PASS
16	10/15/21	2-E15	AS	1640	1645	30	30	Karl Ruiz	PASS
17	10/16/21	2-E16	AS	1640	1645	30	30	Karl Ruiz	PASS
18	10/17/21	2-E17	AS	1635	1640	30	30	Karl Ruiz	PASS
19	10/18/21	2-E18	AS	1635	1640	30	30	Karl Ruiz	PASS
20	10/19/21	2-E19	AS	1630	1635	30	30	Karl Ruiz	PASS
21	10/20/21	2-E20	AS	1630	1635	30	30	Karl Ruiz	PASS
22	10/21/21	2-E21	AS	1625	1630	30	30	Karl Ruiz	PASS
23	10/22/21	2-E22	AS	1625	1630	30	30	Karl Ruiz	PASS
24	10/23/21	2-E23	AS	1620	1625	30	30	Karl Ruiz	PASS
25	10/24/21	2-E24	AS	1620	1625	30	30	Karl Ruiz	PASS
26	10/25/21	3-E25	AS	1720	1725	30	30	Karl Ruiz	PASS
27	10/26/21	3-E26	AS	1720	1725	30	30	Karl Ruiz	PASS
28	10/27/21	3-E27	AS	1715	1720	30	30	Karl Ruiz	PASS
29	10/28/21	3-E28	AS	1715	1720	30	30	Karl Ruiz	PASS
30	10/29/21	3-E29	AS	1710	1715	30	30	Karl Ruiz	PASS
31	10/30/21	3-E30	AS	1725	1730	30	30	Karl Ruiz	PASS

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FML SEAMING PRESSURE TEST LOG

PROJECT NAME:	OWL, Landfill	**PROJECT NUMBER:**	6759-21
OWNER:	Oilfield Water Logistics	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	1

PRESSURE TEST LOCATION: Secondary

PROJECT SPECIFICATIONS	
MIN START PSI:	30
TEST DURATION:	5 minutes
MAX PSI DROP:	30

	DATE	PANEL #/PANEL #	TESTER	TIME		PRESSURE		MONITORED BY	PASS/FAIL
				START	FINISH	INITIAL	FINAL		
1	10/8/21	1-4	AS	955	1000	30	30	Karl Ruiz	PASS
2	10/9/21	2-3	AS	1725	1730	30	30	Karl Ruiz	PASS
3	10/12/21	4-7	AS	1000	1005	30	30	Karl Ruiz	PASS
4	10/12/21	7-8	AS	1005	1010	30	30	Karl Ruiz	PASS
5	10/12/21	8-9	AS	1010	1015	30	30	Karl Ruiz	PASS
6	10/12/21	9-10	AS	1210	1215	30	30	Karl Ruiz	PASS
7	10/12/21	10-11	AS	1215	1220	30	30	Karl Ruiz	PASS
8	10/12/21	11-12	AS	1220	1225	30	30	Karl Ruiz	PASS
9	10/12/21	12-13	AS	1410	1415	30	30	Karl Ruiz	PASS
10	10/12/21	12-13	AS	1415	1420	30	30	Karl Ruiz	PASS
11	10/12/21	13-14	AS	1440	1445	30	30	Karl Ruiz	PASS
12	10/8/21	3-6	AS	950	955	30	30	Karl Ruiz	PASS
13	10/8/21	2-6	AS	955	960	30	30	Karl Ruiz	PASS
14	10/8/21	2-5	AS	925	930	30	30	Karl Ruiz	PASS
15	10/8/21	2-5	AS	1000	1005	30	30	Karl Ruiz	PASS
16	10/8/21	1-1A	AS	1350	1355	30	30	Karl Ruiz	PASS
17	10/8/21	1A-2	AS	1350	1355	30	30	Karl Ruiz	PASS
18	10/8/21	4-5	AS	1355	1360	30	30	Karl Ruiz	PASS
19	10/13/21	6-16	AS	1005	1010	30	30	Karl Ruiz	PASS
20	10/13/21	6-15	AS	1000	1005	30	30	Karl Ruiz	PASS
21	10/13/21	6-15	AS	930	935	30	30	Karl Ruiz	PASS
22	10/13/21	5-15	AS	1020	1025	30	30	Karl Ruiz	PASS
23	10/8/21	5-6	AS	955	960	30	30	Karl Ruiz	PASS
24	10/13/21	15-16	AS	1005	1010	30	30	Karl Ruiz	PASS
25	10/13/21	16-18	AS	1230	1235	30	30	Karl Ruiz	PASS
26	10/13/21	15-18	AS	1230	1235	30	30	Karl Ruiz	PASS
27	10/13/21	15-17	AS	1300	1305	30	30	Karl Ruiz	PASS
28	10/13/21	17-18	AS	1100	1105	30	30	Karl Ruiz	PASS
29	10/13/21	18-20	AS	1520	1525	30	30	Karl Ruiz	PASS
30	10/13/21	17-20	AS	1520	1525	30	30	Karl Ruiz	PASS
31	10/13/21	17-19	AS	1530	1535	30	30	Karl Ruiz	PASS
32	10/13/21	19-20	AS	1535	1540	30	30	Karl Ruiz	PASS
33	10/13/21	20-22	AS	1525	1530	30	30	Karl Ruiz	PASS
34	10/13/21	20-21	AS	1540	1545	30	30	Karl Ruiz	PASS
35	10/13/21	19-21	AS	1525	1530	30	30	Karl Ruiz	PASS
36	10/13/21	21-22	AS	1600	1605	30	30	Karl Ruiz	PASS
37	10/14/21	21-23	AS	1510	1515	30	30	Karl Ruiz	PASS
38	10/14/21	22-23	AS	1235	1240	30	30	Karl Ruiz	PASS
39	10/14/21	22-24	AS	1250	1255	30	30	Karl Ruiz	PASS
40	10/14/21	23-24	AS	915	920	30	30	Karl Ruiz	PASS
41	10/14/21	24-26	AS	1250	1255	30	30	Karl Ruiz	PASS
42	10/14/21	24-27	AS	1600	1605	30	30	Karl Ruiz	PASS
43	10/14/21	26-27	AS	1600	1605	30	30	Karl Ruiz	PASS
44	10/14/21	25-26	AS	1255	1260	30	30	Karl Ruiz	PASS
45	10/14/21	23-25	AS	1510	1515	30	30	Karl Ruiz	PASS
46	10/14/21	23-25	AS	1540	1545	30	30	Karl Ruiz	PASS
47	10/14/21	27-28	AS	1545	1550	30	30	Karl Ruiz	PASS
48	10/14/21	26-28	AS	1545	1550	30	30	Karl Ruiz	PASS
49	10/14/21	25-28	AS	1540	1545	30	30	Karl Ruiz	PASS
50	10/14/21	25-28	AS	1540	1545	30	30	Karl Ruiz	PASS

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FML SEAMING PRESSURE TEST LOG

PROJECT SPECIFICATIONS	
MIN START PSI:	30
TEST DURATION:	5 minutes
MAX PSI DROP:	30

PROJECT NAME: OWL, Landfill
PROJECT NUMBER: 6759-21
OWNER: Oilfield Water Logistics
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 2

PRESSURE TEST LOCATION: Secondary

	DATE	PANEL #/PANEL #	TESTER	TIME		PRESSURE		MONITORED BY	PASS/FAIL
				START	FINISH	INITIAL	FINAL		
51	10/13/21	7-15	AS	1600	1605	30	30	Karl Ruiz	PASS
52	10/13/21	8-17	AS	1600	1605	30	30	Karl Ruiz	PASS
53	10/13/21	9-19	AS	1605	1610	30	30	Karl Ruiz	PASS
54	10/13/21	10-21	AS	1605	1610	30	30	Karl Ruiz	PASS
55	10/14/21	11-23	AS	1500	1505	30	30	Karl Ruiz	PASS
56	10/14/21	12-25	AS	1510	1515	30	30	Karl Ruiz	PASS
57	10/15/21	13-29	AS	1030	1035	30	30	Karl Ruiz	PASS
58	10/14/21	25-29	AS	1520	1525	30	30	Karl Ruiz	PASS
59	10/14/21	28-29	AS	1520	1525	30	30	Karl Ruiz	PASS
60	10/23/21	14-30	AS	700	705	30	30	Tyler Krueger	PASS
61	10/23/21	14-30	AS	700	705	30	30	Tyler Krueger	PASS
62	10/23/21	30-31	AS	705	710	30	30	Tyler Krueger	PASS
63	10/23/21	31-32	AS	710	715	30	30	Tyler Krueger	PASS
64	10/23/21	32-33	AS	715	720	30	30	Tyler Krueger	PASS
65	10/23/21	32-33	AS	715	720	30	30	Tyler Krueger	PASS
66	10/23/21	33-34	AS	725	730	30	30	Tyler Krueger	PASS
67	10/23/21	34-35	AS	730	735	30	30	Tyler Krueger	PASS
68	10/23/21	35-36	AS	735	740	30	30	Tyler Krueger	PASS
69	10/23/21	36-37	AS	740	745	30	30	Tyler Krueger	PASS
70	10/27/21	28-40	AS	740	745	30	30	Tyler Krueger	PASS
71	10/27/21	28-40	AS	740	745	30	30	Tyler Krueger	PASS
72	10/27/21	28-38	AS	745	750	30	30	Tyler Krueger	PASS
73	10/30/21	28-38	AS	1245	1250	30	30	Tyler Krueger	PASS
74	10/30/21	28-38	AS	1300	1305	30	30	Tyler Krueger	PASS
75	10/30/21	28-38	AS	1300	1305	30	30	Tyler Krueger	PASS
76	10/28/21	29-38	AS	750	755	30	30	Tyler Krueger	PASS
77	10/27/21	38-40	AS	735	740	30	30	Tyler Krueger	PASS
78	10/27/21	38-40	AS	735	740	30	30	Tyler Krueger	PASS
79	10/27/21	38-39	AS	755	760	30	30	Tyler Krueger	PASS
80	10/27/21	38-39	NY	755	760	30	30	Tyler Krueger	PASS
81	10/27/21	39-41	AS	730	735	30	30	Tyler Krueger	PASS
82	10/27/21	39-41	AS	730	735	30	30	Tyler Krueger	PASS
83	10/27/21	40-41	AS	730	735	30	30	Tyler Krueger	PASS
84	10/27/21	40-41	AS	730	735	30	30	Tyler Krueger	PASS
85	10/28/21	39-42	NY	1440	1445	30	30	Tyler Krueger	PASS
86	10/28/21	39-42	NY	1440	1445	30	30	Tyler Krueger	PASS
87	10/28/21	42-43	NY	1447	1452	30	30	Tyler Krueger	PASS
88	10/29/21	41-46	AS	1435	1440	30	30	Tyler Krueger	PASS
89	10/29/21	46-47	AS	1440	1445	30	30	Tyler Krueger	PASS
90	10/28/21	47-48	AS	1630	1635	30	30	Tyler Krueger	PASS
91	10/28/21	48-49	AS	1625	1630	30	30	Tyler Krueger	PASS
92	10/29/21	49-53	AS	1450	1455	30	30	Tyler Krueger	PASS
93	10/29/21	53-54	AS	1430	1435	30	30	Tyler Krueger	PASS
94	10/29/21	54-55	AS	1455	1460	30	30	Tyler Krueger	PASS
95	10/29/21	42-46	AS	1440	1445	30	30	Tyler Krueger	PASS
96	10/29/21	43-47	AS	1445	1450	30	30	Tyler Krueger	PASS
97	10/28/21	44-48	AS	1630	1635	30	30	Tyler Krueger	PASS
98	10/28/21	45-49	AS	1625	1630	30	30	Tyler Krueger	PASS
99	10/29/21	50-53	AS	1450	1455	30	30	Tyler Krueger	PASS
100	10/29/21	51-54	AS	1455	1460	30	30	Tyler Krueger	PASS

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FML SEAMING PRESSURE TEST LOG

PROJECT NAME:	OWL, Landfill	**PROJECT NUMBER:**	6759-21
OWNER:	Oilfield Water Logistics	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	3

PROJECT SPECIFICATIONS	
MIN START PSI:	30
TEST DURATION:	5 minutes
MAX PSI DROP:	30

PRESSURE TEST LOCATION: Secondary

	DATE	PANEL #/PANEL #	TESTER	TIME		PRESSURE		MONITORED BY	PASS/FAIL
				START	FINISH	INITIAL	FINAL		
101	10/29/21	52-55	AS	1500	1505	30	30	Tyler Krueger	PASS
102	10/29/21	51-52	NY	1449	1454	30	30	Tyler Krueger	PASS
103	10/29/21	50-51	NY	1344	1349	30	30	Tyler Krueger	PASS
104	10/29/21	45-50	NY	1346	1351	30	30	Tyler Krueger	PASS
105	10/28/21	44-45	NY	1545	1550	30	30	Tyler Krueger	PASS
106	10/28/21	43-44	NY	1327	1332	30	30	Tyler Krueger	PASS
107	10/28/21	42-43	NY	1447	1452	30	30	Tyler Krueger	PASS
108	10/29/21	14-38	AS	1550	1555	30	30	Tyler Krueger	PASS
109	10/29/21	30-39	AS	1545	1550	30	30	Tyler Krueger	PASS
110	10/29/21	31-42	AS	1540	1545	30	30	Tyler Krueger	PASS
111	10/29/21	32-43	AS	1535	1540	30	30	Tyler Krueger	PASS
112	10/29/21	33-44	AS	1530	1535	30	30	Tyler Krueger	PASS
113	10/29/21	34-45	AS	1525	1530	30	30	Tyler Krueger	PASS
114	10/29/21	35-50	AS	1520	1525	30	30	Tyler Krueger	PASS
115	10/29/21	36-51	AS	1515	1520	30	30	Tyler Krueger	PASS
116	10/29/21	37-52	AS	1510	1515	30	30	Tyler Krueger	PASS

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APPENDIX C: CELL 3 A/B LINER INSTALLATION DOCUMENTATION

C.11 FML Seam Field Destructive Test Records

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FML DESTRUCTIVE FIELD TEST RECORD

PROJECT NAME: OWL Cell 3AB
OWNER: OWL
PROJECT LOCATION: Lea County, New Mexico
PROJECT NUMBER: 6759-21
CONTRACTOR: Mustang Extreme
SHEET NUMBER:

PROJECT SPECIFICATIONS

FUSION	TEXTURED:	PEEL	90	lbs/in	SHEAR	120	lbs/in
	TEXTURED:	PEEL	90	lbs/in	SHEAR	120	lbs/in
EXTRUSION	TEXTURED:	PEEL	78	lbs/in	SHEAR		lbs/in
	TEXTURED:	PEEL	78	lbs/in	SHEAR		lbs/in

SAMPLE NO.	SEAM	DATE	QC INITIALS	WELDER'S INITIALS	MACHINE NUMBER	WEDGE WELDS		FIELD TEST RESULTS														COMMENTS
						Temperature	Speed	PEEL #1		PEEL #2		PEEL #3		PEEL #4		PEEL #5		SHEAR				
1	2-E16	10/7/21	NY	AZ	18	850	6.0	143	138	150	113	130	113	126	97	118	109	155	157	161	158	161	
2	2-5	10/7/21	NY	AZ	18	850	6.0	103	98	98	95	143	104	115	110	121	108	152	150	145	150	150	
3	3-6	10/8/21	NY	AZ	15	850	6.0	113	97	122	116	111	94	116	114	113	110	145	155	150	152	153	
4	5-15	10/13/21	NY	AZ	02	850	6.0	125	119	125	116	125	121	127	131	133	124	148	149	150	150	148	
5	15-17	10/13/21	NY	AZ	02	850	6.0	109	95	114	93	112	102	114	113	124	112	147	148	156	150	149	
6	17-19	10/13/21	NY	AZ	02	850	6.0	98	98	116	106	109	106	113	107	106	92	144	142	140	151	155	
7	6-16	10/13/21	NY	AS	01	850	6.0	114	104	109	105	111	105	117	108	110	101	146	140	139	148	150	
8	20-22	10/13/21	NY	AS	01	850	6.0	131	120	125	110	116	113	127	117	130	118	165	164	160	168	150	
9	19-21	10/13/21	NY	AZ	02	850	6.0	112	105	112	92	100	100	109	107	117	93	141	138	140	143	143	
10	21-23	10/14/21	NY	AZ	02	850	6.0	111	104	129	108	135	102	113	108	137	110	159	160	150	152	150	
11	22-24	10/14/21	NY	AS	01	850	6.0	110	101	125	121	114	118	115	125	111	102	130	150	133	140	138	
12	23-25	10/14/21	NY	AS	01	850	6.0	121	122	115	109	124	106	120	94	102	98	140	138	139	140	130	
13	25-29	10/14/21	NY	AS	01	850	6.0	102	97	104	92	112	92	111	97	100	98	139	150	152	145	143	
14	25-28	10/14/21	NY	AS	01	850	6.0	105	96	123	110	123	121	118	108	102	97	142	152	149	150	149	
15	30-31	10/22/21	NY	AS	01	850	6.0	137	120	159	126	152	122	147	117	130	120	209	186	210	195	216	
16	34-35	10/22/21	NY	AZ	02	850	6.0	145	124	149	130	140	124	138	124	133	131	200	205	195	211	210	
17	28-38	10/26/21	NY	AZ	02	850	6.0	104	93	108	96	103	96	104	92	104	96	183	185	178	140	159	
18	40-41	10/26/21	NY	AS	01	850	6.0	138	104	145	135	140	125	146	146	149	136	225	231	211	223	221	
19	38-39	10/26/21	NY	AS	01	850	6.0	150	148	166	148	143	141	142	145	197	145	205	218	167	200	190	
20	39-42	10/28/21	NY	AS	01	850	6.0	154	127	142	128	143	122	124	108	140	128	202	179	202	196	193	
21	42-43	10/28/21	NY	AZ	02	850	6.0	125	125	141	121	145	143	126	126	146	140	131	133	166	194	182	
22	43-44	10/28/21	NY	AS	01	850	6.0	148	110	137	141	163	131	102	125	154	119	191	197	193	195	193	
23	47-48	10/28/21	NY	AS	01	850	6.0	125	123	150	114	128	119	142	126	155	122	184	192	190	180	189	
24	44-45	10/28/21	NY	AZ	02	850	6.0	152	142	129	101	130	116	135	132	133	131	190	190	192	193	187	
25	45-50	10/29/21	NY	AS	01	850	6.0	133	125	116	120	124	127	128	110	106	115	154	151	148	177	162	
26	50-51	10/29/21	NY	AZ	02	850	6.0	128	151	114	154	126	121	122	133	124	127	177	170	160	170	116	
27	53-54	10/29/21	NY	AS	01	850	6.0	127	107	137	127	115	132	131	137	136	115	173	177	164	98	139	
28	51-52	10/29/21	NY	AS	01	850	6.0	127	121	125	119	121	117	122	117	133	93	146	180	160	152	138	

Parkhill

333 Rio Rancho Blvd., Suite 400
Rio Rancho, New Mexico 87124

FML DESTRUCTIVE FIELD TEST RECORD

PROJECT SPECIFICATIONS

PROJECT NAME:	OWL Cell 3AB	**PROJECT NUMBER:**	6759-21	**FUSION**	TEXTURED:	PEEL	90	lbs/in	SHEAR	120	lbs/in
OWNER:	OWL	**CONTRACTOR:**	Mustang Extreme		TEXTURED:	PEEL	90	lbs/in	SHEAR	120	lbs/in
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**		**EXTRUSION**	TEXTURED:	PEEL	78	lbs/in	SHEAR		lbs/in
					TEXTURED:	PEEL	78	lbs/in	SHEAR		lbs/in

SAMPLE NO.	SEAM	DATE	QC INITIALS	WELDER'S INITIALS	MACHINE NUMBER	WEDGE WELDS		FIELD TEST RESULTS														COMMENTS
						Temperature	Speed	PEEL #1		PEEL #2		PEEL #3		PEEL #4		PEEL #5		SHEAR				
1	2-E22	10/10/21	NY	AS	01	850	6.0	121	113	122	96	102	93	100	93	120	99	140	139	150	140	156	
2	2-12	10/18/21	NY	AZ	02	850	6.0	115	125	112	112	114	109	110	100	124	114	153	144	146	149	126	
3	3-4	10/16/21	NY	AS	01	850	6.0	111	114	103	140	112	106	122	104	118	123	185	192	130	153	174	
4	12-15	10/18/21	NY	AZ	02	850	6.0	92	87	105	112	104	98	105	108	114	99	140	129	143	140	131	
5	15-16	10/18/21	NY	AS	01	850	6.0	86	95	112	119	95	100	107	115	116	91	132	126	143	132	125	
6	14-16	10/18/21	NY	AZ	02	850	6.0	105	101	88	104	106	93	116	106	114	98	146	140	138	130	136	
7	16-18	10/18/21	NY	AZ	02	850	6.0	102	106	116	89	94	112	98	116	119	97	121	127	130	138	137	
8	17-19	10/18/21	NY	AS	01	850	6.0	108	104	104	98	95	104	99	114	94	116	127	121	119	121	120	
9	18-21	10/18/21	NY	AZ	02	850	6.0	99	89	106	91	114	100	108	93	102	100	128	124	139	123	149	
10	8-9	10/16/21	NY	AS	01	850	6.0	118	115	133	114	137	122	106	122	131	117	205	114	205	158	175	
11	23-30	10/18/21	NY	AS	01	850	6.0	97	77	100	92	94	93	111	99	94	95	146	148	151	130	148	
12	23-24	10/18/21	NY	AS	01	850	6.0	111	77	118	101	106	93	118	112	98	113	146	143	129	131	121	
13	9-10	10/16/21	NY	AZ	02	850	6.0	153	139	130	110	138	150	143	134	148	141	144	190	184	192	184	
14	24-27	10/18/21	NY	AS	01	850	6.0	98	117	97	97	106	98	102	105	98	100	135	137	122	130	135	
15	26-29	10/18/21	NY	AZ	02	850	6.0	76	105	109	126	115	117	94	94	111	93	132	121	130	132	135	
16	33-34	10/25/21	NY	AS	01	850	6.0	134	119	130	140	122	122	125	136	129	131	203	203	200	198	196	
17	38-39	10/25/21	NY	AZ	02	850	6.0	143	115	150	122	141	124	149	114	147	124	161	178	154	178	171	
18	27-40	11/1/21	NY	AS	01	850	6.0	109	107	108	96	109	96	96	101	115	96	173	153	158	161	162	
19	40-41	11/1/21	NY	AZ	02	850	6.0	138	123	131	130	132	160	125	110	133	136	211	203	213	186	173	
20	41-42	11/1/21	NY	AZ	02	850	6.0	132	128	151	121	129	132	152	132	132	151	212	198	187	209	198	
21	42-43	11/1/21	NY	AS	01	850	6.0	146	130	147	141	125	155	157	110	142	140	198	198	205	193	202	
22	43-44	10/1/21	NY	AZ	02	850	6.0	165	132	123	135	153	125	136	145	142	120	205	203	205	190	195	
23	44-45	10/1/21	NY	AS	01	850	6.0	136	134	149	128	130	131	130	111	142	126	198	202	206	201	202	
24	45-46	10/2/21	NY	AS	01	850	6.0	143	137	155	157	152	141	149	140	155	141	204	202	204	204	188	
25	45-46	10/2/21	NY	AS	01	850	6.0	146	123	158	131	136	136	150	140	156	140	200	200	203	203	178	
26	46-47	10/4/21	NY	AZ	02	850	6.0	139	134	166	124	130	124	135	134	140	131	198	189	202	204	204	
27	47-57	10/4/21	NY	AS	01	850	6.0	141	133	131	126	136	125	135	131	137	132	193	193	200	202	201	
28	40-48	10/4/21	NY	AZ	02	850	6.0	149	119	141	114	150	122	151	145	133	126	168	160	167	156	167	
29	48-49	10/2/21	NY	AZ	02	850	6.0	144	137	146	121	146	123	143	113	151	128	188	167	180	170	184	
30	56-58	10/4/21	NY	AS	01	850	6.0	129	129	137	129	132	126	129	111	135	129	193	193	187	180	109	

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APPENDIX C: CELL 3 A/B LINER INSTALLATION DOCUMENTATION

C.12 Geonet Deployment Log

Parkhill

333 Rio Rancho Blvd. NE, Suite 400
Rio Rancho, New Mexico 87124
505.867.6990

GEONET DEPLOYMENT LOG

PROJECT NAME: OWL, Landfill
CLIENT: OWL Landfill Services, LLC
PROJECT LOCATION: Lea County, New Mexico
PROJECT NUMBER: 6759-21
CONTRACTOR: Mustang Extreme
SHEET NUMBER:
DEPLOYMENT LOCATION: Floor
MONITOR: Karl Ruiz/Tyler Krueger

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
1	0002	330	15	4,950	10/9/21
2	0003	330	15	4,950	10/9/21
3	0116003109	330	15	4,950	10/9/21
4	0116003094	330	15	4,950	10/9/21
5	0004	330	15	4,950	10/16/21
6	0005	330	15	4,950	10/16/21
7	0116003126	330	15	4,950	10/16/21
8	0116003125	330	15	4,950	10/16/21
9	0116003110	330	15	4,950	10/16/21
10	0116003190	330	15	4,950	10/16/21
11	0116003117	330	15	4,950	10/16/21
12	0116003127	330	15	4,950	10/16/21
13	0116003135	330	15	4,950	10/16/21
14	0116003237	330	15	4,950	10/16/21
15	0116003108	330	15	4,950	10/16/21
16	0116003115	330	15	4,950	10/16/21
17	0116003111	330	15	4,950	10/16/21
18	0116003102	330	15	4,950	10/16/21
19	0116003121	330	15	4,950	10/16/21
20	0116003188	330	15	4,950	10/16/21
21	0116003119	330	15	4,950	10/16/21
22	0116003333	330	15	4,950	10/16/21
23	0001	330	15	4,950	10/16/21
24	0116003407	330	15	4,950	10/16/21
25	0116003189	330	15	4,950	10/16/21
26	0116003236	330	15	4,950	10/16/21
27	0116003332	330	15	4,950	10/31/21
28	0116003122	330	15	4,950	10/31/21
29	0116003224	330	15	4,950	10/31/21
30	0116003406	330	15	4,950	10/31/21
31	0116003118	330	15	4,950	10/31/21
32	0116003334	330	15	4,950	10/31/21
33	0116003408	330	15	4,950	10/31/21
34	0116003129	330	15	4,950	10/31/21
35	0116003123	330	15	4,950	10/31/21
36	10202100002368	300	14.5	4,350	10/31/21
37	10202100002268	300	14.5	4,350	10/31/21
38	09202100002309	300	14.5	4,350	10/31/21
39	10202100002335	300	14.5	4,350	10/31/21
40	10202100002336	300	14.5	4,350	10/31/21
			TOTAL LINER PLACED (FT^2):	195,000	

Rolls 0001-0005 are from the Cell 1A project. All rolls used were inspected by the Site CQA Manager as well as the liner installer CQA manager before use.

Parkhill

333 Rio Rancho Blvd. NE, Suite 400
Rio Rancho, New Mexico 87124
505.867.6990

GEONET DEPLOYMENT LOG

PROJECT NAME:	OWL, Landfill	**PROJECT NUMBER:**	6759-21
CLIENT:	OWL Landfill Services, LLC	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	
DEPLOYMENT LOCATION:	Floor	**MONITOR:**	Karl Ruiz/Tyler Krueger

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
41	10202100002227	268	14.5	3,886.0	10/31/21
42	10202100002301	300	14.5	4,350.0	10/31/21
43	10202100002338	300	14.5	4,350.0	10/31/21
44	10202100002275	300	14.5	4,350.0	10/31/21
45	10202100002324	300	14.5	4,350.0	10/31/21
46	10202100002303	300	14.5	4,350.0	10/31/21
47	10202100002365	300	14.5	4,350.0	10/31/21
48	10202100002302	300	14.5	4,350.0	10/31/21
49	10202100002328	300	14.5	4,350.0	10/31/21
50	10202100002304	300	14.5	4,350.0	10/31/21
51	10202100002316	300	14.5	4,350.0	10/31/21
52	10202100002323	300	14.5	4,350.0	10/31/21
53	10202100002367	300	14.5	4,350.0	10/31/21
54	10202100002332	300	14.5	4,350.0	10/31/21
55	10202100002223	28	14.5	406.0	10/31/21
56	10202100002044	33	14.5	478.5	10/31/21
57	10202100002044	31	14.5	449.5	10/31/21
58	10202100002044	30	14.5	435.0	10/31/21
59	10202100002227	32	14.5	464.0	10/31/21
60	10202100002044	32	14.5	464.0	10/31/21
61	10202100002044	34	14.5	493.0	10/31/21
62	10202100002044	42	14.5	609.0	10/31/21
63	10202100002255	76	15	1,140.0	10/31/21
64	10202100002255	76	15	1,140.0	10/31/21
65	10202100002327	82	14.5	1,189.0	10/31/21
66	10202100002327	88	14.5	1,276.0	10/31/21
67	10202100002327	99	14.5	1,435.5	10/31/21
68	10202100002269	300	14.5	4,350.0	11/4/21
69	10202100002307	300	14.5	4,350.0	11/4/21
70	10202100002255	83	15	1,245.0	11/4/21
			TOTAL LINER PLACED (FT^2):	80,360.5	

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APPENDIX C: CELL 3 A/B LINER INSTALLATION DOCUMENTATION

C.13 Primary FML Deployment Log

Parkhill

333 Rio Rancho Blvd. NE, Suite 400
Rio Rancho, New Mexico 87124
505.867.6990

FML DEPLOYMENT LOG

PROJECT NAME: OWL, Landfill
CLIENT: OWL
PROJECT LOCATION: Lea County, New Mexico
PROJECT NUMBER: 6759-21
CONTRACTOR: Mustang Extreme
SHEET NUMBER:

DEPLOYMENT LOCATION: Primary
MONITOR: Karl Ruiz/Tyler Krueger

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
1	0108207239	281	22.5	6,322.5	10/10/21
2	0108207260	374	22.5	8,415.0	10/10/21
3	0001	125	22.5	2,812.5	10/10/21
4	010220311	125	22.5	2,812.5	10/16/21
5	010220311	125	22.5	2,812.5	10/16/21
6	010220311	125	22.5	2,812.5	10/16/21
7	010220314	125	22.5	2,812.5	10/16/21
8	010220314	125	22.5	2,812.5	10/16/21
9	010220314	126	22.5	2,835.0	10/16/21
10	010220310	126	22.5	2,835.0	10/16/21
11	010220310	126	22.5	2,835.0	10/16/21
12	0108207289	391	22.5	8,797.5	10/18/21
13	0108207252	273	22.5	6,142.5	10/18/21
14	0108207252	257	22.5	5,782.5	10/18/21
15	0108207273	409	22.5	9,202.5	10/18/21
16	0108207270	555	22.5	12,487.5	10/18/21
17	0108207243	109	22.5	2,452.5	10/18/21
18	0108207243	421	22.5	9,472.5	10/18/21
19	0108207247	245	22.5	5,512.5	10/18/21
20	0108207273	162	22.5	3,645.0	10/18/21
21	0108207251	141	22.5	3,172.5	10/18/21
22	0108207250	182	22.5	4,095.0	10/18/21
23	0108207275	483	22.5	10,867.5	10/18/21
24	0108207242	555	22.5	12,487.5	10/18/21
25	0108207275	74	22.5	1,665.0	10/18/21
26	010220287	38	22.5	855.0	10/18/21
27	0108207261	552	22.5	12,420.0	10/18/21
28	010220314	99	22.5	2,227.5	10/18/21
29	0108207260	10	22.5	225.0	10/18/21
30	0108207571	363	22.5	8,167.5	10/18/21
31	010220303	123	22.5	2,767.5	10/25/21
32	010220303	123	22.5	2,767.5	10/25/21
33	010220303	120	22.5	2,700.0	10/25/21
34	010220306	120	22.5	2,700.0	10/25/21
35	010220306	118	22.5	2,655.0	10/25/21
36	010220306	116	22.5	2,610.0	10/25/21
37	010220321	116	22.5	2,610.0	10/25/21
38	010220321	113	22.5	2,542.5	10/25/21
39	010220321	113	22.5	2,542.5	10/25/21
40	0105205059	558	22.5	12,555.0	11/1/21
			TOTAL LINER PLACED (FT^2):	196,245.0	

Roll 0001 is from the Cell 1A project. All rolls used were inspected by the Site CQA Manager as well as the liner installer CQA manager before use.

Parkhill

333 Rio Rancho Blvd. NE, Suite 400
Rio Rancho, New Mexico 87124
505.867.6990

FML DEPLOYMENT LOG

PROJECT NAME: OWL, Landfill
CLIENT: OWL
PROJECT LOCATION: Lea County, New Mexico
PROJECT NUMBER: 6759-21
CONTRACTOR: Mustang Extreme
SHEET NUMBER:

DEPLOYMENT LOCATION: Primary
MONITOR: Karl Ruiz/Tyler Krueger

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
41	0105205075	558	22.5	12,555.0	11/1/21
42	0105205076	558	22.5	12,555.0	11/1/21
43	0105205077	556	22.5	12,510.0	11/1/21
44	0105205057	556	22.5	12,510.0	11/1/21
45	0105205078	557	22.5	12,532.5	11/1/21
46	0105205056	557	22.5	12,532.5	11/2/21
47	0105205082	557	22.5	12,532.5	11/2/21
48	0105205079	105	22.5	2,362.5	11/2/21
49	0105205079	107	22.5	2,407.5	11/2/21
50	0105205079	112	22.5	2,520.0	11/2/21
51	0105205079	113	22.5	2,542.5	11/2/21
52	0105205079	99	22.5	2,227.5	11/2/21
53	0105205081	15	22.5	337.5	11/2/21
54	0105205081	117	22.5	2,632.5	11/2/21
55	0105205081	119	22.5	2,677.5	11/2/21
56	0105205081	119	22.5	2,677.5	11/2/21
57	0105205063	557	22.5	12,532.5	11/4/21
58	0105205081	119	22.5	2,677.5	11/4/21
			TOTAL LINER PLACED (FT^2):	123,322.5	

Parkhill

APPENDIX C: CELL 3 A/B LINER INSTALLATION DOCUMENTATION

C.14 Primary FML Seaming Log

Parkhill

333 Rio Rancho Blvd. NE, Suite 400
Rio Rancho, New Mexico 87124
505.867.6990

FML SEAMING LOG

PROJECT NAME: OWL, Landfill
PROJECT NUMBER: 6759-21
OWNER: OWL
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER:

SEAMING LOCATION: Primary

	DATE	PANEL #/PANEL #	APPROX. LENGTH WELDED	START TIME	SEAMER INITIALS	MACHINE #	TEMP SETTING	SPEED SETTING	DESTRUCTIVE TEST	MONITORED BY
1	10/10/21	2-E29	11	840	AS	01	850	6.0		Karl Ruiz
2	10/10/21	2-E29	11	842	AS	01	850	6.0		Karl Ruiz
3	10/10/21	2-E28	22	845	AS	01	850	6.0		Karl Ruiz
4	10/10/21	2-E27	22	850	AS	01	850	6.0		Karl Ruiz
5	10/10/21	2-E26	22	855	AS	01	850	6.0		Karl Ruiz
6	10/10/21	2-E25	22	900	AS	01	850	6.0		Karl Ruiz
7	10/10/21	2-E24	22	905	AS	01	850	6.0		Karl Ruiz
8	10/10/21	2-E23	22	910	AS	01	850	6.0		Karl Ruiz
9	10/10/21	2-E22	22	915	AS	01	850	6.0	DS 1	Karl Ruiz
10	10/10/21	2-E21	22	920	AS	01	850	6.0		Karl Ruiz
11	10/10/21	2-E20	22	925	AS	01	850	6.0		Karl Ruiz
12	10/10/21	2-E19	22	930	AS	01	850	6.0		Karl Ruiz
13	10/10/21	2-E18	22	935	AS	01	850	6.0		Karl Ruiz
14	10/10/21	2-E17	11	937	AS	01	850	6.0		Karl Ruiz
15	10/10/21	2-E17	11	940	AS	01	850	6.0		Karl Ruiz
16	10/10/21	2-E16	22	945	AS	01	850	6.0		Karl Ruiz
17	10/10/21	2-E15	22	950	AS	01	850	6.0		Karl Ruiz
18	10/10/21	2-E14	22	955	AS	01	850	6.0		Karl Ruiz
19	10/10/21	2-E13	8	957	AS	01	850	6.0		Karl Ruiz
20	10/10/21	1-E13	14	730	AS	01	850	6.0		Karl Ruiz
21	10/10/21	1-E12	22	731	AS	01	850	6.0		Karl Ruiz
22	10/10/21	1-E11	22	735	AS	01	850	6.0		Karl Ruiz
23	10/10/21	1-E10	22	740	AS	01	850	6.0		Karl Ruiz
24	10/10/21	1-E9	22	945	AS	01	850	6.0		Karl Ruiz

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FML SEAMING LOG

PROJECT NAME: OWL, Landfill
PROJECT NUMBER: 6759-21
OWNER: OWL
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER:

SEAMING LOCATION: Primary

	DATE	PANEL #/PANEL #	APPROX. LENGTH WELDED	START TIME	SEAMER INITIALS	MACHINE #	TEMP SETTING	SPEED SETTING	DESTRUCTIVE TEST	MONITORED BY
25	10/10/21	1-E8	22	950	AS	01	850	6.0		Karl Ruiz
26	10/10/21	1-E7	22	955	AS	01	850	6.0		Karl Ruiz
27	10/10/21	1-E6	22	959	AS	01	850	6.0		Karl Ruiz
28	10/10/21	1-E5	22	805	AS	01	850	6.0		Karl Ruiz
29	10/10/21	1-E4	11	810	AS	01	850	6.0		Karl Ruiz
30	10/10/21	1-E4	11	815	AS	01	850	6.0		Karl Ruiz
31	10/10/21	1-E3	22	817	AS	01	850	6.0		Karl Ruiz
32	10/10/21	1-2E	22	820	AS	01	850	6.0		Karl Ruiz
33	10/10/21	1-E1	20	825	AS	01	850	6.0		Karl Ruiz
34	10/10/21	1-3	22	900	AZ	01	850	6.0		Karl Ruiz
35	10/10/21	3-E31	22	1015	AZ	01	850	6.0		Karl Ruiz
36	10/10/21	3-E31	98	1017	AZ	01	850	6.0		Karl Ruiz
37	10/10/21	1-2	22	830	AS	01	850	6.0		Karl Ruiz
38	10/16/21	3-4	125	1440	AS	01	850	6.0	DS 3	Karl Ruiz
39	10/16/21	4-5	125	1500	AS	01	850	6.0		Karl Ruiz
40	10/16/21	5-6	125	1508	AZ	02	850	6.0		Karl Ruiz
41	10/16/21	6-7	126	1520	AS	01	850	6.0		Karl Ruiz
42	10/16/21	7-8	128	1500	AZ	02	850	6.0		Karl Ruiz
43	10/16/21	8-9	129	1530	AS	01	850	6.0	DS 10	Karl Ruiz
44	10/16/21	9-10	130	1600	AZ	02	850	6.0	DS 13	Karl Ruiz
45	10/16/21	10-11	130	1605	AS	01	850	6.0		Karl Ruiz
46	10/19/21	4-12	22	800	AZ	02	850	6.0		Karl Ruiz
47	10/19/21	5-14	22	805	AZ	02	850	6.0		Karl Ruiz
48	10/19/21	6-16	22	809	AZ	02	850	6.0		Karl Ruiz
49	10/19/21	7-18	22	814	AZ	02	850	6.0		Karl Ruiz

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FML SEAMING LOG

PROJECT NAME: OWL, Landfill
PROJECT NUMBER: 6759-21
OWNER: OWL
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER:

SEAMING LOCATION: Primary

	DATE	PANEL #/PANEL #	APPROX. LENGTH WELDED	START TIME	SEAMER INITIALS	MACHINE #	TEMP SETTING	SPEED SETTING	DESTRUCTIVE TEST	MONITORED BY
50	10/19/21	8-20	22	819	AZ	02	850	6.0		Karl Ruiz
51	10/19/21	9-22	22	824	AZ	02	850	6.0		Karl Ruiz
52	10/19/21	10-24	11	829	AZ	02	850	6.0		Karl Ruiz
53	10/29/21	10-24	11	832	AZ	02	850	6.0		Tyler Krueger
54	10/19/21	11-27	10	834	AZ	02	850	6.0		Karl Ruiz
55	10/18/21	1-12	282	815	AZ	02	850	6.0		Karl Ruiz
56	10/18/21	12-14	257	905	AZ	02	850	6.0	DS 4	Karl Ruiz
57	10/18/21	14-15	22	900	AZ	02	850	6.0		Karl Ruiz
58	10/18/21	12-15	139	918	AZ	02	850	6.0		Karl Ruiz
59	10/18/21	2-12	109	800	AZ	02	850	6.0	DS 2	Karl Ruiz
60	10/18/21	2-13	273	800	AS	01	850	6.0		Karl Ruiz
61	10/18/21	12-13	22	750	AZ	02	850	6.0		Karl Ruiz
62	10/18/21	13-15	273	840	AS	01	850	6.0		Karl Ruiz
63	10/18/21	16-17	5	930	AS	01	850	6.0		Karl Ruiz
64	10/18/21	16-17	17	931	AS	01	850	6.0		Karl Ruiz
65	10/18/21	26-29	10	1610	AZ	02	850	6.0	DS 15	Karl Ruiz
66	10/18/21	28-29	22	1555	AZ	02	850	6.0		Karl Ruiz
67	10/18/21	26-28	27	1615	AZ	02	850	6.0		Karl Ruiz
68	10/18/21	25-28	72	1605	AZ	02	850	6.0		Karl Ruiz
69	10/18/21	24-25	22	1430	AS	01	850	6.0		Karl Ruiz
70	10/18/21	25-26	22	1517	AZ	02	850	6.0		Karl Ruiz
71	10/18/21	23-26	38	1528	AZ	02	850	6.0		Karl Ruiz
72	10/18/21	23-25	71	1535	AZ	02	850	6.0		Karl Ruiz
73	10/18/21	14-16	257	945	AZ	02	850	6.0	DS 6	Karl Ruiz

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FML SEAMING LOG

PROJECT NAME: OWL, Landfill
PROJECT NUMBER: 6759-21
OWNER: OWL
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER:

SEAMING LOCATION: Primary

	DATE	PANEL #/PANEL #	APPROX. LENGTH WELDED	START TIME	SEAMER INITIALS	MACHINE #	TEMP SETTING	SPEED SETTING	DESTRUCTIVE TEST	MONITORED BY
74	10/18/21	23-24	376	1446	AS	01	850	6.0	DS 12	Karl Ruiz
75	10/18/21	15-16	300	1000	AS	01	850	6.0	DS 5	Karl Ruiz
76	10/18/21	15-17	109	945	AS	01	850	6.0		Karl Ruiz
77	10/18/21	17-19	109	1045	AS	01	850	6.0	DS 8	Karl Ruiz
78	10/18/21	16-19	136	1100	AS	01	850	6.0		Karl Ruiz
79	10/18/21	16-18	421	1036	AZ	02	850	6.0	DS 7	Karl Ruiz
80	10/18/21	22-24	182	1525	AS	01	850	6.0		Karl Ruiz
81	10/18/21	24-27	70	1530	AS	01	850	6.0	DS 14	Karl Ruiz
82	10/18/21	24-27	112	1545	AS	01	850	6.0		Karl Ruiz
83	10/18/21	24-27	151	1550	AS	01	850	6.0		Karl Ruiz
84	10/18/21	24-27	219	1615	AS	01	850	6.0		Karl Ruiz
85	10/25/21	11-31	123	1200	AS	01	850	6.0		Karl Ruiz
86	10/25/21	31-32	123	1225	AS	01	850	6.0		Karl Ruiz
87	10/25/21	32-33	120	1227	AZ	02	850	6.0		Karl Ruiz
88	10/25/21	33-34	80	1246	AS	01	850	6.0	DS 16	Karl Ruiz
89	10/25/21	33-34	40	1258	AS	01	850	6.0		Karl Ruiz
90	10/25/21	34-35	120	1245	AZ	02	850	6.0		Karl Ruiz
91	10/25/21	35-36	116	1300	AS	01	850	6.0		Karl Ruiz
92	10/25/21	36-37	116	1315	AZ	02	850	6.0		Karl Ruiz
93	10/25/21	37-38	113	1330	AS	01	850	6.0		Karl Ruiz
94	10/25/21	38-39	113	1425	AZ	02	850	6.0	DS 17	Karl Ruiz
95	10/18/21	18-20	162	1200	AZ	02	850	6.0		Karl Ruiz
96	10/18/21	18-21	141	1145	AZ	02	850	6.0	DS 9	Karl Ruiz
97	10/18/21	18-30	118	1150	AS	01	850	6.0		Karl Ruiz
98	10/18/21	19-30	245	1120	AS	01	850	6.0		Karl Ruiz

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FML SEAMING LOG

PROJECT NAME: OWL, Landfill
OWNER: OWL
PROJECT LOCATION: Lea County, New Mexico
SEAMING LOCATION: Primary

PROJECT NUMBER: 6759-21
CONTRACTOR: Mustang Extreme
SHEET NUMBER:

	DATE	PANEL #/PANEL #	APPROX. LENGTH WELDED	START TIME	SEAMER INITIALS	MACHINE #	TEMP SETTING	SPEED SETTING	DESTRUCTIVE TEST	MONITORED BY
99	10/18/21	18-19	22	1025	AZ	02	850	6.0		Karl Ruiz
100	10/18/21	20-22	162	1350	AZ	02	850	6.0		Karl Ruiz
101	10/18/21	21-22	20	1346	AZ	02	850	6.0		Karl Ruiz
102	10/18/21	21-23	121	1400	AS	01	850	6.0		Karl Ruiz
103	10/18/21	23-30	363	1317	AS	01	850	6.0	DS 11	Karl Ruiz
104	10/18/21	21-30	22	1140	AZ	02	850	6.0		Karl Ruiz
105	10/18/21	20-21	22	1130	AZ	03	850	6.0		Karl Ruiz
106	10/18/21	22-23	22	1314	AZ	04	850	6.0		Karl Ruiz
107	10/18/21	27-28	22	1550	AZ	02	850	6.0		Karl Ruiz
108	11/2/21	47-56	22	1125	AS	01	850	6.0		Tyler Krueger
109	11/4/21	56-58	118	1115	AS	01	850	6.0	DS 30	Tyler Krueger
110	11/4/21	57-58	22	1100	AS	01	850	6.0		Tyler Krueger
111	11/2/21	51-53	18	1030	AS	01	850	6.0		Tyler Krueger
112	11/2/21	52-53	22	1030	AZ	02	850	6.0		Tyler Krueger
113	11/2/21	53-54	18	1047	AS	01	850	6.0		Tyler Krueger
114	11/1/21	27-40	71	1030	AS	01	850	6.0	DS 18	Tyler Krueger
115	11/1/21	27-40	28	1038	AS	01	850	6.0		Tyler Krueger
116	11/1/21	27-40	309	1044	AS	01	850	6.0		Tyler Krueger
117	11/1/21	27-40	74	1120	AS	01	850	6.0		Tyler Krueger
118	11/1/21	27-40	35	1130	AS	01	850	6.0		Tyler Krueger
119	11/1/21	27-40	13	1138	AS	01	850	6.0		Tyler Krueger
120	11/1/21	40-41	542	1050	AZ	02	850	6.0	DS 19	Tyler Krueger
121	11/1/21	41-42	105	1255	AZ	02	850	6.0	DS 20	Tyler Krueger
122	11/1/21	41-42	394	1315	AZ	02	850	6.0		Tyler Krueger

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FML SEAMING LOG

PROJECT NAME: OWL, Landfill
OWNER: OWL
PROJECT LOCATION: Lea County, New Mexico
SEAMING LOCATION: Primary

PROJECT NUMBER: 6759-21
CONTRACTOR: Mustang Extreme
SHEET NUMBER:

	DATE	PANEL #/PANEL #	APPROX. LENGTH WELDED	START TIME	SEAMER INITIALS	MACHINE #	TEMP SETTING	SPEED SETTING	DESTRUCTIVE TEST	MONITORED BY
123	11/1/21	41-42	60	1345	AZ	02	850	6.0		Tyler Krueger
124	11/1/21	42-43	557	1300	AS	01	850	6.0	DS 21	Tyler Krueger
125	11/1/21	43-44	556	1405	AZ	02	850	6.0	DS 22	Tyler Krueger
126	11/1/21	44-45	556	1420	AS	01	850	6.0	DS 23	Tyler Krueger
127	11/2/21	45-46	557	740	AS	01	850	6.0	DS 24-25	Tyler Krueger
128	11/2/21	46-47	557	820	AZ	02	850	6.0	DS 26	Tyler Krueger
129	11/4/21	47-57	400	1015	AS	01	850	6.0	DS 27	Tyler Krueger
130	11/1/21	31-40	11	1550	AZ	02	850	6.0		Tyler Krueger
131	11/1/21	32-41	22	1600	AZ	02	850	6.0		Tyler Krueger
132	11/2/21	33-42	22	1230	AS	01	850	6.0		Tyler Krueger
133	11/2/21	34-43	10	1255	AS	01	850	6.0		Tyler Krueger
134	11/2/21	35-44	11	1240	AS	01	850	6.0		Tyler Krueger
135	11/2/21	35-44	11	1244	AS	01	850	6.0		Tyler Krueger
136	11/2/21	36-45	22	1246	AS	01	850	6.0		Tyler Krueger
137	11/2/21	37-46	22	1250	AS	01	850	6.0		Tyler Krueger
138	11/2/21	38-47	22	1255	AS	01	850	6.0		Tyler Krueger
139	11/4/21	39-57	22	1437	AS	01	850	6.0		Tyler Krueger
140	11/2/21	28-48	99	930	AS	01	850	6.0		Tyler Krueger
141	11/2/21	40-48	22	1105	AZ	02	850	6.0	DS 28	Tyler Krueger
142	11/2/21	29-48	9	940	AS	01	850	6.0		Tyler Krueger
143	11/2/21	48-49	109	940	AZ	02	850	6.0	DS 29	Tyler Krueger
144	11/2/21	41-49	22	1109	AZ	02	850	6.0		Tyler Krueger
145	11/2/21	49-50	111	950	AS	01	850	6.0		Tyler Krueger
146	11/2/21	42-50	22	1114	AZ	02	850	6.0		Tyler Krueger

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FML SEAMING LOG

PROJECT NAME: OWL, Landfill
PROJECT NUMBER: 6759-21
OWNER: OWL
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER:

SEAMING LOCATION: Primary

	DATE	PANEL #/PANEL #	APPROX. LENGTH WELDED	START TIME	SEAMER INITIALS	MACHINE #	TEMP SETTING	SPEED SETTING	DESTRUCTIVE TEST	MONITORED BY
147	11/2/21	50-51	116	956	AZ	02	850	6.0		Tyler Krueger
148	11/2/21	43-51	22	1119	AZ	02	850	6.0		Tyler Krueger
149	11/2/21	51-52	97	1012	AS	01	850	6.0		Tyler Krueger
150	11/2/21	44-52	22	1124	AZ	02	850	6.0		Tyler Krueger
151	11/2/21	52-54	97	1037	AS	01	850	6.0		Tyler Krueger
152	11/2/21	45-54	22	1115	AS	01	850	6.0		Tyler Krueger
153	11/2/21	54-55	118	1040	AZ	02	850	6.0		Tyler Krueger
154	11/2/21	46-55	22	1120	AS	01	850	6.0		Tyler Krueger
155	11/2/21	55-56	118	1056	AS	01	850	6.0		Tyler Krueger

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APPENDIX C: CELL 3 A/B LINER INSTALLATION DOCUMENTATION

C.15 Primary FML Seam Pressure Test Log

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Rio Rancho, New Mexico 87124
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FML SEAMING PRESSURE TEST LOG

PROJECT NAME:	OWL, Landfill	**PROJECT NUMBER:**	6759-21
OWNER:	Oilfield Water Logistics	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	1

PRESSURE TEST LOCATION: Primary

PROJECT SPECIFICATIONS	
MIN START PSI:	30
TEST DURATION:	5 minutes
MAX PSI DROP:	30

	DATE	PANEL #/PANEL #	TESTER	TIME		PRESSURE		MONITORED BY	PASS/FAIL
				START	FINISH	INITIAL	FINAL		
1	10/11/21	2-E29	AS	700	705	30	30	Karl Ruiz	PASS
2	10/11/21	2-E29	AS	700	705	30	30	Karl Ruiz	PASS
3	10/11/21	2-E28	AS	705	710	30	30	Karl Ruiz	PASS
4	10/11/21	2-E27	AS	710	715	30	30	Karl Ruiz	PASS
5	10/11/21	2-E26	AS	710	715	30	30	Karl Ruiz	PASS
6	10/11/21	2-E25	AS	715	720	30	30	Karl Ruiz	PASS
7	10/11/21	2-E24	AS	715	720	30	30	Karl Ruiz	PASS
8	10/11/21	2-E23	AS	720	725	30	30	Karl Ruiz	PASS
9	10/11/21	2-E22	AS	720	725	30	30	Karl Ruiz	PASS
10	10/11/21	2-E21	AS	725	730	30	30	Karl Ruiz	PASS
11	10/11/21	2-E20	AS	725	730	30	30	Karl Ruiz	PASS
12	10/11/21	2-E19	AS	730	735	30	30	Karl Ruiz	PASS
13	10/11/21	2-E18	AS	735	740	30	30	Karl Ruiz	PASS
14	10/11/21	2-E17	AS	800	805	30	30	Karl Ruiz	PASS
15	10/11/21	2-E17	AS	800	805	30	30	Karl Ruiz	PASS
16	10/11/21	2-E16	AS	805	810	30	30	Karl Ruiz	PASS
17	10/11/21	2-E15	AS	805	810	30	30	Karl Ruiz	PASS
18	10/11/21	2-E14	AS	810	815	30	30	Karl Ruiz	PASS
19	10/11/21	2-E13	AS	1000	1005	30	30	Karl Ruiz	PASS
20	10/11/21	1-E13	AS	1005	1010	30	30	Karl Ruiz	PASS
21	10/11/21	1-E12	AS	1005	1010	30	30	Karl Ruiz	PASS
22	10/11/21	1-E11	AS	815	820	30	30	Karl Ruiz	PASS
23	10/11/21	1-E10	AS	815	820	30	30	Karl Ruiz	PASS
24	10/11/21	1-E9	AS	815	820	30	30	Karl Ruiz	PASS
25	10/11/21	1-E8	AS	815	820	30	30	Karl Ruiz	PASS
26	10/11/21	1-E7	AS	820	825	30	30	Karl Ruiz	PASS
27	10/11/21	1-E6	AS	820	825	30	30	Karl Ruiz	PASS
28	10/11/21	1-E5	AS	850	855	30	30	Karl Ruiz	PASS
29	10/11/21	1-E4	AS	850	855	30	30	Karl Ruiz	PASS
30	10/11/21	1-E4	AS	855	860	30	30	Karl Ruiz	PASS
31	10/11/21	1-E3	AS	855	860	30	30	Karl Ruiz	PASS
32	10/11/21	1-2E	AS	900	905	30	30	Karl Ruiz	PASS
33	10/11/21	1-E1	AS	905	910	30	30	Karl Ruiz	PASS
34	10/11/21	1-3	AS	915	920	30	30	Karl Ruiz	PASS
35	10/11/21	3-E31	AS	920	925	30	30	Karl Ruiz	PASS
36	10/11/21	3-E31	AS	920	925	30	30	Karl Ruiz	PASS
37	10/11/21	1-2	AS	1005	1010	30	30	Karl Ruiz	PASS
38	10/16/21	3-4	NY	1523	1528	30	30	Karl Ruiz	PASS
39	10/16/21	4-5	NY	1525	1530	30	30	Karl Ruiz	PASS
40	10/16/21	5-6	NY	1533	1538	30	30	Karl Ruiz	PASS
41	10/16/21	6-7	NY	1541	1546	30	30	Karl Ruiz	PASS
42	10/16/21	7-8	NY	1544	1549	30	30	Karl Ruiz	PASS
43	10/16/21	8-9	NY	1558	1563	30	30	Karl Ruiz	PASS
44	10/19/21	9-10	AS	800	805	30	30	Karl Ruiz	PASS
45	10/19/21	10-11	AS	905	910	30	30	Karl Ruiz	PASS
46	10/19/21	4-12	AS	820	825	30	30	Karl Ruiz	PASS
47	10/19/21	5-14	AS	825	830	30	30	Karl Ruiz	PASS
48	10/19/21	6-16	AS	840	845	30	30	Karl Ruiz	PASS
49	10/19/21	7-18	AS	845	850	30	30	Karl Ruiz	PASS
50	10/19/21	8-20	AS	850	855	30	30	Karl Ruiz	PASS

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FML SEAMING PRESSURE TEST LOG

PROJECT SPECIFICATIONS	
MIN START PSI:	30
TEST DURATION:	5 minutes
MAX PSI DROP:	30

PROJECT NAME: OWL, Landfill
PROJECT NUMBER: 6759-21
OWNER: Oilfield Water Logistics
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 2

PRESSURE TEST LOCATION: Primary

	DATE	PANEL #/PANEL #	TESTER	TIME		PRESSURE		MONITORED BY	PASS/FAIL
				START	FINISH	INITIAL	FINAL		
51	10/19/21	9-22	AS	855	860	30	30	Karl Ruiz	PASS
52	10/19/21	10-24	AS	905	910	30	30	Karl Ruiz	PASS
53	10/19/21	10-24	AS	905	910	30	30	Karl Ruiz	PASS
54	10/19/21	11-27	AS	915	920	30	30	Karl Ruiz	PASS
55	10/18/21	1-12	NY	949	954	31	30	Karl Ruiz	PASS
56	10/19/21	12-14	AS	820	825	32	30	Karl Ruiz	PASS
57	10/19/21	14-15	AS	705	710	33	30	Karl Ruiz	PASS
58	10/18/21	12-15	NY	948	953	34	30	Karl Ruiz	PASS
59	10/18/21	2-12	NY	938	943	35	30	Karl Ruiz	PASS
60	10/18/21	2-13	NY	936	941	36	30	Karl Ruiz	PASS
61	10/18/21	12-13	NY	937	942	37	30	Karl Ruiz	PASS
62	10/18/21	13-15	NY	947	952	38	30	Karl Ruiz	PASS
63	10/18/21	16-17	NY	1040	1045	39	30	Karl Ruiz	PASS
64	10/18/21	16-17	NY	1040	1045	40	30	Karl Ruiz	PASS
65	10/19/21	26-29	AS	730	735	41	30	Karl Ruiz	PASS
66	10/19/21	28-29	AS	730	735	42	30	Karl Ruiz	PASS
67	10/19/21	26-28	AS	735	740	43	30	Karl Ruiz	PASS
68	10/19/21	25-28	AS	740	745	44	30	Karl Ruiz	PASS
69	10/19/21	24-25	AS	725	730	45	30	Karl Ruiz	PASS
70	10/19/21	25-26	AS	730	735	46	30	Karl Ruiz	PASS
71	10/19/21	23-26	AS	730	735	47	30	Karl Ruiz	PASS
72	10/19/21	23-25	AS	725	730	48	30	Karl Ruiz	PASS
73	10/18/21	14-16	NY	1220	1225	49	30	Karl Ruiz	PASS
74	10/19/21	23-24	AS	810	815	50	30	Karl Ruiz	PASS
75	10/18/21	15-16	NY	1055	1060	51	30	Karl Ruiz	PASS
76	10/18/21	15-17	NY	1035	1040	52	30	Karl Ruiz	PASS
77	10/18/21	17-19	NY	1600	1605	53	30	Karl Ruiz	PASS
78	10/18/21	16-19	NY	1126	1131	54	30	Karl Ruiz	PASS
79	10/18/21	16-18	NY	1545	1550	55	30	Karl Ruiz	PASS
80	10/18/21	22-24	NY	810	815	56	30	Karl Ruiz	PASS
81	10/19/21	24-27	NY	915	920	57	30	Karl Ruiz	PASS
82	10/19/21	24-27	AS	915	920	30	30	Karl Ruiz	PASS
83	10/18/21	24-27	AS	1610	1615	30	30	Karl Ruiz	PASS
84	10/19/21	24-27	AS	750	755	30	30	Karl Ruiz	PASS
85	10/25/21	11-31	NY	1308	1313	30	30	Tyler Krueger	PASS
86	10/25/21	31-32	NY	1313	1318	30	30	Tyler Krueger	PASS
87	10/25/21	32-33	NY	1317	1322	30	30	Tyler Krueger	PASS
88	10/25/21	33-34	NY	1320	1325	30	30	Tyler Krueger	PASS
89	10/25/21	33-34	NY	1325	1330	30	30	Tyler Krueger	PASS
90	10/25/21	34-35	NY	1330	1335	30	30	Tyler Krueger	PASS
91	10/25/21	35-36	NY	1401	1406	30	30	Tyler Krueger	PASS
92	10/25/21	36-37	NY	1420	1425	30	30	Tyler Krueger	PASS
93	10/25/21	37-38	NY	1410	1415	30	30	Tyler Krueger	PASS
94	10/25/21	38-39	NY	1435	1440	30	30	Tyler Krueger	PASS
95	10/19/21	18-20	AS	845	850	30	30	Karl Ruiz	PASS
96	10/18/21	18-21	NY	1600	1605	30	30	Karl Ruiz	PASS
97	10/19/21	18-30	AS	710	715	30	30	Karl Ruiz	PASS
98	10/19/21	19-30	AS	720	725	30	30	Karl Ruiz	PASS
99	10/18/21	18-19	NY	1120	1125	30	30	Karl Ruiz	PASS
100	10/19/21	20-22	AS	850	855	30	30	Karl Ruiz	PASS

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FML SEAMING PRESSURE TEST LOG

PROJECT SPECIFICATIONS	
MIN START PSI:	30
TEST DURATION:	5 minutes
MAX PSI DROP:	30

PROJECT NAME: OWL, Landfill
PROJECT NUMBER: 6759-21
OWNER: Oilfield Water Logistics
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER: 3

PRESSURE TEST LOCATION: Primary

	DATE	PANEL #/PANEL #		TESTER	TIME		PRESSURE		MONITORED BY	PASS/FAIL
					START	FINISH	INITIAL	FINAL		
101	10/19/21	21-22	21-22	AS	815	820	30	30	Karl Ruiz	PASS
102	10/19/21	21-23	21-23	AS	715	720	30	30	Karl Ruiz	PASS
103	10/19/21	23-30	23-30	AS	715	720	30	30	Karl Ruiz	PASS
104	10/19/21	21-30	21-30	AS	710	715	30	30	Karl Ruiz	PASS
105	10/19/21	20-21	20-21	AS	815	820	30	30	Karl Ruiz	PASS
106	10/19/21	22-23	22-23	AS	800	805	30	30	Karl Ruiz	PASS
107	10/19/21	27-28	27-28	AS	725	730	30	30	Karl Ruiz	PASS
108	11/4/21	47-56	47-56	AS	1505	1510	30	30	Tyler Krueger	PASS
109	11/4/21	56-58	56-58	AS	1404	1409	30	30	Tyler Krueger	PASS
110	11/4/21	57-58	57-58	AS	1404	1409	30	30	Tyler Krueger	PASS
111	11/4/21	51-53	51-53	AS	840	845	30	30	Tyler Krueger	PASS
112	11/4/21	52-53	52-53	AS	835	840	30	30	Tyler Krueger	PASS
113	11/4/21	53-54	53-54	AS	835	840	30	30	Tyler Krueger	PASS
114	11/1/21	27-40	27-40	NY	1325	1330	30	30	Tyler Krueger	PASS
115	11/1/21	27-40	27-40	NY	1325	1330	30	30	Tyler Krueger	PASS
116	11/1/21	27-40	27-40	NY	1350	1355	30	30	Tyler Krueger	PASS
117	11/1/21	27-40	27-40	NY	1350	1355	30	30	Tyler Krueger	PASS
118	11/1/21	27-40	27-40	NY	1355	1360	30	30	Tyler Krueger	PASS
119	11/1/21	27-40	27-40	NY	1355	1360	30	30	Tyler Krueger	PASS
120	11/1/21	40-41	40-41	NY	1555	1560	30	30	Tyler Krueger	PASS
121	11/5/21	41-42	41-42	NY	1327	1332	30	30	Tyler Krueger	PASS
122	11/1/21	41-42	41-42	NY	1550	1555	30	30	Tyler Krueger	PASS
123	11/1/21	41-42	41-42	NY	1540	1545	30	30	Tyler Krueger	PASS
124	11/2/21	42-43	42-43	NY	903	908	30	30	Tyler Krueger	PASS
125	11/2/21	43-44	43-44	NY	905	910	30	30	Tyler Krueger	PASS
126	11/2/21	44-45	44-45	NY	900	905	30	30	Tyler Krueger	PASS
127	11/2/21	45-46	45-46	NY	910	915	30	30	Tyler Krueger	PASS
128	11/2/21	46-47	46-47	NY	1500	1505	30	30	Tyler Krueger	PASS
129	11/4/21	47-57	47-57	AS	1600	1605	30	30	Tyler Krueger	PASS
130	11/1/21	31-40	31-40	AS	1607	1612	30	30	Tyler Krueger	PASS
131	11/4/21	32-41	32-41	AS	755	760	30	30	Tyler Krueger	PASS
132	11/4/21	33-42	33-42	AS	750	755	30	30	Tyler Krueger	PASS
133	11/4/21	34-43	34-43	AS	745	750	30	30	Tyler Krueger	PASS
134	11/4/21	35-44	35-44	AS	740	745	30	30	Tyler Krueger	PASS
135	11/4/21	35-44	35-44	AS	735	740	30	30	Tyler Krueger	PASS
136	11/4/21	36-45	36-45	AS	730	735	30	30	Tyler Krueger	PASS
137	11/4/21	37-46	37-46	AS	725	730	30	30	Tyler Krueger	PASS
138	11/4/21	38-47	38-47	AS	720	725	30	30	Tyler Krueger	PASS
139	11/4/21	39-57	39-57	AS	810	815	30	30	Tyler Krueger	PASS
140	11/4/21	28-48	28-48	AS	850	855	30	30	Tyler Krueger	PASS
141	11/4/21	40-48	40-48	AS	850	855	30	30	Tyler Krueger	PASS
142	11/4/21	29-48	29-48	AS	845	850	30	30	Tyler Krueger	PASS
143	11/4/21	48-49	48-49	AS	855	860	30	30	Tyler Krueger	PASS
144	11/4/21	41-49	41-49	AS	855	860	30	30	Tyler Krueger	PASS
145	11/4/21	49-50	49-50	AS	900	905	30	30	Tyler Krueger	PASS
146	11/4/21	42-50	42-50	AS	900	905	30	30	Tyler Krueger	PASS
147	11/4/21	50-51	50-51	AS	910	915	30	30	Tyler Krueger	PASS
148	11/4/21	43-51	43-51	AS	910	915	30	30	Tyler Krueger	PASS
149	11/4/21	51-52	51-52	AS	1450	1455	30	30	Tyler Krueger	PASS
150	11/4/21	44-52	44-52	AS	1450	1455	30	30	Tyler Krueger	PASS

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FML SEAMING PRESSURE TEST LOG

PROJECT NAME:	OWL, Landfill	**PROJECT NUMBER:**	6759-21
OWNER:	Oilfield Water Logistics	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	4

PROJECT SPECIFICATIONS	
MIN START PSI:	30
TEST DURATION:	5 minutes
MAX PSI DROP:	30

PRESSURE TEST LOCATION: Primary

	DATE	PANEL #/PANEL #	TESTER	TIME		PRESSURE		MONITORED BY	PASS/FAIL
				START	FINISH	INITIAL	FINAL		
151	11/4/21	52-54	AS	1455	1460	30	30	Tyler Krueger	PASS
152	11/4/21	45-54	AS	1455	1460	30	30	Tyler Krueger	PASS
153	11/4/21	54-55	AS	1500	1505	30	30	Tyler Krueger	PASS
154	11/4/21	46-55	AS	1500	1505	30	30	Tyler Krueger	PASS
155	114/21	55-56	AS	1503	1508	30	30	Tyler Krueger	PASS

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APPENDIX C: CELL 3 A/B LINER INSTALLATION DOCUMENTATION

C.16 FML Seam Vacuum Test and Defect-Repair Log

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FML SEAM VACUUM TEST/REPAIR LOG

PROJECT NAME: OWL,Landfill
PROJECT NUMBER: 6759-21
OWNER: OWL
CONTRACTOR: Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico
SHEET NUMBER:

TEST/REPAIR LOCATION: Secondary
MONITOR: Karl Ruiz/Tyler Krueger

	REPAIR DATE	PANEL	TYPE OF REPAIR	REPAIR TECH	NUMBER OF LEAKS	TESTING TECH ID	DATE ACCEPTED	COMMENTS
1	10/9/21	2-E16-E17, DS-1	P	KC	0	NY	10/9/21	PASS
2	10/9/21	E17, MIDDLE OF PANEL	P	KC	0	NY	10/9/21	PASS
3	10/9/21	2-E15-E16	P	KC	0	NY	10/9/21	PASS
4	10/9/21	2-E14-E15	P	KC	0	NY	10/9/21	PASS
5	10/9/21	2-E13-E14	P	JS	0	NY	10/9/21	PASS
6	10/9/21	2-E12-E13	P	JS	0	NY	10/9/21	PASS
7	10/9/21	2-E11-E12	P	JS	0	NY	10/9/21	PASS
8	10/9/21	2-E10-E11	P	JS	0	NY	10/9/21	PASS
9	10/9/21	2-E9-E10	P	KC	0	NY	10/9/21	PASS
10	10/9/21	2-E8-E9	P	JS	0	NY	10/9/21	PASS
11	10/9/21	2-E8	P	NM	0	NY	10/9/21	PASS
12	10/8/21	2-E7-E8	P	NM	0	NY	10/9/21	PASS
13	10/8/21	2-E6-E7	P	NM	0	NY	10/9/21	PASS
14	10/8/21	2-E5-E6	P	NM	0	NY	10/9/21	PASS
15	10/8/21	2-E4-E5	P	NM	0	NY	10/9/21	PASS
16	10/8/21	2-E3-E4	P	NM	0	NY	10/9/21	PASS
17	10/8/21	2-E2-E3	P	NM	0	NY	10/9/21	PASS
18	10/8/21	2-E1-E2	P	NM	0	NY	10/9/21	PASS
19	10/8/21	2-E1-E31	P	NM	0	NY	10/9/21	PASS
20	10/8/21	1-2-1A-E31	P	NM	0	NY	10/9/21	PASS
21	10/9/21	2-E17-E18	P	NM	0	NY	10/9/21	PASS
22	10/9/21	2-E18-E19	P	NM	0	NY	10/9/21	PASS
23	10/9/21	2-E19-E20	P	NM	0	NY	10/9/21	PASS
24	10/9/21	2-E20-E21	P	NM	0	NY	10/9/21	PASS
25	10/9/21	2-E21-E22	P	NM	0	NY	10/9/21	PASS
26	10/9/21	2-E22-E23	P	NM	0	NY	10/9/21	PASS
27	10/9/21	2-E23-E24	P	NM	0	NY	10/9/21	PASS
28	10/9/21	2-3-E24-E25	P	NM	0	NY	10/9/21	PASS
29	10/9/21	3-E25-E26	P	NM	0	NY	10/9/21	PASS
30	10/9/21	3-E26-E27	P	NM	0	NY	10/9/21	PASS
31	10/9/21	3-E27-E28	P	NM	0	NY	10/9/21	PASS
32	10/9/21	3-E28-E29	P	KC	0	NY	10/9/21	PASS
33	10/9/21	3-E29	P	KC	0	NY	10/9/21	PASS

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FML SEAM VACUUM TEST/REPAIR LOG

PROJECT NAME: OWL,Landfill **PROJECT NUMBER:** 6759-21
OWNER: OWL **CONTRACTOR:** Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico **SHEET NUMBER:** 1

TEST/REPAIR LOCATION: Secondary **MONITOR:** Karl Ruiz/Tyler Krueger

	REPAIR DATE	PANEL	TYPE OF REPAIR	REPAIR TECH	NUMBER OF LEAKS	TESTING TECH ID	DATE ACCEPTED	COMMENTS
1	10/9/2021	3-E29-E30	P	KC	0	NY	10/9/2021	PASS
2	10/9/2021	3-6, DS-3	P	KC	0	NY	10/9/2021	PASS
3	10/9/2021	2-3-6	P	KC	0	NY	10/9/2021	PASS
4	10/8/2021	2-5-6	P	KC	0	NY	10/8/2021	PASS
5	10/8/2021	2-5 , DS-2	P	JS	0	NY	10/8/2021	PASS
6	10/8/2021	2-5	P	JS	0	NY	10/8/2021	PASS
7	10/8/2021	2, 6' SOUTH OF 1A-2, MIDDLE OF PANEL	P	JS	0	NY	10/8/2021	PASS
8	10/8/2021	1-1A-2-4-5	P	JS	0	NY	10/8/2021	PASS
9	10/9/2021	1-E31, NAT	P	KC	0	NY	10/9/2021	PASS
10	10/8/2021	2-E2,	P	JS	0	NY	10/8/2021	PASS
11	10/14/2021	6-15-16	P	NM	0	NY	10/14/2021	PASS
12	10/14/2021	15-16-18	P	NM	0	NY	10/14/2021	PASS
13	10/14/2021	6-15	P	NM	0	NY	10/14/2021	PASS
14	10/14/2021	5-6-15	P	NM	0	NY	10/14/2021	PASS
15	10/14/2021	5-15,	P	NM	0	NY	10/14/2021	PASS
16	10/14/2021	15-17-18	P	NM	0	NY	10/14/2021	PASS
17	10/14/2021	17-18-20	P	NM	0	NY	10/14/2021	PASS
18	10/14/2021	17-19-20	P	NM	0	NY	10/14/2021	PASS
19	10/14/2021	19-20-21	P	NM	0	NY	10/14/2021	PASS
20	10/14/2021	17-19, DS-6	P	NM	0	NY	10/14/2021	PASS
21	10/14/2021	15-17, DS-5	P	NM	0	NY	10/14/2021	PASS
22	10/14/2021	6-16, DS-7	P	NM	0	NY	10/14/2021	PASS
23	10/14/2021	20-22, DS-8	P	NM	0	NY	10/14/2021	PASS
24	10/14/2021	20-21-22	P	NM	0	NY	10/14/2021	PASS
25	10/14/2021	19-21, DS-9	P	NM	0	NY	10/14/2021	PASS
26	10/14/2021	21-22-23	P	NM	0	NY	10/14/2021	PASS
27	10/14/2021	22-23-24	P	NM	0	NY	10/14/2021	PASS
28	10/14/2021	23-24-25-26	P	NM	0	NY	10/14/2021	PASS
29	10/14/2021	24-26-27	P	NM	0	NY	10/14/2021	PASS
30	10/14/2021	26-27-28	P	NM	0	NY	10/14/2021	PASS
31	10/14/2021	25-26-28	P	NM	0	NY	10/14/2021	PASS
32	10/15/2021	23-25	P	KC	0	NY	10/15/2021	PASS
33	10/15/2021	25-28,	P	KC	0	NY	10/15/2021	PASS
34	10/15/2021	4-5-7-15	P	JS	0	NY	10/15/2021	PASS
35	10/15/2021	7-8-15-17	P	JS	0	NY	10/15/2021	PASS
36	10/15/2021	8-9-17-19	P	JS	0	NY	10/15/2021	PASS
37	10/15/2021	9-10-19-21	P	JS	0	NY	10/15/2021	PASS
38	10/15/2021	10-11-21-23	P	JS	0	NY	10/15/2021	PASS
39	10/15/2021	11-12-23-25	P	JS	0	NY	10/15/2021	PASS
40	10/15/2021	12-13-25-29	P	KC	0	NY	10/15/2021	PASS

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FML SEAM VACUUM TEST/REPAIR LOG

PROJECT NAME: OWL,Landfill **PROJECT NUMBER:** 6759-21
OWNER: OWL **CONTRACTOR:** Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico **SHEET NUMBER:** 2

TEST/REPAIR LOCATION: Secondary **MONITOR:** Karl Ruiz/Tyler Krueger

	REPAIR DATE	PANEL	TYPE OF REPAIR	REPAIR TECH	NUMBER OF LEAKS	TESTING TECH ID	DATE ACCEPTED	COMMENTS
1	10/15/2021	4-7, NAT	P	JS	0	NY	10/15/2021	PASS
2	10/15/2021	12-13,	P	JS	0	NY	10/15/2021	PASS
3	10/15/2021	12, NAT + 94', MIDDLE OF PANEL	P	JS	0	NY	10/15/2021	PASS
4	10/15/2021	25-28-29	P	JS	0	NY	10/15/2021	PASS
5	10/15/2021	21-23, DS-10	P	JS	0	NY	10/15/2021	PASS
6	10/15/2021	22-24, DS-11	P	KC	0	NY	10/15/2021	PASS
7	10/14/2021	23-25, DS-12	P	NM	0	NY	10/14/2021	PASS
8	10/15/2021	25-29, DS-13	P	JS	0	NY	10/15/2021	PASS
9	10/15/2021	25-28, DS-14	P	JS	0	NY	10/15/2021	PASS
10	10/15/2021	12, MIDDLE OF PANEL	P	JS	0	NY	10/15/2021	PASS
11	10/15/2021	29, MIDDLE OF PANEL	P	KC	0	NY	10/15/2021	PASS
12	10/30/2021	14-30	P	KC	0	NY	10/30/2021	PASS
13	10/15/2021	15	P	JS	0	NY	10/15/2021	PASS
14	10/14/2021	17	P	NM	0	NY	10/14/2021	PASS
15	10/15/2021	11-12, NAT	P	KC	0	NY	10/15/2021	PASS
16	10/30/2021	34-35-45-50	P	KC	0	NY	10/30/2021	PASS
17	10/30/2021	33-34-44-45	P	KC	0	NY	10/30/2021	PASS
18	10/30/2021	32-33-43-44	P	KC	0	NY	10/30/2021	PASS
19	10/30/2021	31-32-42-43	P	KC	0	NY	10/30/2021	PASS
20	10/30/2021	30-31-39-42	P	KC	0	NY	10/30/2021	PASS
21	10/30/2021	14-30-38-39	P	KC	0	NY	10/30/2021	PASS
22	10/30/2021	13-14-29-38	P	KC	0	NY	10/30/2021	PASS
23	10/30/2021	28-29-38	P	JS	0	NY	10/30/2021	PASS
24	10/30/2021	28-38, DS-17	P	JS	0	NY	10/30/2021	PASS
25	10/29/2021	28-38-40	P	JS	0	NY	10/29/2021	PASS
26	10/29/2021	38-39-40-41	P	JS	0	NY	10/29/2021	PASS
27	10/29/2021	39-41-42-46	P	JS	0	NY	10/29/2021	PASS
28	10/29/2021	42-43-46-47	P	JS	0	NY	10/29/2021	PASS
29	10/29/2021	43-44-47-48	P	JS	0	NY	10/29/2021	PASS
30	10/30/2021	44-45-48-49	P	JS	0	NY	10/30/2021	PASS
31	10/30/2021	45-49-50-53	P	JS	0	NY	10/30/2021	PASS
32	10/30/2021	50-51-53-54	P	JS	0	NY	10/30/2021	PASS
33	10/30/2021	51-52-54-55	P	JS	0	NY	10/30/2021	PASS
34	10/30/2021	53-54, DS-27	P	JS	0	NY	10/30/2021	PASS
35	10/30/2021	28-40	P	JS	0	NY	10/30/2021	PASS
36	10/30/2021	38-39, DS-19	P	JS	0	NY	10/30/2021	PASS
37	10/30/2021	39-42, DS-20	P	JS	0	NY	10/30/2021	PASS
38	10/30/2021	42-43, DS-21	P	JS	0	NY	10/30/2021	PASS
39	10/30/2021	43-44, DS-22	P	JS	0	NY	10/30/2021	PASS
40	10/30/2021	44-45, DS-24	P	JS	0	NY	10/30/2021	PASS

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FML SEAM VACUUM TEST/REPAIR LOG

PROJECT NAME: OWL,Landfill **PROJECT NUMBER:** 6759-21
OWNER: OWL **CONTRACTOR:** Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico **SHEET NUMBER:** 3

TEST/REPAIR LOCATION: Secondary **MONITOR:** Karl Ruiz/Tyler Krueger

	REPAIR DATE	PANEL	TYPE OF REPAIR	REPAIR TECH	NUMBER OF LEAKS	TESTING TECH ID	DATE ACCEPTED	COMMENTS
1	10/30/2021	45-50, DS-25	P	JS	0	NY	10/30/2021	PASS
2	10/30/2021	50-51, DS-26	P	JS	0	NY	10/30/2021	PASS
3	10/30/2021	51-52, DS-28	P	JS	0	NY	10/30/2021	PASS
4	10/30/2021	29, MIDDLE OF PANEL	P	KC	0	NY	10/30/2021	PASS
5	10/30/2021	28, MIDDLE OF PANEL	P	KC	0	NY	10/30/2021	PASS
6	10/30/2021	40-41, DS-18	P	JS	0	NY	10/30/2021	PASS
7	10/30/2021	47-48, DS-23	P	JS	0	NY	10/30/2021	PASS
8	10/23/2021	30-31, DS-15	P	KC	0	NY	10/23/2021	PASS
9	10/23/2021	32-33	P	KC	0	NY	10/23/2021	PASS
10	10/23/2021	34-35, DS-16	P	KC	0	NY	10/23/2021	PASS
11	10/29/2021	35-36-50-51	P	JS	0	NY	10/29/2021	PASS
12	10/29/2021	36-37-51-52	P	JS	0	NY	10/29/2021	PASS
13	10/30/2021	28-38	P	KC	0	NY	10/30/2021	PASS
14	10/30/2021	28-38	P	KC	0	NY	10/30/2021	PASS
15	10/30/2021	28-38	P	KC	0	NY	10/30/2021	PASS

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FML SEAM VACUUM TEST/REPAIR LOG

PROJECT NAME: OWL,Landfill **PROJECT NUMBER:** 6759-21
OWNER: OWL **CONTRACTOR:** Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico **SHEET NUMBER:** 1

TEST/REPAIR LOCATION: Primary **MONITOR:** Karl Ruiz/Tyler Krueger

	REPAIR DATE	PANEL	TYPE OF REPAIR	REPAIR TECH	NUMBER OF LEAKS	TESTING TECH ID	DATE ACCEPTED	COMMENTS
1	10/11/21	3-E31	P	JS	0	NY	10/11/21	PASS
2	10/11/21	1-3-E1-E31	P	JS	0	NY	10/11/21	PASS
3	10/11/21	1-E1-E2	P	JS	0	NY	10/11/21	PASS
4	10/11/21	1-E2-E3	P	JS	0	NY	10/11/21	PASS
5	10/11/21	1-E3-E4	P	JS	0	NY	10/11/21	PASS
6	10/11/21	1-E4	P	JS	0	NY	10/11/21	PASS
7	10/11/21	1-E4-E5	P	JS	0	NY	10/11/21	PASS
8	10/11/21	1-E5-E6	P	JS	0	NY	10/11/21	PASS
9	10/11/21	1-E6-E7	P	JS	0	NY	10/11/21	PASS
10	10/11/21	1-E7-E8	P	JS	0	NY	10/11/21	PASS
11	10/11/21	1-E8-E9	P	JS	0	NY	10/11/21	PASS
12	10/11/21	1-E9-E10	P	JS	0	NY	10/11/21	PASS
13	10/11/21	1-E10-E11	P	JS	0	NY	10/11/21	PASS
14	10/11/21	1-E11-E12	P	KC	0	NY	10/11/21	PASS
15	10/11/21	1-E12-E13	P	KC	0	NY	10/11/21	PASS
16	10/11/21	1-2-E13	P	KC	0	NY	10/11/21	PASS
17	10/11/21	2-E13-E14	P	KC	0	NY	10/11/21	PASS
18	10/11/21	2-E14-E15	P	KC	0	NY	10/11/21	PASS
19	10/11/21	2-E15-E16	P	KC	0	NY	10/11/21	PASS
20	10/11/21	2-E16-E17	P	KC	0	NY	10/11/21	PASS
21	10/11/21	2-E17	P	KC	0	NY	10/11/21	PASS
22	10/11/21	2-E17-E18	P	KC	0	NY	10/11/21	PASS
23	10/11/21	2-E18-E19	P	KC	0	NY	10/11/21	PASS
24	10/11/21	2-E19-E20	P	KC	0	NY	10/11/21	PASS
25	10/11/21	2-E20-E21	P	KC	0	NY	10/11/21	PASS
26	10/11/21	2-E21-E22	P	KC	0	NY	10/11/21	PASS
27	10/11/21	2-E22-E23, DS-1	P	KC	0	NY	10/11/21	PASS
28	10/11/21	2-E23-E24	P	KC	0	NY	10/11/21	PASS
29	10/11/21	2-E24-E25	P	KC	0	NY	10/11/21	PASS
30	10/11/21	2-E25-E26	P	KC	0	NY	10/11/21	PASS
31	10/11/21	2-E26-E27	P	KC	0	NY	10/11/21	PASS
32	10/11/21	2-E27-E28	P	KC	0	NY	10/11/21	PASS
33	10/11/21	2-E28-E29	P	KC	0	NY	10/11/21	PASS
34	10/11/21	2-E29	P	KC	0	NY	10/11/21	PASS
35	10/11/21	3-E31, NAT	P	KC	0	NY	10/11/21	PASS
36	10/19/21	1, 120' SOUTH OF 1-3, MIDDLE OF PANEL	P	JS	0	NY	10/19/21	PASS
37	10/19/21	1, MIDDLE OF PANEL	P	JS	0	NY	10/19/21	PASS
38	10/19/21	2-E29-E30	P	KC	0	NY	10/19/21	PASS
39	10/19/21	3-4, NAT + 10', DS-3	P	JS	0	NY	10/19/21	PASS
40	10/19/21	1-3-4-12	P	JS	0	NY	10/19/21	PASS

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FML SEAM VACUUM TEST/REPAIR LOG

PROJECT NAME:	OWL,Landfill	**PROJECT NUMBER:**	6759-21
OWNER:	OWL	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	2
TEST/REPAIR LOCATION:	Primary	**MONITOR:**	Karl Ruiz/Tyler Krueger

	REPAIR DATE	PANEL	TYPE OF REPAIR	REPAIR TECH	NUMBER OF LEAKS	TESTING TECH ID	DATE ACCEPTED	COMMENTS
1	10/19/21	4-5-12-14	P	JS	0	NY	10/19/21	PASS
2	10/19/21	5-6-14-16	P	JS	0	NY	10/19/21	PASS
3	10/19/21	6-7-16-18	P	JS	0	NY	10/19/21	PASS
4	10/19/21	7-8-18-20	P	JS	0	NY	10/19/21	PASS
5	10/19/21	9-10, NAT + 65', DS-13	P	JS	0	NY	10/19/21	PASS
6	10/19/21	26-29, DS-15	P	KC	0	NY	10/19/21	PASS
7	10/19/21	8-9-20-22	P	JS	0	NY	10/19/21	PASS
8	10/19/21	9, 2' NORTH OF 2-9, MIDDLE OF PANEL	P	JS	0	NY	10/19/21	PASS
9	10/19/21	9-10-22-24	P	JS	0	NY	10/19/21	PASS
10	10/19/21	10-24	P	JS	0	NY	10/19/21	PASS
11	10/19/21	10-11-24-27	P	JS	0	NY	10/19/21	PASS
12	10/19/21	8-9, DS-10	P	JS	0	NY	10/19/21	PASS
13	10/19/21	16, 1' SOUTH OF 6-16, MIDDLE OF PANEL	P	JS	0	NY	10/19/21	PASS
14	10/19/21	16, MIDDLE OF PANEL	P	JS	0	NY	10/19/21	PASS
15	10/19/21	1-2-12	P	KC	0	NY	10/19/21	PASS
16	10/19/21	2-12, DS-2	P	KC	0	NY	10/19/21	PASS
17	10/19/21	2-12-13	P	KC	0	NY	10/19/21	PASS
18	10/19/21	12-13-15	P	KC	0	NY	10/19/21	PASS
19	10/19/21	12-15, DS-4	P	KC	0	NY	10/19/21	PASS
20	10/19/21	12-14-15	P	KC	0	NY	10/19/21	PASS
21	10/19/21	14-15-16	P	KC	0	NY	10/19/21	PASS
22	10/19/21	14-16, DS-6	P	JS	0	NY	10/19/21	PASS
23	10/19/21	16-18, DS-7	P	JS	0	NY	10/19/21	PASS
24	10/19/21	16-18-19	P	JS	0	NY	10/19/21	PASS
25	10/19/21	18-19-30	P	JS	0	NY	10/19/21	PASS
26	10/19/21	15-16, DS-5	P	JS	0	NY	10/19/21	PASS
27	10/19/21	15-16-17	P	JS	0	NY	10/19/21	PASS
28	10/19/21	16-17-19	P	JS	0	NY	10/19/21	PASS
29	10/19/21	16-17	P	JS	0	NY	10/19/21	PASS
30	10/19/21	23-30, DS-11	P	JS	0	NY	10/19/21	PASS
31	10/19/21	23-25-26	P	KC	0	NY	10/19/21	PASS
32	10/19/21	25-26-28	P	KC	0	NY	10/19/21	PASS
33	10/19/21	23-24-25	P	KC	0	NY	10/19/21	PASS
34	10/19/21	24-25-27-28	P	KC	0	NY	10/19/21	PASS
35	10/19/21	26-28-29	P	KC	0	NY	10/19/21	PASS
36	10/19/21	23-24, DS-12	P	KC	0	NY	10/19/21	PASS
37	10/19/21	17-19, DS-8	P	KC	0	NY	10/19/21	PASS
38	10/19/21	18-21-30	P	KC	0	NY	10/19/21	PASS
39	10/19/21	21-23-30	P	JS	0	NY	10/19/21	PASS
40	10/19/21	18-20-21	P	JS	0	NY	10/19/21	PASS

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FML SEAM VACUUM TEST/REPAIR LOG

PROJECT NAME: OWL,Landfill **PROJECT NUMBER:** 6759-21
OWNER: OWL **CONTRACTOR:** Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico **SHEET NUMBER:** 3

TEST/REPAIR LOCATION: Primary **MONITOR:** Karl Ruiz/Tyler Krueger

	REPAIR DATE	PANEL	TYPE OF REPAIR	REPAIR TECH	NUMBER OF LEAKS	TESTING TECH ID	DATE ACCEPTED	COMMENTS
1	10/19/2021	20-21-22	P	JS	0	NY	10/19/2021	PASS
2	10/19/2021	21-22-23	P	JS	0	NY	10/19/2021	PASS
3	10/19/2021	22-23-24	P	JS	0	NY	10/19/2021	PASS
4	10/19/2021	18-21, DS-9	P	KC	0	NY	10/19/2021	PASS
5	10/19/2021	24-27	P	KC	0	NY	10/19/2021	PASS
6	10/19/2021	24-27, DS-14	P	KC	0	NY	10/19/2021	PASS
7	10/25/2021	33-34, DS-16	P	JS	0	NY	10/25/2021	PASS
8	10/25/2021	33-34	P	JS	0	NY	10/25/2021	PASS
9	10/25/2021	38-39, DS-17	P	JS	0	NY	10/25/2021	PASS
10	10/19/2021	24-27	P	JS	0	NY	10/19/2021	PASS
11	10/19/2021	24-27	P	JS	0	NY	10/19/2021	PASS
12	11/5/2021	27-40	P	JS	0	NY	11/5/2021	PASS
13	11/5/2021	27-40	P	JS	0	NY	11/5/2021	PASS
14	11/5/2021	27-40, DS-18	P	JS	0	NY	11/5/2021	PASS
15	11/5/2021	27-40	P	JS	0	NY	11/5/2021	PASS
16	11/5/2021	27-40	P	JS	0	NY	11/5/2021	PASS
17	11/5/2021	27-40	P	JS	0	NY	11/5/2021	PASS
18	11/4/2021	27-28-40-48	P	KC	0	NY	11/4/2021	PASS
19	11/4/2021	40-41-48-49, DS-28	P	KC	0	NY	11/4/2021	PASS
20	11/4/2021	41-42-49-50	P	KC	0	NY	11/4/2021	PASS
21	11/4/2021	42-43-50-51	P	KC	0	NY	11/4/2021	PASS
22	11/4/2021	43-44-51-52	P	KC	0	NY	11/4/2021	PASS
23	11/4/2021	44-45-52-54	P	KC	0	NY	11/4/2021	PASS
24	11/4/2021	45-46-54-55	P	KC	0	NY	11/4/2021	PASS
25	11/4/2021	46-47-55-56	P	KC	0	NY	11/4/2021	PASS
26	11/4/2021	47-56-57-58	P	KC	0	NY	11/4/2021	PASS
27	11/4/2021	40-41	P	JS	0	NY	11/4/2021	PASS
28	11/4/2021	11-27-31-40	P	JS	0	NY	11/4/2021	PASS
29	11/4/2021	31-40	P	JS	0	NY	11/4/2021	PASS
30	11/4/2021	31-32-40-41	P	JS	0	NY	11/4/2021	PASS
31	11/4/2021	32-33-41-42	P	JS	0	NY	11/4/2021	PASS
32	11/4/2021	33-34-42-43	P	JS	0	NY	11/4/2021	PASS
33	11/4/2021	34-35-43-44	P	JS	0	NY	11/4/2021	PASS
34	11/4/2021	35-36-44-45	P	JS	0	NY	11/4/2021	PASS
35	11/4/2021	36-37-45-46	P	JS	0	NY	11/4/2021	PASS
36	11/4/2021	37-38-46-47	P	JS	0	NY	11/4/2021	PASS
37	11/4/2021	38-39-45-57	P	JS	0	NY	11/4/2021	PASS
38	11/5/2021	41-42	P	JS	0	NY	11/5/2021	PASS
39	11/5/2021	40-41, DS-19	P	JS	0	NY	11/5/2021	PASS
40	11/5/2021	41-42	P	JS	0	NY	11/5/2021	PASS

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FML SEAM VACUUM TEST/REPAIR LOG

PROJECT NAME: OWL,Landfill **PROJECT NUMBER:** 6759-21
OWNER: OWL **CONTRACTOR:** Mustang Extreme
PROJECT LOCATION: Lea County, New Mexico **SHEET NUMBER:** 4

TEST/REPAIR LOCATION: Primary **MONITOR:** Karl Ruiz/Tyler Krueger

	REPAIR DATE	PANEL	TYPE OF REPAIR	REPAIR TECH	NUMBER OF LEAKS	TESTING TECH ID	DATE ACCEPTED	COMMENTS
1	11/5/21	41-42, DS-20	P	JS	0	NY	11/5/21	PASS
2	11/5/21	41-42	P	JS	0	NY	11/5/21	PASS
3	11/5/21	42-43	P	JS	0	NY	11/5/21	PASS
4	11/5/21	43-44, DS-22	P	JS	0	NY	11/5/21	PASS
5	11/5/21	44-45, DS-23	P	JS	0	NY	11/5/21	PASS
6	11/5/21	45-46, DS-24	P	JS	0	NY	11/5/21	PASS
7	11/5/21	45-46, DS-25	P	JS	0	NY	11/5/21	PASS
8	11/5/21	47-57, DS-27	P	JS	0	NY	11/5/21	PASS
9	11/5/21	51-52-53	P	KC	0	NY	11/5/21	PASS
10	11/5/21	52-53-54	P	KC	0	NY	11/5/21	PASS
11	11/5/21	46-47, DS-26	P	JS	0	NY	11/5/21	PASS
12	11/5/21	48-49, DS-29	P	KC	0	NY	11/5/21	PASS
13	11/5/21	28-29-48	P	KC	0	NY	11/5/21	PASS
14	11/5/21	56-58, DS-30	P	KC	0	NY	11/5/21	PASS
15	11/4/21	35-44	P	JS	0	NY	11/4/21	PASS

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APPENDIX C: CELL 3 A/B LINER INSTALLATION DOCUMENTATION

C.17 Geocomposite Deployment Log

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GEOCOMPOSITE DEPLOYMENT LOG

PROJECT NAME:	OWL,Landfill	**PROJECT NUMBER:**	6759-21
CLIENT:	OWL	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	
DEPLOYMENT LOCATION:	Leak Detection	**MONITOR:**	Karl Ruiz/Tyler Krueger

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
1	0002	116	14.75	1,711	10/9/21
2	0002	116	14.75	1,711	10/9/21
3	0003	116	14.75	1,711	10/9/21
4	0003	116	14.75	1,711	10/15/21
5	0116004176	116	14.75	1,711	10/15/21
6	0116004176	116	14.75	1,711	10/15/21
7	0116004116	116	14.75	1,711	10/15/21
8	0116004116	116	14.75	1,711	10/15/21
9	0116004222	116	14.75	1,711	10/15/21
10	0116004222	116	14.75	1,711	10/15/21
11	0116004211	116	14.75	1,711	10/15/21
12	0116004211	116	14.75	1,711	10/15/21
13	0116004210	116	14.75	1,711	10/15/21
14	0116004210	116	14.75	1,711	10/15/21
15	0116004195	116	14.75	1,711	10/15/21
16	0116004195	116	14.75	1,711	10/15/21
17	0116004199	116	14.75	1,711	10/23/21
18	0116004199	116	14.75	1,711	10/23/21
19	0116004205	116	14.75	1,711	10/23/21
20	0116004205	116	14.75	1,711	10/23/21
21	0116004220	116	14.75	1,711	10/23/21
22	0116004220	116	14.75	1,711	10/23/21
23	0116004202	116	14.75	1,711	10/23/21
24	0116004202	116	14.75	1,711	10/23/21
25	0116004200	116	14.75	1,711	10/23/21
26	0116004200	116	14.75	1,711	10/23/21
27	0001	116	14.75	1,711	10/25/21
28	0001	116	14.75	1,711	10/25/21
29	0116004198	116	14.75	1,711	10/25/21
30	0116004198	116	14.75	1,711	10/25/21
31	0116004207	60	7.0	420	10/25/21
32	0116004207	47	7.0	329	10/25/21
			TOTAL LINER PLACED (FT^2):	52,079	

Rolls 0001-0003 are from the Cell 1A project. All rolls used were inspected by the Site CQA Manager as well as the liner installer CQA manager before use.

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GEOCOMPOSITE DEPLOYMENT LOG

PROJECT NAME:	OWL,Landfill	**PROJECT NUMBER:**	6759-21
CLIENT:	OWL	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	
DEPLOYMENT LOCATION:	Primary	**MONITOR:**	Karl Ruiz/Tyler Krueger

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
1	0116004195	112	14.75	1,652.00	10/21/21
2	0116004195	101	14.75	1,489.75	10/21/21
3	0116004192	21	14.75	309.75	10/21/21
4	0116004192	119	14.75	1,755.25	10/21/21
5	0116004233	119	14.75	1,755.25	10/21/21
6	0116004233	110	14.75	1,622.50	10/21/21
7	0116004212	117	14.75	1,725.75	10/21/21
8	0116004212	115	14.75	1,696.25	10/21/21
9	0116004193	123	14.75	1,814.25	10/21/21
10	0116004193	109	14.75	1,607.75	10/21/21
11	0116004231	121	14.75	1,784.75	10/21/21
12	0116004219	125	14.75	1,843.75	10/21/21
13	0116004201	120	14.75	1,770.00	10/22/21
14	0116004207	122	14.75	1,799.50	10/22/21
15	0116004207	10	14.75	147.50	10/22/21
16	0116004207	16	14.75	236.00	10/22/21
17	0116004208	124	14.75	1,829.00	11/5/21
18	0116004194	122	14.75	1,799.50	11/5/21
19	0116004204	120	14.75	1,770.00	11/5/21
20	0116004157	116	14.75	1,711.00	11/5/21
21	0116004179	110	14.75	1,622.50	11/5/21
22	0116004190	112	14.75	1,652.00	11/5/21
23	0116004190	112	14.75	1,652.00	11/5/21
24	0116004194	110	14.75	1,622.50	11/5/21
25	0116004208	108	14.75	1,593.00	11/5/21
26	0116004201	112	14.75	1,652.00	11/5/21
27	0116004204	112	14.75	1,652.00	11/5/21
28	0116004157	116	14.75	1,711.00	11/7/21
29	0116004179	105	14.75	1,548.75	11/7/21
30	0116004192	90	14.75	1,327.50	11/7/21
31	0116004219	102	14.75	1,504.50	11/7/21
32	0116004231	110	14.75	1,622.50	11/7/21
			TOTAL LINER PLACED (FT^2):	49,279.75	

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Rio Rancho, New Mexico 87124
505.867.6990

GEOCOMPOSITE DEPLOYMENT LOG

PROJECT NAME:	OWL,Landfill	**PROJECT NUMBER:**	6759-21
CLIENT:	OWL	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	
DEPLOYMENT LOCATION:	Primary	**MONITOR:**	Karl Ruiz/Tyler Krueger

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
1	0116004106	213	14.75	3,141.75	10/20/21
2	0116004050	288	14.75	4,248.00	10/20/21
3	0116004038	144	14.75	2,124.00	10/20/21
4	0116004038	144	14.75	2,124.00	10/20/21
5	0116004024	288	14.75	4,248.00	10/20/21
6	0116004051	205	14.75	3,023.75	10/20/21
7	0116004051	83	14.75	1,224.25	10/20/21
8	0116004053	288	14.75	4,248.00	10/20/21
9	0116004025	268	14.75	3,953.00	10/20/21
10	0116004115	288	14.75	4,248.00	10/20/21
11	0116004131	288	14.75	4,248.00	10/20/21
12	0116004022	51	14.75	752.25	10/20/21
13	0116004022	237	14.75	3,495.75	10/20/21
14	0116004040	288	14.75	4,248.00	10/20/21
15	0116004025	13	14.75	191.75	10/20/21
16	0116004090	26	14.75	383.50	10/20/21
17	0116004090	186	14.75	2,743.50	10/20/21
18	0116004023	288	14.75	4,248.00	10/20/21
19	0116004083	29	14.75	427.75	10/20/21
20	0116004083	30	14.75	442.50	10/20/21
21	0116004082	288	14.75	4,248.00	10/20/21
22	0116004057	199	14.75	2,935.25	10/20/21
23	0116004057	88	14.75	1,298.00	10/20/21
24	0116004048	288	14.75	4,248.00	10/20/21
25	0116004061	258	14.75	3,805.50	10/20/21
26	0116004026	288	14.75	4,248.00	10/20/21
27	0116004043	288	14.75	4,248.00	10/21/21
28	0116004042	225	14.75	3,318.75	10/21/21
29	0116004042	50	14.75	737.50	10/21/21
30	0116004041	288	14.75	4,248.00	10/21/21
31	0116004062	168	14.75	2,478.00	10/21/21
32	0116004062	120	14.75	1,770.00	10/21/21
33	0116004058	288	14.75	4,248.00	10/21/21
34	0116004044	180	14.75	2,655.00	10/21/21
35	0116004044	108	14.75	1,593.00	10/21/21
36	0116004063	288	14.75	4,248.00	10/21/21
37	0116004060	240	14.75	3,540.00	10/21/21
38	0116004112	288	14.75	4,248.00	10/21/21
39	0116004118	288	14.75	4,248.00	10/21/21
40	0116004106	73	14.75	1,076.75	10/21/21
			TOTAL LINER PLACED (FT^2):	117,203.50	

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GEOCOMPOSITE DEPLOYMENT LOG

PROJECT NAME:	OWL,Landfill	**PROJECT NUMBER:**	6759-21
CLIENT:	OWL	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	
DEPLOYMENT LOCATION:	Primary	**MONITOR:**	Karl Ruiz/Tyler Krueger

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
41	0116004090	11	14.75	162.25	10/21/21
42	0116004054	35	14.75	516.25	10/21/21
43	0116004090	28	14.75	413.00	10/21/21
44	0116004025	7	14.75	103.25	10/21/21
45	0116004054	40	14.75	590.00	10/21/21
46	0116004054	35	14.75	516.25	10/21/21
47	0116004054	39	14.75	575.25	11/4/21
48	0116004054	39	14.75	575.25	11/4/21
49	0116004054	39	14.75	575.25	11/4/21
50	0116004054	39	14.75	575.25	11/4/21
51	0116004036	39	14.75	575.25	11/4/21
52	0116004036	39	14.75	575.25	11/4/21
53	0116004036	39	14.75	575.25	11/4/21
54	0116004036	39	14.75	575.25	11/4/21
55	0116004036	39	14.75	575.25	11/4/21
56	0116004105	288	14.75	4,248.00	11/6/21
57	0116004047	288	14.75	4,248.00	11/6/21
58	0116004108	288	14.75	4,248.00	11/6/21
59	0116004117	288	14.75	4,248.00	11/6/21
60	0001	288	14.75	4,248.00	11/6/21
61	0131576670	288	14.75	4,248.00	11/6/21
62	0116004113	288	14.75	4,248.00	11/6/21
63	0116004052	288	14.75	4,248.00	11/6/21
64	0116004031	288	14.75	4,248.00	11/6/21
65	0116004091	288	14.75	4,248.00	11/6/21
66	0116010046	288	14.75	4,248.00	11/6/21
67	0116009684	288	14.75	4,248.00	11/6/21
68	0116009695	288	14.75	4,248.00	11/6/21
69	0116009691	288	14.75	4,248.00	11/6/21
70	0116009699	288	14.75	4,248.00	11/6/21
71	0116009700	288	14.75	4,248.00	11/6/21
72	0116009693	288	14.75	4,248.00	11/6/21
73	0116009689	288	14.75	4,248.00	11/6/21
74	0116009697	288	14.75	4,248.00	11/6/21
75	0116009692	288	14.75	4,248.00	11/6/21
76	0116009683	286	14.75	4,218.50	11/6/21
77	0116009696	288	14.75	4,248.00	11/6/21
78	0116009679	288	14.75	4,248.00	11/6/21
79	0116009698	288	14.75	4,248.00	11/6/21
80	0116009694	288	14.75	4,248.00	11/6/21
			TOTAL LINER PLACED (FT^2):	113,648.75	

Roll 0001 is from the Cell 1A project. All rolls used were inspected by the Site CQA Manager as well as the liner installer CQA manager before use.

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GEOCOMPOSITE DEPLOYMENT LOG

PROJECT NAME:	OWL,Landfill	**PROJECT NUMBER:**	6759-21
CLIENT:	OWL	**CONTRACTOR:**	Mustang Extreme
PROJECT LOCATION:	Lea County, New Mexico	**SHEET NUMBER:**	
DEPLOYMENT LOCATION:	Primary	**MONITOR:**	Karl Ruiz/Tyler Krueger

PANEL NUMBER	ROLL NUMBER	APPROXIMATE LENGTH (FT)	APPROXIMATE WIDTH (FT)	APPROXIMATE AREA (FT^2)	DATE INSTALLED
81	0116010044	288	14.75	4,248.00	11/6/21
82	0116010053	288	14.75	4,248.00	11/6/21
83	0116009703	288	14.75	4,248.00	11/6/21
84	0116010061	288	14.75	4,248.00	11/6/21
85	0116009688	288	14.75	4,248.00	11/6/21
86	0116009680	102	14.75	1,504.50	11/7/21
87	0116009680	101	14.75	1,489.75	11/7/21
88	0116009680	85	14.75	1,253.75	11/7/21
89	0116010051	24	14.75	354.00	11/7/21
90	0116010051	108	14.75	1,593.00	11/7/21
91	0116010051	108	14.75	1,593.00	11/7/21
92	0116010051	48	14.75	708.00	11/7/21
93	0116010052	42	14.75	619.50	11/7/21
94	0116010055	97	14.75	1,430.75	11/7/21
95	0116010052	106	14.75	1,563.50	11/7/21
96	0116010052	43	14.75	634.25	11/7/21
97	0116009702	52	14.75	767.00	11/7/21
98	0116009702	99	14.75	1,460.25	11/7/21
99	0116009702	99	14.75	1,460.25	11/7/21
100	0116009702	36	14.75	531.00	11/7/21
101	0116010049	59	14.75	870.25	11/7/21
102	0116004036	95	14.75	1,401.25	11/7/21
103	0116010049	92	14.75	1,357.00	11/7/21
104	0116010049	96	14.75	1,416.00	11/7/21
105	0116004061	15	14.75	221.25	11/7/21
106	0002	288	14.75	4,248.00	10/11/21
107	0002	288	14.75	4,248.00	10/11/21
			TOTAL LINER PLACED (FT^2):	51,964.25	

Roll 0002 is from the Cell 1A project. All rolls used were inspected by the Site CQA Manager as well as the liner installer CQA manager before use.

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APPENDIX C: CELL 3 A/B LINER INSTALLATION DOCUMENTATION

C.18 Demtech Tensionmeter Calibration Certificate

DEM TECH Services Inc.®

CALIBRATION CERTIFICATE

Tensiometer Model: Pro-Tester [T-0100/A or T-0100SE/A]

Device Calibrated: S-Type load cell

Range: 0 - 750 lbs. Tension

Model No: M2405-750#

Serial No: 80014

Calibration Apparatus: Pro-Cal unit, model TC-0100/A

A/D Module Model No: T-029

A/D Module Serial No: 4119080014

Channel No: N/A

Dead Weight:

W1	2
W2	152
W3	302

Reference Cell:

R1	2
R2	152
R3	302

Indicator reading with no load: 0

Offset: -4.635026 Scale: 3.326782

Applied Force lbs.	Cell Response:	Deviation Error:
2	2	0.00
52	52	0.00
102	102	0.00
152	152	0.00
202	202	0.00
252	252	0.00
302	302	0.00

Total Deviation Error (%): 0.00%

Temperature at time of calibration: 73 degrees F

Exitation Voltage: .5 V DC

This calibration conforms to the standards set by ASTM E4 and is traceable to NIST standards

Note: A/D Module and load cell above have been systems calibrated and are considered a matched pair. In general, calibrated A/D Modules and load cells are not interchangeable.

Calibration Technician: Brandon Ousley

Signature:

Date: 03/29/21

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APPENDIX D: INDEPENDENT QUALITY ASSURANCE LABORATORY FML DESTRUCTIVE TESTING RESULTS

D.1 Secondary Liner Destructive Test

Secondary Geomembrane Destructive Sample Log

ENVIROTECH ENGINEERING & CONSULTING, INC.

Project Information

Project: OWL Landfill

Project No: 021267-00

Location: Jal, New Mexico

Installer: Mustang Extreme Environmental

Material: 60 mil HDPE

Fusion Peel (min): 91 Fusion Shear (min): 120 ppi

Extrusion Peel (min): 78 Extrusion Shear (min): 120 ppi

Seam Number	Repair Number	Date Tested	Tester Initials	Peel (ppi)				Pass/ Fail	Shear (ppi)	Failure Code	Pass/ Fail
				In	Code	Out	Code				
S01/EXT	UNK	10/8/2021	JL	127	SE-1	119	SE-1	PASS	131	BRK	PASS
				123	SE-1	107	SE-1	PASS	131	BRK	PASS
Sample No.:	**SDS-01**	Fusion		135	SE-1	109	SE-1	PASS	136	BRK	PASS
Comments:				121	SE-1	115	SE-1	PASS	137	BRK	PASS
				131	SE-1	109	SE-1	PASS	132	BRK	PASS
S02/S05	UNK	10/8/2021	JL	108	SE-1	112	SE-1	PASS	137	BRK	PASS
				95	SE-1	102	SE-1	PASS	146	BRK	PASS
Sample No.:	**SDS-02**	Fusion		100	SE-1	99	SE-1	PASS	141	BRK	PASS
Comments:				99	SE-1	91	SE-1	PASS	145	BRK	PASS
				103	SE-1	102	SE-1	PASS	142	BRK	PASS
S03/S06	UNK	10/8/2021	JL	131	SE-1	115	SE-1	PASS	132	BRK	PASS
				107	SE-1	108	SE-1	PASS	134	BRK	PASS
Sample No.:	**SDS-03**	Fusion		108	SE-1	98	SE-1	PASS	144	BRK	PASS
Comments:				121	SE-1	112	SE-1	PASS	144	BRK	PASS
				118	SE-1	105	SE-1	PASS	137	BRK	PASS

Codes:

AD	Adhesion failure (100% peel)	SIP	Separation in the plane of the sheet
BRK	Break in sheeting away from Seam edge	FTB	Film tearing bond
SE	Break in sheeting at edge of Seam	NFTB	100% peel
AD-BRK	Break in sheeting after some adhesion failure - partial peel	PPI	Pounds Per Inch

TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
AUSTIN, TX - USA | ANAHEIM, CA - USA | ANDERSON, SC - USA | GOLD COAST - AUSTRALIA | SUZHOU - CHINA

Date: 2021-10-15

Mail To:
Monica Peine
Mustang Extreme Enviromental Service
1900 E CR 140
Midland , TX , 79706

Bill To:

Mustang Extreme Enviromental Service
WO 49993

e-mail:mpeine@mustangextreme.com

Dear Ms. Peine,

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

Project:	**PSC OWL Landfill Cell 3**
TRI Job Reference Number:	**67821**
Material(s) Tested:	(7) Heat Fusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

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

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

Jarrett A. Nelson

Jarret Nelson
Project Manager
Geosynthetic Services Division
http://www.geosyntheticstestinc.com

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: PSC OWL Landfill Cell 3

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 67821

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-1 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	148	149	135	139	138	**142**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	148	151	140	138	140	**143**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	162	156	146	150	145	**152**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-4 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	129	125	132	128	139	**131**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	139	141	142	129	146	**139**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	154	153	157	154	153	**154**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

*Note DS-1 on this page is for the Primary Liner

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: PSC OWL Landfill Cell 3

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 67821

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-5 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	123	118	116	123	108	**118**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	122	121	119	105	92	**112**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	151	140	151	152	159	**151**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-6 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	110	110	96	115	114	**109**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	114	115	108	121	115	**115**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	146	147	150	145	147	**147**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: PSC OWL Landfill Cell 3

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 67821

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-7 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	126	128	121	115	121	**122**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	119	124	119	119	117	**120**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	150	155	148	147	150	**150**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-8 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	129	133	133	128	124	**129**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	120	118	129	143	130	**128**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	161	166	163	165	161	**163**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: PSC OWL Landfill Cell 3

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 67821

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-9 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	119	119	118	114	118	**118**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	109	110	107	109	109	**109**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	140	148	153	154	148	**149**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
AUSTIN, TX - USA | ANAHEIM, CA - USA | ANDERSON, SC - USA | GOLD COAST - AUSTRALIA | SUZHOU - CHINA

Date: 2021-10-18

Mail To:
Monica Peine
Mustang Extreme Enviromental Service
1900 E CR 140
Midland , TX , 79706

Bill To:

Mustang Extreme Enviromental Service
WO 49993

e-mail:mpeine@mustangextreme.com

Dear Ms. Peine,

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

Project:	**PSC OWL Landfill Cell 3**
TRI Job Reference Number:	**67855**
Material(s) Tested:	(5) Heat Fusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

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

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

Jarrett A. Nelson

Jarret Nelson
Project Manager
Geosynthetic Services Division
http://www.geosyntheticstestinc.com

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: PSC OWL Landfill Cell 3

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 67855

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-10 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	122	122	114	111	113	**116**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	120	123	119	129	122	**123**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	152	151	159	150	151	**153**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-11 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	122	127	124	117	119	**122**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	115	130	117	116	117	**119**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	142	145	115	147	144	**139**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: PSC OWL Landfill Cell 3

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 67855

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-12 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	127	111	131	126	128	**125**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	112	123	108	113	107	**113**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	151	143	144	144	144	**145**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-13 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	114	114	115	114	120	**115**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	109	108	106	105	127	**111**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	148	147	143	147	149	**147**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: PSC OWL Landfill Cell 3

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 67855

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-14 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	136	116	125	115	115	**121**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	100	116	108	98	109	**106**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	157	153	159	155	155	**156**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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Date: 2021-10-25

Mail To:
Monica Peine
Mustang Extreme Enviromental Service
1900 E CR 140
Midland , TX , 79706

Bill To:

Mustang Extreme Enviromental Service
WO 49993

e-mail:mpeine@mustangextreme.com

Dear Ms. Peine,

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

Project:	**PSC OWL Landfill Cell 3**
TRI Job Reference Number:	**68030**
Material(s) Tested:	(2) Heat Fusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

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

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

Jarrett A. Nelson

Jarret Nelson
Project Manager
Geosynthetic Services Division
http://www.geosyntheticstestinc.com

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: PSC OWL Landfill Cell 3

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 68030

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-15 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	132	141	127	127	137	**133**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	162	182	138	156	154	**158**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	198	197	197	202	198	**198**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-16 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	159	166	150	154	160	**158**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	150	166	153	149	147	**153**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	190	196	197	201	203	**197**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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Date: 2021-11-01

Mail To:
Monica Peine
Mustang Extreme Enviromental Service
1900 E CR 140
Midland , TX , 79706

Bill To:

Mustang Extreme Enviromental Service
WO 49993

e-mail:mpeine@mustangextreme.com

Dear Ms. Peine,

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

Project:	**PSC OWL Landfill Cell 3**
TRI Job Reference Number:	**68204**
Material(s) Tested:	(12) Heat Fusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

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

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

Jarrett A. Nelson

Jarret Nelson
Project Manager
Geosynthetic Services Division
http://www.geosyntheticstestinc.com

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: PSC OWL Landfill Cell 3

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 68204

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-17 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	105	112	111	106	104	**108**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	109	124	108	116	109	**113**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	154	152	161	152	157	**155**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-18 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	134	151	159	137	147	**146**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	132	153	140	137	141	**141**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	181	177	176	177	180	**178**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: PSC OWL Landfill Cell 3

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 68204

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-19 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	142	142	149	157	148	**148**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	161	146	173	146	168	**159**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	184	178	182	178	174	**179**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-20 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	159	145	137	140	135	**143**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	138	149	151	139	149	**145**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	182	177	176	177	173	**177**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: PSC OWL Landfill Cell 3

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 68204

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-21 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	146	138	143	135	136	**140**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	136	142	146	138	134	**139**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	181	174	175	176	180	**177**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-22 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	154	163	149	167	154	**157**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	143	156	144	137	139	**144**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	181	178	177	177	173	**177**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: PSC OWL Landfill Cell 3

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 68204

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-23 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	163	143	134	163	144	**149**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	126	130	127	128	126	**127**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	182	182	177	177	171	**178**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-24 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	138	145	143	144	138	**142**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	145	135	140	133	137	**138**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	183	180	178	179	178	**180**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: PSC OWL Landfill Cell 3

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 68204

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-25 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	142	143	160	138	136	**144**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	133	149	136	144	137	**140**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	183	180	178	177	176	**179**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-26 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	135	140	131	144	140	**138**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	132	134	146	163	140	**143**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	181	179	183	181	176	**180**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: PSC OWL Landfill Cell 3

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 68204

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-27 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	148	142	160	154	142	**149**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	127	132	127	133	132	**130**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	175	183	173	179	178	**178**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-28 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	117	141	102	116	132	**122**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	131	134	128	127	131	**130**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	187	178	180	180	182	**181**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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Parkhill

APPENDIX D: INDEPENDENT QUALITY ASSURANCE LABORATORY FML DESTRUCTIVE TESTING RESULTS

D.2 Primary Liner Destructive Test

TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
AUSTIN, TX - USA | ANAHEIM, CA - USA | ANDERSON, SC - USA | GOLD COAST - AUSTRALIA | SUZHOU - CHINA

Date: 2021-10-15

Mail To:
Monica Peine
Mustang Extreme Enviromental Service
1900 E CR 140
Midland , TX , 79706

Bill To:

Mustang Extreme Enviromental Service
WO 49993

e-mail:mpeine@mustangextreme.com

Dear Ms. Peine,

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

Project:	**PSC OWL Landfill Cell 3**
TRI Job Reference Number:	**67821**
Material(s) Tested:	(7) Heat Fusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

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

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

Jarrett A. Nelson

Jarret Nelson
Project Manager
Geosynthetic Services Division
http://www.geosyntheticstestinc.com

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: PSC OWL Landfill Cell 3

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 67821

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-1 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	148	149	135	139	138	**142**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	148	151	140	138	140	**143**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	162	156	146	150	145	**152**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-4 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	129	125	132	128	139	**131**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	139	141	142	129	146	**139**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	154	153	157	154	153	**154**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

*Note DS-4 on this page is for the Secondary Liner

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: PSC OWL Landfill Cell 3

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 67821

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-5 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	123	118	116	123	108	**118**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	122	121	119	105	92	**112**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	151	140	151	152	159	**151**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-6 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	110	110	96	115	114	**109**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	114	115	108	121	115	**115**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	146	147	150	145	147	**147**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

*Note DS 5-6 on this page is for the Secondary Liner

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: PSC OWL Landfill Cell 3

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 67821

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-7 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	126	128	121	115	121	**122**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	119	124	119	119	117	**120**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	150	155	148	147	150	**150**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-8 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	129	133	133	128	124	**129**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	120	118	129	143	130	**128**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	161	166	163	165	161	**163**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

*Note DS 7-8 on this page is for the Secondary Liner

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: PSC OWL Landfill Cell 3

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 67821

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-9 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	119	119	118	114	118	**118**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	109	110	107	109	109	**109**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	140	148	153	154	148	**149**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

*Note DS-9 on this page is for the Secondary Liner

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TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
AUSTIN, TX - USA | ANAHEIM, CA - USA | ANDERSON, SC - USA | GOLD COAST - AUSTRALIA | SUZHOU - CHINA

Date: 2021-10-20

Mail To:
Monica Peine
Mustang Extreme Enviromental Service
1900 E CR 140
Midland , TX , 79706

Bill To:

Mustang Extreme Enviromental Service
WO 49993

e-mail:mpeine@mustangextreme.com

Dear Ms. Peine,

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

Project:	**PSC OWL Landfill Cell 3**
TRI Job Reference Number:	**67929**
Material(s) Tested:	(14) Heat Fusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

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

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

Jarrett A. Nelson

Jarret Nelson
Project Manager
Geosynthetic Services Division
http://www.geosyntheticstestinc.com

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: PSC OWL Landfill Cell 3

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 67929

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-2 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	111	133	130	117	122	**123**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	110	135	111	113	109	**116**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	148	152	152	149	148	**150**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-3 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	124	134	130	135	102	**125**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	123	134	125	129	123	**127**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	198	199	209	199	199	**201**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: PSC OWL Landfill Cell 3

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 67929

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-4 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	125	124	101	117	120	**117**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	120	123	118	123	117	**120**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	148	155	148	148	153	**150**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-5 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	110	122	115	116	118	**116**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	129	115	125	138	138	**129**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	151	144	147	148	154	**149**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: PSC OWL Landfill Cell 3

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 67929

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-6 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	110	113	114	114	123	**115**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	111	109	115	92	102	**106**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	147	148	153	153	150	**150**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-7 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	114	110	111	106	115	**111**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	120	121	114	118	115	**118**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	153	156	156	152	152	**154**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: PSC OWL Landfill Cell 3

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 67929

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-8 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	128	123	125	127	133	**127**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	113	117	117	111	124	**116**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	151	151	157	155	150	**153**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-9 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	112	118	112	116	115	**115**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	105	105	101	129	109	**110**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	147	153	147	147	152	**149**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: PSC OWL Landfill Cell 3

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 67929

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-10 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	131	130	129	131	133	**131**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	142	138	151	167	140	**148**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	197	200	203	196	198	**199**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-11 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	133	124	127	116	123	**125**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	120	105	104	118	107	**111**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	149	149	156	152	149	**151**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: PSC OWL Landfill Cell 3

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 67929

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-12 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	126	122	125	120	131	**125**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	133	122	124	115	132	**125**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	149	149	156	152	148	**151**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-13 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	145	143	146	143	162	**148**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	172	158	150	165	156	**160**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	203	203	208	203	201	**204**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: PSC OWL Landfill Cell 3

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 67929

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-14 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	110	123	109	111	116	**114**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	139	130	134	140	142	**137**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	146	146	149	146	148	**147**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-15 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	105	103	105	107	140	**112**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	98	96	93	140	132	**112**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	146	145	150	147	148	**147**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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TRI ENVIRONMENTAL, INC.
9063 BEE CAVES RD. – AUSTIN, TX 78733 – USA | PH: 800.880.TEST OR 512.263.2101

TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
AUSTIN, TX - USA | ANAHEIM, CA - USA | ANDERSON, SC - USA | GOLD COAST - AUSTRALIA | SUZHOU - CHINA

Date: 2021-10-27

Mail To:
Monica Peine
Mustang Extreme Enviromental Service
1900 E CR 140
Midland , TX , 79706

Bill To:

Mustang Extreme Enviromental Service
WO 49993

e-mail:mpeine@mustangextreme.com

Dear Ms. Peine,

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

Project:	**PSC OWL Landfill Cell 3**
TRI Job Reference Number:	**68105**
Material(s) Tested:	(2) Heat Fusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

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

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

Jarrett A. Nelson

Jarret Nelson
Project Manager
Geosynthetic Services Division
http://www.geosyntheticstestinc.com

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: PSC OWL Landfill Cell 3

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 68105

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-16 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	133	143	143	158	148	**145**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	152	169	160	163	158	**160**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	198	197	199	204	211	**202**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-17 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	143	142	140	143	146	**143**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	128	164	130	129	132	**137**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	187	186	183	182	189	**185**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
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Date: 2021-11-08

Mail To:
Monica Peine
Mustang Extreme Enviromental Service
1900 E CR 140
Midland , TX , 79706

Bill To:

Mustang Extreme Enviromental Service
WO 49993

e-mail:mpeine@mustangextreme.com

Dear Ms. Peine,

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

Project:	**PSC OWL Landfill Cell 3**
TRI Job Reference Number:	**68372**
Material(s) Tested:	(13) Heat Fusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

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

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

Jarrett A. Nelson

Jarret Nelson
Project Manager
Geosynthetic Services Division
http://www.geosyntheticstestinc.com

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: PSC OWL Landfill Cell 3

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 68372

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-18 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	130	127	127	126	133	**129**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	118	136	129	139	126	**130**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	164	158	150	157	156	**157**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-19 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	139	136	135	141	139	**138**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	138	132	132	136	133	**134**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	190	186	168	182	179	**181**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: PSC OWL Landfill Cell 3

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 68372

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-20 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	131	133	138	131	138	**134**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	150	160	136	159	134	**148**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	182	176	177	182	176	**179**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-21 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	138	151	150	154	154	**149**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	153	151	151	157	154	**153**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	182	180	191	189	182	**185**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: PSC OWL Landfill Cell 3

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 68372

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-22 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	138	135	134	139	137	**137**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	139	156	158	165	158	**155**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	185	183	182	180	179	**182**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-23 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	137	145	144	144	137	**141**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	137	140	135	139	137	**138**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	191	182	185	191	184	**187**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: PSC OWL Landfill Cell 3

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 68372

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-24 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	148	154	172	157	157	**158**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	144	155	149	153	148	**150**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	190	189	185	185	183	**186**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-25 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	141	139	144	145	139	**142**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	146	151	158	148	158	**152**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	189	185	179	185	184	**184**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: PSC OWL Landfill Cell 3

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 68372

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-26 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	132	134	137	133	151	**137**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	147	158	139	138	153	**147**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	188	176	190	181	183	**184**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-27 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	132	137	142	137	139	**137**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	143	145	145	154	134	**144**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	183	183	181	179	178	**181**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
AUSTIN, TX - USA | ANAHEIM, CA - USA | ANDERSON, SC - USA | GOLD COAST - AUSTRALIA | SUZHOU - CHINA

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: PSC OWL Landfill Cell 3

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 68372

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-28 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	127	127	125	133	137	**130**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	145	147	142	143	141	**144**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	154	148	150	149	151	**150**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-29 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	147	134	153	146	143	**145**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	155	155	157	159	158	**157**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	187	187	180	184	181	**184**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

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TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Mustang Extreme Enviromental Service
Project: PSC OWL Landfill Cell 3

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 68372

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-30 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	137	140	144	143	134	**140**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	157	134	156	137	150	**147**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	185	180	181	187	180	**183**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

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APPENDIX E: LEAK DETECTION SYSTEM CERTIFICATIONS

E.1 Leachate Pipe and Riser Pipe Parts Certification

WL116 WL Plastics Pipe Standards



PLASTICS
The Ideal Piping Solution

Industry Standards for WL Plastics Pipe

WL Plastics HDPE pipe is produced to Customer Purchase Order specifications, and may be limited by industry standards and third party certifications. WL Plastics typically manufactures pipe in accordance with the API, ASTM, AWWA, FM, NSF and AASHTO standards listed below. Upon request and review by WL Plastics prior to order, pipe may be special order manufactured to other industry standards, or custom standards, or proprietary standards or specifications. Contact WL Plastics Customer Service for information, pricing, and availability. Some lower DR's are not available in larger sizes. *Related WL Plastics literature*: IPS Pipe Sizes – WL102; DIPS (DIOD) Pipe Sizes – WL104; PE Compounds – WL106; Internal, surge and external (vacuum) pressure ratings – WL118.

Industry standards are for different service applications, may or may not be compatible with each other, and differ in requirements for materials, sizes, dimensions, tolerances, performance and marking; therefore, pipe made to an industry standard for one service application may be unsuitable for a different service or application although the material and size may be the same. Regulations and Codes frequently require compliance with specific standards, and pipe not so marked may be unacceptable to the jurisdictional authority. Before placing an order, confirm that the pipe specified is acceptable to the jurisdictional authority. WL Plastics offers pre-sale specification review service without charge. Upon receipt, inspect and verify that the pipe received conforms to the Customer Purchase Order. All sales are subject to WL125 WL Plastics Terms and Conditions of Sale.

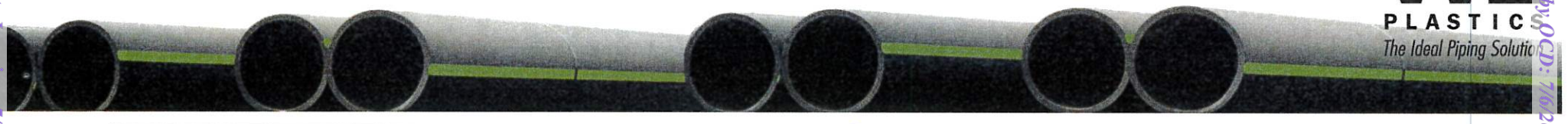
Industry Standard	Table Notes	Sizing System	OD Size	DR	Application
API 15LE	1	IPS	¾ – 54 in	7 – 32.5	Oil & gas gathering/distribution
ASTM D 2513	1, 2	IPS	¾ - 24 in	7 – 32.5	Jurisdictional gas gathering/distribution
ASTM F 2619	1	IPS	¾ – 54 in	7 – 32.5	Oil & gas gathering/process water
ASTM D 3035	3, 4, 7	IPS	¾ - 24 in	7 – 32.5	Pressure & non-pressure fluids; municipal & industrial water; sewer & culvert; rehabilitation; geothermal; heat transfer
ASTM F 714	1, 3, 4, 7	IPS	3 – 54 in	7 – 32.5	
		DIPS	4 – 36 in	Class 100, 150, 200, 250, 300, 350	
AWWA C901	3, 4, 7	IPS	¾ – 3 in	9 – 21	Water service & distribution
AWWA C906	3, 5, 7	IPS	4 – 54 in	7 – 32.5	Water distribution & transmission
	3, 5	DIOD (DIPS)	4 – 36 in	Class 100, 150, 200, 250	
FM1613	5, 6	IPS	4 – 36 in	Class 200, 250, 335	Underground fire main
NSF-61 & 14	1, 7	(See table notes)			Potable water
AASHTO M-326	8	IPS	12 – 54 in	26, 32.5, 41	Sewer & culvert sliplining
CSA B137.1	7	NPS	2 – 6	Series 50-200	Potable Water

1. PE pipe for non-jurisdictional oil and gas gathering may be API 15LE and ASTM F2619 and/or ASTM F714. Jurisdictional gas gathering in the US requires ASTM D2513. Jurisdictional gas gathering in Canada requires API 15LE. ***ASTM D2513, API 15LE and ASTM F2619 pipe is not for potable water use that is subject to municipal code regulations. NSF potable water certification is not available for API 15LE, ASTM D2513 and ASTM F2619 pipe.***
2. WL Plastics ASTM D2513 PE pipe for gas distribution in the US is available on special order only. ***Per ASTM D2513, optional yellow stripes are available; colors other than yellow are not permitted.***
3. General purpose PE pipe may be ASTM F714 and/or ASTM D3035 and/or AWWA C901 and/or AWWA C906 and/or AASHTO M-326. When produced to comply with more than one standard, compatibility is limited to the most restrictive application, material, size, DR and requirement(s) in the compatible standards. General purpose PE pipe is not allowed in jurisdictional gas gathering, gas distribution or gas transmission.
4. OD controlled sizes only. Compatible with 3-in and smaller ASTM D3035, and 4-in and larger ASTM F714.
5. PE4710 ratings now applicable.
6. By certification agreement with FM approvals, FM Approved pipe is manufactured in accordance with FM1613 and is available only in the sizes and pressure classes specified in WL130/130M. Per FM1613, WL Plastics FM Approved pipe complies with AWWA C906-15. WL Plastics FM Approved pipe complies with NFPA 24. NSF-61 certification for potable water service fire main available upon request. Underground service only.
7. Potable water and geothermal applications require NSF-61 certified PE compound. Specify NSF-61 certification when ordering. NSF-14 certified pipe available from Elizabethtown, KY, Rapid City, SD and Cedar City, UT as follows (Note special sizes and some diameters and DR's excluded. Contact Customer Service for specific listing information.) – ASTM D3035 PE4710 IPS 2-24 DR 7-32.5; ASTM F714 PE4710 IPS 3-24 DR 7.3-41; AWWA C901 PE4710 IPS 2-3 DR 7.3-21; AWWA C906 PE4710 IPS 4-24 DR 7.3-32.5; CSA B137.1 PE4710 NPS 3-6 Series 50-200.
8. AASHTO M-326 PE pipe is limited to rehabilitation lining applications; available in DR 26 and 32.5; DR 41 special order.

DISCLAIMER: WL Plastics Corp. disclaims all responsibility and liability for products that are incorrectly or incompletely specified on the Purchase Order received by WL Plastics. The Purchaser designated on the Purchase Order is solely responsible for the Purchase Order received by WL Plastics. WL Plastics liability shall in no event exceed limited liability in accordance with WL125 WL Plastics Terms and Conditions of Sale. Changes to this publication may occur from time to time without notice. Contact WL Plastics Corp. to determine if you have the most current edition.

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WL102 – IPS PIPE SIZES AND PRESSURE CLASS



WL PLASTICS POLYETHYLENE PIPE
The Ideal Piping Solution

PE4710		PC[B], psi	335	320	250	200	160	140	125	100	80	65
IPS SIZE[A]	AVG OD, in	DR	7	7.3	9	11	13.5	15.5	17	21	26	32.5
		Min wall, in	0.150	0.144	0.117	0.095						
3/4	1.050	Avg ID[C], in	0.732	0.745	0.803	0.848						
		Weight, lb/ft	0.187	0.177	0.148	0.124						
		Min wall, in	0.188	0.180	0.146	0.120						
1	1.315	Avg ID[C], in	0.917	0.933	1.005	1.062						
		Weight, lb/ft	0.288	0.278	0.232	0.195						
		Min wall, in	0.237	0.227	0.184	0.151						
1 1/4	1.660	Avg ID[C], in	1.157	1.178	1.269	1.340						
		Weight, lb/ft	0.459	0.442	0.369	0.310						
		Min wall, in	0.271	0.260	0.211	0.173						
1 1/2	1.900	Avg ID[C], in	1.325	1.348	1.452	1.534						
		Weight, lb/ft	0.600	0.580	0.485	0.406						
		Min wall, in	0.339	0.325	0.264	0.216	0.176	0.153	0.140			
2	2.375	Avg ID[C], in	1.656	1.685	1.816	1.917	2.002	2.050	2.079			
		Weight, lb/ft	0.939	0.906	0.758	0.634	0.526	0.462	0.425			
		Min wall, in	0.411	0.394	0.319	0.261	0.213	0.185	0.169			
2 ½	2.875	Avg ID[C], in	2.004	2.040	2.198	2.321	2.424	2.482	2.516			
		Weight, lb/ft	1.377	1.329	1.109	0.928	0.771	0.677	0.622			
		Min wall, in	0.500	0.479	0.389	0.318	0.259	0.226	0.206	0.167		
3	3.500	Avg ID[C], in	2.440	2.484	2.676	2.825	2.950	3.021	3.064	3.147		
		Weight, lb/ft	2.040	1.968	1.646	1.376	1.141	1.006	0.923	0.757		
		Min wall, in	0.643	0.616	0.500	0.409	0.333	0.290	0.265	0.214	0.173	0.138
4	4.500	Avg ID[C], in	3.137	3.193	3.440	3.633	3.793	3.885	3.939	4.046	4.133	4.206
		Weight, lb/ft	3.372	3.253	2.720	2.275	1.887	1.660	1.526	1.247	1.018	0.819
		Min wall, in	0.795	0.762	0.618	0.506	0.412	0.359	0.327	0.265	0.214	0.171
5	5.563	Avg ID[C], in	3.878	3.947	4.253	4.491	4.689	4.802	4.869	5.001	5.109	5.200
		Weight, lb/ft	5.154	4.975	4.156	3.479	2.886	2.540	2.328	1.909	1.557	1.254
		Min wall, in	0.946	0.908	0.736	0.602	0.491	0.427	0.390	0.315	0.255	0.204
6	6.625	Avg ID[C], in	4.619	4.701	5.064	5.348	5.585	5.719	5.799	5.956	6.085	6.193
		Weight, lb/ft	7.305	7.059	5.894	4.930	4.095	3.599	3.307	2.703	2.209	1.781
		Min wall, in	1.232	1.182	0.958	0.784	0.639	0.556	0.507	0.411	0.332	0.265
8	8.625	Avg ID[C], in	6.013	6.120	6.593	6.963	7.271	7.445	7.549	7.754	7.922	8.062
		Weight, lb/ft	12.385	11.963	9.988	8.359	6.939	6.100	5.597	4.591	3.744	3.012
		Min wall, in	1.536	1.473	1.194	0.977	0.796	0.694	0.632	0.512	0.413	0.331
10	10.750	Avg ID[C], in	7.494	7.628	8.218	8.678	9.062	9.280	9.409	9.665	9.873	10.049
		Weight, lb/ft	19.245	18.581	15.515	12.983	10.774	9.490	8.695	7.128	5.805	4.689
		Min wall, in	1.821	1.747	1.417	1.159	0.944	0.823	0.750	0.607	0.490	0.392
12	12.750	Avg ID[C], in	8.889	9.047	9.747	10.293	10.748	11.006	11.160	11.463	11.710	11.918
		Weight, lb/ft	27.062	26.138	21.837	18.267	15.155	13.348	12.238	10.023	8.169	6.587
		Min wall, in	2.000	1.918	1.556	1.273	1.037	0.903	0.824	0.667	0.538	0.431
14	14.000	Avg ID[C], in	9.760	9.934	10.702	11.302	11.801	12.085	12.254	12.587	12.858	13.087
		Weight, lb/ft	32.635	31.511	26.329	22.030	18.279	16.082	14.763	12.093	9.848	7.952

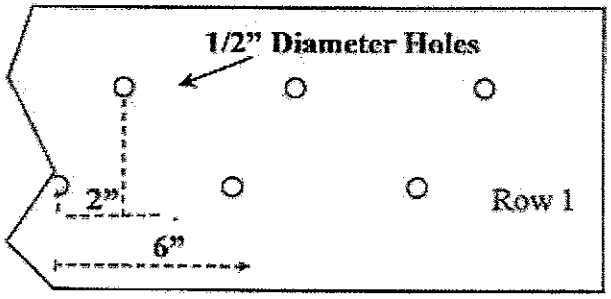
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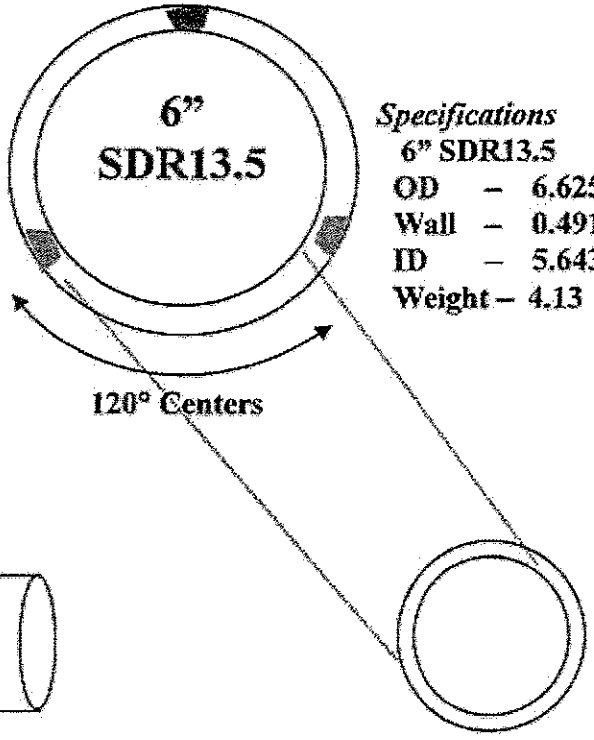
SECOR

Customer Signature Approval_____

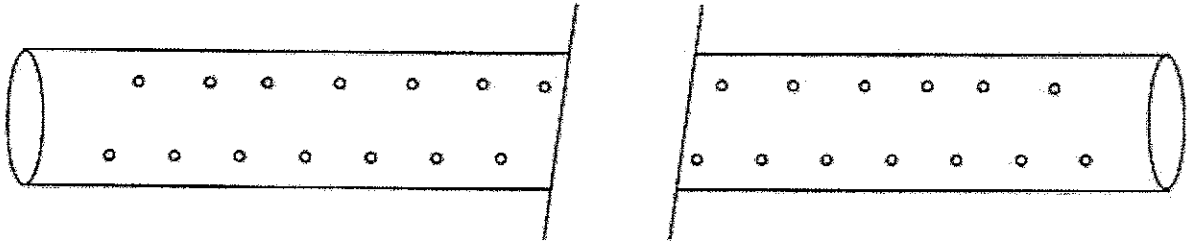
6" SDR13.5 HDPE w/ ½" holes on 6" centers in 3 rows @ 120 degrees and staggered every 2"



Row 3 is on backside of pipe also offset 2"



Specifications
6" SDR13.5
OD – 6.625"
Wall – 0.491"
ID – 5.643"
Weight – 4.13 lbs per foot



TITAN INDUSTRIES, INC.

East Hwy 30
Paxton, Nebraska 69155
800/658-4086

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APPENDIX F: EMNRD CORRESPONDENCE

F.1 Conformation of Compliance: OWL Landfill Services, Inc. Surface Waste Management Facility; Construction Update.

Tyler Krueger

From: Charles Fiedler
Sent: Thursday, September 2, 2021 3:24 PM
To: 'Richardson, Clinton'
Subject: RE: Invoice OWL NDBL SWMF Cell 2-AB Review

Importance: High

Categories: Filed by Newforma

Good Afternoon Clint,
I hope this finds you doing well and that you are settling back into the new semester.

We finally completed the Cell 2AB CQA Report and are still interested in your review of it. I will be distributing an electronic copy of it along with the construction plans for Cell 3A/B this afternoon. We would appreciate your review of both documents with correspondence to Jim Griswold. I spoke to Jim this morning and he appreciates having your comments in his files.

I will have a hard copy of both the plans and the report shipped to your office tomorrow, as I know you appreciate having them to facilitate your review.

Please let me know if you have any questions.
Thanks

Charles Fiedler, PE, LEED AP
Civil Engineer Principal

Parkhill
505.504.7752 | CFiedler@Parkhill.com

Please note that our email domain and website have changed to Parkhill.com.

Parkhill

APPENDIX F: EMNRD CORRESPONDENCE

F.2 Conformation of Compliance: OWL Landfill Services, Inc. Surface Waste Management Facility; Liner Installation Notification.

Tyler Krueger

From: Charles Fiedler
Sent: Monday, September 13, 2021 9:47 AM
To: 'Richardson, Clinton'
Cc: Tyler Krueger; Matthew Kingsley
Subject: RE: OWL Invoice

Categories: Filed by Newforma

Good Morning Clint,
Thanks for taking care of this.
Please invoice Parkhill.

Charles Fiedler, PE, LEED AP
Civil Engineer Principal

Parkhill
505.504.7752 | CFiedler@Parkhill.com

Please note that our email domain and website have changed to Parkhill.com.

From: Richardson, Clinton <Clinton.Richardson@nmt.edu>
Sent: Monday, September 13, 2021 8:30 AM
To: Charles Fiedler <CFiedler@Parkhill.com>
Subject: OWL Invoice

Charles:
I sent my reviews to Jim Griswold this past weekend. You were copied. Should the invoice go to NMEMNRD OCD or Parkhill, Inc?
Clint

This email has been scanned for spam and viruses by Proofpoint Essentials. Click here to report this email as spam.

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APPENDIX G: RESUMÉS

G.1 Charles W. Fiedler, PE, Principal, Parkhill

Parkhill



Charles Fiedler, PE, LEED AP

CQA Certifying Engineer

Charles W. Fiedler, PE is a consulting expert in the field of environmental engineering with over forty years of solid waste management, waste minimization, recycling and environmental engineering experiences. These experiences have been acquired during his employment with public and private sector entities across the southwestern United States. They have involved every aspect of environmental consulting, including management, engineering and environmental compliance. Charles is currently a Principal with Parkhill, Smith & Cooper, Inc. and their Team Leader/Senior Practice Leader with their office in Rio Rancho, NM. In this position, he works closely with a staff of engineers and technicians solving recycling and solid waste problems for governmental and private clients. Charles is a Past-President for both the Solid Waste Association of North American - NM Roadrunner Chapter where he still serves as the AB Representative; and the New Mexico Recycling Coalition, where he is still active as their Treasurer.

EDUCATION

Texas A&M University
Master of Science, Civil Engineering (Solid Waste Management) and Bachelor of Science, Civil Engineering (Solid Waste Management)

REGISTRATION

Licensed Professional Engineer
New Mexico

LEED Accredited Professional

YEARS OF EXPERIENCE

42

NOTABLE PROJECTS

- Sundance West Engineering Services
- Sundance Services Closure Engineering
- Teton County TS Reconstruction Engineering Support
- SCSWA FY20Engineering Services
- OWL Development Engineering
- OWL SWMF Construction
- Sundance-Closure Planning Services
- Albuquerque/CH2 MSW 2018 Landfill Services
- Teton County Interim Transfer Station Facility
- Sundance West Evaporation Ponds
- Teton County TS Reconstruction
- Teton County Interim Transfer Station Remodel
- Las Uvas Valley Dairies-NMED Permitting and Compliance
- Butterfield Trail Regional Landfill
- Teton County Transfer Station
- CDM-SCSWA Chaparral Collection & Recycling Center
- Sandoval County LF - FY 2019 Exp Projects
- Sandoval County Landfill Expense Projects
- Lea County Solid Waste Authority Permit Renewal and Modification
- OWL NDBL Cell 1B Construction Services
- SCSWA Engineering Services 2021
- Deming Tulip Landfill Tire Wall
- Sundance-Surface Waste Management Facility
- Lea County Landfill - 20-Year Capital Masterplan
- Lea County Solid Waste Authority Landfill Engineering Services 2017
- Lea Land Landfill
- Sandia Pueblo TS PER
- Landfill Engineering Services 2018
- SWSWA Asset Management Plan - GEI 235.01.18
- ABQ - PENDING / MISC CHARGES
- Lea County Solid Waste Authority Cell-5 Development
- Oilfield Water Logistics

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APPENDIX G: RESUMÉS

G.2 Carl R. King, PE, Senior Project Manager, Parkhill - Site CQA Engineer

Parkhill



Carl King, PE

Senior CQA Manager

Carl King, PE, has over 32 years of experience managing environmental containment projects, including developing and constructing lined landfill cells, geosynthetic impoundments, transfer and material recovery projects and waste-to-energy facilities. Mr. King has served as a Site Construction Quality Assurance (CQA) Engineer for over 1,300 acres of Subtitle D municipal solid waste landfill cells and Subtitle C hazardous waste landfill cells in AZ, NM, OK and TX. Components included construction plan development, project technical specification, CQA Plans, etc. Technical elements include soil layers, GCL installation, HDPE geomembranes, leachate collection systems, protective soil layer evaluation and construction management. Mr. King's site CQA Engineer duties included assessment and equivalency evaluation and calculations for liner and leachate collection system components in compliance with the Construction Plans, CQA Plan and Project Technical Specifications and state-specific standards.

EDUCATION

Cleveland State University
Master of Science, Environmental Engineering

Hiram College
Bachelor of Arts, Engineering Management

REGISTRATION

Licensed Professional Engineer
Texas and Nebraska

YEARS OF EXPERIENCE

37

NOTABLE PROJECTS

- OWL SWMF Construction
- Sundance West Evaporation Ponds
- Sundance West Engineering Services
- Lea Land Landfill, Inc.
- Valencia Regional Landfill - Phase 6A
- Butterfield Trail Regional Landfill
- SCSWA FY20Engineering Services
- Albuquerque/CH2 MSW 2018 Landfill Services
- OWL NDBL Cell 1B Construction Services
- Lea County Solid Waste Authority Cell-5 Development
- San Juan Co. LF Phase 5A Construction Quality Assurance
- NENMRL Engineering Services
- OWL NDBL SWMF Phase II
- Sandoval Co. Solid Waste Regional Center Landfill Engineering & Permitting
- OWL Development Engineering
- 2017 Sundance West Design Evaporation Ponds & Landfill Development 530.07.01
- Lea Land Landfill
- Southwest NM Regional LF PO#16640
- Rio Rancho Landfill Soil Liner Construction
- Deming Tulip Landfill Tire Wall
- Lea County Solid Waste Authority Permit Renewal and Modification
- Tucumcari New Landfill Cell 3 Construction Support Services
- SCSWA Engineering Services 2019
- OWL Development Eng-GEI 560.17.01
- General Overhead - Civil
- Vaughn Landfill Closure Construction
- Sundance Services Closure Engineering
- Sandoval County LF - FY 2021 Exp Projects
- EVRLF-Landfill Engineering Services
- SWNMRLF - FY 2021 Services

Parkhill

APPENDIX G: RESUMÉS

G.3 Tyler S. Krueger, PE, Project Engineer, Parkhill - Site CQA Engineer/Manager

Parkhill



Tyler Krueger, PE

Permit Civil Engineer

Tyler Krueger, PE, is a Civil Engineer in Parkhill's Environmental Sector. His experience includes engineering design, construction, and permitting services on municipal solid waste (MSW) landfills in Texas. Many of his projects include landfill construction, groundwater well construction, annual volume, Tier 2 and annual NMOC reporting, permit modifications, permit amendments, and permit applications for landfills. He also serves as the professional engineer for groundwater monitoring activities at multiple MSW Landfill sites in Texas. He has developed project manuals for cell, liner, and site improvement projects for multiple MSW Landfill sites in Texas.

Additionally, he has experience in liner installation for multiple MSW landfills in Texas. He has served as the professional of record representative for a liner installation project and prepared multiple liner evaluation reports for MSW landfill sites in Texas. He also served as the Engineer of Record for the City of Levelland Type IV Cell 2 Construction project. He has also developed Site Operating Plans, Landfill Gas Management Plans, Groundwater Sampling and Analysis Plans, Liner Quality Control Plans, Soil Boring Plans, Leachate, and Contaminated Water Plans, Surface Water Management Plans, Location Restrictions Determinations, Closure and Post Closure Plans, and Erosion Stability Plans. He served as the engineer of record for the City of Muleshoe Permit Amendment Application. He is also a licensed Class A MSW Operator. As a licensed Class A MSW operator, he has served as the licensed operator for a Transfer Station. He has also provided best management practices and operations reviews for MSW landfills in Texas. He is also a past president of the South Plains Branch of the Texas Public Works Association.

EDUCATION

Texas Tech University
Bachelor of Science, Civil Engineering

REGISTRATION

Licensed Professional Engineer
TX, NM

TCEQ MSW Operator Class A

PROFESSIONAL AFFILIATIONS

Texas Public Works Association
Solid Waste Association of North America, Lone Star Chapter (TxSWANA)

Texas Society of Professional Engineers

NOTABLE PROJECTS

- Big Spring MSW East Cell
- Big Spring MSW LF 2014 Permit Application
- Big Spring MSWLF Groundwater Monitoring
- Brownfield Misc Landfill
- Brownfield MSWLF Groundwater Monitoring
- BS MSW Landfill Misc Engineering
- C.K. Disposal E&P Landfill
- Denton Solid Waste and Recycling Services, Landfill Cell 3 Design, Construction and Permitting
- Dumas LF (MSW 211B) Final Closure
- Dumas LF Leachate Evap Pond
- Dumas MSW Misc. Svc
- Glasscock County MSW Permit App.
- Lamesa MSWLF Groundwater Monitoring
- Lamesa MSW Miscellaneous Engineering
- Levelland MSW Initial Development
- Lubbock Caliche Canyon Cell VI - Engineering
- Lubbock MSW CC Cell IV Vegetation Evaluation
- Lubbock MSW Options for Gas/Waste to Energy and Transfer Station Cost Update
- Lubbock Municipal Solid Waste Engineering Services (2014 Contract)
- Lubbock WTRDF Cell 5 Engineering
- Midland Landfill Scale Building and Maintenance Facility

Parkhill

APPENDIX G: RESUMÉS

G.4 Karl Ruiz, Engineering Technologist, Parkhill - Site CQA Manager

Parkhill



Karl Ruiz Bernal

Engineering Technologist

Karl Ruiz is an Engineering Technologist for Parkhill's Transportation Sector. He has more than five years of experience designing roadways. Before joining Parkhill in 2020, he performed field and laboratory infiltration tests as an undergraduate at the University of Texas at El Paso. He also performed geotechnical analysis and soil classifications as a geotechnical field engineer for LOI.

Karl was an engineering assistant for the Texas Department of Transportation (TxDOT) between 2018 and 2020. Karl prepared roadway design, traffic control, lighting and signal plans for TxDOT. He also prepared quantity summaries and utility plans for TxDOT.

At Parkhill, Karl has prepared layouts, calculation, and design details for roadways. He has also analyzed project data for incorporation into the design of roadway projects. Karl has also prepared opinions of probable costs for projects.

EDUCATION

University of Texas at El Paso
Bachelor of Civil Engineering
Civil Engineering

YEARS OF EXPERIENCE

5

NOTABLE PROJECTS

- Borger 10th Street Reconstruction
- El Paso Hawkins Blvd Reconstruction DB
- Floydada CDBG 2020/2021
- Floydada Misc Engineering Services
- General Overhead - Civil
- LEDA - N King Avenue
- LEDA East 19th Street Reconstruction
- LEDA-Lbbk Bus Park South Half Ivory Ave
- LEDA-Lubbock Business Park N. Nutmeg and Hunter
- LEDC Rail Park
- Lubbock Indiana Avenue Widening from FM 1585 to Woodrow Road
- McKee TAR Parking and Drainage
- MDC - Todd Drive Corridor Study
- Midland Garfield Street Improvements
- Pecos Lincoln St. Reconstruction
- Plainview 24th Street Reconstruction
- Reeves Co WA#4 - CR 310 Improvements
- Transportation Pursuing/Pending
- TxDOT - US-59 (Duval Co.)
- TxDOT - US-59 (Webb Co.)
- TxDOT - US-83 Super 2 (Runnels Co)
- TxDOT-SH-302 (Winkler Co.)

Parkhill

Transmittal

333 Rio Rancho Blvd. NE, Ste 400, Rio Rancho, NM 87124

PROJECT:	6759.21 OWL NDBL Cell 1B Construction Services 6759.21	DATE:	5/16/2022
SUBJECT:	OWL Landfill Cell 3 A/B Certification Report	TRANSMITTAL ID:	00063
PURPOSE:	For your use	VIA:	Info Exchange

FROM

NAME	COMPANY	EMAIL	PHONE
Pam Gonzales 333 Rio Rancho Blvd. NE, Ste 400 Rio Rancho NM 87124 United States	Parkhill, Smith & Cooper, Inc.	pgonzales@Parkhill.com	505.504.7753 x7753

TO

NAME	COMPANY	EMAIL	PHONE
Jim Griswold 1220 S. St. Francis Drive Santa Fe NM 87505 United States	Oil Conservation District	Jim.Griswold@state.nm.us	

REMARKS:

Dear Mr. Griswold:

This submittal is provided as engineering certification for the construction of Landfill Cell 3 A/B at OWL Landfill Services, LLC (OWL), located in Lea County, New Mexico. If you have questions concerning this download, please contact Pam Gonzales at 505-401-3734.

DESCRIPTION OF CONTENTS

QTY	DATED	TITLE	NOTES
1	5/16/2022	OWL_Landfill_Cell3A-B_Construction_2022-05-16.pdf	

COPIES:

Matt Kingsley (Parkhill, Smith & Cooper, Inc.)
Tyler Krueger (Parkhill, Smith & Cooper, Inc.)
Clinton.Richardson@nmt.edu
Tim Shreve

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 123049

CONDITIONS

Operator:	OGRID:
OWL LANDFILL SERVICES, LLC 8214 Westchester Drive Dallas, TX 75225	371820
	Action Number: 123049
	Action Type: [C-137] Non-Fee SWMF Submittal (SWMF NON-FEE SUBMITTAL)

CONDITIONS

Created By	Condition	Condition Date
bjones	None	7/6/2022