NE 99th Street / Leichner Landfill Liner Installation Documentation Report

Leichner Landfill 9009 NE 94th Avenue Vancouver, WA 98662

Presented to: Mr. Michael Davis Leichner Landfill Project Manager Clark County Public Health – Solid Waste Operations 1601 East Fourth Plain Blvd., Building 17 Vancouver, WA 98661

SCS ENGINEERS

04223030.10 | August 15, 2023

Prepared by: SCS Engineers 2405 140th Avenue NE, Suite 107 Bellevue, WA 98005 425-746-4600

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ENGINEERS CERTIFICATION

Based on my professional judgement, on-site documentation of installation activities, laboratory test results, and design drawings, the geomembrane liner system is judged to have been constructed in accordance with the drawings and specifications. Variations from the original design have been documented and included in this report.



1.0 EXECUTIVE SUMMARY

This report describes the installation of the geomembrane liner as part of the NE 99th Street extension project through the northern portion of the Leichner Landfill located in Vancouver, Washington. The NE 99th Street project required extending the existing geomembrane liner associated with the final cover system of the northern portion of the landfill waste cell. Approximately 2.15 acres of geomembrane liner (in plan-view, approximately 93,800 square feet [SF]) was installed. The landfill geomembrane liner installation included a prepared subgrade, a 60-mil geomembrane layer placed atop the subgrade, a soil cover layer of varying thickness placed atop the geomembrane, and a turf reinforcement mat and hydroseed applied to the cover layer.

This report serves as certification that the geomembrane liner system was installed in accordance with the design intent of the *NE* 99th Street (*NE* 94th AVE to Vicinity of *NE* 117th AVE (SR-503)) – CRP-350722 – Volume 1 Construction Drawings (March 15, 2022) and the *NE* 99th Street (*NE* 94th AVE to Vicinity of *NE* 117th AVE (SR-503)) Proposal and Contract Documents (Project Specifications) (October 2021), issued by Clark County Public Works.

2.0 INTRODUCTION

This report documents construction activities performed in June and July 2023 for the extension of approximately 2.15 acres (93,800 SF) of landfill cover geomembrane liner as part of the NE 99th Street extension project through the northern portion of the Leichner Landfill property. The NE 99th Street project is in the Clark County Right-of-Way (ROW), and part of the project is adjacent to the northern portion of the Leichner Landfill (Landfill), which is owned by Clark County (County) and managed by Clark County Public Health (CCPH). The Landfill is located at 9009 NE 94th Avenue in Vancouver, Washington.

2.1 PROJECT BACKGROUND

The NE 99th Street Extension project and associated site improvements were designed by Clark County Public Works (CCPW) under the direction of Mr. Kenneth A. Lader, PE. Site preparation for the landfill geomembrane liner extension portion of the project began with the placement, grading, and compaction of soil fill that would serve as the subgrade for the proposed NE 99th Street and the geomembrane liner system. This material was placed directly atop an existing geomembrane-lined area for the North stormwater detention pond.

In June of 2023 concerns were raised by CCPH regarding the condition of the soil subgrade. SCS Engineers (SCS) was requested to perform a site inspection of the area that would receive the geomembrane liner to document the means and methods of installation. On June 9, SCS met with staff from CCPW to discuss the project and provide an overview of the inspection activities. Prior to visiting the landfill, SCS reviewed photographs of the work area and provided a memorandum summarizing our initial concerns regarding the condition of the surface to receive the geomembrane liner and the tie-in to the existing Landfill geomembrane cover. A copy of this memorandum is provided in Appendix A.

SCS was subsequently tasked by CCPH to implement a Construction Quality Assurance (CQA) program during the construction of the Leichner Landfill geomembrane liner extension and prepare this report. The purpose of this report is to document that the geomembrane liner system was constructed in accordance with the design intent of *NE* 99th Street (*NE* 94th AVE to Vicinity of *NE* 117th AVE (SR-503)) – CRP-350722 – Volume 1 Construction Drawings (March 15, 2022) and the *NE* 99th Street (*NE* 94th AVE to Vicinity of *NE* 117th AVE (SR-503)) Proposal and Contract Documents (Project Specifications) (October 2021), issued by CCPW.

2.2 **PROJECT DESCRIPTION**

The Leichner Landfill geomembrane liner extension project included the following elements:

- Placement and compaction of site soils to form the subgrade layer.
- Installation of Solmax 60-mil smooth geomembrane.
- Placement of clean site soils to form the cover layer for the geomembrane liner. This layer also serves as the foundation for the application of hydroseed and placement of turf reinforcement mat.

2.3 CQA ORGANIZATION

SCS provided third-party CQA services during construction of the landfill geomembrane liner (cover) system. The CQA program provided observation, testing and documentation of the manufactured and

constructed components of the Leichner Landfill geomembrane liner system. SCS verified installation quality by monitoring construction procedures, performing independent material testing, and visually monitoring the work performed by the contractors. CQA services included, but were not limited to the following:

- Clarifying design issues during construction.
- Monitoring the geosynthetic installer's quality control program, installation operations, and seaming operations for the geomembrane used in the liner system construction.
- Reviewing field geomembrane seam testing results and collecting samples for third party laboratory testing.
- Documenting the monitoring and testing results.

2.4 REFERENCE DOCUMENTS

The following reference documents provide background information used in support of this construction documentation report:

- NE 99th Street Project Specifications, issued by CCPW as part of the NE 99th Street (NE 94th AVE to Vicinity of NE 117th AVE (SR-503)) Proposal and Contract Documents (October 2021).
- NE 99th Street (NE 94th AVE to Vicinity of NE 117th AVE (SR-503)) CRP-350722 Volume 1 Construction Drawings (March 15, 2022), issued by CCPW

3.0 CONSTRUCTION ROLES AND RESPONSIBILITIES

Key personnel and companies involved with installation of the landfill geomembrane liner system required as part of the NE 99th Street extension project are listed in the following sub-sections. Information regarding the geomembrane manufacturer is included in the relevant sections later in this report.

3.1 CLARK COUNTY PUBLIC WORKS (CCPW)

CCPW is the owner of the NE 99th Street right-of-way.

Street Address:

Clark County Public Works 1300 Franklin St. Vancouver, WA 98660

Telephone: (564) 397-2446

Contact: Bart Arthur, Construction Engineer

3.2 SCS ENGINEERS

SCS is the CQA engineering firm for this geomembrane liner installation project. SCS was contracted by CCPH and was responsible for implementing a comprehensive CQA program, providing fieldengineering services during geomembrane liner system construction, and preparing this report.

Mailing Address:

SCS Engineers 2405 140th Avenue NE, Suite 107 Bellevue, WA 98005

Telephone: (425) 746-4600

Contact: John Richards, PE, Engineer of Record John Faille, EIT, CQA Manager

3.3 NUTTER CORPORATION

Nutter Corporation (Nutter) was the general contractor contracted by CCPW and is referred to as "Contractor" in the contract documents and technical specifications. Nutter was responsible for construction related to NE 99th Street extension project and associated site improvements. Nutter was responsible for subcontracting the specialty subcontractors required for the installation of the geomembrane liner, as described in this report.

Mailing Address:

Nutter Corporation 7211 NE 43rd Ave., Suite A Vancouver, WA 98661

Telephone: (360) 601-3953

Contact: Brad Souders, Project Foreman

3.4 ACF WEST GEOSYNTHETICS, INC.

ACF West Geosynthetics, Inc. (ACF West) was subcontracted by Nutter to provide installation of geosynthetic components for the NE 99th Street extension project. ACF West is referred to as "Installer" in this report.

Mailing Address:

ACF West Geosynthetics Johnson Creek Industrial Park 8951 S.E. 76th Drive Portland, OR 97206

Telephone: (503) 771-5115

Contact: Jeff Boys, Vice President, COO

3.5 GEOSYNTHETICS CONFORMANCE AND INSTALLATION TESTING

TRI Environmental (TRI), a subsidiary of Texas Research International, Inc. was contracted by SCS to perform third party laboratory testing of the geomembrane liner components.

Mailing Address:

Texas Research International, Inc. 9063 Bee Caves Road Austin, TX 78733

Telephone: (512) 263-2101

Contact: Jennifer Tenney, Project Manager

3.6 EARTHWORK CONFORMANCE AND INSTALLATION TESTING

Columbia West Engineering, Inc., was contracted by CCPW to perform third party density testing for the soils used to construct NE 99th Street extension, Leichner Landfill geomembrane liner system subgrade, and the associated site improvements.

Mailing Address:

Columbia West Engineering, Inc. 11917 NE 95th Street Vancouver, WA 98682

Telephone: (360) 823-2900

Contact: BJO, Engineer/Technician

4.0 EARTHWORK

This section describes the earthwork components of the landfill geomembrane liner system and the CQA activities related to earthwork construction. Procedures used for construction monitoring, material quality verification, construction testing of installed materials, and test standards are described below.

4.1 INSTALLATION TESTING

Installation testing was performed to document that soils approved for use, based on acceptance by CCPW, complied with the technical specifications. Soil installation testing performed by Columbia West Engineering, Inc. included in situ moisture and density testing of the subgrade layer. Results of the soil installation testing are presented in Appendix B and summarized in Table 1:

	Proc	tor Data	Nucle			
Test Number	Maximum Dry Density (pcf)	Optimum Moisture Content (%)	Dry Density (pcf)	Moisture Content (%)	Compaction (%)	Pass/Fail
1	136.5	7.2	132.4	6.7	97.0	Р
2	136.5	7.2	131.7	7.4	96.5	Р
3	136.5	7.2	135.5	8.8	99.2	Р
4	136.5	7.2	138.3	8.1	100+	Р
5	136.5	7.2	134.7	9.0	98.7	Р

Table 1.Embankment Fill Installation Testing Summary

4.1.1 Nuclear Field Moisture and Density Tests

Nuclear field moisture and density tests were performed on the finished subgrade layer on June 20, 2023. Tests were dispersed throughout the plan dimensions and were chosen without bias.

Moisture and density tests were previously performed in September and October of 2022 but were determined by SCS to not be representative of the final subgrade upon which the geomembrane liner would be deployed. The soil layers that were tested in 2022 had since been disturbed and recompacted, and/or additional material placed atop the tested surfaces. While not representative of the final subgrade surface, the 2022 results demonstrate that the soil fill below the final surface was placed and compacted in accordance with project specifications. The results of the soil installation testing that occurred in 2022 are presented in Appendix B.

4.2 EMBANKMENT FILL SUBGRADE LAYER

The subgrade layer in the Leichner Landfill geomembrane liner system consists of embankment fill sourced from excavations elsewhere approved by CCPW. The subgrade layer thickness varies from less than 1 inch to greater than 10 feet. Soils were hauled to the fill location in off-road trucks using a temporary roadway constructed on the northern limit of the Landfill and sections of the incomplete NE 99th Street extension. Soils were placed using a Global Positioning Satellite (GPS) system to control the elevation of the installed subgrade layer. Soils were placed in loose lifts and compacted by track walking with a Deere 650K dozer and rolling with an Ingersoll Rand vibratory drum compactor.

During fill placement and compaction operations in June 2023, SCS verified that the following were performed:

- Soils used for embankment fill were placed and compacted in accordance with the project specifications
- Materials not suitable for use as geomembrane line foundation material were removed from the work area.
- Constructed slopes and surfaces complied with the grades shown in the drawings and the tolerances described in the specifications.
- Irreducible objects greater than ½ inch including rocks, wood debris, and pieces of metal were removed prior to placement of geomembrane liner.

4.3 GEOMEMBRANE LINER COVER LAYER

The Leichner Landfill geomembrane liner cover installed as part of the NE 99th Street extension project consists of fill soil sourced approved by CCPW from excavations elsewhere. The geomembrane liner cover layer thickness varies from 1 foot to greater than 2 feet. Soils were hauled to the fill location in off-road trucks using a temporary roadway constructed on the northern limit of the landfill and sections of the incomplete NE 99th Street extension. Soils were placed using a GPS system to control the installed elevation of the cover layer. Soils were placed in loose lifts and compacted by track walking with a Deere 650K dozer and rolling with an Ingersoll Rand vibratory drum compactor.

During cover layer placement and compaction operations in June 2023, SCS verified that the following were performed:

- Soils used for the geomembrane liner cover layer were placed in accordance with the project specifications
- Materials not suitable for use as geomembrane liner cover were removed from the work area.
- Soils used for the geomembrane liner cover were free from irreducible objects greater than ½ inch including rocks and wood debris.

5.0 GEOSYNTHETICS

The goal of the geosynthetics CQA program was to verify that the geosynthetic materials (i.e., Solmax 60-mil HDPE Smooth Geomembrane Liner) delivered to the site conformed to the technical specifications and that proper installation techniques and procedures were used in accordance with the construction drawings and specifications. SCS verified installation quality by monitoring and documenting on-site quality control testing performed by the Installer, performing independent quality assurance testing, and visually inspecting the Installer's work.

5.1 SUBGRADE LAYER INSPECTION

Prior to installation, the subgrade layer was inspected by the Installer to confirm it was acceptable for installation and free of sharp stones, loose soil, and other irregularities that could cause damage to the geomembrane liner during deployment. SCS also verified the following before the geomembrane was installed:

- The surface of the subgrade layer was graded to the tolerances indicated in the technical specifications.
- The Contractor had verified that the subgrade layer was at the correct elevation during placement using GPS.
- The finished surface of the layer was prepared with a smooth drum roller and was free of surface irregularities, loose soil, debris, and protrusions such as sharp stones or other objects that could damage the geomembrane liner.
- There was no significant desiccation cracking in the surface of the subgrade layer.
- The subgrade layer was not overly saturated, and no free water was present on the surface.
- Construction stakes, hubs, and sandbags had been removed.

5.2 GEOMEMBRANE LINER INSTALLATION

The Leichner Landfill geomembrane liner extension was installed in the Landfill area adjacent to the NE 99th Street extension project and associated stormwater conveyance area. It was placed directly over the subgrade layer across the entire area to be lined (approximately 93,800 SF).

5.2.1 Inspection of Materials

The geomembrane material was manufactured in rolls and shipped to the site in trucks and was delivered to the site in rolls approximately 23 feet wide by 560 feet long. The rolls were off-loaded using a forklift and stockpiled at a maximum height of two rolls.

Upon delivery of geomembrane, SCS performed the following:

- Inspected geomembrane rolls for damage that may have occurred during shipping and handling.
- Verified that damaged materials were discarded and not used.
- Verified the geomembrane was stored in an Owner-approved location and was protected from puncture, grease, mud, mechanical abrasions, excessive heat, or other damage.

5.2.2 Surface Preparation

Prior to the placement of geomembrane, SCS and the Installer verified that any corrective actions required to bring the underlying subgrade layer into conformance with the technical specifications and manufacturer's instructions had been taken. If the underlying soil surface remained unacceptable, additional corrective actions were taken before the geomembrane was installed.

5.2.3 Panel Placement

A panel layout drawing was submitted by the Installer to CCPW for approval prior to installation. The drawing showed the proposed layout of the panels including the panel orientation and field seams. During installation, SCS maintained panel installation logs which were used for verification of the quality assurance/quality control (QA/QC) package submitted by the Installer at the end of the project. A copy of the QA/QC package will be provided to CCPW by the installer at a future date. A copy of this report will be requested once it is available.

Geomembrane rolls were transported to the deployment locations using a telescopic handler forklift with a spreader bar and installed by unrolling or pulling the geomembrane over the surface by hand. Panels were installed up-slope and adjusted into place as needed prior to welding the seams. Adjacent panels were overlapped and prepared for welding.

During panel placement, SCS performed the following work:

- Developed a numbering system to identify panel numbers, field seams, and destructive test locations.
- Verified that the Installer maintained an up-to-date panel layout drawing showing panel numbers, seam numbers, test locations, and repair locations.
- Observed the geomembrane liner sheet surface as it was deployed, marking areas requiring repair and defects in workmanship or materials, as appropriate.
- Verified repairs, if required, were made in accordance with the specifications.
- Verified methods used to deploy the geomembrane liner did not cause damage to the material and minimized wrinkles.
- Observed that no damage to the underlying bedding layer, such as rutting occurred during deployment.
- Verified no more panels were deployed than could be seamed on the same day.
- Confirmed that equipment used for installing the geomembrane liner did not leak fuel onto the geomembrane liner.
- Verified panels were held down to prevent movement by the wind during seaming.
- Confirmed that the geomembrane liner was not dragged across an abrasive surface.
- Verified that the geomembrane liner was not welded in the presence of excess moisture (fog, dew, mist, etc.).
- Confirmed that the geomembrane liner was not welded when the air temperature was less than 40°F, greater than 120°F, or when frost was on the ground.
- Verified that crews working on the geomembrane liner did not wear shoes that could damage or engage in activities that could damage the geomembrane liner.

• Verified that the geomembrane liner terminations were secured in the anchor trenches and covered with approved soil cover material.

5.2.4 Welding Seams

During panel placement, adjacent panels were overlapped a minimum of 4 inches and fusion welded using a double-tracked fusion welding machine (wedge welder). For repairs, and in areas where the fusion welder could not be used, an extrusion welder was used. Before the start of geomembrane liner production seaming operations, each welder and welding apparatus were tested (trial weld). SCS verified that the Installer quantitatively tested each trial weld for peel adhesion and bonded seam strength. The results of the peel and shear tests were required to meet minimum specified requirements and were recorded on a trial weld log form.

During seaming of geomembrane panels, both SCS and the Installer completed CQA and QA/QC tasks. These included, but were not limited to, the following:

- Performed trial welds for each welder and welding machine, including recording of equipment settings and results of quantitative field testing of trial welds.
- Inspected the placed panels prior to seaming to identify manufacturer defects or damage from handling or placement of the material.
- Recorded the conditions under which each weld was performed (weather, temperature, presence of precipitation, etc.).
- Verified that equipment used for seaming did not damage the geomembrane liner.
- Visually inspected each weld.
- Verified extrusion welders were purged prior to beginning a weld until the heat-degraded extrudate was removed (extrusion welding only).
- Confirmed seam grinding had been completed less than 30 minutes before seam welding, and the upper sheet was beveled (extrusion welding only).
- Verified the ambient temperature 6 inches above the geomembrane surface was between 40°F and 120°F.
- Verified ends of old welds, more than 5 minutes old, were ground to expose new material before restarting a weld (extrusion welding only).
- Verified contact surfaces of the sheets were clean and free of dust, grease, dirt, debris, and moisture prior to welding.
- For cross seams, verified the seam was ground to a smooth incline prior to welding (fusion welding only).
- Confirmed the edges of adjacent panels overlapped a minimum of 3 inches for extrusion weld seams and a minimum of 4 inches for hot wedge weld seams.
- Verified no solvents or adhesives were present in the seam area.
- Confirmed procedures used to temporarily hold panels together did not damage the panels and did not prevent installation testing.
- Verified the weld area was wiped clean with a towel or rag while welding progressed.

5.2.5 Non-destructive Seam Testing

The Installer performed non-destructive geomembrane testing to locate discontinuities or holes in the seams using air channel pressure testing. Air channel pressure testing was performed over the entire length of wedge-welded seams.

Pressure testing was used to test the air channel created from the double hot wedge welding technique. First, both ends of the air channel are sealed. A pressure feed device (needle equipped with a pressure gauge) was then inserted into the channel. Air was pumped into the channel to a minimum pressure of 60 psi and the pressure was allowed to stabilize for a short period. The air chamber was checked for sustained pressure for 5 minutes without losing more than 2 psi. Following a passing pressure test, the opposite end of the tested seam was punctured to release the air and the gauge was checked for zero pressure.

SCS verified and documented that the Installer's QA/QC testing complied with the technical specifications, located seam defects, and documented repairs if required. If failures were identified, SCS documented the failed area and informed the Installer of the required repairs.

During non-destructive testing, SCS performed the following work:

- Verified testing equipment met technical specifications.
- For double-tracked fusion welds, observed that the non-destructive testing performed by the Installer, included, but was not limited to performing air channel pressure testing over the entire length of the seam:
- Observed continuity testing and documented the results.
- Identified failed areas by marking the areas with a waterproof marker compatible with the geomembrane liner and informed the Installer of required repairs.
- Verified repairs were completed and tested in accordance with the technical specifications.

5.2.6 Destructive Seam Testing

Destructive seam testing was performed at a minimum frequency of one test per 500 linear feet of seam. The Installer removed seam samples at locations directed by SCS. If SCS suspected a seam did not meet specified requirements or the destructive testing showed a failure, the sampling frequency was increased. Samples were shipped to TRI Environmental for analysis following field-testing of the collected samples.

Two types of destructive tests, i.e., peel adhesion (peel) and bonded seam strength (shear), were performed on the seams of the installed geomembrane liner. These tests evaluate seam strength and long-term performance. Shear strength measures the continuity of tensile strength through the seam and into the geomembrane liner sheet. Peel strength determines the quality of the welds. Destructive tests were performed concurrently with seaming operations.

During seaming operations, the following were considered for identifying destructive seam test locations:

• The Installer was not informed in advance of SCS selecting the destructive sample locations.

- Each sample was marked with an identifying number containing the upper and lower panel numbers, destructive test number, project name, and date.
- Sample locations were documented (see Appendix C).
- Sample locations, weather conditions, and reason sample was taken (e.g., random sample, visual appearance, result of a previous failure, etc.) were documented (see Appendix C).

Samples were approximately 12 inches wide by 20 inches long with the weld centered on the length of the sample. The SCS CQA Monitor observed sample cutting. Samples were shipped by SCS to TRI Environmental for peel and shear strength testing. Additionally, samples were field-tested by the Installer using a calibrated tensiometer capable of quantitatively measuring shear and peel strengths. Each sample was tested twice for peel and bonded seam strength. For double wedge welding, both welds were tested. SCS reviewed the test results from both the laboratory and field tests for passing criteria based on the technical specifications. These results are presented in Appendix B.

Eleven (11) destructive seam tests were performed as part of the Leichner Landfill geomembrane liner installation project. Test locations and results of field and laboratory testing are included in Appendix B.

A single destructive test (DS-10) resulted in failure. DS-10 was collected on June 28, 2023 from the northeast area of the geomembrane liner between panels P-63 and P-64. A summary of the failed weld and the procedures used to repair the failed weld are described below:

- The collected sample passed initial field testing, but failed laboratory testing.
- Additional samples were collected approximately 10 feet to the north and south of the original test location and re-tested in the field. Both failed field testing in a manner matching the failure mode seen in the lab results (non-film tearing bond).
- The geosynthetics installer decided to perform an extrusion weld repair on the entire failed seam, approximately 100 feet long. Typically, a failed seam is repaired using capping. However, due to the seam passing the air pressure test and the manner in which the seam failed testing (i.e., the outside weld failed in the dual-weld seam), it was determined that an extrusion weld would address the failed seam.
- Samples taken from the seam repaired using extrusion welding technique passed field testing. All test locations were patched. With this repair the destructive seam requirements were met, and no further testing was required.

5.2.7 Placement of Cover Soil Over Geomembrane Liner

During placement of soil cover materials over the geomembrane liner, temperature changes or creep can cause wrinkles to develop in the geomembrane. Where wrinkles could potentially fold over, SCS verified these areas were allowed to contract by temperature reduction or were physically "walked out." Where this was not possible the contractor cut the geomembrane liner to remove the excess material and installed patches over the cut portions of geomembrane liner (see 5.2.8 Geomembrane Liner Repairs).

5.2.8 Geomembrane Liner Repairs

Repairs to the geomembrane liner were made when necessary due to flaws in the material or seams, destructive tests, cuts, holes and penetrations, or intersecting panels. Geomembrane liner repairs were performed in accordance with best industry practices.

During repair operations, SCS verified and documented the use of the following methods:

- <u>Patching</u>: used to repair holes or tears and destructive sample locations, with the patch extended at least 6 inches beyond the edge of the defect.
- <u>Extrusion</u>: used to repair small defects (less than ½-inch in the largest dimension) in the panels and seams, with the geomembrane surface ground no more than 30 minutes prior to the repair.
- <u>Capping</u>: used to repair failed welds or to cover seams where welds or bonded sections could not be non-destructively tested.
- <u>Removal</u>: used to remove excess material (wrinkles, fish-mouths, intersections, etc.) from the installed geomembrane.

6.0 DOCUMENTATION

Successful implementation of the quality assurance plan depended on thorough monitoring, documentation of construction activities, and testing. Documentation consisted of daily record keeping, testing and installation reports, progress reports, photographic records, and this construction report.

6.1 DAILY RECORDKEEPING

Daily records were kept consisting of construction progress, and observation and test data sheets. Field reports were prepared by SCS to summarize ongoing construction activities and discussions with the Contractor. At a minimum, daily reports included the following:

- Date, project name, project number, and location.
- A description of ongoing construction for the day.
- Items of discussion and names of parties involved.
- A brief description of tests and observations, identified as passing or failing, or, in the event of failure, a re-test.
- Areas of non-conformance and required corrective actions, if applicable.
- Summary of materials received and quality documentation.
- Follow-up information on previously reported problems or deficiencies.

Copies of the daily record-keeping forms are in Appendix D for reference.

6.2 PHOTOGRAPHS

Construction activities were photographed and selected photos are included in Appendix D.

6.3 CONSTRUCTION RECORDS

Construction records and sample archives will be retained by the Owner for an indeterminate period.

7.0 MODIFICATIONS DURING CONSTRUCTION

This section describes modifications to the design of the Leichner Landfill geomembrane liner system or scope of work made during construction. No change orders were issued during this project. Minor design modifications or repairs that did not substantially affect the construction are not discussed.

7.1 MODIFICATIONS DUE TO CHANGES IN EXISTING CONDITIONS

Changes to the project discussed in this section were made at the request of the Owner, Engineer, or Contractor due to changes or differences in the existing conditions from what is shown in the project drawings or described in the specifications. These changes were made to allow for completion of the geomembrane liner construction consistent with the methods in the construction drawing and project specifications.

7.1.1 Tie-in of New Geomembrane Liner to Existing Landfill Cover Liner

In the northeast corner of the Landfill and southeast end of the geomembrane liner system extension, the Construction Drawings show approximately 200 feet of the edge of the new geomembrane liner as being connected to or "tied-in" to the existing Landfill cover system geomembrane liner using extrusion welding. During excavation activities to expose the existing Landfill cover system geomembrane liner it was discovered that the Landfill cover system liner elevation was at a significantly lower elevation than the new geomembrane liner associated with the geomembrane liner system extension. Additionally, it was found that the existing Landfill cover system geomembrane liner was constructed with an approximately 1-foot layer of sand atop it to allow water to drain downslope off the Landfill. Connecting the new geomembrane liner to the existing cover system geomembrane liner using extrusion welding would interrupt that path and create a watertight trough. This would cause water to pool atop the Landfill cover system liner at the tie-in and potentially further upslope of the Landfill.

SCS and CCPW determined that using a modified anchor trench for this section of tie-in would secure the new geomembrane liner and allow unimpeded movement of water off the Landfill cover system liner. The modified anchor trench consisted of the following:

- A 1-foot minimum layer of clean sand placed in the bottom of the trench formed through exposure of the existing Landfill system cover liner.
- Installation of the new geomembrane liner to the top of the sand layer.
- Backfilling the trench using material excavated from the trench placed in 1-foot lifts and thoroughly compacted. The trench was filled to the design grades in the Construction Drawings.

During the process of exposing the existing cover system liner in the northeast corner of the Landfill, two corrugated plastic pipes were found approximately 2 feet above the existing Landfill cover system liner. It was assumed that these pipes had been installed to facilitate the drainage of stormwater off the Landfill cover liner. To provide drainage continuity, the following measures were taken:

• A 1-foot layer of clean sand was placed in the bottom of the trench on the existing Landfill cover system liner.

- A layer of geotextile was placed atop the sand layer extending 5 feet on both sides of the pipes along the trench.
- The exposed ends of the pipes were saw-cut to be flush with the side of the trench.
- A layer of 1.5-inch minus gravel was placed on top of the geotextile up to a minimum of 4 inches above the tops of the pipes.
- Excess geotextile was wrapped around the gravel layer and the trench backfilled with soil and compacted.

8.0 CONCLUSIONS

The purpose of the Leichner Landfill geomembrane liner extension is to ensure stormwater is routed away from the Landfill and does not enter the covered Landfill waste cell. As a landfill that lacks a bottom liner system it is critical that surface water is not allowed to enter the waste cell where it can percolate through the waste before entering the groundwater as leachate. Previously this was met through the use of geomembrane lined stormwater detention ponds directly north of the Landfill. However, the extension of NE 99th Street necessitated the filling-in of the geomembrane lined stormwater ponds and thus eliminated part of the existing stormwater management system for the Landfill. In place of the detention ponds a stormwater conveyance system was constructed as part of the NE 99th Street extension. Stormwater from the landfill that was previously routed into the detention ponds would be routed into the stormwater conveyance system. To ensure water routed away from the Landfill and the NE 99th Street roadway did not enter the Landfill waste cell the existing Landfill geomembrane cover liner was extended to the north and into the stormwater conveyance system constructed over the existing detention ponds.

Approximately 2.15 acres of geomembrane liner (93,800 SF) was installed as part of the Landfill cover liner extension. The geomembrane liner installation included the following, from bottom to top:

- Prepared subgrade
- 60-mil geomembrane liner.
- Soil cover layer of varying thickness,
- Turf reinforcement mat.
- Hydroseed applied to the cover layer.

To ensure the purpose of the Leichner Landfill geomembrane liner extension was met a CQA program was implemented by SCS during construction. The CQA program included observation and testing of the constructed components of the geomembrane liner and documented the work as it was completed in general accordance with the design intent presented in the Construction Drawings and Technical Specifications. Modifications to the design are presented in Section 7.0 above. Implementation of this CQA program was successful, no modifications to the CQA testing program were required for this project.

Appendix A

Construction Memorandums

SCS ENGINEERS

June 22, 2023 File No. 04223030.10

Mr. Michael Davis Leichner Landfill Project Manager Clark County Public Health-Solid Waste Operations Vancouver, WA 98662

Subject: NE 99th Street / Leichner Landfill Liner Installation

Dear Mr. Davis:

This letter summarizes observations and findings of an inspection performed by SCS Engineers (SCS) on June 9th of the area associated with the NE 99th Street project where new geomembrane liner is to be installed between the existing geomembrane of the Leichner Landfill cover system and the extension of NE 99th Street. SCS performed the inspection at the request of Clark County Public Health (CCPH).

On June 9, SCS met with staff from Clark County Public Works (CCPW) to discuss the project and provide an overview of the inspection activities. Prior to visiting the landfill, SCS reviewed photographs of the work area and sent you an email summarizing our initial concerns regarding the condition of the surface to receive the geomembrane and the tie-in to the existing Landfill cover. It is our understanding that work stopped immediately on Wednesday June 7th when our concerns were first raised about the project.

Summary of Observations and Recommendations

The subgrade soil contains many irreducible objects greater than $\frac{1}{2}$ inch that the specifications indicate are not allowed. These objects include rocks, wood debris, and pieces of metal. (See the items circled in Photos 1 and 2, below). The stormwater pipe inlets are surrounded by what appears to be 1-inch crushed rock. Fractured rock of any size is not acceptable per specifications.

- Fine grading and compaction are required to meet the requirements of the specification for much of the area to be covered by the geomembrane.
- Compaction, in accordance with the specifications, is required for all areas that are to be covered with the geomembrane liner. Some areas have already been graded and rolled with a smooth drum compactor. Compaction testing will need to be performed to verify subgrade is compacted to at least 95 percent of the maximum dry density (MDD).



Photo 1 – Soil with irreducible objects greater than $\frac{1}{2}$ inch.



Photo 2 – Soil includes rocks, wood debris, and metal.

The existing liner has not been cleared of overlying soils or prepared to weld the new geomembrane liner for tie-in (see Photo 3). Rock, dirt, vegetation, and other materials are present on the existing liner.

• Rock, dirt, vegetation, and other materials must be removed using hand tools to prevent damage. The surface of the existing liner must be clean and dry, and inspected before the new liner material can be installed.

There is damage to the existing liner that needs to be addressed (see the circled items in the Photos 3 and 4). This raises a question regarding the condition of the existing liner downslope, into the bottom of the former pond. Without inspection documentation of the placement of the fill soils, we do not know the condition of the buried liner (i.e., if there is damage at the top of slope where it is relatively flat, there is reason to believe that there is also damage along the fill slope).



• Provide inspection documentation for the existing liner prior to fill soils replacement.

Photo 3 – Existing landfill liner with overlying soil that needs to be removed and visible damage that needs to be repaired prior to installing new liner material.



Photo 4 – Existing landfill liner with visible damage that needs to be repaired prior to installing new liner material.

In Photo 4, above, the area behind and to the right of the manhole has been rolled with a smooth drum, but the surface does not appear to be uniform or properly compacted. When properly compacted, the individual passes by the compactor should not be visible (i.e., the small soil ridges formed at the edge of each pass of the roller drum).

• Prior to installation of the new liner material the surface of the soil must be smooth and uniform.

With respect to the elevation of the stormwater collection pipes, SCS believes that the inlets are too high above the liner to drain the stormwater and prevent ponding of water on the liner (Photo 5). According to Clark County, the liner will be approximately 12 inches below the invert of the inlets. At a minimum, this will result in saturated soil sitting atop the liner. In at least one area, the planned tie-in mark on the existing liner may be at, or below the same elevation as the storm pipe inlet invert. This condition would cause stormwater to saturate the covering soils over the existing landfill cover liner.



• Survey stormwater collection pipes and adjacent drainage areas, and adjust elevations to minimize ponding water on the liner.

Photo 5 – Inlet to stormwater collection pipe will be about 12 inches above the surface that will receive the new geomembrane liner.

The grading does not visually appear to provide sufficient slope for adequate flow of water over the liner into the stormwater collection pipes (see Photo 6). This is especially concerning in the NE corner of the landfill. According to Clark County, drainage will be provided by final grading of an approximately 12-inch layer of (vegetated) soil atop the liner.

• Survey stormwater collection pipes and adjacent drainage areas, and adjust elevations to facilitate drainage and minimize ponding water on the liner.



Photo 6 - Grading appears to be inadequate for surface water drainage into the stormwater collection pipes.

The road directly south of the project area consists of a roughly 1 foot layer of railroad ballast placed directly on top of the liner. This is now being driven over by large construction vehicles.

• Remove railroad ballast, inspect liner for damage, repair as needed, and cover with appropriate material as described in the specifications. In addition, cease using the road for construction related activities.

We understand that the liner crew is available from June 15th through the 22nd and that is when the contractor wants to perform the work.

• Before liner installation begins, we recommend that a preconstruction meeting lead by SCS be conducted.

The Contractor proposed a method of joining the new geomembrane liner to the existing liner by not cutting the existing liner and that the tie-in with the new material be performed using extrusion welding methods. This is not an acceptable method for many reasons. The main reasons being the condition of the existing liner and that double fusion welding provides a better seam.

• SCS recommends seam welding using double fusion welding methods.

The contractor proposed joining the new geomembrane liner to the existing liner at a lower elevation than what is shown on the plans and was marked via surveying at the site. Performing the tie-in at a lower elevation would create a grade reversal between the existing liner and the drainage swale. In profile this would form a "W" shape where one valley is the swale and the other is the dip where the liner drops down in elevation to connect to the existing liner.

• There must be a continuous downward grade from the tie-in to the storm collector inlet to prevent water ponding. SCS recommends connecting the existing liner at the location and elevation shown on the plans.

Closing

Overall, our impression from the June 9th inspection is that major work remains to be completed to prepare the subgrade for liner installation. The integrity of the existing liner is questionable as a result of the filling process, and the stormwater system will likely lead to water being trapped atop the newly installed liner.

If you have any questions or comments, please contact the undersigned at (425) 301-6521.

Sincerely,

w. the

John Faille, EIT Staff Engineer SCS Engineers

Joh M. Richards, PE

Project Director / Vice President SCS Engineers



Appendix B

Testing Results

- B-1 In-Place Moisture/Density Test Results
- B-2 Geomembrane Destructive Seam Test Results

B-1

In-Place Moisture/Density Test Results







FIELD AND DAILY ACTIVITY REPORT

PROJECT	CLIENT	REPORT NO.		
NE 99th Street Improvements	Clark County Dept. of Public Works	22046-062023-GS1		
NE 94th Avenue – Vicinity of NE 117th	1300 Franklin Street, 4th Floor	CRP NO.		
Avenue/SR503	Vancouver, WA 98666-9810	350722		
Clark County, Washington		INSPECTOR/TECHNICIAN - CERTIFICATION NO.		
		BJO		
CONTRACTOR(S)	PROJECT REPRESENTATIVE(S)	WEATHER/CONDITIONS	PAGE	
Nutter Corp.	John Tuininga	Cloudy, 50s°F	1 of 1	

TYPE OF FIELD OBSERVATION PERFORMED

Density Testing [BI #18 RAM #87]

DESCRIPTION OF DAILY ACTIVITIES AND GEOTECHNICAL OBSERVATIONS

Columbia West was onsite as requested to conduct density testing on an onsite-mixed 1:1 aggregate blend placed for embankment fill. Test results met project specifications. For approximate locations and test results see Field Compaction Report 22046-062023-CT1.

NOTES: This Field and Delly Activity Report pertains only to surface material visually examined at the time of the site observation and presents opinions formed based on observation of activities relating to geolechnical engineering services. Columbia West' construction monitoring is not a representative warranty and does not include nor consist of exploratory investigation, subsurface evaluation, geismic evaluation, groundwater analysis or any other activities essociated with alte investigation. It is possible that soil conditions may vary between tested or observed too conserve too pear of options between tested or observed too contents. Columbia West cleims no pest or prior knowledge of soil conditions at the set options mean start in the observations document ad above. The ebove statements are in lieu of all other statements expressed or implied. This report may not be reproduced except in full without prior written authorization by Columbia West Engineering, Inc. Sampling conducted in accordance with QSP 7.3.1. Test results and observations apply in only for locations and vare tested. Columbia West Eleims on the contractor to comply with the project plans and specifications lincogiance in the protect mesencations apply and the responsible for elets and perting the described harden is not meant to supervise nor direct the contractor nor the contractor means and methods. Columbia West fields on other tested in accordance with QSP results and observations apply harden to supervise nor direct the contractor nor the contractor means and methods. Columbia West fields on the prior tested and Deliy Activity Report is a draft document supmarizing field testing, or determine accompany with the project plans and west fields on the contractor means and methods. Columbia West fields on the contractor nor the contractor means and methods. Columbia West fields on the contractor means and methods. Columbia West fields on the contractor means and methods. West fields on the exilt wester application and described in accorda and preliminary recommendations. The Field and Daily Activity Report is final only after review and authorized signature by Columbia Was

- 2.

COLUMBIA WEST ENGINEERING, INC. authorized signature

06-22-23 ISSUE DATE

INSPECTOR/TECHNICIAN

11917 NE 95th Street, Vancouver, Washington 98682 Phone: 360-823-2900 www.columbiawestengineering.com



FIELD COMPACTION REPORT

PROJECT	CLIENT	REPORT NO.		
NE 99th Street Improvements	Clark County Dept. of Public Works	22046-06	52023-CT1	
NE 94th Avenue – Vicinity of NE 117th	1300 Franklin Street, 4th Floor	DATE		
Avenue/SR503	Vancouver, WA 98666-9810	06-20-23		
Clark County, Washington		WEATHER		
		Cloudy	, 50s°F	
CRP NO. / BID ITEM NO.	CONTRACTOR / FOREMAN	ENGINEER/TECHNICIAN	PAGE	
350722 / BI #18	John Tuininga	BJO	1 of 1	

COMPACTION TEST DATA

11

			NUCLEAR GAUGE TEST RESULTS		PROCTOR DATA			COMPACTION				
TEST NO.	TEST DEPTH Feet	ROD DEPTH ¹ Inches	WET DENSITY Pcf	DRY DENSITY pcf	MOISTURE %	MAXIMUM DRY DENSITY pcf	OPTIMUM MOISTURE CONTENT %	LAB ID	%	MEETS SPECS ²	TESTED I TEST DESCRIPTIO	MATERIAL, DN AND LOCATION
1	0	12	141.3	132.4	6.7	136.5	7.2	S22-0933	97.0 -	S	Embankr NE 99 th STA 30+00, 60	nent Fill Street Y South of CL
2	0	12	141.5	131.7	7.4	136.5	7.2	S22-0933	96.5 -	S	Embankr NE 99 th STA 29+00, 60	nent Fill Street Y South of CL
3	0	12	147.3	135.5	8.8	136.5	7.2	S22-0933	99.2 ^L	S	Embankr NE 99 th STA 28+00, 60	nent Fill Street Y South of CL
4	0	12	149.5	138.3	8.1	136.5	7.2	S22-0933	100+	s, S	Embankr NE 99 th STA 31+00, 12	nent Fill Street 0' South of CL
5	0	12	146.8	134.7	9.0	136.5	7.2	S22-0933	98.7 *	S	Embankr NE 99 th STA 32+00, 60	nent Fill Street / South of CL
										-		
NOTES ² MEETS SPECS: 'ROD DEPTH: 0 = Backscatter 2 - 12 = Direct Transmission (in inches below ground surface) U = unsatisfactory, meets compaction specifications Unless otherwise noted, percent compaction is based upon laboratory determination of maximum dry density for the sample noted. Unless otherwise noted, percent compaction is based upon laboratory determination of maximum dry density for the sample noted. Tests performed per ASTM D6938 or AASHTO T310, in accordance with project specifications. Test results apply only for the location and date tested. This report may not be reproduced except in full without prior written authorization by Columbia West Engineering, Inc. Sampling conducted in accordance with QSP 7.3.1. ADDITIONAL REMARKS Test depth recorded as approximate depth relative to finished grade.								3	COMPACTION SPECIFICA 95% MDD A TESTED MATERIALS AND S22-0933: 1:1 aggre mixed Daybreak rej screenings, sample 99 th Street, STA 26-	TIONS ASHTO T180 SOURCES egate blend, onsite tect, Mountain Top d from grade, NE +00 GAUGE MODEL		
TECHI	TECHNICIAN/INSPECTOR: DATE OF ISSUE:									MOISTURE STANDARD	DENSITY STANDARD	

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06-22-23

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couver, Washington 98682

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FIELD COMPACTION REPORT

	CLIENT	REPORT NO.			
"h Street Improvements	Clark County Dept. of Public Works	22046-093022-CT1			
,4th Avenue – Vicinity of NE 117th	1300 Franklin Street, 4th Floor	DATE			
.anue/SR503	Vancouver, WA 98666-9810	0-22			
Jark County, Washington		WEATHER			
		Clear,	70s°F		
CRP NO. / BID ITEM NO.	CONTRACTOR / FOREMAN	ENGINEER/TECHNICIAN	PAGE		
350722 / BI #18	John Tuininga	ABS	1 of 1		

COMPACTION TEST DATA

			NUCLEAR	R GAUGE TEST	RESULTS	P	PROCTOR DATA			CTION	
TEST NO.	TEST DEPTH Feet	ROD DEPTH ¹ Inches	WET DENSITY Pcf	DRY DENSITY pcf	Moisture %	MAXIMUM DRY DENSITY pcf	OPTIMUM MOISTURE CONTENT %	LAB ID	%	MEETS SPECS ²	TESTED MATERIAL, TEST DESCRIPTION AND LOCATION
1	-8.5	12	143.4	133.7	7.3	136.5	7.2	S22-0933	98.0	S	Structural Roadway Fill NE 99 th Street, Approximate STA 31+00 10' North of Center Line
2	-8.5	12	146.7	137.0	6.4	136.5	7.2	S22-0933	100+	S	Structural Roadway Fill NE 99 th Street, Approximate STA 30+00 10' North of Center Line
3	-8.5	12	139.9	131.6	5.6	136.5	7.2	S22-0933	96.4	S	Structural Roadway Fill NE 99 th Street, Approximate STA 29+00 10' South of Center Line
4	-8.5	12	141.6	133.4	6.7	136.5	7.2	S22-0933	97.7	, S	Structural Roadway Fill NE 99 th Street, Approximate STA 28+00 10' South of Center Line
5	-9	6	139.8	131.0	7.6	136.5	7.2	S22-0933	96.0	S	Structural Roadway Fill NE 99 th Street, Approximate STA 26+00 10' South of Center Line
6	-8.5	12	144.6	134.4	7.5	136.5	7.2	\$22-0933	98.5	S	Structural Roadway Fill NE 99 th Street, Approximate STA 25+50 10' South of Center Line
7	-9	6	148.0	138.5	5.6	136.5	7.2	S22-0933	100+	S	Structural Roadway Fill NE 99 th Street, Approximate STA 24+00 5' South of Center Line
8	-8.5	12	141.7	134.2	6.8	136.5	7.2	S22-0933	98.3	S	Structural Roadway Fill NE 99 th Street, Approximate STA 23+00 5' South of Center Line
9	-9	6	142.8	133.8	7.5	136.5	7.2	S22-0933	98.0	S	Structural Roadway Fill NE 99 th Street, Approximate STA 22+00 15' South of Center Line

NOTES

1ROD DEPTH: 0 = Backscatter ²MEETS SPECS:

S = satisfactory, meets compaction specifications

2-12 = Direct Transmission (in inches below ground surface)

U = unsatisfactory, does not meet compaction specifications

Unless otherwise noted, percent compaction is based upon laboratory determination of maximum dry density for the sample noted. Tests performed per ASTM D6938 or AASHTO T310, in accordance with project specifications. Test results apply only for the location and date tested. This report may not be reproduced except in full without prior written authorization by Columbia West Engineering, Inc. Sampling conducted in accordance with QSP 7.3.1.

ADDITIONAL REMARKS

Test depth recorded as approximate depth relative to finished subgrade elevation.

TECHNICIAN/INSPECTOR:

DATE OF ISSUE:

10-04-22

OK OTA

COMPACTION SPECIFICATIONS 95% MDD AASHTO T180 TESTED MATERIALS AND SOURCES S22-0933: 1:1 aggregate blend, onsite mixed Daybreak reject, Mountain Top screenings, sampled from grade NE 99th Street, STA 26+00 GAUGE MODEL GAUGE SERIAL NO. 71268 3430 DENSITY STANDARD MOISTURE STANDARD 2464 654

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FIELD COMPACTION REPORT

PROJECT	CLIENT	REPORT NO.		
NE 99th Street Improvements	Clark County Dept. of Public Works	22046-101222-CT1		
NE 94th Avenue – Vicinity of NE 117th	1300 Franklin Street, 4th Floor	DATE		
Avenue/SR503	Vancouver, WA 98666-9810	10-12-22		
Clark County, Washington		WEATHER		
		Sunny	, 60s°F	
CRP NO. / BID ITEM NO.	CONTRACTOR / FOREMAN	ENGINEER/TECHNICIAN	PAGE	
350722 / BI #18	John Tuininga	BSP	1 of 1	

COMPACTION TEST DATA

0			NUCLEAR	NUCLEAR GAUGE TEST RESULTS			PROCTOR DATA			CTION			
TEST NO.	TEST DEPTH Feet	ROD DEPTH ¹ Inches	WET DENSITY Pof	DRY DENSITY pcf	MOISTURE %	MAXIMUM DRY DENSITY pcf	OPTIMUM MOISTURE CONTENT %	LAB ID	%	MEETS SPECS ²	TESTED N TEST DESCRIPTIC	IATERIAL, IN AND LOCATION	
1	-4	12	136.9	129.7	5.5	136.5	7.2	S22-0933	95.0	S	Structural Roadway Fill NE 99 th Street, Approximate STA 31+00 10' South of Center Line		
2	-4	12	142.0	134.1	5.9	136.5	7.2	S22-0933	98.2	S	Structural Re NE 99 th Street, Appr 20' South of	oadway Fill oximate STA 29+00 Center Line	
3	-4	12	146.2	135.9	7.5	136.5	7.2	S22-0933	99.6 ֊	S	Structural Re NE 99 th Street, Appro Center	oadway Fill oximate STA 27+00 [.] Line	
4	-4	12	143.7	134.5	6.9	136.5	7.2	S22-0933	98.5 _	S	Structural Re NE 99 th Street, Appro 20' South of	oadway Fill oximate STA 26+00 Center Line	
5	-4	12	147.4	136.9	7.7	136.5	7.2	S22-0933	100+ ′	S	Structural Re NE 99 th Street, Appr 20' South of	oadway Fill oximate STA 24+00 Center Line	
	2	ă.											
NOTE	S				2MEETS SI	ETS SPECS:					COMPACTION SPECIFICATIONS		
1ROD	DEPTH: 0 = Backs	catter			S = satis	S = satisfactory, meets compaction specifications					95% MDD AASHTO T180		
2 – 1	2 = Direct	Transmiss	sion (in inche:	s below	U = unsa	U = unsatisfactory, does not meet compaction specification				S	S22 0022: 1:1 age	SOURCES	
Unles	d surrace) s otherwise	noted, perce	ont compaction	is based upon l	aboratory deter	ratory determination of maximum dry density for the sample noted.					onsite mixed Day	break reject	
Tests	performed p	er ASTM Di	6938 or AASHT	O T310, in acc	ordance with pr	ice with project specifications. Test results apply only for the					Mountain Top sci	reenings, sampled	
Engin	eering, Inc.	Sampling co	onducted in acc	ordance with Q	SP 7.3.1.	3.1.				ê	from grade	composition	
ADDIT	IONAL RE	MARKS					÷.						
Test	Test depth recorded as approximate depth relative to finished subgrade elevation.												
											GAUGE SERIAL NO. 33767	GAUGE MODEL 3440	
TECHNICIAN/INSPECTOR:						OF ISSUE:					MOISTURE STANDARD 662	DENSITY STANDARD 1867	
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FIELD COMPACTION REPORT

JECT	CLIENT	REPORT NO.	
NE 99th Street Improvements	Clark County Dept. of Public Works	22046-10)1722-CT1
NE 94th Avenue – Vicinity of NE 117th	1300 Franklin Street, 4th Floor	DATE	
Avenue/SR503	Vancouver, WA 98666-9810	10-1	7-22
Clark County, Washington		WEATHER	
	· · · · · · · · · · · · · · · · · · ·	Overcas	st, 50s°F
CRP NO. / BID ITEM NO.	CONTRACTOR / FOREMAN	ENGINEER/TECHNICIAN	PAGE
350722 / BI #18	John Tuininga	BJO	1 of 1

COMPACTION TEST DATA

			NUCLEAR GAUGE TEST RESULTS PROCTOR DATA COMPACTION		CTION						
TEST NO.	TEST DEPTH Feet	ROD DEPTH ¹ inches	WET DENSITY Pcf	DRY DENSITY pof	MOISTURE %	MAXIMUM DRY DENSITY pcf	OPTIMUM MOISTURE CONTENT %	LAB ID	%	MEETS SPECS ²	TESTED MATERIAL, TEST DESCRIPTION AND LOCATION
1	-3.5	12	144.2	135.7	6.2	136.5	7.2	S22-0933	99.4 -	S	Structural Roadway Fill NE 99 th Street, Approximate STA 23+00 20' South of Center Line
2	-3.5	12	147.1	138.1	6.5	136.5	7.2	S22-0933	100+-	S	Structural Roadway Fill NE 99 th Street, Approximate STA 24+00 20' North of Center Line
3	-4	12	141.5	134.3	5.4	136.5	7.2	S22-0933	98.4~	S	Structural Roadway Fill NE 99 th Street, Approximate STA 26+00 20' South of Center Line
4	-4	12	145.9	136.9	6.5	136.5	7.2	S22-0933	100+	ś	Structural Roadway Fill NE 99 th Street, Approximate STA 28+00 10' South of Center Line
NOTES	S				² MEETS SP	PECS:					COMPACTION SPECIFICATIONS
ROD	ROD DEPTH: S 0 = Backscatter			S = satis	factory, meet	s compaction	n specification	IS Decifications		95% MDD AASHTO T180	
2 – 1. ground	2 = Direct 1 surface)	Transmiss	ion (in inches	s below	0 - 0100	10120101 y, 00	es not meet	compaction of	pecilications		S22-0933: 1:1 aggregate blend.
Unless	Unless otherwise noted, percent compaction is based upon labora				aboratory deter	nination of max	imum dry dens	sity for the samp	le noted.		onsite mixed Daybreak reject,
locatio Engine	location and date tested. This report may not be reproduced except in full w Engineering Inc. Sampling conducted in accordance with OSP 7.3.1					thout prior writt	en authorizatio	n by Columbia I	West		Mountain Top screenings, sampled
ADDITIONAL REMARKS								from grade			
Test depth recorded as approximate depth relative to finished subgrade elevation.											
										31447 3430	
TECHNICIAN/INSPECTOR:				DATE C	F ISSUE:					MOISTURE STANDARD DENSITY STANDARD	
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COLUMBIA WEST ENGINEERING, INC. authorized signature

B-2

Geomembrane Destructive Seam Test Results



Date: 2023-06-20

Mail To: lack Faille	Bill To:	
SCS Engineers	SCS Engineers	
, ,		

e-mail: jfaille@scsengineers.com jrichards@scsengineers.com ghelland@scsengineers.com

Dear Mr. Faille,

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:	Leichner LF NE 99th Street
TRI Job Reference Number:	78308
Material(s) Tested:	(4) Heat Fusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
Cadaa	

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,

Nicole Saucedo

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.



Material: 60 mil. HDPE SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.) TRI Log#: 78308

		TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN	
Sample ID: DS-1 Weld: Heat Fusion							
Side: A						Peel A	
Peel Strength (ppi)	118	116	114	112	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)	136	124	111	134	139	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)	147	151	151	150	154	151	
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50		

Sample ID: DS-2 Weld: Heat Fusion						
Side: A						Peel A
Peel Strength (ppi)	127	130	118	128	129	126
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)	116	116	120	115	118	117
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						Shear
Shear Strength (ppi)	159	153	154	156	148	154
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	



Material: 60 mil. HDPE SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.) TRI Log#: 78308

		TEST	REPLICATE N	UMBER		
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-3 Weld: Heat Fusion						
Side: A						Peel A
Peel Strength (ppi)	114	120	122	121	121	120
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						Peel B
Peel Strength (ppi)	105	114	113	107	107	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)	151	156	152	154	146	152
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

Sample ID: DS-4 Weld: Heat Fusion						
Side: A						Peel A
Peel Strength (ppi)	136	126	131	137	143	135
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	113	136	142	153	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	
Shear						Shear
Shear Strength (ppi)	149	154	148	147	159	151
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	



Date: 2023-06-29

Mail To: Iack Faille	Bill To:	
SCS Engineers	SCS Engineers	

, ,

e-mail: jfaille@scsengineers.com jrichards@scsengineers.com ghelland@scsengineers.com

Dear Mr. Faille,

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:	Leichner LF NE 99th Street
TRI Job Reference Number:	78399
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,

Sennip T. Tennue

Jennifer Tenney **Project Manager** Geosynthetic Services Division http://www.geosyntheticstestinc.com



Material: 60 mil. HDPE SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.) TRI Log#: 78399

	TEST	REPLICATE N	UMBER		
1	2	3	4	5	MEAN
					Peel A
114	118	114	113	113	114
<5	<5	<5	<5	<5	
SE	SE	SE	SE	SE	
FTB	FTB	FTB	FTB	FTB	
					Peel B
114	128	125	123	134	125
<5	<5	<5	<5	<5	
SE	SE	SE	SE	SE	
FTB	FTB	FTB	FTB	FTB	
					Shear
156	154	153	147	155	153
>50	>50	>50	>50	>50	<u>.</u>
	1 114 <5 SE FTB 114 <5 SE FTB 156 >50	TEST 1 2 114 118 <5	TEST REPLICATE N 1 2 3 114 118 114 <5	TEST REPLICATE NUMBER 1 2 3 4 114 118 114 113 <5	TEST REPLICATE NUMBER 1 2 3 4 5 114 118 114 113 113 <5

Sample ID: DS-6 Weld: Heat Fusion						
Side: A						Peel A
Peel Strength (ppi)	145	147	135	105	111	129
Peel Incursion (%)	<5	<5	<5	35	85	
Peel Locus Of Failure Code	SE	SE	SE	AD-BRK	AD-BRK	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						Peel B
Peel Strength (ppi)	128	130	77	55	68	92
Peel Incursion (%)	30	<5	100	100	100	
Peel Locus Of Failure Code	AD-BRK	SE	AD	AD	AD	
Peel NSF Failure Code	FTB	FTB	NON-FTB	NON-FTB	NON-FTB	
Shear						Shear
Shear Strength (ppi)	155	157	142	153	155	152
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.

TRI ENVIRONMENTAL, INC. 9063 BEE CAVES RD. - AUSTIN, TX 78733 - USA | PH: 800.880.TEST or 512.263.2101 Page: 2 of 5



Material: 60 mil. HDPE SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.) TRI Log#: 78399

		TEST	REPLICATE N	UMBER		
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-7 Weld: Heat Fusion						
Side: A						Peel A
Peel Strength (ppi)	129	133	135	131	129	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)	135	136	144	131	145	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)	146	151	152	155	152	151
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

Sample ID: DS-8 Weld: Heat Fusion						
Side: A						Peel A
Peel Strength (ppi)	112	151	137	148	113	132
Peel Incursion (%)	35	25	<5	<5	85	
Peel Locus Of Failure Code	AD-BRK	AD-BRK	SE	SE	AD-BRK	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						Peel B
Peel Strength (ppi)	133	125	122	117	126	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)	151	145	150	149	153	150
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	



Material: 60 mil. HDPE SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.) TRI Log#: 78399

		TEST	REPLICATE N	UMBER		
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-9 Weld: Heat Fusion						
Side: A						Peel A
Peel Strength (ppi)	97	103	114	108	110	106
Peel Incursion (%)	25	<5	<5	<5	30	
Peel Locus Of Failure Code	AD-BRK	SE	SE	SE	AD-BRK	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						Peel B
Peel Strength (ppi)	117	123	125	113	125	121
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						Shear
Shear Strength (ppi)	155	151	152	155	152	153
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

Sample ID: DS-10 Weld: Heat Fusio	n					
Side: A						Peel A
Peel Strength (ppi)	59	71	61	45	46	56
Peel Incursion (%)	100	100	100	100	100	
Peel Locus Of Failure Code	AD	AD	AD	AD	AD	
Peel NSF Failure Code	NON-FTB	NON-FTB	NON-FTB	NON-FTB	NON-FTB	
Side: B						Peel B
Peel Strength (ppi)	133	145	142	144	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	
Shear						Shear
Shear Strength (ppi)	148	153	152	152	156	152
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	



Material: 60 mil. HDPE SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.) TRI Log#: 78399

	TEST	REPLICATE NU	JMBER		
1	2	3	4	5	MEAN
					Peel A
141	144	140	146	153	145
<5	100	100	<5	<5	
SE	AD	AD	SE	SE	
FTB	NON-FTB	NON-FTB	FTB	FTB	
					Peel B
143	154	139	132	153	144
<5	<5	<5	<5	<5	
SE	SE	SE	SE	SE	
FTB	FTB	FTB	FTB	FTB	
					Shear
154	151	155	166	159	157
>50	>50	>50	>50	>50	
	1 141 <5 SE FTB 143 <5 SE FTB 154 >50	TEST 1 2 141 144 <5	TEST REPLICATE NU 1 2 3 141 144 140 <5	TEST REPLICATE NUMBER 1 2 3 4 141 144 140 146 <5	TEST REPLICATE NUMBER 1 2 3 4 5 141 144 140 146 153 <5

Appendix C

Geomembrane Installation Documentation

- C-1 Geomembrane Panel Logs
- C-2 Geomembrane Submittals

C-1

Geomembrane Panel Logs

Texture

Roll No. 0101-206373

Lot No. PPE821320

CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99TH ST CONSTRUCTION

Panel Location

Deploy 6 - 14 - 23

Deploy C9:00

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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99TH ST CONSTRUCTION

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				2	6-15-23	9:33			JH	13		T=86	5=7	6-19	59	€34	Air	GM	P
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				0															
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LEICHNER LANDFILL NE 99TH ST CONSTRUCTION

SCS ENGINEERS

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LEICHNER LANDFILL NE 99^{TH} ST CONSTRUCTION

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n.		2			Sample No	\ \	Date F	Removed	Pass/								
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Se	am	Next Panel															
INC			47.24	1			DATE	6-15	. 22				Г	Снеск	(√) Here li	REVERSE	SIDE IS USE
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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99TH ST CONSTRUCTION

	01		Panel Orien	tation:	Panel No.	P-1	7		Roll No.	636	66	Deploy Date	5-15	-23	Panel Locat	ion
	1-6		Nº	ľ	Sm	ooth	Text	ure	Lot No.			Deploy Time	0:00	>		
	(\mathbf{z})	Main Seam	Seam W	elding							Seam Le	ak Testin	g			
	\bigcirc		Date	Time	Amb Temp	Loc.*	Tech	Mach	No.	Mach Settings	Date	Distance	e Tested Loc.*	Test Type	Tech	Pass/ Fail
1		Q	6-19	p:21			211	3	~	1=860 5=7	6-14	67'		Air	GM	P
111	DC-1	(2	6-15	10:36			<u>511</u>	13		T=860 5=7	6-15	67'		Air	<u>6</u> M	P
		(3)	6-19	10:15			7H	13		T=860 5=7	6-15	211		Air	GM	P
		पि	6-16	1200			1	'n		4	6-16			C	er.	P
	P-7 *Indicate Seam: Main = M or Cross = X Repair Welding Repair Welding															2
5	and the second second second		Repair V	Velding				a.					Repair I	Leak Testi	ng	
AB	$(\sim$	$\int o O$	Date	Time	Amb		Repair No.		Tech	Mach No.	Mach \$	Settings	Date	Test Type	Tech	Pass/ Fail
	\sim	Next P			- Comp											
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			Destruc	tive Seam	Sample I	ab Test			Comme	ents						JJ
	(4)			Sample No).	Date R	Removed	Pass/								
	FI	0	DC	-)		6-11	5-73	Pail								
	EL		1/7-			10 11	<u> </u>									
Cross	- 0												_			
Jean	Next Panel															
INSPECT	OR'S SIGNATURE	1. m	2			DATE	6-1	5-27	3			Γ	Снеск	(✔) Here I	REVERSE	SIDE IS USE
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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99^{TH} ST CONSTRUCTION

AT	Panel Orient	tation:	Panel No.	P-8			Roll No.	636	56	Deploy Date	-15-	23	Panel Loca	lion
11	N'	·	Smo	both	Text	ure	Lot No.			Deploy Time	0:30	3		
Main Seam	Seam W	elding							Seam Le	ak Testing	9			
	Date	Time	Arnb Temp	Loc,*	Tech	Mach	i No.	Mach Settings	Date	Distance and	e Tested Loc.*	Test Type	Tech	Pass/ Fail
	6-19	10:36			TH	13		T=860 5=7	6-15	30+1	\$7'	Air	6M	P
2	6-15	10:48			51+	13		F=860 5=7	6-15	10'to	83`	Air	GM	P
	6-16	1200			Ĉſ.	4			6-16			le	4	P
P-8														
	I *Indicate	Seam: Ma	ain = M or (Cross = X										
Image: Second														
	Date	Time	Amb		Repair No		Tech	Mach No.	Mach S	Settinas	Date	Test	Tech	Pass/
			Temp									Туре		Fail
										8				
	Destruc	tive Seam	Sample L	ab Test			Comme	ents						
o		Sample No		Date R	Removed	Pass/ Fail								
EL					-									
Cross O														
Seam Next Panel														
INSPECTOR'S SIGNATURE MAN. DZ	z			DATE	6-10	6 - 23	2			Γ	Снеск	(✔) Here li	REVERSE	SIDE IS USE

CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99TH ST CONSTRUCTION

	AT			Panel Orier	itation:	Panel No.	P_0	(Tex	ture	Roll No.	63	66	Deploy Date C	5-15-7 0:40	23	Panel Locat	on
	4		Main Seam	Seam W	elding		/					Seam Le	ak Testing	9			
			1	Date	Time	Amb	Loc.*	Tech	Mach	No. 13	Mach Settings	Date	Distance	e Tested	Test	Tech	Pass/ Fail
			ß	6-15	10:42	Temp		JH.	1-800	SET	T=860 5=7	6-15	10748	33'	Air	GM	P
			X	6-14	11:00			54		3	T=810 5=7	6-19	91		Air	GM	12
			X	6-11	1700			G		Cr.	4	6-16			a	ur	P
			B	0 16	1000												
			r i	*Indicate	Seam: Ma	ain = M or (Cross = X					1					
	P-9		~	Bonois	Nolding									Renair I	eak Testi	na	
(IN				Repair V	Time	Amb	1	DensiaNa		Teeb	Mach No.	Mach	ottings	Data	Test	Tech	Pass/
0 D			-] -	Date	lime	Temp		Repair No.		Tech	Mach No.	IVIDUIT	settings		Туре	rear	Fail
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	(I)			Destruc	tive Seam	Sample L	.ab Test		Dare/	Comme	ents						
	\bigcirc		_ 0	-	Sample No	•	Date F	Removed	Fail								
	EL																
	\bigcirc																
Seam	Next Panel																
		An.	2 20	15			Durr	6-16	.23				Г				SIDE IS USE
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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99TH ST CONSTRUCTION

AT		Panel Orieni	tation:	Panel No.	P-10	O Text	lure	Roll No.		63	66	Deploy Date Deploy	-15-7	23	Panel Local	ion
	Main Seam	Seam W	eldina								Seam Le	ak Testing	9		I	
	(L) (L)	Date 6 - 19 6 - 19	Time	Amb Temp	Loc.*	Tech J[+ JH	Mach 13 13	No.	Mach Se T=860 T=860	ettings タニア タニア	Date 6-19 6-19	Distance and 96 96	e Tested Loc.*		Tech GM GM	Pass/ Fail P
P-10	(3)	6-16 "Indicate	Seam: Ma	ain = M or (Cross = X	<i>(1'</i>			<i>a</i>		6-10					P
		Repair V	Velding Time	Amb Temp		Repair No.		Tech	Mach	No.	Mach S	Settings	Repair Date	Leak Testi Test Type	ng Tech	Pass/ Fail
D5-4															1	
VO		Destruc	tive Sear	n Sample L	_ab Test			Comme	ents							
Cross O	0	D5-	Sample No).	Date	Removed	Pass/ Fail P	63	s' DS Z	-3	> DS+ 13 + €	-4 (T 39 =	ie-in) 20	78'		
Next Panel	7. ju				DATE	6-1	16-23					[Снеск	(✓) Here I	F REVERSE	SIDE IS U

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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99TH ST CONSTRUCTION

SCS ENGINEERS

	Panel Orientation:	Panel No.	P-11			Roll No.	634	56	Deploy Date 6	-15-	23	Panel Locat	ion
	NT	Smo	poth	Textu	ire	Lot No			Deploy Time	:09			
Main Seam	Seam Welding							Seam Le	ak Testing	3			
	Date Time	Amb Temp	Loc.*	Tech	Mach	No.	Mach Settings	Date	Distance and I	Tested	Test Type	Tech	Pass/ Fail
Q	6-19 11:12			JH	13		F=860 9=7	6-15	96'		Air	GM	P
	6-19 11:24			JH	13		1=860 9=7	6-15	75	1	1-11-	бM	P
3	6-16 1200			(ľ	4		<i>(1</i> [.]	6-18			le	11	P
									-				·
P-11													
	*Indicate Seam: Ma	ain = M or C	uross = X										
() (2)	Repair Welding									Repair l	_eak Testi	ng	
	Date Time	Amb Temp		Repair No.		Tech	Mach No.	Mach S	Settings	Date	Test Type	Tech	Pass/ Fail
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										İ			
3	Destructive Seam	i Sample L	ab rest		Pass/	I							
0	Sample No).	Date R	emoved	Fail								
EL													
Seam Next Panel						L							
INSPECTOR'S SIGNATURE 1117 7. Jr	ñ		DATE	6-1	6	3			Г	Снеск	(✔) Here li	REVERSE	SIDE IS USE

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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

Leichner Landfill NE 99^{TH} St Construction

	AT		Panel Orien	tation:	Panel No.	P-	12 Text	ure	Roll No.	636	6	Deploy Date Deploy Time	-15-2 1:10	3	Panel Locat	ion
		Main Seam	Seam W	elding						11	Seam Le	ak Testin	g			
		Ø	Date 6.49	Time	Amb Temp	Loc.*	Tech TH	Mach	No,	Mach Settings	Date 6-15	Distance and 75	e Tested Loc.*	Test Type	Tech GM	Pass/ Fail P
		L T	6-15 6-16	1:45 12:00			5H rr	13		T=260 S=7	6-19 6-16	541	_	Air	6M "	P P
	P-12		*Indicate	Seam: Ma	ain = M or (Cross = X	1									
EM	$\overline{\mathcal{O}}$		Repair V	Velding									Repair	Leak Testi	ng	Dees/
210	G	Next Pane	Date	Time	Amb Temp		Repair No.		Tech	Mach No.	Mach \$	Settings	Date	Туре	Tech	Fail
			a r													
	2												i			
	2		Destruc	tive Seam	Sample L	Lab Test			Comme	ents						AT.
	0	0		Sample No		Date I	Removed	Pass/ Fail								
	EL										к.					
Cross Seam	Next Panel					±1										
		7. Jz	é.			DATE	6-16-	23				C	Снеск	(✔) Here I	- Reverse	SIDE IS USI

CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99^{TH} ST CONSTRUCTION

	AT		Panel Orien	tation:	Panel No.	P-13	3		Roll No. C	0 0 - 296	372	Deploy Date	-15-	23	Panel Local	ion
ī	/ \	Main Seam		1	Sm	ooth	Text	ture	Lot No.	PE 273821	310	Time	1:40	>		
			Seam W	elding	Amb					March Optimizer	Seam Lo	Distance	g e Tested	Test	Teeb	Pass/
		6	Date	Time	Temp	Loc,*	Tech	Mach	i No.	Mach Settings	Date	and	Loc.*	Туре		Fail 17
		+ 0	0-17	11.11			7H TU	13		1=000 1-1	6-17	71 (U)		111-	GM	P
	DS-2->)	1 Q	6-17	11:77				17		500- 7-1	6-17	79		Air	0/1	P
		3	6-16	1200				(r			0-10			(
	C						7									
x	UP-13 (2)	5														
12		-	*Indicate	Seam: Ma	ain = M or I	Cross = X		[_	<u> </u>	·	
~'		2	Popairk	Nelding									Repair	Leak Testi	na	
			Date	Time	Amb	1	Renair No		Tech	Mach No.	Mach	Settinas	Date	Test	Tech	Pass/
		ext Pa	Duic		Temp									Туре		Faii
		z											l			
			•													
			-			1										
													1			
	(3)		Destruc	tive Seam	Sample L	_ab Test			Comme	ents						
	3	0		Sample No	0	Date F	Removed	Pass/ Fail		1					1	
	ΕI		DS-	2		6-16	-23	P	51	17' DG1-	705	-2	(+	499	bet	e 05-1
-											2=1	002				-
Ci	eam Next Panel															
	An	7.2	25			D	6-11	- 23				Г				SIDE le Lles
INS G:\	SPECTOR'S SIGNATURE				(DAI'E	0 10	(L		(*) HERE I	TREVENSE	

CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

$\begin{array}{c} \mbox{Leichner Landfill} \\ \mbox{Ne 99}^{\text{TH}} \mbox{ st Construction} \end{array}$

	AT			Panel Orien	tation:	Panel No.	P-14	Text	ure	Roll No.	4 13	372 20	Deploy Date 6 Deploy Time	6-15 1:45	-23	Panel Locati	on
			Main Seam	Seam W	elding	_`_	<i>i</i>					Seam Le	ak Testing]			
Πr	15-2		Q	Date 6-19	Time 11,53	Amb Temp	Loc.*	Tech JH JH	Mach	No.	Mach Settings	Date 6-19 6-19	Distance and I 991 991	Tested _oc.*		Tech GM GM	Pass/ Fail P
Щ				6-16	1200			C(r	r r		()	6-16			/)\\ (r	u	P
-	F-19		1	*Indicate	Seam: Ma	ain = M or (Cross = X										
M		6		Repair V	Velding									Repair	Leak Testi	ng	
JU		0	P - 15 ext Panel	Date	Time	Amb Temp		Repair No.		Tech	Mach No.	Mach	Settings	Date	Test Type	Tech	Pass/ Fail
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	(2)			Destruc	tive Seam	Sample L	.ab Test			Comme	ents						
Re l	9		_0	26	Sample No	e	Date F	Removed	Pass/ Fail								
	EL			125-	L		6-1	6-67	<u> </u>		10 10						
Cross Seam	Next Panel																
	's Signature	An	17. 20	25		_	DATE	6-16.	- 23				Ε	Снеск	(✓) Here I	REVERSE	SIDE IS U

CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

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Leichner Landfill NE 99^{TH} St Construction

	AT			Panel Orier	itation:	Panel No.	P-1	5		Roll No.	((64	372	Deploy Date 6	6-15		Panel Locat	tion
				\square		Sm	nooth	Text	ure	Lot No.	((13	20	Deploy Time	: \$5			
			Main Seam	Seam W	elding								Seam Le	ak Testin	g			
	21	6		Date	Time	Amb Temp	Loc,*	Tech	Mach	n No.	Mach Se	ttings	Date	Distance	e Tested Loc.*	Type	Tech	Pass/ Fail
		C	$ \underline{2} $	6-15	12:0	5		개		}	1=860	9=7	6-19	54'		Air	GM	P
			2 C	6-19	12:21			JIT	13		T=260	5=7	6-15	is`		Air	GM	ľ
	<i>k</i> .	-	- 6	06-19	Fr 122	1		JH	13	,)	1=50	5-7	6-19	59'		Air	GM	P
			(T	6-16	1200			ir	C,	r	11		6-16			""	11	P
5	1-15			*Indicate	Seam: M	ain = M or	Cross = X											
	6	3		Repair	Welding										Repair	Leak Test	ing	
1	\odot	\bigcirc		Date	Time	Amb Temp		Repair No.		Tech	Mach	No.	Mach	Settings	Date	Test Type	Tech	Pass/ Fail
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	TA 1			0														
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	en			Destru	tive Sean	n Sample I	Lab Test			Comme	ents							
	(4)				Sample No	D.	Date	Removed	Pass/ Fail									
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	Next Panel	4						<i>c i i</i>	0.0									
INS	PECTOR'S SIGNATURE	IM	1. 2	n			DATE	6-16.	- 63					[(✔) HERE I	F REVERSE	SIDE IS USE

CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99TH ST CONSTRUCTION

SCS ENGINEERS

		AT			Panel Orien	tation:	Panel No.	P-1	6 Tart		Roll No.		636	k	Deploy Date 6	-15-	23	Panel Loca	tion
		/ ((Main Seam	Seam W	elding	Com	oour	18X	ule				Seam Le	ak Testing				
					Date	Time	Amb	Loc.*	Tech	Mach	No.	Mach Setti	inas	Date	Distance	Tested	Test	Tech	Pass/
				0	6-19	12.21	Temp		TH	13		T=860	5-7	6-15		0C.1		GM	P
				1	6-15	12:15			4	4		ir ir	/-/	iy i	771		4	11	P
				Contraction of the second seco	6-15	11.141			a	И		ir		11	15'		11	11	P
				0		1011													-/
		P-16			*Indicate	Seam: Ma	ain = M or	Cross = X											I
		1 10	\sim	\cap	Repair \	Veiding										Repair	Leak Testi	ng	
N	m	C	$(\overline{2})$		Date	Time	Amb		Repair No.		Tech	Mach N	o.	Mach	Settings	Date	Test	Tech	Pass/ Fail
-	U		\bigcirc	(S			Temp					1					1900		1 dill
à				à r								r							
	1																		
					-														
		(1)	1		Destruc	tive Seam	Sample L	_ab Test			Comme	ents							
		G		0		Sample No).	Date F	Removed	Pass/ Fail									
	L	P-17		1_0															
		'																	
C	ross eam	Next Panel									4								
		//	111	72	20	مستر			110	7	2]			• • • •
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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99^{TH} ST CONSTRUCTION

	PIC		Panel Orien	itation:	Panel No.	P-17) 		Roll No.	63	72	Deploy Date	-15-	23	Panel Locat	ion
r	1-16	Main Seam	<u> </u>		Smo	both	Text	Jre	LOT NO,		<u> </u>	Time	C! O	-		
	(1)		Seam W	/elding	Amb						Seam Le	Distance	Tested	Test		Pass/
	Ŭ		Date	Time	Temp	Loc.*	Tech	Mach	No.	Mach Settings	Date	and L	.0C.*	Туре	Tech	Fail
			6-15	16.19			211	15		1=860 5=1	6-15	1:C		Hir	GM	P
		C2		12:21			it I	4			UT Le	60		4		r p
		3		12:41				11		4	4 Cil	60		4	4	P
		U U	15-16	1200			C7		<i>•</i>		6-10			4		P
	1-1/															
	and the second second second second second second second second second second second second second second second		*1													240
			*Indicate	e Seam: Ma	ain = M or (Cross = X										
5	Repair Leak Testing															
-	CE C	Pane	Date	Time	Amb Temp	-	Repair No.		Tech	Mach No.	Mach	Settings	Date	Test Type	Tech	Pass/ Fail
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	E											3				
	L_2)															
	i di		Destruc	tive Seam	Sample L	ab Test			Comme	ents						
	9	0		Sample No	240	Date F	Removed	Pass/ Fail								
	FL															
Cr	oss United States Next Panel															
	<u></u>	7 2.					11	27					_			
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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

Leichner Landfill NE 99^{TH} ST Construction

		AT			Panel Orien	tation:	Panel No.	P-18	Ş		Roll No.	63	72	Deploy Date 6	-15-7	23	Panel Locat	ion
		HI.			N	T	Sme	ooth	Text	ure	Lot No.			Deploy Time	2:30			
				Main Seam	Seam W	elding	\sim						Seam Lo	eak Testing	3			
					Date	Time	Amb Temp	Loc.*	Tech	Mach	No.	Mach Settings	Date	Distance and I	e Tested	Test Type	Tech	Pass/ Fail
				\mathcal{O}	6-19	12:41			JH	13		1=860 9=7	6-19	15	\	Air	GM	P
20	D G			2	G.	12:41			ii .	11		Ir	U	60	1	4	4	P
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				Ŷ														-
		P-12																
			$\widehat{(2)}$	ľ	*Indicate	Seam: Ma	ain = M or (Cross = X										
			V	00	Repair V	Veldina									Repair	Leak Testi	ing	
					Date	Time	Amb		Repair No.		Tech	Mach No.	Mach	Settings	Date	Test	Tech	Pass/
	~			P lext P			Temp		2 6							Type		
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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99TH ST CONSTRUCTION

		AT		Panel Orien	tation:	Panel No.	P-1	q Texte	ure	Roll No.	63	72	Deploy Date Deploy Time	6-15	- 23 0	Panel Locat	ion
			Main Seam	Seam W	elding							Seam Le	ak Testing	9			
				Date	Time	Amb Temp	Loc.*	Tech	Mach	No.	Mach Settings	Date	Distance and	e Tested Loc.*	Test Type	Tech	Pass/ Fail
			Û	6-15	1251			JH	13		T=860 9=7	6-19	79	2	AIT	GM	P
			Û	6-19	13:00			Cľ.	Lî.		4	4	/9		M	4	K
				aug	\sim	\sim	\sim	1º	- the	\sim	the		\sim	\sim			
			B	6-16	1200			C?	/	/	()	6.16					
		jQ										· · · · · · · · · · · · · · · · · · ·					
		P-11		*Indicate	Seam: Ma	ain = M or (Cross = X							-			
00	G	6	0	Repair V	Veldina									Repair	Leak Testi	ng	
	\square	(L)		Date Time Amb				Repair No. Tech			Mach No.	Mach	Settings	Date	Test Type	Tech	Pass/ Fail
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		(3)		Destruc	Sample Ma	Sample L		Pomoved	Pass/	Comme							
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	cross ieam																
			72	1				6-16	-73				Г				0
וא : G:\	SPECTOR		1.00	a			DATE	0 10					L		(✓) HERE İ	F KEVERSE	SIDE IS USE

CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99TH ST CONSTRUCTION

	AT		Panel Orien	tation:	Panel No.	P-20	C	1179	Roll No.	6372			-15-	Panel Locati	on	
		Main Seam	Seam W	elding	Unite	5011	Text				Seamlo	Time		>		
			Date	Time	Amb	Loc.*	Tech	Mach	No.	Mach Settings	Date	Distance	e Tested	Test	Tech	Pass/
		(D)	6-15	13:00	Temp		TH	13		I-8(1 5-7	(-15	and	Loc.*	Type	GM	- Fail 12
		S	n	13:14			i1	h		1.	(1	7	<u> </u>	AIF CC	U	P
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		1	*Indicate	Seam: Ma	ain = M or (Cross = X										
0		1	Repair V	Veldina									Repair I	Leak Testi	na	
21	\bigcirc $()$		Date	Time	Amb		Repair No.		Tech	Mach No.	Mach	Settings	Date	Test	Tech	Pass/
	0	ext b			Temp									Type		Fail
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	\sim	2-22	Destruc	tive Seam	Sample L	ab Test			Comme	nts						
	(3)			Sample No	,	Date R	emoved	Pass/ Fail					0			
	Ē.	1_0	175-	3		6-16-	23	P	44	1 DS-2-	7 05	-3	(4=	149	3	
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C	ross eam Next Panel															
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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

$\begin{array}{c} \mbox{Leichner Landfill} \\ \mbox{Ne 99}^{\mbox{TH}} \mbox{ st Construction} \end{array}$

AT		Panel Orier	itation:	Panel No.	ooth)	- 2 Text	ure	Roll No.	637	72	Deploy Date 6 Deploy Time	- 15 - 7: 05	23	Panel Locat	ion
	Main Seam	Seam W	elding	\sim						Seam Lo	eak Testing	g			
		Date	Time	Amb Temp	Loc,*	Tech	Mac	n No.	Mach Settings	Date	Distance	e Tested Loc.*	Test Type	Tech	Pass/ Fail
	(D	6-15	13:15			TH	13		1=86 5=7	6-15	70	51	Air	GM	P
	(D)	a	13:09			L1 ^r	lr.		ter .	4	11	22'	il	4	P
	(S)	11	13:25			4	q		Ůſ.	11	14	79'	11	11	P
12-21	0														
	L I	*Indicate	Seam: Ma	in = M or (Cross = X	··									
		Repair V	Velding									Repair I	_eak Testi	ng	
3	Panel	Date	Time	Amb Temp		Repair No.		Tech	Mach No.	Mach	Settings	Date	Test Type	Tech	Pass/ Fail
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berry provide															
\bigcirc		Destruc	tive Seam	Sample L	ab Test			Comme	ents						
	_0		Sample No.		Date R	Removed	Pass/ Fail								
H, P-22		D9-	3		6-16	-23	P								
Seam Next Panel															
	7. 0%	-				6-16	-23				Г		(✓) Here I	REVERSE	SIDE IS USE
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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

 $\begin{array}{c} \mbox{Leichner Landfill} \\ \mbox{Ne } 99^{TH} \mbox{ st Construction} \end{array}$

	PDI		Panel Orientation:		tion: Panel No. P-22				Roll No. 6376			Deploy Date	-15-	23	Panel Location	
	1-21		\mathcal{N}	1	Sm	nooth	Text	ure	Lot No.			Deploy Time	3:05			
	(2)	Main Seam	Seam W	elding	0						Seam Le	eak Testing	g			
			Date	Time	Amb Temp	Loc.*	Tech	Maci	n No,	Mach Settings	Date	Distance and	e Tested Loc.*	Test Type	Tech	Pass/ Fail
			6-19	13:15			SH	3		1=860 5=7	6-15	15'		Air	GM	P
		$(\hat{2})$	(í	13:09			Ŷ	Ц		Le .	11	27	- 1	ir	11	P
		(3)	4	13:25			4	A		4	4	151		11	11	P
	- 01	G	6-16	1200			SH	Q		4	6-16			er	ü	P
	P-CC															
	/															
			*Indicate	e Seam: Ma	ain = M or	Cross = X										
00	. 1	Sma	Repair	Nelding									Repair	Leak Testi	ng	
UL	Ć		Date	Time	Amb		Repair No.		Tech	Mach No.	Mach	Settings	Date	Test Type	Tech	Pass/ Fail
a		Next F			remp											
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												37				
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	(I)		Destruc	tive Seam	Sample	Lab Test		A	Comme	ents			•			<u></u>
	U.			Sample No		Date I	Removed	Pass/	1							
	E 1	0				-		Fall								
	an war															
Cross	\bigcirc															
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INSPECTO		u'l. n	ĩ			DATE	6-16-	14				Ľ	Снеск	(✔) Here II	REVERSE	SIDE IS U
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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

 $\begin{array}{c} \mbox{Leichner Landfill} \\ \mbox{Ne 99}^{TH} \mbox{ st Construction} \end{array}$

A			Panel Orier	ntation:	tation: Panel No. P23 R				Roll No.	63	Deploy Date 6	Deploy 6-15-23			tion	
A-1			\square	1	Sm	nooth	Textu	ure	Lot No,			Deploy Time	13:2	0		
		Main Seam	Seam W	elding/							Seam Lo	eak Testing	g			
			Date	Time	Amb Temp	Loc.*	Tech	Mac	n No.	Mach Settings	Date	Distance and I	e Tested Loc.*	Test Type	Tech	Pass Fail
		0	6-14	13:29			TH	13		T=80 9=7	6-15	75	1	Air	GM	P
		I D	C/	13:34			(P	9		4	u	75		Air	GM	P
e		3	6-16	120			1r	a			6-16		_			ľ
273																
P- 67	5															<u> </u>
			*Indicate	e Seam: Ma	ain = M or	Cross = X										<u> </u>
	\cap		Repair	Nelding									Repair	Leak Test	ing	
(i)	O	Panel 2	Date	Time	Amb Temp		Repair No.		Tech	Mach No.	Mach Settings		Date	Test Type	Tech	Pas Fa
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T																
(7)			Destruc	tive Seam	Sample L	Lab Test			Comme	ents	1			1	1	
				Sample No		Date F	Removed	Pass/ Fail								
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	Any	7 %	Ē			DATE	6-16	-27				Г		(√) Herf I	F REVERSE	SIDE IS
PECTOR'S SIGNATURE	1	· JN	~ ~					//			ō.	L-		、 ,		J.= - N

CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

Leichner Landfill NE 99^{TH} St Construction

	AT			Panel Orien	tation:	Panel No.	P-2	.4		Roll No.	6	376	Deploy Date	-19-7	23	Panel Local	tion
-	AT			\mathcal{N}	<u>小</u>	Sm	ooth	Text	ure	Lot No.			Deploy Time	Z:20	2		
			Main Seam	Seam W	elding							Seam Le	eak Testing	9			
			\cap	Date	Time	Amb Temp	Loc.*	Tech	Mach	No.	Mach Settings	Date	Distance and	e Tested Loc.*	Test Type	Tech	Pass/ Fail
			Ŷ	6-19	13:34			JH	13		7=860 9=7	6-15	73		Air	<u>5</u> M	P
			U	6-19	13:43			11	()			67	72	1	11	11	P
			3	6-16	1200			SH	ù		<u>u</u>	6-16			1	и	P_
	P-24																
			2														
				*Indicate	Seam: Ma	ain = M or	Cross = X										
6	2			Repair V	Velding									Repair I	Leak Testi	ng	
U			xt Pane	Date	Time	Amb Temp		Repair No.		Tech	Tech Mach No.		Settings	Date	Test Type	Tech	Pass/ Fail
			Next														
13			5														
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1	(3)			Destruc	tive Seam	Sample L	ab Test			Comme	ents						
	Ċ		_0		Sample No).	Date F	Removed	Pass/ Fail								
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Cross Seam	Next Panel	5															
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INSPE G:\	CTOR'S SIGNATURE	1100	· w	~		-	DATE	0-10-	07				L		(*) HERE I	IVEVERSE	UDE 18 US
CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99^{TH} ST CONSTRUCTION

	AT			Panel Orien	tation;	Panel No.	P-2	S Text	ture	Roll No. Lot No.	63	76	Deploy Date Deploy Time	5-18-	23 3	Panel Locati	on
			Main Seam	Seam W	elding							Seam L	eak Testin	9			3
				Date	Time	Amb Temp	Loc.*	Tech	Mach	No.	Mach Settings	Date	Distance	e Tested Loc.*	Test Type	Tech	Pass/ Fail
			Ø	6-K	13:43			JH	19	?	T=860 5=7	6-19	74	21	Air	GM	p
			Q	(1	13:51			u	11		C?	11	74	,1	Air	GМ	p
			(3)	6-16	1200			JH	<u>}</u> ;	3	4	6-16			11	U	P
	P 7.5																
	-01																
			F	*Indicate	Seam: Ma	in = M or (Cross = X										
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D		\mathcal{O}		Repair V	Velding	Amb					1			Repair	Leak Testi	ng	Pass/
3-			ext Par	Date	Time	Temp		Repair No.		Tech	Mach No.	Mach	Settings	Date	Туре	Tech	Fail
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	$(\overline{3})$			Destruc	tive Seam	Sample L	ab Test			Comme	ents						
	Ċ		_0		Sample No.		Date R	emoved	Pass/ Fail								
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Cross	\bigcirc																
Seam	Next Panel														_		
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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99^{TH} ST CONSTRUCTION

	1-		Panel Orier	ntation:	Panei No.	P-2	6		Roll No.	67	76	Deploy Date 6	-15-2	3	Panel Locat	ion
	AI		N	1	Sm	looth	Text	ure	Lot No.			Deploy Time	3:40	2		
		Main Seam	Seam W	elding							Seam Le	ak Testing	9			
		~	Date	Time	Amb Temp	Loc.*	Tech	Mach	1 No.	Mach Settings	Date	Distance and	e Tested Loc.*	Test Type	Tech	Pass/ Fail
		Q	6-19	13:91			JH	13	•	T=860 9=7	6-19	73	21	Air	GM	P
		a	4	14:01			TH	13		11	6-19	73	· ·	Air	GM	P
		(3)	6-16	120			L1		~	L.	6-16			11	11	P
	228															
	ful															
	R-26			Coores M	ain – M.or.	Cross = X										
	$0 \leq 0$		Indicate	e Seam: Ma	ain = ivi or	Cross = X										
			Repair V	Nelding						1			Repair	Leak Testi	ng	Deve (
		t Pane	Date	Time	Amb Temp		Repair No.		Tech	Mach No.	Mach S	Settings	Date	Test Type	Tech	Pass/ Fail
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INS		7, Zu	- v			DATE	6-16	- 23				Γ	Снеск	(✔) Here II	REVERSE	SIDE IS USE
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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

SCS ENGINEERS

LEICHNER LANDFILL NE 99^{TH} ST CONSTRUCTION

	AT		Panel Orien	ntation:	Panel No.	P-2	7		Roll No.	Stop	6	376	Deploy Date 6	-19-	23	Panel Locat	tion
	/T1	Main Dana	\mathcal{N}		Smo	ooth	Text	ure	Lot No.				Deploy Time	13:5	50		
		Main Seam	Seam W	elding						_		Seam Le	ak Testing		,		
		0	Date	Time	Amb Temp	Loc.*	Tech	Mach	n No.	Mach Set	tings	Date	Distance and L	Tested oc.*	Test Type	Tech	Pass/ Fail
		\bigcirc	6-15	14:01			SH	17	7	J-860	5=7	6-19	73	1	Air	GM	P
		a	6-19	14:08			le	Li		4		6-19	27		4	4	P
	D 17	3	6-16	1200			ir		11	10		6-16			11	4	P
	1-61	Ċ															6 ¹
		f	*Indicate	Seam: Ma	ain = M or (Cross = X								2			
	\bigcirc		Repair V	Nelding										Repair I	Leak Testi	ng	
9			Date	Time	Amb		Repair No.		Tech	Mach N	NO.	Mach S	Settings	Date	Test	Tech	Pass/
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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99TH ST CONSTRUCTION

AT		Panel Orien	ntation:	Panel No.	P-	V&		Roll No.	637	16	Deploy Date	-15-	23	Panel Locat	ion
711	Main Seam	<i>M</i> ,		Sm	ooth	Text	ure	Lot No:		_	Deploy Time	4:00	>		
A. 1		Seam W	elding	0-b				A		Seam Lo	eak Testing	g Tostod	Test	r	Page
	0	Date	Time	Temp	Loc.*	Tech	Mac	h No,	Mach Settings	Date	and	Loc.*	Type	Tech	Fail
P-78/	Q	16-19	14:08			JH	<u> </u>	7	1-50 5=1	6-15	Ľ	<u>/`</u>	Air	6M	Y
	E	6-16	1200		24	JH	12	>	4	6-16			/tir	6M	P
a a / /															
$\mathbb{U}(\mathbb{U})//$															
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		*Indicate	Seam: Ma	ain = M or	Cross = X										
	\cap	Repair V	Nelding									Repair	Leak Testi	ng	
		Date	Time	Amb	1	Repair No.		Tech	Mach No.	Mach	Settings	Date	Test Type	Tech	Pas
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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

 $\begin{array}{c} \mbox{Leichner Landfill} \\ \mbox{Ne 99}^{\text{TH}} \mbox{ st Construction} \end{array}$

	AT		Panel Orier	tation:	Panel No.	P-28	3 (E)	(29)	Roll No.	63	76	Deploy Date	6-22	-23	Panel Locat	ion
Ē	/~\	Main Soom	$\sum_{i=1}^{N}$		Sm	ooth	Text	ure	Lot No.			Time	980	>		
		Wan Sean	Seam W	elding							Seam Le	ak Testing	3			
			Date	Time	Amb Temp	Loc.*	Tech	Mac	n No.	Mach Settings	Date	Distance and L	Tested	Test Type	Tech	Pass/ Fail
		30	6-22	0902			JH	13	3	860 6.4	6-22			Air	GM	1
		$()(\mathbf{f})$	6-23	OZYS			JH	13	3		6-23			Air	6M	r
		(O) (P)	4	Cf .			er	/	<i>r</i>	11	11			11	t i	P
	P-28(E)(G)	00														
	0															
-\[6	D														
	\ 3	2	*Indicate	Seam: Ma	in = M or (Cross = X										
		2	Repair V	Velding									Repair	Leak Testi	ng	
		Pane	Date	Time	Amb Temp		Repair No.		Tech	Mach No.	Mach S	Settings	Date	Test Type	Tech	Pass/ Fail
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	6		Destruc	tive Seam	Sample L	ab Test		Deed	Comme	ents						
L		0		Sample No.	18	Date F	Removed	Fail								
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Sean	Next Panel															
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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99^{TH} ST CONSTRUCTION

		AT.		Panel Orien	tation:	Panel No.	P-20	9 (30)	Roll No.	637	76	Deploy Date 6	-22-	23	Panel Locat	ion
		AI		P	<u> </u>	Sma	poth	Text	ure	Lot No.			Deploy Time	810	>		
			Main Seam	Seam W	elding							Seam Le	ak Testing				
		T	1	Date	Time	Amb Temp	Loc.*	Tech	Mac	n No.	Mach Settings	Date	Distance and L	Tested oc.*	Test Type	Tech	Pass/ Fail
		17-57	0	6-22	0902			JH	13		260 6.4	6-22			Air	GM	P
		L	1 0	6-23	ing	0844		7H	13		C (1	6-23			Air	64	P
		P-29 (30)	(3)	6-72	વ્વરવ			JH	13		860 6.9	6-22			Air	EM	P
(102)			(*Indicate	Seam: M	ain = M or (Cross = X										
	$\widehat{(1)}$		(3)	Repair	Veldina		51033 - X							Repair	Leak Testi	ng	
Ø		$(\overline{2})$		Date	Time	Amb		Repair No.		Tech	Mach No.	Mach	Settings	Date	Test Type	Tech	Pass/ Fail
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				Destruc	tive Seam	Sample L	ab Test			Comme	ents						
		<u> </u>	_0		Sample No).	Date F	Removed	Pass/ Fail								
		EL		DS-	.5		6-27	-23	-P	D4	-6-7 DS-5		541.	201	or and I		1
											5= 54 1	- 11	6 =	528	/		
S	eam	Next Panel															
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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99^{TH} ST CONSTRUCTION

	AT		Panel Orier	ntation:	Panel No.	P-30	3 (31)	Roll No.	637	6	Deploy Date	-22	- 23	Panel Local	ion
	AI	Main Seam	N		Sm	ooth	Text	ure	Lot No.			Time	78 U	2		
			Seam W	/elding	Amb		· · · · ·			1	Seam Le	ak Testing	Tested	Tost	1	Pase/
ΠD	C-5	G	Date	Time	Temp	Loc.*	Tech	Macl	n No.	Mach Settings	Date	and I	.0C.*	Type	Tech	Fail
	7 /	9	6.22	0929			Jit	1	3	860 6.9	6-22			Air	GM	P
4		(Ľ)	4	0921			JH	17	7	67	6-22			4	en	P
		(3)	U	0937			JH		3	Cl	6-22			4	E1	P
	P = 3 - 3 - (31)															
3		× 1	*Indicate	e Seam: Ma	ain = M or	Cross = X										
(3		3	Repair	Welding									Repair	Leak Testi	ng	
50	5		Date	Time	Amb		Repair No.		Tech	Mach No.	Mach S	Settings	Date	Test	Tech	Pass/ Fail
20	(3)	fext b			remp									Type	1	
à		-3 2					_			18						
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	(2)]		Destruc	tive Seam	Sample L	.ab Test		Pass/	Comme	ents			_			
	<u>Pert</u>	0	De	Sample No		Date F	Removed	Fail		¥3						
	Y-3 (32)		27	- ン		6-6	9-67	Ľ		2 						
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INSPECTOR'	S SIGNATURE	JAA	· · ·			DATE	<u> </u>	-/						(*) HERE II	INEVERSE	

CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

SCS ENGINEERS

LEICHNER LANDFILL NE 99TH ST CONSTRUCTION

		P-30(31)		Panel Orien	tation:	Panel No.	P.	- 3) (3 Text	3Z) ture	Roll No. Lot No.	63	371	Deploy Date 6'2' Deploy Time 0'8	2-23	Panel Loca	tion
ſ		\square	Main Seam	Seam W	elding							Seam Le	ak Testing			
		U		Date	Time	Amb Temp	Loc.*	Tech	Mach	NO.	Mach Settings	Date	Distance Tes and Loc.*	ted Test Type	Tech	Pass/ Fail
			G	6-22	0921			514	13		260 6.4	6-22		Air	6M	P
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			(3)	64 6-23	0845			SH	13		860 6.9	6-23		R	и	12
		P-31 (32)	(Ý)	4	0937			JH	13		860 6.5	6-22		61	4	P
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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99^{TH} ST CONSTRUCTION

		AT			Panel Orien	tation:	Panel No.	P- 3	2 (32 Textu	<mark>7)</mark> ure	Roll No. Lot No.		63	71	Deploy Date Deploy Time	6-71 3900	-23 >	Panel Locat	ion
Γ				Main Seam	Seam W	elding								Seam Le	ak Testin	g			
					Date	Time	Amb Temp	Loc.*	Tech	Mach	No.	Mach Se	ettings	Date	Distance and	e Tested Loc.*	Test Type	Tech	Pass/ Fail
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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

SCS ENGINEERS

LEICHNER LANDFILL
NE 99TH ST CONSTRUCTION

	AT		Panel Orier	itation:	Panel No.	P-3	37 (3 Tot	(4)	Roll No.	63	71	Deploy Date 6-	22-2	:3	Panel Locati	on
Γ	/ 1	Main Seam	Seam W	eldina	Sin	1001	l	ule			Seam Le	Time Cak Testing	700			
			Date	Time	Amb	Loc.*	Tech	Mach	n No.	Mach Settings	Date	Distance T and Lo	Tested	Test Type	Tech	Pass/ Fail
		Ø	6-22	0946	remp		JH	13	?	860 6.9	6-22			Air	GM	P
	(24)	E	6-23	0544			51+	13		11	6-23			Air	5M	P
	P-33 (31)	(3)	6-22	094E			JH	13	?	860 6.4	6-22			Air	5M	<u>P</u>
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(3		35	mulcate			01033 - X										
2			Repair	Velding	Amb	1	Developi		Task	March No.	Bánah á	Cattinga	Repair L	Test	Tash	Pass/
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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99^{TH} ST CONSTRUCTION

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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL [™]NE 99TH ST CONSTRUCTION

SCS ENGINEERS

AT		Panel Orient	tation:	Panel No.	P-	35 3	6)	Roli No.		637	7	Deploy Date	5-22-	23	Panel Locat	ion
AI		NT		Sm	looth	Textu	ure	Lot No.				Deploy Time	00			
	Main Seam	Seam W	elding								Seam Le	ak Testin	g			
		Date	Time	Amb Temp	Loc.*	Tech	Mac	No.	Mach S	ettings	Date	Distanc and	e Tested Loc.*	Test Type	Tech	Pass Fail
	\bigcirc	6-22	Þ16			5#))	3	260	6.9	6-22		58	Air	GM	P
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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

Leichner Landfill NE 99^{TH} St Construction

	AT		Panel Orien	tation:	Panel No.	P-7	36 (3.	7)	Roli No.	- 63	371	Deploy 6-	22-2	23	Panel Locati	on
	AI	Main Coom	\mathcal{N}		Sm	ooth	Text	ure	Lot No.			Deploy Time	00	,		
		Main Seam	Seam W	elding							Seam Le	ak Testing				
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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99^{TH} ST CONSTRUCTION

		1		Panel Orier	ntation:	Panel No.	P-	37 (34	Ê)	Roll No.	63	71	Deploy 6	-22-7	23	Panel Locati	on
-		AI		$\square \mathcal{N}$	T	Smo	ooth	Text	ure	Lot No.		к. -	Deploy Time	>:20	3		
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	Ĩ	P-37 (38)	3	6-22	1039			JH	17	3	И	6-22			11	21	P
	-																
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\sim	~			Date	Time	Amb		Repair No.		Tech	Mach No.	Mach S	Settings	Date	Test	Tech	Pass/
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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99TH ST CONSTRUCTION

A-T		Panel Orientation:	: Pane	el No.	P-38	3 (39)	Roll No.	63	71	Deploy Date 6 -	-22-	23	Panel Locati	on
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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99TH ST CONSTRUCTION

SCS ENGINEERS

	AT		Panel Orient	ation:	Panel No.	P-	- 39 (Text	\$40) ure	Roll No. Lot No.	6	371	Deploy Date Deploy	6-2	2-23	Panei Locat	on
		Main Seam	Seam We	elding							Seam Le	ak Testin	g	<u> </u>		
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		ΞØ	6-22	690			TH	13	?	860 619	6-22			Air	<u>64</u>	P
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39)			Renair W	elding									Damain I	ant Tartin		
\sim			Date	Time	Amb		Renair No		Tech	Mach No.	Mach S	ottings	Repair I	Test	g	Pass/
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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99TH ST CONSTRUCTION

SCS ENGINEERS

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	b			Υ <u></u>	Sm	ooth	Text	ure	Lot No.			Deploy Time	350			
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	EL	~	Date	Time	Amb Temp	Loc.*	Tech	Macl	n No.	Mach Settings	Date	Distance and L	e Tested ₋oc.*	Test Type	Tech	Pass/ Fail
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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99TH ST CONSTRUCTION

SCS ENGINEERS

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12 117	Panel Orien	itation:	Panel No.	P-1	12		Roll No.	63	71	Deploy Date 6	-26-7	23	Panel Locat	ion
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Main Seam	Seam W	elding							Seam Le	ak Testing	3			
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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99^{TH} ST CONSTRUCTION

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	(2)	Wall Sealt	Seam W	elding								Seam Le	ak Testin	g			
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		\cup	6-26	10:27			GM	13		860	7,0	6-78			Air	GM	P
		O	6-26	10:33			GM	13		86	7,0	6-28			Air	GM	Þ
	P-43																
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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99^{TH} ST CONSTRUCTION

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t Panel	Date 6-76 6-76 *Indicate Repair V	Time P:33 P:42 Seam: Ma Welding	Amb Temp	Loc.*	Tech GM SM	Macl	n No.	Mach S	Settings 7,0 7,0	Date 6-22: 6-28	Distance and L	Tested oc.*		Tech GM GM	Pass. Fail
t Panel	6-76 6-76 *Indicate Repair V	ゆ:33 0:42 	ain = M or	Cross = X	GM GM	13	· · · · · · · · · · · · · · · · · · ·	860 840 960	7.0	6-22			Air Air	GM GM	9
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	*Indicate Repair V	e Seam: Ma Welding	ain = M or	Cross = X											
	*Indicate Repair V	e Seam: Ma Welding	ain = M or	Cross = X											
t Panel	*Indicate Repair V	e Seam: Ma Welding	ain = M or	Cross = X											
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	Date								8			Dereit	1 I- T 4'		
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	×	Sample No.		Date F	Removed	Pass/ Fail				_					
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7	26	Destruc	Destructive Seam	Destructive Seam Sample I Sample No.	Destructive Seam Sample Lab Test Sample No. Date F	Destructive Seam Sample Lab Test Sample No. Date Removed	Destructive Seam Sample Lab Test Sample No. Date Removed Pass/ Fail Image: Sample No. Image: Date Removed Pass/ Fail Image: Sample No. Image: Date Removed Pass/ Fail Image: Sample No. Image: Date Removed Pass/ Fail Image: Sample No. Image: Date Removed Pass/ Fail Image: Sample No. Image: Date Removed Pass/ Fail Image: Sample No. Image: Date Removed Pass/ Fail Image: Sample No. Image: Date Removed Pass/ Fail Image: Sample No. Image: Date Removed Pass/ Fail Image: Sample No. Image: Date Removed Pass/ Fail Image: Sample No. Image: Date Removed Pass/ Fail Image: Sample No. Image: Date Removed Pass/ Fail Image: Sample No. Image: Date Removed Pass/ Fail Image: Sample No. Image: Date Removed Pass/ Fail Image: Sample No. Image: Date Removed Pass/ Fail Image: Sample No. Image: Date Removed Pass/ Fail Image: Sample No. Image: Date Removed Pass/ Fail Image: Sample No. Image: Date Removed Image: Date Removed Image: Sample No. Image: Date Removed Image: Date Removed	Destructive Seam Sample Lab Test Comme Sample No. Date Removed Pass/ Fail Date Removed Pass/ Fail Date Removed Pass/ Fail	Image: Sample No. Image: Date Removed Pass/ Fail Image: Sample No. Image: Date Removed Pass/ Fail Image: Sample No. Image: Date Removed Pass/ Fail Image: Sample No. Image: Date Removed Pass/ Fail Image: Sample No. Image: Date Removed Pass/ Fail Image: Date Removed Pass/ Fail Image: Date Removed Pass/ Fail	Destructive Seam Sample Lab Test Comments Sample No. Date Removed Pass/ Fail Date Removed Pass/ Fail	Image: Sample No. Date Removed Pass/ Fail Image: Sample No. Date Removed Image: Sample No. Date Removed Image: Date Removed Pass/ Fail	Destructive Seam Sample Lab Test Sample No. Date Removed Pass/ Fail age: Sample No. Date Removed Pass/ Fail Image: Sample No. Image	Image: Sample No. Date Removed Pass/ Fail Image: Sample No. Date Removed Pass/ Fail Image: Sample No. Date Removed Pass/ Fail Image: Sample No. Date Removed Pass/ Fail Image: Sample No. Date Removed Pass/ Fail Image: Sample No. Date Removed Pass/ Fail Image: Sample No. Date Removed Pass/ Fail Image: Sample No. Date Removed Pass/ Fail Image: Sample No. Date Removed Pass/ Fail Image: Sample No. Date Removed Pass/ Fail Image: Sample No. Date Removed Pass/ Fail Image: Sample No. Date Removed Pass/ Fail Image: Sample No. Date Removed Pass/ Fail Image: Sample No. Date Removed Pass/ Fail Image: Sample No. Date Removed Pass/ Fail Image: Sample No. Date Removed Pass/ Fail Image: Sample No. Date Removed Pass/ Fail Image: Sample No. Date Removed Pass/ Fail Image: Sample No. Date Removed Pass/ Fail M	Image: Sample No. Date Removed Pass/ Fail Image: Sample No. Date Removed Pass/ Fail Image: Sample No. Date Removed Pass/ Fail Image: Sample No. Date Removed Pass/ Fail Image: Sample No. Date Removed Pass/ Fail Image: Sample No. Date Removed Pass/ Fail Image: Sample No. Date Removed Pass/ Fail Image: Sample No. Date Removed Pass/ Fail Image: Sample No. Date Removed Pass/ Fail Image: Sample No. Date Removed Pass/ Fail Image: Sample No. Date Removed Pass/ Fail Image: Sample No. Image: Sample No. Image: Sample No. Image: Sample No. Image: Sample No. Image: Sample No. Image: Sample No. Image: Sample No. Image: Sample No. Image: Sample No. Image: Sample No. Image: Sample No. Image: Sample No. Image: Sample No. Image: Sample No. Image: Sample No. Image: Sample No. Image: Sample No. Image: Sample No. Image: Sample No. Image: Sample No. Image: Sample No.	

CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

 $\begin{array}{c} \mbox{Leichner Landfill} \\ \mbox{Ne 99}^{\mbox{TH}} \mbox{ st Construction} \end{array}$

DUL		Panel Orie	ntation:	Panel No.		: P-49	,	Roll No.		630	17	Deploy Date	6-76	-23	Panel Loca	ation
1-10	_	LN '	\uparrow	Smo	ooth	, Text	ure	Lot No.				Deploy Time	099	0		
$\overline{(1)}$	Main Seam	Seam V	Velding	C	/						Seam Le	ak Testin	g			
C		Date	Time	Amb Temp	Loc.*	Tech	Mac	No.	Mach S	ettings	Date	Distanc and	e Tested Loc.*	Test Type	Tech	Pas Fai
	Q	6-26	10:42			GM	13		860	7.0	6-28			Air	GM	8
	C	6-26	10:53			GM	13		860	7,0	6-18			Air	5M	P
																-
0.45																-
1-1/																
		*Indicate	e Seam: Ma	in = M or (Cross = X											
		Repair	Welding										Repair	Leak Test	ing	
	t Panel	Date	Time	Amb Temp		Repair No.		Tech	Mach	I No.	Mach S	ettings	Date	Test Type	Tech	Pa F
	A Nex												<u> </u>			
		•														-
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\bigcirc		Destruc	tive Seam	Sample L	ab Test			Comme	ents							
U	0		Sample No.		Date R	emoved	Pass/ Fail									
P-44																
		1														
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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

 $\begin{array}{c} \mbox{Leichner Landfill} \\ \mbox{Ne 99}^{\mbox{TH}} \mbox{ st Construction} \end{array}$

	0 47		Panel Orier	ntation:	Panel No.		P-46		Roll No.		63.	17	Deploy Date	6-26	-23	Panel Loca	lion
-	1-17		\mathcal{N}^{\prime}	Γ	Sm	ooth	Text	ure	Lot No.				Deploy Time	100	Ď		
	(2)	Main Seam	Seam W	elding								Seam Le	eak Testir	ng			
			Date	Time	Amb Temp	Loc,*	Tech	Mac	h No.	Mach S	ettings	Date	Distand and	ce Tested Loc.*	Test Type	Tech	Pass/ Fail
		\Box	6-26	653			GM	13		20	7,0	6-18			Air	GM	7
	0.11/	2	6-26	1107			GM	13		86	7.0	ü			11	el	P
	P-96																
										1							
			*Indicate	e Seam: Ma	ain = M or (Cross = X											
			Repair \	Velding										Repair	_eak Testi	ng	
\vdash			Date	Time	Amb Temp	_	Repair No.		Tech	Mach	No.	Mach \$	Settings	Date	Test Type	Tech	Pass/ Fail
		T Nex															
		+															
														<u> </u>			
			<u> </u>											<u> </u>	-		
														<u> </u>			
	\bigcirc		Destruc	tive Seam	Sample L	ab Test		Pass/	Comme I	ents							
]_0		Sample No		Date R	emoved	Fail		_							
	P-45																
Cros	<u></u> ()																
369	Next Panel	$n \sim$					220										
INSP	ECTOR'S SIGNATURE	1. W	E,			DATE	6-28	-23					[CHECK ((✓) Here IF	REVERSE	SIDE IS USE
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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99TH ST CONSTRUCTION

	2 110		Panel Orier	itation:	Panel No.	P-	47		Roll No.	630	17	Deploy Date 6	- 26 -	23	Panel Locati	on
	r- 40		N		Sm	ooth	Textu	eır	Lot No.			Deploy Time	010	7		
	(Z)	Main Seam	Seam W	elding							Seam Le	ak Testing	g			
1	0		Date	Time	Amb Temp	Loc.*	Tech	Mach	n No.	Mach Settings	Date	Distance and I	e Tested Loc.*	Test Type	Tech	Pass/ Fail
		ω	6-26	1107			GM	13		860 7,0	6-22			Air	GM	p
		0	6-26	1120			GM	13	2	260 7,0	» ¹¹			11	61	P
	2:47															
	1-91/															
	_															
		1	*Indicate	Seam: Ma	nin = M or (Cross = X	II			ļ						
		K'	Repair V	Velding									Repair l	Leak Testi	ng	
AT			Date	Time	Amb Temp		Repair No.		Tech	Mach No.	Mach	Settings	Date	Test Type	Tech	Pass/ Fail
1		Next														
															-	
													1			
				2	· · · · · · · · · · · · · · · · · · ·						-					
			Destruc	tive Seam	Sample L	.ab Test			Comme	ents						
	Û	_0		Sample No		Date R	emoved	Pass/ Fail								
9.9	P-46									1						
Cross	\bigcirc										_					
Seam	Next Panel	<u></u>									-					
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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

SCS ENGINEERS

LEICHNER LANDFILL NE 99^{TH} ST CONSTRUCTION

	0 40		Panel Orien	tation:	Panel No.	P-	48		Roll No.		6347		Deploy Date	- 26.	-23	Panel Locat	ion
	F = 151	-	N'	\uparrow	Smo	poth	Textu	re	Lot No.				Deploy Time	>30	7		
	(\tilde{a})	Main Seam	Seam W	elding	\cup							Seam Le	ak Testing	I			
	G	0	Date	Time	Amb Temp	Loc.*	Tech	Macl	n No.	Mach S	lettings	Date	Distance and L	Tested .oc.*	Test Type	Tech	Pass/ Fail
		Q	6-26	1120			GM	13		86	7.0	6-28			Air	GM	Р
		0	6-26	1136			GM	13		E60°	7.0	6228			Air	БM	p
	P-48																
		ATI	*Indicate	Seam: Ma	ain = M or (Cross = X	-11,.									,,	
1		M	Repair V	Velding										Repair	Leak Testi	ng	
[1]		t Panel	Date	Time	Amb Temp		Repair No.		Tech	Macl	n No.	Mach S	ettings	Date	Test Type	Tech	Pass/ Fail
		Ney Ney															
																74	
	\mathcal{P}		Destruc	tive Seam	Sample L	ab Test			Comme	ents							
	<u> </u>	0		Sample No.		Date F	Removed	Pass/ Fail									
	P-47																
Cross Seam	\bigcirc																
	Next Panel	1 ~															
INSPECTOR		1. In	~			DATE	6-28-	23					Ľ	Снеск	(✔) Here If	REVERSE	SIDE IS USE

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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

$\begin{array}{c} \mbox{Leichner Landfill} \\ \mbox{Ne 99}^{\mbox{TH}} \mbox{ st Construction} \end{array}$

	HT HT		Panel Orien		Panel No.		P-49		Roll No.		634	7	Deploy Date	-26-	23	Panel Locati	on
Ē		Main Seam	10		Sm	ooth	Text	ture	LOLINO				Time	100			
			Seam w		Amb		Task	2		Mark Car		Seam Le	Distance	Tested	Test		Pass/
$\left \begin{array}{c} \\ \\ \\ \end{array} \right $		Ô		11me	Temp	LOC."	1 ecn		I NO.			Late	and L	.0C.*	Туре	Tech	Fail
9		R	6-66	916			GM	17	_	260	10	6-40			Air	GM	
2		C	6-11	015			GM	17		660	1,0	6-10			AIT	DM	<u> </u>
	,																·
	a /	AT I	*Indicate	Seam: Ma	ain = M or (Cross = X											
0	x'/	17															
c'	24		Repair v	velding	Amb	1				r				Repair	Leak lesti Test	ng	Pass/
	\bigcirc \checkmark	X Pa	Date	Lime	Temp		Repair No.		lech	Mach	NO.	Mach S	ettings	Date	Туре	Tech	Fail
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1			Destruc	tive Seam	i Sample L	ab lest		Pass/	Comme	nts							
L	DUE	_0		Sample No		Date R	kemoved	Fail									
	F																
Cros	$ \times$ \bigcirc																
298	Next Panel	~					2										
INSP	ECTOR'S SIGNATURE	Jan					6-28.	-23							(✔) Here If	REVERSES	IDE IS USE
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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99^{TH} ST CONSTRUCTION

	AT		Panel Orient	ation:	Panel No.	P.	-50		Roll No.	-	6:34	7	Deploy Date	6-26	- 23	Panel Loca	ion
Ē	Main S	learn l	N	<u> </u>	Smo	ooth	Text	ure	Lot No.				Deploy Time	190	S		
		100111	Seam We	elding								Seam Le	ak Testing	9			
	10		Date	Time	Amb Temp	Loc.*	Tech	Mac	n No.	Mach S	Settings	Date	Distance and I	e Tested Loc,*	Test Type	Tech	Pass/ Fail
	3/2	(6	6-26	1214			GM	13		80	7,0	6-27			Asr	GM	P
	$(2)^{-1}$	Ð	6-26	1236			GM	13		860	7,0	1				1	P
	\smile	(3)	6-26	1324			5M	13		860	7.0	V			Y	V	P
		<u> </u>															
	Y-90																
		- ľ	*Indicate	Seam: Ma	ain = M or C	Cross = X										1	
\mathcal{N}		\sim	Repair V	elding										Repair	Leak Testi	ng	
EI			Date	Time	Amb Temp		Repair No.		Tech	Mac	h No.	Mach S	Settings	Date	Test Type	Tech	Pass/ Fail
		Next F			remp										.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
	(7)	-															
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			Destruci	ive Seam	Sample L	ab Test			Comme	ents					1		
		Ĩ		Sample No		Date F	lemoved	Pass/									
L	D 51							1 6211									
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Cros	ss Vovt Panel																
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INSP	ECTOR'S SIGNATURE	na				DATE	6-17	- 23						Снеск	(✔) Here Ii	REVERSE	SIDE IS USI

CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99^{TH} ST CONSTRUCTION

	n ca		Panel Orier	ntation:	Panel No.	P	'- 51		Roll No.		634	7	Deploy Date 6	-26	-23	Panel Local	ion
-	F-70			1	Sm	iooth	Textu	ure	Lot No.				Deploy Time	120	0		
	$\widehat{()}$	Main Seam	Seam W	elding	-							Seam Le	ak Testing	1			
	Ċ,		Date	Time	Amb Temp	Loc,*	Tech	Mach	n No.	Mach S	ettings	Date	Distance and L	Tested .oc.*	Test ⊤ype	Tech	Pass/ Fail
		Q	6-4	1214			бM	13		860	7,0	6-27			Air	BM	r
		\mathcal{C}	6-26	1324			GM	13		86	7.0	1-27			Air	GM	P
									8								
	P-9																
	-	- 63 1	*Indicate	Seam: Ma	ain = M or I	Cross = X											
M.		17-9															
ny	C		Repair V	Velding	Amb		_		r					Repair	Leak lest	ng T	Page/
EL		xt Par	Date	Time	Temp		Repair No.		Tech	Mach	No.	Mach S	Settings	Date	Туре	Tech	Fail
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	× 8																
	V	-								1							
						1											
	L		Destruc	tive Seam	Sample L	_ab Test			Comme	ents							
				Sample No		Date R	Removed	Pass/ Fail									
	AT/EI	1_0	DS.	-8		6-28	- 23	P	05-	7-70	14-8	= 29	59				
3 					5		/		1	5=2	59'+	- 33"	71'=	36	30		
Cross Seam	Next Panel																
	Ain	7 20	E.				6-28	-73]	())	Deve	0
	CTOR'S SIGNATURE					DATE	0 -0	- 1					L		(✓) HERE II	- REVERSE	SIDE IS USE

CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99TH ST CONSTRUCTION

$D \land 3$		Panel Orier	ntation:	Panel No.	P-	- 52		Roll No.		634	7	Deploy Date	-26-	23	Panel Loca	tion
-73		\mathcal{N}	1	Sme	poth	Text	ure	Lot No.		12		Deploy Time	1210			
	Main Seam	Seam W	elding	\sim							Seam Le	ak Testin	g			
C		Date	Time	Amb Temp	Loc.*	Tech	Mac	h No.	Mach S	ettings	Date	Distance and	e Tested Loc.*	Test Type	Tech	Pass/ Fail
	0	6-26	1324			GM	13		860	7.0	6-27			Air	GM	P
	C	6-26	1313			GM	13	3	860	7.0				1		P
	3	6-26	1347			GM	13		860	7.0	\checkmark			\vee	\vee	P
212																4
P-90	00															
	14-71	+1														
64/0 5	3	"Indicate	e Seam: Ma	ain = Mior (Jross = X											
	$1 \cap $	Repair \	Velding						-				Repair I	Leak Testi	ng	
U		Date	Time	Amb Temp		Repair No.		Tech	Mach	NO.	Mach \$	Settings	Date	Test Type	Tech	Pass/ Fail
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111 270										_						
4													[-	
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		Destruc	tive Seam	Sample L	ab Test		Pase/	Comme	ents							
	0	DC	Sample No		Date R	temoved	Fail			<i>C</i> .						
HIJEL		105-	Ø		6-10	7	- Y			1.2						
Cross Soam						17								14		
Next Panel	2	Ļ														
	1. J.	Zn	×		DATE_C	5-28.	-23							(✔) Here If	REVERSE	SIDE IS US
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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99TH ST CONSTRUCTION

SCS ENGINEERS

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AT Panel Orientation: Panel No	P-53	Ga	Roll N	10.	63	63	Deploy Date	5-26	-23	Panel Loca	tion
A = N = N	mooth	Texture	Lot N	0.			Deploy Time	250	5		
Main Seam Welding						Seam Le	ak Testing	}			
Catch Date Time Amb	Loc.*	Tech	Mach No.	Mach	Settings	Date	Distance and L	Tested	Test Type	Tech	Pass/ Fail
4 Basin (26-26 1313		GM	13	860	7.0	6-27			Air	GM	P
2 6-26 1324		GM	13	860	7.0				Ĩ.		P
36-26 1347		GM	13	860	7,0				V		P
Y- 52											2
	_								n in the second se		
	Cross = X										-
Repair Welding								Repair l	.eak Test	ng	
S Time Amb		Repair No.	Те	ch Ma	ch No.	Mach S	Settings	Date	Test Type	Tech	Pass/ Fail
	_										
XII NOG											
	Lab Test					_					
	Lab Test	moved	Pass/	innents							
	Date Re	entoved	Fail								
Y-76 0000											
Cross Seam											
Next Panel											
		6 00	00								

CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99^{TH} ST CONSTRUCTION

AT	Panel Orientation	n; Pa	Smoot	- 54,	7-59, Textu	P-96 re	Roli No.	636	3	Deploy Date 6	-16- 1.00	23	Panel Locat	ion
Main Seam	Seam Weldi	ing							Seam Le	eak Testing	3			
1 / ROTES	Date 1	Time .	Amb Temp	Loc.*	Tech	Mach	No.	Mach Settings	Date	Distance and I	e Tested	Test Type	Tech	Pass/ Fail
10/25/10	6-26 13	324			GM	13		860 7,0	6-27	5		Air	GM	P
1-2/	6-26	309			GM	13		86 7.0						<u>P</u>
	6-66	248			GM	15								6
	6-20 1	CR			GM	5		66 1,0				*	-	1
	*Indicate Sea	am: Main :	= M or Cro	oss = X					1	1		I	1	
	Repair Weld	ding							¥2		Repair l	.eak Testi	ng	
	Date	Time .	Amb Temp		Repair No.		Tech	Mach No.	Mach S	Settings	Date	Test Type	Tech	Pass/ Fail
Next / /														
P-50														
1. I.	Destructive	Seam Sa	ample Lab	o Test			Comme	nts				1		т. Х
	San	nple No.		Date Re	emoved	Pass/ Fail								
Cross														
Next Panel									_					
	n		_ C	DATE	6-2	.7 - 7	-7					✓) Here IF	Reverse	SIDE IS USED

CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99TH ST CONSTRUCTION

Æ	F			Panel Orien	tation:	Panel No.	oolb?	P-57	7	Roll No.	636	3	Deploy Date Deploy	6-	26-73	Panel Locat	ion
			Main Seam	Seam W	۱ eldina	Conne		Text				Seam Le	Time ak Testine	19:50	2		
			n -	Date	Time	Amb	Loc.*	Tech	Mac	n No.	Mach Settings	Date	Distance	Tested	Test	Tech	Pass/
	. N	¥	(i)	6-16	1347	Temp		GM	12	2	8/0,70	6-27	and	_0C."	Air	6M	17 17
	N	7	à	6-76	1410			GM	12		86 7.0	6-27			Aic	GM	p
		(Ċ		- 11-				/								· ·
R-9	7	- inter															
			l l	*Indicate	Seam: Ma	ain = M or (Cross = X										
\bigcirc	(Z)	\cap	Repair V	Velding									Repair I	_eak Testi	ng	
4			Banel	Date	Time	Amb Temp		Repair No.		Tech	Mach No.	Mach S	Settings	Date	Test Type	Tech	Pass/ Fail
			- 5' Next														
			2														
		_															
2					L												
				Destruc	tive Seam	Sample L	ab Test		Pass/	Comme	ents						
			_0		Sample No		Date R	emoved	Fail								
AT,	IEL																
Cross Seam	\bigcirc																
Next F	Panel	7	22	<u> </u>				<u> </u>									
INSPECTOR'S SIGNAT		M	1. 7	in			DATE	6-2	1-1	53				Снеск	(✔) HERE IF	REVERSE	SIDE IS U

CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99^{TH} ST CONSTRUCTION

AT	Panel Orien	tation:	Panel No.		P-58	8	Roll No.		636	63	Deploy Date	6-26	- 23	Panel Locat	ion
Mein Seam	Seam W	eldina	(Sm	ootn	lextu	e	Lot not		_	Seamle	Time ak Testing	1300	<u>ک</u>		
WH The states -	Date	Time	Amb Temp	Loc.*	Tech	Mact	No.	Mach S	ettings	Date	Distance and L	Tested	Test Type	Tech	Pass/ Fail
AMI ALLO	6-26	1410			GM	17	,	860	7.0	6-27			Air	6M	P
1 9 4 9	6-26	1409			GM	13		860	10	Allo	6-27		Air	6.4	P
1-28 DIP															
The															
	*Indicate	Seam: Ma	ain = M or (Cross = X											
	Repair V	Velding	1 A									Repair I	Leak Testi	ng	- Decid
Section 1997	Date	Time	Temp		Repair No.		Tech	Mach	n No.	Mach S	ettings	Date	Type	Tech	Pass/ Fail
Ň l															
2															
				4											
	Destruc	tive Seam	Sample L	ab Test			Comme	nts							
		Sample No.		Date R	emoved	Pass/ Fail	0.0	<u> </u>							
AT/EL	D5 -	9		6-2	8	P	DG -	8-71	2-9	- 60		110	21		
Cross Seam								ZR	601	T 36	30	= 72	-51		
Next Panel	22			L	-										
INSPECTOR'S SIGNATURE	5			DATE_	,-28-	23							(✔) Here If	REVERSE	SIDE IS USED

CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

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LEICHNER LANDFILL NE 99TH ST CONSTRUCTION

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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99TH ST CONSTRUCTION

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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

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CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

LEICHNER LANDFILL NE 99^{TH} ST CONSTRUCTION

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LEICHNER LANDFILL NE 99TH ST CONSTRUCTION

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LEICHNER LANDFILL NE 99TH ST CONSTRUCTION

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LEICHNER LANDFILL NE  $99^{TH}$  ST CONSTRUCTION

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LEICHNER LANDFILL NE 99TH ST CONSTRUCTION

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#### CONSTRUCTION INSPECTION FORM PROJECT NO. 04223030.10

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Geomembrane Submittals



# **Technical data sheet**

### HDPE Series, 60 mil Black, Smooth

PROPERTY	TEST METHOD	FREQUENCY(1)	UNIT Imperial	1101438
SPECIFICATIONS				
Thickness (min avg)	<b>ASTM D5199</b>	Every roll	mils	60.0
Thickness (min.)	ASTM D5199	Every roll	mils	54
Resin Density	ASTM D1505	1/Batch	g/cc	> 0.932
Melt Index - 190/2.16 (max.)	ASTM D1238	1/Batch	g/10 min	1.0
Sheet Density	ASTM D792	Every 10 rolls	g/cc	≥ 0.940
Carbon Black Content	ASTM D4218	Every 2 rolls	%	2.0 - 3.0
Carbon Black Dispersion	ASTM D5596	Every 10 rolls	Category	Cat. 1 & Cat. 2
OIT - standard (avg.)	ASTM D3895	1/Batch	min	100
Tensile Properties (min. avg) (2)	ASTM D6693	Every 2 rolls		
Strength at Yield			ррі	132
Elongation at Yield			%	13
Strength at Break			ррі	243
Elongation at Break			%	700
Tear Resistance (min. avg.)	ASTM D1004	Every 5 rolls	lbf	42
Puncture Resistance (min. avg.)	ASTM D4833	Every 5 rolls	lbf	120
Dimensional Stability	ASTM D1204	Certified	%	± 2
Stress Crack Resistance (SP-NCTL)	ASTM D5397	1/Batch	hr	500
Oven Aging - % retained after 90 days	ASTM D5721	Per formulation		
HP OIT (min. avg.)	ASTM D5885		%	80
UV Res % retained after 1600 hr	<b>ASTM D7238</b>	Per formulation		
HP-OIT (min. avg.)	ASTM D5885		%	50
Low Temperature Brittleness	ASTM D746	Certified	°F	- 106
SUPPLY SPECIFICATIONS(Roll dime	nsions may vary ±1%)			
Roll Dimension - Width	-		ft	22.5
Roll Dimension - Length	_		ft	560
Area (Surface/Roll)	-		ft²	12600

#### NOTES

1. Testing frequency based on standard roll dimensions and one batch is approximately 180,000 lbs (or one railcar).

2. Machine Direction (MD) and Cross Machine Direction (XMD or TD) average values should be on the basis of 5 specimens each direction.

* All values are nominal test results, except when specified as minimum or maximum.

* The information contained herein is provided for reference purposes only and is not intended as a warranty of guarantee. Final determination of suitability for use contemplated is the sole responsibility of the user. SOLMAX assumes no liability in connection with the use of this information.

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.







8951 SE 76th Drive, Portland, OR 97206 503-802-0319 Fax: 503-517-9096

# Typical HDPE Anchor Trench Detail





8951 SE 76th Drive, Portland, OR 97206 503-802-0319 Fax: 503-517-9096

### Typical HDPE Boot Detail (Slope) not to scale

Extrusion Weld 4" wide H-50 Tape Behind Strap GSE 60 mil HDPE Liner Boot (half on boot and half on pipe) Stainless Steel Banding (over tape and boot flange) GSE 60 mil HDPE Liner



8951 SE 76th Drive, Portland, OR 97206 503-802-0319 Fax: 503-517-9096

# **Typical HDPE Boot Detail**

(90 Degree) not to scale





# **Typical HDPE Manhole Boot Detail** (Slope) not to scale



# Appendix D

# **CQA** Documentation

- D-1 Daily Field Logs
- D-2 Construction Photographs





Project Name: NE 991 91. Project No.: 04223030.10		
INSPECTOR: J. Faille DATE: 6-15-23 FIELD REPORTIN	0,	
Work in Progress: Liner installation moving W->E, Nutte	r	
preparing subgrade in advance of lines	Jew	·
Time Description	Action	Inforr
2:20 Arrive engite meet with CCPW Luke (ACF		
West QAQC, person ) and wetter J.H. (#13)		
CO Disruss auchor trench, backfill w/ ACFW Dreman		
Hang, Native inderial excavated from trench		
acceptable for backfill. Verified w/TB.		
2:50 Walk area being prepped for liner. Some solid		
dieds >0.5" present, mainly crushed rock		
Marked improvement over previously observed \$5.		
* Observed that where new lines will tie-in To		
etisting a the grading has created on trench		
op to of deep as Tie-ink. Will contirm it this		
2C- Cilled-in		
570 Cass w/Mike, provided updave		
190 COnversation w/ par Then 1917. Torin Trending		
ACEN will work on tie-in and Dava hadious		
Friday no uppered work will likely return		
Will Thursday 6-7.7.		
5:20 ACFW secures liner, completes air testing,		
departs 1000		
Attachments:		

.

V - Item to Verify I - Information Needed CI - Cost Impact SI - Schedule Impact

Respondent Engineer Earthwork Contractor Geosynthetic Contractor R · E · EC · GC ·

QA Quality Assurance Consultant D Driller S S Supplier

Inspector's Signature

Page _____ of _____

Site:

Project Name: Project No .:

SCS ENGINEERS		
INSPECTOR: J. Faille, DATE: 6-19-23 FIELD REPORT N	J.	
Work in Progress:		
le		
Time Description	Action	Inform
1600 Perform site walk and observe subgrade		
Work in progress, Segment 3 (W->E) prep		
underway, compaction performed with smooth		
drum roller. Surface is free of large rocks and		
other objects.		
Concerns - Subgrade yet to be lived contains		
Fractured rock ranging (minus.		
- SE seil is not moisture conditioned		
and appears very dry.		
- No compation tests performed and		
no test results provided.		
- A mini ditch exists beween prepared		
56 and Tie-in location, This was will	1	
be a for spot in lines where wares	[	
let the seil care a list		-
required to come come of the are now fluch with		
Changes - SW calledor inters we need north		
is many below existing lines the in elevertion		
16:30 Depart site		0
Attachments:		
Action Code:		

V I CI SI -

Item to Verify Information Needed Cost Impact Schedule Impact 2

4

Respondent Engineer Earthwork Contractor Geosynthetic Contractor -

Quality Assurance Consultant Driller -

QA D S Supplier

Dei 117. Inspector's Signature

-

R E EC GC

Page Z of Z

ENGINEER'S FIELD REPORT Site: Leichur LF Project Name: NE 9914 97 Project No.: 04223030, 10 SCS ENGINEERS

١.

INSPEC	TOR: J, Faille DATE	6-16-23	FIELD REPORT No	. 2	
Work in	Progress:				
	Liner tiering in	First 7, "1	over W-	フミ)	
	Linel re in in	Inni Co		/	
	ona worn arand	pene provion	S1		
			2		
5					
Time	Descr	ription		Action	infor
7730	Arrive anete work u	nervay prepa	ring for		
	tip-in- and Polle traitie	in working	0		
m	The in a line bearing E	Frich we pilling.	or abuictour		
az.	100 Werding begins.	at aller to	i provi sec.		
IN	meet with cerve lo	ar & coner p	aliscopy		
	project. 1990es w/ 50	identitled che	- GILLOURGE		
	(tractured rock, rock)	5 COMPACTION	jesrig).		_
	t. min: trench. CCPW	instructs Nu	itter to		
	address All, issues, Col	upartion testing	+ expected		
	teday or soon after		) /		
190	Spoke W/ Gary ACEW	et QC pprson)	Formed		
	that 3 short surts me	a manual of	ad are		
	They destroct we	e verrace of	pin countered		
	ready. The in unacru	1019 1 VO 1950 09	encourse eo		
0	Liner Tusion weided	PERU PIANG. FROME	ind in		
P	Speak w/ Haus. Schedule	Neving 101 40			
	dependent on vector o	nd other jo	6 THQ,		
	will be worked an	Movelay 7 les v	acherdes.		
	Estimated & days at	- liver work	remain e		
	LLE.				
:78	Nutter-Preppier propping 95	for compaction	on testing,		
1	CHURCH HUGDES		01	и	
Attachm	ents:				<b>.</b>
				_	
ction Code:	Landes Deconsident	OA Ouality Assurance	Consultant		
	information Needed E = Engineer	D Driller			

Respondent Engineer Earthwork Contractor Geosynthetic Contractor Item to Verify Information Needed Cost Impact Schedule Impact R E EC GC V I CI SI M Inspector's Signature

Page _____ of ____

Site: Project Name: Project No.:

	TOR: J, faille DATE: 6-16-23	2	
Nork in	Progress:		
	· · ·		
Time	Description	Action	Inforr
149	Meet w/Bart the @ NE corner of landfill.		
	Ite inquires if liver cut & tic-in location		
	can be moved up-slope to good Trench		
-	and execucition (curren te-in pration & deep):		
	Bair) provides comparation Test results for		
	reading and surrounding soils. lesis de au		
	>976 MUD OUT TIMES SO & GIGTON DE TREMADES		
_	and may be attribute were to of min at		
400	Extraciona work (patching & protrucions) continues		
100	Exite dectruct DS-4 removed from the in		
	Trial worlds (fusion & extrusion) verified work values		
	Repaired exceed requirements.		
	Nutter continuing to prep subgrade. Fractured		
	rack being removed (raked out) from 3rd zove		
	$(W \rightarrow E)$		
	Note from yester day regarding off storm		
	celleder inverts being that at liner grade		
	vag incorrect Liver was sitting above \$5 and		
	appeared to be fush, that is not the case.		
Attachn	nents: ''		

GC - Geosynth

Page 2 of 3

Site: Project Name: Project No

Flujeci			
SCS	ENGINEERS		
INSPEC	CTOR: J. Faille DATE: 6-16-23 FIELD REPORT No	2	
Work in	Progress:		
	le.		
	1		
Time	Description	Action	Inform
1420	Seep observed a SW area of zone 1		
	[NIN Corner of LE]. Two platic culverts under		
	rood at light		
1620	ACTIVI Soon in to don't service of liver For		
100	The repairing to separa the the		
	weenend. Sand cags and sail osed the		
	NUTTER CONTINUES TO WORK ON SUBPREP OF		
	E end (zone 1), tractured rack removed trom around		
	storm colledor, some rock still present, will		
	verify if a capitable the watering has exposed		
	additional rock that was figh with surface.		
1645	Danat 111F		
10 17	Vepo, to		
Attachm	nents:		
Action Code	: Itom to Vocify R - Respondent OA - Quality Assurance Consultant		
I CI	Information Needed E Engineer D Diller Cost Impact EC Earthwork Contractor S Supplier		
SI -	Schedule Impact GC - Geosynthetic Contractor		
	1. 1 711-	2	2
Inspector's	s Signature	age <u>7</u>	, of
	5. <b>6</b>		

ENGINEER'S FIELD REPORT Site: NE 99th St. Project Name: Leichwer LF Project No.: 04223030, 10

SCS	ENGINEERS					
INSPEC	TOR: J. Faille DATE: 6-22-23 FIELD REPORT NO.	3				
Work in	Progress:					
	SG preparation, exposure at existing I pomel installation.	Iner	î			
Time	Description	Action	Inform			
0720	Arrive onsite & meet with John (CCPW).					
	Exposure of existing liner @ E end of site					
	showed it to be anywhere from 1-6 below					
	SUS of liner avea. Discussion and the and					
at tierin via fusion welding or tuck per						
	plans. Existing liner appears to have been					
damaged in many spots while being uncared						
	SG pirce continues, fractured rack & rack					
	>0,9" present. Nutter addressing by tossing					
	clean soil over rock and campacting.					
1010	Meeting w/ COPW to discuss liner installation					
	@ SE end/area of LF. see email tor					
	pictures & details.					
1130	MOOT w/COPU & Brad (Inster Euper), Communicate					
11	SCS suggested solution to tie-in 1950e. Agreed.					
	-1 sand over ex. liner, tuck liner when continuas					
	angle cannot be achieved, Backfill & compact					
	thereadyly, Prain Piper 5' both directions					
	place ET over sand Figurale w/ drain					
	rock geGT. then tuck new liner. In					
Attachm	ents: areas where SOZ 1.5' from ex. liner cond lay	er				
	will be thinked to ensure new liver serviced.					

#### Action Code:

V		Item to Verify
1	-	Information Needed
CI	-	Cost Impact
SL	1.41	Schedule Impact

- Respondent Engineer Earthwork Contractor Geosynthetic Contractor R E EC GC -1
- Quality Assurance Consultant Driller Supplier
- QA D S -

Inspector's Signature

Page _____ of _____

ENGINEER'S FIELD REPORT Site: UMU Leichner LF Project Name: NF 99 ST, Project No.: 99773030.10 SCS ENGINEERS

INSDE						
INSPEC	J. Faille	6-72-63		5		
Work in	n Progress:					
	i.					
	1/				_	
		14				
Time	De	scription		Action	Inform	
1324	ACFW performing repe	airs on ex. line	r in			
	SE area. Nutter exposi	ing liner for rep	air.			
	Patches and other ver	K confinuing on	nau			
	liner.	0	14			
1409	Conversation u/Nutter.	Change order "C	lose enargh"			
	for work to resume	per presoribed	changes.			
	ACFW continuing to re	pair /patch ex.	liner			
	in trench before sand	can be place	d. Nutter			
	continuing to prepare s	Sub-grade. No up	edates trem			
	CCPW.	0 1				
68	ACT west departs for	The day. Li	ner secura			
	and job site cleaned	up. Nutter Co	ntinuing			
	work digging AT a	ong E end a	Fuorte			
	area		9			
1630	CCPW + engineers ong	te to applye	project,			
	right away major	isques "petentially"	ilewitied.			
	Grade appears to 6	e incorred,	rapping			
	water in some place	ces. They will c	onvene			
	and determine what,	it any, change	g will be			
A.11	made moving torus	ard,				
Attachn	nents: U					
Antina Cada						

V	Item to Verify
1	Information Needed
Cl	Cost Impact
SI	 Schedule Impact

- R E EC GC . . .
- Respondent Engineer Earthwork Contractor Geosynthetic Contractor
- Quality Assurance Consultant Driller Supplier

Page 2 of 3

QA -D S -

Site: 24 Project Name: 27 Project No.: 27

SCS	B ENGINEERS			
INSPE	STOR: J. Faille	DATE: 6-72-23	FIELD REPORT No. 3	
Work ir	Progress:		1	
		17		
		(		
Time		Description	Action	Inform
1640	Meet w/ Nutter, a	uchor trench pos	tion	
	unclear along NE	corner of site	a liver	
	area, Review plans	and determine a	straigw	-
	line From curren	I trench position	(É édge)	
	to endpoint of nor	The AI,		
1650	Depart LLF			
1 Cuit	Act	· · · · · · · · · · · · · · · · · · ·	2. 116	
1645	Corregion - ACT	Vest wor depai	Ding ut	1
			U	
				-
Attachn	nents:			1
Action Code				
V S	tem to Verify R Respondent	QA - Quality Assurance	ce Consultant	
CI + SI +	Cost Impact EC - Engineer Schedule Impact GC - Geosynthetic	ntractor S - Supplier Contractor		
	1 a As		Ű	Ċ.
Inspector	s Signature	2 <u> </u>	Page <u></u>	of
•	1			

Site: Leichner LF NE quitu St. Project No .: 0422 3030. 10

#### SCS ENGINEERS

FIELD REPORT No. INSPECTOR: DATE: L all 6-23-23 Filling Work in Progress: 07 5.7 NE ~ grading 01 COVILEY CDO OI 11 tecting Hing on boots Action Inform Description Time 0900 lb ousite Arrive new torus MO to UNI iver allo, 60 nicting. liner rearad ind WORK a tor Ner oquo lan MPO AU ahn NUTT wil 15 that (IA exposed Corner rover Gu Frm ava C COR lea C 4 ave Moving Torward 56 000 quailab 0 will С DS-War Ked 10 a Sh 0 Monday ugh. 1243 Re-gradina Sarc er Gite UN EI aud NN NOIX na repair CONTINUING les rompar Mondai instal. resume liner 10 ggth 1300 NE D eva Attachments: Action Code: Quality Assurance Consultant QA D

R E EC Respondent v ÷ Item to Verify Information Needed Engineer Earthwork Contractor • CI SI -Cost Impact Geosynthetic Contractor Schedule Impact GC Inspector's Signature

Driller

2 Supplier

s

Page _____ of ___

Project Name: NE 99th ST.		
SCS ENGINEERS		
INSPECTOR: FIELD REPORT No	5	
Visitin Branner	~	_
Work in Progress.		
so prep, ther instantion e E end.		
3		
Time Description	Action	Inform
0730 Arrive ousite. Nutter and ACF west preparing		
to begin work forday, soud is placed in		
on FL but rack burnito has not been		1
construded @ NE corner of LLF. Grading		
complete just south of NE 99th St.		
1205 speale w/ Notter, ACF West, & CCPW - an members		
clear on what will happen moving toward.		
- Exposed IF drain pipe will be routed and		
urapped the (15 round rock), Protrusions will		
be taped, ben wrapped (w/GMB) and stee bance.		
030 Digussion u/Nutter, GM will be insported row		
up to and slightly under sade walf (E end)		
1010 ACELURAT		
6 The wasping up second inter for night.		
All available parents deployed, crew stort og		
about 60. Have the wedified tuck undriver		
line lain triumed to far top of trench as		
The being rimbard to the termination		
630 Deport LLF		
Attachments:		
Action Code:		
V - Item to Verify R - Respondent QA - Quality Assurance Consultant		
Cost Impact EC Earthwork Contractor S Supplier   SI - Schedule Impact GC - Geosynthetic Contractor		
1. 0 24-	١	7
Inspector's Signature MAILAM	'age	_ of(

ENGINEER'S FIELD REPORT		
Site: LLF Project Name: NE 99th Street		
SCS ENGINEERS		
INSPECTOR: Faille DATE: 6-27-23 FIELD REPORT N	0. 6	
Work in Progress: 1 iner installation - for East end and N	orth.	
edge along future 99th fidewalk.		
5 0		
Time Description	Action	Inform
boo Arrive ousite, check on progress w/ Haus.		· · · · ·
Begin updating panel bgs.		
1200 US-10 warked this should be past desired.		<u>i</u>
We Meet w/ Barl w/ UCFW. I reality 19500		
with Tilling over winnes in liner, bot loguesis		1
Milavarion ne con provide pulling over property		
1500 Discussion us Bred (Mutter) and John (CCPW)		1
Topsil excavation will begin chartly will be		
stockpilled near would of zone l'operators		
instruded to keep objects (grass, rocks, wood) out		
of fill materia. Nutter & copy clear about		
wrinkles alknowledge that folding/creasing is		
not allowed and that atting and apping		
wrinkles may be necessary. Destructs will		
be shipped and today (correct plan)		
630 ACT Departs for day. Cover seil being		
placed in stockpiles looks good. Some rais	- <b>L</b> .	
present but very tew it any rochs, no consti	Volan	
Attachments: David or waste present.		
Allaciments. 16:40 - Deport ME 997 97.		

2

v	2	Item to Verify	R	3 <b>8</b> 2	Respondent	QA
1	÷.	Information Needed	E		Engineer	D
CI	÷2	Cost Impact	EC		Earthwork Contractor	S
SI	-	Schedule Impact	GC		Geosynthetic Contractor	
Insp	ector	's Signature	2	0	Ja	 -

Page_ of

Quality Assurance Consultant Driller Supplier

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A second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s

ŝ

12 6-28-29 LLF/NE 99 th 2/2 13 6-28-23 0940 - Arrive ousite 1300 - Discussion w/ Bart. Walk - Filling operations underway site and seshow condition gailt ; & good but many " wrinkles presed. of liner. Copur wants to Know why ACF West did 1020 - Conversation w/Brad, Brad not install liner in such a (Nutter), and John (CCPW). very as to avoid excessive B. Brad aggry that work has wrinkling. stopped, I explain I do not 1433- Forlan Oup w/Bart. Nutter have stop-work authority. will resume filling @ 6:30 B-Brad orders worth to resume AM Thursday, They un FII raceeding with 60 12 may From Sto N and will get fat rand through center (w.7E) and spreading and cap any wrinkles that cannot be walked as. Nand S. B-Brad Says Ba-9 1636-ACT West Departs NE 99th. (apr) want allow them to Destruct samples provided prior & spread soil S-7. Occause They 15 separture, 1640-505 Jepuis NE 999th. aren't allowed to drive on access road. - DS-11 marked, all destructs marked 1130 - Meet Braydon Raposo w/905 ansite and begin crientation and timining, will meet BR back onsite Othursday 8:00 AM. Rite in the Rain.

14 6-29-23 NE 99th St. 6-29-23 ve will 0630 - Attrive onsite, an no work being performed, proceed to inspect liver. - Inform CCPIt - Write email - Train CCPW staff 1219-Destructive seam lab realts 0646 - Liner is suboth, ideal for Filling Spreading work with received, all good except DS-10, which had side A Very little chance of Flding. T= SO7°F per FISO, 61°F NOAA. Peel Etrength of 56 (avg) and NON-FTB NSF Failule code * Check avernight low * For all 5 sapons. Wich Bar 564 653 2374 M 1300 - Discussion w/ Jeffi Hars & SR. The Field corpons taken John Tunininga & 360-635-2479 NES of DS-10 Filled peel tests, decision is to repair 0940 - Discussion w/Bart and John entire seam. ACF west proposes Tw/CCPW. They are informed cutting excess off fusion weld, that SCS is upavailable Friday and Monday, CCPW will provide caverage. I will aggist remotely grinding then extrusion welding Failure seam. it weeded. Soil placenew TOP 610 -00 lasks good, operators rolling Reftom/ sail up down and placing -Extrusion weld ouq j with mini-ex. Liner expanding RANK S Fill soil laski gad. Rite in the Rain.

6-29-23 3/4 16 6-29-23 NE 99th St. 1600 - Hans provides test carpons 1400 - Extrusion welding repair From DS-10, P=105 of DA-10 seam going well. Pg = 109 Sample pulled for Field verification Shear = 147 of weld the strength. Weld Repair complete, locks good 1435 - Repain of DS-10 weld nearly 1620 - ACF West has departed, sail complete. Liner is being trimmed, grinded, and welded as described placement continues. Soil being spread From W > # with fail being stackpilled in "zone 2" Just N of access Soil placement @ W end continues. Some large wrinkles have daebyed and one is beginning to feld road Wrinkles are present and some are being folded our. over. 1941 - Nuter operator Bristo made · Brief conversation w/Brista aware of large wrinkles present (dozer operator). He states that near mound (z1-m-zz), said no more soil will be pushed not much more soil will go over the East, they will feers on there, Advised to not move Fine grading and stackpilling any more soil in that area in 411 morning when line 620-505 Lepan LLF hay contracted. Rite in the Rain.

NE 99th Street Construction Leichner Landfill

Project No. 04223030.10

# SCS ENGINEERS

INSPE	NSPECTOR: B. Rapozo DATE: 7/5/23 FIELD REPORT NO.					
Work ir	Progress: Liner covering new	ar Bast corner				
	ð í					
	*					
					_	
					_	
Time				Action Inforr	n	
0645	Arrived onsite, met with	n John and crew, wol	begin		_	
1012	Work on tarp liner cover	ing at 0730 post-sate	ety meeting.			
UDIL	Spoke with John. There U	uas contusion with the	Clew		_	
	on a starting (Ime. Still	waiting for dozer operate	1		_	
	John (certor mentioned a	the tash lat The	huisacig		_	
	a) the base of the fi	as of autor in the	e planning		_	
	ACEILIAN to fix any	ase or another the c	TIME FIARER			
	damage that muy occur.	Additional Haps his 110 5	the three			
0940	Observed a 6-inch tear i	n old liner on the Eas	stern most			
	mound near corner. Nut	her once member said to	smentionit			
	to Jeff. Texted Jack fro	im SCS regarding the	tear			
1045	Spoke with John and Like	e (CCPW) regarding old	liver tears.			
	Will need to speak to Mile	e Davis about this.		7.		
·····	- John mentioned a meetin	of tomorrow (7/6) with	Mike and			
	Bart about construction	of the surface road	along the			
UDP	drainage.	· · · · · · · · · · · · · · · · · · ·			_	
1105	Called Steve about old	iner repairs, he said thi	s would		_	
-	be in the discussion tomorrow					
Attachr	nents:					

#### Action Code

- Item to Verify Information Needed v . I. . CI SI Cost Impact Schedule Impact 10
- R = E = GC = Respondent Engineer Earthwork Contractor Geosynthetic Contractor

QA = D S = Quality Assurance Consultant Driller

Supplier

of_2 Page

## ENGINEER'S FIELD REPORT (CONTINUATION PAGE)

#### NE 99th Street Construction Leichner Landfill

Project No. 04223030.10

vi8.1

INSPEC	CTOR: B. Rapuzo	DATE: 7/5/23	FIELD REPORT N	lo.	
Time		Description		Action	Inform
1240	Liner beginning to fold,	at Eastern ditch i	n multiple		
	places.		4		
1250	Spoke with Luke be be	lieves these won't he	MA issue		
	as soil with fill any gap	s about the ditch	V. (Larv		
1330	Crew used exampler to	arip the cut edges on	d flatten		
	the wrinkles.	01			
1403	Crew straightened out large	wrinkles ha pulling H	ne liner		
	from the tapened corner i	sing the escavator.			
1540	Crew covered Soil up to far	comer,			
1650	Beginning cleanup				
P30	Departing site with No	utter			
	1 5				
		ia.			
					-
				-	
			2		<u>s</u>
	i				

Page ____ of ____

NE 99th Street Construction

Leichner Landfill Project No. 04223030.10

SCS	ENGINEERS	

INSPE	INSPECTOR: B. Rapozo DATE: 7/6/23 FIELD REPORT N		).					
Work in Progress: Covering liner; developing grade								
	0 1 1	2.2						
·								
Time	Description	1		Action	Inform			
0745	Met with liner crew, beginning	work on cover	ing liner					
0 Dillo	North of service road	~ 1 1	J					
0810	Discused a noticable, large wrinkle	on tastern edg	e ot					
	The service road. Will likely be un	able to thatten it	out eng					
	once they declar the mad.	reess progenal a	10 Sealed					
0828	Sharp plant roots, trash in later	t soil deliverie	S,					
0842	Small fold found sticking up for	om the dirt n	ear					
	Western edge of the undereloped	service road. To	ok photos					
1007	and will discuss soon.	MIT There						
1002	spore with som and like regulating	Told, John Theoriza	a toloing					
	hinge between two sloves,	y as negative of						
1022	Mike Davis, Melissa from CCPH, or	nd Simon joined	Bart, John,					
	Luke, and I for discussion over	soil, the service	road and					
	wrinkles in the liner. Simon (SCS) of	ilso present.						
	-Melissa noted sharp nocks in th	ne material near	meeting					
	Dreinously as lean long the	sitot mutació	es all about adalie					
-	providency notice channing docts	UNTO I Produce	and hundreling					
Attachn	Attachments:							
Action Code								

- Item to Verify Information Needed v . I CI SI +
- Cost Impact Schedule Impact -
- R E EC GC 1.1

BRO

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Respondent Engineer Earthwork Contractor GeosynIhetic Contractor

Quality Assurance Consultant Driller 

QA D S Supplier  $\sim$ 

Page _____ of ____

## ENGINEER'S FIELD REPORT (CONTINUATION PAGE)

#### NE 99th Street Construction Leichner Landfill

Project No. 04223030.10

INSPECTOR: B. Radozo DATE: 7/6/23 FIE		lo.	
Time	Description	Action	Inform
1058	Latest soil deliveries.		13
	-Dry relative to earlier loads		
	- Lorge compressed dirt mounds can be mistaken as rocks		
1200	Spoke with Jack (scs) updating him on the progress		
	. Wrote an email detailing situation to everyone		
	-Noted progress on coverage. As of noon the liner hus been		
	entirely covered. Crow is working on developing draining		
	relief and filling remaining material in ditches		
1524	Spoke with Tiffany Andrews (SCS) on the phone about		
	snapping photos of the drain pipes		
1555	Sent photos of all the drainpipe's to John, Grey, Jack, Louis		
	and Tiffany. Slighty exposed liner under pipe second		
	from the Western most drainpipe.		
1607	Departina site.		
	× · · · · · · · · · · · · · · · · · · ·		
			-

Page _ 2_ of _ 2_


D-2

**Construction Photographs** 



June 15th, 2023: Deployment of geomembrane liner over prepared subgrade.

June 15th, 2023: Preparation of subgrade for liner deployment.





June 22nd, 2023: Stormwater ponding on liner after weekend rains.

June 22nd, 2023: Exposed existing Landfill cover liner in northeast corner of Landfill.





June 22nd, 2023: Detail of sand layer atop Landfill cover liner.

June 22nd, 2023: Exposed corrugated plastic drain pipes above Landfill cover liner.





June 22nd, 2023: Repairs to existing Landfill cover liner.

June 23rd, 2023: Sand layer placed atop exposed existing Landfill cover liner.



June 26th, 2023: Preparation of subgrade for geomembrane deployment in northeast corner of Landfill.



June 26th, 2023: Installation of drain rock around exposed corrugated plastic drain pipes.



June 26th, 2023: Geomembrane deployed in northeast corner of Landfill (east end of stormwater conveyance liner system).



June 27th, 2023: Large wrinkles developing in deployed liner due to thermal expansion of HDPE.





June 27th, 2023: Geomembrane cover layer soil.



June 27th, 2023: Storm collector pipe penetration HDPE boot.





June 28th, 2023: Placement of cover layer soil.

June 29th, 2023: Spreading of cover layer soil, wrinkles in geomembrane being "walked" to anchor trench where extra material can be removed.



June 29th, 2023: Deployed liner ready for placement of cover soil. Picture taken at 6:40 AM when air and surface temperature of HDPE liner coolest.



June 29th, 2023: HDPE boot sealing concrete manhole penetration in liner.





June 29th, 2023: Repair and patching of seam containing failed DS-10 destructive sample.

July 5th, 2023: Placement of cover soil layer in northeast corner of Landfill.





July 6th, 2023: Compaction of cover layer soil.

July 6th, 2023: Completed cover soil layer awaiting installation of turf reinforcement mat and hydroseed application.



July 20th, 2023: HDPE culvert installed to convey stormwater off of landfill underneath perimeter access road.

