DOCUMENT RECEIVED IN ELECTRONIC FORMAT FOLLOWS:

- **FDEP DATE-STAMPED RECEIVED PAGE/CERTIFICATION OF CONSTRUCTION COMPLETION OF A SOLID WASTE MANAGEMENT FACILITY –SEALED PAGE**

- **SEALED SECTION DETAIL CELL 8 (PAGE 66)**

Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

DEP Form # 62-701.900(2)
Form Title Certification of Construction Completion of a Solid Waste Management Facility
Effective Date May 19, 1994

Certification of Construction Completion of a Solid Waste Management Facility

DEP Construction Permit No: SC49-0199726-020 County: Osceola

Name of Project: Cell 8 Construction - J.E.D. Solid Waste Management Facility

Name of Owner: Omni Waste of Osceola County, LLC

Name of Engineer: Jeffrey D. Schaffer, PE, Weaver Boos Consultants Southeast, LLC

Type of Project: Construction of Cell 8 Disposal Area

Cost: Estimate $ 2,500,000 (Approximate) Actual $ 2,500,000 (Approximate)

Site Design Quantity: 6,000 ton/day Site Acreage: Cell 8 - Approx. 11.3 Acres

Deviations from Plans and Application Approved by DEP (attach additional pages as needed):

The intercell berm anchor trench design was revised as shown on the enclosed "Liner System Termination at Intercell Berm" detail drawing.

Address and Telephone No. of Site: 1501 Omni Way, St. Cloud, Florida 34773; (407) 981-3720

Name(s) of Site Supervisor: Matthew Orr

Date Site inspection is requested: As soon as possible

This is to certify that, with the exception of any deviation noted above, the construction of the project has been completed in substantial accordance with the plans authorized by Construction

Permit No.: SC49-0199726-020 Dated: September 2011

Date: May 9, 2012

Signature of Professional Engineer

JEFFREY D. SCHAFFER LICENSE No. 64716 STATE OF FLORIDA PROFESSIONAL ENGINEER

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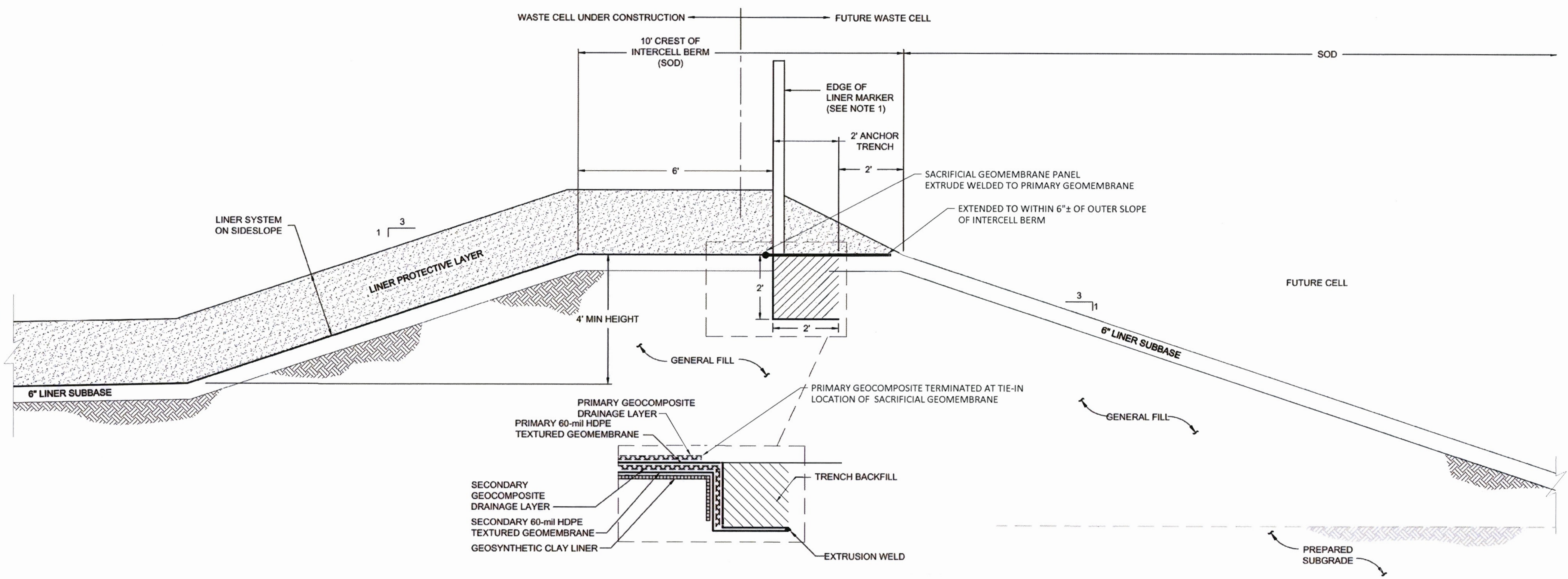
DEP Central Dist.



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3

SECTION (TYPICAL)
LINER SYSTEM TERMINATION AT INTERCELL BERM

SCALE: 1" = 2'

NOTES:

1. THE EDGE OF LINER SHALL BE MARKED ON ALL SIDES (EXCEPT ON THE TIE-IN SIDES) AT 200' (MINIMUM) INTERVALS AND AT THE CORNERS. THE MARKERS SHALL BE 4"x4"x8' PRESSURE-TREATED TIMBER POST AND SHALL BE PAINTED YELLOW.
2. LINER SYSTEM ANCHOR TRENCH SHALL HAVE ROUNDED CORNERS.

JEFFREY D. SCHAFFER
LICENSE
No 64716
STATE OF FLORIDA
PROFESSIONAL ENGINEER

05/09/2012

Submissions / Revisions:	Date:
1	
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Certificate:

WEAVER
BOOS
CONSULTANTS

WEAVER BOOS CONSULTANTS SOUTHEAST, LLC
365 CITRUS TOWER BOULEVARD, SUITE 110
CLERMONT, FLORIDA 34711
TELEPHONE: (352) 241-0848
FACSIMILE: (352) 241-0843
www.weaverboos.com

STATE OF FLORIDA ENG. BUSINESS NO. 28055

Client:

WSI Waste Services, Inc.

Project Name & Location:

Omni Waste of
Osceola County, LLC
1501 Omni Way
St. Cloud, Florida

J.E.D. Facility
Cell 8
Certification

Approved By:
JC JS

Project No.
3804-351-16-00

Drawing Name:

Section
Detail

Drawing No.

C.02

File: x:\3804 waste services inc\351 jed landfill cell 8 cqa\final cell 8 cqa certification report\liner layout plan and detail appendix a.dwg

WEAVER
BOOS
CONSULTANTS

May 9, 2012

Mr. F. Thomas Lubozynski, PE, Administrator
Waste Management Program, Central District
Florida Department of Environmental Protection
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

Regarding: Omni Waste of Osceola County, LLC
J.E.D. Solid Waste Management Facility, St. Cloud, Florida
Cell 8 Construction; Response to "Review of Construction Certification Report"

Dear Mr. Lubozynski:

In response to your April 25, 2012 letter, and on behalf of Omni Waste of Osceola County, LLC (Omni), Weaver Boos has prepared the following responses to your comments on the Construction Quality Assurance Certification Report (Report) for the Cell 8 disposal area at the JED Solid Waste Management Facility (comments in bold; responses below each comment):

1. **The As-Built Drawings submitted as part of the Report have callouts which refer to notes. For example, Drawing No. 185, sheet 1 states SEE NOTE 2. Are the callouts relevant to the as-built information? If yes, submit a copy of the notes referenced in the As-Built Drawings. Or, were they part of the originally submitted drawings but do not have information important for the as-built submittal.**

The As-Built Drawings have been revised by the land surveyor to remove notes, callouts, and citations that were residuals from the original design plans. Signed and sealed hardcopies of the revised As-Built Drawings are included in this response package to be inserted in the original Report copies provided to the FDEP.

2. **Appendix P is a table of the repairs performed on the 60-mil Textured HDPE liner. The table column titled "Description (Repair Type)" lists different types of repairs made to the liner. Provide the Department with a definition for the types of repairs listed as DS and DP on the table.**

"DP-X" and "DS-X" refer to repairs to the Primary and Secondary geomembrane, respectively, at locations where samples were taken for destructive testing. Specifically, the notation refers to the actual sample identification numbers matching the sample numbers listed in the destructive sample summary tables provided in Appendix N and laboratory destructive test reports provided

Weaver Boos Consultants Southeast, LLC
365 Citrus Tower Boulevard, Suite 110 – Clermont, Florida 34711
(352) 241-0848 – www.weaverboos.com

in Appendix O. Section 5.3.4.2 of the Report has been revised to denote the identification numbering system used by CQA personnel.

3. **Page 40 of the Report states that the transmissivity of the secondary geocomposite was measured sandwiched between a GCL (Bentomat ST) and a 60-mil HDPE textured geomembrane. Why was this configuration chosen? This configuration is only used in the sump area. The configuration in the majority of the Cell 8 liner system has the secondary geocomposite sandwiched between the secondary 60-mil HDPE liner and the primary 60-mil textured HDPE liner.**

The testing was actually completed between the secondary and primary 60-mil HDPE geomembranes as noted in the laboratory test reports provided in Appendix T. Section 5.5.1 of the Report has been corrected and included in this response package.

4. **The geonet used in the primary geocomposite drainage layer was Transnet 330-2-8. The geonet used in the secondary geocomposite drainage layer was Transnet 270-2-8. How were the two types of geocomposites differentiated to ensure the correct geonet was placed in the correct layer?**

The following statement has been added to Section 5.4.2.1 and Section 5.5.2.1: "As two different types of composite were used for the construction of Cell 8, during unloading of materials, the two types of geocomposite were separated by type into two different stockpile locations. CQA personnel ensured that the installer used material from correct stockpile during the primary and secondary installations, respectively. In addition, roll numbers were checked by the CQA personnel prior to deployment." The revised Report is included in this response package.

5. **Page 25 of the Report states "A sacrificial geomembrane panel was then extrude welded to the primary geomembrane liner at the crest point of the anchor trench and extended to the outer slope of the intercell berm (daylighted). The primary geocomposite was extended over the top of the sacrificial geomembrane and also daylighted at the outer slope of the intercell berm. This method of termination of the primary geocomposite will reduce migration of landfill gas into the intercell berm soils …"**

   a. **This is a significant deviation from the permitted design of the intercell anchor trench. Resubmit the DEP Certification of Construction Completion of a Solid Waste Management Facility form 62-701.900(2) and detail this change under 'Deviations from Plans and Application Approved by DEP.'**

   The form has been revised as requested with this change noted. The revised form is included in this response package.

   b. **The Department understands the intercell anchor trench design change (that is, primary geocomposite daylighting along the outer slope of the intercell berm) was made to create a vent pathway for landfill gas thus reducing the possibility of landfill gas migration into the intercell berm. Is this interpretation correct?**

That is the correct interpretation of the intent.

c. **Before the Solid Waste Program can approve the construction certification for Cell 8, we need assurance the new intercell anchor trench design does not violate the site's air permit. Consult with the Air Program to determine if the altered design of the intercell anchor trench meets the requirements of the site's air permit.**

On April 30, 2012, Omni received an e-mail from Ms. Kim Rush of the FDEP notifying Omni that the Air Resources Department would not authorize venting of the geocomposite at the intercell berm. This approach would apparently not meet conditions of the Facility's air construction and operating permits. Omni remobilized the Cell 8 earthwork contractor on May 3rd and began removing the vented section of geocomposite. The geocomposite was removed to the limits shown on the revised as-built detail "Liner System Termination at Intercell Berm" provided with this response package and Appendix A of the Report. Weaver Boos observed removal of the geocomposite, and replacement of the protective cover soils and sod. The work was completed on May 7th. A daily summary and pictures documenting the work are provided with this response package.

d. **The site is currently under a Gas Migration Plan for the migration of landfill gas in soil. Regardless of which intercell trench design is ultimately used on Cell 8, the permitted design or the daylighting of the primary geocomposite design, the Department requests a discussion of the intercell trench design and its effect on landfill gas migration. After consulting with the Air Program, contact Kim Rush to set up a meeting to discuss the Gas Migration Plan, on-going corrective actions, and the anchor trench designs. (The design for the end trenches has the primary geocomposite cut-off before the anchor trench but not sealed; the design change for the intercell trench is to daylight the primary geocomposite.)**

See response to 5(c) above. Omni will contact Ms. Rush to coordinate meeting to discuss the Gas Migration Plan, on-going corrective actions, and anchor trench design alternatives.

6. **On page 49 of the report, tests on the sump pumps and control panel which need to be performed prior to waste being filled into Cell 8 are outlined. Ensure the test results become a part of the operation record for the facility.**

The startup testing in question was completed on April 10, 2012. Section 6.5 of the Report has been revised accordingly and included in this response package. The Installation Record for each pump is also included in this response package to be inserted in Appendix X of the Report.

7. **Please provide panel layout drawings for the installation of the primary and secondary geomembrane layers.**

The panel layout drawings have been certified by a registered professional and are included in this response package to be inserted in Appendix A of the Report.

Thank you for your time and consideration in this matter. Should you have any questions or concerns, please feel free to contact us.

Sincerely,
Weaver Boos Consultants Southeast, LLC

Jeffrey D. Schaffer, PE
Senior Project Manager

cc: Michael Kaiser, PE, Omni

Enclosures (to be inserted into the Report):
- Revised Form 62-701.900(2)
- Revised Certification Report
- Revised As-Built Survey Drawings (Appendix A)
- Panel Layout Drawing (Appendix A)
- Revised Liner System Termination at Intercell Berm Drawing (Appendix A)
- EPG Pump Installation Records
- Daily Summaries and Photographs – Removal of Geocomposite in Intercell Berm

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May 9, 2012

Mr. F. Thomas Lubozynski, PE, Administrator
Waste Management Program, Central District
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The testing was actually completed between the secondary and primary 60-mil HDPE geomembranes as noted in the laboratory test reports provided in Appendix T. Section 5.5.1 of the Report has been corrected and included in this response package.

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Weaver Boos Consultants Southeast, LLC

Jeffrey D. Schaffer, PE
Senior Project Manager

cc: Michael Kaiser, PE, Omni

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- Panel Layout Drawing (Appendix A)
- Revised Liner System Termination at Intercell Berm Drawing (Appendix A)
- EPG Pump Installation Records
- Daily Summaries and Photographs – Removal of Geocomposite in Intercell Berm

J.E.D. Solid Waste Management Facility
Osceola County, Florida

CONSTRUCTION QUALITY ASSURANCE CERTIFICATION REPORT CONSTRUCTION OF CELL 8

Submitted to:
Florida Department of Environmental Protection
Central District

Prepared for:

WSI Waste Services, Inc.

Omni Waste of Osceola County, LLC
1501 Omni Way
St. Cloud, Florida

Prepared by:

WEAVER BOOS CONSULTANTS

Weaver Boos Consultants Southeast, LLC
365 Citrus Tower Boulevard, Suite 110
Clermont, Florida 34711
(352) 241-0848 – www.weaverboos.com

Project Number 3804-351-16-00
Original March 30, 2012
Revised May 7, 2012

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1.0 INTRODUCTION

1.1 Overview

This Certification Report summarizes the Construction Quality Assurance (hereafter "CQA") activities performed by Weaver Boos Consultants Southeast, LLC (hereafter "Weaver Boos"), Clermont, Florida, during construction of Cell 8 at the J.E.D. Solid Waste Management Facility (hereafter "JED"), a Class I landfill, located in Osceola County, Florida. The JED facility is owned by Omni Waste of Osceola County, LLC (hereafter "Omni"), which is a wholly owned subsidiary of Waste Services, Inc. (hereafter "WSI").

Cell 8 is the first cell to be constructed as part of the Phase 3 development of the JED facility. The CQA activities performed by Weaver Boos included monitoring of:

- earthwork construction;
- geosynthetics installation;
- leachate management system construction; and
- miscellaneous activities associated with development and ongoing operation of the landfill.

The CQA activities were performed to confirm that the construction materials and procedures were in compliance with the Permits to Construct (SC49-0199726-017, modified by SC49-0199726-020) and Permit to Operate (SO49-0199726-015) issued by the Florida Department of Environmental Protection (hereafter "FDEP"), Central District and in accordance with Chapter 62-701, Solid Waste Management Facilities, Florida Administrative Code (hereafter "FAC").

Cell 8 was constructed in accordance with the above-mentioned Permits and associated permit drawings. This Certification Report was prepared for Mr. Michael Kaiser, PE, Regional Engineer, with WSI. The report was prepared by Mr. L. Michael Bowers and was reviewed by Mr. Jeffery D. Schaffer, PE, both with Weaver Boos.

1.2 Report Organization

The remainder of the Certification Report is organized as described below:

- A brief description of the project is provided in **Section 2.0**;
- A summary of the CQA program is presented in **Section 3.0**;
- A description of the CQA monitoring and testing activities performed during earthwork related construction activities in Cell 8 is provided in **Section 4.0**;
- A description of the CQA monitoring and testing activities performed during the geosynthetics installation in Cell 8 is provided in **Section 5.0**;
- A description of the CQA monitoring and testing activities performed during construction of the leachate collection system in Cell 8 is provided in **Section 6.0**;
- A description of the CQA monitoring and testing performed during miscellaneous construction activities associated with development and ongoing operation of the landfill is provided in **Section 7.0**; and
- A summary of the observations resulting from the CQA monitoring and testing activities performed by Weaver Boos and a certification statement signed and sealed by a professional engineer registered in the State of Florida are presented in **Section 8.0**.

Tables and Appendices are included after **Section 8.0**. The Tables and Appendices include Test Results, Certifications, Record Drawings, and Construction Logs.

2.0 PROJECT DESCRIPTION

2.1 General

The JED facility is located in southeastern Osceola County, Florida, west of highway U.S. 441, approximately 6.5 miles south of Holopaw. The JED facility site comprises a total of approximately 2,179 acres. The landfill footprint at final build-out is approximately 360 acres and consists of a total of 23 landfill cells that provide available waste capacity for approximately 30 years.

The initial five-year construction and operation permit for the development of Phase 1 at the facility was issued by FDEP in October 2002. A five-year construction and operation renewal permit for development of Phases 2 and 3 (SC49-0199726-004 and SO49-0199726-005) was issued in March 2007. Operation Permit SO49-0199726-005 was modified several times since it was issued and is currently numbered SO49-0199726-015. This Operation Permit is also undergoing a five-year permit renewal process through the FDEP.

In April 2008, FDEP issued a major modification permit for construction and operation of a vertical expansion of the JED facility (SC49-0199726-006 and SO49-0199726-007). Subsequently, in September 2011, the FDEP issued a major modification permit for the construction of a lateral expansion of the JED facility that authorizes construction of Phase 1 through Phase 8, Cell 8 through Cell 23 (SC49-0199726-020).

Construction of Phase 1 (which included four cells, Cell 1 through Cell 4) in the northern part of the landfill has been completed and the cells are partially closed. Construction of Phase 2 (which included three cells, Cell 5 through Cell 7) has been completed and the cells are being filled.

This report primarily addresses the CQA activities performed during construction of Cell 8.

2.2 Construction Activities

This Certification Report pertains to CQA monitoring and testing activities performed for construction of Cell 8 and other miscellaneous construction activities. The construction of Cell 8 included earthwork, liner system installation, and leachate collection system construction as indicated in the construction drawings prepared for the construction of Cell 8.

The miscellaneous construction activities included the construction of the perimeter maintenance road (on the west side of Cell 8), installation of one storm water drainage structure, extending the landfill perimeter berm (on west side of Cell 8), installation of gas side-slope riser, extending the leachate transmission line, and other miscellaneous construction activities.

2.2.1 Landfill Cell Components

The Cell 8 design incorporates a composite liner system and other engineering controls that meet or exceed the requirements of Chapter 62-701, FAC. The Cell 8 liner system consists of the following components (from top to bottom):

- minimum 24-inch thick liner protective soil layer;
- primary geocomposite drainage layer, consisting of a high-density polyethylene (hereafter "HDPE") geonet with a needle-punched, non-woven geotextile heat bonded to each side, hereafter referred to as primary geocomposite;
- primary liner, consisting of a 60-mil thick textured HDPE geomembrane;
- within the sump area a primary geosynthetic clay liner (hereafter "GCL"), consisting of an internally reinforced composite, composed of granular sodium bentonite encapsulated between a needle-punched non-woven geotextile and a woven geotextile;
- secondary geocomposite drainage layer, consisting of a HDPE geonet with a needle-punched, non-woven geotextile heat bonded to each side, hereafter referred to as secondary geocomposite;
- secondary liner, consisting of a 60-mil thick textured HDPE geomembrane;
- secondary GCL consisting of an internally reinforced composite, composed of granular sodium bentonite encapsulated between a needle-punched non-woven geotextile and a woven geotextile; and
- a minimum six-inch thick prepared liner subbase.

2.2.2 Leachate Collection System Components

The Cell 8 leachate collection system consists of the following components:

- one six-inch nominal diameter HDPE perforated leachate collection pipe surrounded by gravel aggregate and non-woven geotextile filter fabric installed within the center of the cell, in an east-west alignment, dividing the cell in half, as part of the primary leachate collection system;
- one four-inch nominal diameter HDPE perforated leachate collection pipe surrounded by gravel aggregate and non-woven geotextile filter fabric installed within the center of the cell, in an east-west alignment, dividing the cell in half, as part of the secondary leachate detection system;
- two 24-inch nominal diameter HDPE primary sump risers and associated section of 24-inch nominal diameter HDPE perforated leachate sump pipe;
- one 24-inch nominal diameter HDPE secondary sump riser and associated section of 24-inch nominal diameter HDPE perforated leachate sump pipe; and
- leachate pumps, piping, valves, and system controls.

3.0 CONSTRUCTION QUALITY ASSURANCE PROGRAM

3.1 General

The scope of CQA monitoring, testing, and documentation services performed by Weaver Boos during the construction of Cell 8 at the JED facility included review of documents, field CQA operations, and preparation of this final Certification Report, which includes record drawings for the liner system and earthwork. These activities are described in the following sections of this report.

Weaver Boos provided the CQA monitoring, testing, and documentation. Geosyntec Consultants, Tampa, Florida, was responsible for the original design and construction drawings. A list of personnel involved in construction of Cell 8 at the JED facility is included in **Section 3.5** of this report.

The earthwork activities for construction of Cell 8 began on Wednesday, October 26, 2011, with the start of the construction of a "bridge lift" (see **Section 4.0** for a description of the bridge lift). The installation of the liner system within Cell 8 began on Wednesday, December 28, 2011. The placement of the protective soil layer in Cell 8 began on February 2, 2012. Construction of Cell 8 (described in this Certification Report) was completed on March 23, 2012.

3.2 Related Documents

As previously noted, this Certification Report summarizes the CQA activities performed by Weaver Boos during construction of Cell 8 at the JED facility. The CQA activities conducted by Weaver Boos were intended to satisfy the requirements of the following documents:

- Renewal permit application entitled "Renewal Permit Application to Construct and Operate Phases 2 and 3 of the Oak Hammock Disposal Facility", prepared and submitted by Geosyntec Consultants, Tampa, Florida, in September 2006 and approved by the FDEP Central District in March 2007;
- Major modification application entitled "Landfill Lateral Expansion – Application for a Major Permit Modification J.E.D. Solid Waste Management Facility", prepared and submitted by Geosyntec Consultants, Tampa, Florida, in February 2011 and approved by the

FDEP Central District in September 2011;

- “Technical Specifications”, Appendix J of the major modification permit application, dated September 2007;
- “Construction Quality Assurance (CQA) Plan”, Appendix K of the major modification permit application, dated September 2007;
- Lateral expansion permit drawings entitled “J.E.D. Solid Waste Management Facility, Lateral Expansion Major Solid Waste Permit Application”, dated April 2011; and
- Construction drawings entitled “J.E.D. Solid Waste Management Facility, St. Cloud, Florida, Cell 8 Construction”, dated August 2010, prepared by Geosyntec Consultants, Tampa, Florida.

All of the above documents are hereafter collectively referred to as the CQA Documents in this Certification Report. During construction, minor deviations were made to these documents to include clarifications to the intent of the design and to accommodate existing site conditions or preferred construction techniques. However, no substantial changes were made to the CQA Documents.

3.3 Field CQA Operations

The following activities were performed as part of the on-site CQA services conducted by Weaver Boos:

3.3.1 Earthwork

- collecting samples of soils used as general fill to construct the subgrade and liner subbase in Cell 8 for testing at an off-site geotechnical laboratory;
- collecting samples of soils used for protective soil layer for testing at the off-site geotechnical laboratory;
- reviewing and evaluating geotechnical laboratory test results to ensure compliance with the requirements of the CQA Documents;

- monitoring placement, grading, and compaction of earthwork related construction activities;
- testing in-situ density, moisture content, and percent compaction of earthwork related construction activities to ensure compliance with the requirements of the CQA Documents;
- notifying Contractor of areas that need additional compaction based on failing in-situ tests and re-testing these areas to ensure compliance with the requirements of the CQA Documents; and
- monitoring anchorage of the geosynthetics in the perimeter anchor trenches.

3.3.2 Geosynthetics

- monitoring delivery, storage, and tracking the inventory of geosynthetic materials delivered for the project;
- coordinating the collection of geosynthetic conformance samples from in-plant sources and forwarding samples to an off-site geosynthetics testing laboratory;
- collecting and reviewing geosynthetic manufacturers' quality control (MQC) certification documents and geosynthetic laboratory conformance test results to verify compliance with the requirements of the CQA Documents;
- monitoring installation of geosynthetic materials in Cell 8 including trial seams, production seaming, nondestructive testing, and repair operations; and
- performing destructive testing of geomembrane seams at the minimum frequency required by the CQA Documents.

3.3.3 Leachate Collection System

- reviewing quality control (QC) documents of materials used in the leachate collection system, geotechnical laboratory conformance test results on samples of aggregate, and geosynthetic laboratory conformance test results on samples of geotextile filter/separator fabric to verify compliance with the requirements of the CQA Documents; and
- monitoring construction of the leachate collection system in Cell 8.

3.3.4 Miscellaneous Activities

- monitoring installation of storm water drainage structures and associated culvert pipes;
- monitoring placement, grading, and compaction of general fill used to construct the landfill perimeter berm;
- monitoring placement, grading, and compaction of limerock used to construction the landfill perimeter maintenance road;
- monitoring pressure cleaning of the Cell 8 leachate collection system piping;
- monitoring installation of a HDPE side-slope riser pipe for future tie-in of a condensate drainage system for the facility's Gas Collection and control System; and
- monitoring installation of sump risers, concrete surface pads, leachate pumps, leachate piping and system controls.

During construction activities involving monitoring and/or testing, the observations made and results obtained by Weaver Boos CQA personnel were compared with the requirements of the CQA Documents. The construction manager and the appropriate contractor were notified of any deficiencies in construction practices and/or materials to ensure appropriate corrective actions were taken. The corrective actions were monitored and/or tested by CQA personnel to ensure compliance with the requirements of the CQA Documents.

3.4 Certification Report and Record Drawings

Record Drawings for Cell 8 liner subbase, primary and secondary geomembrane panel layouts, liner protective cover, and the leachate collection and transmission system piping, and this CQA Certification Report were prepared as the final task of the CQA program for construction of Cell 8. The record drawings are included in **Appendix A** of this report.

This Certification Report summarizes the CQA monitoring, testing, and documentation activities performed by Weaver Boos. During construction of Cell 8, CQA monitoring and testing activities were documented by CQA personnel in Daily Field Reports and various other forms. In addition, QC certificates for the geosynthetics, other construction materials, and surveyor's data were provided to Weaver Boos for review. These and other construction-related documents are maintained by Omni and Weaver Boos as part of the project file. Results of CQA monitoring and testing activities that are critical with respect to the satisfactory performance of Cell 8 at the JED facility and protection of the surrounding environment have been summarized in a tabular form and are included in **Section 4.0** and **Section 5.0** of this Certification Report.

3.5 Project Personnel

Major personnel or representatives of the firms involved in the project are as follows:

Owner:	Omni Waste of Osceola County, LLC / Waste Services, Inc.
	Michael Kaiser, PE, Regional Engineer
	Matthew Orr, Facility Management
	Keith Lunsford, Facility Technician
CQA Consultant:	Weaver Boos Consultants Southeast, LLC
	Jeffery Schaffer, PE, Managing Engineer
	Mark Moyer, Assisting Project Manager
	Andrew Sirota, CQA Site Manager (Earthwork)
	Jon Wolfe, CQA Site Manager (Geosynthetics and Earthwork)
	Ryan Remington, Geosynthetic Field Monitor
Earthwork Contractor:	ERC General Contracting Services, Inc.,
	Vaden Pollard, Project Manager
	Jack Wiggins, Superintendent
Geosynthetics Installer:	Comanco Environmental Corporation
	David Barnett, Project Manager

	Luis Espinal, Site Superintendent
Surveyor:	Peavey & Associates
	Deborah Peavey, PLS, Professional Surveyor
Geotechnical Laboratories:	Universal Engineering Sciences
	Brian Meikle, Project Manager
	Excel Geotechnical Testing
	Nader Rad, Project Manager
Geosynthetics Laboratory:	TRI/Environmental
	Melissa Hunter, Project Manager

4.0 CONSTRUCTION QUALITY ASSURANCE: EARTHWORK

4.1 General

Weaver Boos monitored earthwork related to construction of Cell 8, the landfill perimeter berm, and other miscellaneous construction activities. Earthwork activities related to Cell 8 included construction of perimeter berm on the west side of Cell 8, construction of intercell berms on the east and south side of Cell 8, construction of subgrade and six-inch thick liner subbase, installation of protective soil layer, and anchorage of the geosynthetic components of the composite liner system.

The materials used to construct Cell 8 included general fill and protective soil. General fill was used to construct the perimeter berm, intercell berms, subgrade and six-inch thick liner subbase in Cell 8, and to anchor the geosynthetics. Protective soil was used for the minimum two-foot thick protective soil layer over the geosynthetic liner system.

CQA personnel observed the earthwork related construction activities and tested the soils to confirm that the material properties conformed to the CQA Documents, maximum lift thicknesses were not exceeded, and compaction requirements were met. During construction, geotechnical soil tests were performed at an off-site geotechnical laboratory, Universal Engineering Sciences, under the supervision of Brian Meikle, Project Manager.

4.2 Soil Source and Requirements

The general fill and protective layer soils were obtained from the borrow area on the Bronson property (Bronson Borrow Area) located directly adjacent to and west of the landfill. Representative samples of general fill and protective layer soils were obtained and tested to verify conformance with specified material requirements in the CQA Documents. The geotechnical tests were performed to confirm that the following requirements were met for the general fill and protective layer soils:

4.2.1 General Fill

General Fill was classified as SP and SP-SM in accordance with the Unified Soil Classification System (USCS) per ASTM D 2487 and was relatively free of debris, foreign objects, large rock fragments, organic matter, and other deleterious materials. In addition, general fill used as liner subbase in Cell 8 was free of sharp materials or materials larger than one-half inch.

4.2.2 Protective Layer Soil

Protective Layer Soil was classified as SW, SP, SW-SM, SW-SC, SP-SM, or SP-SC in accordance with the Unified Soil Classification System (hereafter "USCS"); had maximum particle size of one-half inch; had fines content of less than ten percent per ASTM D 1140; and were relatively homogeneous soils free of deleterious materials. Regardless of the classification, protective layer soil was required to exhibit a hydraulic conductivity no less than 1.0×10^{-3} cm/sec when tested in accordance with ASTM D 2434.

A description of the geotechnical tests performed on placed materials and results of these tests are presented below.

4.3 CQA Monitoring and Testing

Weaver Boos CQA personnel monitored the placement and/or compaction of soils as described in **Section 3.0**. At times, several earthwork construction operations were conducted simultaneously. When this occurred, the on-site personnel monitored the operations considered most critical to the performance of the landfill liner system. Potentially nonconforming or questionable practices observed by CQA personnel were brought to the attention of the concerned parties for review and correction.

As part of CQA activities, geotechnical testing was performed on the soils used in construction of Cell 8 of the JED facility. Testing was performed at the off-site geotechnical laboratory.

The following geotechnical tests were performed:

- in-situ nuclear moisture/density tests on compacted lifts of general fill (the tests were performed in accordance with ASTM D 6938);
- moisture content tests on general fill in accordance with ASTM D 2216;
- standard Proctor compaction tests on general fill in accordance with ASTM D 698;

- grain-size analysis or fines content determination in accordance with ASTM D 422, ASTM C 136, or ASTM D 1140;
- hydraulic conductivity tests on the protective layer soils in accordance with ASTM D 2434; and
- interface friction tests for the interfaces between general fill and GCL and between protective layer soil and primary drainage geocomposite, as discussed in **Section 5.0**.

Weaver Boos supplied a Troxler Model 3440 nuclear gauge (Serial Number 14139) that was used to perform the moisture/density tests. The gauge was calibrated daily prior to use by the "standard count" method. These counts were recorded on a standard count log. The in-situ density tests using the drive cylinder method (ASTM D 2937) were performed periodically and compared with the density test results obtained using the nuclear gauge to ensure that the gauge was functioning properly.

4.4 General Fill

CQA personnel monitored the excavation (from the Bronson Borrow Area), placement, and compaction of general fill, which was used to construct the Cell 8 perimeter berm, intercell berms, base, six-inch thick liner subbase, anchorage of geosynthetics, and to construct the storm water management berm. Earthwork using general fill consisted of the following activities:

- monitoring existing subgrade by CQA personnel to confirm that unsuitable materials were removed;
- proof rolling of subgrade by the contractor to detect soft or loose zones using articulated off-road dump trucks;
- excavating and hauling general fill from Bronson Borrow Area using tracked excavators and articulated off-road dump trucks, respectively;
- placing and spreading general fill in relatively thin lifts using bulldozers;
- compacting general fill using smooth drum rollers;

- scarifying the surface of each compacted lift using tracks of a bulldozer prior to placement and compaction of subsequent lifts; and
- surveying the limits and elevations of the compacted general fill (Record Drawings from the surveyor are included in **Appendix A**).

General fill was required to be compacted to at least 95 percent of the corresponding standard Proctor (ASTM D 698) maximum dry unit weight. The tests performed on compacted general fill materials are discussed below. The CQA laboratory reports for the general fill samples are included in **Appendix B**.

4.4.1 Standard Proctor Tests

Standard Proctor tests were performed to evaluate the percent compaction from the measured in-situ densities of compacted general fill. Standard Proctor tests were required to be performed at a minimum frequency of one test per 25,000 cubic yards (hereafter "cyd") of compacted general fill.

Five Standard Proctor tests were performed during construction for approximately 115,000 cyd of compacted general fill placed as part of the Cell 8 construction. The actual CQA test frequency of one test per 23,000 cyd (approximate) of compacted general fill exceeds the minimum testing frequency required by the CQA Documents. The Standard Proctor tests performed during construction are summarized in **Table 1** and are graphically presented in **Appendix B**. As noted, the maximum dry unit weight varied from 99.2 to 101.2 pounds per cubic foot (hereafter "pcf") and the optimum moisture content varied from 10.7 to 14.8 percent.

4.4.2 Density and Percent Compaction of Subgrade

In-situ nuclear moisture/density tests were required to be performed at a frequency of five tests per acre per lift for earthwork performed using general fill. If the density test failed to meet the minimum compaction requirements, the contractor reworked and re-compacted the area surrounding the failure, and the area was retested by CQA personnel. The procedure was repeated until satisfactory moisture/density test results were obtained at each test location.

Between October 8 and October 10, 2012, the JED facility received over seven inches of rainfall.

This rainfall made the working area of Cell 8 extremely wet. As such, it was determined prior to the start of construction that a "bridge lift" would be required within portion of the Cell 8 footprint. The "bridge lift" was an approximate two foot thick initial lift of structural fill placed to provide the contractor with a stable earth base to begin additional lifts. After allowing time to dry, the two foot "bridge lift" was graded, compacted, and tested as required in the specifications. For purposes of testing, the "bridge lift" was considered to be general fill.

Approximately 115,000 cyd of general fill was used to construct Cell 8. The in-situ nuclear moisture/density tests performed to evaluate the compaction of general fill in Cell 8 are presented in **Appendix C**. A total of 1,197 nuclear moisture/density tests were performed, which correspond to a CQA test frequency of one test per 96 cyd (approximate) of compacted general fill. For reference, a twelve-inch thick lift placed over a one acre area would require five moisture/density tests, which corresponds to one moisture density test for every 323 cyd (approximate) placed. The actual test frequency exceeds this minimum testing frequency. As noted, areas corresponding to a failing test were reworked and re-compacted by the contractor and retested by the CQA personnel.

4.4.3 Grain Size Analyses and USCS Classification

Grain-size distribution analyses (ASTM D 422) were performed to evaluate the USCS classification (ASTM D 2487) of general fill materials used to construct Cell 8. Grain size distribution analyses and USCS classification were required to be performed at a minimum frequency of one test per 10,000 cyd of compacted general fill. Thirteen grain size distribution analyses and USCS classification were performed during construction for approximately 115,000 cyd of compacted general fill placed as part of the Cell 8 construction. The actual CQA test frequency of one test per 8,800 cyd of compacted general fill meets the minimum testing frequency required by the CQA Documents. The grain size distribution analyses and USCS classification performed during construction of Cell 8 are summarized in **Table 2**. As noted, the general fill materials used to construct Cell 8 classified as SP-SM or SP in accordance with the USCS classification.

4.4.4 *Anchorage of Geosynthetics*

Weaver Boos CQA personnel monitored the method of anchorage for the geosynthetic materials along the perimeter berm (on west side of Cell 8), the intercell berm between Cell 8 and future Cell 13 (on south side), and the intercell berm between Cell 8 and future Cell 9 (on east side). Along the north side of Cell 8, each layer of geosynthetics was tied into the respective layer of geosynthetics from Cell 7.

The construction sequence for the anchor trench at the perimeter berm (on the west side of Cell 8) was as follows:

- a two-foot deep by two-foot wide (minimum) trench was excavated approximately two feet from the inside crest of the perimeter berm in accordance with the construction drawings;
- the secondary GCL, geomembrane and geocomposite, and primary geomembrane liner components were then placed in and depending upon the material, across the bottom of the anchor trench and ballasted with sandbags;
- the secondary and primary geomembrane liners were seamed together (extrude welded), "sandwiching" the secondary geocomposite and sealing off a pathway for possible landfill gas migration into the perimeter berm soils;
- the primary geocomposite was not extended into the anchor trench, but cut and terminated approximately three feet from the crest of the perimeter berm slope in accordance with the construction drawings; and
- the anchor trench was backfilled with general fill and compacted.

The construction sequence for the anchor trench at the intercell berms (east and south sides of Cell 8) was as follows:

- a two-foot deep by two-foot wide (minimum) trench was excavated approximately six feet from the inside crest of perimeter berm in accordance with the construction drawings;
- the secondary GCL, geomembrane and geocomposite, and primary geomembrane liner components were then placed in, and depending on the material, across the bottom of the

chor trench and ballasted with sandbags;

- the secondary and primary geomembrane liners were seamed together (extrude welded), “sandwiching” the secondary geocomposite and sealing off a pathway for possible landfill gas migration into the intercell berm soils;

- the anchor trench was backfilled with general fill, compacted and graded flush with the adjacent geosynthetic liner system. A sacrificial geomembrane panel was then extrusion welded to the primary geomembrane liner at the crest point of the anchor trench and extended to approximately six to twelve inches from the outer slope of the intercell berm. The primary geocomposite was terminated near the location of the extrusion weld of the sacrificial geomembrane panel and was not placed in the anchor trench. The sacrificial geomembrane panel will be removed when future adjacent Cells are constructed and the liner tie-in location will occur at or near the location of the terminated geocomposite as described below for the Cell 7 construction sequence tie-in. An as-built detail of the anchor trench termination at the intercell berm is provided in **Appendix A**; and

- the protective cover soils were then placed and graded over the anchor trench area in accordance with the construction drawings.

The construction sequence for the tie-in of the geosynthetic layers at the limits of Cell 7 was as follows:

- a small, low ground pressure, tracked excavator, hand shovels and brooms were used to carefully remove the existing protective cover soil from an approximate ten-foot wide swath along the length of the north side of Cell 8 where the geosynthetic layers of the adjacent existing Cell 7 were to be tied into;

- when the Installer was ready to deploy the secondary GCL along the tie-in area, the existing primary geosynthetic components (primary geocomposite and primary geomembrane) and the secondary geocomposite were cut open and folded back to expose the secondary liner; and

- the similar geosynthetic components from Cell 8 were overlapped, fastened, or welded to the existing adjacent geosynthetic components as shown in Detail E/3 on Sheet 6 of 17 of the Construction Drawings and as described in **Section 5.0**.

4.5 Protective Soil Layer

Protective soil was used to cover the geosynthetic components of the liner system in Cell 8. The minimum thickness of the protective soil layer atop the geosynthetic components of the liner system in Cell 8 was two feet.

Sandy soils from the Bronson Borrow Area were used as protective soil. CQA personnel monitored the placement of the protective soil in Cell 8. The construction sequence of protective soil layer was as follows:

- articulated dump trucks hauled the sandy soils from Bronson Borrow Area to Cell 8; and
- the sandy soils were placed and spread using low ground pressure bulldozers.

During placement of the protective soil, CQA personnel monitored the contractor's activities to assure that the risk of damage to the underlying geosynthetics was minimized. CQA personnel also confirmed that at least a two-foot thick layer of sandy soils was maintained over the geosynthetics where the contractor operated the tracked equipment. A minimum three-foot thick layer of sandy soils was maintained where the articulated off-road dump trucks operated. Weaver Boos also reviewed the certified survey for the protective cover soil layer, submitted by the Contractor, to ensure compliance with the project documents.

Grain-size distribution analyses (ASTM D 422), soil classification in accordance with USCS (ASTM D 2487), and hydraulic conductivity (ASTM D 2434) tests were performed on samples of protective soil at the off-site geotechnical laboratory.

Grain-size distribution analyses, soil classification, and hydraulic conductivity tests were performed at a minimum frequency of one test per 5,000 cyd of in-place protective soil.

A total of 39,000 cyd (approximate) of protective soil was placed in Cell 8. Eight grain-size distribution analyses, USCS classification, and hydraulic conductivity tests were performed on the protective layer soils placed in Cell 8. The laboratory test results are presented in **Table 3**.

The CQA laboratory reports for the protective soil samples are included in **Appendix D**. The actual CQA test frequency of one test per 4,900 cyd (approximate) for grain-size distribution analyses, USCS classification, and hydraulic conductivity exceeded the minimum testing frequencies required by the CQA Documents. As noted, the measured hydraulic conductivities of protective soil exceeded the minimum hydraulic conductivity of 1.0×10^{-3} cm/sec required by the CQA Documents.

5.0 CONSTRUCTION QUALITY ASSURANCE: GEOSYNTHETICS

5.1 General

Weaver Boos monitored the installation of the geosynthetic components of the composite liner system in Cell 8, as described in **Section 2.0**. At times, several liner system installation operations were conducted simultaneously during Cell 8 construction. When this occurred, the on-site CQA personnel monitored the operations that were considered most critical to the performance of the liner system.

5.2 CQA of Geosynthetic Clay Liner

5.2.1 Conformance Testing and Documentation

A geosynthetic clay liner (hereafter "GCL") was used in construction of the secondary liner system and primary liner system within the sump area in Cell 8. Bentomat ST GCL used was manufactured by Colloid Environmental Technologies Company (hereafter "CETCO"). Conformance samples of the GCL were collected (from the rolls produced for the project) by TRI/Environmental, which coordinated with the manufacturer to collect the CQA samples at the CETCO manufacturing plant. TRI also performed the CQA conformance testing in accordance with the CQA Documents on the samples of the GCL collected.

The MQC certificates and test results and the CQA conformance test results were reviewed by CQA personnel and were found to be in compliance with the CQA Documents. The results of the MQC and CQA conformance tests are included in **Table 4**, which also indicates the tests conducted, required test frequencies, and acceptance criteria in accordance with the CQA Documents. The GCL MQC certificates have been included in **Appendix E**.

A total of four CQA conformance samples were tested for approximately 550,000 square feet (ft^2) of GCL delivered to the site for installation in Cell 8. The actual CQA test frequency of one test per 137,500 ft^2 of GCL exceeded the minimum testing frequency of one test per 200,000 ft^2 required by the CQA Documents. As a minimum, one conformance sample was tested during CQA from each lot of GCL supplied for the project. The CQA laboratory test results for the GCL conformance samples have been included in **Appendix F**.

5.2.2 Field Monitoring Activities

5.2.2.1 Delivery and On-Site Storage

Upon delivery, GCL rolls were unloaded in an area located south of the Cell 8 construction area, stacked on an elevated soil berm, and covered with plastic tarps. The rolls were typically transported on site by an off-road forklift equipped with a stinger bar. CQA personnel monitored the delivery, unloading, and storage procedures and observed that the GCL was handled in an appropriate manner. The CQA personnel also compared the roll numbers of the GCL rolls delivered to the manufacturer's bill of lading. An inventory of the rolls delivered for the project was maintained by the CQA personnel. This inventory also includes the rolls that were approved for installation based on MQC and CQA test results and the rolls that were used during construction. Only approved rolls were incorporated into the work.

5.2.2.2 Deployment

Prior to GCL deployment, the installer signed a certificate of acceptance for the liner subbase, which is included in **Appendix G** of this report. The GCL rolls were lifted using a stinger bar attached to a skid steer with forklift attachment. The rolls were deployed by inserting a spreader bar attached to a low-ground pressure, track-mounted skid steer vehicle and unrolled. Panels were re-positioned as necessary using laborers.

CQA personnel monitored the deployment of the GCL rolls. During deployment, the CQA personnel checked for the following:

- manufacturing defects;
- damage that may have occurred during shipment, storage, and handling; and
- damage resulting from installation activities.

If any materials were observed to be damaged, the installer was notified and the damaged materials were either discarded or repaired. CQA personnel observed repair locations to verify conformance with the requirements of the CQA Documents.

CQA personnel also periodically monitored the deployment of the GCL as well as its condition after installation to ensure that the installer followed the following procedures:

- the GCL was unrolled and placed in a manner which kept the GCL in sufficient tension to avoid excessive wrinkling and was securely anchored in the anchor trench or ballasted with sand bags;
- the rolls were deployed with the woven geotextile in contact with the geomembrane;
- adjacent GCL panels were overlapped a minimum of six inches along the length of the panels and twelve inches along the width of the panels; and
- granular bentonite was added between overlap along the width of panels and repaired areas;
- measures were taken to keep the GCL free of contamination and protected from premature hydration; and
- geomembrane installation immediately followed installation of the GCL.

Any observed holes or tears in the GCL were repaired by the installer by placing a patch of the same material over the hole or tear and at a distance of at least one foot beyond the edges of the hole or tear. Granular bentonite was added around the damaged area prior to overlaying the patch material. In areas where premature hydration of the GCL was detected, the GCL was removed and replaced with new material.

5.3 CQA of Textured Geomembrane

5.3.1 Conformance Testing and Documentation

A 60-mil textured HDPE geomembrane was installed as the primary and secondary liners in Cell 8. The 60-mil textured geomembrane, Micro Spike double sided HD, was supplied by Agru America, Inc. (Agru). Conformance samples of textured geomembrane were collected from the rolls produced for the project by TRI/Environmental, which coordinated with the manufacturer to collect the CQA samples at the Agru manufacturing plant. TRI/Environmental also performed the CQA conformance testing in accordance with the CQA Documents on the samples of textured geomembrane collected.

The MQC certificates and test results and the CQA conformance test results were reviewed by CQA personnel and were found to be in compliance with the CQA Documents. The geomembrane MQC certificates have been included in **Appendix H**.

A total of twelve CQA conformance samples were tested for approximately 1.2 million ft^2 of textured geomembrane delivered to the site for installation in Cell 8. The actual CQA test frequency of one test per 100,000 ft^2 for the textured geomembrane meets the minimum frequency of one test per 100,000 ft^2 required by the CQA Documents. As a minimum, one conformance sample was tested during CQA from each resin lot supplied for the project. **Table 5, Part A and Part B,** summarizes the CQA tests performed, the required CQA test frequencies, and the CQA Documents acceptance criteria. The CQA laboratory test results for the geomembrane conformance samples have been included in **Appendix I**.

5.3.2 Field Monitoring Activities

5.3.2.1 Delivery and On-Site Storage

Upon delivery to the site, geomembrane rolls were stored in an area located south of the Cell 8 construction area and stacked on an elevated soil berm. The rolls were typically transported by an off-road forklift with a spreader bar attachment or using the nylon slings which were attached to each roll. CQA personnel monitored the delivery, unloading, and storage procedures to ensure that the material was handled in an appropriate manner. The CQA personnel also compared the roll numbers of the geomembrane rolls delivered to the manufacturer’s bill of lading. An inventory of the rolls delivered for the project was maintained by the CQA personnel. This inventory also included the rolls that were approved for installation based on MQC and CQA test results and the rolls that were used during construction. Only approved rolls were incorporated into the work.

5.3.2.2 Deployment

The geomembrane rolls were lifted using a spreader bar attached to a track-mounted skid steer vehicle with forklift attachment. The secondary geomembrane panels were deployed by unrolling the geomembrane rolls using the low-ground pressure, track-mounted skid steer vehicle with forklift attachment. The track-mounted skid steer was not utilized for deployment of the primary geomembrane panels. These panels were pulled by small four-wheel vehicles and by laborers from the perimeter of previously deployed geosynthetics in Cell 8. The individual panels were re-positioned as necessary using laborers.

CQA personnel monitored the deployment of each geomembrane panel. During deployment, the CQA personnel checked for the following:

- manufacturing defects;
- damage that may have occurred during shipment, storage, and handling; and
- damage resulting from installation activities, including damage as a consequence of panel placement, seaming operations, or weather.

If any materials were observed to be damaged or deficient, the installer was notified and the damaged materials were either discarded or repaired. CQA personnel observed and documented the repair locations to verify compliance with the CQA Documents. Details of the geomembrane panel placement were recorded by CQA personnel on panel placement logs, which are included in **Appendix J** of this report.

5.3.2.3 Trial Seams

Prior to production seaming, the installer prepared geomembrane trial seams for each piece of seaming equipment to be used. Additional trial seams were prepared approximately every five hours or when field conditions changed. CQA personnel evaluated the trial seams as follows:

- trial seams were welded under similar conditions as production seaming;
- test strips were cut from the trial seams at random locations with a die press;
- four (4) test strips were tested using a field tensiometer and compared to the passing criteria for the tests, which were as follows:

  Fusion

  - Peel tests - a minimum bonded seam strength of 91 lb/in (inside/outside); and
  - Shear test - a minimum bonded seam strength of 120 lb/in.

Extrusion

- Peel tests - a minimum bonded seam strength of 78 lb/in; and
- Shear test - a minimum bonded seam strength of 120 lb/in.

If trial welds failed, the machine or welding process was adjusted and a new trial seam was prepared. The new sample was tested to ensure compliance with the above strength requirements. The procedure was repeated, as needed, until passing results were obtained.

Trial seam samples were not archived. Details of the trial seams, including the trial seam test results, are included in **Appendix K** of this report.

5.3.2.4 Production Seams

Geomembrane production seaming operations were monitored by CQA personnel. The majority of the geomembrane production seams were fabricated using double-track fusion welders. Seam repairs were made using hand-held extrusion welders. Rub sheets were periodically used during production seaming to provide a clean surface to weld over. During or after fabrication, the geomembrane seams were visually examined for workmanship and continuity. Geomembrane seaming logs are included in **Appendix L** of this report.

5.3.3 Nondestructive Seam Testing

5.3.3.1 Scope

Nondestructive testing of geomembrane seams was monitored by CQA personnel. All geomembrane seams were nondestructively tested for continuity by the installer using the air pressure procedure for double-track fusion seams and the vacuum-box test procedure for extrusion welded seams. Failed air pressure seams, if applicable, were capped and then retested using vacuum-box test methods after determining the failed seam length. Leaks identified using the vacuum-box method were repaired and retested as described in *Section 5.3.5*.

5.3.3.2 Air Pressure Testing

Accessible double-track fusion seams were nondestructively tested using the air pressure test.

The procedure used by the installer for air pressure testing was as follows:

- visually observe the integrity of the annulus of the section of seam being tested and isolate the section by sealing the ends using heat and pressure;
- insert the needle of a pressure test apparatus into the annulus at one end of the seam;
- inflate the annulus to a gauge pressure between 25-30 psi with an air pump and maintain the gauge pressure for at least five minutes;
- repair faulty area in accordance with *Section 5.3.5* if the pressure loss exceeds 3 psi or if the pressure does not stabilize; and
- confirm airflow through the entire annulus by releasing the air from the seam at the opposite end from where the needle was inserted.

5.3.3.3 Vacuum-Box Testing

The vacuum-box was used by the installer to nondestructively test extrusion seams and repairs. The procedure used by the installer for vacuum testing was as follows:

- wet a strip of seam with a soapy solution;
- place the vacuum-box assembly over the wetted area, close the bleed valve and open the vacuum valve;
- force the box onto the sheet until a vacuum is observed;
- examine the seam through the viewing window for a period of approximately 20 seconds for the occurrence of air bubbles;
- remove the assembly and continue the process over the entire length of the seam; and
- record the location of any leaks.

Nondestructive seam test results for primary and secondary liner in Cell 8 are presented in **Appendix M**. If nondestructive testing indicated that repairs were necessary, repairs were made in accordance with procedures presented in *Section 5.3.5*. All repairs were tested using the vacuum-box test procedure.

5.3.4 Destructive Seam Sample Testing

5.3.4.1 Scope

In accordance with the CQA Documents, CQA personnel identified and collected geomembrane seam samples for destructive testing. These samples were tested at the off-site geosynthetics laboratory.

For a destructive seam sample to be considered as passing, the seam strength criteria described in *Section 5.3.2.3* had to be met for at least four out of the five test specimens obtained from the sample. In addition, if one non-FTB failure was observed, the average of the five test specimens had to meet the specified strength criterion.

5.3.4.2 Sampling Procedures

Prior to the removal of the full seam sample, two geomembrane test strips were taken by the installer from either end of the proposed destructive sample. Each strip was peel-tested in the field. If the peel samples exhibited passing results, the adjacent destructive seam sample was removed and tested. At each destructive seam sample location, a test sample measuring approximately 12 inches across the seam and 42 inches along the seam was obtained. The sample was divided into three pieces and distributed to: (i) the off-site geosynthetics laboratory for testing, (ii) the installer, and (iii) the owner as an archive sample. The sample identification numbers were designated as “DP-X” and “DS-X”, representing Destructive Primary (DP) or Destructive Secondary (DS) followed by the sample number.

5.3.4.3 Test Results

Laboratory testing of geomembrane seam samples was performed in accordance with the CQA Documents. For destructive seam testing, five one-inch wide test specimens were removed from the destructive seam sample using a die press. On a calibrated tensiometer, five test specimens were peel-tested for adhesion strength. For fusion seams, peel tests were performed on both the bottom (inside track) and top (outside track) edges. Additionally, five specimens were tested for shear strength. The seam acceptance/rejection criteria described in *Section 5.3.2.3* and *Section*

5.3.4.1 was used to evaluate the destructive seam samples.

The destructive seam test results for primary and secondary liners installed in Cell 8 are presented in **Appendix N**. The CQA laboratory destructive test results for the primary and secondary liner have been included in **Appendix O**.

For the primary liner installed in Cell 8, 52 destructive seam samples were tested for a total seam length of 26,000 feet (approximate). This corresponds to an approximate sample frequency of one per 500 feet of seam. For secondary liner installed in Cell 8, 57 destructive seam samples were tested for a total seam length of 27,000 feet (approximate). This corresponds to an approximate sample frequency of one per 470 feet of seam. The actual destructive seam test frequencies meet or exceed the minimum frequency of 1 per 500 lf of production seams required by the CQA Documents.

5.3.5 Geomembrane Repairs

The repair procedures presented in this subsection were used by the installer to patch holes and tears, spot-extrude impact damage or other minor defects, and for grinding and extrusion welding small sections of failed fusion seams (if the exposed edge was accessible). In the cases where patches or caps were used to repair the damaged geomembrane (i.e., small holes, tears, or on seams which failed nondestructive or destructive testing), an approximately 12-inch wide capping strip was used.

During the repair or panel tie-in operations, the following procedures were implemented:

- technicians and seaming equipment used were required to pass trial welds;
- patches or caps extended at least six inches beyond the edge of the defect and all corners were rounded; and
- repairs were tested using a vacuum box and visually observed for continuity.

Repair summary logs prepared by Weaver Boos during CQA activities are included in **Appendix P** of this report. Record Drawings illustrating layout of panels, location of seams, destructive samples, and repairs are included in **Appendix A**.

5.4 CQA of Primary Geocomposite

5.4.1 Conformance Testing and Documentation

The primary geocomposite used was Transnet 330-2-8 manufactured by SKAPS Industries (hereafter "SKAPS"). The primary geocomposite conformance samples were collected by TRI/Environmental, which coordinated with the manufacturer to collect the CQA samples at the SKAPS manufacturing plant. TRI/Environmental also performed the CQA conformance testing on the samples of primary geocomposite collected.

The MQC certificates and test results and the CQA conformance test results were reviewed by CQA personnel and were found to be in compliance with the CQA Documents. The results of the MQC and CQA conformance tests for 235 rolls (590,200 ft^2) of primary geocomposite are summarized in **Table 6, Part A, Part B, and Part C**.

A total of three CQA conformance samples were tested for 590,200 ft^2 of primary geocomposite approved for installation in Cell 8. The actual CQA test frequency of one test per 197,000 ft^2 (approximate) of the primary geocomposite exceeded the minimum frequency of one test per 200,000 ft^2 required by the CQA Documents. The primary geocomposite MQC certificates are included in **Appendix Q**.

It is noted that during CQA and MQC testing, the transmissivity of the primary geocomposite was measured under compressive stresses of 500 psf for a period of 24 hours, and 15,000 psf for a period of 100 hours. The tests were performed with the primary geocomposite sandwiched between 60-mil textured geomembrane and the soil actually used as part of the protective soil layer.

Table 7, Part A and Part B, presents the CQA and MQC test results for the geotextile component of the primary geocomposite rolls approved for the project. Several rolls of primary geocomposite were manufactured from the same roll of geotextile. Approximately 1,180,000 ft^2 of geotextile was used to manufacture the primary geocomposite rolls for the project. As part of the CQA testing, three geotextile rolls were tested for mass per unit area (two tests per roll), grab strength (two tests per roll), and trapezoidal tear strength (two tests per roll). Additionally, two geotextile rolls were tested for apparent opening size (two tests per roll), and permittivity (two tests per roll). The approximate CQA test frequencies of one test per 197,000 ft^2 for the geotextile component of the primary geocomposite meets or exceeds the minimum frequencies of one test per 200,000 ft^2 or 500,000 ft^2 required by the CQA Documents for the respective tests.

The CQA laboratory test results for the primary geocomposite and geotextile used to manufacture the primary geocomposite have been included in **Appendix R**.

5.4.2 Field Monitoring Activities

5.4.2.1 Delivery and On-Site Storage

Upon delivery to the site, primary geocomposite rolls were stored in an area located south of the Cell 8 construction area and stacked on an elevated soil berm. The rolls were typically transported by an off-road forklift. CQA personnel monitored the delivery, unloading, and storage procedures to ensure that the material was handled in an appropriate manner. The CQA personnel also compared the roll numbers of the primary geocomposite rolls delivered to the manufacturer's bill of lading. An inventory of the rolls delivered for the project was maintained by the CQA personnel. This inventory also includes the rolls that were approved for installation based on MQC and CQA test results and the rolls that were used during construction. Only approved rolls were incorporated into the work.

As two different types of composite were used for the construction of Cell 8, during unloading of materials, the two types of geocomposite were separated by type into two different stockpile locations. CQA personnel ensured that the installer used material from correct stockpile during the primary and secondary installations, respectively. In addition, roll numbers were checked by the CQA personnel prior to deployment.

5.4.2.2 Deployment

CQA personnel monitored the deployment of the primary geocomposite for the following:

- manufacturing defects;
- damage that may have occurred during shipment, storage, and handling; and

- damage resulting from installation activities.

If the materials were observed to be damaged, the installer was notified and the damaged materials were either discarded or repaired. CQA personnel observed repair locations to verify conformance with the CQA Documents.

CQA personnel periodically monitored the deployment of the primary geocomposite, as well as its condition after installation, to confirm that the installer took measures to:

- securely anchor the geocomposite in the anchor trench or ballast it with sand bags;
- unroll the geocomposite down the slope (i.e., rolls were aligned perpendicular to the slope contours) in a manner that kept the panel in sufficient tension to avoid excessive wrinkling;
- avoid entrapment of dust, stones, or other objects that would damage or clog the geocomposite;
- avoid damaging the underlying geomembrane during deployment;
- overlap the bottom geotextile edges;
- secure the geonet component of adjacent geocomposite panels with nylon fasteners, installed on a maximum five-foot spacing on slopes greater than ten percent, ten-foot spacing on the cell floor, and one-foot spacing on end seams; and
- overlap and continuously sew the upper geotextile edges.

Any observed holes in the geotextile component of the primary geocomposite were repaired by placing a patch of non-woven geotextile over the hole that extended at least one foot beyond the edge of the hole. These patches were continuously thermally bonded to the undamaged portion of the geocomposite. This method was also used along the tie-in at the toe of the slope and along trimmed panels. Any observed holes or tears in the geonet component of the composite were repaired by the installer by placing a patch of the same material over or under the hole or tear, at least two feet beyond the edges of the hole or tear. These patches were secured using nylon fasteners, followed by thermal bonding of the uppermost geotextile of the patch to the undamaged portion of the geocomposite.

5.5 CQA of Secondary Geocomposite

5.5.1 Conformance Testing and Documentation

The secondary geocomposite used was Transnet 270-2-8 manufactured by SKAPS. The secondary geocomposite conformance samples were collected from the rolls produced for the project by TRI/Environmental, which coordinated with the manufacturer to collect the CQA samples at the SKAPS manufacturing plant. TRI/Environmental also performed the CQA conformance testing on the samples of the secondary geocomposite collected.

The MQC certificates and test results and the CQA conformance test results were reviewed by CQA personnel and were found to be in compliance with the CQA Documents. The results of the MQC and CQA conformance tests results for 216 rolls (594,000 ft^2) are summarized in **Table 8, Part A, Part B, and Part C**. The MQC certificates for the secondary geocomposite samples are included in **Appendix S**.

A total of three CQA conformance samples were tested for approximately 594,000 ft^2 of secondary geocomposite delivered to the site for installation in Cell 8. The actual CQA test frequency of one test per 198,000 ft^2 (approximate) of the secondary geocomposite exceeds the minimum frequency of one test per 200,000 ft^2 required by the CQA Documents.

It is noted that during CQA and MQC testing, the transmissivity of the secondary geocomposite was measured under compressive stresses of 500 psf for 24 hours and 15,000 psf for 100 hours. The tests were performed with the secondary geocomposite sandwiched between a 60-mil HDPE textured geomembrane above and a 60-mil HDPE textured geomembrane below.

Table 9, Part A and Part B, presents the CQA and MQC test results for the geotextile component of the secondary geocomposite rolls approved for the project. Approximately 1,200,000 ft^2 of geotextile was used to manufacture the secondary geocomposite rolls for the project. Several rolls of secondary geocomposite were manufactured from the same roll of geotextile. As part of the CQA testing, three geotextile rolls were tested for mass per unit area (two tests per roll), grab strength (two tests per roll), and trapezoidal tear strength (two tests per roll). Additionally, two geotextile rolls were tested for apparent opening size (two tests per roll), and permittivity (two tests per roll). The approximate CQA test frequencies of one test per

200,000 ft^2 for the geotextile component of the secondary geocomposite exceeds the minimum frequencies of one test per 200,000 ft^2 or 500,000 ft^2 required by the CQA Documents for the respective tests.

The CQA laboratory test results for the secondary geocomposite conformance samples have been included in **Appendix T**.

5.5.2 Field Monitoring Activities

5.5.2.1 Delivery and On-Site Storage

Upon delivery to the site, secondary geocomposite rolls were stored in an area located south of the Cell 8 construction area (i.e., future Cell 8 footprint) and stacked on an elevated soil berm. The rolls were typically transported by an off-road forklift. CQA personnel monitored the delivery, unloading, and storage procedures to ensure that the material was handled in an appropriate manner. The CQA personnel also compared the roll numbers of the secondary geocomposite rolls delivered to the manufacturer's bill of lading. An inventory of the rolls delivered for the project was maintained by the CQA personnel. This inventory also includes the rolls that were approved for installation based on MQC and CQA test results and the rolls that were used during construction of Cell 8. Only approved rolls were incorporated into the work.

As two different types of composite were used for the construction of Cell 8, during unloading of materials, the two types of geocomposite were separated by type and identified. CQA personnel ensured that the installer used material from correct stockpile during the primary and secondary installations, respectively. In addition, roll numbers were checked by the CQA personnel prior to deployment.

5.5.2.2 Deployment

CQA personnel monitored the deployment of the secondary geocomposite for the following:

- manufacturing defects;
- damage that may have occurred during shipment, storage, and handling; and
- damage resulting from installation activities.

If the materials were observed to be damaged, the installer was notified and the damaged materials were either discarded or repaired. CQA personnel observed repair locations to verify conformance with the CQA Documents.

CQA personnel periodically monitored the deployment of the secondary geocomposite, as well as its condition after installation, to confirm that the installer took measures to:

- securely anchor the geocomposite in the anchor trench or ballast it with sand bags;
- unroll the geocomposite down the slope (i.e., rolls were aligned perpendicular to the slope contours) in a manner that kept the panel in sufficient tension to avoid excessive wrinkling;
- avoid entrapment of dust, stones, or other objects that would damage or clog the geocomposite;
- avoid damaging the underlying geomembrane during deployment;
- overlap the bottom geotextile edges;
- secure the geonet component of adjacent geocomposite panels with nylon fasteners, installed along the panel at maximum five-foot spacing on slopes greater than ten percent, ten-foot spacing on the cell floor, and one-foot spacing on end seams; and
- overlap and continuously sew the upper geotextile edges.

Any observed holes in the geotextile component of the secondary geocomposite were repaired by placing a patch of non-woven geotextile over the hole that extended at least one foot beyond the edge of the hole. These patches were continuously thermally bonded to the undamaged portion of the geocomposite. This method was also used along the tie-in at the toe of the slope and along trimmed panels. Any observed holes or tears in the geonet component of the composite were repaired by the installer by placing a patch of the same material over or under the hole or tear, at least two feet beyond the edges of the hole or tear. These patches were secured using nylon fasteners, followed by thermal bonding of the uppermost geotextile of the patch to the undamaged portion of the geocomposite.

5.6 CQA of Non-Woven Geotextile

5.6.1 Conformance Testing and Documentation

A non-woven geotextile was used as filter fabric to surround the aggregate in the leachate collection and detection system corridors and as a separator in the leachate Cell 8 sump. The GE-180, needle-punched, non-woven geotextile was manufactured by SKAPS. The geotextile conformance sample was collected by TRI/Environmental, which coordinated with the manufacturer to collect the CQA sample at the SKAPS manufacturing plant. TRI/Environmental also performed the CQA conformance testing on the sample of the non-woven geotextile collected.

The MQC certificates and test results and the CQA conformance test results were reviewed by CQA personnel and were found to be in compliance with the CQA Documents. The results of the MQC and CQA conformance tests are summarized in **Table 10, Part A and Part B**. The MQC certificates for the geotextile are included in **Appendix U**.

One CQA conformance sample was tested for approximately 54,000 ft^2 of the non-woven geotextile delivered to the site for installation in Cell 8. The actual CQA test frequency of one test per 54,000 ft^2 of non-woven geotextile exceeded the minimum testing frequency of 1 test per 100,000 ft^2 required by the CQA Documents. The CQA laboratory test results for the geotextile conformance sample have been included in **Appendix V**.

5.6.2 Field Monitoring Activities

5.6.2.1 Delivery and On-Site Storage

Upon delivery to the site, non-woven geotextile rolls were stored in an area located south of the Cell 8 construction area and stacked on an elevated soil berm. The rolls were typically transported by an off-road forklift. CQA personnel monitored the delivery, unloading, and storage procedures to ensure that the material was handled in an appropriate manner.

5.6.2.2 Deployment

CQA personnel monitored the deployment of the non-woven geotextile rolls for manufacturing defects; damage that may have occurred during shipment, storage, and handling; and damage resulting from installation activities. If any materials were observed to be damaged, the installer was notified and the damaged materials were either discarded or repaired. CQA personnel observed repair locations to verify conformance with the requirements of the CQA Documents.

After deployment of the geotextile, CQA personnel observed that the installer overlapped geotextile panels end-to-end a minimum of 24 inches and continuously sewed the six-inch overlap.

5.7 Interface Friction Testing

As discussed in **Section 2.0**, the liner system in Cell 8 consists (from top to bottom) of the protective soil layer, primary geocomposite, primary liner, secondary geocomposite, secondary liner, secondary GCL and prepared subbase. Tests were performed in accordance with the CQA Documents to evaluate the interface shear strength for the various components of the liner system and the internal strength of the GCL. All tests for interface shear strength and the internal strength of the GCL were performed by TRI/Environmental.

The interface shear and the internal strength tests were performed as part of CQA testing. The tests were performed using samples of geosynthetics collected from rolls that were actually installed in Cell 8. The soils for the protective soil layer and liner subbase were obtained from the Bronson Borrow Area and were similar to the sandy soils used in construction. The following rolls of geosynthetics were used for the CQA interface shear and the internal strength tests:

- GCL – Roll Number 7178;
- Textured geomembrane –Roll Number 144671.11;
- Primary geocomposite – Roll Number 45311010001; and
- Secondary geocomposite – Roll Number 45311020001.

The interfaces between the various components of the liner system and the internal strength of the GCL were tested at normal stresses of 5,000, 10,000, and 15,000 psf. Peak (at small displacement) and residual (at large displacements) shear strengths were measured at each normal stress. The interface shear tests were conducted under wetted/saturated conditions. GCL was soaked and consolidated prior to testing. The following liner system interfaces were tested (from top to bottom):

- Protective soil layer / Primary geocomposite / Textured geomembrane / Secondary geocomposite;
- Textured geomembrane / Secondary geocomposite / Textured geomembrane / GCL (non-woven side down) / Subbase soil; and
- Internal strength of the GCL.

The CQA laboratory interface test results have been included in **Appendix W**.

6.0 CONSTRUCTION QUALITY ASSURANCE: LEACHATE COLLECTION SYSTEM

6.1 General

The leachate management system is comprised of the leachate collection, transmission, and storage systems. The construction of the initial leachate transmission and storage systems for the JED facility was detailed in Cell 1A Certification Report (perimeter pipe and storage ponds). This section only includes CQA activities performed during construction of the leachate collection system in Cell 8 and the extension of the leachate transmission (header) pipe from the south end of Cell 7 to the south end of Cell 8.

The leachate collection system in Cell 8 consists of a primary and a secondary leachate collection system and sumps. The primary leachate collection systems includes a six-inch diameter SDR 11 HDPE perforated leachate collection pipe surrounded by gravel aggregate and geotextile filter fabric. The secondary system is the same as the primary, except a four-inch SDR 11 HDPE perforated pipe is used. The leachate collection corridor was installed within Cell 8 in an east-west alignment, dividing the cell into two approximate equal areas to reduce the drainage path.

For the primary and secondary leachate collection systems, the leachate collection pipe was provided with two rows of one-half inch perforations in the bottom third of the pipe section. Granular drainage materials meeting the requirements of Number 57 stone (per ASTM D 448) were used as the gravel aggregate in the leachate collection corridor. An eight-ounce per square yard, needle-punched, non-woven geotextile was used as the filter fabric.

Two cleanouts (one for the primary system and one for the secondary system) were installed along the inside slope of the perimeter berm near the sump in Cell 8 to maintain the leachate collection system piping. The primary cleanouts were constructed using six-inch diameter SDR 11 HDPE pipe and were fitted with a blind flange. The secondary cleanouts were constructed similarly, but with four-inch diameter pipe.

The Cell 8 sump includes gravel beds covered with geotextile separator fabric and three sump upslope risers. The gravel beds for the primary and secondary sumps were separated by the primary liner system. Granular drainage materials meeting the requirements for Number 4 stone (per ASTM D 448) were used in the 2.5-foot thick drainage beds. The primary drainage bed was separated from the overlying liner protective layer by an eight-ounce per square yard, needle-punched, non-woven geotextile separator fabric. Two primary and one secondary sump risers were installed in Cell 8 sump. The sump risers were constructed using 24-inch diameter SDR 32.5 HDPE pipe and included a perforated cap at the sump end and a bolted flanged top lid. The horizontal section (or collection segment) of the sump riser pipes were perforated to allow leachate to flow into the pipe. These sump pipes were installed in accordance with the CQA Documents.

The Cell 8 sump area included a primary GCL extending approximately five feet out from the limit of the sump.

Leachate from Cell 8 will be collected in the leachate collection system in the central leachate corridor and will gravity flow to the Cell 8 sump. Leachate will be pumped from the sump risers through the leachate transmission line to the leachate storage area. To control the pumping and transfer of leachate, a sump control panel was installed as part of the leachate system in Cell 8.

Weaver Boos CQA personnel monitored the construction of the leachate collection system within Cell 8 and the extension of the leachate transmission header line from Cell 7. The field monitoring and testing activities performed by the CQA personnel during construction of the leachate collection system and the leachate transmission line and manhole are discussed below. After construction of the leachate collection system was complete, the primary collection pipes were pressure cleaned by Florida JetClean. A letter report from Florida Jetclean verifying the system to be free flowing and not obstructed is included in **Appendix X** of this report.

6.2 HDPE Pipe

All pipes used in the construction of the leachate collection system were SDR 11 HDPE pipes except for the sump risers, which were constructed using SDR 32.5 HDPE pipes. The MQC certificates for the HDPE pipes were reviewed by the CQA personnel and were found to be in compliance with the requirements of the CQA Documents.

HDPE pipe sections were joined using butt-fusion welding and electro fusion coupler techniques. CQA personnel monitored the butt-fusion welding techniques to ensure that industry-accepted procedures were used during construction. CQA personnel also verified the diameter of and perforation details (size, number of rows, orientation) for different pipes used in the leachate collection system and monitored the cleaning of all pipes, just prior to installation and after placement of the pipes.

6.3 Granular Drainage Materials

Granular drainage materials meeting the requirements of Number 57 stone (per ASTM D 448) were used in Cell 8 primary and secondary leachate collection systems. Granular drainage materials meeting the requirements of Number 57 stone (per ASTM D 448) were used in the Cell 8 leachate sump area. The Number 4 and Number 57 granular drainage materials were supplied by Conrad Yelvington and Smokey Valley Stone. The QC certificates and test results were reviewed by CQA personnel and were found to be in compliance with the CQA Documents.

The hydraulic conductivity (per ASTM D 2434) of the Number 57 stone was measured to be 21 cm/sec, which exceeded the CQA Documents requirement of 1 cm/sec. The hydraulic conductivity (per ASTM D 2434) of the Number 4 stone was measured to be 24 cm/sec, which exceeded the CQA Documents requirement of 10 cm/sec. Carbonate content tests (per ASTM D 3042) were performed on the Number 4 stone and the Number 57 stone granular drainage materials during the QC testing. The granular drainage materials used in construction of the leachate collection system were found to be almost insoluble (containing less than 1% $CaCO_3$). The CQA laboratory test results for the drainage gravel conformance samples have been included in **Appendix Y**.

CQA personnel monitored the placement of the granular drainage material to ensure (i) the underlying geosynthetics were not damaged; (ii) the perforated pipes were properly aligned with perforations facing down and surrounded by the drainage materials and the geotextile; and (iii) the drainage materials were placed in accordance with the requirements of the CQA Documents.

6.4 Pressure Testing

The leachate transmission (header) pipe installed from the south end of Cell 7 to the south end of

Cell 8 and the leachate transmission manhole were pressure tested to detect any leaks or defective pipe joints.

The hydrostatic pressure testing was performed by filling the leachate transmission line segment and pressurizing it. The hydrostatic pressure of 130 psi was maintained for at least one hour after an initial three hour expansion phase. No drop in the hydrostatic pressure was observed during the one hour test period.

6.5 Sump Pumps and Control Panel

Leachate collected in the leachate sumps will be extracted and pumped to the leachate storage area by two 5.0-hp electric EPG SurePumps located in the primary sump risers and one 1.5-hp electric EPG SurePump located in the secondary sump riser. The pumps are controlled by a control panel located at the Cell 8 sump near the top of the sump risers. The sump pumps and the associated control panel were supplied by EPG Companies, Inc.

On April 10, 2012, the pumps were installed and tests were conducted by Mr. Willis Rigdon of Absolute Water Company (Mr. Rigdon is certified by EPG Companies as a pump installer/representative). Also in attendance were Mr. Keith Lunsford (Facility Technician for Omni Waste of Osceola County, LLC) and Mr. Jack Wiggins (Superintendent for ERC General Contracting Services, Inc.).

The system was inspected, tested, and approved for operation by Mr. Rigdon. The Installation Record for each pump is available at the JED facility.

7.0 CONSTRUCTION QUALITY ASSURANCE: OTHER CONSTRUCTION ACTIVITIES

7.1 Overview

Weaver Boos provided CQA monitoring, testing and documentation for miscellaneous activities associated with the development and ongoing operation of the JED facility. The CQA activities included monitoring of the installation of gas side-slope riser, installation of a storm water drainage structure and associated piping, and construction of landfill perimeter maintenance roadway.

7.2 Landfill Gas System

Two landfill gas side-slope risers were installed on the west side slope of Cell 8. Each riser consisted of approximately thirty feet of eight-inch diameter HDPE pipe. This installation was completed in accordance with Detail 5/32A as shown on "HORIZONTAL GAS COLLECTORS DETAILS" drawing, J.E.D. Solid Waste Management Facility (Sheet 32A of 40), prepared by Golder Associates, revised September 2010.

Each riser pipe was installed within the twenty-four inch layer of liner protective soil. The lowest twelve inches of each riser pipe was perforated and imbedded in gravel to facilitate condensate drainage. Two "wyes" were placed along the length of each riser pipe and capped; in the future, these "wyes" will connect to the first tier horizontal gas collector pipes installed after the first lift of waste is placed in Cell 8. The top of each riser pipe was capped with a blind flange fitting and will be connected to the Gas Collection and Control System at a future date. Survey data and additional details of the side-slope risers will be documented in the CQA report for the installation of the horizontal collectors when installed.

7.3 Roadway and Drainage

7.3.1 Storm Water Drainage Structures

One storm water drainage structure and associated piping were installed in the perimeter berm on west side of Cell 8 in accordance with Detail 4/3 on Sheet 7 of 17 of the Construction Drawings.

The pre-cast concrete storm water drainage structure was manufactured by Atlantic Concrete Products. The shop drawings supplied by the manufacturer were reviewed by the CQA personnel and were found to be in compliance with the CQA Documents.

Advanced Drainage Systems, Inc. (hereafter "ADS") N-12 WT (water tight) corrugated HDPE pipe (18 and 30 inch inside diameter) was used at the drainage structure. The ADS N-12 pipe consists of a smooth wall interior with annular exterior corrugations. The pipes were installed in accordance with the CQA Documents. Two 18-inch corrugated pipes were installed on the north and south sides of the drainage structure to drain storm water collected in the perimeter maintenance road swale. A third 18-inch corrugated pipe was installed on the east side of the structure. This pipe will connect to the storm water downchute pipe which will be installed as part of the closure system for Cell 8, and for the time being was capped. A 30 inch corrugated pipe was used at the drainage structure to convey water from the drainage structure to the retention basin on the west side of Cell 8. A pre-cast concrete headwall was installed at the discharge end of the pipe. The annular space between the pipes and the concrete structure were sealed with non-shrink grout. An 18-inch thick rip rap apron was constructed at the outfall of the drainage structure to dissipate the energy of the outfall and to protect the perimeter berm and storm water berms from erosion. The rip rap consisted of concrete debris rubble placed over an eight-ounce per square yard, non-woven, geotextile fabric.

After installation of the storm water drainage structure, a two-foot by four-foot by five-foot concrete thrust block was poured on the west side of the concrete storm water drainage structure as a counterweight against the force of water flowing into the structure from the 18-inch downchute pipe installed as part of the closure system on the east side of the structure.

7.3.2 Landfill Perimeter Maintenance Roadway

The landfill perimeter maintenance roadway was construction along the west side of Cell 8, extending south from existing Cell 7 approximately six hundred feet. The roadway was constructed with ten inches of compacted crushed limerock and has a width of fourteen feet. The density of the compacted limerock was tested with results included in **Table 11**.

8.0 CONCLUSIONS

Observation of the construction of Cell 8 at the JED facility was performed by Weaver Boos during the period of October 29, 2011, to March 23, 2012. During this time, CQA personnel monitored the installation of the following components:

- earthwork (Cell 8 subgrade, liner subbase, intercell berms, sump area, protective soil layer, and miscellaneous earthwork);
- geosynthetics in Cell 8; and
- leachate management system (leachate collection system and leachate sumps in Cell 8, and extension of the leachate transmission system)
- other construction activities

During construction of the above components, CQA personnel verified that performance and conformance testing was performed at the frequencies required by the CQA Documents and that the installation met or exceeded the requirements of the CQA Documents. CQA personnel also verified that conditions or materials identified as not conforming to the CQA Plan were replaced, repaired, and/or retested, as described in this report.

The results of the CQA activities undertaken by Weaver Boos as described in this report indicate that Cell 8 was constructed in general accordance with the CQA Documents and the solid waste permit issued for the JED facility.

Weaver Boos Consultants

Daily Field Report

Day/Date: Thur/5-3-12

Project:	Cell 8 Construction	Project No.	3804-352-17-00
Location:	ST Cloud FL	Weather: AM:	Sun/70
Client:	JED Solid Waste Management	PM:	Sun/85

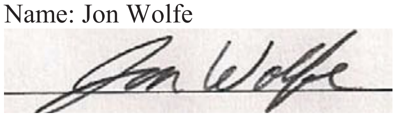
Contractor(s): ERC

Contractor Sub(s): Comanco

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

ERC arrived on site today at 9:00A with 3 people.
ERC ran the following equipment: 2 Mini track hoes.
Observed ERC excavate the soil from the flap that extended to the outside of cell 8 east and south side.
The geocomposite was removed to 6 inches inside of the extrusion weld.
The geomembrane was removed 6 to 8 inches from outer edge of berm.
Approximately two thirds of the geosynthetics was exposed today.
Comanco used 2 laborers to work with ERC.
ERC departed site at 5:00P.

Name: Jon Wolfe



Title: Senior Engineering Technician

Weaver Boos Consultants

Daily Field Report

Day/Date: Fri/5-4-12

Project: Cell 8 Construction

Project No. 3804-352-17-00

Location: ST Cloud FL

Weather: AM: Sun/70

Client: JED Solid Waste Management

PM: Sun/89

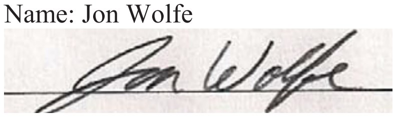
Contractor(s): ERC

Contractor Sub(s): Comanco

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

ERC arrived on site today at 7:00A with 3 people.
ERC ran the following equipment: 2 Mini track hoes and D3 dozer.
Observed ERC excavate the soil from the flap that extended to the outside of cell 8 south side.
The geocomposite was removed to 6 inches inside of the extrusion weld.
The geomembrane was removed 6 to 8 inches from outer edge of berm.
All of the geosynthetics was exposed today.
The D3 dozer back filled top of berm. Digdowns was performed to verify the 2 foot of cover soil.
Anchor trench markers were reinstalled.
Comanco used 2 laborers to work with ERC.
All of the removed material was hauled to cell-7.
ERC departed site at 5:00P.

Name: Jon Wolfe



Title: Senior Engineering Technician

Weaver Boos Consultants

Daily Field Report

Day/Date: Mon/5-7-12

Project:	Cell 8 Construction	Project No.	3804-352-17-00
Location:	ST Cloud FL	Weather: AM:	Sun/70
Client:	JED Solid Waste Management	PM:	Sun/89

Contractor(s): ERC

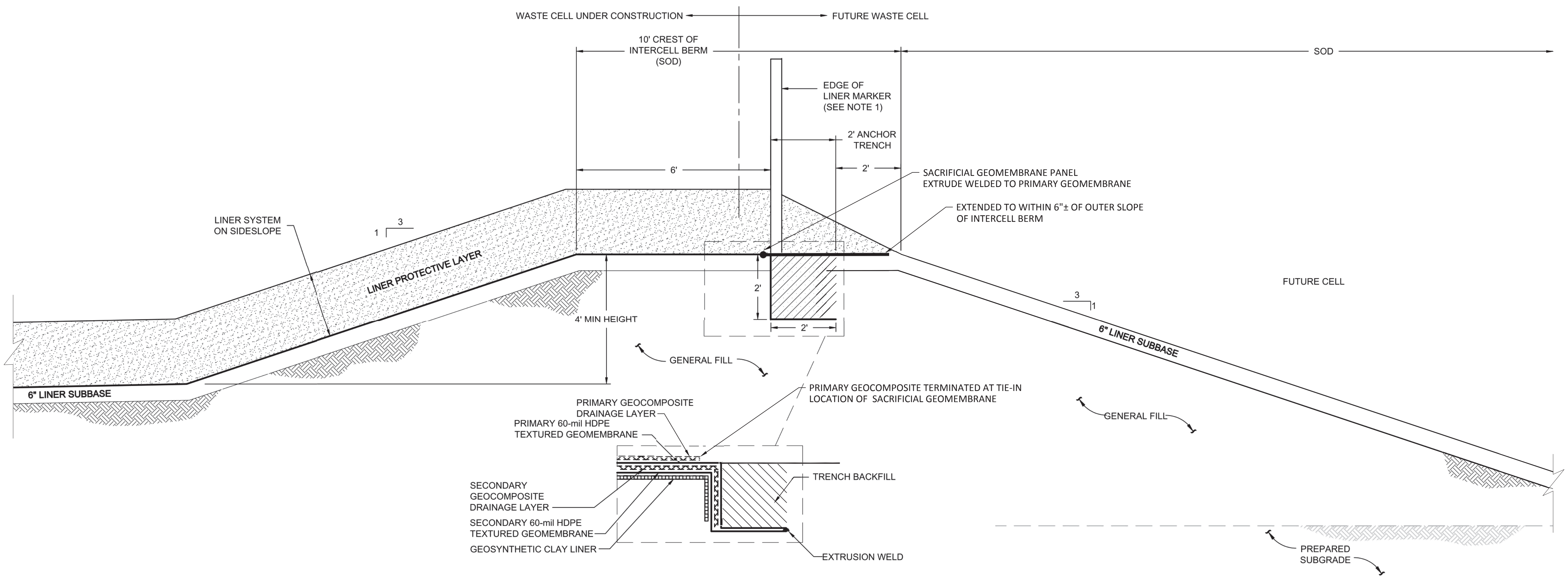
Contractor Sub(s): Comanco

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Sod arrived on site today at 10:30A
4 people placed sod on protective soil on the berm east side and south today of cell-8.
Sod company completed berm today.

Name: Jon Wolfe

Title: Senior Engineering Technician



D / 3

SECTION (TYPICAL)
LINER SYSTEM TERMINATION AT INTERCELL BERM
SCALE: 1" = 2'

NOTES:

1. THE EDGE OF LINER SHALL BE MARKED ON ALL SIDES (EXCEPT ON THE TIE-IN SIDES) AT 200' (MINIMUM) INTERVALS AND AT THE CORNERS. THE MARKERS SHALL BE 4"x4"x8' PRESSURE-TREATED TIMBER POST AND SHALL BE PAINTED YELLOW.

2. LINER SYSTEM ANCHOR TRENCH SHALL HAVE ROUNDED CORNERS.

File: x:\3804 waste services inc\351 jed landfill cell 8 cqa certification report\liner layout plan and detail appendix a.dwg

Submissions / Revisions:		Date:
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Certificate:

WEAVER
BOOS
CONSULTANTS

WEAVER BOOS CONSULTANTS SOUTHEAST, LLC
365 CITRUS TOWER BOULEVARD, SUITE 110
CLERMONT, FLORIDA 34711
TELEPHONE: (352) 241-0848
FACSIMILE: (352) 241-0843
www.weaverboos.com

STATE OF FLORIDA ENG. BUSINESS NO. 28055

Client:

WSI Waste Services, Inc.

Project Name & Location:

Omni Waste of Osceola County, LLC
1501 Omni Way
St. Cloud, Florida

J.E.D. Facility Cell 8 Certification

Approved By:
JC JS

Project No.
3804-351-16-00

Drawing Name:

Section Detail

Drawing No.

C.02

Exposure and Removal of Geocomposite in Intercell Berm

Photo Date: 5-04-2012

Backfill of Intercell Berm

Photo Date: 5-05-2012

Replacement of Sod on Intercell Berm

Photo Date: 5-07-2012

EPG Companies Inc.

EPG SurePump™ Installation Record

EPG Job No. 11-10370

Installer's Name Absolute Water Inc.

Address 1408 Hamlin Ave. Suite E

City St. Cloud State Fl Zip 34771

Phone 407-891-3005 Fax 407-957-9215

Contact name Willis Rigdon

Owner's Name WSI

Address 1501 Omni Way

City St. Cloud State Fl Zip 34773

Phone 407-791-5042 Fax ______

Contact name Keith Lunsford

Sump Name/ ID Cell 8 Date Installed 4-10-12

Leachate or Condensate Temp ______ °F Or °C

Pump:

Model No. 17-3

Rating: ______ GPM@ ______ Ft. TDH

HP 5 Voltage 480 Phase 3

Actual Pump Delivery ______ GPM@ ______ PSI

Operating Cycle ______ ON (Min/Hr) ______ OFF (Min/Hr) (Circle Min. or Hr. as appropriate)

Side Slope Riser Information:

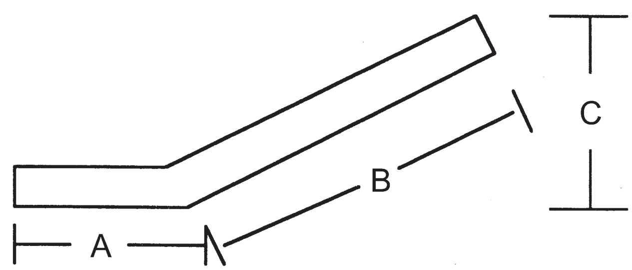
Slope ______ :1

Length of riser Pipe (A+B) 80 ft.

Vertical Distance = Sump to Top of Riser Pipe (C) ______ ft.

Riser ID Pri 1 SDR ______

Distance From Top of Riser Pipe to Controller 10 ft.



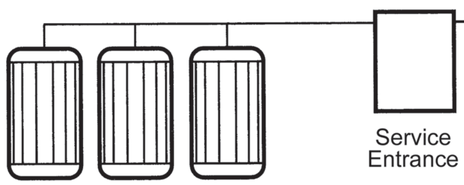
Power Supply:

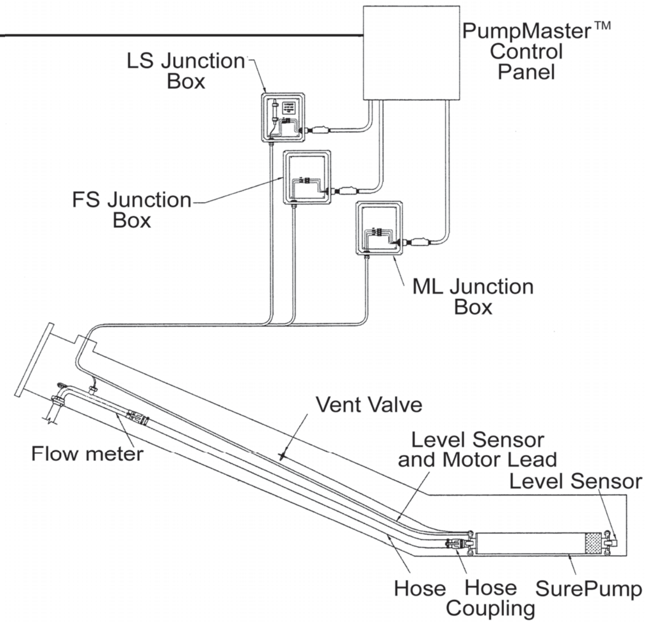
Cable: Service Entrance to Control Distance 15 ft Wire Size 8 AWG/MCM

Copper x Jacketed ______ Aluminum ______ Individual conductors ______

Cable: Control to Motor ______ ft ______ AWG/MCM

Copper x Jacketed ______





Transformer:

KVA ________ #1 ________ #2 ________ #3

Initial Megs - Before Installation

Motor & lead T1 4.9 T2 5.0 T3 5.0

Final Megs - After Installation
After Running for 15 min

Motor, leads & cable T1 ________ T2 ________ T3 ________

Incoming Voltage:

No Load L1-L2 489 L2-L3 491 L1-L3 491

Full Load L1-L2 ________ L2-L3 ________ L1-L3 ________

Running Amps:

Hookup:1

Full Load L1 7.6 L2 7.9 L3 7.7 % unbalanced ________

Hookup:2

Full Load L1 ________ L2 ________ L3 ________ % unbalanced ________

Hookup:3

Full Load L1 ________ L2 ________ L3 ________ % unbalanced ________

Ground wire size 8 + 3 ot AWG/MCM

DC Ground Current ________ mA Ground Test ________ Ohms

Motor Surge Protection x Yes ________ No

Control Panel:

Model # ________________________

Short Circuit Device

Circuit Breaker ______ Rating ______ Setting

Fuses ______ Type ______ Rating

______ Standard ______ Time Delay

Controls are Grounded to:

x Motor

x Rod

x Power Supply

Start Overloads:

Set at ________ amps

Name: Willis Rigdon

Company Absolute Water Inc. Date 4-10-12

EPG SurePump™ Installation Record

EPG Job No. 11-10370

Installer's Name Absolute Water Inc.

Address 1408 Hamlin Ave. Suite E

City St. Cloud State Fl Zip 34771

Phone 407-891-3005 Fax 407-957-9215

Contact name Willis Rigdon

Owner's Name WSI

Address 1501 Omni Way

City St. Cloud State Fl Zip 34773

Phone 407-791-5042 Fax ______

Contact name Keith Lunsford

Sump Name/ ID Cell 8 Date Installed 4-10-12

Leachate or Condensate Temp ______ °F Or °C

Pump:

Model No. 17-3

Rating: ______ GPM@ ______ Ft. TDH

HP 5 Voltage 480 Phase 3

Actual Pump Delivery ______ GPM@ ______ PSI

Operating Cycle ______ ON (Min/Hr) ______ OFF (Min/Hr) (Circle Min. or Hr. as appropriate)

Side Slope Riser Information:

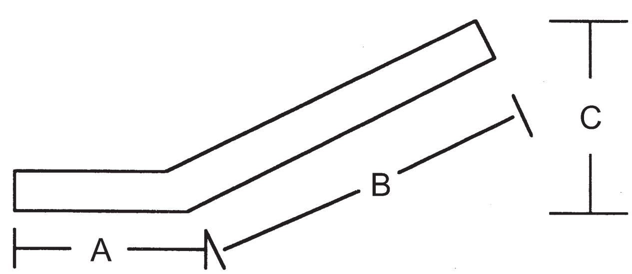
Slope ______ :1

Length of riser Pipe (A+B) 80 ft.

Vertical Distance = Sump to Top of Riser Pipe (C) ______ ft.

Riser ID Pri 2 SDR ______

Distance From Top of Riser Pipe to Controller 10 ft.



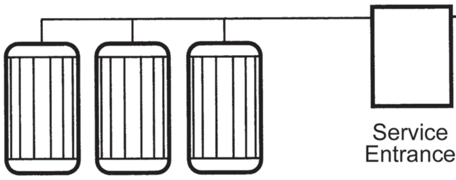
Power Supply:

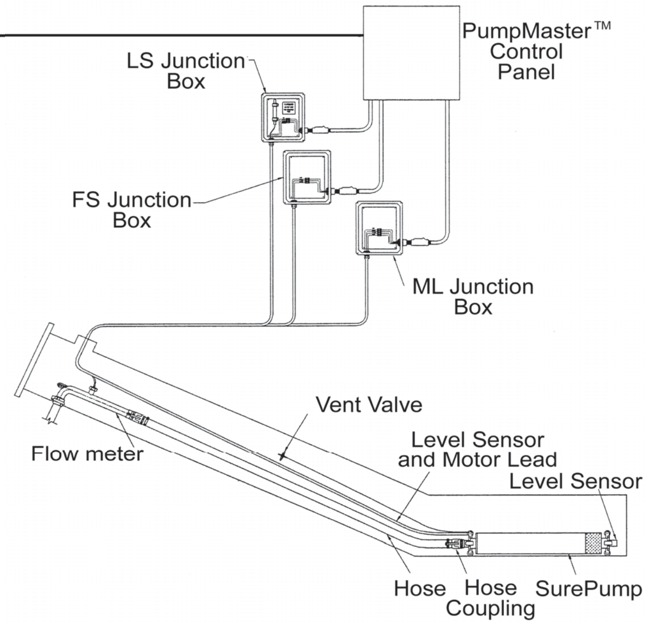
Cable: Service Entrance to Control Distance 15 ft Wire Size 8 AWG/MCM

Copper x Jacketed ______ Aluminum ______ Individual conductors ______

Cable: Control to Motor ______ ft ______ AWG/MCM

Copper x Jacketed ______





Transformer:

KVA ________ #1 ________ #2 ________ #3

Initial Megs - Before Installation

Motor & lead T1 4.9 T2 5.0 T3 5.0

Final Megs - After Installation
After Running for 15 min

Motor, leads & cable T1 ________ T2 ________ T3 ________

Incoming Voltage:

No Load L1-L2 489 L2-L3 491 L1-L3 491

Full Load L1-L2 ________ L2-L3 ________ L1-L3 ________

Running Amps:

Hookup:1

Full Load L1 8.1 L2 8.1 L3 7.6 % unbalanced ________

Hookup:2

Full Load L1 ________ L2 ________ L3 ________ % unbalanced ________

Hookup:3

Full Load L1 ________ L2 ________ L3 ________ % unbalanced ________

Ground wire size 8 + 3 ot AWG/MCM

DC Ground Current ________ mA Ground Test ________ Ohms

Motor Surge Protection x Yes ______ No

Control Panel:

Model # ________________________________

Short Circuit Device

Circuit Breaker ______ Rating ______ Setting

Fuses ______ Type ______ Rating

______ Standard ______ Time Delay

Controls are Grounded to:

x Motor

x Rod

x Power Supply

Start Overloads:

Set at ________ amps

Name: Willis Rigdon

Company Absolute Water Inc.

Date 4-10-12

EPG SurePump™ Installation Record

EPG Job No. 11-10370

Installer's Name Absolute Water Inc.

Address 1408 Hamlin Ave. Suite E

City St. Cloud State Fl Zip 34771

Phone 407-891-3005 Fax 407-957-9215

Contact name Willis Rigdon

Owner's Name WSI

Address 1501 Omni Way

City St. Cloud State Fl Zip 34773

Phone 407-791-5042 Fax ______

Contact name Keith Lunsford

Sump Name/ ID Cell 8 Date Installed 4-10-12

Leachate or Condensate Temp ______ °F Or °C

Pump:

Model No. 8-5

Rating: ______ GPM@ ______ Ft. TDH

HP 1.5 Voltage 480 Phase 3

Actual Pump Delivery ______ GPM@ ______ PSI

Operating Cycle ______ ON (Min/Hr) ______ OFF (Min/Hr) (Circle Min. or Hr. as appropriate)

Side Slope Riser Information:

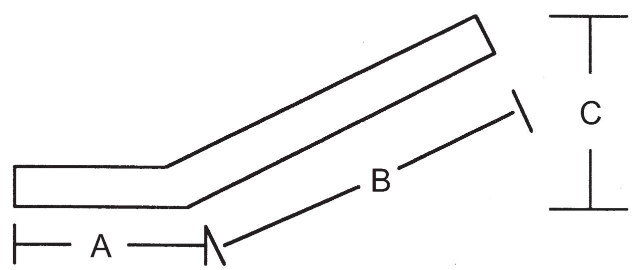
Slope ______ :1

Length of riser Pipe (A+B) 79 ft.

Vertical Distance = Sump to Top of Riser Pipe (C) ______ ft.

Riser ID Sec. SDR ______

Distance From Top of Riser Pipe to Controller 10 ft.



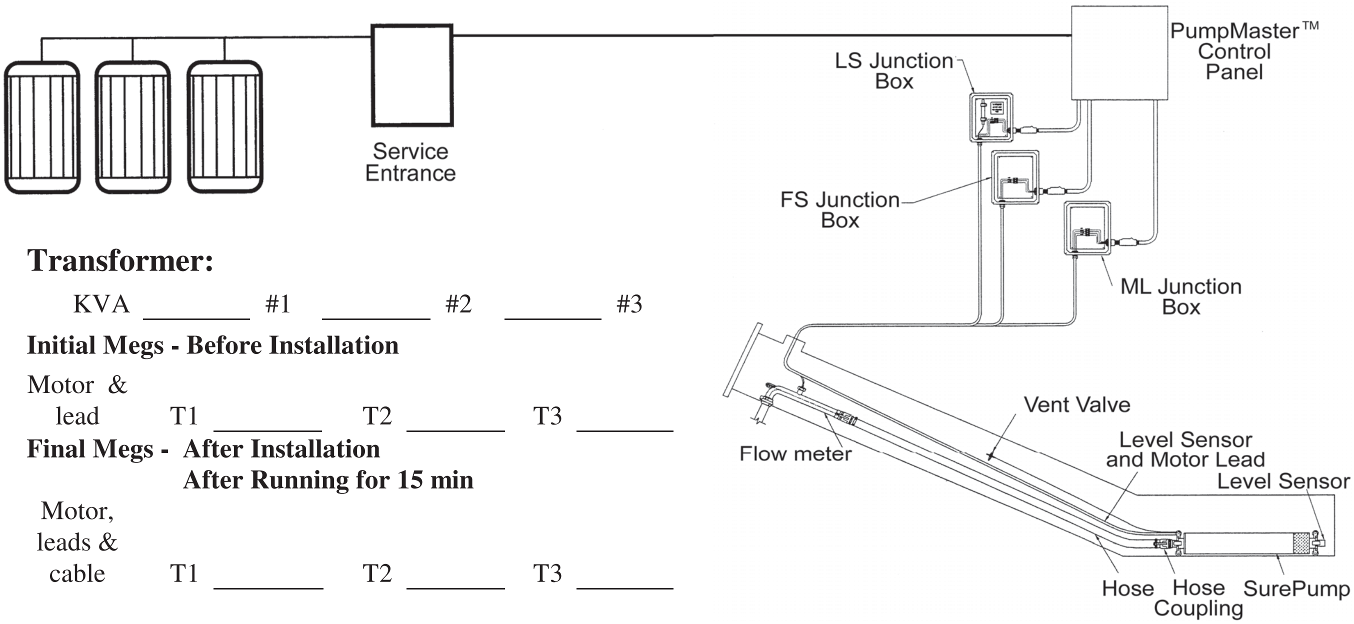
Power Supply:

Cable: Service Entrance to Control Distance 15 ft Wire Size 8 AWG/MCM

Copper x Jacketed ______ Aluminum ______ Individual conductors ______

Cable: Control to Motor ______ ft ______ AWG/MCM

Copper x Jacketed ______



Transformer:

KVA ________ #1 ________ #2 ________ #3

Initial Megs - Before Installation

Motor & lead T1 ________ T2 ________ T3 ________

Final Megs - After Installation
After Running for 15 min

Motor, leads & cable T1 ________ T2 ________ T3 ________

Incoming Voltage:

No Load L1-L2 489 L2-L3 491 L1-L3 491

Full Load L1-L2 ________ L2-L3 ________ L1-L3 ________

Running Amps:

Hookup:1

Full Load L1 2.6 L2 2.6 L3 2.5 % unbalanced ________

Hookup:2

Full Load L1 ________ L2 ________ L3 ________ % unbalanced ________

Hookup:3

Full Load L1 ________ L2 ________ L3 ________ % unbalanced ________

Ground wire size 8 + 3 ot AWG/MCM

DC Ground Current ________ mA Ground Test ________ Ohms

Motor Surge Protection x Yes ________ No

Control Panel:

Model # ________________________

Short Circuit Device

Circuit Breaker ________ Rating ________ Setting

Fuses ________ Type ________ Rating

________ Standard ________ Time Delay

Controls are Grounded to:

x Motor

x Rod

x Power Supply

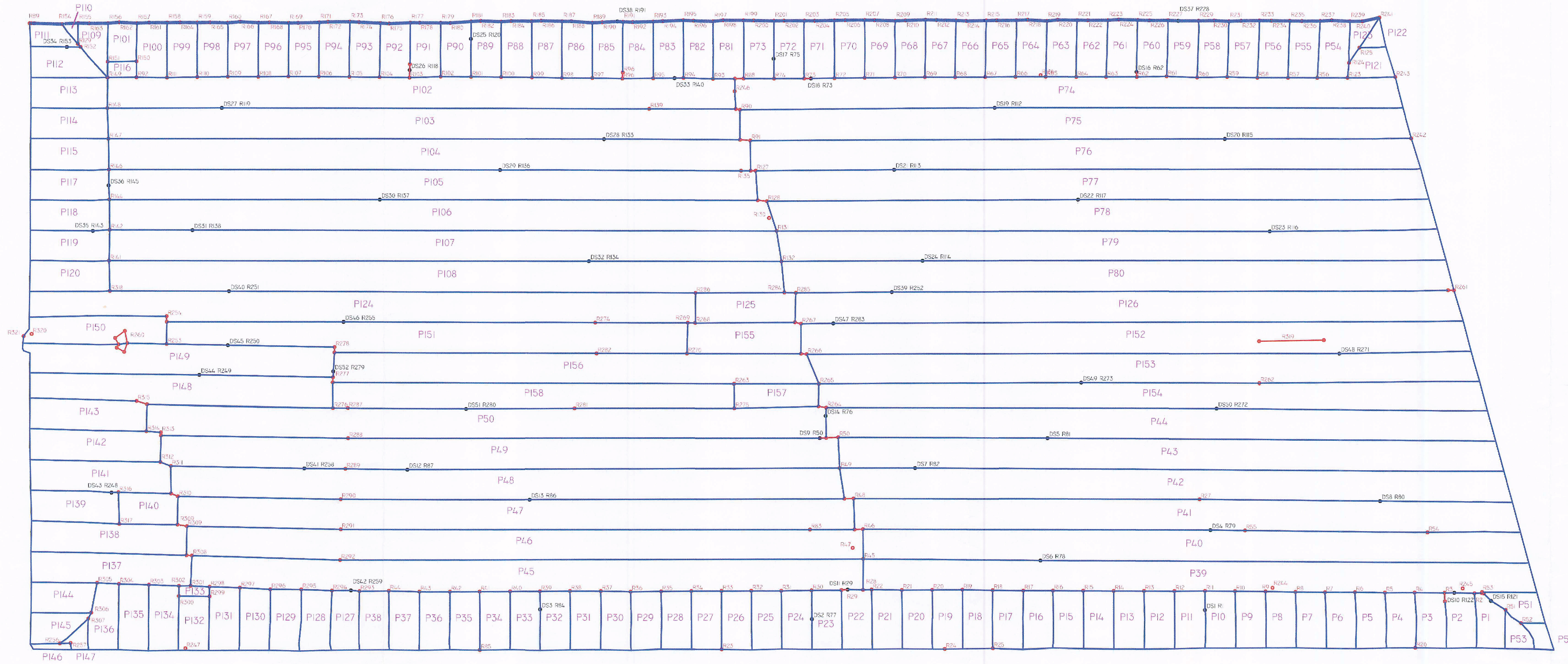
Start Overloads:

Set at ________ amps

Name: Willis Rigdon

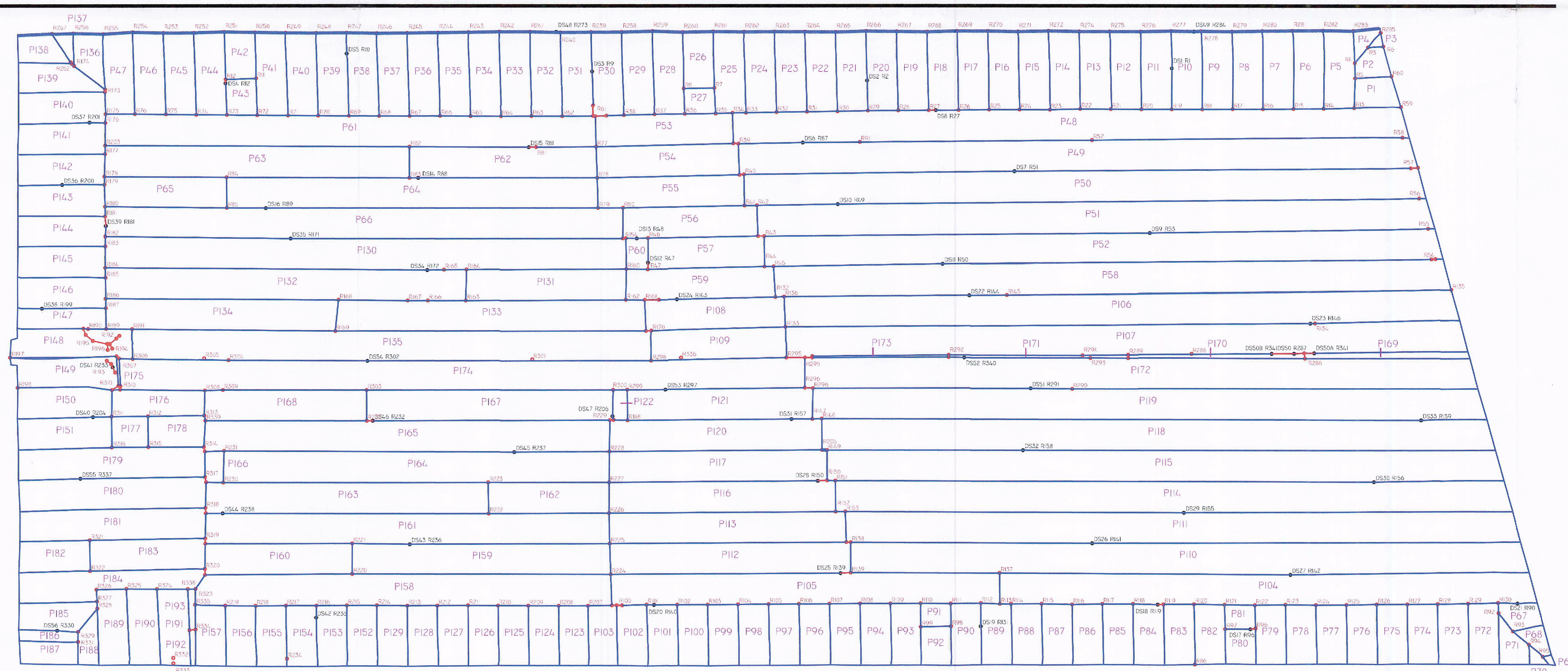
Company Absolute Water Inc.

Date 4-10-12



CELL 8 PRIMARY LINER AS BUILT

SCALE: 1"=100'



CELL 8 SECONDARY LINER AS BUILT

SCALE: 1"=100'

File: x:\3804 waste services inc\351 jed landfill cell 8 cqa\final cell 8 cqa certification report\liner layout plan and detail appendix a.dwg

LEGEND

P	PANEL NUMBER
R	REPAIR NUMBER
DT	DESTRUCTIVE TEST NUMBER
—	CAP
O	PATCH
O	DESTRUCTIVE TEST
++++	EXTRUSION WELD

0 50 100

SCALE: 1" =50'
11"x17" Scale: 1" =100'

Submissions / Revisions:	Date:
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Certificate:

JEFFREY D. SCHAFER LICENSE No 64718 STATE OF FLORIDA PROFESSIONAL ENGINEER

05/04/2012

WEAVER BOOS CONSULTANTS

WEAVER BOOS CONSULTANTS SOUTHEAST, LLC
365 CITRUS TOWER BOULEVARD, SUITE 110
CLERMONT, FLORIDA 34711
TELEPHONE: (352) 241-0848
FACSIMILE: (352) 241-0843
www.weaverboos.com

STATE OF FLORIDA ENG. BUSINESS NO. 28055

Client:

WSI Waste Services, Inc.

Project Name & Location:

Omni Waste of Osceola County, LLC
1501 Omni Way
St. Cloud, Florida

Plan Set:

J.E.D. Facility Cell 8 Certification

Drawn By: JC
Approved By: JS

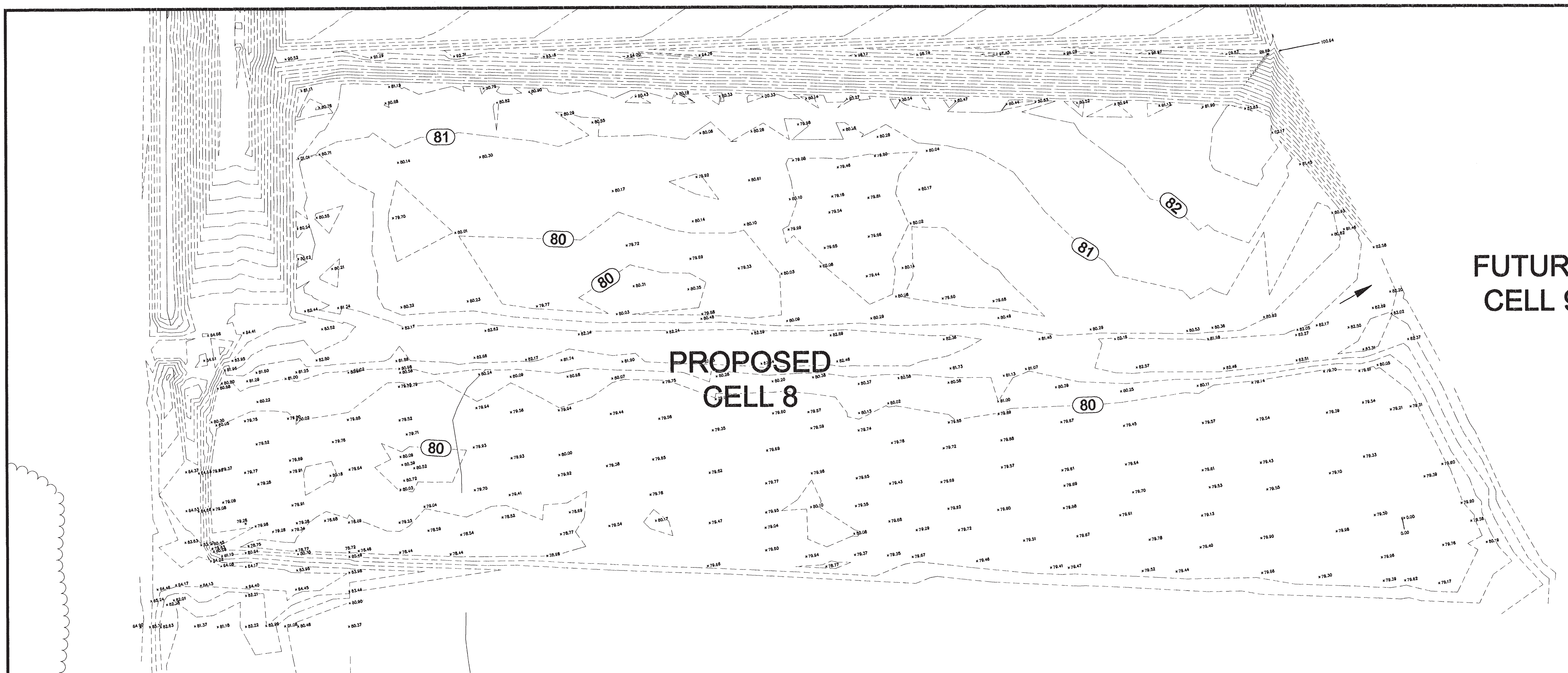
Project No. 3804-351-16-00

Drawing Name:

Liner Layout Plan

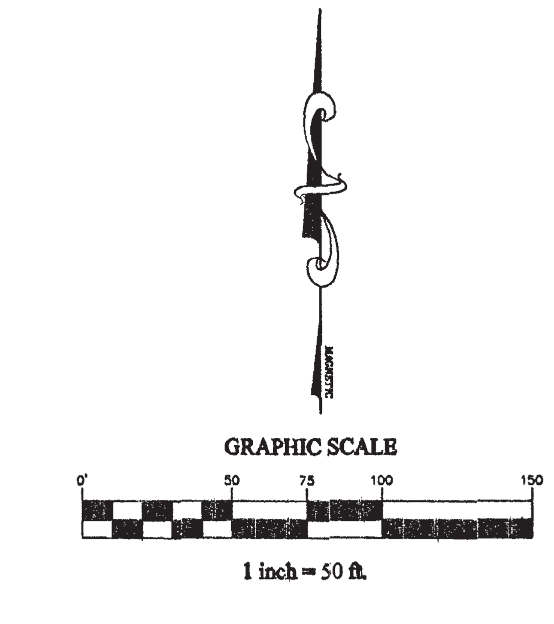
Drawing No.

C.01



LEGEND:

NO. NUMBER
ELEV. ELEVATION
x 73.35 EXISTING SPOT ELEVATION
LB LICENCE BUSINESS
EXISTING CONTOUR (5 FOOT INTERVAL)
EXITING CONTOUR (1 FOOT INTERVAL)
EXISTING LINER MARKER
INV. INVERT
HDPE HIGH DENSITY POLYETHYLENE PIPE



PRE-TOPOGRAPHIC SURVEY
CELL 8 CONSTRUCTION
J.E.D. SOLID WASTE MANGEMENT FACILITY
1501 OMNI WAY ST. CLOUD, FL

CLIENT:

ERC GENERAL CONTRACTOR
890 Carter Road Suite 170
Winter Garden, Fl 34787

PEAVEY
& ASSOCIATES SURVEYING & MAPPING PA
FLORIDA BUSINESS NUMBER 7779
690 ALICE PLACE
BARTOW, FL 33830
PHONE: 863-738-4960

Drawn By: DLP
Party Chief: DR
Field Book:
Page:

THIS SURVEY IS NOT VALID WITHOUT THE SIGNATURE AND ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.

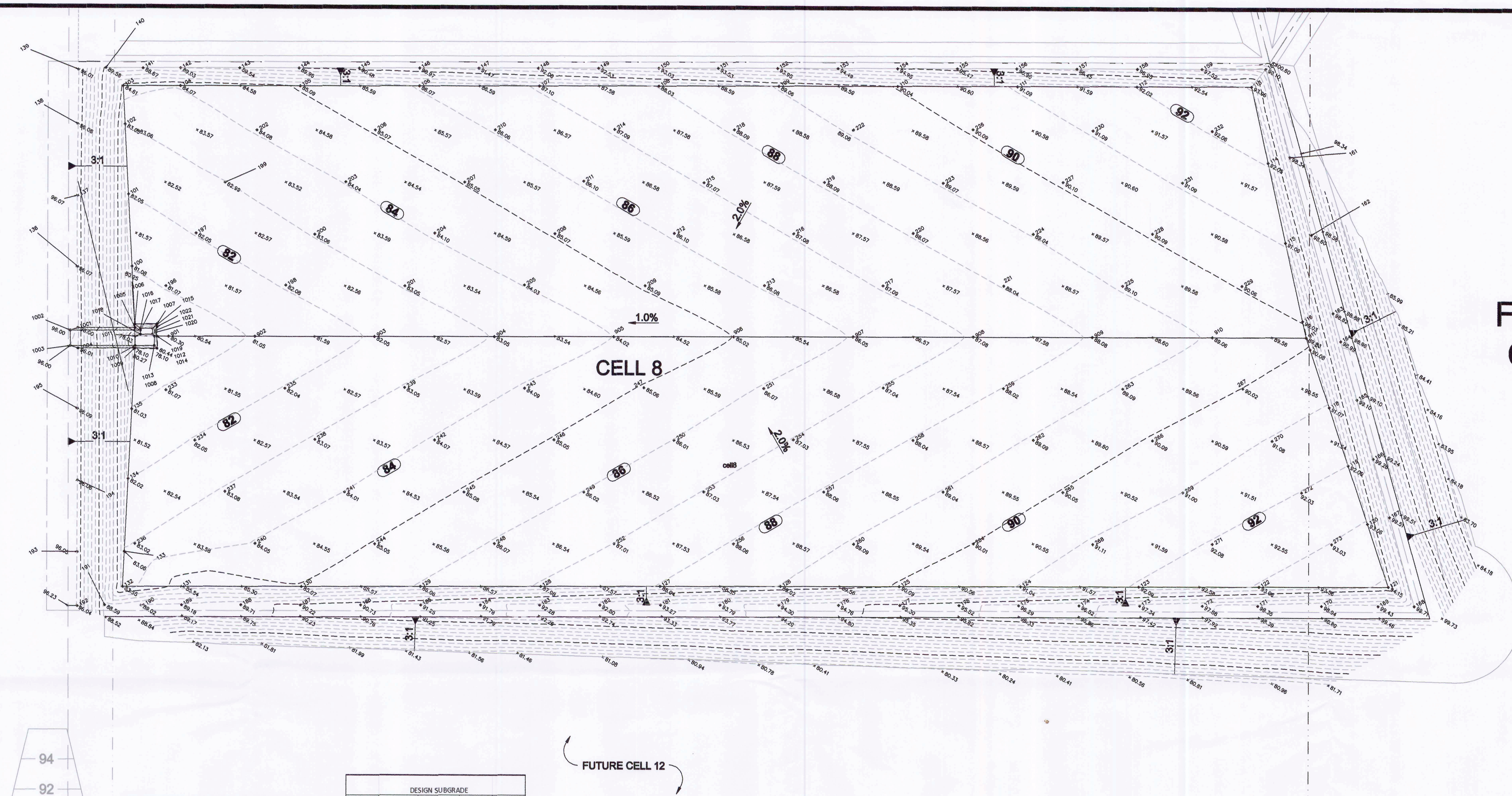
FILE NAME: 128-erc-jed-pre-topo

NO.	DATE	REVISION
1	4/27/12	Removed design reference to details and sections

DEBORAH L. PEAVEY, P.S.M.
FLORIDA REGISTRATION NUMBER 6345
FLORIDA BUSINESS NUMBER 7779
10/20/2011
SURVEY DATE

SCALE	DRAWING NO.
1" = 50'	185
PROJECT NO.	SHEET
128	1

AS-BUILT SURVEY



Design Point Number	Design Northing	Design Easting	Design Elevation	Asbuilt Subgrade Elevation
	DESIGN SUBGRADE			
100	1354506.36	624015.01	81.00	81.08
101	1354566.77	624011.86	82.00	82.05
102	1354625.02	624008.83	83.00	83.05
103	1354657.23	624007.15	83.52	83.59
104	1354657.32	624055.01	84.00	84.07
105	1354657.49	624155.19	85.00	85.09
106	1354657.67	624254.99	86.00	86.07
107	1354657.85	624355.12	87.00	87.10
108	1354658.03	624454.96	88.00	88.03
109	1354658.20	624555.38	89.00	89.06
110	1354658.38	624654.94	90.00	90.04
111	1354658.56	624754.95	91.00	91.09
112	1354658.73	624854.92	92.00	92.02
113	1354658.90	624950.87	92.96	93.06
114	1354595.46	624964.94	92.00	92.05
115	1354528.69	624979.80	91.00	91.06
116	1354463.18	624994.38	90.00	90.03
117	1354439.52	625000.75	90.00	90.08
118	1354391.08	625016.91	91.00	91.07
119	1354342.66	625033.06	92.00	92.00
120	1354293.94	625049.32	93.00	93.06
121	1354241.45	625066.83	94.09	94.15
122	1354241.19	624958.30	93.00	93.06
123	1354240.96	624857.60	92.00	92.09
124	1354240.73	624758.53	91.00	91.04
125	1354240.49	624657.38	90.00	90.09
126	1354240.26	624557.92	89.00	89.02
127	1354240.03	624457.17	88.00	88.04
128	1354239.80	624357.49	87.00	87.08
129	1354239.56	624256.95	86.00	86.06
130	1354239.33	624157.42	85.00	85.07
131	1354239.10	624056.74	84.00	84.10
132	1354238.98	624007.89	83.51	83.55
133	1354268.19	624009.31	83.00	83.06
134	1354328.91	624012.27	82.00	82.02
135	1354387.19	624015.11	81.00	81.03
136	1354505.82	623961.97	96.00	96.07
137	1354565.47	623961.87	96.00	96.07
138	1354625.07	623961.76	96.00	96.08
139	1354670.79	623961.69	96.00	96.01
140	1354672.08	623992.68	88.33	88.42
141	1354672.13	624023.76	88.64	88.67
142	1354672.18	624055.11	88.96	89.03
143	1354672.27	624104.51	89.45	89.54
144	1354672.35	624154.19	89.94	89.96
145	1354672.44	624204.56	90.45	90.48
146	1354672.53	624255.02	90.95	90.97
147	1354672.61	624304.51	91.45	91.47
148	1354672.69	624354.30	91.94	92.00
149	1354672.78	624404.55	92.44	92.53

Design Point Number	Design Northing	Design Easting	Design Elevation	Asbuilt Subgrade Elevation
	DESIGN SUBGRADE			
150	1354672.87	624454.87	92.95	93.03
151	1354672.95	624504.55	93.44	93.53
152	1354673.04	624554.26	93.94	93.98
153	1354673.12	624604.79	94.44	94.49
154	1354673.21	624654.79	94.94	94.98
155	1354673.29	624704.66	95.44	95.47
156	1354673.38	624754.23	95.93	95.96
157	1354673.46	624804.51	96.43	96.45
158	1354673.55	624855.13	96.94	96.95
159	1354673.64	624909.28	97.48	97.52
160	1354673.73	624962.72	98.01	98.10
161	1354600.39	624983.29	98.33	98.34
162	1354535.36	625001.54	98.57	98.60
163	1354470.03	625019.86	98.80	98.82
164	1354446.50	625026.47	98.88	98.99
165	1354397.72	625040.15	99.06	99.10
166	1354348.41	625053.98	99.23	99.26
167	1354299.54	625067.69	99.41	99.51
168	1354225.40	625088.49	99.67	99.71
169	1354225.35	625058.38	99.36	99.43
170	1354225.27	625010.91	98.88	98.94
171	1354225.18	624957.30	98.33	98.35
172	1354225.10	624910.86	97.86	97.88
173	1354225.01	624858.42	97.32	97.34
174	1354224.92	624807.53	96.81	96.82
175	1354224.84	624757.06	96.29	96.29
176	1354224.75	624707.26	95.78	95.82
177	1354224.67	624657.92	95.28	95.30
178	1354224.58	624606.50	94.76	94.76
179	1354224.50	624556.63	94.25	94.30
180	1354224.41	624507.29	93.74	93.79
181	1354224.33	624457.67	93.24	93.27
182	1354224.24	624406.99	92.72	92.80
183	1354224.16	624356.65	92.21	92.28
184	1354224.07	624307.19	91.70	91.78
185	1354223.99	624257.36	91.20	91.25
186	1354223.90	624207.05	90.68	90.73
187	1354223.81	624156.58	90.17	90.22
188	1354223.73	624106.85	89.66	89.71
189	1354223.64	624057.04	89.15	89.18
190	1354223.59	624025.42	88.83	88.84
191	1354223.54	623992.95	88.50	88.59
192	1354222.64	623962.45	96.00	96.04
193	1354267.79	623962.37	96.00	96.05
194	1354327.45	623962.27	96.00	96.06
195	1354387.23	623962.17	96.00	96.09
196	1354490.08	624043.35	80.98	81.07
197	1354534.20	624068.50	82.00	82.05
198	1354490.97	624143.67	82.00	82.08
199	1354576.95	624092.67	82.98	82.99

Design Point Number	Design Northing	Design Easting	Design Elevation	Asbuilt Subgrade Elevation
	DESIGN SUBGRADE			
200	1354533.53	624167.79	82.98	83.06
201	1354490.64	624243.34	82.99	83.05
202	1354620.42	624119.16	84.00	84.08
203	1354577.60	624193.64	84.00	84.04
204	1354534.74	624268.16	84.00	84.10
205	1354491.60	624343.17	84.00	84.03
206	1354620.75	624218.16	84.99	85.07
207	1354577.62	624293.08	84.99	85.05
208	1354534.57	624368.60	85.00	85.07
209	1354491.15	624444.04	85.00	85.09
210	1354621.18	624318.44	86.00	86.06
211	1354578.59	624392.49	86.00	86.10
212	1354534.99	624468.31	86.00	86.10
213	1354491.64	624543.70	86.00	86.08
214	1354621.69	624418.27	87.00	87.09
215	1354577.61	624493.00	86.99	87.07
216	1354534.93	624568.30	87.00	87.08
217	1354491.77	624643.13	86.99	87.09
218	1354621.66	624518.20	88.00	88.09
219	1354578.24	624593.70	88.00	88.09
220	1354535.49	624668.04	88.00	88.07
221	1354491.89	624743.86	88.00	88.04
222	1354621.69	624617.80	88.99	89.98
223	1354577.90	624693.11	88.99	89.07
224	1354535.11	624768.32	88.99	89.04
225	1354492.23	624843.34	89.00	89.10
226	1354622.24	624717.79	90.00	90.09
227	1354578.88	624793.19	90.00	90.10
228	1354535.74	624868.21	90.00	90.09
229	1354492.49	624943.40	90.00	90.06
230	1354621.69	624818.13	90.99	91.09
231	1354578.90	624893.17	91.00	91.09
232	1354621.69	624917.97	91.99	92.06
233	1354403.15	624043.62	81.03	81.07
234	1354361.18	624067.95	82.00	82.05
235	1354404.78	624143.18	82.00	82.04
236	1354274.74	624018.06	83.00	83.02
237	1354318.38	624093.25	82.99	83.08
238	1354362.10	624168.40	82.99	83.07
239	1354405.72	624243.35	82.99	83.05
240	1354274.98	624118.65	84.00	84.05
241	1354318.25	624193.30	84.00	84.01
242	1354361.86	624268.54	84.00	84.07
243	1354405.39	624343.63	84.00	84.09
244	1354274.89	624218.68	85.00	85.05
245	1354318.44	624293.27	85.00	85.08
246	1354362.33	624368.36	84.99	85.05
247	1354406.02	624443.39	84.99	85.06
248	1354275.37	624318.72	86.00	86.07
249	1354318.66	624393.42	86.00	86.02

Design Point Number	Design Northing	Design Easting	Design Elevation	Asbuilt Subgrade Elevation
	DESIGN SUBGRADE			
250	1354362.23	624468.59	86.00	86.01
251	1354405.65	624543.50	86.00	86.07
252	1354275.48	624418.75	87.00	87.01
253	1354319.04	624493.61	87.00	87.03
254	1354362.80	624568.48	86.99	87.03
255	1354406.48	624643.62	86.99	87.04
256	1354275.57	624518.49	88.00	88.06
257	1354319.27	624593.87	88.00	88.06
258	1354362.54	624668.53	88.00	88.04
259	1354406.21	624743.87	88.00	88.02
260	1354275.51	624619.00	89.01	89.09
261	1354319.55	624693.71	89.00	89.04
262	1354363.05	624768.98	89.00	89.09
263	1354406.26	624843.72	89.00	89.09
264	1354276.20	624718.98	90.00	90.01
265	1354319.54	624793.76	90.00	90.05
266	1354363.00	624868.73	90.00	90.09
267	1354406.86	624944.40	90.00	90.02
268	1354276.05	624818.86	91.00	91.11
269	1354319.73	624894.16	91.00	91.00
270	1354363.00	624969.09	91.01	91.08
271	1354276.54	624918.98	92.00	92.08
272	1354319.97	624993.91	92.00	92.03
273	1354276.72	625019.20	93.00	93.03

Design Point Number	Design Northing	Design Easting	Design Elevation	Asbuilt Subgrade Elevation
901	1354447.90	624045.74	80.28	80.30
902	1354448.02	624117.85	81.00	81.08
903	1354448.19	624218.07	82.00	82.05
904	1354448.36	624318.26	83.00	83.05
905	1354448.53	624418.07	84.00	84.02
906	1354448.70	624518.19	85.00	85.02
907	1354448.87	624618.07	86.00	86.05
908	1354449.04	624718.53	87.00	87.08
909	1354449.21	624818.07	88.00	88.08
910	1354449.39	624918.65	89.01	89.06
911	1354449.52	624997.41	89.79	89.83

Design Point Number	Design Northing	Design Easting	Design Elevation	Asbuilt Subgrade Elevation
	DESIGN SUBGRADE			
1001	1354454.88	623970.06	96.00	96.00
1002	1354452.76	623963.72	96.00	96.00
1003	1354439.76	623963.74	96.00	96.00
1004	1354437.66	623970.08	96.00	96.01
1005	1354454.96	624017.70	80.12	80.14
1006	1354458.02	624017.54	80.17	80.25
1007	1354458.24	624036.09	80.36	80.46
1008	1354437.52	624036.12	80.36	80.44
1009	1354437.85	624017.58	80.17	80.27
1010	1354439.85	624017.76	78.00	78.10
1011	1354447.85	624017.75	78.00	78.03
1012	1354447.88	624033.75	78.00	78.02
1013	1354439.88	624033.76	78.00	78.10
1014	1354449.37	624032.24	76.50	76.56
1015	1354454.37	624032.24	76.50	76.59
1016	1354454.36	624022.24	76.50	76.54
1017	1354452.86	624022.24	76.50	76.58
1018	1354449.36	624022.24	76.50	76.56
1019	1354447.88	624035.92	80.18	80.27
1020	1354450.88	624034.41	78.66	78.68
1021	1354452.38	624034.40	78.66	78.75
1022	1354455.65	624036.05	80.31	80.32

LEGEND:

- NO. NUMBER
- ELEV. ELEVATION
- x 73.35 ASBUILT SPOT ELEVATION – SUBGRADE
- LB LICENCE BUSINESS
- ASBUILT SUBGRADE CONTOUR (5 FOOT INTERVAL)
- ASBUILT SUBGRADE CONTOUR (1 FOOT INTERVAL)
- TOE OF SLOPE
- TOP OF SLOPE
- EXISTING LINER MARKER
- INV. INVERT
- HDPE HIGH DENSITY POLYETHYLENE PIPE
- ASBUILT LIMEROCK
- ASBUILT RIPRAP
- ASBUILT LEACHATE MANHOLE

GRAPHIC SCALE

0 50 75 100 150

1 inch = 50 ft.

NO.	DATE	REVISION
1	4/27/12	Removed design reference to details and sections

THIS SURVEY IS NOT VALID WITHOUT THE SIGNATURE AND ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.

FILE NAME: 128-erc-jed-asb-subgrade-with-tables.dwg

Drawn By: DLP

Party Chief: DR

Field Book:

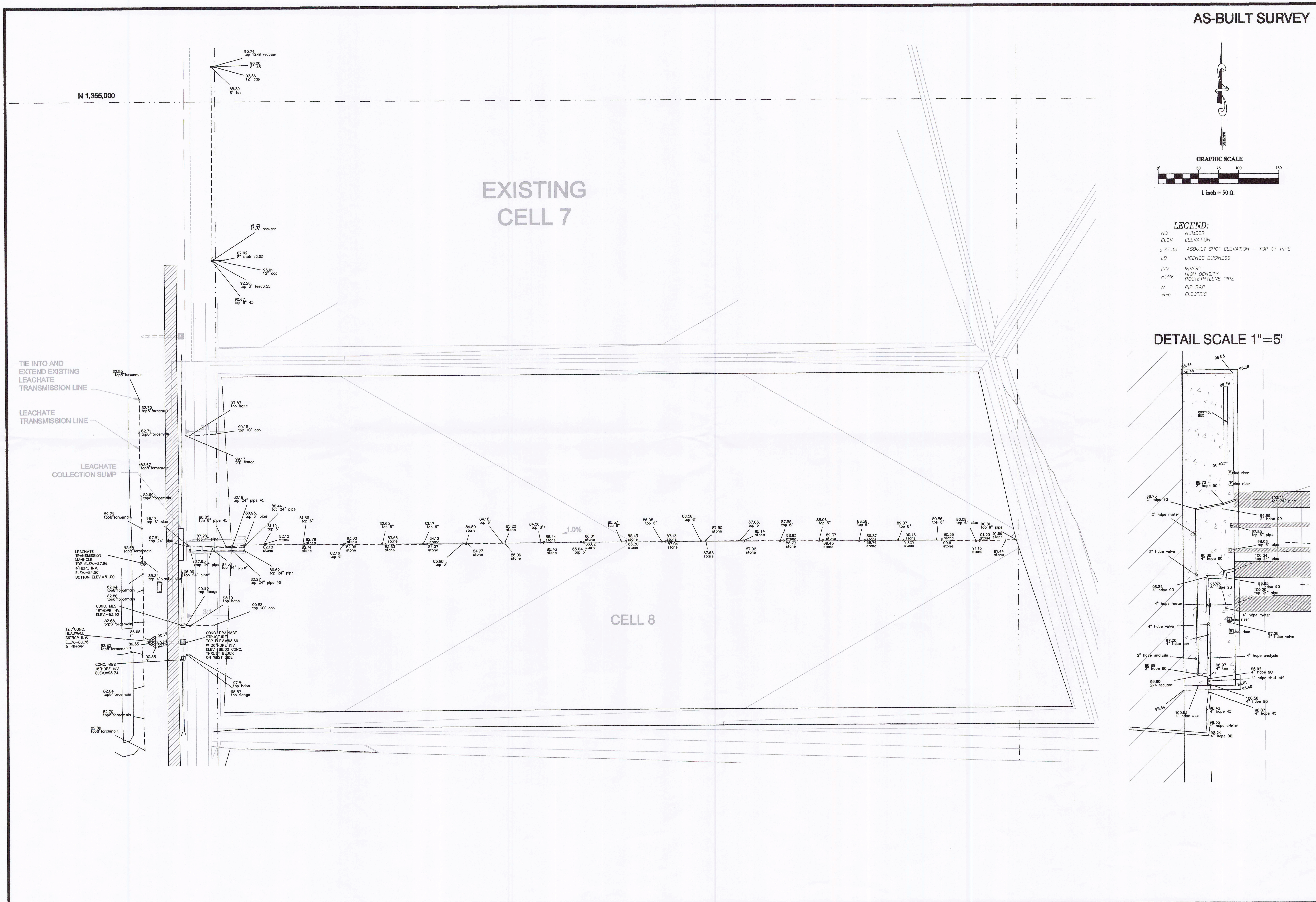
Page:

PEAVEY & ASSOCIATES SURVEYING & MAPPING PA
FLORIDA BUSINESS NUMBER 7779
690 ALICE PLACE
BARTOW, FL 33830
PHONE: 863-738-4960

CLIENT: ERC GENERAL CONTRACTOR
890 Carter Road Suite 170
Winter Garden, Fl 34787

ASBUILT SUBGRADE COVER
CELL 8 CONSTRUCTION
J.E.D. SOLID WASTE MANGEMENT FACILITY
1501 OMNI WAY ST. CLOUD, FL

SCALE	DRAWING NO.
1"=50'	218
PROJECT NO.	SHEET
128	3



NO.	DATE	REVISION
1	4/27/12	Removed design reference to details and sections

THIS SURVEY IS NOT VALID WITHOUT THE SIGNATURE AND ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.

FILE NAME: 128-erc-jed-pipe-asb.dwg

Drawn By: DLP
Party Chief: DR
Field Book:
Page:

PEAVEY
& ASSOCIATES SURVEYING & MAPPING PA
FLORIDA BUSINESS NUMBER 7779
690 ALICE PLACE
BARTOW, FL 33830
PHONE: 863-738-4960

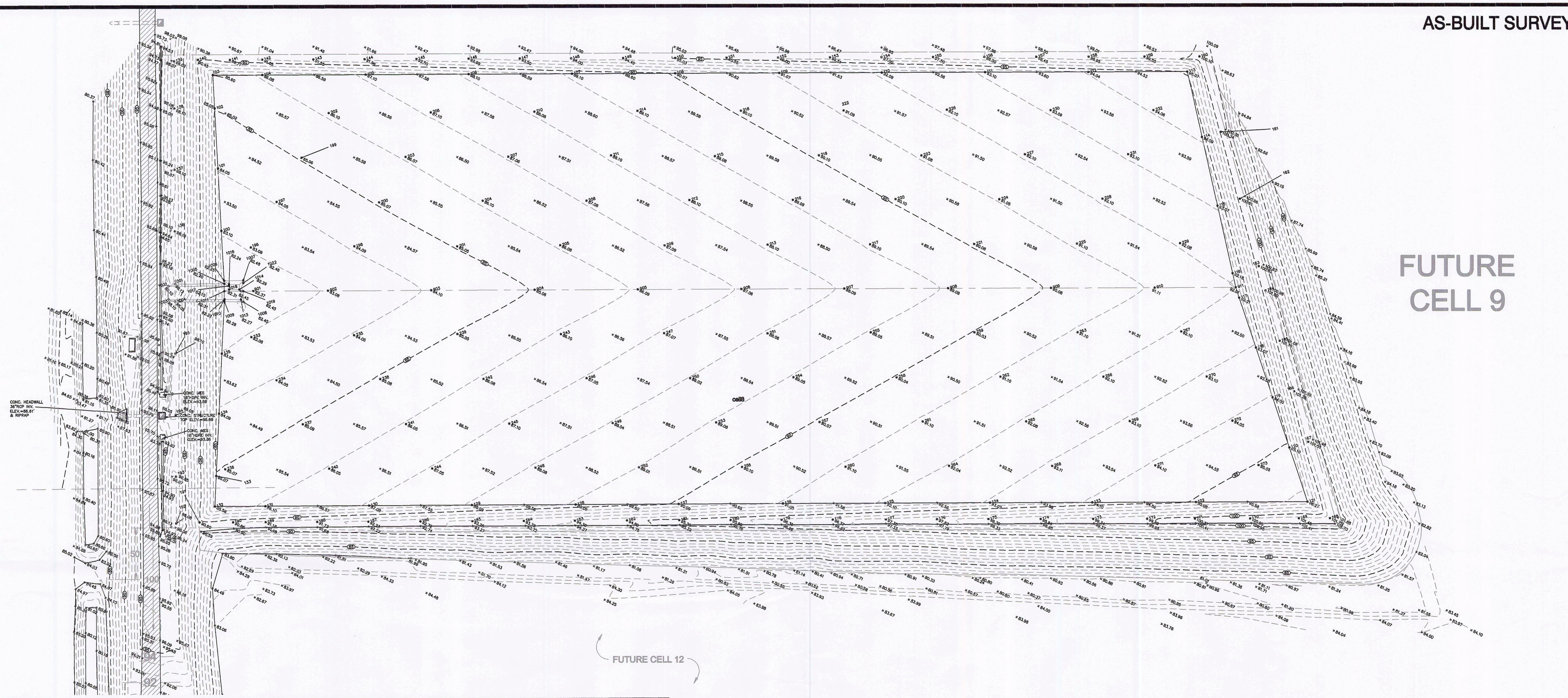
CLIENT:
ERC GENERAL CONTRACTOR
890 Carter Road Suite 170
Winter Garden, Fl 34787

ASBUILT SURVEY-LEACHATE & STORMWATER
CELL 8 CONSTRUCTION
J.E.D. SOLID WASTE MANGEMENT FACILITY
1501 OMNI WAY ST. CLOUD, FL

DEBORAH L. PEAVEY, P.S.M.
FLORIDA REGISTRATION NUMBER 6345
FLORIDA BUSINESS NUMBER 7779
3/20-3/30/2012
SURVEY DATE

SCALE	DRAWING NO.
1"=50'	218
PROJECT NO.	SHEET
128	4

AS-BUILT SURVEY



Design Point Number	Design Northing	Design Easting	Design Subgrade Elevation	Asbuilt Subgrade Elevation	Design Protective Cover Elevation	Asbuilt Protective Cover Elevation
100	1354506.36	624015.01	81.00	81.08	83.00	83.10
101	1354566.77	624011.86	82.00	82.05	84.00	84.05
102	1354625.02	624008.83	83.00	83.05	85.00	85.05
103	1354657.23	624007.15	83.52	83.59	85.52	85.60
104	1354657.32	624055.01	84.00	84.07	86.00	86.08
105	1354657.49	624155.19	85.00	85.09	87.00	87.10
106	1354657.67	624254.99	86.00	86.07	88.00	88.10
107	1354657.85	624355.12	87.00	87.10	89.00	89.10
108	1354658.03	624454.96	88.00	88.03	90.00	90.07
109	1354658.20	624555.38	89.00	89.06	91.00	91.07
110	1354658.38	624654.94	90.00	90.04	92.00	92.09
111	1354658.56	624754.95	91.00	91.09	93.00	93.10
112	1354658.73	624854.92	92.00	92.02	94.00	94.04
113	1354658.90	624950.87	92.96	93.06	94.96	95.07
114	1354595.46	624964.94	92.00	92.05	94.00	94.09
115	1354528.69	624979.80	91.00	91.06	93.00	93.07
116	1354463.18	624994.38	90.00	90.03	92.00	92.18
117	1354439.52	625000.75	90.00	90.08	92.00	92.21
118	1354391.08	625016.91	91.00	91.07	93.00	93.07
119	1354342.66	625033.06	92.00	92.00	94.00	94.05
120	1354293.94	625049.32	93.00	93.06	95.00	95.10
121	1354241.45	625066.83	94.09	94.15	96.09	96.27
122	1354241.19	624958.30	93.00	93.06	95.00	95.08
123	1354240.96	624857.60	92.00	92.09	94.00	94.10
124	1354240.73	624758.53	91.00	91.04	93.00	93.07
125	1354240.49	624657.38	90.00	90.09	92.00	92.10
126	1354240.26	624557.92	89.00	89.02	91.00	91.05
127	1354240.03	624457.17	88.00	88.04	90.00	90.09
128	1354239.80	624357.49	87.00	87.08	89.00	89.09
129	1354239.56	624256.95	86.00	86.06	88.00	88.09
130	1354239.33	624157.42	85.00	85.07	87.00	87.08
131	1354239.10	624056.74	84.00	84.10	86.00	86.10
132	1354238.98	624007.89	83.51	83.55	85.51	85.58
133	1354268.19	624009.31	83.00	83.06	85.00	85.07
134	1354328.91	624012.27	82.00	82.02	84.00	84.09
135	1354387.19	624015.11	81.00	81.03	83.00	83.05
136	1354505.82	623961.97	96.00	96.07	98.00	98.10
137	1354565.47	623961.87	96.00	96.07	98.00	98.10
138	1354625.07	623961.76	96.00	96.08	98.00	98.10
139	1354670.79	623961.69	96.00	96.01	98.00	98.02
140	1354672.08	623992.68	88.33	88.42	90.33	90.45
141	1354672.13	624023.76	88.64	88.67	90.64	90.71
142	1354672.18	624055.11	88.96	89.03	90.96	91.05
143	1354672.27	624104.51	89.45	89.54	91.45	91.55
144	1354672.35	624154.19	89.94	89.96	91.94	91.96
145	1354672.44	624204.56	90.45	90.48	92.45	92.50
146	1354672.53	624255.02	90.95	90.97	92.95	92.99
147	1354672.61	624304.51	91.45	91.47	93.45	93.50
148	1354672.69	624354.30	91.94	92.00	93.94	94.00
149	1354672.78	624404.55	92.44	92.53	94.44	94.49

Design Point Number	Design Northing	Design Easting	Design Subgrade Elevation	Asbuilt Subgrade Elevation	Design Protective Cover Elevation	Asbuilt Protective Cover Elevation
150	1354672.87	624454.87	92.95	93.03	94.95	95.03
151	1354672.95	624504.55	93.44	93.53	95.44	95.55
152	1354673.04	624554.26	93.94	93.98	95.94	96.00
153	1354673.12	624604.79	94.44	94.49	96.44	96.51
154	1354673.21	624654.79	94.94	94.98	96.94	97.00
155	1354673.29	624704.66	95.44	95.47	97.44	97.50
156	1354673.38	624754.23	95.93	95.96	97.93	98.00
157	1354673.46	624804.51	96.43	96.45	98.43	98.45
158	1354673.55	624855.13	96.94	96.95	98.94	98.95
159	1354673.64	624909.28	97.48	97.52	99.48	99.55
160	1354673.73	624962.72	98.01	98.10	100.01	100.10
161	1354600.39	624983.29	98.33	98.34	100.33	100.34
162	1354535.36	625001.54	98.57	98.60	100.57	100.61
163	1354470.03	625019.86	98.80	98.82	100.80	100.83
164	1354446.50	625026.47	98.88	98.99	100.88	101.00
165	1354397.72	625040.15	99.06	99.10	101.06	101.10
166	1354348.41	625053.98	99.23	99.26	101.23	101.26
167	1354299.54	625067.69	99.41	99.51	101.41	101.55
168	1354225.40	625088.49	99.67	99.71	101.67	101.75
169	1354225.35	625058.38	99.36	99.43	101.36	101.45
170	1354225.27	625010.91	98.88	98.94	100.88	100.95
171	1354225.18	624957.30	98.33	98.35	100.33	100.37
172	1354225.10	624910.86	97.86	97.88	99.86	99.89
173	1354225.01	624858.42	97.32	97.34	99.32	99.34
174	1354224.92	624807.53	96.81	96.82	98.81	98.84
175	1354224.84	624757.06	96.29	96.29	98.29	98.30
176	1354224.75	624707.26	95.78	95.82	97.78	97.83
177	1354224.67	624657.92	95.28	95.30	97.28	97.30
178	1354224.58	624606.50	94.76	94.76	96.76	96.77
179	1354224.50	624556.63	94.25	94.30	96.25	96.30
180	1354224.41	624507.29	93.74	93.79	95.74	95.80
181	1354224.33	624457.67	93.24	93.27	95.24	95.30
182	1354224.24	624406.99	92.72	92.80	94.72	94.80
183	1354224.16	624356.65	92.21	92.28	94.21	94.30
184	1354224.07	624307.19	91.70	91.78	93.70	93.78
185	1354223.99	624257.36	91.20	91.25	93.20	93.25
186	1354223.90	624207.05	90.68	90.73	92.68	92.72
187	1354223.81	624156.58	90.17	90.22	92.17	92.23
188	1354223.73	624106.85	89.66	89.71	91.66	91.73
189	1354223.64	624057.04	89.15	89.18	91.15	91.18
190	1354223.59	624025.42	88.83	88.84	90.83	90.86
191	1354223.54	623992.95	88.50	88.59	90.50	90.60
192	1354222.64	623962.45	96.00	96.04	98.00	98.08
193	1354267.79	623962.37	96.00	96.05	98.00	98.05
194	1354327.45	623962.27	96.00	96.06	98.00	98.05
195	1354387.23	623962.17	96.00	96.09	98.00	98.10
196	1354490.08	624043.35	80.98	81.07	82.98	83.08
197	1354534.20	624068.50	82.00	82.05	84.00	84.05
198	1354490.97	624143.67	82.00	82.08	84.00	84.09
199	1354576.95	624092.67	82.98	82.99	84.98	85.06

Design Point Number	Design Northing	Design Easting	Design Subgrade Elevation	Asbuilt Subgrade Elevation	Design Protective Cover Elevation	Asbuilt Protective Cover Elevation
200	1354533.53	624167.79	82.98	83.06	84.98	85.07
201	1354490.64	624243.34	82.99	83.05	84.99	85.05
202	1354620.42	624119.16	84.00	84.08	86.00	86.10
203	1354577.60	624193.64	84.00	84.04	86.00	86.07
204	1354534.74	624268.16	84.00	84.10	86.00	86.10
205	1354491.60	624343.17	84.00	84.03	86.00	86.08
206	1354620.75	624218.16	84.99	85.07	86.99	87.10
207	1354577.62	624293.08	84.99	85.05	86.99	87.06
208	1354534.57	624368.60	85.00	85.07	87.00	87.08
209	1354491.15	624444.04	85.00	85.09	87.00	87.09
210	1354621.18	624318.44	86.00	86.06	88.00	88.08
211	1354578.59	624392.49	86.00	86.10	88.00	88.10
212	1354534.99	624468.31	86.00	86.10	88.00	88.10
213	1354491.64	624543.70	86.00	86.08	88.00	88.10
214	1354621.69	624418.27	87.00	87.09	89.00	89.10
215	1354577.61	624493.00	86.99	87.07	88.99	89.08
216	1354534.93	624568.30	87.00	87.08	89.00	89.09
217	1354491.77	624643.13	86.99	87.09	88.99	89.10
218	1354621.66	624518.20	88.00	88.09	90.00	90.10
219	1354578.24	624593.70	88.00	88.09	90.00	90.10
220	1354535.49	624668.04	88.00	88.07	90.00	90.10
221	1354491.89	624743.86	88.00	88.04	90.00	90.08
222	1354621.69	624617.80	88.99	89.98	90.99	91.09
223	1354577.90	624693.11	88.99	89.07	90.99	91.08
224	1354535.11	624768.32	88.99	89.04	90.99	91.05
225	1354492.23	624843.34	89.00	89.10	91.00	91.10
226	1354622.24	624717.79	90.00	90.09	92.00	92.10
227	1354578.88	624793.19	90.00	90.10	92.00	92.10
228	1354535.74	624868.21	90.00	90.09	92.00	92.10
229	1354492.49	624943.40	90.00	90.06	92.00	92.08
230	1354621.69	624818.13	90.99	91.09	92.99	93.09
231	1354578.90	624893.17	91.00	91.09	93.00	93.10
232	1354621.69	624917.97	91.99	92.06	93.99	94.06
233	1354403.15	624043.62	81.03	81.07	83.03	83.08
234	1354361.18	624067.95	82.00	82.05	84.00	84.05
235	1354404.78	624143.18	82.00	82.04	84.00	84.05
236	1354274.74	624018.06	83.00	83.02	85.00	85.07
237	1354318.38	624093.25	82.99	83.08	84.99	85.09
238	1354362.10	624168.40	82.99	83.07	84.99	85.08
239	1354405.72	624243.35	82.99	83.05	84.99	85.05
240	1354274.98	624118.65	84.00	84.05	86.00	86.05
241	1354318.25	624193.30	84.00	84.01	86.00	86.05
242	1354361.86	624268.54	84.00	84.07	86.00	86.08
243	1354405.39	624343.63	84.00	84.09	86.00	86.10
244	1354274.89	624218.68	85.00	85.05	87.00	87.05
245	1354318.44	624293.27	85.00	85.08	87.00	87.10
246	1354362.33	624368.36	84.99	85.05	86.99	87.05
247	1354406.02	624443.39	84.99	85.06	86.99	87.07
248	1354275.37	624318.72	86.00	86.07	88.00	88.08
249	1354318.66	624393.42	86.00	86.02	88.00	88.04

Design Point Number	Design Northing	Design Easting	Design Subgrade Elevation	Asbuilt Subgrade Elevation	Design Protective Cover Elevation	Asbuilt Protective Cover Elevation
250	1354362.23	624468.59	86.00	86.01	88.00	88.02
251	1354405.65	624543.50	86.00	86.07	88.00	88.06
252	1354275.48	624418.75	87.00	87.01	89.00	89.01
253	1354319.04	624493.61	87.00	87.03	89.00	89.08
254	1354362.80	624568.48	86.99	87.03	88.99	89.05
255	1354406.48	624643.62	86.99	87.04	88.99	89.05
256	1354275.57	624518.49	88.00	88.06	90.00	90.10
257	1354319.27	624593.87	88.00	88.06	90.00	90.07
258	1354362.54	624668.53	88.00	88.04	90.00	90.04
259	1354406.21	624743.87	88.00	88.02	90.00	90.03
260	1354275.51	624619.00	89.01	89.09	91.01	91.10
261	1354319.55	624693.71	89.00	89.04	91.00	91.10
262	1354363.05	624768.98	89.00	89.09	91.00	91.10
263	1354406.26	624843.72	89.00	89.09	91.00	91.10
264	1354276.20	624718.98	90.00	90.01	92.00	92.04
265	1354319.54	624793.76	90.00	90.05	92.00	92.08
266	1354363.00	624868.73	90.00	90.09	92.00	92.10
267	1354406.86	624944.40	90.00	90.02	92.00	92.10
268	1354276.05	624818.86	91.00	91.11	93.00	93.11
269	1354319.73	624894.16	91.00	91.00	93.00	93.10
270	1354363.00	624969.09	91.01	91.08	93.01	93.10
271	1354276.54	624918.98	92.00	92.08	94.00	94.10
272	1354319.97	624993.91	92.00	92.03	94.00	94.05
273	1354276.72	625019.20	93.00	93.03	95.00	95.05

Design Point Number	Design Northing	Design Easting	Design Subgrade Elevation	Asbuilt Subgrade Elevation	Design Protective Cover Elevation	Asbuilt Protective Cover Elevation
901	1354447.90	624045.74	80.28	80.30	82.28	82.37
902	1354448.02	624117.85	81.00	81.08	83.00	83.08
903	1354448.19	624218.07	82.00	82.10	84.00	84.10
904	1354448.36	624318.26	83.00	83.05	85.00	85.06
905	1354448.53	624418.07	84.00	84.02	86.00	86.09
906	1354448.70	624518.19	85.00	85.02	87.00	87.06
907	1354448.87	624618.07	86.00	86.05	88.00	88.09
908	1354449.04	624718.53	87.00	87.08	89.00	89.08
909	1354449.21	624818.07	88.00	88.08	90.00	90.08
910	1354449.39	624918.65	89.01	89.11	91.01	91.11
911	1354449.52	624997.41	89.79	89.83	91.79	92.01

Design Point Number	Design Northing	Design Easting	Design Subgrade Elevation	Asbuilt Subgrade Elevation	Design Protective Cover Elevation	Asbuilt Protective Cover Elevation
1001	1354454.88	623970.06	96.00	96.00	98.00	98.17
1002	1354452.76	623963.72	96.00	96.00	98.00	98.10
1003	1354439.76	623963.74	96.00	96.00	98.00	98.10
1004	1354437.66	623970.08	96.00	96.01	98.00	98.05
1005	1354454.96	624017.70	80.12	80.14	82.12	82.20
1006	1354458.02	624017.54	80.17	80.25	82.17	82.25
1007	1354458.24	624036.09	80.36	80.46	82.36	82.48
1008	1354437.52	624036.12	80.36	80.44	82.36	82.45
1009	1354437.85	624017.58	80.17	80.27	82.17	82.28
1010	1354439.85	624017.76	78.00	78.10	80.00	82.22
1011	1354447.85	624017.75	78.00	78.03	80.00	82.31
1012	1354447.88	624033.75	78.00	78.02	80.00	82.45
1013	1354439.88	624033.76	78.00	78.10	80.00	82.27
1014	1354449.37	624032.24	76.50	76.56	78.50	82.29
1015	1354454.37	624032.24	76.50	76.59	78.50	82.22
1016	1354454.36	624022.24	76.50	76.54	78.50	82.24
1017	1354452.86	624022.24	76.50	76.58	78.50	82.10
1018	1354449.36	624022.24	76.50	76.56	78.50	82.31
1019	1354447.88	624035.92	80.18	80.27	82.18	82.45
1020	1354450.88	624034.41	78.66	78.68	80.66	82.33
1021	1354452.38	624034.40	78.66	78.75	80.66	82.29
1022	1354455.65	624036.05	80.31	80.32	82.31	82.46

LEGEND:

- NO. — NUMBER
- ELEV. — ELEVATION
- x 73.35 — ASBUILT SPOT ELEVATION – FINAL
- LB — LICENCE BUSINESS
- (95) — ASBUILT FINAL COVER CONTOUR (5 FOOT INTERVAL)
- ASBUILT FINAL COVER CONTOUR (1 FOOT INTERVAL)
- TOE OF SLOPE
- TOP OF SLOPE
- EXISTING LINER MARKER
- INV. — INVERT
- HDPE — HIGH DENSITY POLYETHYLENE PIPE
- ASBUILT LIMEROCK
- ASBUILT RIPRAP
- (M) — ASBUILT LEACHATE MANHOLE

GRAPHIC SCALE

0 50 75 100 150

1 inch = 50 ft.

ASBUILT FINAL COVER
CELL 8 CONSTRUCTION
J.E.D. SOLID WASTE MANGEMENT FACILITY
1501 OMNI WAY ST. CLOUD, FL

CLIENT:
ERC GENERAL CONTRACTOR
890 Carter Road Suite 170
Winter Garden, Fl 34787

PEAVEY & ASSOCIATES SURVEYING & MAPPING PA
FLORIDA BUSINESS NUMBER 7779
690 ALICE PLACE
BARTOW, FL 33830
PHONE: 863-738-4960

Drawn By: DLP
Party Chief: DR
Field Book:
Page:

THIS SURVEY IS NOT VALID WITHOUT THE SIGNATURE AND ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.

NO.	DATE	REVISION
1	4/27/12	Removed design reference to details and sections

SURVEY DATE: 3/30/2012

SCALE	DRAWING NO.
1"=50'	218
PROJECT NO.	SHEET
128	5