

18 June 2018

Ms. El Kromhout, P.G.
Florida Department of Environmental Protection
Division of Waste Management
Permitting & Compliance Assistance Program
2600 Blair Stone Road, MS 4565
Tallahassee, Florida 32399-2400

**Subject: Minor Permit Modification Application for Base Grade Gas
Collection Improvements, Rain Cover, and Cell 12 Grading Revision
Permit Nos. 0199726-031-SC-01 and 0199726-033-SO-01
J.E.D. Solid Waste Management Facility
Omni Waste of Osceola County, LLC**

Dear Ms. Kromhout:

Transmitted herewith is one copy of the subject minor permit modification application (application) for base grade gas collection improvements, operational modifications to allow for the optional use of rain covers, and modification to the proposed construction of Cell 12 to revert to the originally designed base grading plan at the J.E.D. Solid Waste Management Facility (JED Facility). This application was prepared by Geosyntec Consultants (Geosyntec) on behalf of Omni Waste of Osceola County, LLC (Omni), a wholly owned subsidiary of Waste Connections, Inc. (WCI).

The JED Facility is presently operating under FDEP solid waste permits 0199726-031-SC-01 and 0199726-033-SO-01, and subsequent modifications. This application requests approval to make minor modifications to both solid waste permits and complies with the requirements of Chapter 62-701 of the Florida Administrative Code.

A payment in the amount of \$500 (i.e., \$250 for minor modification of 0199726-031-SC-01 and \$250 for minor modification of 0199726-033-SO-01) will be made via FDEP's electronic payment system. If you or your staff have any questions or need

Ms. El Kromhout
18 June 2018
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additional information, please feel free to contact Mr. Alex Rivera of Geosyntec at (813)-558-0990 or arivera@geosyntec.com.

Sincerely,



Alex Rivera, P.E.
Engineer
Florida P.E. No. 78210

Enclosures

Copy: Kirk Wills, Waste Connections, Inc.

Transmittal - Cell 12 Minor Mod (June 2018)

Prepared for:



WASTE CONNECTIONS, INC.

Omni Waste of Osceola County, LLC

1501 Omni Way
St. Cloud, Florida 34773

**MINOR MODIFICATION APPLICATION
FOR BASE GRADE GAS COLLECTION
IMPROVEMENTS, RAIN COVER, AND
CELL 12 GRADING REVISION**

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

Prepared by:

Geosyntec

consultants

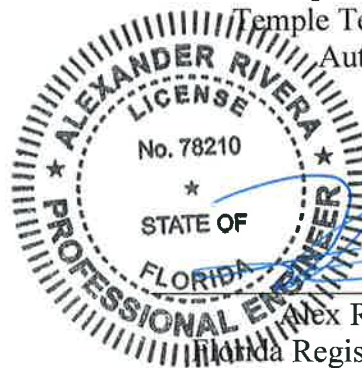
12802 Tampa Oaks Blvd., Suite 151

Temple Terrace, Florida 33637

Authorization No.: 4321

Project No. FL3035

June 2018



Alex Rivera, P.E.

Florida Registration No. 78210

(Expiration: 28 February 2019)

Date: 6/18/18

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Appendix B	Minor Modification Permit Drawings
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1 INTRODUCTION

1.1 Terms of Reference

Geosyntec Consultants (Geosyntec) has prepared this minor permit modification application (application) to propose revisions to the existing Florida Department of Environmental Protection (FDEP) solid waste construction and operation permits (Permit Nos. 0199726-031-SC-01 and 0199726-033-SO-01, respectively) for the J.E.D. Solid Waste Management Facility (JED facility), a Class I municipal solid waste (MSW) landfill in Osceola County, Florida. The JED facility is owned and operated by Omni Waste of Osceola County, LLC (Omni), which is a wholly owned subsidiary of Waste Connections, Inc. (WCI).

1.2 Purpose and Scope

This application, submitted to FDEP on behalf of Omni, proposes: i) modifications to future cell construction to include base grade landfill gas (LFG) collection features for the purpose of facilitating LFG collection prior to the installation of vertical wells and thereby reduce the potential for lateral LFG migration; ii) operational modifications to allow for the optional use of rain covers in portions of cells to minimize the generation of leachate; and iii) modification to the proposed construction of Cell 12 to revert to the originally designed base grading plan.

This application has been prepared to comply with the requirements of Chapter 62-701 of the Florida Administrative Code (F.A.C.). FDEP Form 62-701.900(1), *Application to Construct, Operate, Modify or Close a Solid Waste Management Facility* has been used to verify the completeness of this application and is included in **Appendix A**. Those items for which responses have not substantially changed from previous submittals on file with FDEP have been marked on the application form as *no substantial change* (N/C).

Furthermore, a set of drawings (Permit Modification Drawings) have been included in **Appendix B** to illustrate the proposed modifications to relevant sections and details in the approved 2016 “*Phases 1-5 Renewal Permit Drawings*” (2016 Permit Drawings) included as Appendix B of the “*Renewal Permit Application to Construct Phase 5 of the J.E.D. Solid Waste Management Facility*” (2016 Renewal Permit Application) (Geosyntec, 2016) and on file with FDEP. The Permit Modification Drawings are intended to provide sufficient detail for approval and construction.

This application was prepared by Mr. Alex Rivera, P.E. and reviewed by Mr. Craig Browne, P.E., both of Geosyntec. Professional engineer certification is provided on the cover sheet of this report, on the FDEP Form 62-701.900(1), and on each sheet of the Permit Modification Drawings.

1.3 Report Organization

The remainder of this report provides an overview of the proposed modifications to the base grade LFG collection features, optional use of rain covers during the initial waste filling of a cell, and Cell 12 base grading plan at the JED facility; details the revisions to the Permit Modification Drawings as they relate to the proposed improvements; and details the elements of the proposed modifications.

2 PROPOSED BASE GRADE GAS COLLECTION MODIFICATIONS

2.1 Overview

Evaluations have been performed at the JED facility to understand exceedances of select groundwater parameters (e.g., benzene) at wells immediately adjacent to the waste disposal footprint. The evaluations have indicated that groundwater exceedances were likely caused by lateral LFG migration from the existing waste disposal cells. Recent enhancements to the gas collection and control system (GCCS) in the existing cells, including the installation of additional vertical gas extraction wells and upgraded gas header piping, appear to have reduced the extent of groundwater parameter exceedances. The results of the GCCS enhancements also indirectly support the idea that lateral LFG migration is the primary cause of groundwater exceedances.

Based on the positive results of the GCCS enhancements, Omni requested that Geosyntec develop gas collection features that are integrated with construction of future cells at the JED facility. In this manner, gas could be captured from new cells at an earlier stage in the waste filling sequence, prior to installation of vertical gas extraction wells.

Therefore, in general accordance with paragraph 62-701.530(1)(a) and subparagraph 62-701.530(1)(a)3., F.A.C., the proposed base grade gas collection features are designed to further minimize “lateral migration of gases” and “reduce gas pressure in the interior of the landfill by collecting the gases to prevent them from moving laterally”.

2.2 Drawings

As part of this application, select sheets of the 2016 Permit Drawings have been revised to reflect the proposed base grade LFG collection features. As part of future cell construction, the following modifications are proposed:

- revise the location of the 40-mil HDPE geomembrane flap at the intercell berm to accommodate installation of two 6-inch (in) diameter solid and perforated SDR-11 high-density polyethylene (HDPE) horizontal gas collection pipes wrapped in geocomposite (see Sheet No. 15);
- revise the location of the temporary 40-mil HDPE geomembrane flap at the anchor trench at the crest of the perimeter berm to allow installation of a 4-in diameter perforated gas horizontal SDR-11 HDPE pipe (see Sheet Nos. 16 and 17);
- extend the temporary 40-mil HDPE geomembrane flap from the anchor trench at the crest of perimeter berm up slope to cover a diversion berm and anchor into the

waste to be placed, to enhance gas capture at the landfill perimeter (see Sheet No. 16);

- install an 8-in diameter perforated gas horizontal SDR-11 HDPE pipe along the inside toe of the perimeter berm to facilitate condensate drainage from the horizontal gas collection piping (see Sheet Nos. 16, 17, and 20);
- install an 8-in diameter perforated SDR-11 HDPE gas collection pipe at the primary leachate collection sump (see Sheet Nos. 17 and 20);
- install wellheads, valves and fittings to connect the horizontal gas collection piping to the existing network of gas collection header piping.

These proposed modifications are summarized below, and the corresponding Permit Modification Drawings are presented in **Appendix B** of this application.

2.3 Proposed Modifications

To reduce the potential of lateral LFG migration from future cells, base grade gas collection features are proposed to be installed during construction of future cells. The 40-mil HDPE geomembrane flaps at the anchor trench of both the intercell berm and the crest of the perimeter berm are proposed to be moved slightly to allow placement of horizontal gas collection piping to capture gas that may migrate laterally to the perimeter of future cells.

Proposed LFG collection pipes include two 6-in diameter perforated SDR-11 HDPE pipes along the top of the intercell berm, 4-in diameter perforated SDR-11 HDPE pipes along the crest of the perimeter berm, and 8-in diameter perforated SDR-11 HDPE pipe at the primary leachate collection sump. An 8-in diameter SDR-11 HDPE pipe is proposed along the toe of the perimeter berm to facilitate drainage of condensate from the horizontal gas collection pipes to the leachate collection sump. The proposed SDR-11 HDPE piping has been evaluated previously (Geosyntec 2011) for use in the leachate collection system and was shown to have an adequate factor of safety against pipe instability (i.e., crushing, buckling, deflection, etc.). The details and sections illustrating the proposed base grade gas collection features are presented in Sheet Nos. 15 to 17 and 20 of the Permit Modification Drawings in **Appendix B**.

3 PROPOSED RAIN COVER MODIFICATION

3.1 Overview

The primary contributing factor to leachate generation is rainfall within the cell footprint. Therefore, collecting un-impacted storm water before it contacts waste or other areas of the cell can significantly reduce the quantity of leachate generated. Depending on operational conditions, Omni is requesting the option to cover areas of future cells, where waste is not being placed, with plastic sheeting or tarps to intercept rainfall before it enters the liner protective layer soil and leachate collection system.

3.2 Drawings

As part of this application, select sheets of the 2016 Permit Drawings, on file with FDEP, have been revised to reflect the proposed rain cover features, which include the following:

- Sheet No. 9 depicts plan view of proposed rain cover. Note that the actual extents of the rain cover may vary somewhat depending on operational conditions;
- Sheet No. 12 depicts a section view of the proposed rain cover; and
- Sheet No. 16 depicts details of the proposed rain cover, including anchorage at edges.

These proposed modifications are described below, and the corresponding Permit Modification Drawings are presented in **Appendix B** of this application.

3.3 Proposed Modifications

To reduce the leachate generation rate from future cells, optional rain covers are proposed to be installed during construction of future cells. The rain covers will typically consist of temporary plastic sheeting such as Dura-Skrim 12BBR, 20 mil HDPE /LLDPE sheeting, or equivalent. Temporary berms will be constructed down gradient of the working face such that impacted storm water from the operations area and the deposited waste will not be able to co-mingle with the un-impacted storm water. The temporary sheeting will be secured with sand bags, tires, or other equivalent ballasting that will not puncture the temporary sheeting. The temporary sheeting will extend from the top of the intercell and sideslope berms across the entire width of the cell.

Un-impacted storm water will be collected in a temporary sump, constructed on top of the protective soil cover and pumped to the existing storm water management system. WSI will provide dedicated storm water pumps, (i.e., electric submersibles or gasoline powered trash pumps) to pump the un-impacted storm water from the top of the plastic sheeting to the nearest

storm water down chute such that the pumped water will flow out of the down chute onto the rip rap placed at the end of the outlet structure.

The amount of area covered by the plastic sheeting will be adjusted to accommodate waste deposition requirements throughout the initial filling of the cell. As waste deposition progresses across the cell, the area covered with plastic will be reduced until it is finally removed. The implementation of this alternative will reduce the quantity of leachate generated by intercepting rainfall before it has the opportunity to commingle with impacted water percolating through the waste. This alternative is considered suitable for use at any new cell at the landfill until waste deposition requires use of the entire cell.

Operational procedures associated with the use of rain covers are provided in revised pages of the Operation Plan presented in **Appendix C**.

4 PROPOSED CELL 12 BASE GRADE MODIFICATION

4.1 Overview

Based on results of analyses from the pending sideslope permit modification, Omni is requesting approval to construct Cell 12 to the lines and grades depicted in the 2012 “*Phases 1 Through 4 Renewal Permit Drawings*” (2012 Permit Drawings) included as Appendix B of the “*Renewal Permit Application to Operate Phases 1 Through 4 of the J.E.D. Solid Waste Management Facility*” (2012 Renewal Permit Application) (Geosyntec 2012), on file with FDEP.

4.2 Drawings

As part of this application, select 2016 Permit Drawings, on file with FDEP, have been revised to reflect the previously approved Cell 12 base grading plan, as follows:

- Sheets 4, 7, 8, 9, 23, and 24 depict the revised Cell 12 base grades; and
- Sheets 11 and 12 depict the revised Cell 12 base grades in section view.

These proposed modifications are described below, and the corresponding Permit Modification Drawings are presented in **Appendix B** of this application.

4.3 Proposed Modifications

Omni is considering a future extension of the proposed sideslope modifications further south to Cell 12. Accordingly, a preliminary settlement evaluation was performed using the currently approved Cell 12 base grades, which indicated that the post-settlement grades for the geocomposite drainage layer may not meet or exceed the minimum required 1.0 percent grade. Therefore, due to the timing of Cell 12 construction, Omni is requesting to use the previously approved Cell 12 base grading plan, which was depicted on the 2012 Permit Drawings.

Plans and sections illustrating the revised Cell 12 base grades are presented in the Permit Modification Drawings in **Appendix B**. The geocomposite drainage layer specification, specific to Cell 12 has also been updated (to be consistent with the previously approved geocomposite specifications), and is provided in **Appendix D**. Note, due to the results of the slope stability analyses performed as part of the pending sideslope permit modification, the required minimum peak interface friction angle may be revised to achieve the required factor of safety.

5 REFERENCES

Geosyntec Consultants (2011) “Landfill Lateral Expansion – Application for a Major Permit Modification,” dated 17 February 2011.

Geosyntec Consultants (2012) “Renewal Permit Application to Operate Phases 1 Through 4 of the J.E.D. Solid Waste Management Facility,” dated November 2011, revised January 2012.

Geosyntec Consultants (2016) “Renewal Permit Application to Construct Through Phase 5 at the J.E.D. Solid Waste Management Facility,” received by FDEP on 15 June 2016.

APPENDICES

Appendix A
FDEP Form 62-701.900(1)



Florida Department of Environmental Protection

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

DEP Form #: 62-701.900(1), F.A.C.

Form Title: Application to Construct, Operate, Modify, or
Close a Solid Waste Management Facility

Effective Date: February 15, 2015

Incorporated in Rule: 62-701.330(3), F.A.C.

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

APPLICATION TO CONSTRUCT, OPERATE, MODIFY, OR CLOSE A SOLID WASTE MANAGEMENT FACILITY

APPLICATION INSTRUCTIONS AND FORMS

Northwest District
160 Governmental Street
Suite 308
Pensacola, FL 32502-5794
850-595-8300

Northeast District
7777 Baymeadows Way West
Suite 100
Jacksonville, FL 32256-7590
904-256-1700

Central District
3319 Maguire Boulevard
Suite 232
Orlando, FL 32803-3767
407-897-4100

Southwest District
13051 North Telecom Pkwy
Temple Terrace, FL 33637
813-470-5700

South District
2295 Victoria Ave, Suite 364
P.O. Box 2549
Fort Myers, FL 33901-3881
239-344-5600

Southeast District
3301 Gun Club Road
MSC 7210-1
West Palm Beach, FL 33406
561-681-6600

INSTRUCTIONS TO APPLY FOR A SOLID WASTE MANAGEMENT FACILITY PERMIT

I. General

Solid Waste Management Facilities shall be permitted pursuant to Section 403.707, Florida Statutes (FS) and in accordance with Florida Administrative Code (FAC) Chapter 62-701. A permit application shall be submitted in accordance with the requirements of Rule 62-701.320(5)(a), F.A.C., to the appropriate Department office having jurisdiction over the facility. The appropriate fee in accordance with Rule 62-701.315, FAC, shall be submitted with the application by check made payable to the Department of Environmental Protection (DEP).

Complete appropriate sections for the type of facility for which application is made. Entries shall be typed or printed in ink. All blanks shall be filled in or marked "Not Applicable" or "No Substantial Change". Information provided in support of the application shall be marked "Submitted" and the location of this information in the application package indicated. The application shall include all information, drawings, and reports necessary to evaluate the facility. Information required to complete the application is listed on the attached pages of this form.

II. Application Parts Required for Construction and Operation Permits

- A. Landfills and Ash Monofills - Submit Parts A through S
- B. Asbestos Monofills - Submit Parts A, B, C, D, E, F, I, K, M, O through S
- C. Industrial Solid Waste Disposal Facilities - Submit Parts A through S

NOTE: Portions of some Parts may not be applicable.

NOTE: For facilities that have been satisfactorily constructed in accordance with their construction permit, the information required for A, B and C type facilities does not have to be resubmitted for an operation permit if the information has not substantially changed during the construction period. The appropriate portion of the form should be marked "no substantial change".

III. Application Parts Required for Closure Permits

- A. Landfills and Ash Monofills - Submit Parts A, B, L, N through S
- B. Asbestos Monofills - Submit Parts A, B, M, O through S
- C. Industrial Solid Waste Disposal Facilities - Submit Parts A, B, L through S

NOTE: Portions of some Parts may not be applicable.

IV. Permit Renewals

The above information shall be submitted at time of permit renewal in support of the new permit. However, facility information that was submitted to the Department to support the expiring permit, and which is still valid, does not need to be re-submitted for permit renewal. Portions of the application not re-submitted shall be marked "no substantial change" on the application form.

V. Application Codes

S	-	Submitted
LOCATION	-	Physical location of information in application
N/A	-	Not Applicable
N/C	-	No Substantial Change

VI. Listing of Application Parts

PART A:	GENERAL INFORMATION
PART B:	DISPOSAL FACILITY GENERAL INFORMATION
PART C:	PROHIBITIONS
PART D:	SOLID WASTE MANAGEMENT FACILITY PERMIT REQUIREMENTS, GENERAL
PART E:	LANDFILL PERMIT REQUIREMENTS
PART F:	GENERAL CRITERIA FOR LANDFILLS
PART G:	LANDFILL CONSTRUCTION REQUIREMENTS
PART H:	HYDROGEOLOGICAL INVESTIGATION REQUIREMENTS
PART I:	GEOTECHNICAL INVESTIGATION REQUIREMENTS
PART J:	VERTICAL EXPANSION OF LANDFILLS
PART K:	LANDFILL OPERATION REQUIREMENTS
PART L:	WATER QUALITY AND LEACHATE MONITORING REQUIREMENTS
PART M:	SPECIAL WASTE HANDLING REQUIREMENTS
PART N:	GAS MANAGEMENT SYSTEM REQUIREMENTS
PART O:	LANDFILL CLOSURE REQUIREMENTS
PART P:	OTHER CLOSURE PROCEDURES
PART Q:	LONG-TERM CARE
PART R:	FINANCIAL ASSURANCE
PART S:	CERTIFICATION BY APPLICANT AND ENGINEER OR PUBLIC OFFICER

**STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
APPLICATION FOR A PERMIT TO CONSTRUCT, OPERATE, MODIFY OR CLOSE A
SOLID WASTE MANAGEMENT FACILITY**

Please Type or Print

PART A. GENERAL INFORMATION

1. Type of disposal facility (check all that apply):

- | | |
|--|--|
| ☒ Class I Landfill | ☐ Ash Monofill |
| ☐ Class III Landfill | ☐ Asbestos Monofill |
| ☐ Industrial Solid Waste | |
| ☐ Other (describe): | |
-
-
-

NOTE: Waste Processing Facilities should apply on Form 62-701.900(4), FAC;
Yard Trash Disposal Facilities should notify on Form 62-701.900(3), FAC;
Compost Facilities should apply on Form 62-709.901(1), FAC; and
C&D Disposal Facilities should apply on Form 62-701.900(6), FAC

2. Type of application:

- ☒ Construction
☒ Operation
☐ Construction/Operation
☐ Closure
☐ Long-term Care Only

3. Classification of application:

- | | |
|----------------------------------|--|
| ☐ New | ☐ Substantial Modification |
| ☐ Renewal | ☐ Intermediate Modification |
| | ☒ Minor Modification |

4. Facility name: J.E.D. Solid Waste Management Facility

5. DEP ID number: 89544 (WACS) County: Osceola

6. Facility location (main entrance):

1501 Omni Way, St. Cloud, FL 34773

7. Location coordinates:

Section: 11,13,14,17, & 18 Township: 28S Range: 32E & 33E
Latitude: 28 ° 3 ' 32 " Longitude: 81 ° 5 ' 46 "
Datum: WGS84 Coordinate method: DGPS

Collected by: Johnston's Surveying Company/Affiliation: Johnston's Surveying

8. Applicant name (operating authority): Omini Waste of Osceola County LLC
- Mailing address: 1501 Omni Way St. Cloud FL 34773
- Street or P.O. Box City State Zip
- Contact person: Kirk Wills Telephone: (813) 388-1026
- Title: Southern Region Engineer
- kirk.wills@wasteconnections.com
- E-Mail address (if available)
9. Authorized agent/Consultant: Geosyntec Consultants
- Mailing address: 12802 Tampa Oaks Blvd. Ste 151 Tampa FL 33637
- Street or P.O. Box City State Zip
- Contact person: Alex Rivera, P.E. Telephone: (813) 558-0990
- Title: Engineer
- arivera@geosyntec.com
- E-Mail address (if available)
10. Landowner (if different than applicant): N/A
- Mailing address: _____
- Street or P.O. Box City State Zip
- Contact person: _____ Telephone: (____) _____
- _____
- E-Mail address (if available)
11. Cities, towns, and areas to be served:
- Primarily Osceola, Brevard, Indian River, Okeechobee, Orange, Polk, Volusia, Sumter, Lake, Seminole,
- Pasco, Hillsborough, Hardee, and Highlands Counties. Other Florida counties are served as waste
- streams are available.
12. Population to be served:
- Current: 6,266,000 (approx.) Five-Year Projection: 6,500,000 (approx.)
13. Date site will be ready to be inspected for completion: N/A
14. Expected life of the facility: 22 years
15. Estimated costs:
- Total Construction: \$ _____ Closing Costs: \$ 13,326,881
16. Anticipated construction starting and completion dates:
- From: 2018 To: 2027
17. Expected volume or weight of waste to be received:
- _____ yds³/day _____ tons/day _____ gallons/day

PART B. DISPOSAL FACILITY GENERAL INFORMATION

1. Provide brief description of disposal facility design and operations planned under this application:
Minor modification to the construction permit to allow gas collection system
enhancements to be built into the base liner system of future cells, and minor mod.
to the operation permit to allow the optional use of rain covers in future cells.
2. Facility site supervisor: Benjamin Gray
Title: District Manager Telephone: (407) 932-8672
BenjaminG@WasteConnections.com
E-Mail address (if available)
3. Disposal area: Total acres: 360 Used acres: 153.5 Available acres: 206.5
4. Weighing scales used: ☒ Yes ☐ No
5. Security to prevent unauthorized use: ☒ Yes ☐ No
6. Charge for waste received: _____ \$/yds³ 35 _____ \$/ton
7. Surrounding land use, zoning:
☐ Residential ☐ Industrial
☒ Agricultural ☐ None
☐ Commercial ☐ Other (describe):

8. Types of waste received:
☒ Household ☒ C & D debris
☒ Commercial ☒ Shredded/cut tires
☒ Incinerator/WTE ash ☐ Yard trash
☒ Treated biomedical ☐ Septic tank
☒ Water treatment sludge ☒ Industrial
☐ Air treatment sludge ☒ Industrial sludge
☐ Agricultural ☒ Domestic sludge
☒ Asbestos ☒ Other (describe):
Waste tires and liquid waste for solidification.

9. Salvaging permitted: ☐ Yes ☒ No unless volume of recyclable goods is sufficient

10. Attendant: ☒ Yes ☐ No Trained operator: ☒ Yes ☐ No

11. Trained spotters: ☒ Yes ☐ No Number of spotters used: Minimum of 1 per work face

12. Site located in: ☒ Floodplain ☒ Wetlands ☐ Other (describe):

13. Days of operation: Monday through Sunday

14. Hours of operation: Mon-Fri: 5am to 4pm, Sat: 6am to 12pm, Sun: 6am to 10am

15. Days working face covered: each working day

16. Elevation of water table: 79 ft. Datum Used: NGVD 1929

17. Number of monitoring wells: 63

18. Number of surface monitoring points: 2

19. Gas controls used: ☒ Yes ☐ No Type controls: ☒ Active ☐ Passive

Gas flaring: ☒ Yes ☐ No Gas recovery: ☒ Yes ☐ No

20. Landfill unit liner type:

- | | |
|---|--|
| ☐ Natural soils | ☐ Double geomembrane |
| ☐ Single clay liner | ☒ Geomembrane & composite (Cells 5 through 23) |
| ☐ Single geomembrane | ☒ Double composite (Cells 1 through 4) |
| ☐ Single composite | ☐ None |
| ☐ Slurry wall | ☒ Other (describe): |

A GCL layer is provided below primary geomembrane liner in the sump area in Cells 5 through 23.

21. Leachate collection method:

- | | |
|--|---|
| ☒ Collection pipes | ☐ Double geomembrane |
| ☒ Geonets (geocomposite) | ☐ Gravel layer |
| ☐ Well points | ☐ Interceptor trench |
| ☐ Perimeter ditch | ☐ None |
| ☒ Other (describe): | |

Sand layer above geocomposite.

22. Leachate storage method:

☐ Tanks	☒ Surface impoundments
☐ Other (describe):	

23. Leachate treatment method:

☒ Oxidation	☐ Chemical treatment
☐ Secondary	☐ Settling
☐ Advanced	☐ None
☒ Other (describe):	

Oxidation performed through aeration in the uncovered Cell of the leachate storage area.

24. Leachate disposal method:

☒ Recirculated	☐ Pumped to WWTP
☒ Transported to WWTP	☐ Discharged to surface water/wetland
☐ Injection well	☐ Percolation ponds
☒ Evaporation	☐ Spray irrigation
☐ Other (describe):	

25. For leachate discharged to surface waters:

Name and Class of receiving water:

N/A

26. Storm Water:

Collected: ☒ Yes ☐ No

Type of treatment:

Dry and wet retention for landfill and dry retention for access road.

Name and Class of receiving water:

Bull Creek, Class III

27. Environmental Resources Permit (ERP) number or status:

Current ERP Numbers are ERP49-0199752-001-EI (Phase 1 Individual), ERP49-0199752-002-EI (Conceptual), ERP-49-0199752-003-EI (Phase 2 Individual), ERP49-0199752-004-EM (Phase 3 Individual), ERP-49-0199752-006-EM (Conceptual Permit Mod.), ERP-49-0199752-007-EM (Leachate Storage Facility), ERP-49-0199752-008 (Leachate Storage Facility Mod.), ERP49-0199752-010-EI (Phase 4 Individual).

PART C. PROHIBITIONS (62-701.300, FAC)

LOCATION

- | | | |
|----------------------------------|--|---|
| S ☐ _____ | N/A ☐ N/C ☒ | 1. Provide documentation that each of the siting criteria will be satisfied for the facility; (62-701.300(2), FAC) |
| S ☐ _____ | N/A ☐ N/C ☒ | 2. If the facility qualifies for any of the exemptions contained in Rules 62-701.300(12), (13) and (16) through (18), FAC, then document this qualification(s); |
| S ☐ _____ | N/A ☐ N/C ☒ | 3. Provide documentation that the facility will be in compliance with the burning restrictions; (62-701.300(3), FAC) |
| S ☐ _____ | N/A ☐ N/C ☒ | 4. Provide documentation that the facility will be in compliance with the hazardous waste restrictions; (62-701.300(4), FAC) |
| S ☐ _____ | N/A ☐ N/C ☒ | 5. Provide documentation that the facility will be in compliance with the PCB disposal restrictions; (62-701.300(5), FAC) |
| S ☐ _____ | N/A ☐ N/C ☒ | 6. Provide documentation that the facility will be in compliance with the biomedical waste restrictions; (62-701.300(6), FAC) |
| S ☐ _____ | N/A ☐ N/C ☒ | 7. Provide documentation that the facility will be in compliance with the Class I surface water restrictions; (62-701.300(7), FAC) |
| S ☐ _____ | N/A ☐ N/C ☒ | 8. Provide documentation that the facility will be in compliance with the special waste for landfills restrictions; (62-701.300(8), FAC) |
| S ☐ _____ | N/A ☐ N/C ☒ | 9. Provide documentation that the facility will be in compliance with the liquid restrictions; (62-701.300(10), FAC) |
| S ☐ _____ | N/A ☐ N/C ☒ | 10. Provide documentation that the facility will be in compliance with the used oil and oily waste restrictions; (62-701.300(11), FAC) |
| S ☐ _____ | N/A ☐ N/C ☒ | 11. Provide documentation that the facility will be in compliance with the CCA treated wood restrictions; (62-701.300(14), FAC) |
| S ☐ _____ | N/A ☐ N/C ☒ | 12. Provide documentation that the facility will be in compliance with the dust control restrictions; (62-701.300(15), FAC) |

PART D. SOLID WASTE MANAGEMENT FACILITY PERMIT REQUIREMENTS, GENERAL (62-701.320, FAC)

LOCATION

S ☒ Attached N/A ☐ N/C ☐

S ☒ Report/Appendices N/A ☐ N/C ☐

S ☒ Attached letter N/A ☐ N/C ☐

S ☒ Appendix A N/A ☐ N/C ☐

S ☒ Attached N/A ☐ N/C ☐

S ☒ Attached N/A ☐ N/C ☐

S ☒ Appendix C N/A ☐ N/C ☐

S ☐ _____ N/A ☐ N/C ☒

S ☒ Appendix B N/A ☐ N/C ☐

S ☐ _____ N/A ☐ N/C ☒

S ☐ _____ N/A ☐ N/C ☒

S ☐ _____ N/A ☐ N/C ☒

S ☒ Appendix B N/A ☐ N/C ☐

1. A minimum of one completed electronic application form, all supporting data and reports; (62-701.320(5)(a), FAC)

2. Engineering and/or professional certification (signature, date, and seal) provided on the applications and all engineering plans, reports, and supporting information for the application; (62-701.320(6), FAC)

3. A letter of transmittal to the Department; (62-701.320(7)(a), FAC)

4. A completed application form dated and signed by the applicant; (62-701.320(7)(b), FAC)

5. Permit fee specified in Rule 62-701.315, FAC in check or money order, payable to the Department; (62-701.320(7)(c), FAC)

6. An engineering report addressing the requirements of this rule and with the following format: a cover sheet, text printed on 8 ½ inch by 11 inch consecutively numbered pages, a table of contents or index, the body of the report and all appendices including an operation plan, contingency plan, illustrative charts and graphs, records or logs of tests and investigations, engineering calculations; (62-701.320(7)(d), FAC)

7. Operation Plan and Closure Plan; (62-701.320(7)(e)1, FAC)

8. Contingency Plan; (62-701.320(7)(e)2, FAC)

9. Plans or drawings for the solid waste management facilities in appropriate format (including sheet size restrictions, cover sheet, legends, north arrow, horizontal and vertical scales, elevations referenced to NGVD 1929) showing: (62-701.320(7)(f), FAC)

a. A regional map or plan with the project location in relation to major roadways and population centers;

b. A vicinity map or aerial photograph no more than one year old showing the facility site and relevant surface features located within 1000 feet of the facility;

c. A site plan showing all property boundaries certified by a Florida Licensed Professional Surveyor and Mapper;

d. Other necessary details to support the engineering report, including referencing elevations to a consistent, nationally recognized datum, and identifying the method used for collecting latitude and longitude data;

LOCATION**PART D CONTINUED**S ☐ _____ N/A ☐ N/C ☒

10. Documentation that the applicant either owns the property or has legal authority from the property owner to use the site; (62-701.320(7)(g), FAC)

S ☐ _____ N/A ☒ N/C ☐

11. For facilities owned or operated by a county, provide a description of how, if any, the facilities covered in this application will contribute to the county's achievement of the waste reduction and recycling goals contained in Section 403.706, FS; (62-701.320(7)(h), FAC)

S ☐ _____ N/A ☐ N/C ☒

12. Provide a history and description of any enforcement actions taken by the Department against the applicant for violations of applicable statutes, rules, orders, or permit conditions relating to the operation of any solid waste management facility in the state; (62-701.320(7)(i), FAC)

S ☐ _____ N/A ☒ N/C ☐

13. Proof of publication in a newspaper of general circulation of notice of application for a permit to construct or substantially modify a solid waste management facility; (62-701.320(8), FAC)

S ☐ _____ N/A ☐ N/C ☒

14. Provide a description of how the requirements for airport safety will be achieved, including proof of required notices if applicable. If exempt, explain how the exemption applies; (62-701.320(13), FAC)

S ☐ _____ N/A ☐ N/C ☒

15. Explain how the operator and spotter training requirements and special criteria will be satisfied for the facility; (62-701.320(15), FAC)

PART E. LANDFILL PERMIT REQUIREMENTS (62-701.330, FAC)**LOCATION**S ☐ _____ N/A ☐ N/C ☒

1. Regional map or aerial photograph no more than five years old showing all airports that are located within five miles of the proposed landfill; (62-701.330(3)(a), FAC)

S ☒ Appendix B N/A ☐ N/C ☐

2. Plot plan with a scale not greater than 200 feet to the inch showing: (62-701.330(3)(b), FAC)

S ☒ Appendix B N/A ☐ N/C ☐

a. Dimensions;

S ☐ _____ N/A ☐ N/C ☒

b. Locations of proposed and existing water quality monitoring wells;

S ☐ _____ N/A ☐ N/C ☒

c. Locations of soil borings;

S ☐ _____ N/A ☐ N/C ☒

d. Proposed plan of trenching or disposal areas;

S ☒ Appendix B N/A ☐ N/C ☐

e. Cross sections showing original elevations and proposed final contours which shall be included either on the plot plan or on separate sheets;

LOCATIONS ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☒ Appendix B N/A ☐ N/C ☐S ☒ Appendix B N/A ☐ N/C ☐S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒**PART E CONTINUED**

f. Any previously filled waste disposal areas;

g. Fencing or other measures to restrict access;

3. Topographic maps with a scale not greater than 200 feet to the inch with five foot contour intervals showing: (62-701.330(3)(c), FAC)

a. Proposed fill areas;

b. Borrow areas;

c. Access roads;

d. Grades required for proper drainage;

e. Cross sections of lifts;

f. Special drainage devices if necessary;

g. Fencing;

h. Equipment facilities;

4. A report on the landfill describing the following: (62-701.330(3)(d), FAC)

a. The current and projected population and area to be served by the proposed site;

b. The anticipated type, annual quantity, and source of solid waste expressed in tons;

c. Planned active life of the facility, the final design height of the facility, and the maximum height of the facility during its operation;

d. The source and type of cover material used for the landfill;

5. Provide evidence that an approved laboratory shall conduct water quality monitoring for the facility in accordance with Chapter 62-160, FAC; (62-701.330(3)(g), FAC)

6. Provide a statement of how the applicant will demonstrate financial responsibility for the closing and long-term care of the landfill; (62-701.330(3)(h), FAC)

PART F. GENERAL CRITERIA FOR LANDFILLS (62-701.340, FAC)

LOCATION

S ☐ _____ N/A ☐ N/C ☒

1. Describe (and show on a Federal Insurance Administration flood map, if available) how the landfill or solid waste disposal unit shall not be located in the 100 year floodplain where it will restrict the flow of the 100 year flood, reduce the temporary water storage capacity of the floodplain unless compensating storage is provided, or result in a washout of solid waste; (62-701.340(3)(b), FAC)

S ☐ _____ N/A ☐ N/C ☒

2. Describe how the minimum horizontal separation between waste deposits in the landfill and the landfill property boundary shall be 100 feet, measured from the toe of the proposed final cover slope; (62-701.340(3)(c), FAC)

PART G. LANDFILL CONSTRUCTION REQUIREMENTS (62-701.400, FAC)

LOCATION

S ☐ _____ N/A ☐ N/C ☒

1. Describe how the landfill shall be designed so the solid waste disposal units will be constructed and closed at planned intervals throughout the design period of the landfill, and shall be designed to achieve a minimum factor of safety of 1.5 using peak strength values to prevent failures of side slopes and deep-seated failures; (62-701.400(2), FAC)

S ☒ Report _____ N/A ☐ N/C ☐

2. Landfill liner requirements; (62-701.400(3), FAC)

S ☐ _____ N/A ☐ N/C ☒

a. General construction requirements; (62-701.400(3)(a), FAC)

S ☐ _____ N/A ☐ N/C ☒

(1) Provide test information and documentation to ensure the liner will be constructed of materials that have appropriate physical, chemical, and mechanical properties to prevent failure;

S ☐ _____ N/A ☐ N/C ☒

(2) Document foundation is adequate to prevent liner failure;

S ☐ _____ N/A ☐ N/C ☒

(3) Constructed so bottom liner will not be adversely impacted by fluctuations of the ground water;

S ☐ _____ N/A ☒ N/C ☐

(4) Designed to resist hydrostatic uplift if bottom liner located below seasonal high ground water table;

S ☐ _____ N/A ☐ N/C ☒

(5) Installed to cover all surrounding earth which could come into contact with the waste or leachate;

LOCATIONS ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☒ **Appendix D** _____ N/A ☐ N/C ☐S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☒ N/C ☐**PART G CONTINUED**

b. Composite liners; (62-701.400(3)(b), FAC)

- (1) Upper geomembrane thickness and properties;
- (2) Design leachate head for primary leachate collection and removal system (LCRS) including leachate recirculation if appropriate;
- (3) Design thickness in accordance with Table A and number of lifts planned for lower soil component;

c. Double liners; (62-701.400(3)(c), FAC)

- (1) Upper and lower geomembrane thickness and properties;
- (2) Design leachate head for primary LCRS to limit the head to one foot above the liner;
- (3) Lower geomembrane sub-base design;
- (4) Leak detection and secondary leachate collection system minimum design criteria ($k \geq 10$ cm/sec, head on lower liner ≤ 1 inch, head not to exceed thickness of drainage layer);

d. Standards for geosynthetic components; (62-701.400(3)(d), FAC)

- (1) Factory and field seam test methods to ensure all geomembrane seams achieve the minimum specifications;
- (2) Geomembranes to be used shall pass a continuous spark test by the manufacturer;
- (3) Design of 24-inch-thick protective layer above upper geomembrane liner;
- (4) Describe operational plans to protect the liner and leachate collection system when placing the first layer of waste above a 24-inch-thick protective layer;
- (5) HDPE geomembranes, if used, meet the specifications in GRI GM13, and LLDPE geomembranes, if used, meet the specifications in GRI GM17;
- (6) PVC geomembranes, if used, meet the specifications in PGI 1104;

LOCATIONS ☐ _____ N/A ☐ N/C ☒S ☒ Report/App. D N/A ☐ N/C ☐S ☐ _____ N/A ☐ N/C ☒S ☒ Report/App. D N/A ☐ N/C ☐S ☐ _____ N/A ☐ N/C ☒S ☒ Report/App. D N/A ☐ N/C ☐S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☒ Section 4/App. D N/A ☐ N/C ☐S ☐ _____ N/A ☐ N/C ☒**PART G CONTINUED**

- (7) Interface shear strength testing results of the actual components which will be used in the liner system;
- (8) Transmissivity testing results of geonets if they are used in the liner system;
- (9) Hydraulic conductivity testing results of geosynthetic clay liners if they are used in the liner system;
- e. Geosynthetic specification requirements; (62-701.400(3)(e), FAC)
- (1) Definition and qualifications of the designer, manufacturer, installer, QA consultant and laboratory, and QA program;
- (2) Material specifications for geomembranes, geocomposites, geotextiles, geogrids, and geonets;
- (3) Manufacturing and fabrication specifications including geomembrane raw material and roll QA, fabrication personnel qualifications, seaming equipment and procedures, overlaps, trial seams, destructive and non-destructive seam testing, seam testing location, frequency, procedure, sample size, and geomembrane repairs;
- (4) Geomembrane installation specifications including earthwork, conformance testing, geomembrane placement, installation personnel qualifications, field seaming and testing, overlapping and repairs, materials in contact with geomembranes, and procedures for lining system acceptance;
- (5) Geotextile and geogrids specifications including handling and placement, conformance testing, seams and overlaps, repair, and placement of soil materials and any overlying materials;
- (6) Geonet and geocomposites specifications including handling and placement, conformance testing, stacking and joining, repair, and placement of soil materials and any overlying materials;
- (7) Geosynthetic clay liner specifications including handling and placement, conformance testing, seams and overlaps, repair, and placement of soil materials and any overlying materials;

LOCATIONS ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐**PART G CONTINUED**

f. Standards for soil liner components; (62-701.400(3)(f), FAC)

- (1) Description of construction procedures including over-excavation and backfilling to preclude structural inconsistencies and procedures for placing and compacting soil components in layers;
- (2) Demonstration of compatibility of the soil component with actual or simulated leachate in accordance with EPA Test Method 9100, or an equivalent test method;
- (3) Procedures for testing in situ soils to demonstrate they meet the specifications for soil liners;
- (4) Specifications for soil component of liner including at a minimum:
 - (a) Allowable particle size distribution, and Atterberg limits including shrinkage limit;
 - (b) Placement moisture and dry density criteria;
 - (c) Maximum laboratory-determined saturated hydraulic conductivity using simulated leachate;
 - (d) Minimum thickness of soil liner;
 - (e) Lift thickness;
 - (f) Surface preparation (scarification);
 - (g) Type and percentage of clay mineral within the soil component;
- (5) Procedures for constructing and using a field test section to document the desired saturated hydraulic conductivity and thickness can be achieved in the field;

g. If a Class III landfill is to be constructed with a bottom liner system, provide a description of how the minimum requirements for the liner will be achieved;

LOCATION**PART G CONTINUED**S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒

3. Leachate collection and removal system (LCRS); (62-701.400(4), FAC)

a. The primary and secondary LCRS requirements; (62-701.400(4)(a), FAC)

- (1) Constructed of materials chemically resistant to the waste and leachate;
- (2) Have sufficient mechanical properties to prevent collapse under pressure;
- (3) Have granular material or synthetic geotextile to prevent clogging;
- (4) Have a method for testing and cleaning clogged pipes or contingent designs for reducing leachate around failed areas;

b. Other LCRS requirements; (62-701.400(4)(b), (c) and (d), FAC)

- (1) Bottom 12 inches having hydraulic conductivity $\geq 1 \times 10^{-3}$ cm/sec;
- (2) Total thickness of 24 inches of material chemically resistant to the waste and leachate;
- (3) Bottom slope design to accommodate for predicted settlement and still meet minimum slope requirements;
- (4) Demonstration that synthetic drainage material, if used, is equivalent or better than granular material in chemical compatibility, flow under load, and protection of geomembranes liner;
- (5) Schedule provided for routine maintenance of LCRS.

4. Leachate recirculation; (62-701.400(5), FAC)

a. Describe general procedures for recirculating leachate;

b. Describe procedures for controlling leachate runoff and minimizing mixing of leachate runoff with storm water;

c. Describe procedures for preventing perched water conditions and gas buildup;

LOCATION**PART G CONTINUED**S ☐ _____ N/A ☐ N/C ☒

d. Describe alternate methods for leachate management when it cannot be recirculated due to weather or runoff conditions, surface seeps, wind-blown spray, or elevated levels of leachate head on the liner;

S ☐ _____ N/A ☐ N/C ☒

e. Describe methods of gas management in accordance with Rule 62-701.530, FAC;

S ☐ _____ N/A ☐ N/C ☒

f. If leachate irrigation is proposed, describe treatment methods and standards for leachate treatment prior to irrigation over final cover, and provide documentation that irrigation does not contribute significantly to leachate generation;

S ☐ _____ N/A ☐ N/C ☒

5. Leachate storage tanks and leachate surface impoundments; (62-701.400(6), FAC)

S ☐ _____ N/A ☐ N/C ☒

a. Surface impoundment requirements; (62-701.400(6)(b), FAC)

S ☐ _____ N/A ☐ N/C ☒

(1) Documentation that the design of the bottom liner will not be adversely impacted by fluctuations of the ground water;

S ☐ _____ N/A ☐ N/C ☒

(2) Designed in segments to allow for inspection and repair, as needed, without interruption of service;

S ☐ _____ N/A ☐ N/C ☒

(3) General design requirements;

S ☐ _____ N/A ☐ N/C ☒

(a) Double liner system consisting of an upper and lower 60-mil minimum thickness geomembrane;

S ☐ _____ N/A ☐ N/C ☒

(b) Leak detection and collection system with hydraulic conductivity ≥ 1 cm/sec;

S ☐ _____ N/A ☐ N/C ☒

(c) Lower geomembrane placed on subbase ≥ 6 inches thick with $k \leq 1 \times 10^{-5}$ cm/sec or on an approved geosynthetic clay liner with $k \leq 1 \times 10^{-7}$ cm/sec;

S ☐ _____ N/A ☐ N/C ☒

(d) Design calculation to predict potential leakage through the upper liner;

S ☐ _____ N/A ☐ N/C ☒

(e) Daily inspection requirements, and notification and corrective action requirements if leakage rates exceed that predicted by design calculations;

S ☐ _____ N/A ☐ N/C ☒

(4) Description of procedures to prevent uplift, if applicable;

LOCATIONS ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐**PART G CONTINUED**

(5) Design calculations to demonstrate minimum two feet of freeboard will be maintained;

(6) Procedures for controlling vectors and off-site odors;

b. Above-ground leachate storage tanks; (62-701.400(6)(c), FAC)

(1) Describe tank materials of construction and ensure foundation is sufficient to support tank;

(2) Describe procedures for cathodic protection for the tank, if needed;

(3) Describe exterior painting and interior lining of the tank to protect it from the weather and the leachate stored;

(4) Describe secondary containment design to ensure adequate capacity will be provided and compatibility of materials of construction;

(5) Describe design to remove and dispose of stormwater from the secondary containment system;

(6) Describe an overfill prevention system, such as level sensors, gauges, alarms, and shutoff controls to prevent overfilling;

(7) Inspections, corrective action, and reporting requirements;

(a) Weekly inspection of overfill prevention system;

(b) Weekly inspection of exposed tank exteriors;

(c) Inspection of tank interiors when tank is drained, or at least every three years;

(d) Procedures for immediate corrective action if failures detected;

(e) Inspection reports available for Department review;

c. Underground leachate storage tanks; (62-701.400(6)(d), FAC)

LOCATIONS ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒**PART G CONTINUED**

(1) Describe materials of construction;

(2) A double-walled tank design system to be used with the following requirements:

(a) Interstitial space monitoring at least weekly;

(b) Corrosion protection provided for primary tank interior and external surface of outer shell;

(c) Interior tank coatings compatible with stored leachate;

(d) Cathodic protection inspected weekly and repaired as needed;

(3) Describe an overfill prevention system, such as level sensors, gauges, alarms, and shutoff controls to prevent overfilling, and provide for weekly inspections;

(4) Inspection reports available for Department review;

6. Liner systems construction quality assurance (CQA); (62-701.400(7), FAC)

a. Provide CQA Plan including:

(1) Specifications and construction requirements for liner system;

(2) Detailed description of quality control testing procedures and frequencies;

(3) Identification of supervising professional engineer;

(4) Identify responsibility and authority of all appropriate organizations and key personnel involved in the construction project;

(5) State qualifications of CQA professional engineer and support personnel;

LOCATION**PART G CONTINUED**S ☐ _____ N/A ☐ N/C ☒

(6) Description of CQA reporting forms and documents;

S ☐ _____ N/A ☐ N/C ☒

b. An independent laboratory experienced in the testing of geosynthetics to perform required testing;

S ☐ _____ N/A ☐ N/C ☒

7. Soil liner CQA; (62-701.400(8), FAC)

S ☐ _____ N/A ☐ N/C ☒

a. Documentation that an adequate borrow source has been located with test results, or description of the field exploration and laboratory testing program to define a suitable borrow source;

S ☐ _____ N/A ☐ N/C ☒

b. Description of field test section construction and test methods to be implemented prior to liner installation;

S ☐ _____ N/A ☐ N/C ☒

c. Description of field test methods, including rejection criteria and corrective measures to insure proper liner installation;

S ☐ _____ N/A ☐ N/C ☒

8. For surface water management systems at aboveground disposal units, provide documentation showing the design of any features intended to convey stormwater to a permitted or exempted treatment system; (62-701.400(9), FAC)

S ☐ _____ N/A ☐ N/C ☒

9. Gas control systems; (62-701.400(10), FAC)

S ☐ _____ N/A ☐ N/C ☒

a. Provide documentation that if the landfill is receiving degradable wastes, it will have a gas control system complying with the requirements of Rule 62-701.530, FAC;

S ☐ _____ N/A ☒ N/C ☐

10. For landfills designed in ground water, provide documentation that the landfill will provide a degree of protection equivalent to landfills designed with bottom liners not in contact with ground water; (62-701.400(11), FAC)

PART H. HYDROGEOLOGICAL INVESTIGATION REQUIREMENTS (62-701.410(2), FAC)**LOCATION**S ☐ _____ N/A ☐ N/C ☒

1. Submit a hydrogeological investigation and site report including at least the following information:

S ☐ _____ N/A ☐ N/C ☒

a. Regional and site specific geology and hydrology;

S ☐ _____ N/A ☐ N/C ☒

b. Direction and rate of ground water and surface water flow including seasonal variations;

LOCATIONS ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒

2. Report signed, sealed, and dated by P.E. and/or P.G.

PART H CONTINUED

c. Background quality of ground water and surface water;

d. Any on-site hydraulic connections between aquifers;

e. Site stratigraphy and aquifer characteristics for confining layers, semi-confining layers, and all aquifers below the site that may be affected by the disposal facility;

f. Description of topography, soil types, and surface water drainage systems;

g. Inventory of all public and private water wells within a one mile radius of the site including, where available, well top of casing and bottom elevations, name of owner, age and usage of each well, stratigraphic unit screened, well construction technique, and static water level;

h. Identify and locate any existing contaminated areas on the site;

i. Include a map showing the locations of all potable wells within 500 feet of the waste storage and disposal areas;

PART I. GEOTECHNICAL INVESTIGATION REQUIREMENTS (62-701.410(3) and (4), FAC)**LOCATION**S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒

1. Submit a geotechnical site investigation report defining the engineering properties of the site including at least the following:

a. Description of subsurface conditions including soil stratigraphy and ground water table conditions;

b. Investigate for the presence of muck, previously filled areas, soft ground, and lineaments;

c. Estimates of average and maximum high water table across the site;

d. Evaluation of potential for fault areas and seismic impact zones;

e. Foundation analysis including:

LOCATION**PART I CONTINUED**S ☐ _____ N/A ☐ N/C ☒

(1) Foundation bearing capacity analysis;

S ☐ _____ N/A ☐ N/C ☒

(2) Total and differential subgrade settlement analysis;

S ☐ _____ N/A ☐ N/C ☒

(3) Slope stability analysis;

S ☐ _____ N/A ☐ N/C ☒

f. Evaluation of potential for sinkholes and sinkhole activity at the site that is based upon the investigations required in Rule 62-701.410(3)(f), F.A.C.;

S ☐ _____ N/A ☐ N/C ☒

g. A geotechnical report providing a description of methods used in the investigation, and includes soil boring logs, laboratory results, analytical calculations, cross sections, interpretations, conclusions, and a description of any engineering measures proposed for the site;

S ☒ **Report** _____ N/A ☐ N/C ☐

2. Report signed, sealed, and dated by P.E. and/or P.G.

PART J. VERTICAL EXPANSION OF LANDFILLS (62-701.430, FAC)**LOCATION**S ☐ _____ N/A ☒ N/C ☐

1. Describe how the vertical expansion shall not cause or contribute to any violations of water quality standards or criteria, shall not cause objectionable odors, or adversely affect the closure design of the existing landfill;

S ☐ _____ N/A ☒ N/C ☐

2. Describe how the vertical expansion over unlined landfills will meet the requirements of Rule 62-701.400, FAC with the exceptions of Rule 62-701.430(1)(c), FAC;

S ☐ _____ N/A ☒ N/C ☐

3. Provide foundation and settlement analysis for the vertical expansion;

S ☐ _____ N/A ☒ N/C ☐

4. Provide total settlement calculations demonstrating that the final elevations of the lining system, gravity drainage, and no other component of the design will be adversely affected;

S ☐ _____ N/A ☒ N/C ☐

5. Minimum stability factor of safety of 1.5 for the lining system component interface stability and for deep stability;

S ☐ _____ N/A ☒ N/C ☐

6. Provide documentation to show the surface water management system will not be adversely affected by the vertical expansion;

S ☐ _____ N/A ☒ N/C ☐

7. Provide gas control designs to prevent accumulation of gas under the new liner for the vertical expansion;

PART K. LANDFILL OPERATION REQUIREMENTS (62-701.500, FAC)

LOCATION

- | | | |
|---|--|---|
| S ☐ _____ | N/A ☐ N/C ☒ | 1. Provide documentation that the landfill will have at least one trained operator during operation and at least one trained spotter at each working face; (62-701.500(1), FAC) |
| S ☒ <u>Appendix C</u> | N/A ☐ N/C ☐ | 2. Provide a landfill operation plan including procedures for: (62-701.500(2), FAC) |
| S ☐ _____ | N/A ☐ N/C ☒ | a. Designating responsible operating and maintenance personnel; |
| S ☐ _____ | N/A ☐ N/C ☒ | b. Emergency preparedness and response, as required in subsection 62-701.320(16), FAC; |
| S ☐ _____ | N/A ☐ N/C ☒ | c. Controlling types of waste received at the landfill; |
| S ☐ _____ | N/A ☐ N/C ☒ | d. Weighing incoming waste; |
| S ☐ _____ | N/A ☐ N/C ☒ | e. Vehicle traffic control and unloading; |
| S ☒ <u>Appendix C</u> | N/A ☐ N/C ☐ | f. Method and sequence of filling waste; |
| S ☐ _____ | N/A ☐ N/C ☒ | g. Waste compaction and application of cover; |
| S ☒ <u>Appendix C</u> | N/A ☐ N/C ☐ | h. Operations of gas, leachate, and stormwater controls; |
| S ☐ _____ | N/A ☐ N/C ☒ | i. Water quality monitoring; |
| S ☐ _____ | N/A ☐ N/C ☒ | j. Maintaining and cleaning the leachate collection system; |
| S ☐ _____ | N/A ☐ N/C ☒ | 3. Provide a description of the landfill operation record to be used at the landfill, details as to location of where various operational records will be kept (i.e. DEP permit, engineering drawings, water quality records, etc.); (62-701.500(3), FAC) |
| S ☐ _____ | N/A ☐ N/C ☒ | 4. Describe the waste records that will be compiled monthly and provided to the Department annually; (62-701.500(4), FAC) |
| S ☐ _____ | N/A ☐ N/C ☒ | 5. Describe methods of access control; (62-701.500(5), FAC) |
| S ☐ _____ | N/A ☐ N/C ☒ | 6. Describe load checking program to be implemented at the landfill to discourage disposal of unauthorized waste at the landfill; (62-701.500(6), FAC) |

LOCATION**PART K CONTINUED**S ☐ _____ N/A ☐ N/C ☒

7. Describe procedures for spreading and compacting waste at the landfill that include: (62-701.500(7), FAC)

S ☐ _____ N/A ☐ N/C ☒

a. Waste layer thickness and compaction frequencies;

S ☐ _____ N/A ☐ N/C ☒

b. Special considerations for first layer of waste placed above the liner and leachate collection system;

S ☐ _____ N/A ☐ N/C ☒

c. Slopes of cell working face and side grades above land surface, and planned lift depths during operation;

S ☐ _____ N/A ☐ N/C ☒

d. Maximum width of working face;

S ☐ _____ N/A ☐ N/C ☒

e. Description of type of initial cover to be used at the facility that controls:

S ☐ _____ N/A ☐ N/C ☒

(1) Vector breeding/animal attraction;

S ☐ _____ N/A ☐ N/C ☒

(2) Fires;

S ☐ _____ N/A ☐ N/C ☒

(3) Odors;

S ☐ _____ N/A ☐ N/C ☒

(4) Blowing litter;

S ☐ _____ N/A ☐ N/C ☒

(5) Moisture infiltration;

S ☐ _____ N/A ☐ N/C ☒

f. Procedures for applying initial cover, including minimum cover frequencies;

S ☐ _____ N/A ☐ N/C ☒

g. Procedures for applying intermediate cover;

S ☐ _____ N/A ☐ N/C ☒

h. Time frames for applying final cover;

S ☐ _____ N/A ☐ N/C ☒

i. Procedures for controlling scavenging and salvaging;

S ☐ _____ N/A ☐ N/C ☒

j. Description of litter policing methods;

S ☐ _____ N/A ☐ N/C ☒

k. Erosion control procedures;

LOCATION**PART K CONTINUED**S ☐ _____ N/A ☐ N/C ☒

8. Describe operational procedures for leachate management including: (62-701.500(8), FAC)

S ☐ _____ N/A ☐ N/C ☒

a. Leachate level monitoring;

S ☐ _____ N/A ☐ N/C ☒

b. Operation and maintenance of leachate collection and removal system, and treatment as required;

S ☐ _____ N/A ☐ N/C ☒

c. Procedures for managing leachate if it becomes regulated as a hazardous waste;

S ☐ _____ N/A ☐ N/C ☒

d. Identification of treatment or disposal facilities that may be used for off-site discharge and treatment of leachate;

S ☐ _____ N/A ☐ N/C ☒

e. Contingency plan for managing leachate during emergencies or equipment problems;

S ☐ _____ N/A ☐ N/C ☒

f. Procedures for recording quantities of leachate generated in gal/day and including this in the operating record;

S ☐ _____ N/A ☐ N/C ☒

g. Procedures for comparing precipitation experienced at the landfill with leachate generation rates and including this information in the operating record;

S ☐ _____ N/A ☐ N/C ☒

h. Procedures for water pressure cleaning or video inspecting leachate collection systems;

S ☐ _____ N/A ☐ N/C ☒

9. Describe how the landfill receiving degradable wastes shall implement a gas management system meeting the requirements of Rule 62-701.530, FAC; (62-701.500(9), FAC)

S ☐ _____ N/A ☐ N/C ☒

10. Describe procedures for operating and maintaining the landfill stormwater management system to comply with the requirements of Rule 62-701.400(9), FAC; (62-701.500(10), FAC)

S ☐ _____ N/A ☐ N/C ☒

11. Equipment and operation feature requirements; (62-701.500(11), FAC)

S ☐ _____ N/A ☐ N/C ☒

a. Sufficient equipment for excavating, spreading, compacting, and covering waste;

S ☐ _____ N/A ☐ N/C ☒

b. Reserve equipment or arrangements to obtain additional equipment within 24 hours of breakdown;

S ☐ _____ N/A ☐ N/C ☒

c. Communications equipment;

LOCATIONS ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒**PART K CONTINUED**

d. Dust control methods;

e. Fire protection capabilities and procedures for notifying local fire department authorities in emergencies;

f. Litter control devices;

g. Signs indicating operating authority, traffic flow, hours of operation, and disposal restrictions;

12. Provide a description of all-weather access road, inside perimeter road, and other on-site roads necessary for access at the landfill; (62-701.500(12), FAC)

13. Additional record keeping and reporting requirements; (62-701.500(13), FAC)

a. Records used for developing permit applications and supplemental information maintained for the design period of the landfill;

b. Monitoring information, calibration and maintenance records, and copies of reports required by permit maintained for at least 10 years;

c. Maintain annual estimates of the remaining life of constructed landfills, and of other permitted areas not yet constructed, and submit this estimate annually to the Department;

d. Procedures for archiving and retrieving records which are more than five years old;

PART L. WATER QUALITY MONITORING REQUIREMENTS (62-701.510, FAC)**LOCATION**S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒

1. A water quality monitoring plan shall be submitted describing the proposed ground water and surface water monitoring systems, and shall meet at least the following requirements:

a. Based on the information obtained in the hydrogeological investigation and signed, dated, and sealed by the P.G. or P.E. who prepared it; (62-701.510(2)(a), FAC)

LOCATIONS ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒**PART L CONTINUED**

b. All sampling and analysis performed in accordance with Chapter 62-160, FAC; (62-701.510(2)(b), FAC)

c. Ground water monitoring requirements; (62-701.510(3), FAC)

(1) Detection wells located downgradient from and within 50 feet of disposal units;

(2) Downgradient compliance wells as required;

(3) Background wells screened in all aquifers below the landfill that may be affected by the landfill;

(4) Location information for each monitoring well;

(5) Well spacing no greater than 500 feet apart for downgradient wells and no greater than 1500 feet apart for upgradient wells, unless site specific conditions justify alternate well spacings;

(6) Properly selected well screen locations;

(7) Monitoring wells constructed to provide representative ground water samples;

(8) Procedures for properly abandoning monitoring wells;

(9) Detailed description of detection sensors, if proposed;

d. Surface water monitoring requirements; (62-701.510(4), FAC)

(1) Location of and justification for all proposed surface water monitoring points;

(2) Each monitoring location to be marked and its position determined by a registered Florida land surveyor;

e. Initial and routine sampling frequency and requirements; (62-701.510(5), FAC)

(1) Initial background ground water and surface water sampling and analysis requirements;

LOCATION**PART L CONTINUED**

- | | | |
|----------------------------------|--|---|
| S ☐ _____ | N/A ☐ N/C ☒ | (2) Routine monitoring well sampling and analysis requirements; |
| S ☐ _____ | N/A ☐ N/C ☒ | (3) Routine surface water sampling and analysis requirements; |
| S ☐ _____ | N/A ☐ N/C ☒ | f. Describe procedures for implementing evaluation monitoring, prevention measures, and corrective action as required; (62-701.510(6), FAC) |
| S ☐ _____ | N/A ☐ N/C ☒ | g. Water quality monitoring report requirements; (62-701.510(8), FAC) |
| S ☐ _____ | N/A ☐ N/C ☒ | (1) Semi-annual report requirements; (see paragraphs 62-701.510(5)(c) and (d), FAC for sampling frequencies) |
| S ☐ _____ | N/A ☐ N/C ☒ | (2) Documentation that the water quality data shall be provided to the Department in an electronic format consistent with requirements for importing into Department databases, unless an alternate form of submittal is specified in the permit; |
| S ☐ _____ | N/A ☐ N/C ☒ | (3) Two and one-half year, or annual, report requirements, or every five years if in long-term care, signed dated, and sealed by P.G. or P.E.; |

PART M. SPECIAL WASTE HANDLING REQUIREMENTS (62-701.520, FAC)**LOCATION**

- | | | |
|----------------------------------|--|--|
| S ☐ _____ | N/A ☐ N/C ☒ | 1. Describe procedures for managing motor vehicles; (62-701.520(1), FAC) |
| S ☐ _____ | N/A ☐ N/C ☒ | 2. Describe procedures for landfilling shredded waste; (62-701.520(2), FAC) |
| S ☐ _____ | N/A ☐ N/C ☒ | 3. Describe procedures for asbestos waste disposal; (62-701.520(3), FAC) |
| S ☐ _____ | N/A ☐ N/C ☒ | 4. Describe procedures for disposal or management of contaminated soil; (62-701.520(4), FAC) |
| S ☐ _____ | N/A ☐ N/C ☒ | 5. Describe procedures for disposal of biological wastes; (62-701.520(5), FAC) |

PART N. GAS MANAGEMENT SYSTEM REQUIREMENTS (62-701.530, FAC)

LOCATION

S ☐ _____ N/A ☐ N/C ☒

1. Provide documentation for a gas management system that will: (62-701.530(1), FAC)

S ☐ _____ N/A ☐ N/C ☒

a. Be designed to prevent concentrations of combustible gases from exceeding 25% the LEL in structures and 100% the LEL at the property boundary;

S ☐ _____ N/A ☐ N/C ☒

b. Be designed for site specific conditions;

S ☐ _____ N/A ☐ N/C ☒

c. Be designed to reduce gas pressure in the interior of the landfill;

S ☐ _____ N/A ☐ N/C ☒

d. Be designed to not interfere with the liner, leachate control system, or final cover;

S ☐ _____ N/A ☐ N/C ☒

2. Provide documentation that will describe locations, construction details, and procedures for monitoring gas at ambient monitoring points and with soil monitoring probes; (62-701.530(2), FAC)

S ☐ _____ N/A ☐ N/C ☒

3. Provide documentation describing how the gas remediation plan and odor remediation plan will be implemented; (62-701.530(3), FAC)

S ☐ _____ N/A ☐ N/C ☒

4. Landfill gas recovery facilities; (62-701.530(5), FAC)

S ☐ _____ N/A ☐ N/C ☒

a. Provide information required in Rules 62-701.320(7) and 62-701.330(3), FAC;

S ☐ _____ N/A ☐ N/C ☒

b. Provide information required in Rule 62-701.600(4), FAC, where relevant and practical;

S ☐ _____ N/A ☐ N/C ☒

c. Provide estimates of current and expected gas generation rates and description of condensate disposal methods;

S ☐ _____ N/A ☐ N/C ☒

d. Provide description of procedures for condensate sampling, analyzing, and data reporting;

S ☐ _____ N/A ☐ N/C ☒

e. Provide closure plan describing methods to control gas after recovery facility ceases operation, and any other requirements contained in Rule 62-701.400(10), FAC;

PART O. LANDFILL FINAL CLOSURE REQUIREMENTS (62-701.600, FAC)

LOCATION

S ☐ _____	N/A ☐ N/C ☒	1. Closure permit requirements; (62-701.600(2), FAC)
S ☐ _____	N/A ☐ N/C ☒	a. Application submitted to the Department at least 90 days prior to final receipt of wastes;
S ☐ _____	N/A ☐ N/C ☒	b. Closure plan shall include the following:
S ☐ _____	N/A ☐ N/C ☒	(1) Closure design plan;
S ☐ _____	N/A ☐ N/C ☒	(2) Closure operation plan;
S ☐ _____	N/A ☐ N/C ☒	(3) Plan for long-term care;
S ☐ _____	N/A ☐ N/C ☒	(4) A demonstration that proof of financial assurance for long-term care will be provided;
S ☐ _____	N/A ☐ N/C ☒	2. Closure design plan including the following requirements: (62-701.600(3), FAC)
S ☐ _____	N/A ☐ N/C ☒	a. Plan sheet showing phases of site closing;
S ☐ _____	N/A ☐ N/C ☒	b. Drawings showing existing topography and proposed final grades;
S ☐ _____	N/A ☐ N/C ☒	c. Provisions to close units when they reach approved design dimensions;
S ☐ _____	N/A ☐ N/C ☒	d. Final elevations before settlement;
S ☐ _____	N/A ☐ N/C ☒	e. Side slope design including benches, terraces, down slope drainage ways, energy dissipaters, and description of expected precipitation effects;
S ☐ _____	N/A ☐ N/C ☒	f. Final cover installation plans including:
S ☐ _____	N/A ☐ N/C ☒	(1) CQA plan for installing and testing final cover;
S ☐ _____	N/A ☐ N/C ☒	(2) Schedule for installing final cover after final receipt of waste;
S ☐ _____	N/A ☐ N/C ☒	(3) Description of drought resistant species to be used in the vegetative cover;

LOCATIONS ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☒ N/C ☐S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒S ☐ _____ N/A ☐ N/C ☒**PART O CONTINUED**

(4) Top gradient design to maximize runoff and minimize erosion;

(5) Provisions for cover material to be used for final cover maintenance;

g. Final cover design requirements;

(1) Protective soil layer design;

(2) Barrier soil layer design;

(3) Erosion control vegetation;

(4) Geomembrane barrier layer design;

(5) Geosynthetic clay liner design, if used;

(6) Stability analysis of the cover system and the disposed waste;

h. Proposed method of stormwater control;

i. Proposed method of access control;

j. Description of the proposed or existing gas management system which complies with Rule 62-701.530, FAC;

3. Closure operation plan shall include: (62-701.600(4), FAC)

a. Detailed description of actions which will be taken to close the landfill;

b. Time schedule for completion of closing and long-term care;

c. Describe proposed method for demonstrating financial assurance for long-term care;

d. Operation of the water quality monitoring plan required in Rule 62-701.510, FAC;

e. Development and implementation of gas management system required in Rule 62-701.530, FAC;

LOCATION**PART O CONTINUED**

- S ☐ _____ N/A ☐ N/C ☒ 4. Certification of closure construction completion and final reports including: (62-701.600(6), FAC)
- S ☐ _____ N/A ☐ N/C ☒ a. Survey monuments; (62-701.600(6)(a), FAC)
- S ☐ _____ N/A ☐ N/C ☒ b. Final survey report; (62-701.600(6)(b), FAC)
- S ☐ _____ N/A ☐ N/C ☒ c. Closure construction quality assurance report; (62-701.400(7), FAC)
- S ☐ _____ N/A ☐ N/C ☒ 5. Declaration to the public; (62-701.600(7), FAC)
- S ☐ _____ N/A ☐ N/C ☒ 6. Official date of closing; (62-701.600(8), FAC)
- S ☐ _____ N/A ☐ N/C ☒ 7. Justification for and detailed description of procedures to be followed for temporary closure of the landfill, if desired; (62-701.600(9), FAC)

PART P. OTHER CLOSURE PROCEDURES (62-701.610, FAC)**LOCATION**

- S ☐ _____ N/A ☐ N/C ☒ 1. Describe how the requirements for use of closed solid waste disposal areas will be achieved; (62-701.610(1), FAC)
- S ☐ _____ N/A ☐ N/C ☒ 2. Describe how the requirements for relocation of wastes will be achieved; (62-701.610(2), FAC)

PART Q. LONG-TERM CARE (62-701.620, FAC)**LOCATION**

- S ☐ _____ N/A ☐ N/C ☒ 1. Maintaining the gas collection and monitoring system; (62-701.620(5), FAC)
- S ☐ _____ N/A ☐ N/C ☒ 2. Stabilization report requirements; (62-701.620(6), FAC)
- S ☐ _____ N/A ☐ N/C ☒ 3. Right of access; (62-701.620(7), FAC)
- S ☐ _____ N/A ☐ N/C ☒ 4. Requirements for replacement of monitoring devices; (62-701.620(8), FAC)
- S ☐ _____ N/A ☐ N/C ☒ 5. Completion of long-term care signed and sealed by professional engineer; (62-701.620(9), FAC)

PART R. FINANCIAL ASSURANCE (62-701.630, FAC)

LOCATION

S ☐ _____ N/A ☐ N/C ☒

1. Provide cost estimates for closing, long-term care, and corrective action costs estimated by a P.E. for a third party performing the work, on a per unit basis, with the source of estimates indicated; (62-701.630(3) & (7), FAC)

S ☐ _____ N/A ☐ N/C ☒

2. Describe procedures for providing annual cost adjustments to the Department based on inflation and changes in the closing, long-term care, and corrective action plans; (62-701.630(4) & (8), FAC)

S ☐ _____ N/A ☐ N/C ☒

3. Describe funding mechanisms for providing proof of financial assurance and include appropriate financial assurance forms. (62-701.630(5), (6), & (9), FAC)

PART S. CERTIFICATION BY APPLICANT AND ENGINEER OR PUBLIC OFFICER

1. Applicant:

The undersigned applicant or authorized representative of Omni Waste of Osceola County, LLC

Kirk Wills is aware that statements made in this form and attached information are an application for a Minor Modification permit from the Florida Department of Environmental Protection, and certifies that the information in this application is true, correct, and complete to the best of his/her knowledge and belief. Further, the undersigned agrees to comply with the provisions of Chapter 403, Florida Statutes, and all rules and regulations of the Department. It is understood that the Permit is not transferable, and the Department will be notified prior to the sale or legal transfer of the permitted facility.

Kirk Wills
Signature of Applicant or Agent

Kirk Wills, Southern Region Engineer

Name and Title (please type)

kirk.wills@wasteconnections.com

E-Mail Address (if available)

5135 Madison Avenue

Mailing Address

Tampa, FL 33619

City, State, Zip Code

(813) 388-1026

Telephone Number

Date: JUNE 15, 2018

Attach letter of authorization if agent is not a government official, owner, or corporate officer.

2. Professional Engineer registered in Florida (or Public Officer if authorized under Sections 403.707 and 403.7075, Florida Statutes):

This is to certify that the engineering features of this solid waste management facility have been designed/examined by me and found to conform to engineering principles applicable to such facilities. In my professional judgment, this facility, when properly maintained and operated, will comply with all applicable statutes of the State of Florida and rules of the Department. It is agreed that the undersigned will provide the applicant with a set of instructions of proper maintenance and operation of the facility.

Alex Rivera
Signature

Alex Rivera, Engineer

Name and Title (please type)

12802 Tampa Oaks Blvd, Ste 151

Mailing Address

Tampa, FL 33637

City, State, Zip Code

arivera@geosyntec.com

E-Mail Address (if available)

(813) 558-0990

Telephone Number

Date: 6/18/18

78210

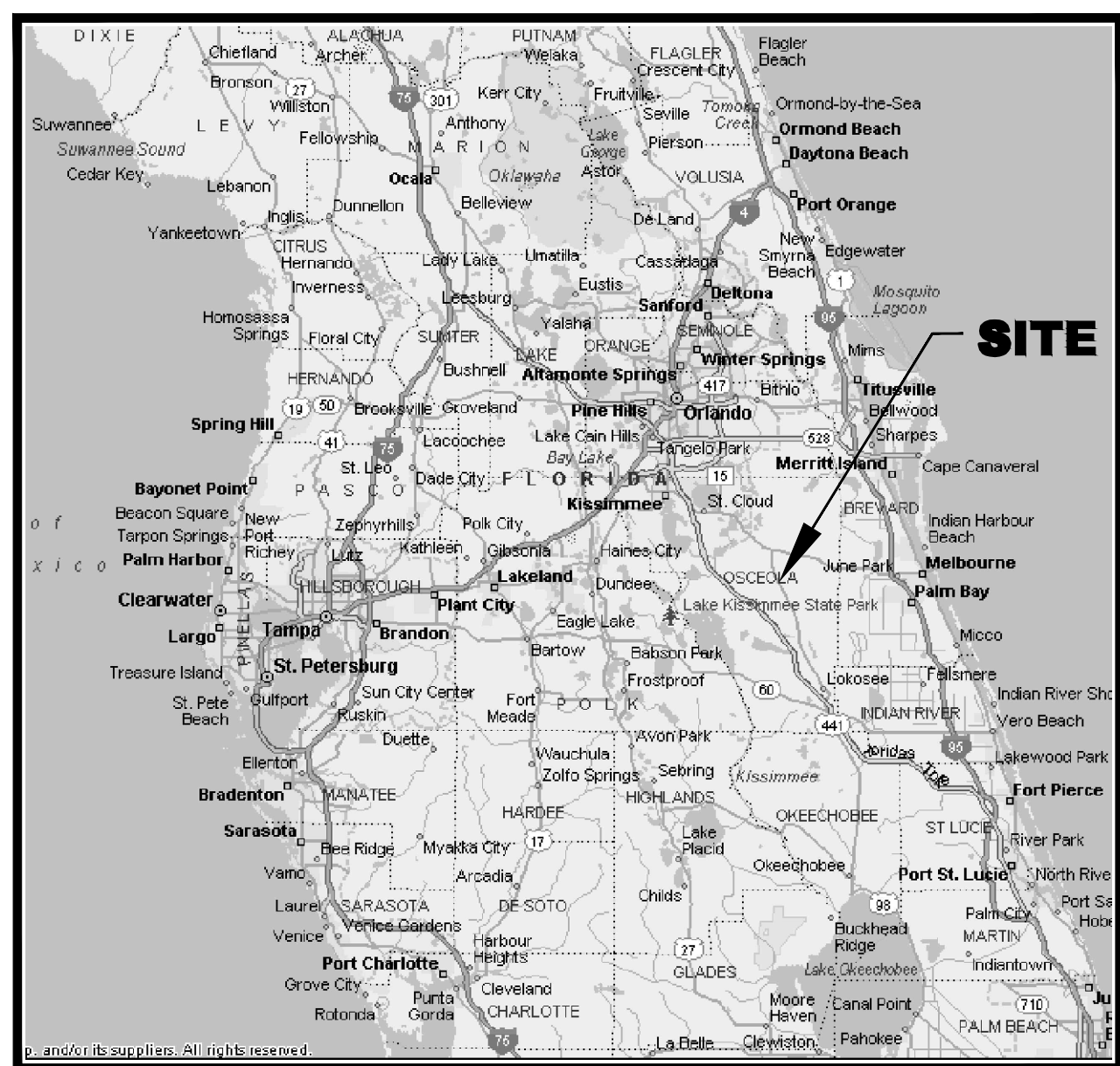
Florida Registration Number (please affix seal)



Appendix B

Minor Modification Permit Drawings

J.E.D. SOLID WASTE MANAGEMENT FACILITY
ST.CLOUD, FLORIDA
MINOR MODIFICATION PERMIT DRAWINGS
MAY 2018

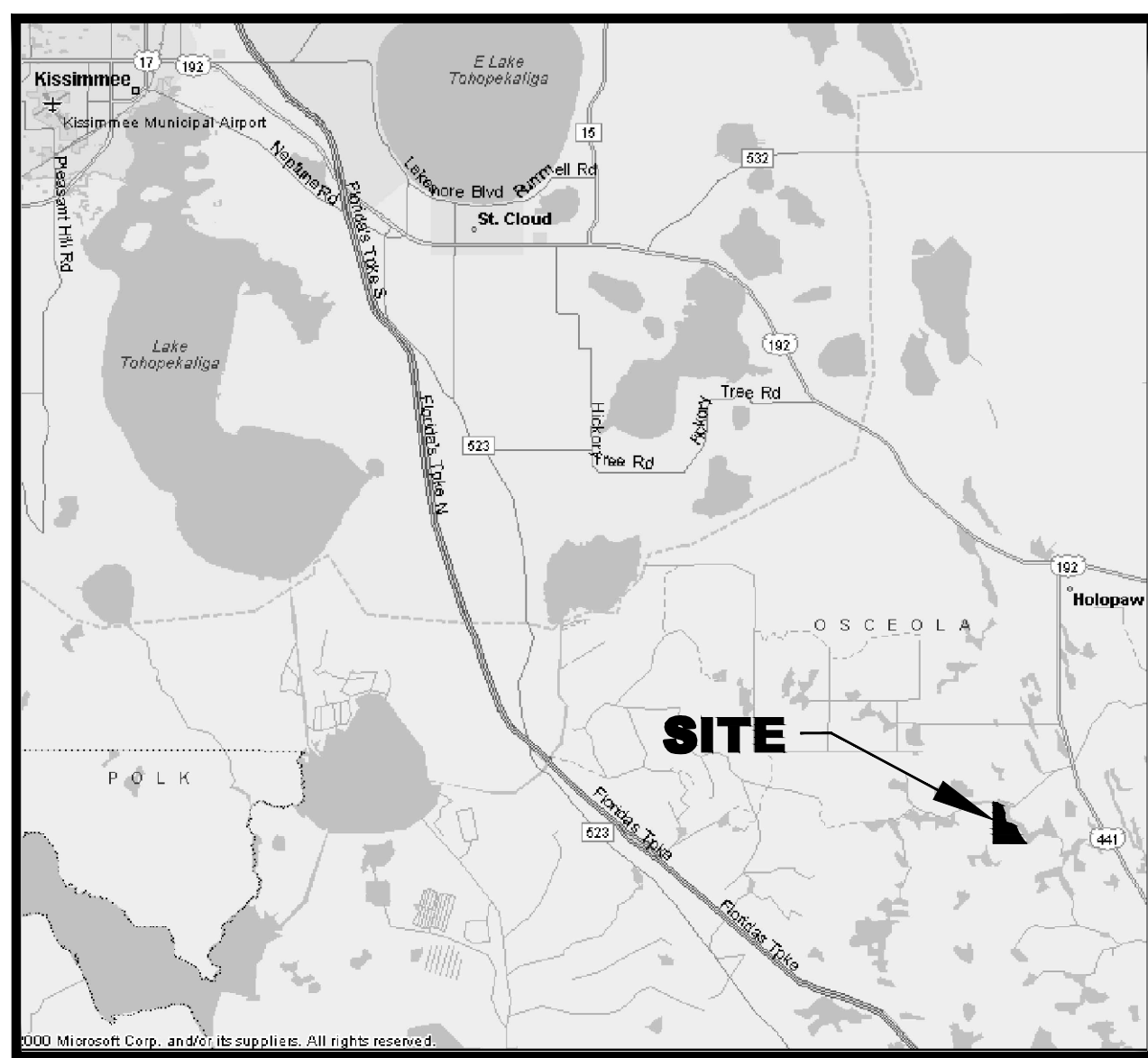


LOCATION MAP

0 32
SCALE: 1" = 32 MILES

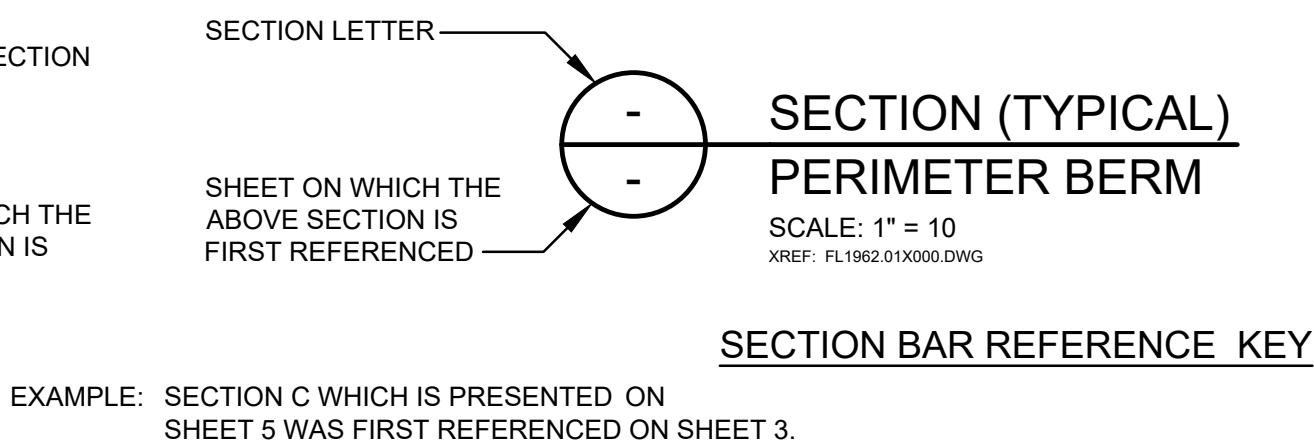
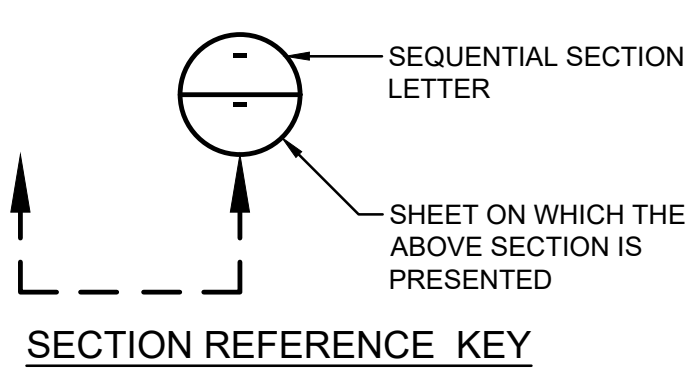
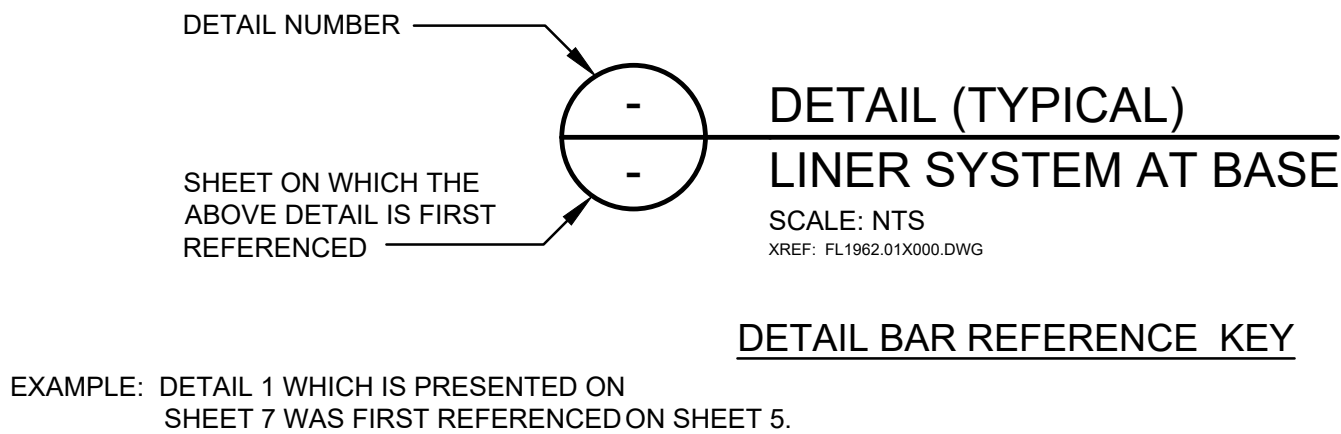
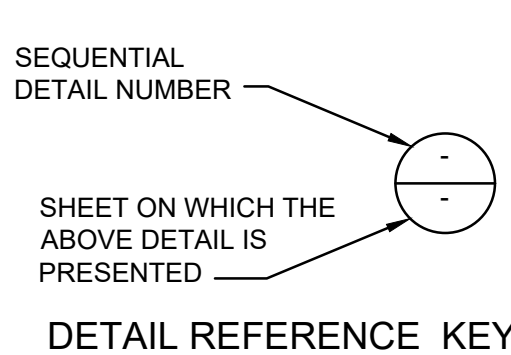
LIST OF DRAWINGS		
DRAWING NO.	DRAWING TITLE	REVISION
1	TITLE SHEET	2
2	EXISTING SITE CONDITIONS AND AERIAL PHOTOGRAPH	0
3	TOPOGRAPHIC MAP OF THE SITE	0
4	SITE CHARACTERIZATION PLAN I	1
5	SITE CHARACTERIZATION PLAN II	0
6	SITE DEVELOPMENT PLAN	0
7	BASE GRADING PLAN - PHASE 4	1
8	BASE GRADING PLAN - PHASE 5	1
9	LEACHATE COLLECTION SYSTEM LAYOUT PLAN I	1
10	LEACHATE COLLECTION SYSTEM LAYOUT PLAN II	0
11	LANDFILL CROSS SECTIONS I	1
12	LANDFILL CROSS SECTIONS II	1
13	LANDFILL CROSS SECTIONS III	0
14	PERIMETER BERM TYPICAL SECTIONS	0
15	LINER SYSTEM DETAILS I - CELLS 12 THROUGH 15	1
16	LINER SYSTEM DETAILS II - CELLS 12 THROUGH 15	1
17	LEACHATE SUMP PLAN - CELLS 12 THROUGH 15	1
18	SECONDARY SUMP CROSS SECTIONS - CELLS 12 THROUGH 15	0
19	PRIMARY SUMP CROSS SECTIONS - CELLS 12 THROUGH 15	0
20	LEACHATE SUMP CROSS SECTIONS - CELLS 12 THROUGH 15	1
21	LEACHATE COLLECTION SYSTEM DETAILS - CELLS 12 THROUGH 15	0
22	LEACHATE MANAGEMENT SYSTEM SCHEMATIC DIAGRAM	0
23	GROUNDWATER MONITORING NETWORK	2
24	PHASE 4 CONSTRUCTION SEQUENCING	2
25	PHASE 5 CONSTRUCTION SEQUENCING	0
26	WASTE FILL SEQUENCING PLAN I	0
27	WASTE FILL SEQUENCING PLAN II	0
28	GAS MANAGEMENT SYSTEM - EXISTING CONDITIONS (NOTE 1)	0
29	GAS MANAGEMENT SYSTEM - PHASE 5 PROPOSED CONSTRUCTION (NOTE 1)	0
30	GAS MANAGEMENT DETAILS I (NOTE 1)	0
31	GAS MANAGEMENT DETAILS II (NOTE 1)	0
32	GAS MANAGEMENT DETAILS III (NOTE 1)	0
33	GAS MANAGEMENT DETAILS IV (NOTE 1)	0
34	GAS MANAGEMENT DETAILS V (NOTE 1)	0
35	PROPOSED DEWATERING SYSTEM PLAN (1 OF 3) (NOTE 1)	0
36	PROPOSED DEWATERING SYSTEM PLAN (2 OF 3) (NOTE 1)	0
37	PROPOSED DEWATERING SYSTEM PLAN (3 OF 3) (NOTE 1)	0
38	DEWATERING DETAILS (1 OF 3) (NOTE 1)	0
39	DEWATERING DETAILS (2 OF 3) (NOTE 1)	0
40	DEWATERING DETAILS (3 OF 3) (NOTE 1)	0
41	SCALE AND ADMINISTRATIVE AREA LAYOUT	0
42	FINAL COVER SYSTEM GRADING PLAN I	0
43	FINAL COVER SYSTEM GRADING PLAN II	0
44	FINAL COVER SYSTEM DETAILS	0
45	STORM WATER MANAGEMENT PLAN	0
46	STORM WATER MANAGEMENT DETAILS I	0
47	STORM WATER MANAGEMENT DETAILS II	0
48	STORM WATER DRAINAGE STRUCTURE DETAILS	0

NOTE:
1. PREPARED BY OTHERS.



VICINITY MAP

0 4
SCALE: 1" = 4 MILES



2	MAY 2018	ISSUED FOR FDEP APPROVAL (MINOR MODIFICATION GAS PIPING, CELL 12, AND RAIN COVER)	CMV	CRB
1	MAY 2017	ISSUED FOR FDEP APPROVAL (OPERATIONS PERMIT RENEWAL)	CMV	CRB
0	JUN 2016	ISSUED FOR FDEP APPROVAL	CMV	CRB
REV	DATE	DESCRIPTION	DRN	APP

Geosyntec
consultants
12802 TAMPA OAKS BLVD., SUITE 151
TEMPLE TERRACE, FLORIDA 33637 USA
PH: 813.558.0990 - FX: 813.558.9726
AUTHORIZATION NUMBER: 4321

WASTE CONNECTIONS, INC.
Connect with the Future
1501 OMNI WAY
ST. CLOUD, FLORIDA 34773
TEL: 407-891-3720 FAX: 407-891-3730

TITLE: **TITLE SHEET**

PROJECT: **MINOR MODIFICATION PERMIT DRAWINGS**

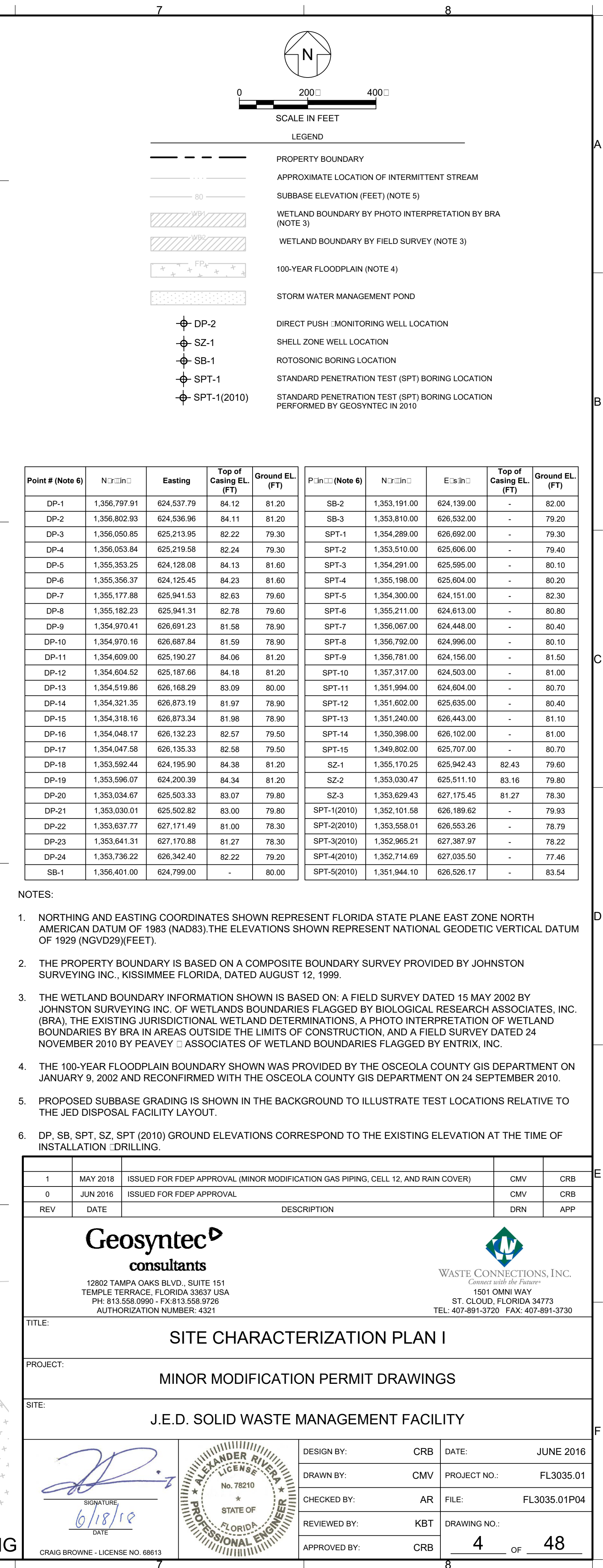
SITE: **J.E.D. SOLID WASTE MANAGEMENT FACILITY**

DESIGN BY: CRB DATE: JUNE 2016
DRAWN BY: CMV PROJECT NO.: FL3035.01
CHECKED BY: AR FILE: FL3035.01P01
REVIEWED BY: KBT DRAWING NO.:
APPROVED BY: CRB **1** OF **48**

CRAIG BROWNE - LICENSE NO. 68613

ALEXANDER RIVERA
LICENSE
No. 78210
FLORIDA
PROFESSIONAL ENGINEER

PERMIT DRAWING



Point # (Note 6)	Northing	Easting	Top of Casing (L FT)	Ground (L FT)	Point # (Note 6)	Northing	Easting	Top of Casing (L FT)	Ground (L FT)
DP-1	1,356,797.91	624,537.79	84.12	81.20	SB-2	1,353,191.00	624,139.00	-	82.00
DP-2	1,356,802.93	624,536.96	84.11	81.20	SB-3	1,353,810.00	626,532.00	-	79.20
DP-3	1,356,050.85	625,213.95	82.22	79.30	SPT-1	1,354,289.00	626,692.00	-	79.30
DP-4	1,356,053.84	625,219.58	82.24	79.30	SPT-2	1,353,510.00	625,606.00	-	79.40
DP-5	1,355,353.25	624,128.08	84.13	81.60	SPT-3	1,354,291.00	625,595.00	-	80.10
DP-6	1,355,356.37	624,125.45	84.23	81.60	SPT-4	1,355,198.00	625,604.00	-	80.20
DP-7	1,355,177.88	625,941.53	82.63	79.60	SPT-5	1,354,300.00	624,151.00	-	82.30
DP-8	1,355,182.23	625,941.31	82.78	79.60	SPT-6	1,355,211.00	624,613.00	-	80.80
DP-9	1,354,970.41	626,691.23	81.58	78.90	SPT-7	1,356,067.00	624,468.00	-	80.40
DP-10	1,354,970.16	626,687.84	81.59	78.90	SPT-8	1,356,792.00	624,996.00	-	80.10
DP-11	1,354,609.00	625,190.27	84.06	81.20	SPT-9	1,356,781.00	624,156.00	-	81.50
DP-12	1,354,604.52	625,187.66	84.18	81.20	SPT-10	1,357,317.00	624,503.00	-	81.00
DP-13	1,354,519.86	626,168.29	83.09	80.00	SPT-11	1,351,994.00	624,604.00	-	80.70
DP-14	1,354,321.35	626,873.19	81.97	78.90	SPT-12	1,351,602.00	625,635.00	-	80.40
DP-15	1,354,318.16	626,873.34	81.98	78.90	SPT-13	1,351,240.00	626,443.00	-	81.10
DP-16	1,354,048.17	626,132.23	82.57	79.50	SPT-14	1,350,398.00	626,102.00	-	81.00
DP-17	1,354,047.58	626,135.33	82.58	79.50	SPT-15	1,349,802.00	625,707.00	-	80.70
DP-18	1,353,592.44	624,195.90	84.38	81.20	SZ-1	1,355,170.25	625,942.43	82.43	79.60
DP-19	1,353,596.07	624,200.39	84.34	81.20	SZ-2	1,353,030.47	625,511.10	83.16	79.80
DP-20	1,353,034.67	625,503.33	83.07	79.80	SZ-3	1,353,629.43	627,175.45	81.27	78.30
DP-21	1,353,030.01	625,502.82	83.00	79.80	SPT-1(2010)	1,352,101.58	626,189.62	-	79.93
DP-22	1,353,637.77	627,171.49	81.00	78.30	SPT-2(2010)	1,353,558.01	626,553.26	-	78.79
DP-23	1,353,641.31	627,170.88	81.27	78.30	SPT-3(2010)	1,352,965.21	627,387.97	-	78.22
DP-24	1,353,736.22	626,342.40	82.22	79.20	SPT-4(2010)	1,352,714.69	627,035.50	-	77.46
SB-1	1,356,401.00	624,799.00	-	80.00	SPT-5(2010)	1,351,944.10	626,526.17	-	83.54

NOTES:

1. NORTHING AND EASTING COORDINATES SHOWN REPRESENT FLORIDA STATE PLANE EAST ZONE NORTH AMERICAN DATUM OF 1983 (NAD83).THE ELEVATIONS SHOWN REPRESENT NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29)(FEET).
2. THE PROPERTY BOUNDARY IS BASED ON A COMPOSITE BOUNDARY SURVEY PROVIDED BY JOHNSTON SURVEYING INC., KISSIMMEE FLORIDA, DATED AUGUST 12, 1999.
3. THE WETLAND BOUNDARY INFORMATION SHOWN IS BASED ON: A FIELD SURVEY DATED 15 MAY 2002 BY JOHNSTON SURVEYING INC. OF WETLANDS BOUNDARIES FLAGGED BY BIOLOGICAL RESEARCH ASSOCIATES, INC. (BRA), THE EXISTING JURISDICTIONAL WETLAND DETERMINATIONS, A PHOTO INTERPRETATION OF WETLAND BOUNDARIES BY BRA IN AREAS OUTSIDE THE LIMITS OF CONSTRUCTION, AND A FIELD SURVEY DATED 24 NOVEMBER 2010 BY PEAVER ASSOCIATES OF WETLAND BOUNDARIES FLAGGED BY ENTRIX, INC.
4. THE 100-YEAR FLOODPLAIN BOUNDARY SHOWN WAS PROVIDED BY THE OSCEOLA COUNTY GIS DEPARTMENT ON JANUARY 9, 2002 AND RECONFIRMED WITH THE OSCEOLA COUNTY GIS DEPARTMENT ON 24 SEPTEMBER 2010.
5. PROPOSED SUBBASE GRADING IS SHOWN IN THE BACKGROUND TO ILLUSTRATE TEST LOCATIONS RELATIVE TO THE JED DISPOSAL FACILITY LAYOUT.
6. DP, SB, SPT, SZ, SPT (2010) GROUND ELEVATIONS CORRESPOND TO THE EXISTING ELEVATION AT THE TIME OF INSTALLATION DRILLING.

1	MAY 2018	ISSUED FOR FDEP APPROVAL (MINOR MODIFICATION GAS PIPING, CELL 12, AND RAIN COVER)	CMV	CRB
0	JUN 2016	ISSUED FOR FDEP APPROVAL	CMV	CRB
REV	DATE	DESCRIPTION	DRN	APP



12802 TAMPA OAKS BLVD., SUITE 151
TEMPLE TERRACE, FLORIDA 33637 USA
PH: 813.558.0990 - FX 813.558.9726
AUTHORIZATION NUMBER: 4321



WASTE CONNECTIONS, INC.
Committed with the Future
1501 OMNI WAY
ST. CLOUD, FLORIDA 34773
TEL: 407-891-3720 FAX: 407-891-3730

TITLE:

SITE CHARACTERIZATION PLAN I

PROJECT:

MINOR MODIFICATION PERMIT DRAWINGS

SITE:

J.E.D. SOLID WASTE MANAGEMENT FACILITY

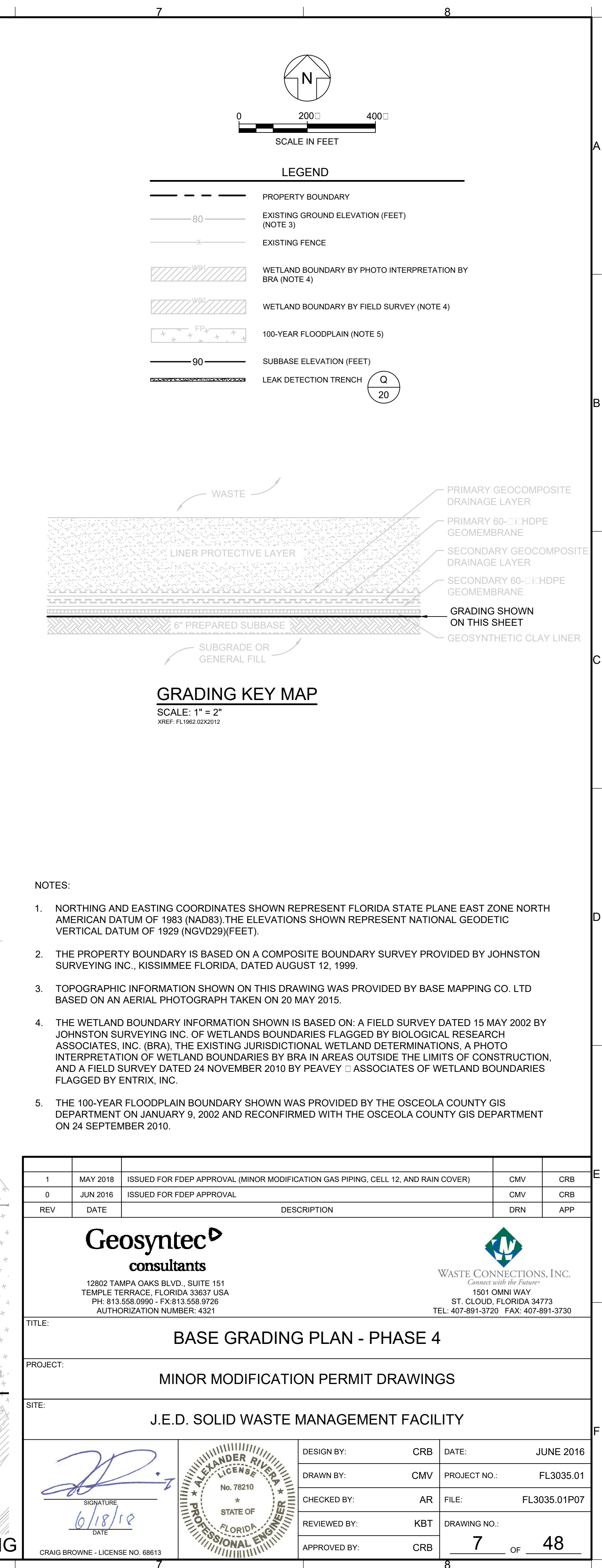


SIGNATURE
6/18/18
DATE

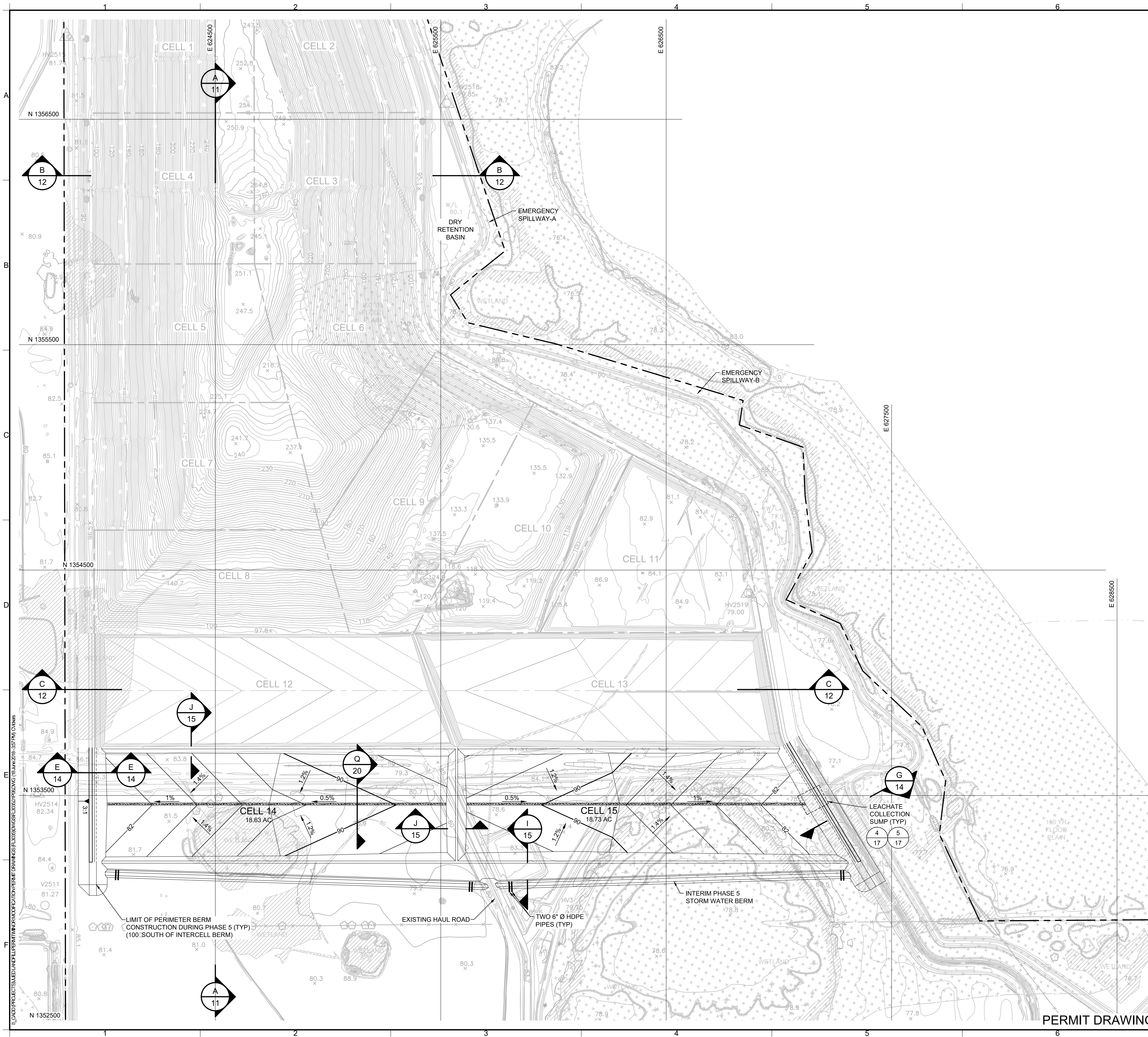


DESIGN BY:	CRB	DATE:	JUNE 2016
DRAWN BY:	CMV	PROJECT NO.:	FL3035.01
CHECKED BY:	AR	FILE:	FL3035.01P04
REVIEWED BY:	KBT	DRAWING NO.:	
APPROVED BY:	CRB	4	OF 48

CRAIG BROWNE - LICENSE NO. 68613



PERMIT DRAWING



LEGEND

- PROPERTY BOUNDARY
- EXISTING GROUND ELEVATION (FEET) (NOTE 3)
- EXISTING FENCE
- WETLAND BOUNDARY BY PHOTO INTERPRETATION BY BRA (NOTE 4)
- WETLAND BOUNDARY BY FIELD SURVEY (NOTE 4)
- 100-YEAR FLOODPLAIN (NOTE 5)
- SUBBASE ELEVATION (FEET)
- LEAK DETECTION TRENCH

GRADING KEY MAP
SCALE: 1" = 2"
XREF: FL1982.02X2012

NOTES:

- NORTHING AND EASTING COORDINATES SHOWN REPRESENT FLORIDA STATE PLANE EAST ZONE NORTH AMERICAN DATUM OF 1983 (NAD83). THE ELEVATIONS SHOWN REPRESENT NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29) (FEET).
- THE PROPERTY BOUNDARY IS BASED ON A COMPOSITE BOUNDARY SURVEY PROVIDED BY JOHNSTON SURVEYING INC., KISSIMMEE FLORIDA, DATED AUGUST 12, 1999.
- TOPOGRAPHIC INFORMATION SHOWN ON THIS DRAWING WAS PROVIDED BY BASE MAPPING CO. LTD BASED ON AN AERIAL PHOTOGRAPH TAKEN ON 20 MAY 2015.
- THE WETLAND BOUNDARY INFORMATION SHOWN IS BASED ON: A FIELD SURVEY DATED 15 MAY 2002 BY JOHNSTON SURVEYING INC. OF WETLANDS BOUNDARIES FLAGGED BY BIOLOGICAL RESEARCH ASSOCIATES, INC. (BRA), THE EXISTING JURISDICTIONAL WETLAND DETERMINATIONS, A PHOTO INTERPRETATION OF WETLAND BOUNDARIES BY BRA IN AREAS OUTSIDE THE LIMITS OF CONSTRUCTION, AND A FIELD SURVEY DATED 24 NOVEMBER 2010 BY PEAVEY ASSOCIATES OF WETLAND BOUNDARIES FLAGGED BY ENTRIX, INC.
- THE 100-YEAR FLOODPLAIN BOUNDARY SHOWN WAS PROVIDED BY THE OSCEOLA COUNTY GIS DEPARTMENT ON JANUARY 9, 2002 AND RECONFIRMED WITH THE OSCEOLA COUNTY GIS DEPARTMENT ON 24 SEPTEMBER 2010.

1	MAY 2018	ISSUED FOR FDEP APPROVAL (MINOR MODIFICATION GAS PIPING, CELL 12, AND RAIN COVER)	CMV	CRB
0	JUN 2016	ISSUED FOR FDEP APPROVAL	CMV	CRB
REV	DATE	DESCRIPTION	DRN	APP

Geosyntec
consultants

12802 TAMPA OAKS BLVD., SUITE 151
TEMPLE TERRACE, FLORIDA 33637 USA
PH: 813.558.0990 - FX: 813.558.9726
AUTHORIZATION NUMBER: 4321

WASTE CONNECTIONS, INC.
Connect with the Future

1501 OMNI WAY
ST. CLOUD, FLORIDA 34773
TEL: 407-891-3720 FAX: 407-891-3730

TITLE: **BASE GRADING PLAN - PHASE 5**

PROJECT: **MINOR MODIFICATION PERMIT DRAWINGS**

SITE: **J.E.D. SOLID WASTE MANAGEMENT FACILITY**

SIGNATURE
6/18/18
DATE

CRAIG BROWNE - LICENSE NO. 68613

DESIGN BY: CRB

DRAWN BY: CMV

CHECKED BY: AR

REVIEWED BY: KBT

APPROVED BY: CRB

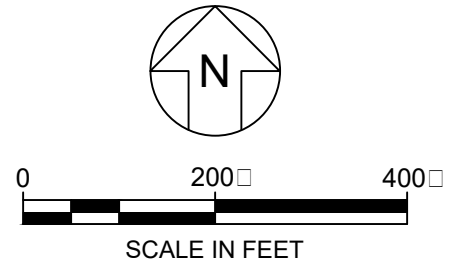
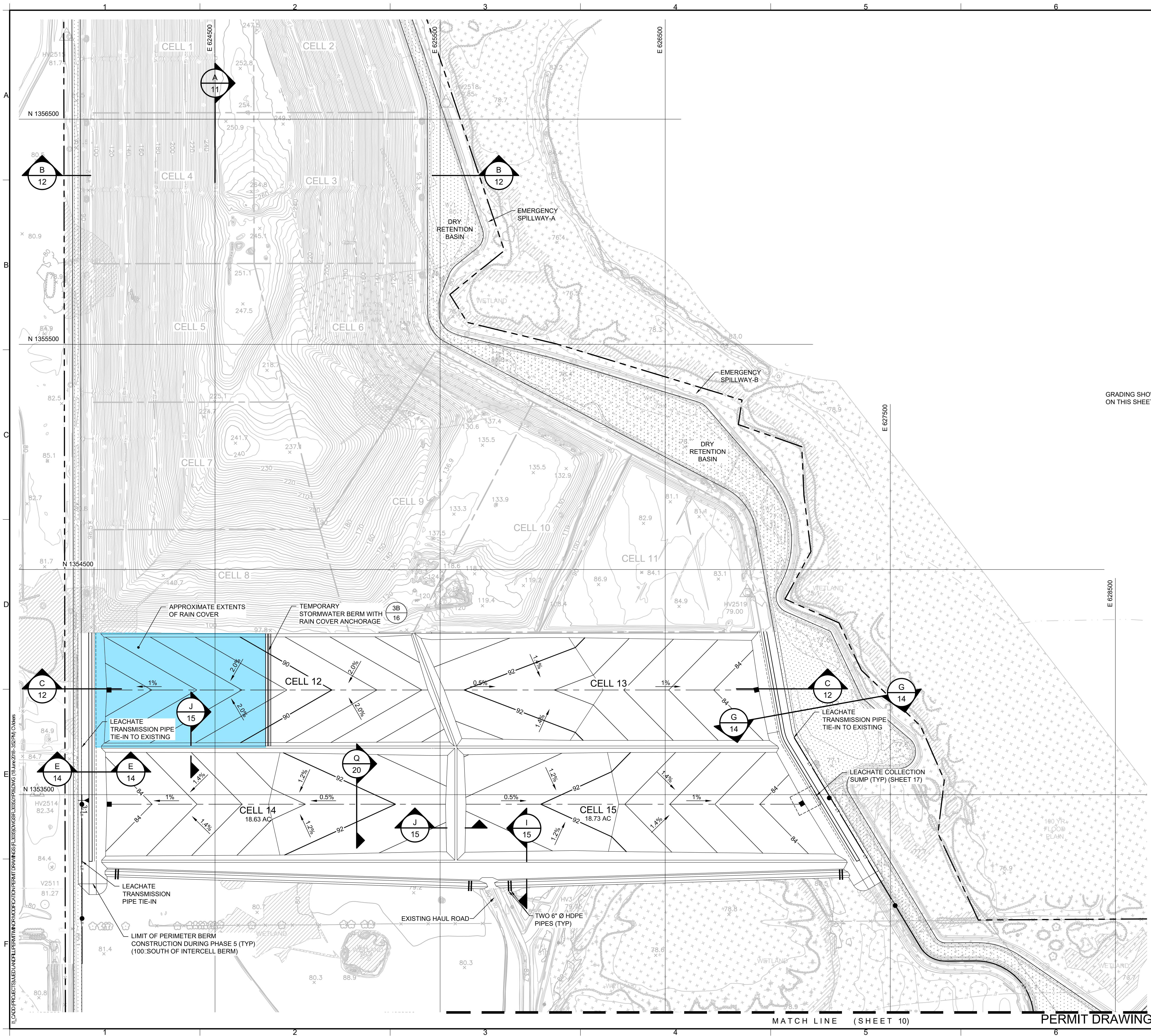
DATE: JUNE 2016

PROJECT NO.: FL3035.01

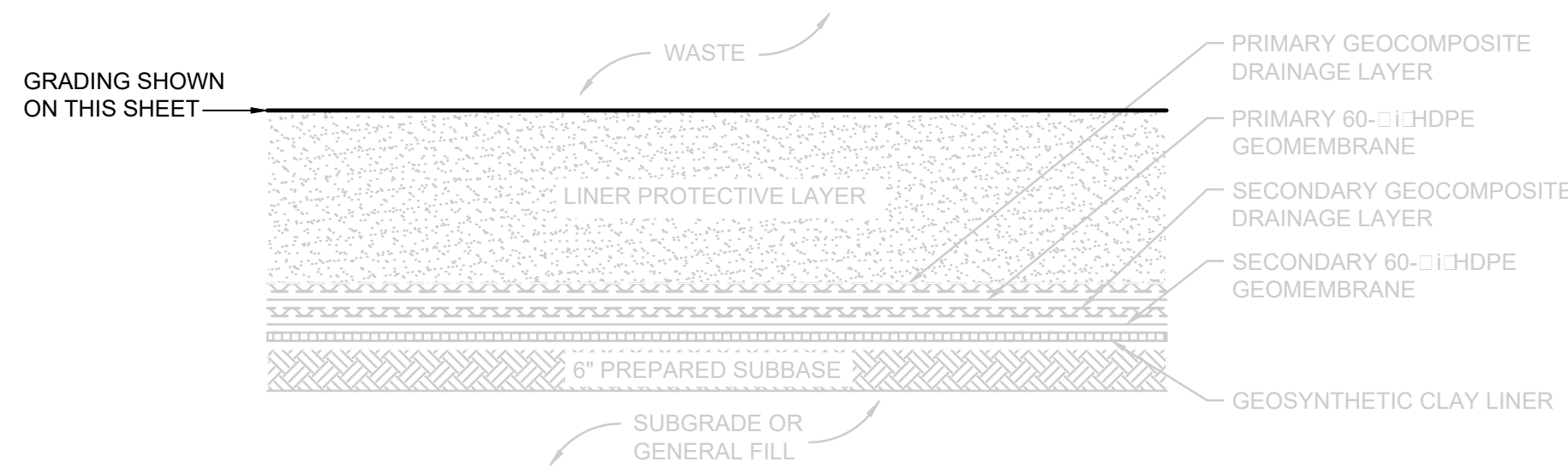
FILE: FL3035.01P08

DRAWING NO.: **8** OF **48**

PERMIT DRAWING



- LEGEND**
- PROPERTY BOUNDARY
 - EXISTING GROUND ELEVATION (FEET) (NOTE 3)
 - EXISTING FENCE
 - WETLAND BOUNDARY BY PHOTO INTERPRETATION BY BRA (NOTE 4)
 - WETLAND BOUNDARY BY FIELD SURVEY (NOTE 4)
 - 100-YEAR FLOODPLAIN (NOTE 5)
 - STORM WATER MANAGEMENT BASIN
 - APPROXIMATE EXTENTS OF RAIN COVER
 - TOP OF PROTECTIVE COVER LAYER ELEVATION (FEET)
 - LEACHATE TRANSMISSION PIPE AND MANHOLE
 - LEACHATE COLLECTION PIPE AND SUMP



GRADING KEY MAP
SCALE: 1" = 2"
XREF: FL1962.02X2012

- NOTES:**
- NORTHING AND EASTING COORDINATES SHOWN REPRESENT FLORIDA STATE PLANE EAST ZONE NORTH AMERICAN DATUM OF 1983 (NAD83). THE ELEVATIONS SHOWN REPRESENT NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29) (FEET).
 - THE PROPERTY BOUNDARY IS BASED ON A COMPOSITE BOUNDARY SURVEY PROVIDED BY JOHNSTON SURVEYING INC., KISSIMEE FLORIDA, DATED AUGUST 12, 1999.
 - TOPOGRAPHIC INFORMATION SHOWN ON THIS DRAWING WAS PROVIDED BY BASE MAPPING CO. LTD BASED ON AN AERIAL PHOTOGRAPH TAKEN ON 20 MAY 2015.
 - THE WETLAND BOUNDARY INFORMATION SHOWN IS BASED ON: A FIELD SURVEY DATED 15 MAY 2002 BY JOHNSTON SURVEYING INC. OF WETLANDS BOUNDARIES FLAGGED BY BIOLOGICAL RESEARCH ASSOCIATES, INC. (BRA), THE EXISTING JURISDICTIONAL WETLAND DETERMINATIONS, A PHOTO INTERPRETATION OF WETLAND BOUNDARIES BY BRA IN AREAS OUTSIDE THE LIMITS OF CONSTRUCTION, AND A FIELD SURVEY DATED 24 NOVEMBER 2010 BY PEAVEY & ASSOCIATES OF WETLAND BOUNDARIES FLAGGED BY ENTRIX, INC.
 - THE 100-YEAR FLOODPLAIN BOUNDARY SHOWN WAS PROVIDED BY THE OSCEOLA COUNTY GIS DEPARTMENT ON JANUARY 9, 2002 AND RECONFIRMED WITH THE OSCEOLA COUNTY GIS DEPARTMENT ON 24 SEPTEMBER 2010.
 - PHASE 2 (CELLS 5 THROUGH 7) HAS BEEN CONSTRUCTED AND HAS WASTE DISPOSED IN CELLS 5 AND 6. CELL 7 WASTE DISPOSAL OPERATIONS ARE PENDING FDEP APPROVAL.

1	MAY 2018	ISSUED FOR FDEP APPROVAL (MINOR MODIFICATION GAS PIPING, CELL 12, AND RAIN COVER)	CMV	CRB
0	JUN 2016	ISSUED FOR FDEP APPROVAL	CMV	CRB
REV	DATE	DESCRIPTION	DRN	APP

Geosyntec
consultants

12802 TAMPA OAKS BLVD., SUITE 151
TEMPLE TERRACE, FLORIDA 33637 USA
PH: 813.558.0990 - FX: 813.558.9726
AUTHORIZATION NUMBER: 4321

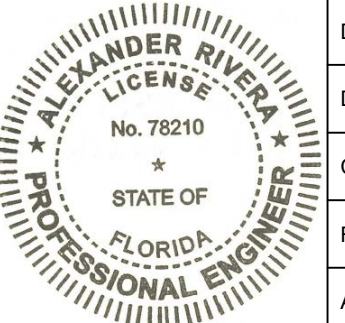
WASTE CONNECTIONS, INC.
Connect with the Future
1501 OMNI WAY
ST. CLOUD, FLORIDA 34773
TEL: 407-891-3720 FAX: 407-891-3730

LEACHATE COLLECTION SYSTEM LAYOUT PLAN I

MINOR MODIFICATION PERMIT DRAWINGS

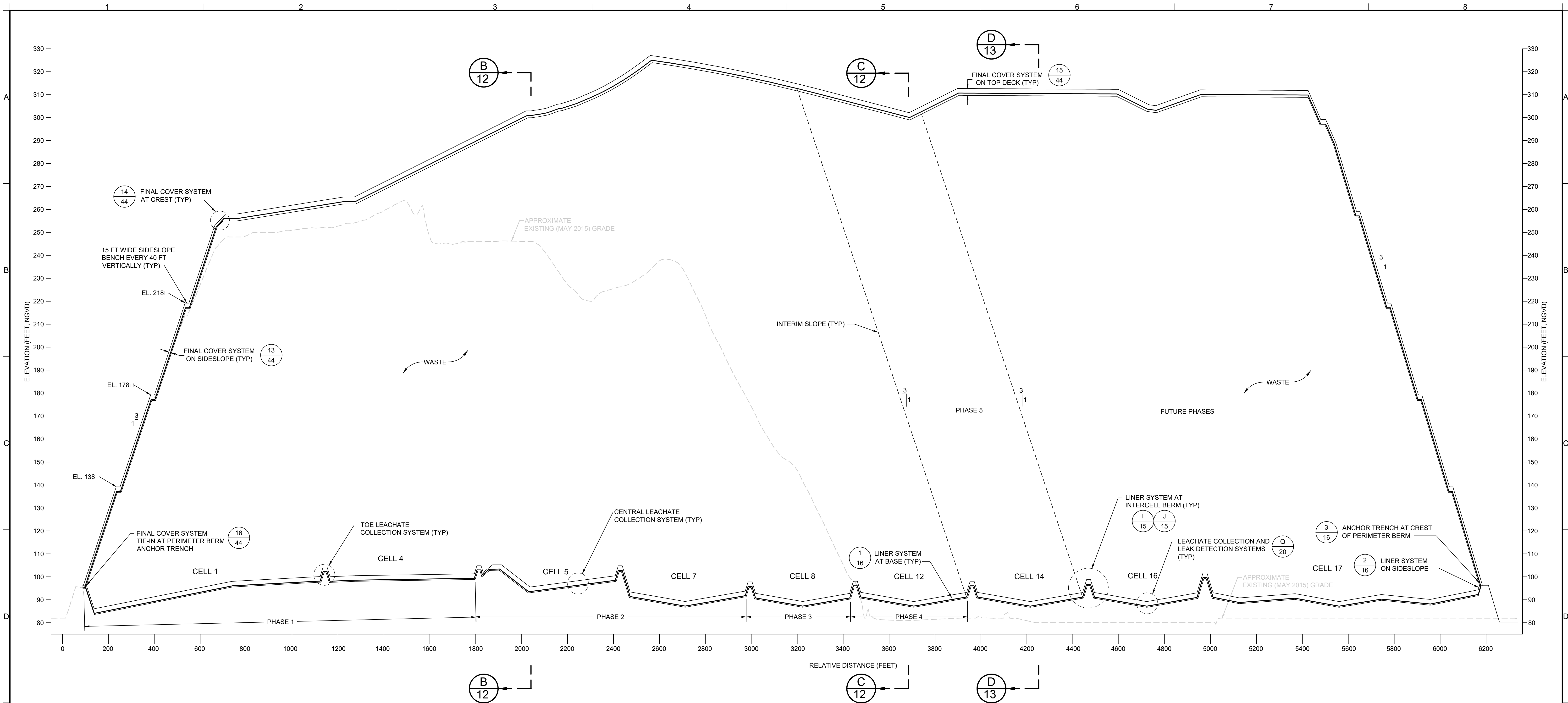
J.E.D. SOLID WASTE MANAGEMENT FACILITY

SIGNATURE
6/18/18
DATE



DESIGN BY:	CRB	DATE:	JUNE 2016
DRAWN BY:	CMV	PROJECT NO.:	FL3035.01
CHECKED BY:	AR	FILE:	FL3035.01P09
REVIEWED BY:	KBT	DRAWING NO.:	9 OF 48
APPROVED BY:	CRB		

CRAIG BROWNE - LICENSE NO. 68613



SECTION 7
LANDFILL CROSS SECTION
SCALE: 1" = 200'(HOR) 1/4" = 20'(VERT)

- GENERAL NOTES:
- THE ELEVATIONS SHOWN REPRESENT NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29) (FEET).

1	MAY 2018	ISSUED FOR FDEP APPROVAL (MINOR MODIFICATION GAS PIPING, CELL 12, AND RAIN COVER)	CMV	CRB
0	JUN 2016	ISSUED FOR FDEP APPROVAL	CMV	CRB
REV	DATE	DESCRIPTION	DRN	APP

Geosyntec
consultants
12802 TAMPA OAKS BLVD., SUITE 151
TEMPLE TERRACE, FLORIDA 33637 USA
PH: 813.558.0990 - FX: 813.558.9726
AUTHORIZATION NUMBER: 4321

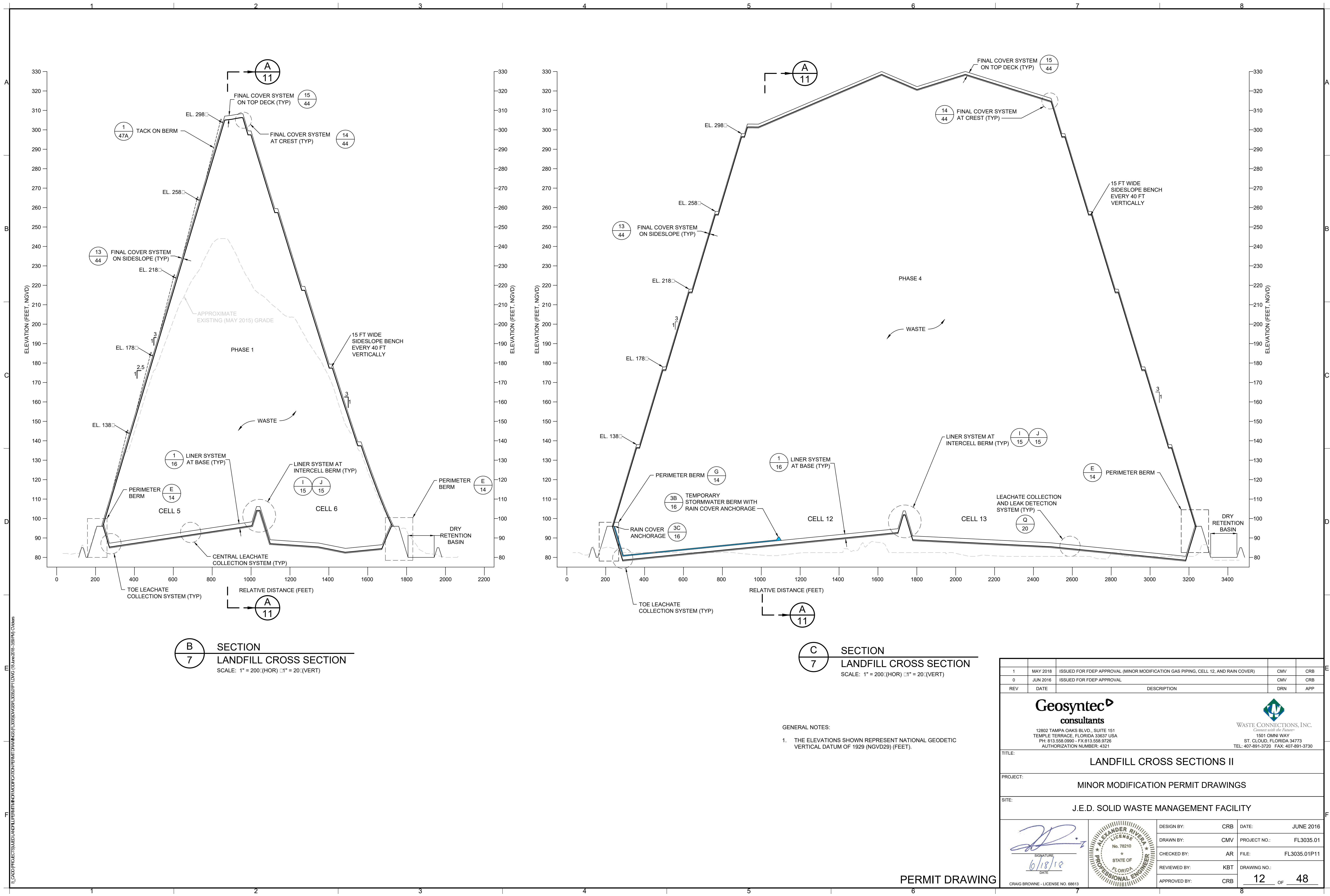
WASTE CONNECTIONS, INC.
Connect with the Future
1501 OMNI WAY
ST. CLOUD, FLORIDA 34773
TEL: 407-891-3720 FAX: 407-891-3730

TITLE: LANDFILL CROSS SECTIONS I			
PROJECT: MINOR MODIFICATION PERMIT DRAWINGS			
SITE: J.E.D. SOLID WASTE MANAGEMENT FACILITY			

 SIGNATURE 6/18/18 DATE		DESIGN BY:	CRB	DATE:	JUNE 2016
		DRAWN BY:	CMV	PROJECT NO.:	FL3035.01
		CHECKED BY:	AR	FILE:	FL3035.01P11
		REVIEWED BY:	KBT	DRAWING NO.:	11 OF 48
APPROVED BY:		CRB			

CRAIG BROWNE - LICENSE NO. 68613

PERMIT DRAWING



B
7 SECTION
LANDFILL CROSS SECTION
SCALE: 1" = 200'(HOR) 1" = 20'(VERT)

C
7 SECTION
LANDFILL CROSS SECTION
SCALE: 1" = 200'(HOR) 1" = 20'(VERT)

GENERAL NOTES:
1. THE ELEVATIONS SHOWN REPRESENT NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29) (FEET).

1	MAY 2018	ISSUED FOR FDEP APPROVAL (MINOR MODIFICATION GAS PIPING, CELL 12, AND RAIN COVER)	CMV	CRB
0	JUN 2016	ISSUED FOR FDEP APPROVAL	CMV	CRB
REV	DATE	DESCRIPTION	DRN	APP

Geosyntec
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12802 TAMPA OAKS BLVD., SUITE 151
TEMPLE TERRACE, FLORIDA 33637 USA
PH: 813.558.0990 - FX: 813.558.9726
AUTHORIZATION NUMBER: 4321

WASTE CONNECTIONS, INC.
Connect with the Future
1501 OMNI WAY
ST. CLOUD, FLORIDA 34773
TEL: 407-891-3720 FAX: 407-891-3730

TITLE: LANDFILL CROSS SECTIONS II

PROJECT: MINOR MODIFICATION PERMIT DRAWINGS

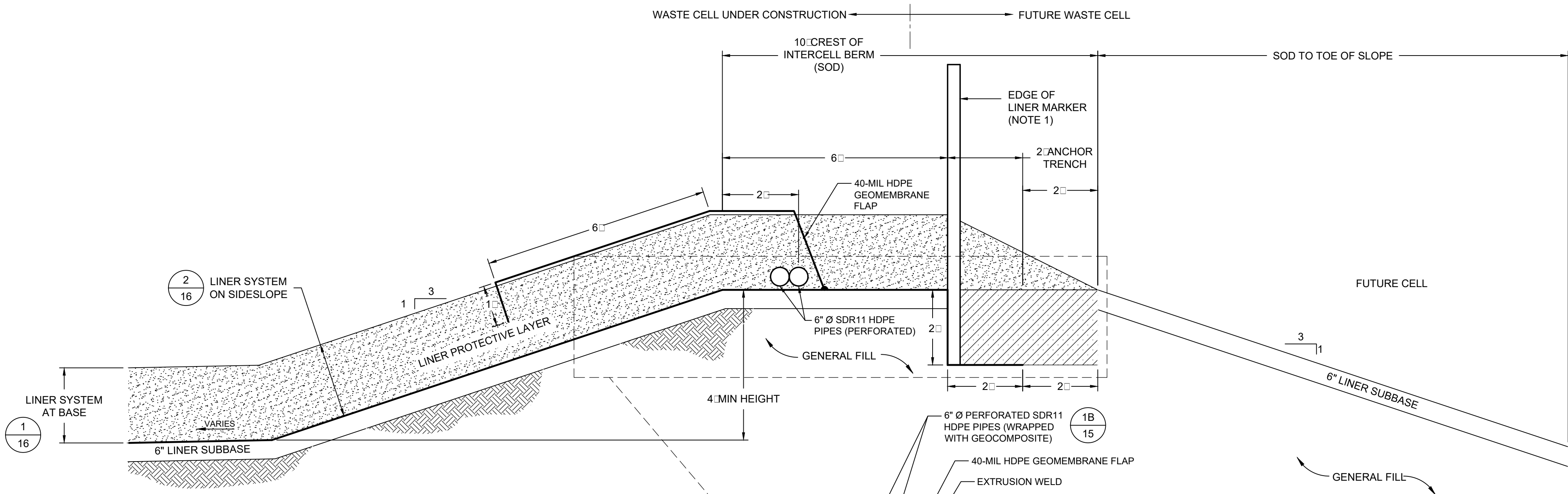
SITE: J.E.D. SOLID WASTE MANAGEMENT FACILITY

 SIGNATURE 6/18/18 DATE	 ALEXANDER RIVERA No. 78210 FLORIDA PROFESSIONAL ENGINEER	DESIGN BY: CRB DATE: JUNE 2016 DRAWN BY: CMV PROJECT NO.: FL3035.01 CHECKED BY: AR FILE: FL3035.01P11 REVIEWED BY: KBT DRAWING NO.: APPROVED BY: CRB
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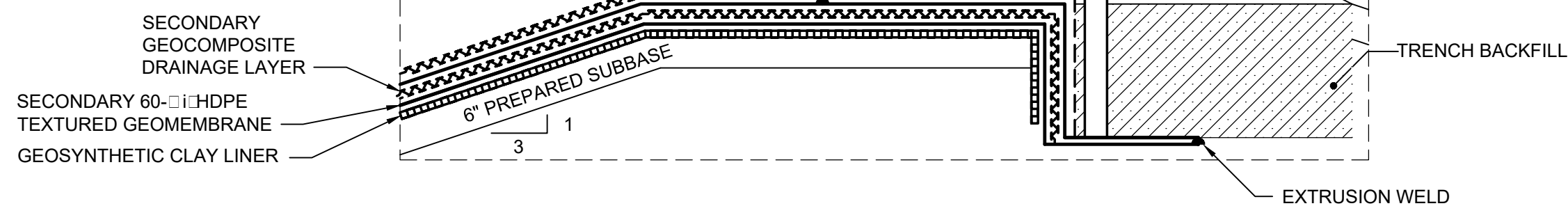
CRAIG BROWNE - LICENSE NO. 68613

12 OF 48

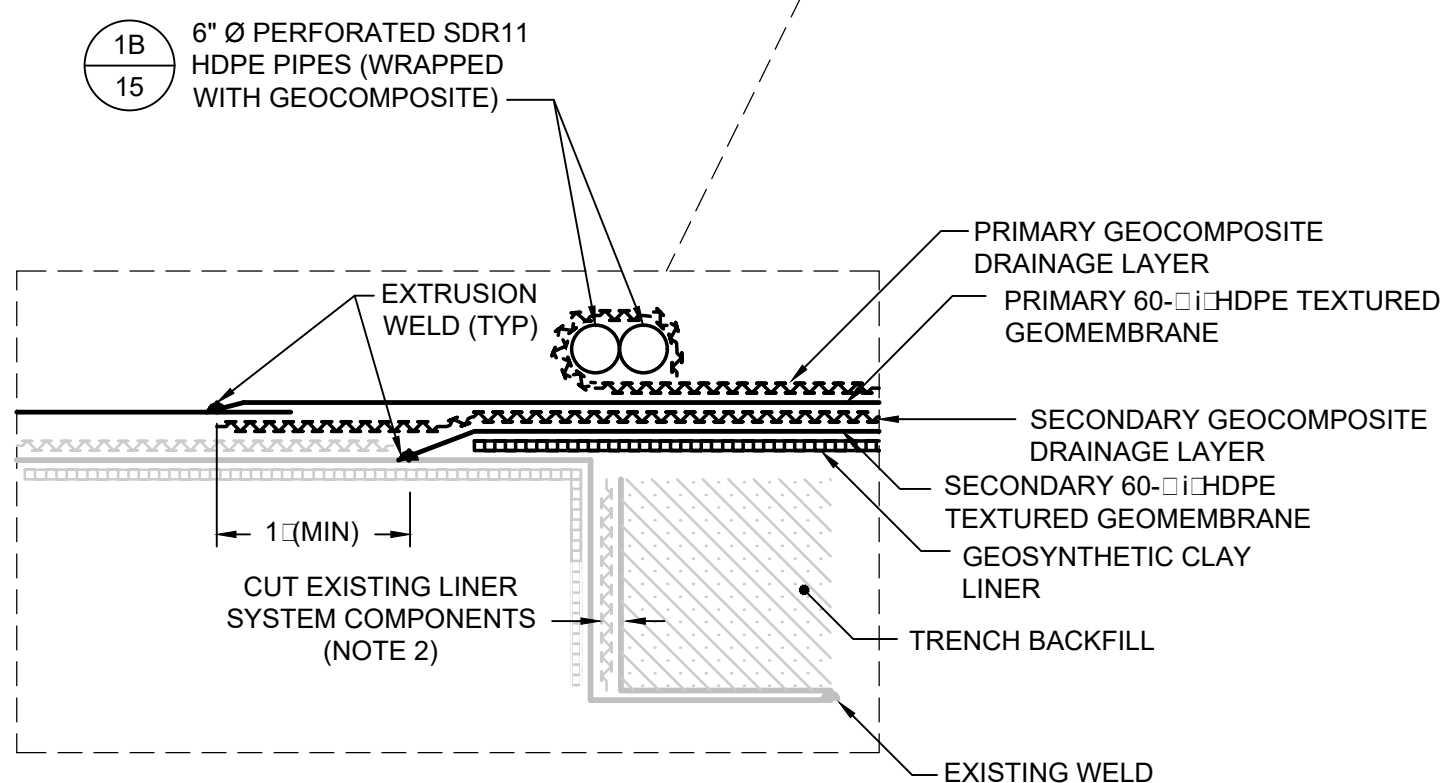
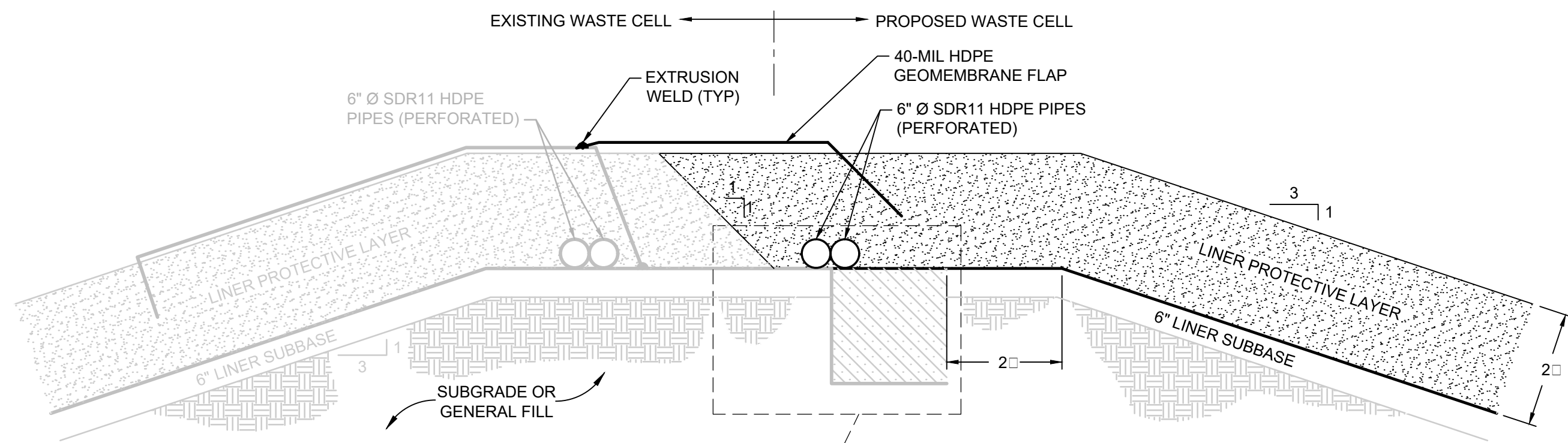
PERMIT DRAWING



- 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. WELD 40-MIL HDPE GEOMEMBRANE FLAP TO PRIMARY GEOMEMBRANE 1 FT FROM THE CREST OF THE INTERCELL BERM.
 3. LINER SYSTEM ANCHOR TRENCH SHALL HAVE ROUNDED CORNERS.

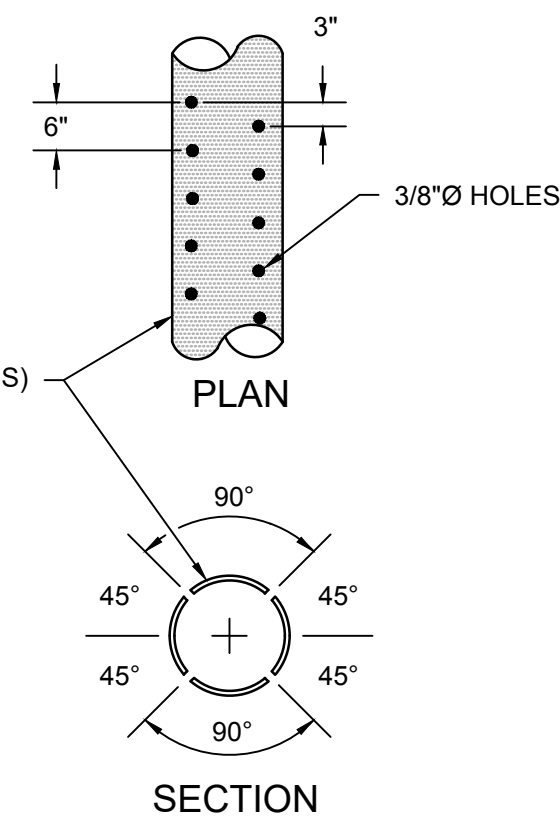


1
7 SECTION (TYPICAL)
LINER SYSTEM TERMINATION AT INTERCELL BERM
SCALE: 1" = 2'
XREF: FL3035X2098

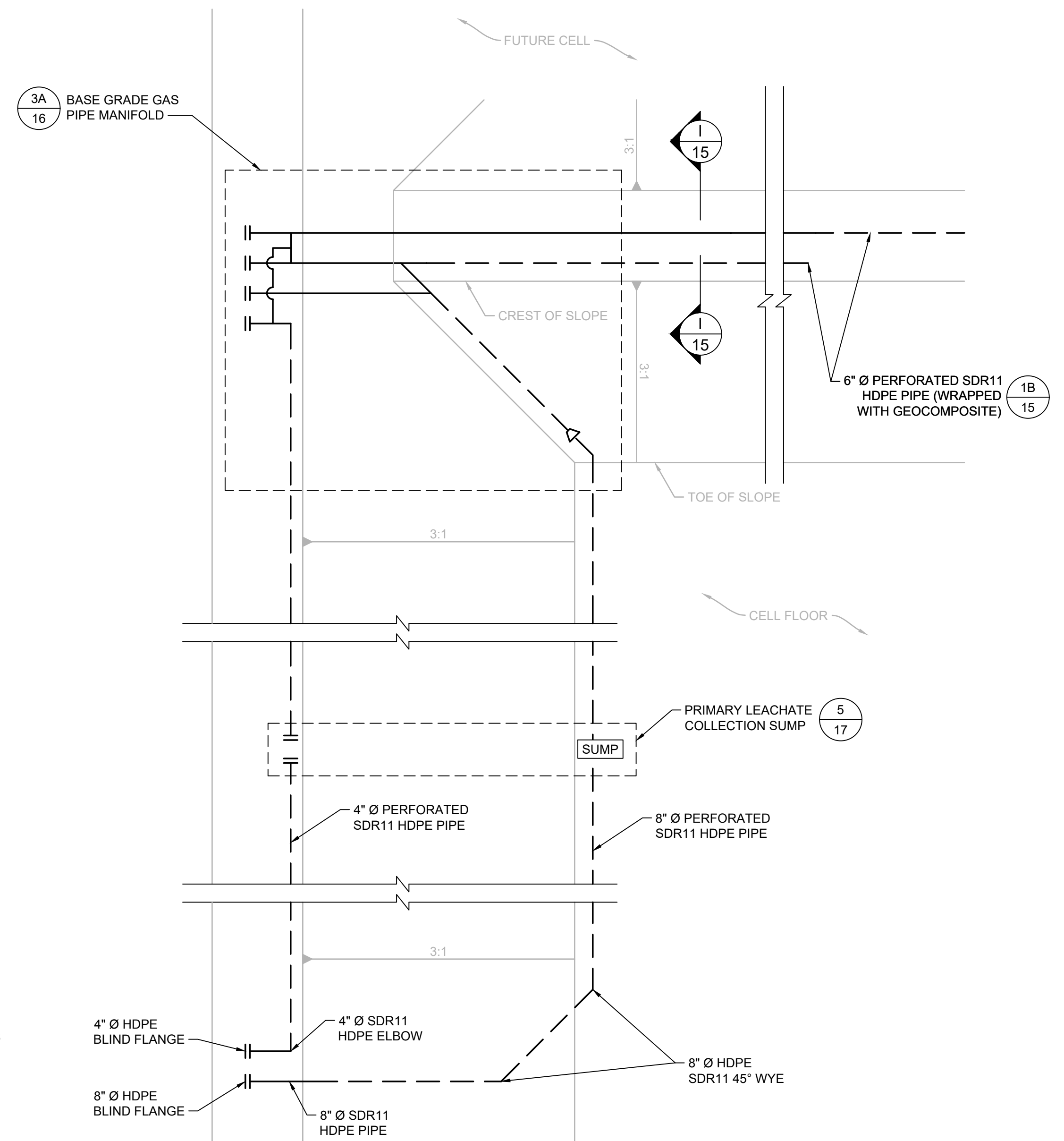


J
7 SECTION (TYPICAL)
LINER SYSTEM TIE-IN AT INTERCELL BERM
SCALE: 1" = 2'
XREF: FL3035X2099

- NOTES:
1. TO CONNECT THE BOTTOM LINER SYSTEMS DURING CONSTRUCTION, EXCAVATE THE LINER PROTECTIVE LAYER, REMOVE ANY SACRIFICIAL GEOTEXTILE SEPARATOR, AND CONNECT LIKE COMPONENTS OF GEOSYNTHETICS AS INDICATED. STAGGER THE SEAMS/OVERLAPS BETWEEN LIKE COMPONENTS OF GEOSYNTHETICS BY A MINIMUM OF 1 FOOT.
 2. DO NOT CUT THE EXISTING SECONDARY GEOMEMBRANE AND GCL. TIE-IN AS SHOWN.
 3. UPON REMOVAL OF PROTECTIVE COVER FROM THE TIE-IN AREA OF THE CELL, CONTRACTOR SHALL USE EXTREME CARE NOT TO DAMAGE EXISTING GEOSYNTHETICS. DAMAGED GEOSYNTHETICS SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE. SITE MANAGER SHALL INSPECT TIE-IN AREA DURING REMOVAL.



1B
15 DETAIL (TYPICAL)
PERFORATION FOR GAS COLLECTION PIPES
SCALE: NTS
XREF: FL3035X1100

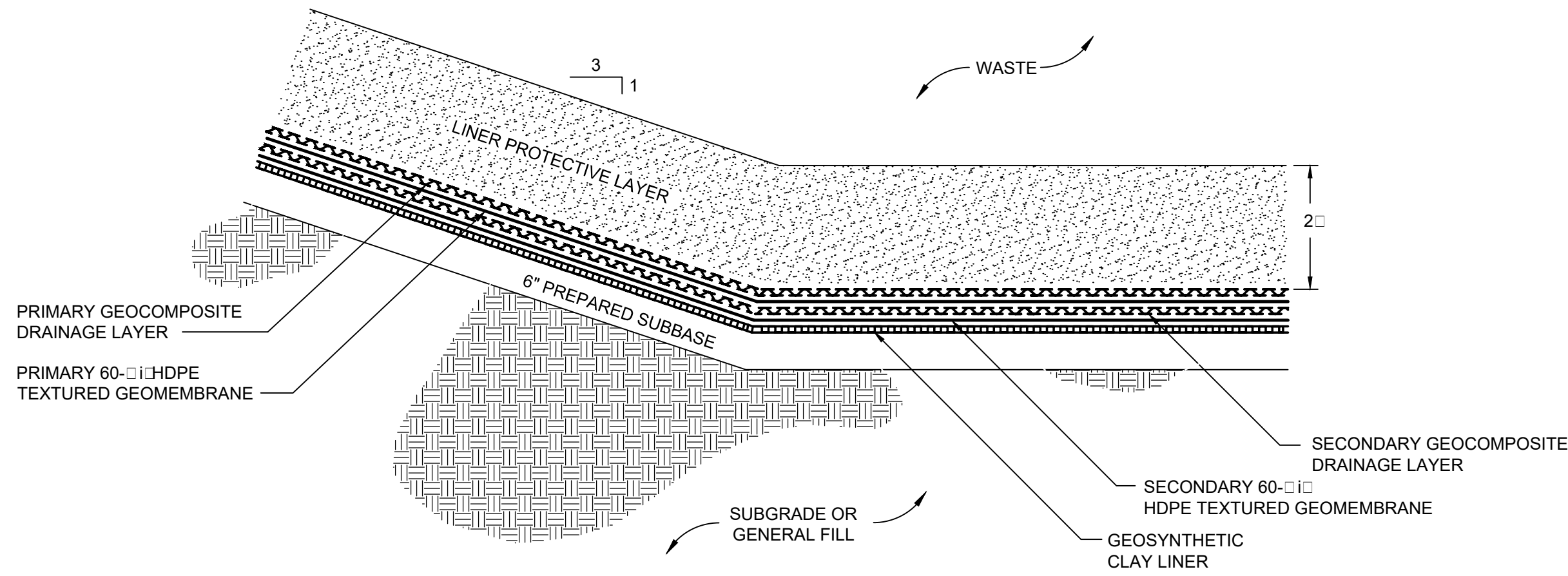


1A
- DETAIL
BASE GRADE GAS COLLECTION PIPING TIE IN
SCALE: NTS
XREF: FL3035X091

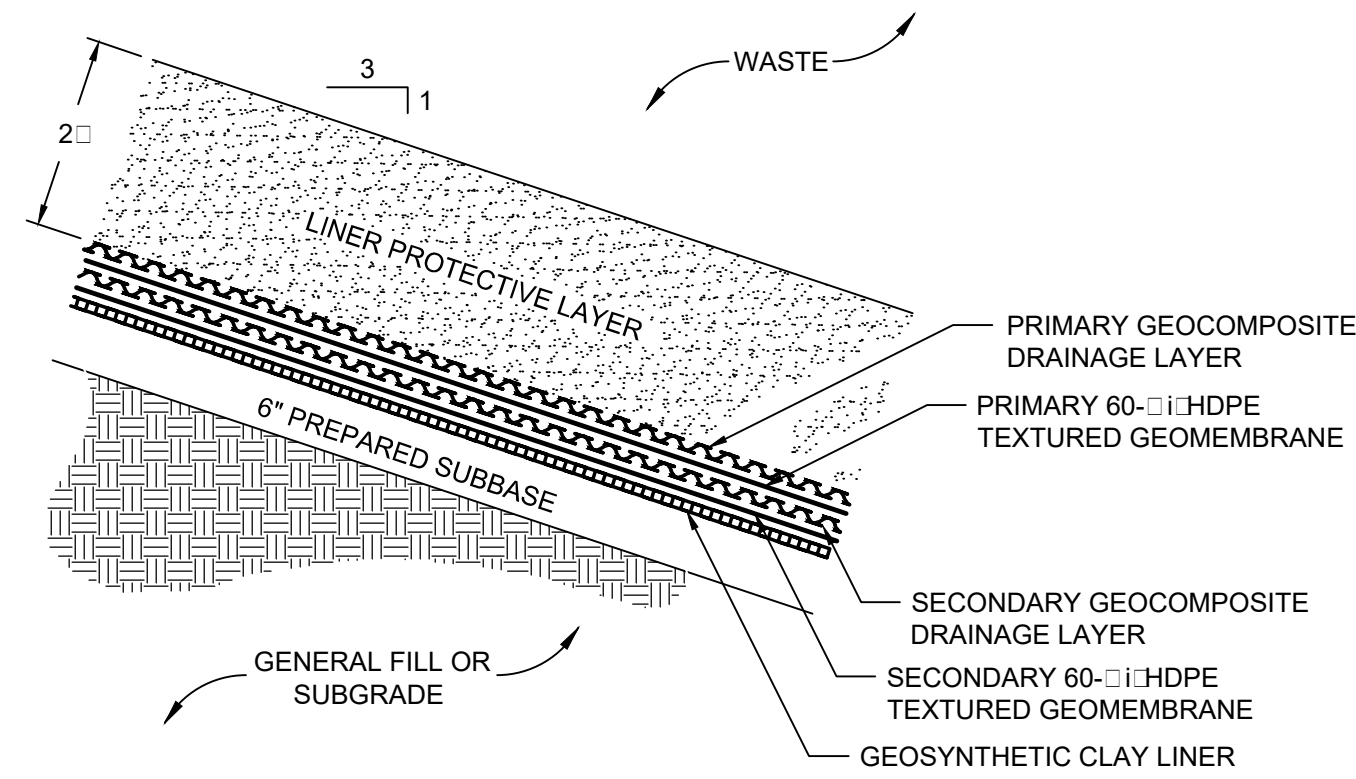
- NOTES:
1. DETAILS ARE SHOWN TO SCALE AS NOTED EXCEPT FOR THE GEOSYNTHETICS WHICH ARE SHOWN AT AN EXAGGERATED SCALE FOR CLARITY.

1	MAY 2018	ISSUED FOR FDEP APPROVAL (MINOR MODIFICATION GAS PIPING, CELL 12, AND RAIN COVER)	CMV	CRB
0	JUN 2016	ISSUED FOR FDEP APPROVAL	CMV	CRB
REV	DATE	DESCRIPTION	DRN	APP
Geosyntec consultants 12802 TAMPA OAKS BLVD., SUITE 151 TEMPLE TERRACE, FLORIDA 33637 USA PH: 813.558.0990 - FX: 813.558.9726 AUTHORIZATION NUMBER: 4321				
WASTE CONNECTIONS, INC. Connect with the Future 1501 OMNI WAY ST. CLOUD, FLORIDA 34773 TEL: 407-891-3720 FAX: 407-891-3730				
TITLE: LINER SYSTEM DETAILS I - CELLS 12 THROUGH 15				
PROJECT: MINOR MODIFICATION PERMIT DRAWINGS				
SITE: J.E.D. SOLID WASTE MANAGEMENT FACILITY				
 SIGNATURE 6/18/18 DATE CRAIG BROWNE - LICENSE NO. 68613		 DESIGN BY: CRB DATE: JUNE 2016 DRAWN BY: CMV PROJECT NO.: FL3035.01 CHECKED BY: AR FILE: FL3035.01P15 REVIEWED BY: KBT DRAWING NO.: APPROVED BY: CRB 15 OF 48		

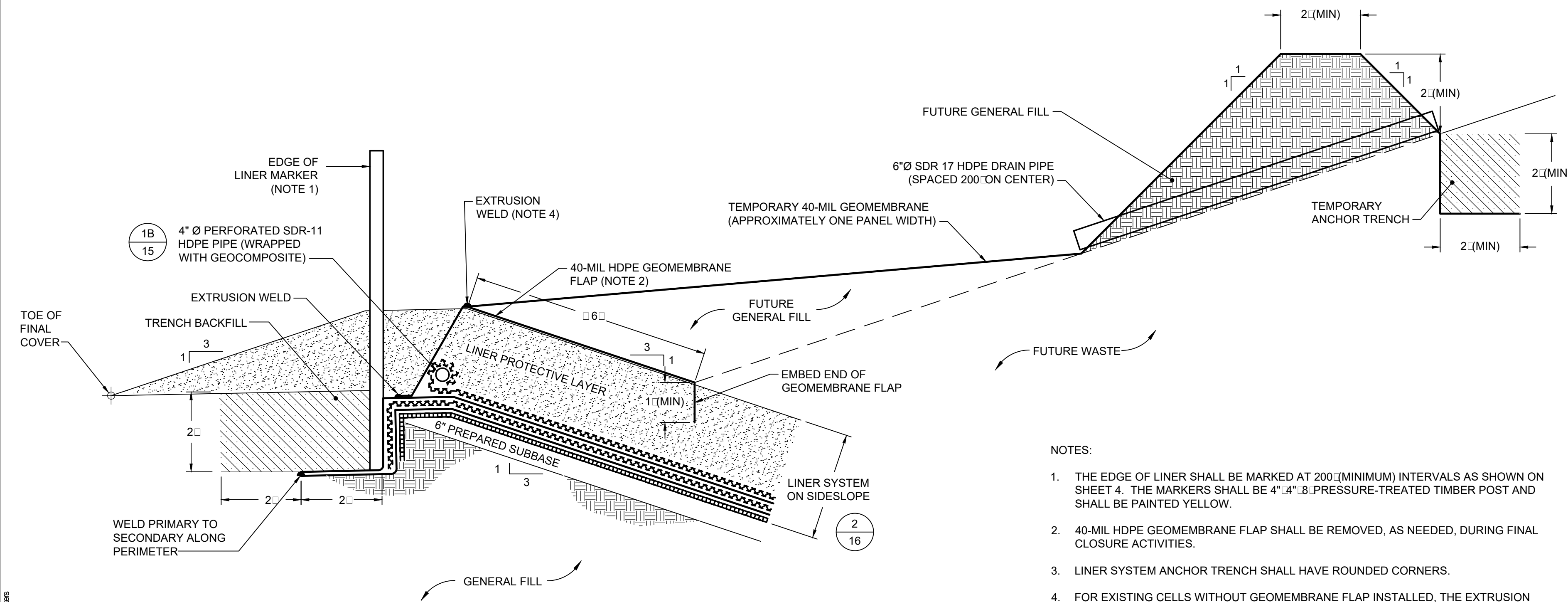
PERMIT DRAWING



1
11 DETAIL (TYPICAL)
LINER SYSTEM AT BASE
SCALE: 1" = 2'
XREF: FL3035X2004

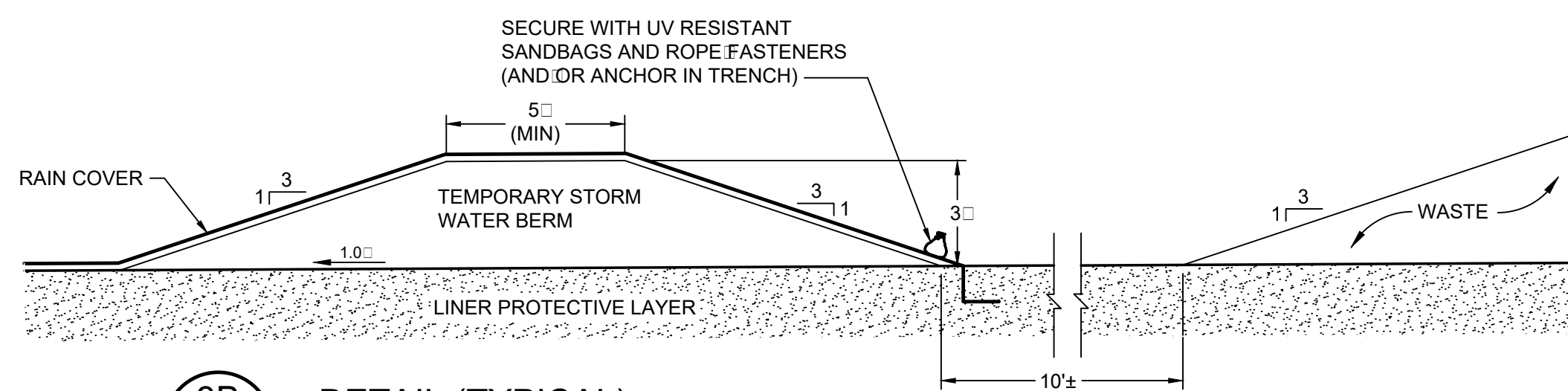


2
11 DETAIL (TYPICAL)
LINER SYSTEM ON SIDESLOPE
SCALE: 1" = 2'
XREF: FL3035X2074

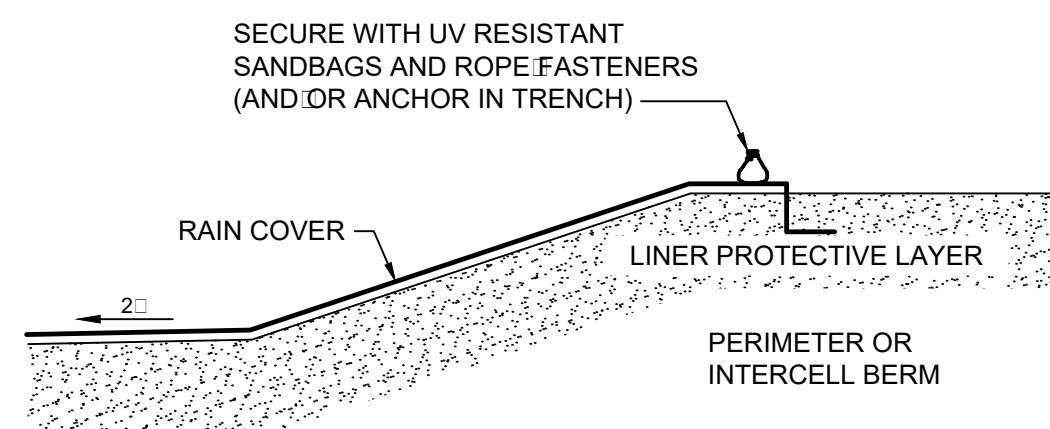


- NOTES:
- THE EDGE OF LINER SHALL BE MARKED AT 200' (MINIMUM) INTERVALS AS SHOWN ON SHEET 4. THE MARKERS SHALL BE 4" X 4" X 8' PRESSURE-TREATED TIMBER POST AND SHALL BE PAINTED YELLOW.
 - 40-MIL HDPE GEOMEMBRANE FLAP SHALL BE REMOVED, AS NEEDED, DURING FINAL CLOSURE ACTIVITIES.
 - LINER SYSTEM ANCHOR TRENCH SHALL HAVE ROUNDED CORNERS.
 - FOR EXISTING CELLS WITHOUT GEOMEMBRANE FLAP INSTALLED, THE EXTRUSION WELD SHALL BE LOCATED ADJACENT TO EDGE OF LINER MARKER (ON PRIMARY GEOMEMBRANE).

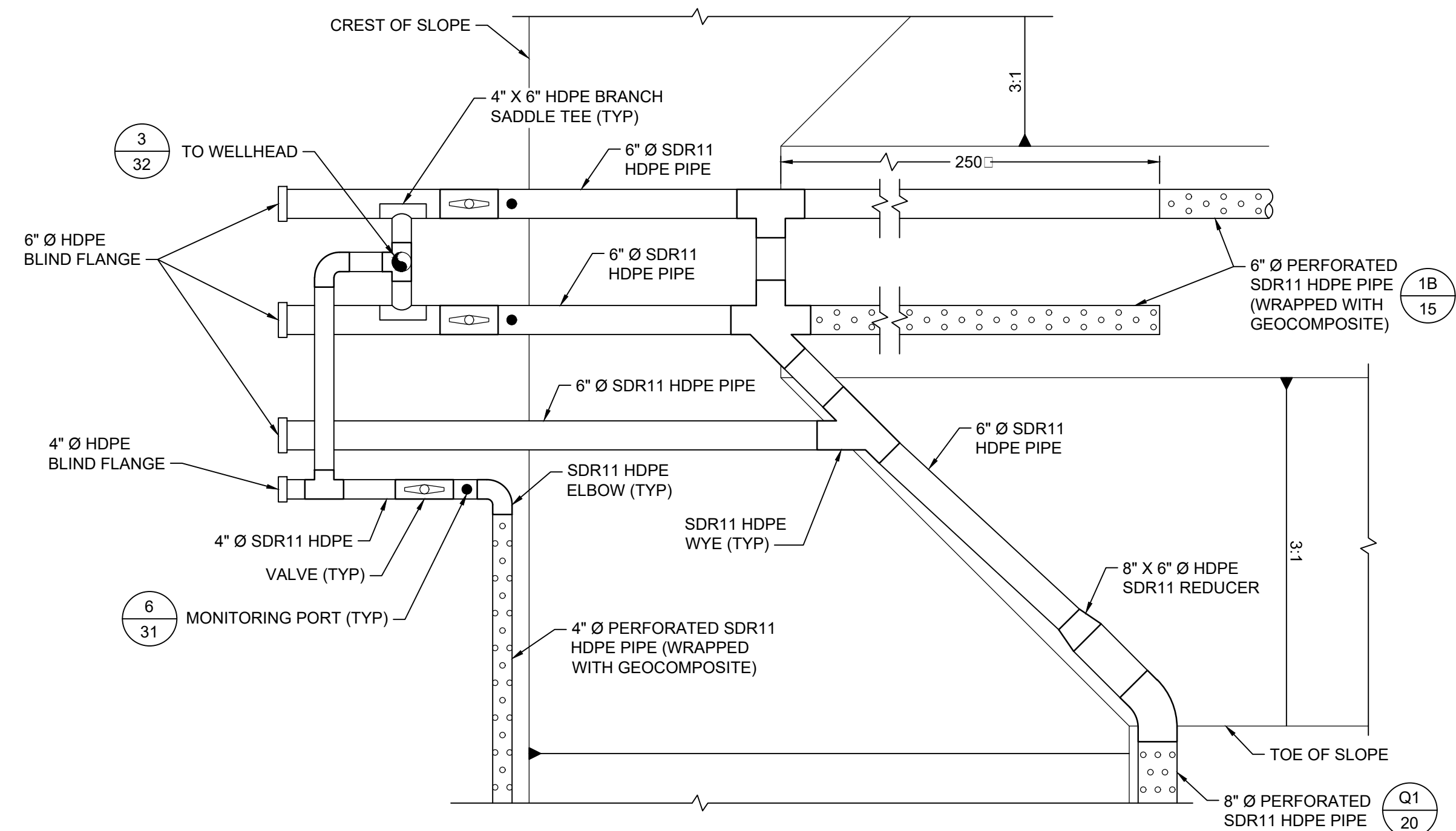
3
11 DETAIL (TYPICAL)
ANCHOR TRENCH AT CREST OF PERIMETER BERM
SCALE: 1" = 2'
XREF: FL3035X2003



3B
9 DETAIL (TYPICAL)
TEMPORARY STORM WATER BERM WITH RAIN COVER ANCHORAGE
SCALE: 1" = 4'
XREF: FL3035X0012



3C
12 DETAIL (TYPICAL)
RAIN COVER ANCHORAGE AT PERIMETER OR INTERCELL BERMS
SCALE: 1" = 4'
XREF: FL3035X0013



3A
15 DETAIL
BASE GRADE GAS PIPE MANIFOLD
(NOTE)
SCALE: N.T.S.
XREF: FL3035X0052

- NOTES:
- DETAILS ARE SHOWN TO SCALE AS NOTED EXCEPT FOR THE GEOSYNTHETICS WHICH ARE SHOWN AT AN EXAGGERATED SCALE FOR CLARITY.

1	MAY 2018	ISSUED FOR FDEP APPROVAL (MINOR MODIFICATION GAS PIPING, CELL 12, AND RAIN COVER)	CMV	CRB
0	JUN 2016	ISSUED FOR FDEP APPROVAL	CMV	CRB
REV	DATE	DESCRIPTION	DRN	APP

Geosyntec
consultants

12802 TAMPA OAKS BLVD., SUITE 151
TEMPLE TERRACE, FLORIDA 33637 USA
PH: 813.558.0990 - FX: 813.558.9726
AUTHORIZATION NUMBER: 4321

WASTE CONNECTIONS, INC.
Connect with the Future
1501 OMNI WAY
ST. CLOUD, FLORIDA 34773
TEL: 407-891-3720 FAX: 407-891-3730

TITLE: **LINER SYSTEM DETAILS II - CELLS 12 THROUGH 15**

PROJECT: **MINOR MODIFICATION PERMIT DRAWINGS**

SITE: **J.E.D. SOLID WASTE MANAGEMENT FACILITY**

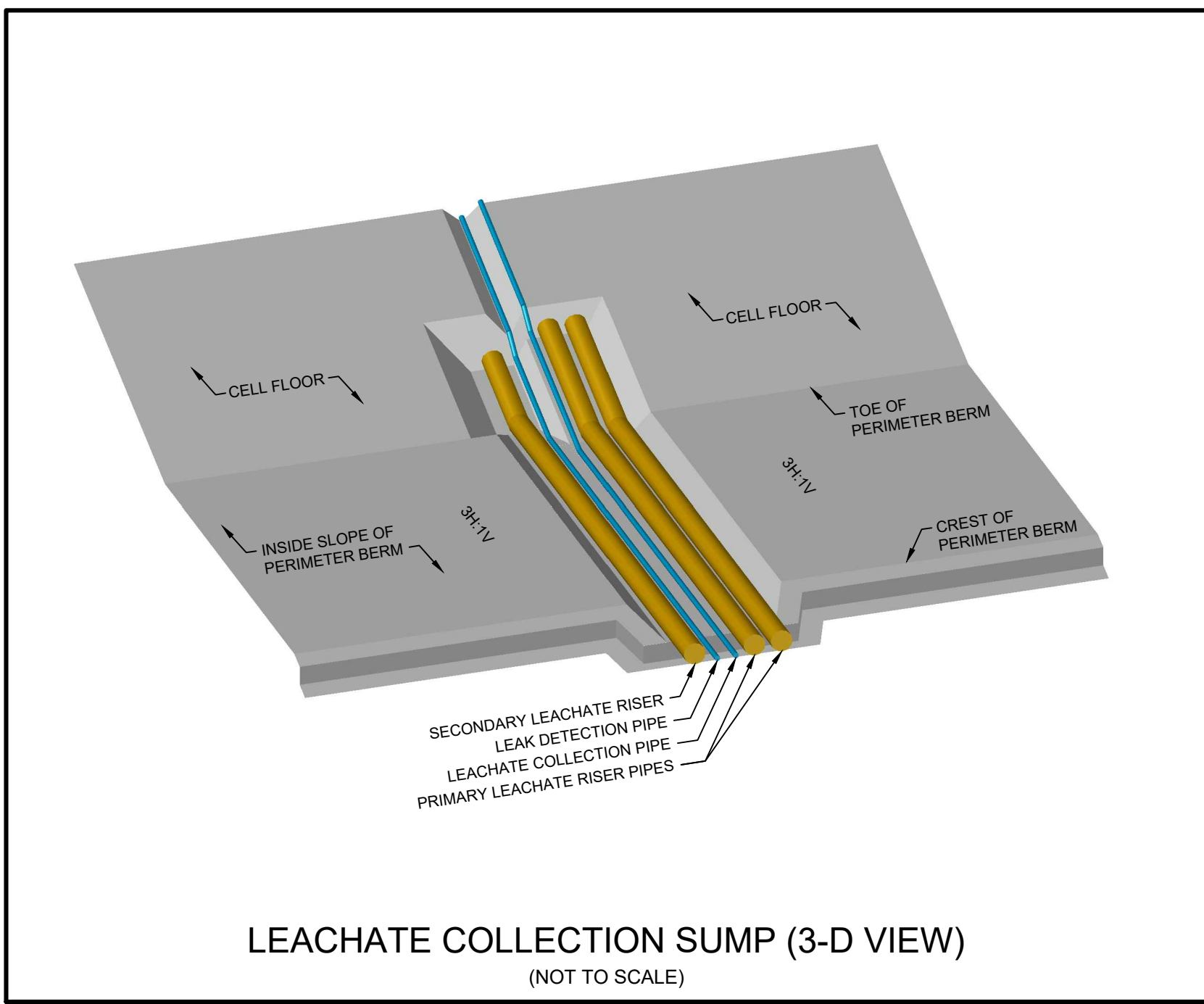
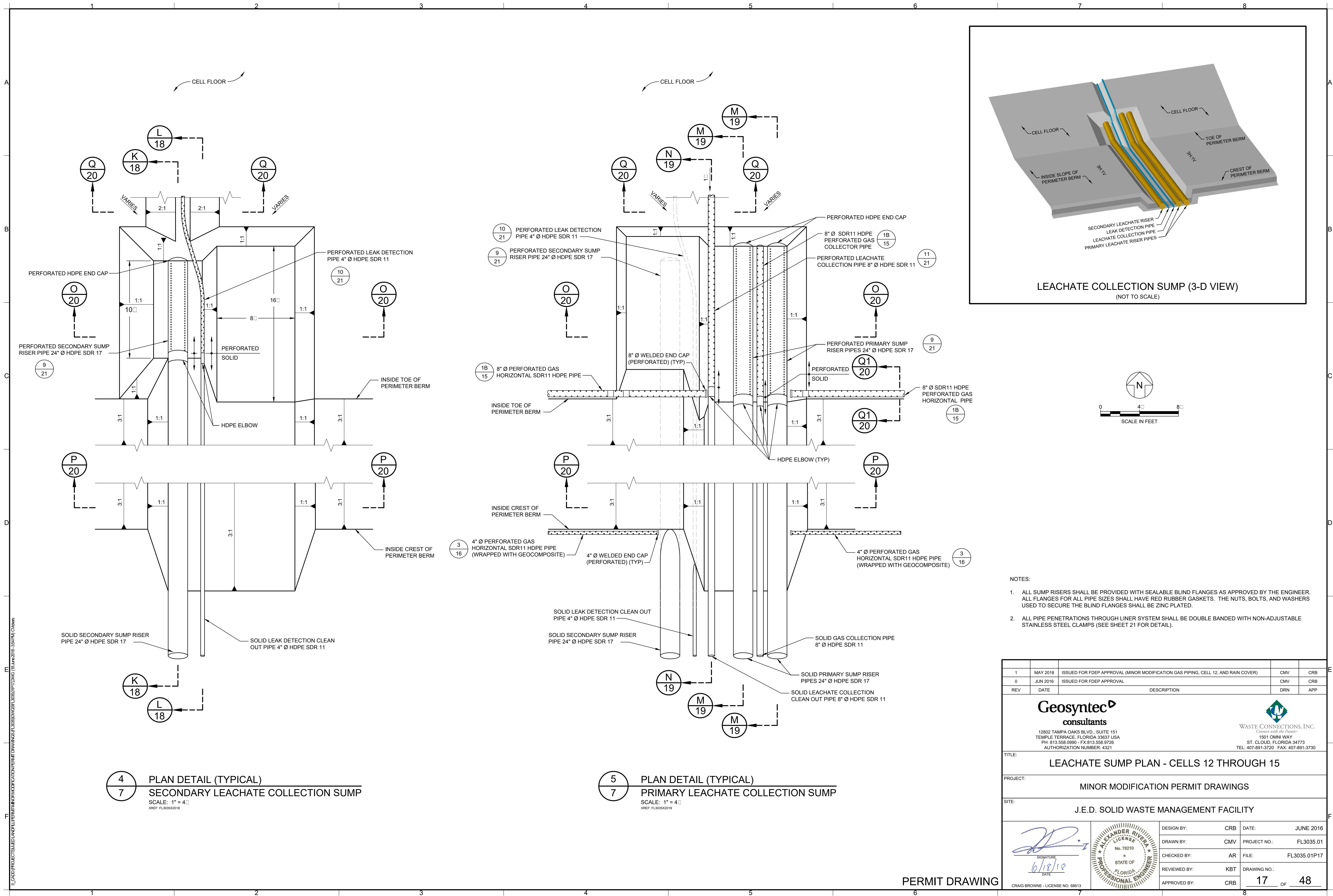
SIGNATURE: *[Signature]*
DATE: **6/18/18**

CRAIG BROWNE - LICENSE NO. 68613

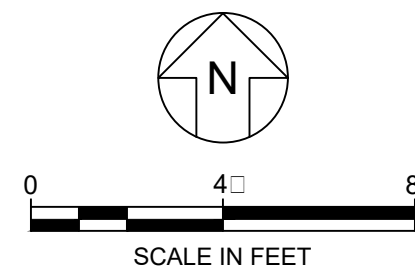
FLORIDA
PROFESSIONAL ENGINEER
No. 78210
*
STATE OF

DESIGN BY:	CRB	DATE:	JUNE 2016
DRAWN BY:	CMV	PROJECT NO.:	FL3035.01
CHECKED BY:	AR	FILE:	FL3035.01P16
REVIEWED BY:	KBT	DRAWING NO.:	
APPROVED BY:	CRB	16	OF 48

PERMIT DRAWING



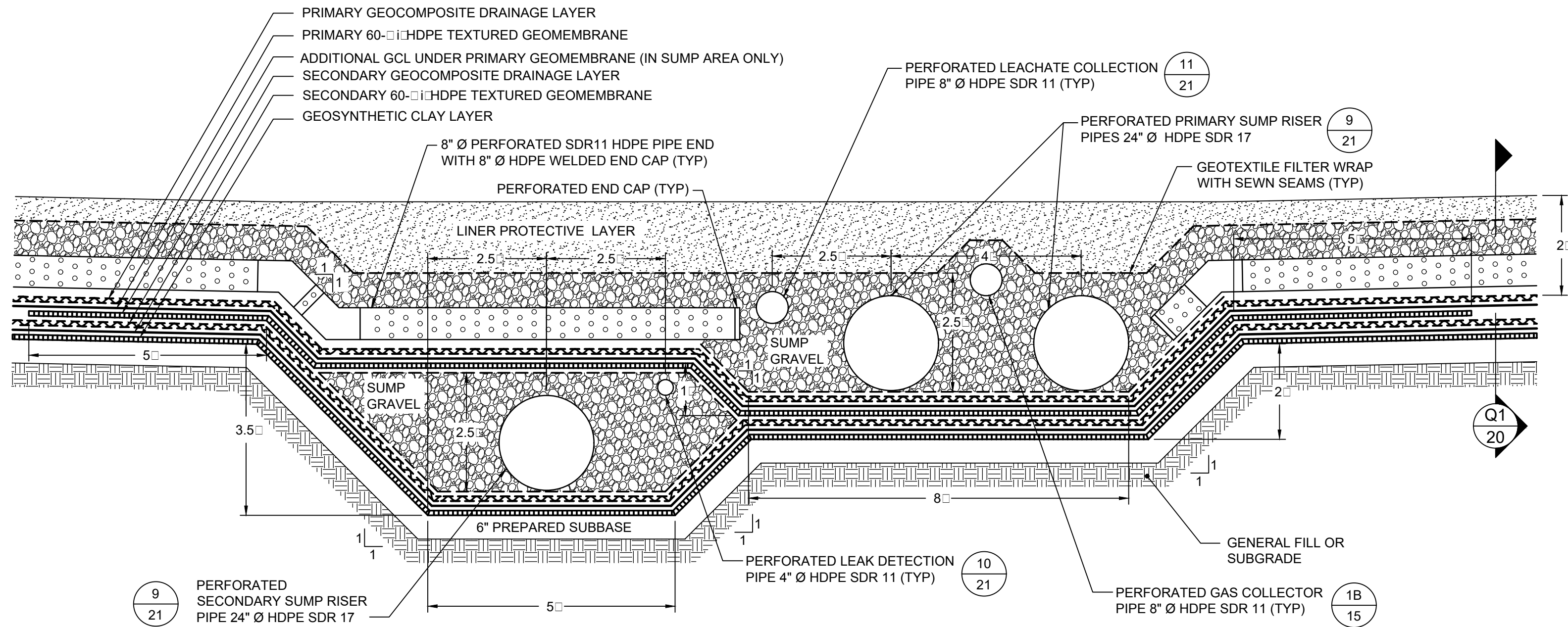
LEACHATE COLLECTION SUMP (3-D VIEW)
(NOT TO SCALE)



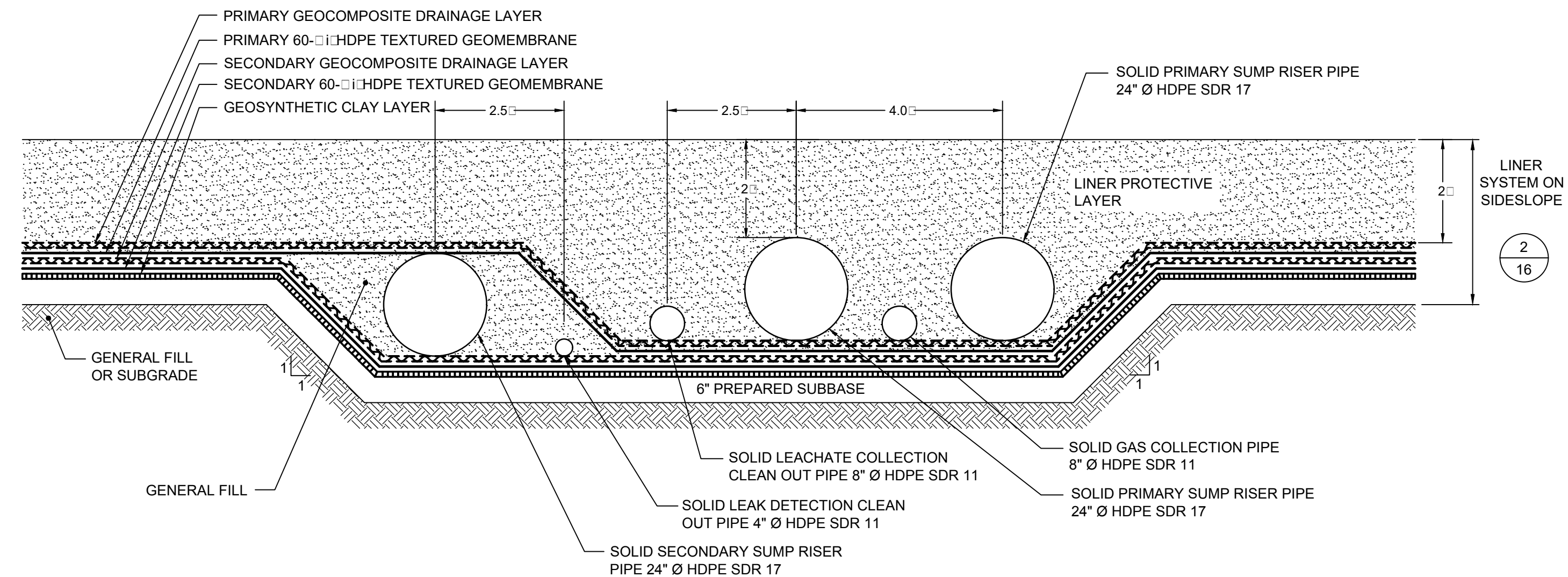
- NOTES:
- ALL SUMP RISERS SHALL BE PROVIDED WITH SEALABLE BLIND FLANGES AS APPROVED BY THE ENGINEER. ALL FLANGES FOR ALL PIPE SIZES SHALL HAVE RED RUBBER GASKETS. THE NUTS, BOLTS, AND WASHERS USED TO SECURE THE BLIND FLANGES SHALL BE ZINC PLATED.
 - ALL PIPE PENETRATIONS THROUGH LINER SYSTEM SHALL BE DOUBLE BANDED WITH NON-ADJUSTABLE STAINLESS STEEL CLAMPS (SEE SHEET 21 FOR DETAIL).

1	MAY 2018	ISSUED FOR FDEP APPROVAL (MINOR MODIFICATION GAS PIPING, CELL 12, AND RAIN COVER)	CMV	CRB
0	JUN 2016	ISSUED FOR FDEP APPROVAL	CMV	CRB
REV	DATE	DESCRIPTION	DRN	APP
Geosyntec[®] consultants 12802 TAMPA OAKS BLVD., SUITE 151 TEMPLE TERRACE, FLORIDA 33637 USA PH: 813.558.0990 • FX: 813.558.9726 AUTHORIZATION NUMBER: 4321 WASTE CONNECTIONS, INC. <i>Connect with the Future</i> 1501 OMNI WAY ST. CLOUD, FLORIDA 34773 TEL: 407-891-3720 FAX: 407-891-3730				
TITLE: LEACHATE SUMP PLAN - CELLS 12 THROUGH 15				
PROJECT: MINOR MODIFICATION PERMIT DRAWINGS				
SITE: J.E.D. SOLID WASTE MANAGEMENT FACILITY				
 SIGNATURE 6/18/18 DATE				DESIGN BY: CRB DATE: JUNE 2016
DRAWN BY: CMV		PROJECT NO.: FL3035.01		CRAIG BROWNE - LICENSE NO. 68613
CHECKED BY: AR		FILE: FL3035.01P17		
REVIEWED BY: KBT		DRAWING NO.: 17 OF 48		
APPROVED BY: CRB				

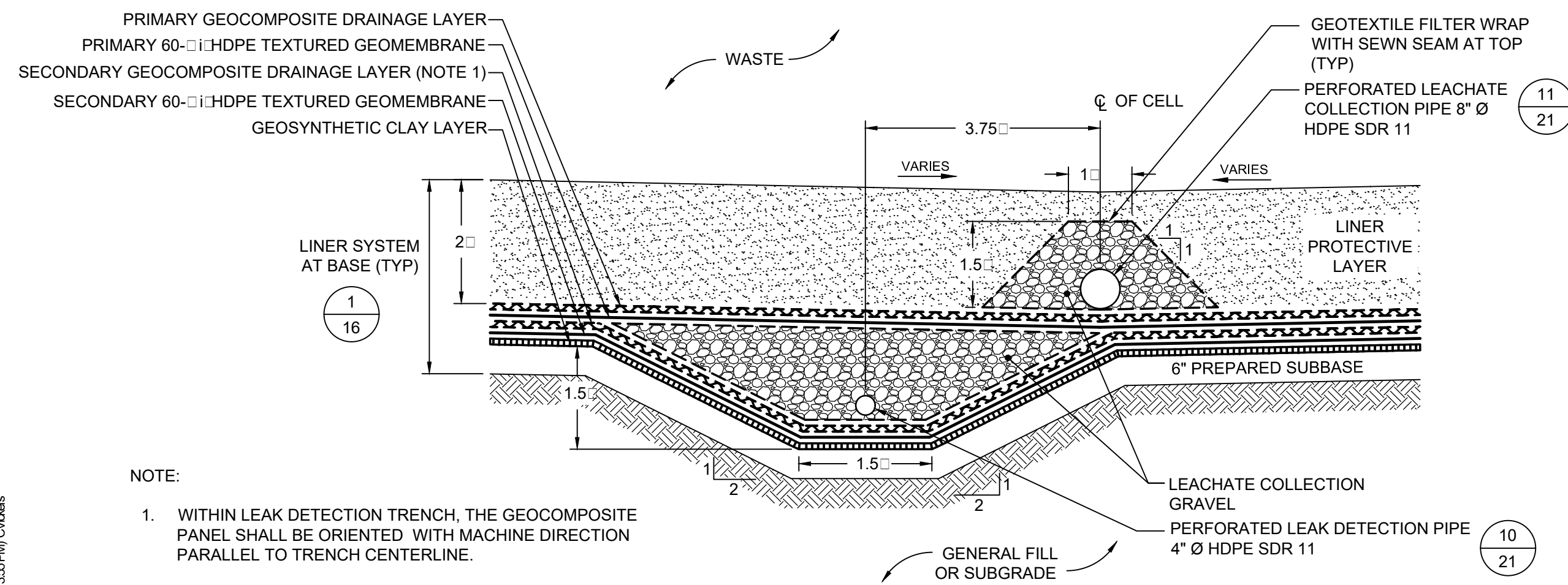
PERMIT DRAWING



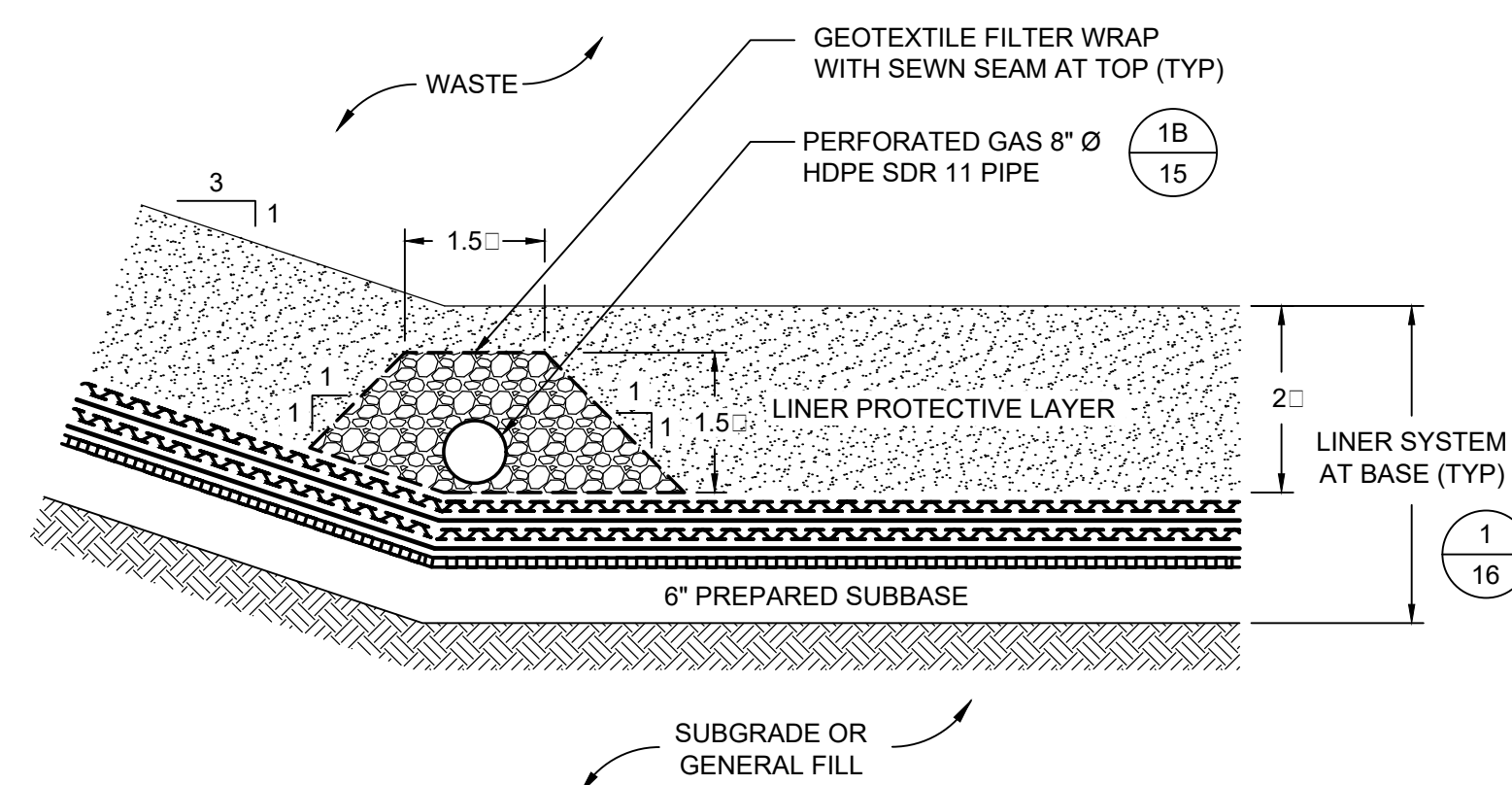
SECTION O-17
LEACHATE COLLECTION SUMP
 SCALE: NOT TO SCALE
 XREF: FL3035C2019



SECTION P-17
RISER TRENCH ON SIDE SLOPE
 SCALE: NOT TO SCALE
 XREF: FL3035C2020



SECTION Q-7
LEACHATE COLLECTION AND LEAK DETECTION SYSTEMS
 SCALE: NOT TO SCALE
 XREF: FL3035C2019

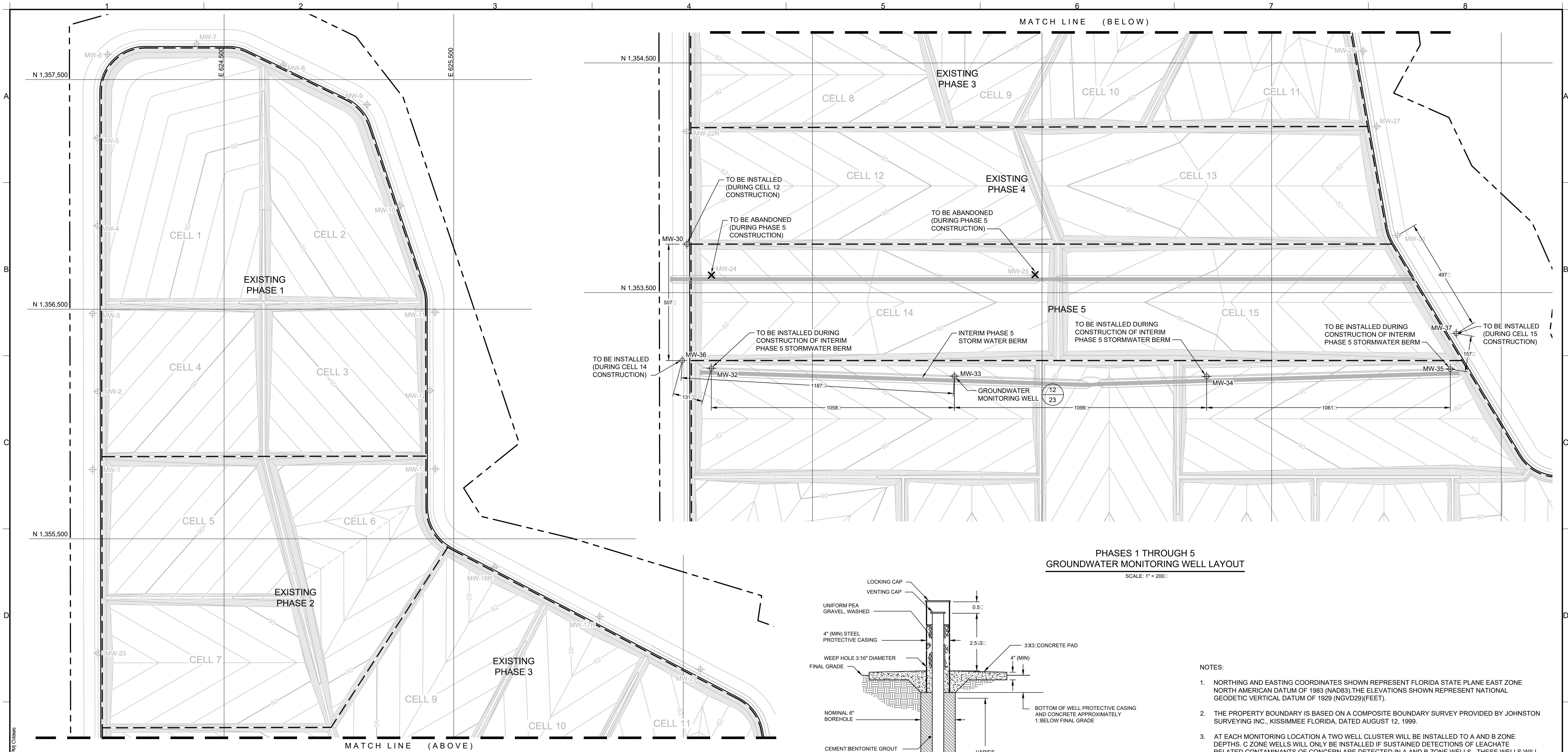


SECTION Q1-17
PERFORATED GAS HORIZONTAL
 SCALE: 1" = 2'-0"
 XREF: FL3035X003

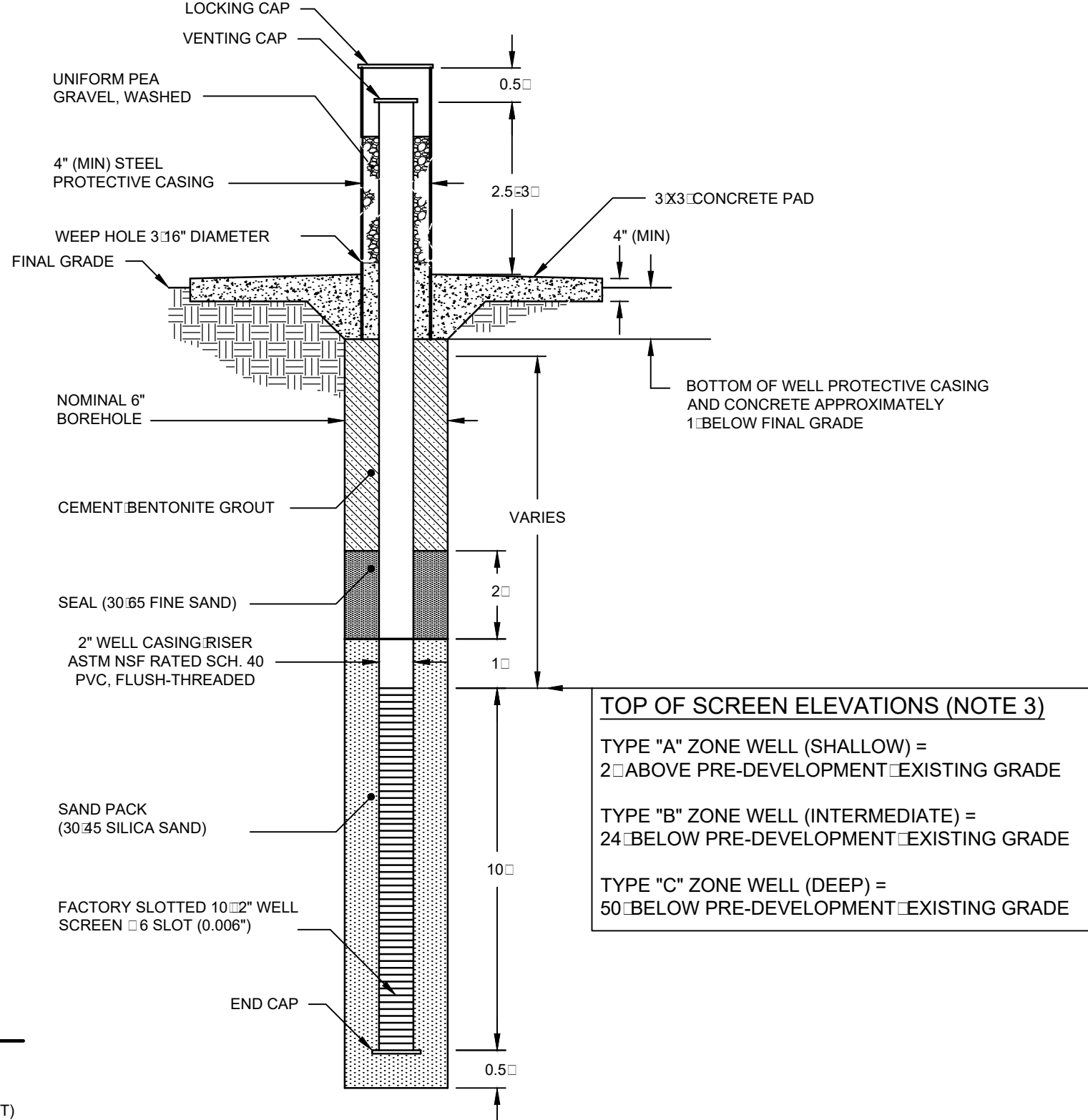
NOTES:
 1. DETAILS ARE SHOWN TO SCALE AS NOTED EXCEPT FOR THE GEOSYNTHETICS WHICH ARE SHOWN AT AN EXAGGERATED SCALE FOR CLARITY.

1	MAY 2018	ISSUED FOR FDEP APPROVAL (MINOR MODIFICATION GAS PIPING, CELL 12, AND RAIN COVER)	CMV	CRB
0	JUN 2016	ISSUED FOR FDEP APPROVAL	CMV	CRB
REV	DATE	DESCRIPTION	DRN	APP
Geosyntec consultants 12802 TAMPA OAKS BLVD., SUITE 151 TEMPLE TERRACE, FLORIDA 33637 USA PH: 813.558.0990 - FX: 813.558.9726 AUTHORIZATION NUMBER: 4321				
WASTE CONNECTIONS, INC. <i>Connect with the Future</i> 1501 OMNI WAY ST. CLOUD, FLORIDA 34773 TEL: 407-891-3720 FAX: 407-891-3730				
TITLE: LEACHATE SUMP CROSS SECTIONS - CELLS 12 THROUGH 15				
PROJECT: MINOR MODIFICATION PERMIT DRAWINGS				
SITE: J.E.D. SOLID WASTE MANAGEMENT FACILITY				
DESIGN BY: CRB DRAWN BY: CMV CHECKED BY: AR REVIEWED BY: KBT APPROVED BY: CRB		DATE: JUNE 2016 PROJECT NO.: FL3035.01 FILE: FL3035.01P20 DRAWING NO.: 20 OF 48		

PERMIT DRAWING



PHASES 1 THROUGH 5
GROUNDWATER MONITORING WELL LAYOUT
SCALE: 1" = 200'



12
23
DETAIL (TYPICAL)
GROUNDWATER MONITORING WELL
SCALE: NOT TO SCALE
XREF: FL1982.02X1206

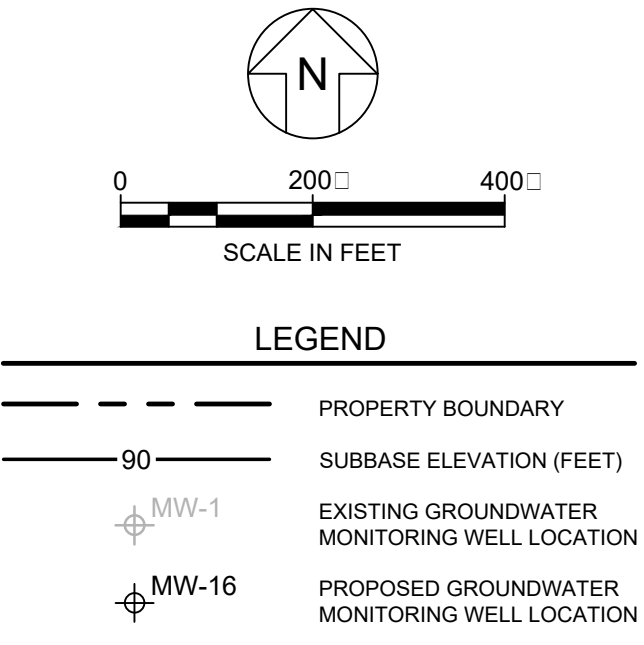
- NOTES:
- NORTHING AND EASTING COORDINATES SHOWN REPRESENT FLORIDA STATE PLANE EAST ZONE NORTH AMERICAN DATUM OF 1983 (NAD83). THE ELEVATIONS SHOWN REPRESENT NATIONAL GEODETIC DATUM OF 1929 (NGVD29)(FEET).
 - THE PROPERTY BOUNDARY IS BASED ON A COMPOSITE BOUNDARY SURVEY PROVIDED BY JOHNSTON SURVEYING INC., KISSIMEE FLORIDA, DATED AUGUST 12, 1999.
 - AT EACH MONITORING LOCATION A TWO WELL CLUSTER WILL BE INSTALLED TO A AND B ZONE DEPTHS. C ZONE WELLS WILL ONLY BE INSTALLED IF SUSTAINED DETECTIONS OF LEACHATE RELATED CONTAMINANTS OF CONCERN ARE DETECTED IN A AND B ZONE WELLS. THESE WELLS WILL BE SPACED 5 FEET APART AND ARRANGED PARALLEL TO THE PERIMETER MAINTENANCE ROAD OR INTERCELL BERM ALIGNMENTS OR ON TOP OF THE INTERIM STORM WATER BERMS.

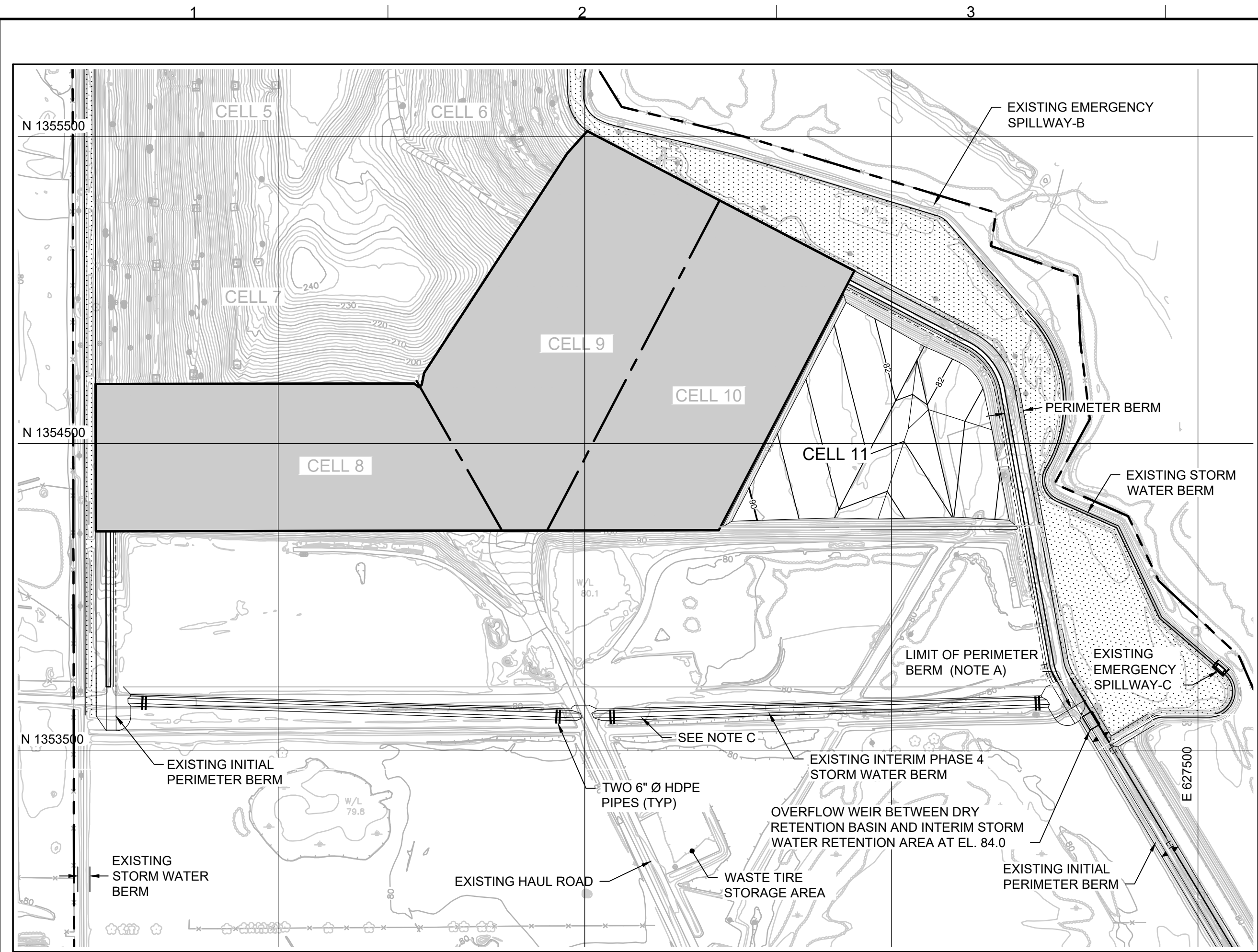
2	MAY 2018	ISSUED FOR FDEP APPROVAL (MINOR MODIFICATION GAS PIPING, CELL 12, AND RAIN COVER)	CMV	CRB
1	MAY 2017	ISSUED FOR FDEP APPROVAL (OPERATIONS PERMIT RENEWAL)	CMV	AR
0	JUN 2016	ISSUED FOR FDEP APPROVAL	CMV	CRB
REV	DATE	DESCRIPTION	DRN	APP
Geosyntec consultants				
12802 TAMPA OAKS BLVD., SUITE 151 TEMPLE TERRACE, FLORIDA 33637 USA PH: 813.558.0990 - FX: 813.558.9726 AUTHORIZATION NUMBER: 4321				
WASTE CONNECTIONS, INC. Connect with the Future 1501 OMNI WAY ST. CLOUD, FLORIDA 34773 TEL: 407-891-3720 FAX: 407-891-3730				
TITLE: GROUNDWATER MONITORING NETWORK				
PROJECT: MINOR MODIFICATION PERMIT DRAWINGS				
SITE: J.E.D. SOLID WASTE MANAGEMENT FACILITY				
DESIGN BY: CRB DATE: JUNE 2016				
DRAWN BY: CMV PROJECT NO.: FL3035.01				
CHECKED BY: AR FILE: FL3035.01P23				
REVIEWED BY: KBT DRAWING NO.: 23 OF 48				
APPROVED BY: CRB				

GROUNDWATER MONITORING WELL SCHEDULE			
WELL	NORTHING	EASTING	STATUS
MW-1	1355801.76	623927.76	EXISTING
MW-2	1356141.76	623949.18	EXISTING
MW-3	1356481.70	623926.60	EXISTING
MW-4	1356863.75	623947.95	EXISTING
MW-5	1357245.77	623947.30	EXISTING
MW-6	1357609.65	623992.77	EXISTING
MW-7	1357655.74	624380.68	EXISTING
MW-8	1357563.00	624757.34	EXISTING
MW-9	1357390.93	625122.57	EXISTING
MW-10	1356950.48	625266.36	EXISTING
MW-11	1356487.15	625418.09	EXISTING
MW-12	1356145.69	625396.67	EXISTING
MW-13	1355804.30	625419.26	EXISTING
MW-14	1355846.36	624922.02	ABANDONED

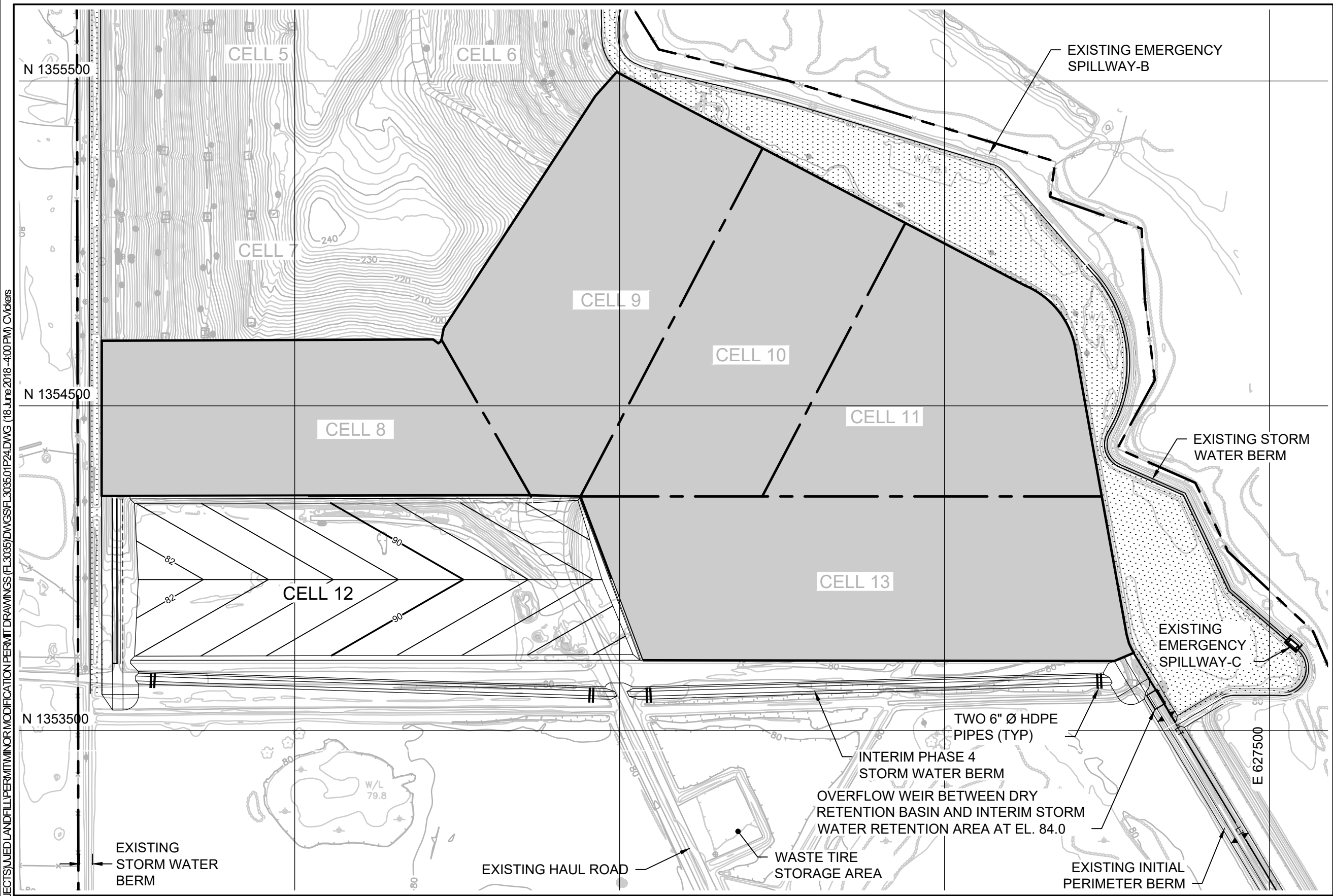
GROUNDWATER MONITORING WELL SCHEDULE			
WELL	NORTHING	EASTING	STATUS
MW-15	1355845.51	624424.85	ABANDONED
MW-16R	1355376.34	625677.81	EXISTING
MW-17R	1355160.79	626135.96	EXISTING
MW-18	1354645.10	626139.82	ABANDONED
MW-19	1354265.03	625742.27	ABANDONED
MW-20	1354105.48	625215.92	ABANDONED
MW-21	1354133.12	624582.67	ABANDONED
MW-22R	1354201.80	623952.49	EXISTING
MW-23	1355001.79	623951.12	EXISTING
MW-24	1353576.17	624060.36	EXISTING
MW-25	1353578.36	625469.63	EXISTING
MW-26	1353614.23	626973.10	ABANDONED
MW-27	1354223.69	626957.52	EXISTING
MW-28	1354552.02	626898.58	EXISTING

GROUNDWATER MONITORING WELL SCHEDULE			
WELL	NORTHING	EASTING	STATUS
MW-29	1354931.80	626573.82	EXISTING
MW-30	1353711.32	623953.32	PROPOSED
MW-31	1353748.34	627048.06	EXISTING
MW-32	1353170.56	624059.78	PROPOSED
MW-33	1353136.09	625118.21	PROPOSED
MW-34	1353134.91	626217.06	PROPOSED
MW-35	1353167.20	627277.73	PROPOSED
MW-36	1353204.07	623933.19	PROPOSED
MW-37	1353322.16	627303.81	PROPOSED





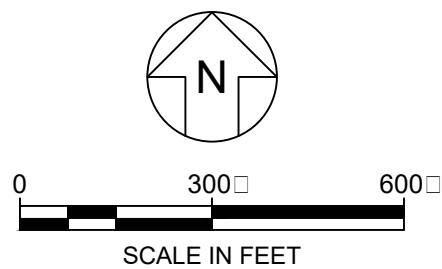
PHASE 4-A CONSTRUCTION SEQUENCING
SCALE: 1" = 300'



PHASE 4-C CONSTRUCTION SEQUENCING
SCALE: 1" = 300'

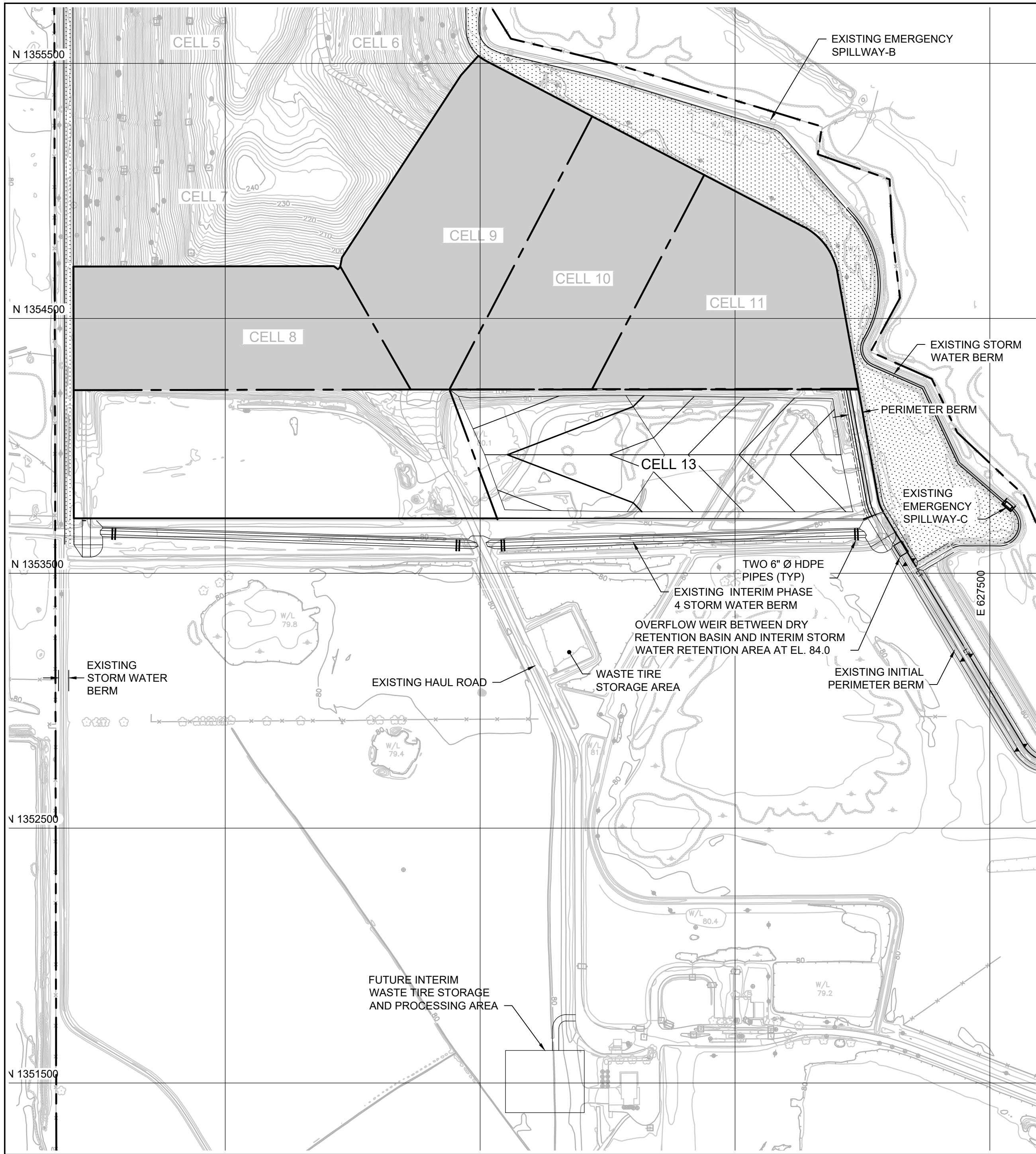
PHASE 4-A CONSTRUCTION SEQUENCING NOTES
A. AS OF JUNE 2016, CELL 11 HAS BEEN CONSTRUCTED AND IS CURRENTLY RECEIVING WASTE FOR DISPOSAL.

PHASE 4-C CONSTRUCTION SEQUENCING NOTES
A. EXTEND EXISTING PERIMETER BERM TO 100FT SOUTH OF LIMITS OF CELL 12 DURING CONSTRUCTION OF CELL 12.
B. CONSTRUCT CELL 12.
C. INSTALL NEW WATER QUALITY MONITORING WELL MW-30.



LEGEND	
	PROPERTY BOUNDARY
	EXISTING GROUND ELEVATION (FEET) (NOTE 4)
	EXISTING FENCE
	PROPOSED SUBBASE ELEVATION (FEET)
	STORM WATER MANAGEMENT BASIN

- NOTES:
- NORTHING AND EASTING COORDINATES SHOWN REPRESENT FLORIDA STATE PLANE EAST ZONE NORTH AMERICAN DATUM OF 1983 (NAD83).
 - THE ELEVATIONS SHOWN REPRESENT NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29)(FEET).
 - THE PROPERTY BOUNDARY BASED ON A COMPOSITE BOUNDARY SURVEY PROVIDED BY JOHNSTON SURVEYING INC., KISSIMEE FLORIDA, DATED AUGUST 12, 1999.
 - TOPOGRAPHIC INFORMATION SHOWN ON THIS DRAWING WAS PROVIDED BY BASE MAPPING CO. LTD BASED ON AN AERIAL PHOTOGRAPH TAKEN ON 20 MAY 2015.
 - RUNOFF FROM THE LANDFILL WILL BE DIRECTED TO, RETAINED BY, AND INFILTRATED WITHIN THE CONSTRUCTED STORM WATER MANAGEMENT SYSTEM.
 - EXISTING STORM WATER MANAGEMENT SYSTEM FOR PHASE 4 HAS BEEN CONSTRUCTED IN ACCORDANCE WITH ERP49-0199752.010.EI AND APPROVED FOR OPERATIONAL PHASE BY THE FDEP.
 - DURING CELL CONSTRUCTION, CONTRACTOR STAGING AREAS WILL BE LOCATED IN ADJACENT FUTURE CELL FOOTPRINT.



PHASE 4-B CONSTRUCTION SEQUENCING
SCALE: 1" = 300'

PHASE 4-B CONSTRUCTION SEQUENCING NOTES
A. AS OF OCTOBER 2016, CELL 13 HAS BEEN CONSTRUCTED AND IS CURRENTLY RECEIVING WASTE FOR DISPOSAL.

2	MAY 2018	ISSUED FOR FDEP APPROVAL (MINOR MODIFICATION GAS PIPING, CELL 12, AND RAIN COVER)	CMV	CRB
1	MAY 2017	ISSUED FOR FDEP APPROVAL (OPERATIONS PERMIT RENEWAL)	CMV	AR
0	JUN 2016	ISSUED FOR FDEP APPROVAL	CMV	CRB
REV	DATE	DESCRIPTION	DRN	APP

Geosyntec
consultants

12802 TAMPA OAKS BLVD., SUITE 151
TEMPLE TERRACE, FLORIDA 33637 USA
PH: 813.558.0990 - FX: 813.558.9726
AUTHORIZATION NUMBER: 4321

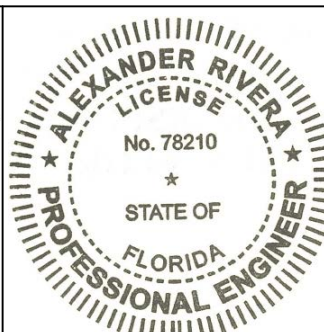
WASTE CONNECTIONS, INC.
Connect with the Future
1501 OMNI WAY
ST. CLOUD, FLORIDA 34773
TEL: 407-891-3720 FAX: 407-891-3730

PHASE 4 CONSTRUCTION SEQUENCING

MINOR MODIFICATION PERMIT DRAWINGS

J.E.D. SOLID WASTE MANAGEMENT FACILITY

SIGNATURE
6/18/18
DATE



DESIGN BY:	CRB	DATE:	JUNE 2016
DRAWN BY:	CMV	PROJECT NO.:	FL3035.01
CHECKED BY:	AR	FILE:	FL3035.01P24
REVIEWED BY:	KBT	DRAWING NO.:	24 OF 48
APPROVED BY:	CRB		

CRAIG BROWNE - LICENSE NO. 68613

PERMIT DRAWING

Appendix C

Revised Pages of Operation Plan

3 LANDFILL OPERATIONS

3.1 Basic Landfilling Procedures

This section describes the procedures that constitute the daily landfill operations, the sequence of landfilling, working face practices, and control of the first and subsequent lifts. The landfill will be operated in accordance with these procedures and filled in the general sequence as indicated on the Permit Drawings.

3.1.1 Method of Operations

Landfilling areas will generally progress from north to south and from west to east. When a cell is opened, waste lifts will be placed in areas that do not have a rain cover to ~~cover all areas to~~ a depth of 10 to 15 feet to reduce leachate generation prior to placement to higher elevations in a cell.

Controlling truck routes and properly spotting loads will facilitate the spreading, compaction, and covering of refuse. During construction of the first lift, trucks will be positioned on a lift of previously compacted waste adjacent to the first lift being placed. In subsequent lifts, unloading at the toe of the working face and pushing uphill may be the preferred method. Lateral confinement or small work faces will be maintained to avoid wasting soil cover material. Temporary barricades or flags may be used as daily width markers for guiding equipment operators and for traffic control.

Vehicles transporting refuse and cover material to the working face will be routed over previously filled areas, whenever possible, for additional compaction of refuse and soil. Vehicles will not be routed over areas of the final cover system unless on a road specifically designed for hauling waste. Disposal vehicles will not be routed over a lined area before a lift of waste has been placed, in order to prevent damage to the liner.

Signs will also be posted in the operational areas if and when required. These signs will direct traffic, identify buildings, and specify types of material to be deposited in particular areas, including the waste solidification and waste tire storage areas. Safety signs will also be posted to identify certain safety requirements such as no smoking, speed limits, and stop signs.

The refuse may consist of household and commercial wastes, construction, demolition debris, and other similar materials, as allowed by regulations for Class I landfills. These readily compactable wastes lend themselves to the typical operations described in Sections 3.1.2 and 3.1.3.

3.1.2 Working Face Practices

3.1.2.1 Start-Up and First Lift

To assure protection of the landfill liner system, no disposal vehicles will be operated directly on the liner protective cover. Soil platforms or similar protective measures will be placed adjacent to the working face to keep vehicles off the liner protective cover. Landfill personnel will be positioned at the working face for the start-up of each new area to direct vehicles to their unloading points.

The first lift of waste on the liner protective cover will be placed with great care, using special methods to protect the liner from damage. The first lift of waste will be a minimum of 4 feet in compacted thickness and consist of select wastes containing no large rigid objects that may damage the liner or leachate collection system. Equipment will not be allowed on the liner protective cover and equipment will not spread waste in a manner that displaces the liner protective cover soil. Landfill personnel will closely monitor the placement, compaction, and covering of the first layer of waste. Landfill personnel will maintain grade control and inspect the filling techniques. Inadvertent damage or suspected damage to the liner system will be reported to the Landfill Site Management and restored prior to filling in the damaged area.

To protect the liner system, the bulldozer will normally be used as the primary spreading and compacting machine for the first lift. The compactor will only be operated on top of the waste and not on the landfill base or on the waste sideslopes. The equipment operators will also make sure that no bulky waste or other material, which could damage the liner system is placed within the first lift.

To reduce the quantity of leachate generated during the initial stages of waste placement, plastic sheeting may be deployed to collect storm water generated in those portions of the cell where waste materials have not yet been placed. The area of the cell covered by the rain cover will be modified as necessary to accommodate waste placement. Temporary berms will be constructed down gradient of the working face such that impacted storm water from the operations area and the deposited waste will not be able to co-mingle with the un-impacted storm water. The temporary sheeting will be secured with sand bags, tires, or other equivalent ballasting that will not puncture the temporary sheeting. The temporary sheeting will extend from the top of the intercell and side slope berms across the entire width of the cell.

Un-impacted storm water will be collected in a temporary sump, constructed on top of the ~~liner protective soil-cover~~layer and pumped to the existing storm water management system. Dedicated storm water pumps, (i.e., electric submersibles or gasoline powered trash pumps) will pump the storm water from the top of the plastic sheeting. The un-impacted storm water will be pumped to the nearest storm water down chute such that the

pumped water will flow out of the down chute onto the rip rap placed at the end of the outlet structure. The pump head of this type pump is placed in the low point of the cell and is capable of drawing down liquid to within approximately 12 inches of the containment bottom.

The rain cover will be removed prior to placement of waste in any cell areas where the un-impacted storm water is being managed in this manner such that waste is placed in direct contact with the liner protective layer.

3.1.2.33.1.2.2 Subsequent Lifts

After the first lift is properly in place, normal operating procedures will be used for the second lift and all subsequent lifts. Trucks and compactors are permitted to operate on these lifts. Bulky wastes delivered to the facility and any stockpiled bulky wastes received during construction of the first lift will be placed in subsequent lifts. The daily operating procedures including routing of traffic, placement, spreading and compaction of refuse, and application of initial and/or intermediate cover will be followed for the subsequent lifts of waste. Soil erosion control and site maintenance tasks will be implemented throughout the development of all lifts. Once the final landfill elevations have been reached over a suitably sized area, final cover may be applied to the landfill during the next construction season and vegetated during the customary planting season. Areas at final grade and interior slopes with intermediate cover may be covered with a temporary exposed geomembrane cover for erosion control purposes until such time final closure occurs or waste filling operations resume.

At the end of each working day, initial cover material (e.g., soil or alternate material) will be applied. An excavator, loader and truck will be used to load and haul soil from the stockpile area to the working face where it will be temporarily stockpiled or spread directly over the waste. Intermediate cover will be applied on areas that will be exposed for more than 180 days (i.e., outside sideslopes and the top of the final lift or portions of other lifts not soon to be covered by additional refuse.) An alternative to the soil, which is used as initial cover may consist of contaminated soils, auto shredder residuals, processed tires, mulch mixed with soils, tarps, or other approved material. As previously noted, a temporary exposed geomembrane cover may be installed over the intermediate cover for erosion control.

Material from on-site stockpile or borrow areas will be used to supply initial and intermediate cover requirements. To conserve soils and landfill space, the initial and intermediate cover will be scraped back immediately before placement of additional solid waste on top of the lift, and then reused as cover material if appropriate, or will be

Appendix D

Revised Geocomposite Technical Specification

SECTION 02740

GEOCOMPOSITES

PART 1 GENERAL

1.01 SCOPE

- A. This section includes requirements for primary and secondary geocomposite drainage layer products and installation.

1.02 RELATED SECTIONS AND PLANS

- A. Section 02240 – Protective Soil Layer
- B. Section 02770 – Geomembrane
- C. Section 02780 – Geosynthetic Clay Liner
- D. Section 02790 – Interface Friction Conformance Testing
- E. Construction Quality Assurance (CQA) Plan

1.03 REFERENCES

- A. Latest version of American Society of Testing and Materials (ASTM) standards and other standards noted in this specification.

1.04 SUBMITTALS

- A. Submit the following to the Engineer for review at least 21 calendar days prior to use:
 - 1. geocomposite Manufacturer and product names;
 - 2. certification of minimum average roll values and the corresponding test procedures for all geocomposite properties listed in Tables 02740-1 ~~through and~~ 02740-42; and
 - 3. projected geocomposite delivery dates.
- B. Submit to the Engineer for review at least 14 calendar days prior to geocomposite placement, manufacturing quality control certificates for each roll of geocomposite as specified in this section.
- C. For each proposed geocomposite material, the Contractor shall submit to the Engineer for review at least 14 calendar days prior to transporting the geocomposite to site the results of manufacturing quality control testing and certification that the geocomposite is

manufactured to meet the minimum interface shear strength criteria when tested in compliance with requirements of Section 02790.

1.05 CONSTRUCTION QUALITY ASSURANCE

- A. The installation of the geocomposite drainage layers will be monitored by the CQA Consultant as required by the CQA Plan.
- B. The CQA Consultant will perform material conformance testing of the geocomposites as required by the CQA Plan.
- C. The Contractor shall be aware of the activities required of the CQA Consultant by the CQA Plan and shall account for these activities in the installation schedule.
- D. The Contractor shall correct all deficiencies and nonconformances identified by the CQA Consultant at no additional cost to the Owner.

PART 2 PRODUCT

2.01 GEOCOMPOSITE

- A. Furnish geocomposite drainage layer materials consisting of a polyethylene geonet core with a needle-punched nonwoven geotextile heat laminated to both sides of the geonet core.
- B. Furnish geocomposite for the primary and secondary leachate collection drainage layer having properties meeting the required property values shown in Tables 02740-1 ~~through~~ and 02740-42. Required geocomposites properties shall be considered minimum average roll values (95 percent lower confidence limit).
- C. Furnish geocomposites that are stock products.
- D. In addition to the property values listed in Tables 02740-1 ~~through and~~ 02740-42, the geocomposites shall:
 - 1. retain their structure during handling, placement, and long-term service (provide manufacturer's data for long-term compression creep testing); and
 - 2. be capable of withstanding outdoor exposure for a minimum of 30 days with no measurable deterioration.
- E. Furnish geocomposite that meets the interface shear strength requirements of Section 02790 as tested by an approved testing laboratory.
- F. Furnish polymeric threads for stitching that are ultra-violet (UV) light stabilized to at least the same requirements as the geotextile to be sewn. Furnish polyester or polypropylene threads that have a minimum size of 2,000 denier.

- G. Furnish geocomposite meeting the transmissivity requirements in Tables 02740-1 ~~through and~~ 02740-4-2 as tested by an approved testing laboratory. The transmissivity of the geocomposites for liner system construction shall be tested in accordance with ASTM D 4716 to demonstrate that the design transmissivity will be maintained for the design period of the facility. The primary and secondary geocomposites used in the bottom liner system shall be tested using the actual boundary materials intended for each geocomposite at the normal loads of 700 and 15,000 pounds per square foot (psf). At the normal load of 700 psf, testing shall be conducted for a minimum period of 24 hours. At the normal load of 15,000 psf, testing shall be conducted for a minimum period of 100 hours unless project-specific data equivalent to the 100-hour period is provided in which case the test shall be conducted for a minimum period of 1 hour.

2.02 MANUFACTURING QUALITY CONTROL

- A. Sample and test the geotextile and geonet components of the geocomposite to demonstrate that these materials conform to the requirements of this section.
- B. Perform manufacturing quality control tests to demonstrate that the geotextile properties conform to the values specified in Tables 02740-1 ~~through and~~ 02740-42. Perform as a minimum, the following manufacturing quality control tests at a minimum frequency of once per 100,000 square feet with minimum of 1 test per lot:

<u>Test</u>	<u>Procedure</u>
Mass per unit area	ASTM D 5261
Grab strength	ASTM D 4632
Tear strength	ASTM D 4533
Static (CBR) puncture strength	ASTM D 6241

- C. Perform additional manufacturing quality control tests on the geotextile, at a minimum frequency of once per 250,000 square feet with minimum of 1 test per lot, to demonstrate that the apparent opening size (per ASTM D 4751) and permittivity (per ASTM D 4491) of the geotextile conform to the values specified in Tables 02740-1 ~~through and~~ 02740-42.
- D. Perform manufacturing quality control tests to demonstrate that the geonet drainage core properties conform to the values specified in Tables 02740-1 ~~through and~~ 02740-42. Perform as a minimum, the following manufacturing quality control tests at a minimum frequency of once per 100,000 square feet with minimum of 1 test per lot:

<u>Test</u>	<u>Procedure</u>
Polymer density	ASTM D 792 or 1505
Carbon black	ASTM D 1603 or 4218
Thickness	ASTM D 5199

- E. Perform additional manufacturing quality control tests, at a minimum frequency of once per 100,000 square feet with minimum of 1 test per geonet lot, to demonstrate that the geocomposite drainage layers conform to the hydraulic transmissivity (per ASTM D 4716) and ply adhesion (per ASTM D 7005) requirements of Tables 02740-1 ~~through~~ and 02740-42.
- F. Submit quality control test certificates signed by the geotextile, geonet, and geocomposite manufacturer quality control manager. The quality control certificates shall include:
 - 1. lot, batch, and roll number and identification; and
 - 2. results of manufacturing quality control tests including description of test methods used.
- G. Do not supply any geocomposite roll that does not comply with the manufacturing quality control requirements.
- H. If a geotextile, geonet, or geocomposite sample fails to meet the quality control requirements of this section, sample and test rolls manufactured at the same time or in the same lot as the failing roll. Continue to sample and test the rolls until the extent of the failing rolls are bracketed by passing rolls. Do not supply failing rolls.

2.03 PACKING AND LABELING

- A. The geocomposite shall be supplied in rolls wrapped in relatively impermeable and opaque protective covers.
- B. Geocomposite rolls shall be labeled with the following information.
 - 1. Fabricator's name;
 - 2. product identification;
 - 3. lot or batch number;
 - 4. roll number; and
 - 5. roll dimensions.
- C. Geocomposite rolls not labeled in accordance with this section or on which labels are illegible upon delivery to the site shall be rejected and replaced with properly labeled rolls at no additional cost to the Owner.
- D. If any special handling is required, it shall be so marked on the geotextile component e.g., "This Side Up" or "This Side Against Soil To Be Retained".

2.04 TRANSPORTATION

- A. Geocomposites shall be delivered to the site at least 21 days prior to the planned deployment date to allow the CQA Consultant adequate time to perform conformance testing on the geocomposite samples as required by the CQA Plan.

2.05 HANDLING AND STORAGE

- A. The Contractor shall be responsible for storage of the geocomposite at the site.
- B. Handling and care of the geocomposite prior to and following installation at the site, is the responsibility of the Contractor. The Contractor shall be liable for all damage to the materials incurred prior to final acceptance by the Owner.
- C. The geocomposite shall be stored off the ground and out of direct sunlight, and shall be protected from excessive heat or cold, mud, dirt, and dust. Any additional storage procedures required by the manufacturer shall be the Contractor's responsibility.

PART 3 EXECUTION

3.01 PLACEMENT

- A. The Contractor shall not commence geocomposite installation until the CQA Consultant completes conformance evaluation of the geocomposite and quality assurance evaluation of previous work, including evaluation of Contractor's survey results for previous work.
- B. For geocomposite with directional hydraulic transmissivity, the Contractor shall install the geocomposite with the high transmissivity direction (usually the roll direction) in the downgradient direction and perpendicular to elevation contours.
- C. The Contractor shall handle the geocomposite in such a manner as to ensure the geocomposite is not damaged in any way.
- D. The Contractor shall take any necessary precautions to prevent damage to underlying layers during placement of the geocomposite.
- E. The geocomposite shall only be cut using manufacturer's recommended procedures.
- F. In the presence of wind, all geocomposite panels shall be weighted with sandbags or the equivalent. Such sandbags shall be installed during placement and shall remain until replaced with cover material.
- G. Care shall be taken during placement of geocomposite not to entrap dirt or excessive dust in the geocomposite that could cause clogging of the drainage system, and/or stones that could damage the adjacent geomembrane. Care shall be exercised when handling sandbags, to prevent rupture or damage of the sandbags.
- H. If necessary, the geocomposite shall be positioned by hand after being unrolled over a smooth rub sheet.

- I. Tools shall not be left on, in, or under the geocomposite.
- J. After unwrapping the geocomposite from its opaque cover, the geocomposite shall not be left exposed for a period in excess of 30 days.
- K. If white colored geotextile is used in the geocomposite, precautions shall be taken against “snowblindness” of personnel.

3.02 SEAMS AND OVERLAPS

- A. The components of the geocomposite (i.e., geotextile, geonet, and geotextile) are not bonded together at the ends and edges of the rolls. Each component will be secured or seamed to the like component of adjoining panels.
- B. Geotextile Components:
 - 1. The bottom layers of geotextile shall be overlapped. The top layers of geotextiles shall be continuously sewn (i.e., spot sewing is not allowed). Geotextiles shall be overlapped a minimum of 6 inches prior to seaming.
 - 2. No horizontal seams shall be allowed higher than one-third the slope height on slopes steeper than 10 horizontal to 1 vertical.
 - 3. Polymeric thread, with chemical resistance properties equal to or exceeding those of the geotextile component, shall be used for all sewing. The seams shall be sewn using Stitch Type 401 per Federal Standard No. 751a. The seam type shall be Federal Standard Type SSN-1.

3.03 REPAIR

- A. Any holes or tears in the geocomposite shall be repaired by placing a patch extending 2 ft beyond the edges of the hole or tear. The patch shall be secured by tying fasteners through the bottom geotextile and the geonet of the patch, and through the top geotextile and geonet on the slope. The patch shall be secured every 6 inches with approved tying devices. The top geotextile component of the patch shall be heat sealed to the top geotextile of the geocomposite needing repair. If the hole or tear width across the panel is more than 50 percent of the width of the panel, the damaged area shall be cut out and the two portions of the geonet shall be joined in accordance with this section.
- B. All repairs shall be performed at no additional cost to the Owner.

3.04 PLACEMENT OF SOIL MATERIALS

- A. The Contractor shall place all soil materials in such a manner as to ensure that:
 - 1. the geocomposite and underlying geosynthetic materials are not damaged;
 - 2. minimal slippage occurs between the geocomposite and underlying layers; and
 - 3. excess tensile stresses are not produced in the geocomposite.

- B. Spread soil on top of the geocomposite from the bottom of slopes upward to cause the soil to cascade over the geocomposite rather than be shoved across the geocomposite.
- C. For geocomposites overlying the geomembrane, do not place overlying soil material at ambient temperatures below 40 degrees Fahrenheit (F) or above 104°F, unless authorized in writing by the Engineer. For cold (<40°F) and hot (>104°F) weather placement operations, use the additional procedures authorized in writing by the Engineer.
- D. Do not drive equipment directly on the geocomposite. Only use equipment above a geocomposite overlying a geomembrane that meets the following ground pressure requirements above the geomembrane:

Maximum Allowable Equipment Ground Pressure (pounds per square inch)	Minimum Thickness of Overlying Soil (inches)
<5	12
<10	18
<20	24
>20	36

TABLE 02740-1
PRIMARY GEOCOMPOSITE PROPERTY VALUES (CELL 11 ONLY)

PROPERTIES ⁽⁴⁾	QUALIFIER	UNITS	SPECIFIED VALUES ⁽¹⁾	TEST METHOD
<u>Geonet Component:</u>				
Polymer composition	Minimum	%	95 polyethylene by wt	—
Polymer density	Minimum	g/cm ³	0.93	ASTM D 792 (Md B) or 1505
Carbon black content	Range	%	2—3	ASTM D 1603 or 4218
Nominal thickness	Minimum	mil	200	ASTM D 5199
<u>Geotextile Component:</u>				
Type	None	none	Needle punched nonwoven	—
Polymer composition	Minimum	%	95 polyester or polypropylene	
Mass per unit area	Minimum	oz/yd ²	8	ASTM D 5261
Apparent opening size	Maximum	mm	$O_{95} \leq 0.21$ mm	ASTM D 4751
Permittivity	Minimum	sec ⁻¹	0.5	ASTM D 4491
Grab tensile strength	Minimum	lb	200	ASTM D 4632 ⁽²⁾
Trapezoidal tear strength	Minimum	lb	75	ASTM D 4533 ⁽²⁾
CBR puncture strength	Minimum	psi	500	ASTM D 6241
<u>Geocomposite:</u>				
Transmissivity	Minimum	m ² /s	See note 3	ASTM D 4716
Ply Adhesion	Minimum	lb/in	1.0	ASTM D 7005

Notes:

1. ~~All values represent minimum average roll values (with the exception of apparent opening size, which is a maximum average roll value).~~
2. ~~Minimum value measured in machine and cross-machine direction.~~
3. ~~The design transmissivity of the primary geocomposite drainage layer is measured using water at a gradient of 0.015 under compressive stresses of 700 psf and of 15,000 psf for a period of 24 hours and 100 hours, respectively. For the test, the primary geocomposite shall be sandwiched between 60 mil textured HDPE geomembrane and soil actually used for the liner protective layer. The minimum required transmissivities are 7.5×10^{-4} m²/s and 1.3×10^{-3} m²/s under the compressive stresses of 700 psf and 15,000 psf, respectively.~~
4. ~~See Paragraph 2.02 for required MQC test frequencies.~~

TABLE 02740-2
SECONDARY GEOCOMPOSITE PROPERTY VALUES (CELL 11 ONLY)

PROPERTIES ⁽⁴⁾	QUALIFIER	UNITS	SPECIFIED VALUES ⁽¹⁾	TEST METHOD
<u>Geonet Component:</u>				
Polymer composition	Minimum	%	95 polyethylene by wt	—
Polymer density	Minimum	g/cm ³	0.93	ASTM D 792 (Md B) or 1505
Carbon black content	Range	%	2—3	ASTM D 1603 or 4218
Nominal thickness	Minimum	mil	200	ASTM D 5199
<u>Geotextile Component:</u>				
Type	None	none	Needle punched nonwoven	—
Polymer composition	Minimum	%	95 polyester or polypropylene	
Mass per unit area	Minimum	oz/yd ²	6	ASTM D 5261
Apparent opening size	Maximum	mm	$O_{95} \leq 0.21$ mm	ASTM D 4751
Permittivity	Minimum	sec ⁻¹	0.5	ASTM D 4491
Grab tensile strength	Minimum	lb	160	ASTM D 4632 ⁽²⁾
Trapezoidal tear strength	Minimum	lb	65	ASTM D 4533 ⁽²⁾
CBR puncture strength	Minimum	psi	435	ASTM D 6241
<u>Geocomposite:</u>				
Transmissivity	Minimum	m ² /s	See note 3	ASTM D 4716
Ply Adhesion	Minimum	lb/in	1.0	ASTM D 7005

Notes:

1. All values represent minimum average roll values (with the exception of apparent opening size, which is a maximum average roll value).
2. Minimum value measured in machine and cross-machine direction.
3. The design transmissivity of the secondary geocomposite drainage layer is measured using water at a gradient of 0.015 under compressive stresses of 700 psf and 15,000 psf for a period of 24 hours and 100 hours, respectively. For the test, the secondary geocomposite shall be sandwiched between two 60 mil textured HDPE geomembranes. The minimum required transmissivities are 1.6×10^{-4} m²/s and 3.6×10^{-4} m²/s under the compressive stresses of 700 psf and 15,000 psf, respectively.
4. See Paragraph 2.02 for required MQC test frequencies.

TABLE 02740-31
PRIMARY GEOCOMPOSITE PROPERTY VALUES (CELLS 12 & 13 ONLY)

PROPERTIES ⁽⁴⁾	QUALIFIER	UNITS	SPECIFIED VALUES ⁽¹⁾	TEST METHOD
<u>Geonet Component:</u>				
Polymer composition	Minimum	%	95 polyethylene by wt	--
Polymer density	Minimum	g/cm ³	0.93	ASTM D 792 (Md B) or 1505
Carbon black content	Range	%	2 - 3	ASTM D 1603 or 4218
Nominal thickness	Minimum	mil	200	ASTM D 5199
<u>Geotextile Component:</u>				
Type	None	none	Needle punched nonwoven	--
Polymer composition	Minimum	%	95 polyester or polypropylene	
Mass per unit area	Minimum	oz/yd ²	8	ASTM D 5261
Apparent opening size	Maximum	mm	O ₉₅ ≤ 0.21 mm	ASTM D 4751
Permittivity	Minimum	sec ⁻¹	0.5	ASTM D 4491
Grab tensile strength	Minimum	lb	200	ASTM D 4632 ⁽²⁾
Trapezoidal tear strength	Minimum	lb	75	ASTM D 4533 ⁽²⁾
CBR puncture strength	Minimum	psi	500	ASTM D 6241
<u>Geocomposite:</u>				
Transmissivity	Minimum	m ² /s	See note 3	ASTM D 4716
Ply Adhesion	Minimum	lb/in	1.0	ASTM D 7005

Notes:

1. All values represent minimum average roll values (with the exception of apparent opening size, which is a maximum average roll value).
2. Minimum value measured in machine and cross-machine direction.
3. The design transmissivity of the primary geocomposite drainage layer is measured using water at a gradient of 0.015-02 under compressive stresses of 700-500 psf and of 15,000 psf for a period of 24 hours and 100 hours, respectively. For the test, the primary geocomposite shall be sandwiched between 60-mil textured HDPE geomembrane and soil actually used for the liner protective layer. The minimum required transmissivities are 61.5 x 10⁻⁴⁻³ m²/s and 1.0 x 10⁻³ m²/s under the compressive stresses of 700-500 psf and 15,000 psf, respectively.
4. See Paragraph 2.02 for required MQC test frequencies.

TABLE 02740-42
SECONDARY GEOCOMPOSITE PROPERTY VALUES (CELLS 12-13 ONLY)

PROPERTIES ⁽⁴⁾	QUALIFIER	UNITS	SPECIFIED VALUES ⁽¹⁾	TEST METHOD
<u>Geonet Component:</u>				
Polymer composition	Minimum	%	95 polyethylene by wt	--
Polymer density	Minimum	g/cm ³	0.93	ASTM D 792 (Md B) or 1505
Carbon black content	Range	%	2 - 3	ASTM D 1603 or 4218
Nominal thickness	Minimum	mil	200	ASTM D 5199
<u>Geotextile Component:</u>				
Type	None	none	Needlepunched nonwoven	--
Polymer composition	Minimum	%	95 polyester or polypropylene	
Mass per unit area	Minimum	oz/yd ²	6	ASTM D 5261
Apparent opening size	Maximum	mm	O ₉₅ ≤ 0.21 mm	ASTM D 4751
Permittivity	Minimum	sec ⁻¹	0.5	ASTM D 4491
Grab tensile strength	Minimum	lb	160	ASTM D 4632 ⁽²⁾
Trapezoidal tear strength	Minimum	lb	65	ASTM D 4533 ⁽²⁾
CBR puncture strength	Minimum	psi	435	ASTM D 6241
<u>Geocomposite:</u>				
Transmissivity	Minimum	m ² /s	See note 3	ASTM D 4716
Ply Adhesion	Minimum	lb/in	1.0	ASTM D 7005

Notes:

1. All values represent minimum average roll values (with the exception of apparent opening size, which is a maximum average roll value).
2. Minimum value measured in machine and cross-machine direction.
3. The design transmissivity of the secondary geocomposite drainage layer is measured using water at a gradient of 0.015-02 under compressive stresses of 700-500 psf and 15,000 psf for a period of 24 hours and 100 hours, respectively. For the test, the secondary geocomposite shall be sandwiched between two 60-mil textured HDPE geomembranes. The minimum required transmissivities are 1.46.1 x 10⁻⁴ m²/s and 31.0 x 10⁻⁴ m²/s under the compressive stresses of 700-500 psf and 15,000 psf, respectively.
4. See Paragraph 2.02 for required MQC test frequencies.

[END OF SECTION]