February 18, 2021
File No. 09215600.11

Mr. Phillip J. Ciaravella
Florida Department of Environmental Protection
Solid Waste Section, MS 4565
2600 Blair Stone Road
Tallahassee, Florida, 32399-2400

Subject: Hillsborough County, Southeast County Landfill
Revised Leachate Management Plan
Operation Permit Minor Modification Application
FDEP Permit No. 35435-022-SO-01

Dear Mr. Ciaravella:

On behalf of the Hillsborough County Solid Waste Management Division (SWMD), SCS Engineers is pleased to submit this Operation Permit Minor Modification Application for the Southeast County Landfill (SCLF). This minor modification application follows the Florida Department of Environmental Protection (FDEP) rules set forth in 62-701 Florida Administrative Code (FAC). The enclosed permit document provides information regarding the leachate handling procedures associated with the construction and operation of a leachate and effluent condenser facility which will be referred to as the Leachate Evaporator Facility (LEF).

Application

Enclosed with this application is a check in the amount of $250 made payable to FDEP in accordance with the fee schedule listed in Rule 62-701.320(4)(b), FAC.

This minor modification application includes updated information previously submitted to the FDEP as part of previous permit renewal applications and modifications. Sections with no changes are marked as such on the Application Form 62-701.900(1), or may have a reference to direct the reader to a copied or re-typed area of the Application.

For more information refer to:

- Operation Permit Renewal Application, dated June 2013, and subsequent responses, prepared by HDR;
- Operation Permit Intermediate Modification, dated September 21, 2015, and subsequent responses, prepared by HDR and SCS;
- Operation Permit Minor Modification, dated April 10, 2017, and subsequent responses, prepared by SCS;
- Operation Permit Minor Modification, dated August 3, 2018, and subsequent responses, prepared by SCS; and,
- Operation Permit Minor Modification, dated June 15, 2020, and subsequent responses, prepared by SCS.

Brief Summary of Permit Modifications

The enclosed permit modification application provides information regarding the proposed leachate processing and volume reduction procedures related to the LEF. Proposed changes in the leachate operations to incorporate the LEF have been added to the revised Leachate Management Plan (LMP).

The Title V Minor Air Construction permit (0570854-011-AC) for the LEF was issued on November 9, 2020 following the public notice period. A Request for Verification of Exemption was confirmed by FDEP Division of Water Resource Management with regards to LEF stormwater permitting on January 11, 2021.

Leachate Management Plan Revisions

The proposed modifications to the LMP incorporate alterations to leachate handling procedures in order integrate the LEF into SCLF operations. Additional revisions include updated figures, typographical text revisions, the addition of a section that describes the LEF, and revised water balance tables to incorporate daily LEF evaporation. A detailed summary of LMP revisions is provided in Section K.8 of the Engineer's Design Report.

Summary of Attachments

Attachment 1 of this letter contains a permit modification package. Per FDEP Solid Waste Rules 62-701 FAC, FDEP Form 62-701.900(1), an Engineer's Design Report, a Revised LMP with changes identified in redline and strikeout, an LEF process flow diagram, and construction drawings prepared and certified by others are included.

In addition, Attachment 2 of this letter consists of a conformed and certified LMP as a separate file.

Please do not hesitate to contact us should you have any questions or require additional information.

Sincerely,

Kollan L. Spradlin, P.E.
Sr. Project Professional
SCS Engineers

Robert B. Curtis, P.E.
Project Director
SCS Engineers

KLS/RBC;kls

cc: Kimberly Byer, SWMD
Larry Ruiz, SWMD
Ron Cope, HCEPC

Encl.

ATTACHMENT 1

Minor Modification Application Package

Minor Modification Application
Leachate Management Plan
Southeast County Landfill
Hillsborough County, Florida

Hillsborough County - Public Utilities Department
Solid Waste Management Division (SWMD)
332 N. Falkenburg Road
Tampa, FL 33619

Florida Board of Professional Engineers
Certificate No. 00004892

SCS ENGINEERS

09215600.11 | February 2021

3922 Coconut Palm Drive, Suite 102
Tampa, FL 33619
813-621-0080

Minor Modification Application
Solid Waste Operations Plan
SOUTHEAST COUNTY LANDFILL
HILLSBOROUGH COUNTY, FLORIDA

Presented To:
Hillsborough County
Public Utilities Department
Solid Waste Management Division (SWMD)
332 N. Falkenburg Road
Tampa, FL 33619

Presented From:

SCS ENGINEERS
3922 Coconut Palm Drive, Suite 102
Tampa, FL 33619

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Kollan L. Spradlin, P.E.
FL Reg. No. 82852

Table of Contents

Table of Contents

Section Page

Tables

Appendices

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

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
   - ☐ Renewal
   - ☐ Substantial Modification
   - ☐ Intermediate Modification
   - ☐ Minor Modification

4. Facility name: Southeast County Landfill

5. DEP ID number: SWD/29/41193 County: Hillsborough

6. Facility location (main entrance):
   15960 County Road 672, Lithia, Florida 33547 (8.8 miles east of US Highway 301 on CR 672)

7. Location coordinates:
   Section: 13-15, 18, 19, 22, 23, 24 Township: 31S Range: 21E, 22E
   Latitude: 27 ° 46 ‘ 26 “ Longitude: 82 ° 11 ‘ 01 “
   Datum: NGVD 1929 Coordinate method: WGS 84
   Collected by: Sherry A. Grymco, PSM Company/Affiliation: Pickett & Associates, Inc.

8. Applicant name (operating authority): Hillsborough County Public Utilities Department, Solid Waste Management Division

Mailing address: 332 North Falkenburg Road (Street or P.O. Box) Tampa (City) FL (State) 33619 (Zip)

Contact person: Kimberly A. Byer Telephone: (813) 612-7718

Title: Director, Solid Waste Management Division

byerk@HillsboroughCounty.org
E-Mail address (if available)

9. Authorized agent/Consultant: SCS Engineers

Mailing address: 3922 Coconut Palm Drive, Suite 102, Tampa, FL 33619
Street or P.O. Box City State Zip

Contact person: Kollan Spradlin, P.E. Telephone: (813) 921-0080

Title: Senior Project Professional

KSpradlin@SCSEngineers.com
E-Mail address (if available)

10. Landowner (if different than applicant): Same as Applicant

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:

City of Tampa, Temple Terrace, and Unincorporated Hillsborough County

12. Population to be served:

Current: 1,444,870 (2019 HCPC est.) Five-Year Projection: 1,566,529 (2024 @ 1.63% annual growth)

13. Date site will be ready to be inspected for completion: _____

14. Expected life of the facility: 10.1* years * Estimated as of July 1, 2020

15. Estimated costs:

Total Construction: $ N/A Closing Costs: $ N/A

16. Anticipated construction starting and completion dates:

From: _____ To: _____

17. Expected volume or weight of waste to be received:

_____ yds^3/day 2,000 tons/day _____ gallons/day

PART B. DISPOSAL FACILITY GENERAL INFORMATION

1. Provide brief description of disposal facility design and operations planned under this application:

This permit application presents information supporting the minor modification application to revise the current Leachate Management Plan and Solid Waste Operations Permit. The intent of the proposed revisions is to incorporate a leachate/effluent condenser facility and update leachate and effluent handling procedures associated with the facility into the currently approved leachate management procedures and operations.

2. Facility site supervisor: Mr. Larry Ruiz

Title: Operations Manager Telephone: (813) 671-7707

RuizLE@HillsboroughCounty.org
E-Mail address (if available)

3. Disposal area: Total acres: 162.4 Used acres: 162.4 Available acres: 162.4

4. Weighing scales used: ☑ Yes ☐ No

5. Security to prevent unauthorized use: ☑ Yes ☐ No

6. Charge for waste received: _____ $/yds^3 61.54 $/ton

7. Surrounding land use, zoning:

- ☑ Residential
- ☑ Agricultural
- ☐ Commercial
- ☑ Industrial
- ☐ None
- ☐ Other (describe):

8. Types of waste received:

- ☑ Household
- ☑ Commercial
- ☑ Incinerator/WTE ash
- ☐ Treated biomedical
- ☑ Water treatment sludge
- ☑ Air treatment sludge
- ☑ Agricultural
- ☑ Asbestos
- ☑ C & D debris
- ☑ Shredded/cut tires
- ☑ Yard trash
- ☐ Septic tank
- ☑ Industrial
- ☑ Industrial sludge
- ☑ Domestic sludge
- ☐ Other (describe):

Processed yard waste accepted at the Biosolids Composting Facility as part of the Falkenburg Road Advanced Waste Water Treatment Facility Domestic Wastewater Facility Permit Number FL004614.

9. Salvaging permitted: ☐ Yes ☑ No

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

11. Trained spotters: ☑ Yes ☐ No Number of spotters used: Minimum of 1

12. Site located in: ☐ Floodplain ☐ Wetlands ☐ Other (describe):
Upland, Closed phosphate mine

13. Days of operation: Monday through Saturday

14. Hours of operation: 7:30am to 5:30pm

15. Days working face covered: Daily during operations

16. Elevation of water table: 123.7 ft. Datum Used: NGVD 1929

17. Number of monitoring wells: 15 (Phases I-VI), 8 (Sections 7-9)

18. Number of surface monitoring points: 4

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
☐ Single clay liner
☐ Single geomembrane
☐ Single composite
☐ Slurry wall
☑ Double geomembrane
☐ Geomembrane & composite
☑ Double composite
☐ None
☑ Other (describe):

Waste phosphatic clay, 4-18 feet in thickness (Phase I-VI only)

21. Leachate collection method:

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

Pump Stations and chipped tire layer

22. Leachate storage method:

☑ Tanks ☑ Surface impoundments

☐ Other (describe):

23. Leachate treatment method:

☐ Oxidation ☐ Chemical treatment

☑ Secondary ☐ Settling

☐ Advanced ☐ None

☑ Other (describe):

On site biological treatment system and Leachate/effluent condenser facility.

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):

Storage pond evaporation or spray irrigation on intermediate closed portions of landfill after treatment at the on-site treatment facility. Volume reduction of leachate/effluent liquids at the leachate/effluent condenser facility

25. For leachate discharged to surface waters:

Name and Class of receiving water:

Leachate is not discharged to surface waters

26. Storm Water:

Collected: ☑ Yes ☐ No

Type of treatment:

Detention/Filtration, Infiltration

Name and Class of receiving water:

A tributary of Long Flat Creek

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

ERP Permit #29-0270881-004 (Operation Phase)

National Pollution Discharge Elimination System (NPDES) Permit #FLR05B138-004

Southwest Florida Water Management District Permit #100330

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 ☑ Eng Rep. D.1	N/A ☐ N/C ☐	1. A minimum of one completed electronic application form, all supporting data and reports; (62-701.320(5)(a), FAC)
S ☑ Eng Rep. D.2	N/A ☐ N/C ☐	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)
S ☑ Eng Rep. D.3	N/A ☐ N/C ☐	3. A letter of transmittal to the Department; (62-701.320(7)(a), FAC)
S ☑ Eng Rep. D.4	N/A ☐ N/C ☐	4. A completed application form dated and signed by the applicant; (62-701.320(7)(b), FAC)
S ☑ Eng Rep. D.5	N/A ☐ N/C ☐	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)
S ☐ _____	N/A ☐ N/C ☑	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)
S ☐ _____	N/A ☐ N/C ☑	7. Operation Plan and Closure Plan; (62-701.320(7)(e)1, FAC)
S ☐ _____	N/A ☐ N/C ☑	8. Contingency Plan; (62-701.320(7)(e)2, FAC)
S ☑ Eng Rep. D.9	N/A ☐ N/C ☐	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)
S ☐ _____	N/A ☐ N/C ☑	a. A regional map or plan with the project location in relation to major roadways and population centers;
S ☐ _____	N/A ☐ N/C ☑	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;
S ☐ _____	N/A ☐ N/C ☑	c. A site plan showing all property boundaries certified by a Florida Licensed Professional Surveyor and Mapper;
S ☐ _____	N/A ☐ N/C ☑	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 ☑ Eng Rep. D.12 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 ☐ _____ 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 ☐ _____ 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 ☐ _____ 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;

LOCATION		PART E CONTINUED
S ☐ _____ N/A ☐ N/C ☑		f. Any previously filled waste disposal areas;
S ☐ _____ N/A ☐ N/C ☑		g. Fencing or other measures to restrict access;
S ☐ _____ N/A ☐ N/C ☑		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)
S ☐ _____ N/A ☐ N/C ☑		a. Proposed fill areas;
S ☐ _____ N/A ☐ N/C ☑		b. Borrow areas;
S ☐ _____ N/A ☐ N/C ☑		c. Access roads;
S ☐ _____ N/A ☐ N/C ☑		d. Grades required for proper drainage;
S ☐ _____ N/A ☐ N/C ☑		e. Cross sections of lifts;
S ☐ _____ N/A ☐ N/C ☑		f. Special drainage devices if necessary;
S ☐ _____ N/A ☐ N/C ☑		g. Fencing;
S ☐ _____ N/A ☐ N/C ☑		h. Equipment facilities;
S ☐ _____ N/A ☐ N/C ☑		4. A report on the landfill describing the following: (62-701.330(3)(d), FAC)
S ☐ _____ N/A ☐ N/C ☑		a. The current and projected population and area to be served by the proposed site;
S ☐ _____ N/A ☐ N/C ☑		b. The anticipated type, annual quantity, and source of solid waste expressed in tons;
S ☐ _____ N/A ☐ N/C ☑		c. Planned active life of the facility, the final design height of the facility, and the maximum height of the facility during its operation;
S ☐ _____ N/A ☐ N/C ☑		d. The source and type of cover material used for the landfill;
S ☐ _____ N/A ☐ N/C ☑		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
S ☐ _____ N/A ☐ N/C ☑		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 ☐ _____ 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;

LOCATION		PART G CONTINUED
S ☐ _____ N/A ☐ N/C ☑		b. Composite liners; (62-701.400(3)(b), FAC)
S ☐ _____ N/A ☐ N/C ☑	(1)	Upper geomembrane thickness and properties;
S ☐ _____ N/A ☐ N/C ☑	(2)	Design leachate head for primary leachate collection and removal system (LCRS) including leachate recirculation if appropriate;
S ☐ _____ N/A ☐ N/C ☑	(3)	Design thickness in accordance with Table A and number of lifts planned for lower soil component;
S ☐ _____ N/A ☐ N/C ☑		c. Double liners; (62-701.400(3)(c), FAC)
S ☐ _____ N/A ☐ N/C ☑	(1)	Upper and lower geomembrane thickness and properties;
S ☐ _____ N/A ☐ N/C ☑	(2)	Design leachate head for primary LCRS to limit the head to one foot above the liner;
S ☐ _____ N/A ☐ N/C ☑	(3)	Lower geomembrane sub-base design;
S ☐ _____ N/A ☐ N/C ☑	(4)	Leak detection and secondary leachate collection system minimum design criteria (k ≥ 10 cm/sec, head on lower liner ≤ 1 inch, head not to exceed thickness of drainage layer);
S ☐ _____ N/A ☐ N/C ☑		d. Standards for geosynthetic components; (62-701.400(3)(d), FAC)
S ☐ _____ N/A ☐ N/C ☑	(1)	Factory and field seam test methods to ensure all geomembrane seams achieve the minimum specifications;
S ☐ _____ N/A ☐ N/C ☑	(2)	Geomembranes to be used shall pass a continuous spark test by the manufacturer;
S ☐ _____ N/A ☐ N/C ☑	(3)	Design of 24-inch-thick protective layer above upper geomembrane liner;
S ☐ _____ N/A ☐ N/C ☑	(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;
S ☐ _____ N/A ☐ N/C ☑	(5)	HDPE geomembranes, if used, meet the specifications in GRI GM13, and LLDPE geomembranes, if used, meet the specifications in GRI GM17;
S ☐ _____ N/A ☑ N/C ☐	(6)	PVC geomembranes, if used, meet the specifications in PGI 1104;

S ☐ _____ N/A ☐ N/C ☑ (7) Interface shear strength testing results of the actual components which will be used in the liner system;

S ☐ _____ N/A ☐ N/C ☑ (8) Transmissivity testing results of geonets if they are used in the liner system;

S ☐ _____ N/A ☐ N/C ☑ (9) Hydraulic conductivity testing results of geosynthetic clay liners if they are used in the liner system;

S ☐ _____ N/A ☐ N/C ☑ e. Geosynthetic specification requirements; (62-701.400(3)(e), FAC)

S ☐ _____ N/A ☐ N/C ☑ (1) Definition and qualifications of the designer, manufacturer, installer, QA consultant and laboratory, and QA program;

S ☐ _____ N/A ☐ N/C ☑ (2) Material specifications for geomembranes, geocomposites, geotextiles, geogrids, and geonets;

S ☐ _____ N/A ☐ N/C ☑ (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;

S ☐ _____ N/A ☐ N/C ☑ (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;

S ☐ _____ N/A ☐ N/C ☑ (5) Geotextile and geogrids specifications including handling and placement, conformance testing, seams and overlaps, repair, and placement of soil materials and any overlying materials;

S ☐ _____ N/A ☐ N/C ☑ (6) Geonet and geocomposites specifications including handling and placement, conformance testing, stacking and joining, repair, and placement of soil materials and any overlying materials;

S ☐ _____ N/A ☐ N/C ☑ (7) Geosynthetic clay liner specifications including handling and placement, conformance testing, seams and overlaps, repair, and placement of soil materials and any overlying materials;

LOCATION		PART G CONTINUED
S ☐ _____ N/A ☐ N/C ☑		f. Standards for soil liner components; (62-701.400(3)(f), FAC)
S ☐ _____ N/A ☐ N/C ☑	(1)	Description of construction procedures including over-excavation and backfilling to preclude structural inconsistencies and procedures for placing and compacting soil components in layers;
S ☐ _____ N/A ☐ N/C ☑	(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;
S ☐ _____ N/A ☐ N/C ☑	(3)	Procedures for testing in situ soils to demonstrate they meet the specifications for soil liners;
S ☐ _____ N/A ☐ N/C ☑	(4)	Specifications for soil component of liner including at a minimum:
S ☐ _____ N/A ☐ N/C ☑	(a)	Allowable particle size distribution, and Atterberg limits including shrinkage limit;
S ☐ _____ N/A ☐ N/C ☑	(b)	Placement moisture and dry density criteria;
S ☐ _____ N/A ☐ N/C ☑	(c)	Maximum laboratory-determined saturated hydraulic conductivity using simulated leachate;
S ☐ _____ N/A ☐ N/C ☑	(d)	Minimum thickness of soil liner;
S ☐ _____ N/A ☐ N/C ☑	(e)	Lift thickness;
S ☐ _____ N/A ☐ N/C ☑	(f)	Surface preparation (scarification);
S ☐ _____ N/A ☐ N/C ☑	(g)	Type and percentage of clay mineral within the soil component;
S ☐ _____ N/A ☐ N/C ☑	(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;
S ☐ _____ N/A ☑ N/C ☐		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 ☑		3. Leachate collection and removal system (LCRS); (62-701.400(4), FAC)
S ☐ _____ N/A ☐ N/C ☑		a. The primary and secondary LCRS requirements; (62-701.400(4)(a), FAC)
S ☐ _____ N/A ☐ N/C ☑	(1)	Constructed of materials chemically resistant to the waste and leachate;
S ☐ _____ N/A ☐ N/C ☑	(2)	Have sufficient mechanical properties to prevent collapse under pressure;
S ☐ _____ N/A ☐ N/C ☑	(3)	Have granular material or synthetic geotextile to prevent clogging;
S ☐ _____ N/A ☐ N/C ☑	(4)	Have a method for testing and cleaning clogged pipes or contingent designs for reducing leachate around failed areas;
S ☐ _____ N/A ☐ N/C ☑		b. Other LCRS requirements; (62-701.400(4)(b), (c) and (d), FAC
S ☐ _____ N/A ☐ N/C ☑	(1)	Bottom 12 inches having hydraulic conductivity ≥ 1 x 10^{-3} cm/sec;
S ☐ _____ N/A ☐ N/C ☑	(2)	Total thickness of 24 inches of material chemically resistant to the waste and leachate;
S ☐ _____ N/A ☐ N/C ☑	(3)	Bottom slope design to accommodate for predicted settlement and still meet minimum slope requirements;
S ☐ _____ N/A ☐ N/C ☑	(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;
S ☐ _____ N/A ☐ N/C ☑	(5)	Schedule provided for routine maintenance of LCRS.
S ☐ _____ N/A ☐ N/C ☑		4. Leachate recirculation; (62-701.400(5), FAC)
S ☐ _____ N/A ☐ N/C ☑		a. Describe general procedures for recirculating leachate;
S ☐ _____ N/A ☐ N/C ☑		b. Describe procedures for controlling leachate runoff and minimizing mixing of leachate runoff with storm water;
S ☐ _____ N/A ☐ N/C ☑		c. Describe procedures for preventing perched water conditions and gas buildup;

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 place 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;

LOCATION	PART G CONTINUED
S ☐ _____ N/A ☐ N/C ☑	(5) Design calculations to demonstrate minimum two feet of freeboard will be maintained;
S ☐ _____ N/A ☐ N/C ☑	(6) Procedures for controlling vectors and off-site odors;
S ☐ _____ N/A ☐ N/C ☑	b. Above-ground leachate storage tanks; (62-701.400(6)(c), FAC)
S ☐ _____ N/A ☐ N/C ☑	(1) Describe tank materials of construction and ensure foundation is sufficient to support tank;
S ☐ _____ N/A ☐ N/C ☑	(2) Describe procedures for cathodic protection for the tank, if needed;
S ☐ _____ N/A ☐ N/C ☑	(3) Describe exterior painting and interior lining of the tank to protect it from the weather and the leachate stored;
S ☐ _____ N/A ☐ N/C ☑	(4) Describe secondary containment design to ensure adequate capacity will be provided and compatibility of materials of construction;
S ☐ _____ N/A ☐ N/C ☑	(5) Describe design to remove and dispose of stormwater from the secondary containment system;
S ☐ _____ N/A ☐ N/C ☑	(6) Describe an overfill prevention system, such as level sensors, gauges, alarms, and shutoff controls to prevent overfilling;
S ☐ _____ N/A ☐ N/C ☑	(7) Inspections, corrective action, and reporting requirements;
S ☐ _____ N/A ☐ N/C ☑	(a) Weekly inspection of overfill prevention system;
S ☐ _____ N/A ☐ N/C ☑	(b) Weekly inspection of exposed tank exteriors;
S ☐ _____ N/A ☐ N/C ☑	(c) Inspection of tank interiors when tank is drained, or at least every three years;
S ☐ _____ N/A ☐ N/C ☑	(d) Procedures for immediate corrective action if failures detected;
S ☐ _____ N/A ☐ N/C ☑	(e) Inspection reports available for Department review;
S ☐ _____ N/A ☑ N/C ☐	c. Underground leachate storage tanks; (62-701.400(6)(d), FAC)

S ☐ _____ N/A ☑ N/C ☐ (1) Describe materials of construction;

S ☐ _____ N/A ☑ N/C ☐ (2) A double-walled tank design system to be used with the following requirements:

S ☐ _____ N/A ☑ N/C ☐ (a) Interstitial space monitoring at least weekly;

S ☐ _____ N/A ☑ N/C ☐ (b) Corrosion protection provided for primary tank interior and external surface of outer shell;

S ☐ _____ N/A ☑ N/C ☐ (c) Interior tank coatings compatible with stored leachate;

S ☐ _____ N/A ☑ N/C ☐ (d) Cathodic protection inspected weekly and repaired as needed;

S ☐ _____ N/A ☑ N/C ☐ (3) Describe an overfill prevention system, such as level sensors, gauges, alarms, and shutoff controls to prevent overfilling, and provide for weekly inspections;

S ☐ _____ N/A ☑ N/C ☐ (4) Inspection reports available for Department review;

S ☐ _____ N/A ☐ N/C ☑ 6. Liner systems construction quality assurance (CQA); (62-701.400(7), FAC)

S ☐ _____ N/A ☐ N/C ☑ a. Provide CQA Plan including:

S ☐ _____ N/A ☐ N/C ☑ (1) Specifications and construction requirements for liner system;

S ☐ _____ N/A ☐ N/C ☑ (2) Detailed description of quality control testing procedures and frequencies;

S ☐ _____ N/A ☐ N/C ☑ (3) Identification of supervising professional engineer;

S ☐ _____ N/A ☐ N/C ☑ (4) Identify responsibility and authority of all appropriate organizations and key personnel involved in the construction project;

S ☐ _____ N/A ☐ N/C ☑ (5) State qualifications of CQA professional engineer and support personnel;

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;

S ☐ _____ N/A ☐ N/C ☑ c. Background quality of ground water and surface water;

S ☐ _____ N/A ☐ N/C ☑ d. Any on-site hydraulic connections between aquifers;

S ☐ _____ N/A ☐ N/C ☑ 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;

S ☐ _____ N/A ☐ N/C ☑ f. Description of topography, soil types, and surface water drainage systems;

S ☐ _____ N/A ☐ N/C ☑ 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;

S ☐ _____ N/A ☐ N/C ☑ h. Identify and locate any existing contaminated areas on the site;

S ☐ _____ N/A ☐ N/C ☑ i. Include a map showing the locations of all potable wells within 500 feet of the waste storage and disposal areas;

S ☐ _____ N/A ☐ N/C ☑ 2. Report signed, sealed, and dated by P.E. and/or P.G.

PART I. GEOTECHNICAL INVESTIGATION REQUIREMENTS (62-701.410(3) and (4), FAC)

LOCATION

S ☐ _____ N/A ☐ N/C ☑ 1. Submit a geotechnical site investigation report defining the engineering properties of the site including at least the following:

S ☐ _____ N/A ☐ N/C ☑ a. Description of subsurface conditions including soil stratigraphy and ground water table conditions;

S ☐ _____ N/A ☐ N/C ☑ b. Investigate for the presence of muck, previously filled areas, soft ground, and lineaments;

S ☐ _____ N/A ☐ N/C ☑ c. Estimates of average and maximum high water table across the site;

S ☐ _____ N/A ☐ N/C ☑ d. Evaluation of potential for fault areas and seismic impact zones;

S ☐ _____ N/A ☐ N/C ☑ e. Foundation analysis including:

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 ☐ _____ 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 ☐ _____ 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 ☐ _____ N/A ☐ N/C ☑ f. Method and sequence of filling waste;

S ☐ _____ N/A ☐ N/C ☑ g. Waste compaction and application of cover;

S ☐ _____ 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 ☑ Eng. Rep. K.8 N/A ☐ N/C ☐		8. Describe operational procedures for leachate management including: (62-701.500(8), FAC)
S ☑ Eng. Rep. K.8 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 ☑ Eng. Rep. K.8 N/A ☐ N/C ☐		e. Contingency plan for managing leachate during emergencies or equipment problems;
S ☑ Eng. Rep. K.8 N/A ☐ N/C ☐		f. Procedures for recording quantities of leachate generated in gal/day and including this in the operating record;
S ☑ Eng. Rep. K.8 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;

S ☑ Eng. Rep K.11.d N/A ☐ N/C ☐ d. Dust control methods;

S ☐ _____ N/A ☐ N/C ☑ e. Fire protection capabilities and procedures for notifying local fire department authorities in emergencies;

S ☐ _____ N/A ☐ N/C ☑ f. Litter control devices;

S ☐ _____ N/A ☐ N/C ☑ g. Signs indicating operating authority, traffic flow, hours of operation, and disposal restrictions;

S ☐ _____ N/A ☐ N/C ☑ 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)

S ☐ _____ N/A ☐ N/C ☑ 13. Additional record keeping and reporting requirements; (62-701.500(13), FAC)

S ☐ _____ N/A ☐ N/C ☑ a. Records used for developing permit applications and supplemental information maintained for the design period of the landfill;

S ☐ _____ N/A ☐ N/C ☑ b. Monitoring information, calibration and maintenance records, and copies of reports required by permit maintained for at least 10 years;

S ☐ _____ N/A ☐ N/C ☑ 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;

S ☐ _____ N/A ☐ N/C ☑ 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 ☑ 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:

S ☐ _____ N/A ☐ N/C ☑ 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)

LOCATION		PART L CONTINUED
S ☐ _____ N/A ☐ N/C ☑		b. All sampling and analysis performed in accordance with Chapter 62-160, FAC; (62-701.510(2)(b), FAC)
S ☐ _____ N/A ☐ N/C ☑		c. Ground water monitoring requirements; (62-701.510(3), FAC)
S ☐ _____ N/A ☐ N/C ☑	(1)	Detection wells located downgradient from and within 50 feet of disposal units;
S ☐ _____ N/A ☐ N/C ☑	(2)	Downgradient compliance wells as required;
S ☐ _____ N/A ☐ N/C ☑	(3)	Background wells screened in all aquifers below the landfill that may be affected by the landfill;
S ☐ _____ N/A ☐ N/C ☑	(4)	Location information for each monitoring well;
S ☐ _____ N/A ☐ N/C ☑	(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;
S ☐ _____ N/A ☐ N/C ☑	(6)	Properly selected well screen locations;
S ☐ _____ N/A ☐ N/C ☑	(7)	Monitoring wells constructed to provide representative ground water samples;
S ☐ _____ N/A ☐ N/C ☑	(8)	Procedures for properly abandoning monitoring wells;
S ☐ _____ N/A ☐ N/C ☑	(9)	Detailed description of detection sensors, if proposed;
S ☐ _____ N/A ☐ N/C ☑		d. Surface water monitoring requirements; (62-701.510(4), FAC)
S ☐ _____ N/A ☐ N/C ☑	(1)	Location of and justification for all proposed surface water monitoring points;
S ☐ _____ N/A ☐ N/C ☑	(2)	Each monitoring location to be marked and its position determined by a registered Florida land surveyor;
S ☐ _____ N/A ☐ N/C ☑		e. Initial and routine sampling frequency and requirements; (62-701.510(5), FAC)
S ☐ _____ N/A ☐ N/C ☑	(1)	Initial background ground water and surface water sampling and analysis requirements;

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;

S ☐ _____ N/A ☐ N/C ☑	(4) Top gradient design to maximize runoff and minimize erosion;
S ☐ _____ N/A ☐ N/C ☑	(5) Provisions for cover material to be used for final cover maintenance;
S ☐ _____ N/A ☐ N/C ☑	g. Final cover design requirements;
S ☐ _____ N/A ☐ N/C ☑	(1) Protective soil layer design;
S ☐ _____ N/A ☐ N/C ☑	(2) Barrier soil layer design;
S ☐ _____ N/A ☐ N/C ☑	(3) Erosion control vegetation;
S ☐ _____ N/A ☐ N/C ☑	(4) Geomembrane barrier layer design;
S ☐ _____ N/A ☐ N/C ☑	(5) Geosynthetic clay liner design, if used;
S ☐ _____ N/A ☐ N/C ☑	(6) Stability analysis of the cover system and the disposed waste;
S ☐ _____ N/A ☐ N/C ☑	h. Proposed method of stormwater control;
S ☐ _____ N/A ☐ N/C ☑	i. Proposed method of access control;
S ☐ _____ N/A ☐ N/C ☑	j. Description of the proposed or existing gas management system which complies with Rule 62-701.530, FAC;
S ☐ _____ N/A ☐ N/C ☑	3. Closure operation plan shall include: (62-701.600(4), FAC)
S ☐ _____ N/A ☐ N/C ☑	a. Detailed description of actions which will be taken to close the landfill;
S ☐ _____ N/A ☐ N/C ☑	b. Time schedule for completion of closing and long-term care;
S ☐ _____ N/A ☐ N/C ☑	c. Describe proposed method for demonstrating financial assurance for long-term care;
S ☐ _____ N/A ☐ N/C ☑	d. Operation of the water quality monitoring plan required in Rule 62-701.510, FAC;
S ☐ _____ N/A ☐ N/C ☑	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 Hillsborough County Solid Waste Management Division is aware that statements made in this form and attached information are an application for a Operations Minor Modificaiton 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.

Signature of Applicant or Agent

Kimberly A. Byer P.G., SWMD Director
Name and Title (please type)

ByerK@HillsboroughCounty.org
E-Mail Address (if available)

332 N. Falkenburg Road
Mailing Address

Tampa, FL 33619
City, State, Zip Code

(813) 612-7718
Telephone Number

Date: 2/17/2021

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.

Signature

Kollan L. Spradlin, P.E., Sr. Project Professional
Name and Title (please type)

P.E. # 82852
Florida Registration Number (please affix seal)

KOLLAN LEE SPRADLIN LICENSE No. 82852 STATE OF FLORIDA PROFESSIONAL ENGINEER 2/17/2021

3922 Coconut Palm Drive
Mailing Address

Tampa, FL 33619
City, State, Zip Code

KSpradlin@SCSEngineers.com
E-Mail Address (if available)

(813) 804-6706
Telephone Number

Date:

A. GENERAL INFORMATION

On behalf of Hillsborough County Solid Waste Management Division (SWMD), SCS Engineers (SCS) has prepared this Operation Permit Minor Modification Application for the Southeast County Landfill (SCLF) Leachate Management Plan (LMP). Information provided in this application is in accordance with and divided into Sections following the State of Florida Department of Environmental Protection (FDEP) Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1), FAC.

The revised LMP incorporates changes proposed as part of revised leachate handling operations associated with the installation of a leachate/effluent condenser facility that will be referred to as the Leachate Evaporator Facility (LEF). The revised LMP is included with this application as **Appendix A** with changes identified in redline and strikeout. An LEF process flow diagram and construction drawings prepared by others are included as **Appendix B** and **Appendix C**, respectively. A conformed LMP with revisions incorporated is included as Attachment 2 of the transmittal letter.

A.1 LANDFILL DESCRIPTION

The Phases I-VI disposal area encompasses 162.4 acres; Section 7, 8, and 9 of the Capacity Expansion Area encompasses 34.5 acres. Phase I-VI and Sections 7, 8, and 9 are permitted by the FDEP as a Class I landfill. Currently waste filling operations are conducted in Phases I-VI, Lift 17A (Phases IV and VI). The SCLF facility currently receives an average of 1,200 tons per day (tpd), with a maximum of 2,500 tpd. The SCLF facility receives ash residue from incinerated Municipal Solid Waste (MSW), nonprocessables, and bypass MSW. The SCLF also receives ash and waste from unincorporated Hillsborough County, the City of Tampa, and Temple Terrace. The SCLF facility currently has the following active permits:

- Phases I-VI, Capacity Expansion Area (Sections 7, 8, and 9) Class I Landfill, and Leachate Treatment and Reclamation Facility (LTRF): FDEP Operation Permit #35435-022-01 – Revised through Interim Modification #35435-023-SO-IM and Minor Modification #35435-028-MM
- SCLF Title V Air Operation Permit: FDEP Permit #0570854-011-AC
- Waste Tire Processing Facility (WTPF): FDEP Permit #126787-007-WT-02
- Stormwater Management Facilities: Southwest Florida Water Management District Permit #100330 and U.S. Environmental Protection Agency (U.S. EPA) National Pollution Discharge Elimination System Permit #FLR05B138-004
- FDEP Environmental Resource Program: FDEP Permit #29-0270881-004

B. DISPOSAL FACILITY GENERAL INFORMATION

See Permit Application Form (page 6 of 36) for this information.

C. PROHIBITIONS

Disposal areas at the SCLF facility, specifically the Capacity Expansion Area (Section 7, 8, and 9) and the Phase I-VI area, have been permitted by FDEP and are located within the property boundaries of the SCLF. The Capacity Expansion Area and the Phase I-VI operations will not change due to this Minor Modification Application and remain valid as permitted in the June 2013 Operation Permit Renewal. All prohibition requirements for the disposal area and operations of the Capacity Expansion Area and the Phase I-VI disposal area remain valid as verified in the June 2013 Operation Permit Renewal and do not change as part of this Operation Permit Minor Modification Application.

For additional information refer to:

- Operation Permit Renewal Application, dated June 2013, and subsequent responses, prepared by HDR;
- Operation Permit Intermediate Modification, dated September 21, 2015, and subsequent responses, prepared by HDR and SCS;
- Operation Permit Minor Modification, dated April 10, 2017, and subsequent responses, prepared by SCS;
- Operation Permit Minor Modification, dated August 3, 2018, and subsequent responses, prepared by SCS; and,
- Operation Permit Minor Modification, dated June 15, 2020, and subsequent responses, prepared by SCS.

D. SOLID WASTE FACILITY PERMITTING REQUIREMENTS, GENERAL

D.1 APPLICATION FORM AND SUPPORTING DOCUMENTS

One hard copy and one electronic copy of the application form, supporting data and reports are included with this permit application.

D.2 ENGINEERING CERTIFICATION

This permit application has been certified, signed, and sealed by Kollan L. Spradlin, P.E., a Licensed Engineer in the State of Florida (License No. 82852).

D.3 TRANSMITTAL LETTER

A transmittal letter is included at the beginning of this submittal.

D.4 APPLICATION FORMS

FDEP Form No. 62-701.900(1), effective February 15, 2015, is included with this submittal.

D.5 PERMIT FEE

Enclosed with this application is a check in the amount of $250 made payable to Florida Department of Environmental Protection in accordance with the fee schedule listed in Rule 62-701.320(4)(b), FAC.

D.9 PLANS OR DRAWINGS IN APPROPRIATE FORMAT

Please refer to **Appendix B** for an LEF process flow diagram and **Appendix C** for construction drawings prepared by and certified by others. SCS has also provided sealed drawings as a separate file in order to maintain signature certifications. Record drawings of the facility will be provided to FDEP following construction of the facility and final acceptance by the SWMD. Additionally, SWMD will provide notification of plans to begin the run-in process and when the facility is fully operational.

All other requirements of 62-701.320(7)(f), FAC remain valid as verified in the June 2013 Operation Permit Renewal and subsequent responses and permit modifications and do not change as part of this Operation Permit Minor Modification Application.

For additional information refer to:

- Operation Permit Renewal Application, dated June 2013, and subsequent responses, prepared by HDR;
- Operation Permit Intermediate Modification, dated September 21, 2015, and subsequent responses, prepared by HDR and SCS;
- Operation Permit Minor Modification, dated April 10, 2017, and subsequent responses, prepared by SCS;

- Operation Permit Minor Modification, dated August 3, 2018, and subsequent responses, prepared by SCS; and,
- Operation Permit Minor Modification, dated June 15, 2020, and subsequent responses, prepared by SCS.

D.12 ENFORCEMENT HISTORY

Table 1 below summarizes enforcement history for the applicant, the SWMD. Based on a review of the SCLF files and information provided by Hillsborough County staff responsible for the SCLF, the applicant is not aware of any other enforcement actions relative to the County's other solid waste operations. Any errors or omissions are not to be construed as a misrepresentation of the facts. Should FDEP have additional information in their files, the SWMD will concede to FDEP's data.

Table 1. Enforcement Action History Hillsborough County Solid Waste Operations

FACILITY	ACTION	STATUS
Southeast County Landfill (SCLF)	FDEP Warning Letter Regarding Turbidity and Consent Agreement issued #WL02-2223SW29SWD 12/9/02	County responded 2/3/03. Measures implemented to reduce turbidity under evaluation for six months.
	FDEP SFCO #10-3622	Closed
	FDEP WL #10 005-SW29SWD	Closed
	FDEP SFCO #09-3117	Closed
	FDEP Consent Order No. 96-1649 for head over liner 8/5/1996	Leachate Management Plan Developed-Closed
	OGC-CO #09-3117	Closed 12/3/09
	Consent Agreement, OGC # 17-0058	Closed 12/11/2020
	Notice to implement Evaluation Monitoring	Open – 11/20/2020
Hillsborough Heights/Taylor Road Landfills	EPA Consent Decree 6/15/83	Replaced with ROD and Consent Decree No. 98-239-CIV-T-25F
	EPC SFCO No. 09-3366DW	Closed
Northwest Landfill	DEP Consent Order No. 89-0108	Replaced with Water Quality Monitoring Permit No SF29-288170
	#WL92-0011SW29SWD	Closed
	FDEP – CO #08-2838	Open

FACILITY	ACTION	STATUS
Falkenburg Yard and WW	#WL92-0010SW29SWD	Closed
	#WL93-0006SW29SWD	Closed
	EPC WN#15372	Closed
Northwest Transfer Station	#WL93-0014SW29SWD	Closed
	#WL94-0012SW29SWD	Closed, replaced by general permit #126750-001-SO
South County Transfer Station	EPC Case #05-35153	Closed 8/12/09
Resource Recovery Facility	EPC Warning Notice #14629-Ash Residue Management - 1994	Closed
	EPC Warning Notice #14697	Closed
	EPC WL#16099 lead to CO #99-0721DML0261-Retrofit for Air Emissions	Closed
	EPC CO #03-0824AR0261 – Failure to inject carbon in MWC Unit Numbers 1 & 3	Closed
	EPC Warning Notice #2004-0506A – Failure to calibrate the opacity CEMs for EU2	Closed
Mango Clay Pit	FDEP – WL #29-8610483 – monitoring only – 10/14/1986	Closed
Sydney Mine	FDEP – CO #87-0627 – Source removal and pump and treat system in 1987 – lead to second Consent Decree – CD 801 – CV-2466-T-30TBM in 2004 for natural attenuation and continued monitoring	Open – Settlement Agreement
Gunn Highway Landfill	FDEP – CO#92-0622 – required to investigate LFG migration at property boundaries – SWMD currently monitors the site monthly	Open
Pleasant Grove Landfill	FDEP – CO #92-0683 – required contamination assessment and ground and surface water and LFG monitoring	Open – Ground and Surface Water Monitoring (COM_65124) Closed – LFG Monitoring 10/15/15

E. LANDFILL PERMIT REQUIREMENTS

Disposal areas at the facility, specifically the Capacity Expansion Area (Section 7, 8, and 9) and the Phase I-VI area, have been permitted by FDEP and are located within the property boundaries of the SCLF. The revised LMP provided in **Appendix A** will not require additional disposal areas at the SCLF in order to operate. No changes are proposed to landfill permit requirements as part of this Operation Permit Minor Modification Application.

For additional information refer to:

- Operation Permit Renewal Application, dated June 2013, and subsequent responses, prepared by HDR;
- Operation Permit Intermediate Modification, dated September 21, 2015, and subsequent responses, prepared by HDR and SCS;
- Operation Permit Minor Modification, dated April 10, 2017, and subsequent responses, prepared by SCS;
- Operation Permit Minor Modification, dated August 3, 2018, and subsequent responses, prepared by SCS; and,
- Operation Permit Minor Modification, dated June 15, 2020, and subsequent responses, prepared by SCS.

F. GENERAL CRITERIA FOR LANDFILL

Disposal areas at the facility, specifically the Capacity Expansion Area (Section 7, 8, and 9) and the Phase I-VI area, have been permitted by FDEP and are located within the property boundaries of the SCLF. No changes are proposed to general criteria for landfills as part of this Operation Permit Minor Modification Application.

For additional information refer to:

- Operation Permit Renewal Application, dated June 2013, and subsequent responses, prepared by HDR;
- Operation Permit Intermediate Modification, dated September 21, 2015, and subsequent responses, prepared by HDR and SCS;
- Operation Permit Minor Modification, dated April 10, 2017, and subsequent responses, prepared by SCS;
- Operation Permit Minor Modification, dated August 3, 2018, and subsequent responses, prepared by SCS; and,
- Operation Permit Minor Modification, dated June 15, 2020, and subsequent responses, prepared by SCS.

G. LANDFILL CONSTRUCTION REQUIREMENTS

This section is not applicable to this application. Landfill Construction is not proposed for the SCLF.

H. HYDROGEOLOGICAL INVESTIGATION REQUIREMENTS

Disposal areas at the facility, specifically the Capacity Expansion Area (Section 7, 8, and 9) and the Phase I-VI area, have been permitted by FDEP and are located within the property boundaries of the SCLF. No changes are proposed to the hydrogeological investigation requirements as part of this Operation Permit Minor Modification Application.

For additional information refer to:

- Operation Permit Renewal Application, dated June 2013, and subsequent responses, prepared by HDR;
- Operation Permit Intermediate Modification, dated September 21, 2015, and subsequent responses, prepared by HDR and SCS;
- Operation Permit Minor Modification, dated April 10, 2017, and subsequent responses, prepared by SCS;
- Operation Permit Minor Modification, dated August 3, 2018, and subsequent responses, prepared by SCS; and,
- Operation Permit Minor Modification, dated June 15, 2020, and subsequent responses, prepared by SCS.

I. GEOTECHNICAL INVESTIGATION REQUIREMENTS

Disposal areas at the facility, specifically the Capacity Expansion Area (Section 7, 8, and 9) and the Phase I-VI area, have been permitted by FDEP and are located within the property boundaries of the SCLF. The revised fill sequence does not exceed the currently permitted maximum design elevation, therefore, no changes are proposed to geotechnical investigation requirements as part of this Operation Permit Minor Modification Application.

For additional information refer to:

- Operation Permit Renewal Application, dated June 2013, and subsequent responses, prepared by HDR;
- Operation Permit Intermediate Modification, dated September 21, 2015, and subsequent responses, prepared by HDR and SCS;
- Operation Permit Minor Modification, dated April 10, 2017, and subsequent responses, prepared by SCS;
- Operation Permit Minor Modification, dated August 3, 2018, and subsequent responses, prepared by SCS; and,
- Operation Permit Minor Modification, dated June 15, 2020, and subsequent responses, prepared by SCS.

J. VERTICAL EXPANSION OF LANDFILL

Not applicable. A vertical expansion is not proposed for the SCLF.

K. LANDFILL OPERATION REQUIREMENTS

Disposal areas at the facility, specifically the Capacity Expansion Area (Section 7,8, and 9) and the Phase I-VI area, have been permitted by FDEP and are located within the property boundaries of the SCLF. Revision of the Leachate Management Plan will not require additional disposal areas at the SCLF in order to operate. No changes are proposed to landfill operations as part of this Operation Permit Minor Modification Application.

For additional information refer to:

- Operation Permit Renewal Application, dated June 2013, and subsequent responses, prepared by HDR;
- Operation Permit Intermediate Modification, dated September 21, 2015, and subsequent responses, prepared by HDR and SCS;
- Operation Permit Minor Modification, dated April 10, 2017, and subsequent responses, prepared by SCS;
- Operation Permit Minor Modification, dated August 3, 2018, and subsequent responses, prepared by SCS; and,
- Operation Permit Minor Modification, dated June 15, 2020, and subsequent responses, prepared by SCS.

K.8 LEACHATE MANAGEMENT

The proposed modifications to the LMP incorporate the revised leachate, effluent, and LEF residuals handling and management procedures. The revised procedures include leachate and effluent forcemain rerouting (LMP Figure 4-1), liquid level controls in Pond B, automated valve telemetry, and incorporation of LEF liquids into truck-mounted spraying for evaporation at the working face.

Pond B will act as the feed stock reservoir for the LEF. Automated valve controls at the Main Leachate Pump Station (MLPS) will divert leachate from Pump Station 7 (PS-7) and Pump Station A (PS-A) to Pond B at a predetermined low liquid level. The diversion valves will discontinue rerouting liquid to Pond B at a predetermined liquid level, and PS-7 and PS-A will recommence pumping to the MLPS.

The revised LMP with changes identified in red-line and strikeout is included as **Appendix A**. A conformed LMP with changes accepted is included as Attachment 2 of the transmittal letter. A process flow diagram and construction drawings prepared and certified by others have been included as **Appendix B** and **Appendix C**, respectively. A bulleted list of LMP revisions is included below.

LMP Revisions

- Section 2.0 has been updated to incorporate procedures a description of the leachate and effluent conveyance interaction between Pond B, the LEF, and the Leachate Treatment and Reclamation Facility.
- Figure 3-1 has been updated to incorporate proposed leachate forcemains associated with the conveyance of leachate between Pond B and the LEF.

- Section 4.1.1 has been updated to incorporate provisions for leachate pumped from PS-A to be diverted from the MLPS to Pond B.
- Figure 4-1 has been updated to incorporate additional valves, meters, and forcemains associated with revised leachate routing operations and piping controls.
- Section 4.2.1 and Section 4.2.2 have been updated to incorporate provisions for leachate pumped from PS-7 to be diverted from the MLPS to Pond B.
- Section 7.0 has been updated to incorporate and clarify procedures related to leachate and effluent disposal at private facilities. The June 15, 2020 Operation Permit Minor Modification Application incorporated these procedures, but minor edits have been made throughout the LMP where only County-owned Waste Water Treatment Facilities were previously referenced.
- Section 8.0 has been updated to incorporate and clarify procedures related to leachate and effluent disposal at private facilities. The June 15, 2020 Operation Permit Minor Modification Application incorporated these procedures, but minor edits have been made throughout the LMP where only County-owned Waste Water Treatment Facilities were previously referenced.
- Section 8.2 has been updated to describe leachate and effluent storage in Pond B as well as the use of Pond B as a LEF feedstock storage pond.
- Section 8.4 has been added to the LMP to describe leachate, effluent, and LEF residuals procedures and typical operation.
- Section 8.5, Section 8.6, Subsections, and Tables have been renumbered to account for the insertion of Section 8.4.
- Section 8.5 has been updated to reflect that LEF process residuals will be handled as leachate and may be used for truck-mounted spraying at the working face for dust control and evaporation in accordance with previously approved and current leachate spraying procedures.
- Table 10.1 has been renamed to Table 10.2 to reflect the section in which it is embedded and to maintain consistent naming convention with other embedded tables within the LMP.
- Section 11.2 has been updated to incorporate and clarify procedures related to leachate and effluent disposal at private facilities. The June 15, 2020 Operation Permit Minor Modification Application incorporated these procedures, but minor edits have been made throughout the LMP where only County-owned Waste Water Treatment Facilities were previously referenced.
- The water balance tables included as part of LMP Appendix A have been updated to include the daily quantity of leachate evaporated at the LEF.
- The date of the LMP has been updated to February 2021.
- Various typographical and stylistic changes have been incorporated.

L. WATER QUALITY MONITORING

Disposal areas at the facility, specifically the Capacity Expansion Area (Section 7, 8, and 9) and the Phase I-VI area, have been permitted by FDEP and are located within the property boundaries of the SCLF. No changes are proposed to the water quality monitoring requirements as part of this Operation Permit Minor Modification Application.

For additional information refer to:

- Operation Permit Renewal Application, dated June 2013, and subsequent responses, prepared by HDR;
- Operation Permit Intermediate Modification, dated September 21, 2015, and subsequent responses, prepared by HDR and SCS;
- Operation Permit Minor Modification, dated April 10, 2017, and subsequent responses, prepared by SCS;
- Operation Permit Minor Modification, dated August 3, 2018, and subsequent responses, prepared by SCS; and,
- Operation Permit Minor Modification, dated June 15, 2020, and subsequent responses, prepared by SCS.

M. SPECIAL WASTE HANDLING

Disposal areas at the facility have been permitted by FDEP and are located within the property boundaries of the SCLF. No changes are proposed to special waste handling requirements as part of this Operation Permit Minor Modification Application.

For additional information refer to:

- Operation Permit Renewal Application, dated June 2013, and subsequent responses, prepared by HDR;
- Operation Permit Intermediate Modification, dated September 21, 2015, and subsequent responses, prepared by HDR and SCS;
- Operation Permit Minor Modification, dated April 10, 2017, and subsequent responses, prepared by SCS;
- Operation Permit Minor Modification, dated August 3, 2018, and subsequent responses, prepared by SCS; and,
- Operation Permit Minor Modification, dated June 15, 2020, and subsequent responses, prepared by SCS.

N. GAS MANAGEMENT SYSTEM REQUIREMENTS

Disposal areas at the facility, specifically the Capacity Expansion Area (Section 7,8, and 9) and the Phase I-VI area, have been permitted by FDEP and are located within the property boundaries of the SCLF. No changes are proposed to the gas management system requirements as part of this Operation Permit Minor Modification Application.

For additional information refer to:

- Operation Permit Renewal Application, dated June 2013, and subsequent responses, prepared by HDR;
- Operation Permit Intermediate Modification, dated September 21, 2015, and subsequent responses, prepared by HDR and SCS;
- Operation Permit Minor Modification, dated April 10, 2017, and subsequent responses, prepared by SCS;
- Operation Permit Minor Modification, dated August 3, 2018, and subsequent responses, prepared by SCS; and,
- Operation Permit Minor Modification, dated June 15, 2020, and subsequent responses, prepared by SCS.

O. LANDFILL CLOSURE REQUIREMENTS

Disposal areas at the facility, specifically the Capacity Expansion Area (Section 7,8, and 9) and the Phase I-VI area, have been permitted by FDEP and are located within the property boundaries of the SCLF. No changes are proposed as part of this Operation Permit Minor Modification Application.

For additional information refer to:

- Operation Permit Renewal Application, dated June 2013, and subsequent responses, prepared by HDR;
- Operation Permit Intermediate Modification, dated September 21, 2015, and subsequent responses, prepared by HDR and SCS;
- Operation Permit Minor Modification, dated April 10, 2017, and subsequent responses, prepared by SCS;
- Operation Permit Minor Modification, dated August 3, 2018, and subsequent responses, prepared by SCS; and,
- Operation Permit Minor Modification, dated June 15, 2020, and subsequent responses, prepared by SCS.

P. OTHER CLOSURE PROCEDURES

This section is not applicable to this application.

Q. LONG-TERM CARE

Disposal areas at the facility, specifically the Capacity Expansion Area (Section 7,8, and 9) and the Phase I-VI area, have been permitted by FDEP and are located within the property boundaries of the SCLF. No changes are proposed to long-term care requirements as part of this Operation Permit Minor Modification Application.

For additional information refer to:

- Operation Permit Renewal Application, dated June 2013, and subsequent responses, prepared by HDR;
- Operation Permit Intermediate Modification, dated September 21, 2015, and subsequent responses, prepared by HDR and SCS;
- Operation Permit Minor Modification, dated April 10, 2017, and subsequent responses, prepared by SCS;
- Operation Permit Minor Modification, dated August 3, 2018, and subsequent responses, prepared by SCS; and,
- Operation Permit Minor Modification, dated June 15, 2020, and subsequent responses, prepared by SCS.

R. FINANCIAL ASSURANCE

The financial assurance cost estimate submitted to FDEP as part of the Operation Permit Intermediate Modification, Phases I-VI and Capacity Expansion Area (Sections 7, 8, and 9), dated September 21, 2015, and subsequent responses, prepared by HDR Engineering, Inc., included the closure and long-term care costs for both Phases I-VI and the Capacity Expansion Area (Sections 7, 8, and 9). The approved 2018 financial assurance cost estimate, dated March 6, 2018, and the proceeding February 5, 2020 inflation-adjusted cost estimate remain valid. No changes are proposed to financial assurance requirements as part of this Operation Permit Minor Modification Application.

APPENDIX A

REVISED LEACHATE MANAGEMENT PLAN WITH CHANGES IN RED-LINE

Leachate Management Plan Phases I-VI and The Capacity Expansion Area Southeast County Landfill Hillsborough County, Florida

Hillsborough County - Public Utilities Department
Solid Waste Management Group (SWMG)
332 N. Falkenburg Road
Tampa, FL 33619

SCS ENGINEERS

09215600.11 | February 2021

3922 Coconut Palm Drive, Suite 102
Tampa, FL 33619
813-621-0080

LEACHATE MANAGEMENT PLAN
PHASES I-VI AND THE
CAPACITY EXPANSION AREA

Southeast County Landfill
Hillsborough County, Florida

Presented to:

Hillsborough County
Public Utilities Department
Solid Waste Management Group (SWMG)
332 N. Falkenburg Road
Tampa, FL 33619

Prepared by:

SCS ENGINEERS
3922 Coconut Palm Drive, Suite 102
Tampa, FL 33619
(813) 621-0080

February 2021
File No. 09215600.11

Kollan L. Spradlin, P.E.
FL Reg. No. 82852

Table of Contents

Table of Contents

Table of Contents

Section Page

Figures

Tables

Appendices

1.0 LEACHATE MANAGEMENT

The Hillsborough County Southeast County Facility (Facility) includes the Southeast County Landfill (SCLF), which is permitted by the Florida Department of Environmental Protection (FDEP) as a Class I landfill for Phases I-VI and the Capacity Expansion Area (CEA). This Leachate Management Plan (LMP) includes Phases I-VI and Sections 7, 8, and 9 of the CEA.

This plan will give the SCLF employees a general understanding of the requirements for managing the leachate generated from the Class I landfill operations within the Phases I-VI and CEA disposal areas. As defined in Rule 62-701.200(59), Florida Administrative Code (FAC), leachate is liquid that has passed through or emerged from solid waste and may contain soluble, suspended, or miscible materials. Leachate must be contained and kept separate from any groundwater or surface waters.

2.0 LEACHATE GENERATION

One of the goals of the landfill design and daily operation is to minimize leachate production from the landfill to reduce the cost associated with leachate treatment and thus minimize the potential environmental contamination risks. The methods described in this section can be used separately or simultaneously to achieve leachate reduction.

Leachate is generated as water passes through solid waste or as liquids drain from solid waste materials. Water may be from stormwater infiltration, irrigation, groundwater, or other sources added to the waste material. Liquids from the solid waste include moisture from food or waste products and fluids disposed of in the waste. Water and liquids that drain through or from the waste materials eventually drain via gravity into the collection systems at the bottom of the Class I disposal areas. Once collected, the leachate is pumped to the leachate storage tank or the leachate/effluent storage pond (Pond B). From the storage tank the leachate can be conveyed to the on-site Leachate Treatment and Reclamation Facility (LTRF) for treatment or hauled off site for treatment and disposal at a permitted wastewater treatment facility. Leachate may also be conveyed from Pond B to the Leachate Evaporator Facility (LEF) for volume reduction. Liquids, including precipitation, collected on the LEF containment pad and liquid residuals from the volume reduction process will be treated as leachate.

In addition, leachate is generated in the form of condensate from the collection of landfill gas (LFG) from Phases I-VI and the CEA. Condensate is managed by several methods, including drainage back to the landfill or collection in sumps at low areas. While LFG condensate collection and transmission are not addressed in the leachate management plan, condensate management is addressed within the Gas Collection and Control System (GCCS) Plan for the SCLF referenced as part of the SCLF Title V operating permit. This plan should be referenced for details regarding condensate management.

3.0 LEACHATE COLLECTION SYSTEMS

The leachate collection system for Phases I-VI and the leachate collection and detection systems for the CEA are depicted in **Figure 3-1** and **Figure 3-2**, respectively. Additional descriptions of these systems are provided in the following sections.

3.1 PHASES I-VI LEACHATE COLLECTION

Phases I-VI of the Facility were constructed directly above a waste clay settling area for a former phosphate mine known as Lonesome Phosphate Mine or Boyette Mine. The Phases I-VI landfill is approximately 162.4 acres. The settling area, also known as Settling Area No. 1, was built on natural ground with a perimeter dike constructed of sand borrowed from surrounding areas. As part of the phosphate mining operations, waste phosphatic clay and other soils were washed and phosphate minerals removed from the surrounding soils.

The washed waste phosphatic clays and soils were pumped to the settling areas and allowed to settle to the bottom of the settling ponds. The low-permeability waste phosphatic clays now form the bottom containment liner for the disposal of waste in the Phase I-VI area. A single layer of 36-mil chlorosulfonated polyethylene (CSPE) tied into the waste phosphatic clay layer as a side containment liner barrier.

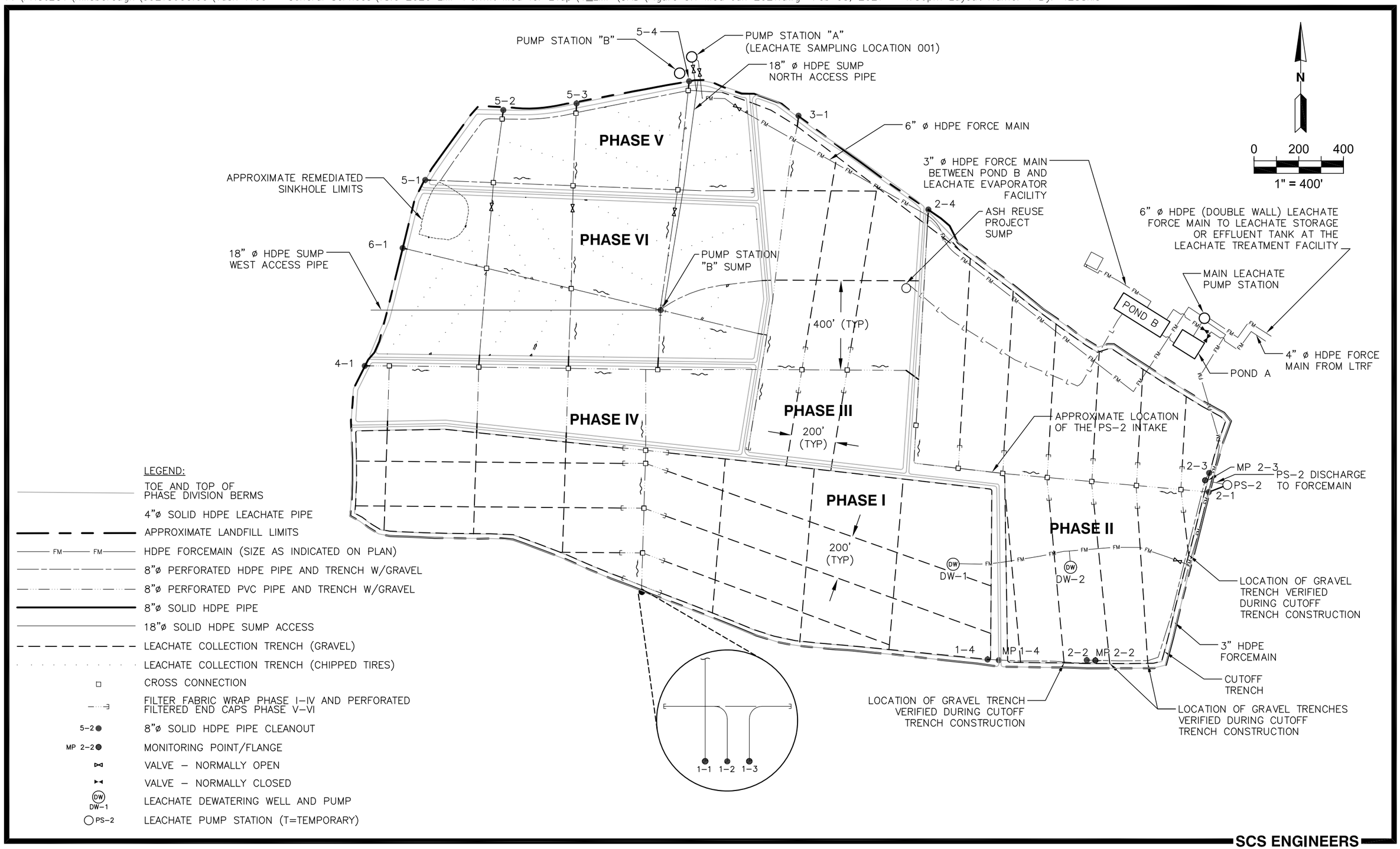
The leachate collection and removal system for Phases I-VI consists of crushed granite rock and tire-chip-filled trenches, 8-inch diameter perforated Schedule 80 polyvinyl chloride (PVC) pipes in granite rock-filled trenches, and 8-inch diameter perforated high density polyethylene (HDPE) pipes in granite rock-filled trenches. The gravel and tire-filled trenches drain to the 8-inch pipes which then drain to Pump Station B (PS-B) located in the Phase VI disposal area. PS-B was designed to be the ultimate low point for the entire footprint of Phases I-VI after final placement of waste material and loading of the waste phosphatic clays. As the waste phosphatic clays are loaded, the clays settle. Excess water from within the clays is squeezed out during the loading of the clays and enters the leachate collection system.

3.2 CAPACITY EXPANSION AREA LEACHATE COLLECTION

3.2.1 Section 7

3.2.1.1 Leachate Collection System

Section 7 of the CEA landfill is approximately 12.5 acres. The dimensions of Section 7 are approximately 750 feet long (southwest to northeast) and 800 feet wide (northwest to southeast). Section 7 was designed with a double-liner system—one for leachate collection on the primary liner and the other for detection (secondary liner) of any leachate that may leak through the collection liner. A 300-mil bi-planar geocomposite was installed on the top of each of the 60-mil HDPE geomembranes to convey leachate toward collection trenches. Twelve inches of drainage sand and 12 inches of chipped tires were placed above the primary collection system to provide additional drainage collection and provide puncture protection of the underlying HDPE liners.



SCS ENGINEERS

FIGURE 3–1. PHASES I–VI LEACHATE COLLECTION AND REMOVAL SYSTEM
HILLSBOROUGH COUNTY
FEBRUARY 2021

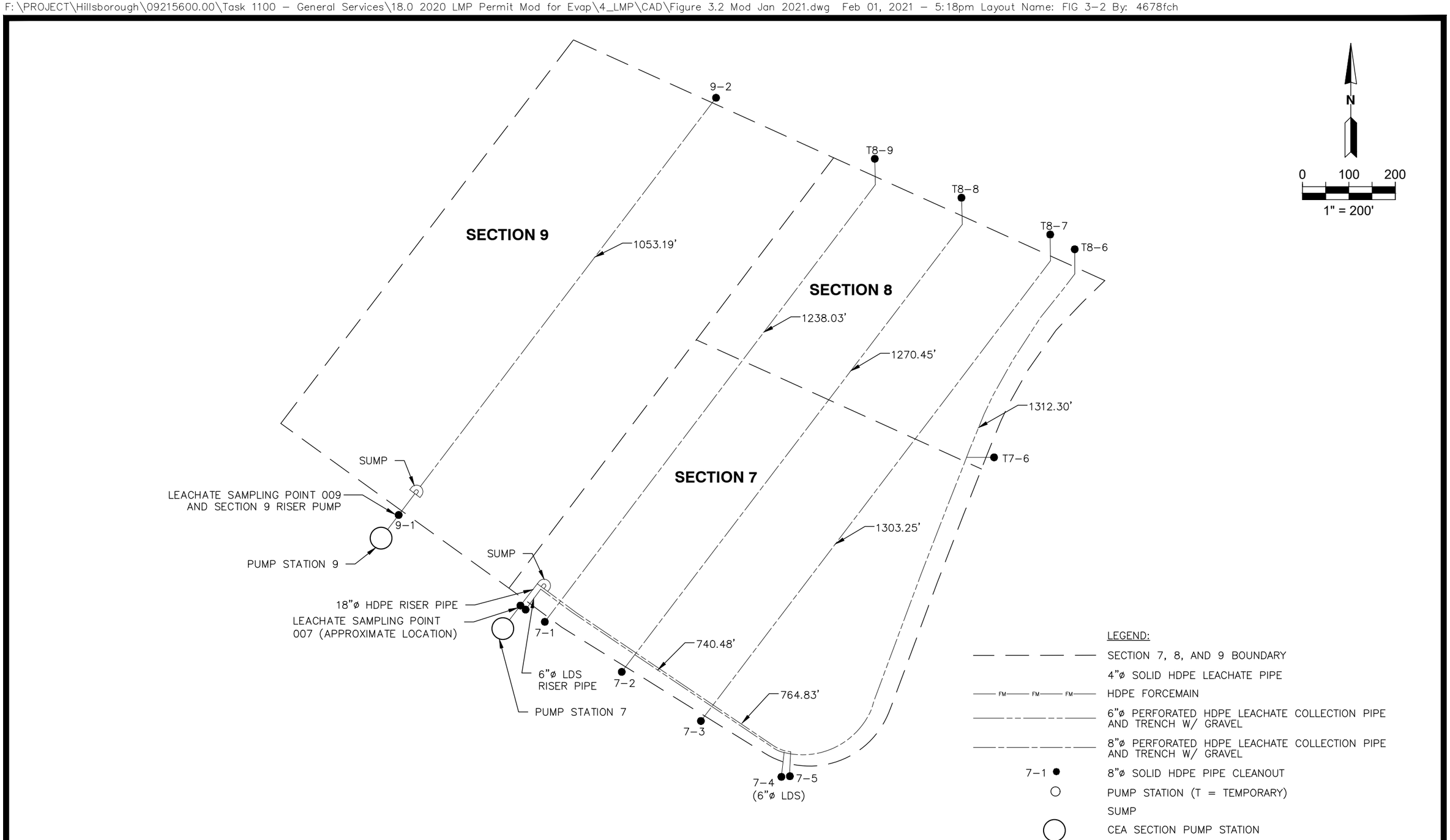


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FIGURE 3–2. CAPACITY EXPANSION AREA (SECTIONS 7, 8, AND 9) – LEACHATE COLLECTION AND REMOVAL SYSTEM
HILLSBOROUGH COUNTY
FEBRUARY 2021

Leachate travels through the primary geocomposite and sand/tire-chip drainage layer and is collected in the leachate collection trench. This trench consists of 8-inch perforated HDPE leachate collection pipes and gravel wrapped in a geotextile to minimize migration of sand into the pipes. Leachate that collects in the trench flows to a collection header and then toward a collection sump in the southwest corner of Section 7. The sump was designed as the lowest point in Section 7 and was filled with gravel. A riser pipe was installed in the gravel fill of the sump and contains a submersible pump for leachate removal.

3.2.1.2 Leachate Detection System

The leachate detection system of Section 7 consists of a bi-planar geocomposite between the primary and secondary geomembranes. The geocomposite drains leachate toward an 8-inch perforated HDPE pipe in a gravel-filled trench. The lateral pipes drain to a main header on the southwest end of Section 7. The main header drains to the low point of Section 7 containing a sump with gravel fill and a riser pipe. Leachate is removed from the Section 7 leachate detection system via the riser pipe using an above-grade pump.

During standard practices, the detection system is expected to collect a small volume of leachate. Leakage rates collected in the detection system will be used to monitor the performance of the collection system. The action leakage rate for the CEA is discussed in Section 9.3.2.

3.2.2 Section 8

3.2.2.1 Leachate Collection System

Section 8 of the CEA is approximately 6.8 acres. The dimensions of Section 8 are approximately 500 feet long (southwest to northeast) and 660 feet wide (northwest to southeast). Section 8 was designed with a double-liner system—one for leachate collection (primary liner) and the other (secondary liner) for detection of any leachate that may leak through the collection liner.

A 300-mil tri-planar geocomposite was installed on the top of each of the 60-mil HDPE geomembranes to convey leachate toward leachate collection trenches. Twelve inches of drainage sand and 12 inches of chipped tires were placed above the primary collection system to provide additional drainage collection and provide puncture protection of the underlying HDPE liners.

The design of Section 8 included connecting the leachate collection and detection system components to Section 7. Therefore, leachate travels through the upper geocomposite and sand/tire drainage layer and is collected in the leachate collection trenches in Section 8. These trenches consist of an 8-inch perforated HDPE leachate collection pipe and several feet of gravel wrapped in woven geotextile. Leachate that collects in the Section 8 trenches continues to flow though Section 7 trenches. Once in the Section 7 collection system, leachate drains to the sump in the southwest corner of Section 7.

3.2.2.2 Leachate Detection System

The leachate detection system of Section 8 consists of a tri-planar geocomposite between the primary and secondary geomembranes. The Section 8 tri-planar geocomposite was connected to the Section 7 bi-planar geocomposite. The geocomposite drains leachate to 8-inch perforated HDPE pipes in gravel filled trenches. The trenches flow through Sections 7 and 8. The lateral pipes drain to a main header on the southwest end of Section 7. The main header drains to the leachate sumps in the southwest corner of Section 7 as described in previous sections.

During standard practices the detection system should collect a small amount of leachate. Leakage rates collected in the Section 8 detection system cannot be measured independently from Section 7; however, since each system is connected, the total leakage measured in the Section 7 sump will be used to monitor the performance of the Sections 7 and 8 leachate detection systems.

3.2.3 Section 9

3.2.3.1 Leachate Collection System

Section 9 of the CEA landfill is approximately 15.2 acres. Section 9 is approximately 980 feet long (southwest to northeast) and 580 feet wide (northwest to southeast). The primary leachate collection system is composed of a combination of synthetic materials and natural granular materials. A geocomposite consisting of an HDPE geonet with the top and bottom sides bonded to a geotextile is directly above the primary 60-mil HDPE geomembrane. The geocomposite is overlain by a 12-inch-thick natural granular (sand) drainage layer and a 12-inch-thick chipped-tire drainage layer.

Leachate flows by gravity to a central leachate collection trench that conveys the leachate to the leachate collection sump on the south side of Section 9. The leachate collection pipe is a perforated 8-inch-diameter SDR 11 HDPE pipe surrounded by gravel and geotextile. From the sumps, leachate is pumped via a 6-inch SDR 11 HDPE forcemain to the LTRF located northeast of Sections 7 and 8.

3.2.3.2 Leachate Detection System

The leachate detection system for Section 9 includes a geocomposite consisting of a HDPE geonet with the top and bottom sides bonded to a geotextile installed between the primary and secondary geomembranes. Leachate entering the secondary Leachate Collection and Removal System (LCRS) flows by gravity through the geonet to the leak-detection trench. The trench, constructed at a slope of approximately 0.75%, conveys leachate to a leachate-detection sump on the south side of Section 9. From the sump, leachate is pumped via a 6-inch SDR 11 HDPE forcemain to the LTRF.

During standard practices, the detection system is expected to collect a small volume of leachate. Leakage rates collected in the detection system will be used to monitor the performance of the collection system. The action leakage rate for the CEA is discussed in Section 9.3.2.

3.3 BIOSOLIDS COMPOSTING FACILITY LEACHATE COLLECTION

The SWMG operates a Biosolids Composting Facility (BCF) at the Facility. BCF operations are permitted under the Hillsborough County Falkenburg Road Advanced Wastewater Treatment Facility (WWTF) Domestic Wastewater Facility Permit Number FL0040614 and is managed in accordance with the current *Biosolids Composting Facility Operations and Maintenance Plan,* which is maintained on site. The BCF Building and the Biosolids Receiving Area are curbed to contain residual moisture. Stormwater runoff that enters the BCF Building or the Biosolids Receiving Area will be treated as leachate. The leachate is conveyed to two 25,000 gallon storage tanks located at the BCF. Leachate hauling tankers transport the BCF leachate to a permitted disposal facility.

4.0 LEACHATE TRANSMISSION

A schematic of the leachate management system at the SCLF is shown in **Figure 4-1**. The following sections provide additional details for the transmission components of the leachate management system at the SCLF.

4.1 PHASES I-VI

4.1.1 Pump Station A (PS-A)

PS-A consists of an 8-foot inside-diameter below-grade concrete sump with a single submersible pump. From PS-A, leachate is pumped to the Main Leachate Pump Station (MLPS) via force main. The pump operation is set with the "on" float at 42 inches from the sump bottom and the "off" float at 18 inches from the sump bottom.

If a high-level condition occurs, the PS-A sump control panel will shut down Pump Station B (PS-B). It will also transmit a signal, via a transceiver, with the sump condition to the control computer in the LTRF, the effluent/leachate storage tank (T6), and the landfill administration office located at the scalehouse at the entrance of the SCLF. If PS-A will be inoperable for more than 8 hours, leachate from PS-B will be pumped through the bypass line directly to the MLPS or Pond B.

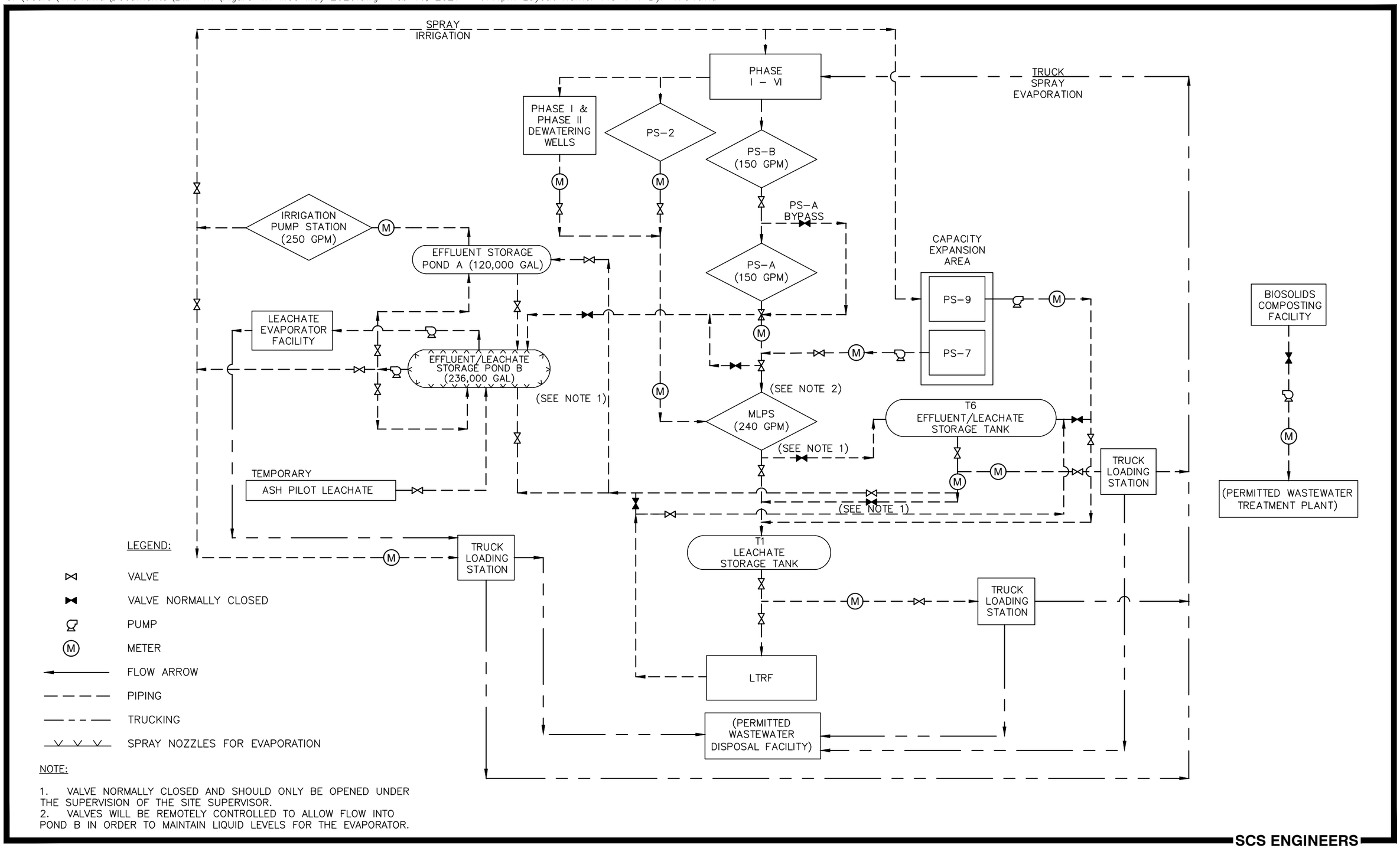
4.1.2 Pump Station B (PS-B)

PS-B sump (located in Phase VI) is the primary leachate collection point for Phases I-VI. Upon consolidation of the phosphatic clay liner, the low point for the final collection and removal of leachate within the landfill is projected to be at the PS-B sump location. The LCRS for the landfill was designed to drain to the PS-B sump.

PS-B sump consists of an 8-foot square (inside dimension) below-grade concrete vault. The vault has two 18-inch diameter HDPE horizontal access pipes, the main access pipe leading to PS-A, and an alternate access pipe leading toward the western perimeter of the landfill between cleanouts 4-1 and 6-1.

The primary pumps used to remove leachate from the PS-B sump are self-priming pumps each with a capacity of 150 gallons per minute (gpm). If the primary pumps fail, the operations contractor can obtain a secondary vacuum-assisted diesel pump that may be used as backup. PS-B sump is equipped with a level indicator located at the control panel near PS-A, and the SWMG monitors the liquid level daily to ensure that the levels noted below are maintained.

PS-B pumps leachate to PS-A via a vacuum-assisted pump. The PS-B pump is controlled by a bubbler liquid level measurement system with an "on" sensor is set at the PS-B maintenance level reading of 30-inches, and the "off" sensor is set at 15 inches from the bottom. The PS-B maintenance levels and operational procedures are outlined in **Table 9.2.4**. The settings provide for free flow of leachate into the landfill lower sump area from the surrounding Phase I-VI disposal areas.



NOTE:

1. VALVE NORMALLY CLOSED AND SHOULD ONLY BE OPENED UNDER THE SUPERVISION OF THE SITE SUPERVISOR.
2. VALVES WILL BE REMOTELY CONTROLLED TO ALLOW FLOW INTO POND B IN ORDER TO MAINTAIN LIQUID LEVELS FOR THE EVAPORATOR.

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FIGURE 4–1. LEACHATE MANAGEMENT SYSTEM SCHEMATIC
HILLSBOROUGH COUNTY
FEBRUARY 2021

4.1.3 Pump Station 2 (PS-2)

Pump Station 2 (PS-2) consists of a vacuum assisted pump with a 3-inch HDPE suction line into the Phase II clean out 2-1 (CO 2-1). The PS-2 pump is controlled with a liquid level indicator located adjacent to the intake pipe, within the CO 2-1 header. The pump discharges via a 3-inch HDPE buried forcemain directly into the MLPS. The pump will be operated by SWMG staff to supplement leachate removal from Phase II of the landfill and the Phase II Cut-off Trench. The primary goal of this pump is to maintain the leachate level in the Monitoring Port No. 2 (MP 2-2) and the CO 2-1 header below 30-inches. The CO 2-1 connection to the Phase II Cut-off Trench and the Phase II header allows PS-2 to influence the liquid level in MP 2-2. The leachate quantities pumped from CO 2-1 via the PS-2 pump will be recorded by an electronic flow meter.

4.1.4 Dewatering Wells

Dewatering wells were installed to provide supplemental leachate removal from Phases I and II. One well nest was installed in Phase I and one in Phase II. Each well nest consists of two 8-inch diameter HDPE well casings set within one 36-inch diameter borehole that spans from ground surface, through the waste, to 1-foot below the top of the clay liner. Each of the well casings contains a pneumatic pump connected to a 3-inch diameter HDPE buried forcemain conveying the leachate to the MLPS. The wells are topped with an all-weather polyethylene dual extraction well cap and 2-inch LFG wellhead. The Phase I leachate extraction wells are designated DW 1-1 and DW 1-2, and the Phase II leachate extraction wells are designated DW 2-1 and DW 2-2. The pneumatic pump counters will estimate the leachate quantities.

4.2 CAPACITY EXPANSION AREA

4.2.1 Section 7 – Pump Station 7 (PS-7)

The leachate collection and leachate detection system piping for Sections 7 and 8 drain to sumps in the southwest corner of Section 7 as shown in **Figure 3-2**. The leachate detection sump is pumped to the leachate collection sump by an above-grade pump located at PS-7. The leachate collection sump pumps leachate using a submersible pump in the sump to the MLPS or Pond B via an underground force main.

There are separate pumps for the leachate collection (submersible pump) and detection (above grade pump) sideslope risers. The levels in each sump are controlled with pressure transducers at the bottom of the riser pipes. These transducers are programmed for a high-level alarm at 48 inches, pump on at 24 inches, and pump off at 12 inches. All elevations are from the bottom of the Section 7 sump. Flow measurements are taken using readings from magnetic flow meters on each discharge line. Separate sampling ball valves allow separate leachate samples to be taken from either the collection or detection sumps.

4.2.2 Section 8 – (No Pumping Systems)

Section 8 was constructed by connecting the leachate collection and detection systems to the Section 7 systems. No pumping systems are included in the Section 8 design. Section 8 uses the sumps and pumps for Section 7 to pump leachate to the MLPS or Pond B.

4.2.3 Section 9 – Pump Station 9 (PS-9)

The Section 9 area includes sideslope riser pipes—two for the primary leachate collection and one for the leachate detection systems—with submersible pumps. All the pumps for the Section 9 area are controlled by a separate control panel located on the south side of Section 9. Leachate is conveyed by a buried forcemain which connects to the existing forcemain on the south side of Section 7. The forcemain then continues to the leachate storage tank (T1) or effluent/leachate storage tank (T6) northeast of the CEA.

The Section 9 pumps are controlled by a bubbler level sensing system at the PS-9 control panel. The standard practice bubbler settings for the leachate collection pumps from the bottom of the sump are high-level alarm at 36 inches, lag pump on at 33 inches, lead pump on at 27 inches, and low level alarm at six inches. The standard practice bubbler settings for the detection pump from the bottom of the sump are high-level alarm at 36 inches, pump on at 27 inches, and pump off at 21 inches.

In addition, the Section 9 pumps are deactivated when the leachate storage tank (T1) senses a high-level alarm.

4.3 MAIN LEACHATE PUMP STATION (MLPS)

The MLPS consists of a 7-foot-square (inside dimension) below-grade concrete sump with dual submersible pumps (i.e., one operating and one stand-by). Each submersible pump is rated to pump at a maximum discharge rate of 240 gpm. The operating pump is set for a 24-hour operation cycle with the “on” float at 48 inches from the sump bottom and the “off’ float at 24 inches from the sump bottom.

If a high-level condition occurs at the MLPS sump, the control panel will shut down PS-7, PS-A, PS-B, PS-2, and all pneumatic pumps. It will also transmit a signal, via a transceiver, with the sump condition to the control computer in the LTRF effluent/leachate storage tank (T6). Maintenance and inspection of the MLPS pump are described in Section 10.0.

From the MLPS, leachate is pumped to the 575,000-gallon leachate storage tank (T1) or to the 575,000-gallon effluent/leachate storage tank (T6) [effluent/leachate storage tank (T6)—for emergency use only, as described in Section 7.0] at the LTRF.

5.0 LEACHATE STORAGE TANK (T1)

Leachate from Phases I-VI and the CEA is currently stored in a 575,000-gallon (maximum capacity) glass-fused-to-steel aboveground raw leachate holding tank before being treated or hauled. The leachate level in the leachate storage tank (T1) is maintained to provide for the maximum storage capacity possible. The leachate storage tank (T1) is maintained with an average low level of six feet (as measured from the bottom of the tank) or 173,000 gallons to ensure that enough leachate is available for the LTRF to operate 3 days without interruptions. When the level in the leachate storage tank (T1) is below six feet, leachate hauling and spray evaporation will be temporarily reduced or stopped. Similarly, an action level is established for a high level of 11 feet (from bottom of tank) in the leachate storage tank (T1). A level of 11 feet provides a storage capacity in the leachate storage tank (T1) of 259,000 gallons (4 days' storage) to allow continuous operation of the landfill pump stations. When levels are above 11 feet, treatment, hauling, and/or spray evaporation will be increased.

If a high-level alarm condition occurs (at 17.5 feet) in the leachate storage tank (T1), the LTRF will continue to operate, and the MLPS, PS-9, and the LTRF filtrate pumps will be shut down. A signal indicating the leachate storage tank (T1) condition will be sent to the control computer in the LTRF. When a high-level alarm condition exists, additional hauling trucks will be used to transport the leachate to a WWTP, thus lowering the leachate level in the tank.

5.1 T1 SECONDARY CONTAINMENT SYSTEM

The LTRF leachate tank system is located within a concrete containment area. The secondary containment area has two sumps for stormwater drainage with 6-inch diameter HDPE pipes. The gate valves from the HDPE pipes are normally closed, in the event of an uncontrolled release. The gate valves are occasionally opened to release stormwater from the impoundment as needed. The LTRF secondary containment area was designed to hold 110% of the volume of the largest storage tank in case of failure of the tanks. Therefore, the concrete flooring and containment walls will be inspected weekly for cracks or structural deficiencies as discussed in Section 5.3. Any cracks will be immediately sealed using flexible concrete grout. Any structural deficiencies will be identified and corrective action taken to repair the walls.

5.2 T1 LIQUID LEVEL MONITORING

The leachate storage tank (T1) contains an overflow pipe. The overflow pipe is installed outside of the storage tank, with the tank sidewall penetration within 30 inches of the top of the sidewall of the tank. The tank is equipped with liquid level indicators that are float-operated with a direct readout. The level gauge boards are mounted in a highly visible location on the exterior of the tank. The tank level is recorded daily on the leachate reporting forms. An example form is provided in **Appendix A**.

5.3 T1 EXTERIOR AND INTERIOR INSPECTIONS

The following describes the inspections of the leachate storage tank (T1) and procedures to be followed after the inspections:

- Overfill Prevention System: The overfill prevention system components will be inspected weekly. These components include level sensors, gauges, high-level alarm, and automatic shutoff controls.

- Tank Exterior: The exterior of the tanks and the secondary containment system will be inspected weekly for adequacy of the impressed current cathodic protection system, leaks, corrosion, and maintenance deficiencies. The control panel for the impressed current cathodic protection system (located on the outside of the secondary containment walls next to the truck loading station) will be inspected to ensure that it is working properly. In addition, the inspection includes evaluating structural damage to the tank, damage to the coating system, loose connections, corrosion, visible leaks, and maintenance deficiencies. The inspector will also look for any structural damage to the concrete slab, peeling of the paint system, and visible leaks.
- Tank Interior: The interior of the tanks will be inspected whenever the tanks are drained or at least every three years. The inspector will look for any damage to the interior coating system, structural damage, cracking of the tank, visible leaks, and any accumulation of sludge.
- Procedures for Corrective Actions: If inspections reveal any deficiencies with the tank or the secondary containment system that could result in the system's failing to contain the leachate, the SWMG shall take immediate action to correct the situation by assessing the problem and coordinating the required actions. Failures or damage to the tanks will be repaired by the tank manufacturer or a designated contractor. The SWMG shall notify the manufacturer or designated contractor of the situation; the tank manufacturer or designated contractor will remediate the tanks and prepare a detailed damage-assessment report. FDEP will be notified in writing of the situation and of the proposed corrective action.

Inspection Reports: Inspection reports and reports of any remedial action measures taken will be maintained at the SCLF and will be made available to FDEP upon request. The weekly inspection report form is provided in **Appendix A**. All reports will be maintained for the life of the tanks and the containment system.

6.0 LEACHATE TREATMENT AND RECLAMATION FACILITY (LTRF)

In December 1994, the SWMG constructed an on-site LTRF. The LTRF system and operation are described in detail in the *General Process and Operation Manual for the Powder Activated Carbon Treatment (PACT) System, Volume III*, prepared by Zimpro Environmental, Inc. dated March 1994.

Process tanks and equipment are maintained in accordance with *General Process and Operation Manual for the Powder Activated Carbon Treatment (PACT) PACT System*, dated March 1994.

After treatment, the leachate is pumped through a 4-inch-diameter single-walled HDPE pipe to the effluent storage pond (Pond A) or the effluent/leachate storage tank (T6) described in Section 7.0. The effluent from the LTRF must meet pre-treatment standards before being pumped to a tanker truck for transport to Hillsborough County's wastewater treatment facilities.

7.0 EFFLUENT/LEACHATE STORAGE TANK (T6)

The effluent/leachate storage tank (T6) is a welded steel aboveground tank with a maximum capacity of 575,000 gallons. The effluent/leachate storage tank (T6) receives treated leachate (effluent) from the LTRF and pumps effluent to the effluent storage pond (Pond A) or stores the effluent for transport to Hillsborough County's wastewater treatment facilities or a permitted wastewater treatment and disposal facility listed in **Table 8.6.2**. If leachate must be stored in the effluent/leachate storage tank (T6) from the MLPS while the leachate storage tank (T1) is repaired or inspected, normal operations at the LTRF will stop. Once the leachate storage tank (T1) is repaired or inspected, the leachate stored in the effluent/leachate storage tank (T6) will be pumped back to the leachate storage tank (T1). The effluent/leachate storage tank (T6) will be cleaned of leachate before effluent storage resumes.

The following standard and special setting conditions are applicable to T6:

1. Pump effluent from the LTRF to the effluent/leachate storage tank (T6) (standard practice).
2. Pump effluent from the effluent/leachate storage tank (T6) to Pond A or the truck loading area (standard practice).
3. Pump leachate from the MLPS to the effluent/leachate storage tank (T6) (special condition).
4. Pump leachate from the effluent/leachate storage tank (T6) to the leachate storage tank (T1) (special condition).

7.1 T6 SECONDARY CONTAINMENT SYSTEM

The secondary containment system for the effluent/leachate storage tank (T6) can contain a minimum of 110% of the total volume of the tank. The effluent/leachate storage tank (T6) provides 575,000 gallons of maximum storage.

The secondary containment system consists of a 60-mil HDPE geomembrane lined basin. The tank is constructed at the bottom of the basin on a reinforced concrete pad and surrounded by a 6-inch thick reinforced concrete walkway. The lined basin is connected at the walkway slab and runs up 3H:1V sideslopes where it is anchored at a 12-foot wide berm.

The precipitation collected in the containment area is pumped into the adjacent stormwater management system via a horizontal submersible pump and sideslope riser. The sideslope riser system includes an additional camlock connection to be used for emergency effluent/leachate removal using an additional pump. Any spilled leachate and/or effluent that accumulates in the secondary sump is pumped to the leachate storage tank (T1) via a suction line originating from the horizontal centrifugal pump at the loading pad. The centrifugal pump is equipped with valves to operate in suction mode to remove any spilled effluent/leachate from the secondary sump. The submersible sump pump is manually operated to remove stormwater or used as an alternate for effluent/leachate removal.

Accumulated precipitation will be removed within 24 hours of observation. The precipitation will be pumped into the adjacent stormwater management system.

Accumulated liquid in the trench drain that is not precipitation resulting from a recent storm event will be treated as effluent and pumped into the effluent/leachate storage tank (T6).

7.2 T6 LIQUID LEVEL MONITORING

The effluent/leachate storage tank (T6) contains an 8-inch overflow pipe. The overflow pipe is installed outside of the effluent/leachate storage tank (T6) with the tank sidewall penetration within 30 inches of the top of the sidewall of the tank. The tank is equipped with liquid level indicators that are float operated with a direct readout. The control panel is mounted in a highly visible location on the exterior of the tank. When the high-level alarm condition occurs (at 17.5 feet), a visual and audible alarm (a light and horn) located at the control panel to alert staff of a potential problem before overflow. The effluent/leachate storage tank (T6) level is recorded daily on the leachate reporting forms provided in **Appendix A**.

7.3 T6 EXTERIOR AND INTERIOR INSPECTIONS

The following describes the inspections of the effluent/leachate storage tank (T6) and steps to be followed after the inspections.

- Overfill Prevention System: The overfill prevention system components will be inspected weekly. These components include level sensors, gauges, high-level alarm, and automatic shutoff controls.
- Tank Exterior: The exterior of the tank and the secondary containment system will be inspected weekly for adequacy of the cathodic protection system, leaks, corrosion, and maintenance deficiencies. In addition, the inspection includes an evaluation of any structural damage to the tank, damage to the coating system, loose connections, corrosion, visible leaks, and maintenance deficiencies. The inspector will also look for any structural damage to the concrete slab or HDPE lining of the secondary containment system, peeling of the paint system, and visible leaks.
- Tank Interior: The interior of the tank will be inspected whenever the tank is drained or at least every three years. The inspector will look for any damage to the interior coating system, structural damage, cracking of the tank, visible leaks, and accumulation of sludge.
- Procedures for Corrective Actions: If inspections reveal any deficiencies with the tank or the secondary containment system that could result in failure of the system to contain the leachate, the SWMG shall take immediate action to correct the situation by assessing the problem and coordinating the required actions. Failures or damage to the tanks will be repaired by the tank manufacturer or a designated contractor. The SWMG shall notify the manufacturer or designated contractor of the situation; the tank manufacturer or designated contractor will remediate the tanks and prepare a detailed damage assessment report. FDEP will be notified in writing of the situation and of the proposed corrective action.
- Inspection Reports: Inspection reports and reports of any remedial action measures taken will be maintained at the SCLF and will be made available to FDEP upon request. The weekly inspection report form is provided in **Appendix A**. All reports will be maintained for the life of the tanks and the containment system.

7.4 ACID MIXER AND TANK

The acid dosing pumps at the effluent/leachate storage tank (T6) pump station inject sulfuric acid into the 4-inch effluent pipe. Landfill personnel monitor the pH by pulling grab samples from the sampling port or reading from the pH meter at the control panel, thereby allowing the acid dosing to be optimized and preventing large swings in pH. The acid dosing rate is controlled by an operator at the control panel using the pH readout to adjust the acid dose to achieve the appropriate pH range. Also, the system includes controls between the acid dosing pumps and the pH meter to allow automatic acid dosing. The acid dosing pump controls are connected to the booster pump controls so acid dosing will only occur when the booster pumps are running. In addition, when the booster pumps are signaled off, the acid dosing pumps stop and the booster pumps continue to run for approximately 30 seconds to allow the piping system to be flushed of any residual acid.

8.0 LEACHATE AND EFFLUENT DISPOSAL

Leachate is disposed of at the SCLF by various methods, including treatment at the on-site LTRF, volume reduction at the LEF, hauling of raw leachate via tanker truck to a permitted WWTF, and truck-mounted spray evaporation of raw leachate within the contained working surface. Effluent from the on-site LTRF is disposed of by an effluent spray irrigation system, effluent evaporation, or transporting effluent via tanker trucks to a permitted WWTF.

8.1 EFFLUENT STORAGE POND

The effluent storage pond (Pond A) receives treated leachate (effluent) from the LTRF or the effluent/leachate storage tank (T6). The pond is lined with 80-mil HDPE and provides for temporary effluent storage of 120,000 gallons plus one foot of freeboard. Using the existing staff gauge in the pond, Pond A is maintained at a maximum depth of 3.7 feet (elevation 136.9) and a minimum depth of six inches. The minimum depth of six inches provides head over the liner to prevent damage due to uplift from wind and other elements. Off-site hauling could increase if levels in Pond A reach the maximum level of 3.7 feet. In addition, an overflow pipe allows flow from Pond A into Pond B. Similarly, if levels are below six inches, irrigation, evaporation, and off-site hauling from Pond A will be temporarily reduced.

The following standard and special setting conditions are applicable at Effluent Storage Pond A:

1. Pump effluent from Pond A to spray irrigation system (standard condition).
2. Pump effluent from Pond A to truck loading arm (standard condition).
3. Recirculate effluent in Pond A to stabilize pH (special condition).

8.2 EFFLUENT/LEACHATE STORAGE POND B

The effluent/leachate storage pond (Pond B) provides an additional storage volume of 236,000 gallons and is located ~~next to~~west of Pond A, as shown in **Figure 3-1**. Pond B was designed with one foot of storage for the 25-year/24-hour storm and one foot of freeboard. The pond was designed to store either raw leachate or effluent; however, Pond B's primary use is for storage of effluent and leachate mixture for volume reduction at the LEF. ~~for additional storage of effluent from the LTRF or the effluent/leachate storage tank (T6). If the need for leachate storage arises, the SWMG will notify FDEP before using the pond for leachate storage. The notification to FDEP will include the reason(s) for leachate storage in the pond and the anticipated duration.~~The leachate and effluent mixture is pumped from Pond B to the LEF for volume reduction processing. Diversion of PS-A and PS-7 leachate from the MLPS to Pond B is controlled by a telemetry system that utilizes liquid level measurement devices and automatic valve controls to maintain the Pond B depth with at least one foot of freeboard.

Pond B was designed with an upper and lower 60-mil HDPE geomembrane. An HDPE geonet was installed between the two liners. The subbase for the lower geomembrane consists of six inches of soil with a saturated hydraulic conductivity of 1×10^{-5} centimeters per second or less, installed over the on-site soil which was cleared of vegetation and graded. Supplemental effluent evaporation in Pond B is provided using a spray evaporation system. The spray evaporation nozzle system was designed around the perimeter of the pond and consists of 30 nozzles, with an estimated flow capacity of 17-gpm per nozzle and a 510-gpm pump.

In general, the SWMG operates the spray evaporation system manually and only during the hours the landfill is open. The spray evaporation system is not operated during windy conditions (i.e., over 10 miles per hour) to prevent overspray outside the limits of the pond liner system.

The following standard and special setting conditions are applicable at Effluent/Leachate Storage Pond B:

1. Effluent and leachate mixture storage and spray evaporation operation in Pond B (standard practice).
2. Effluent and l~~L~~eachate mixture storage in Pond B for conveyance to the LEF for volume reduction processing (standard practice) ~~(special condition)~~.
3. ~~Resuming effluent storage in Pond B following leachate storage (special condition).~~

8.2.1 Pilot Ash-Reuse Leachate

The SWMG operates a temporary ash-reuse project on top of Phase III. The project is managed in accordance with the "Temporary Ash Aggregate Screening and Storage Project Operation & Maintenance Plan" dated August 2017. The runoff within the project bermed area is treated as leachate and drains into a sump. The sump is connected to a diesel vacuum assisted pump. The pump discharge is routed within an aboveground HDPE pipe to the double-lined Pond B. All liquids in Pond B are either pumped into trucks to be hauled to a WWTP or pumped (via MLPS) to the LTRF for on-site treatment. At the completion of this project, the diesel pump and HDPE pipe will be removed.

8.3 EFFLUENT IRRIGATION

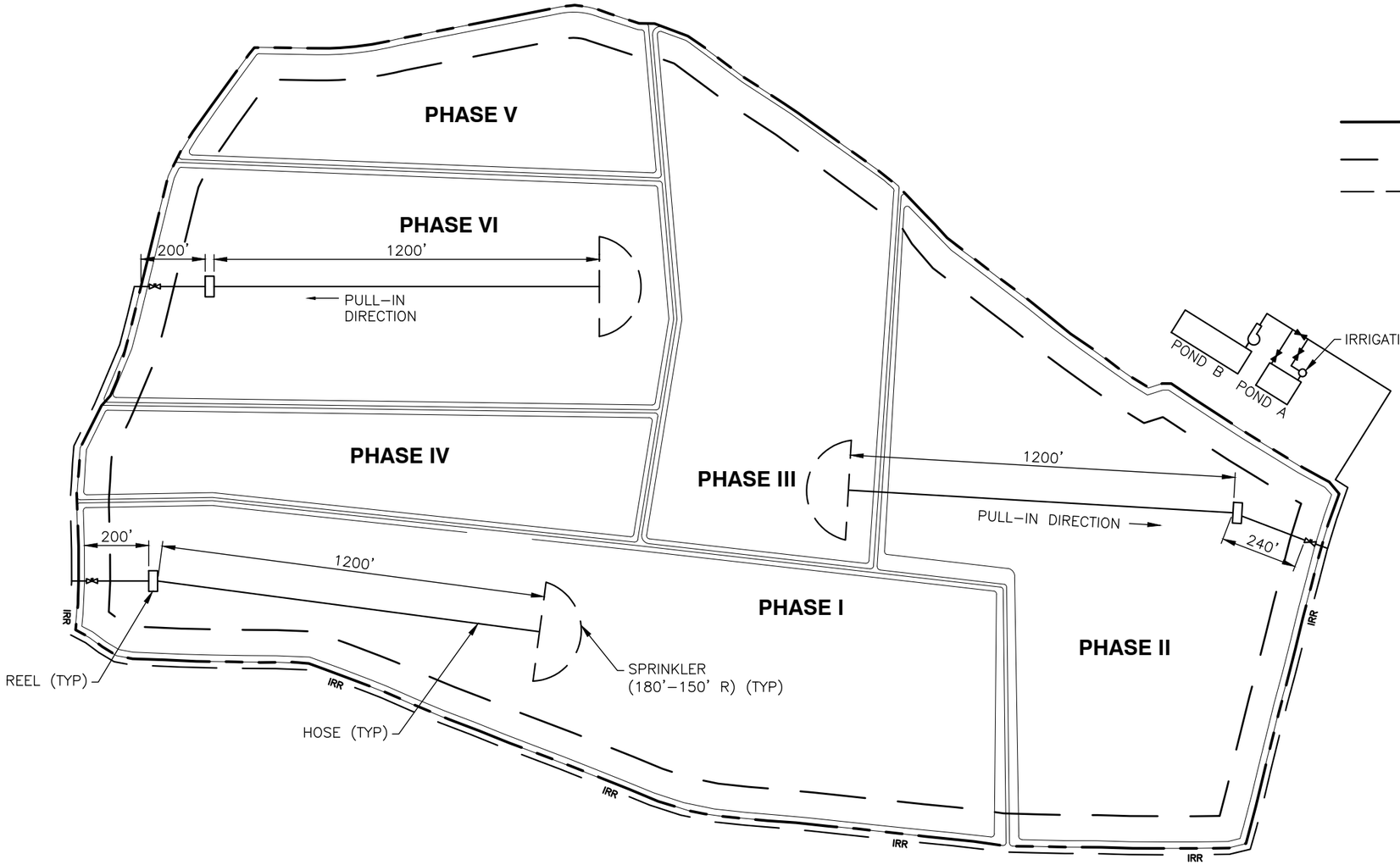
8.3.1 Effluent Irrigation Pump Station

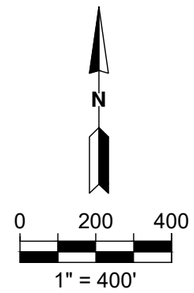
The effluent irrigation pump station consists of a 5-foot square (inside dimension) below-grade concrete sump with dual vertical turbine pumps (one operating and one stand-by). From the effluent irrigation pump station, effluent is pumped to the spray irrigation system on the landfill. The pump in operation is set manually depending on weather conditions.

The effluent irrigation pump station is hydraulically connected to Effluent Pond A, and Effluent Pond A is hydraulically connected via pipe to Effluent/Leachate Pond B; therefore, if the effluent irrigation pump station reaches high level, it will drain to Ponds A and B and not overflow. Ponds A and B are visually monitored by landfill operations personnel and if high level conditions occur, steps are initiated as described in Sections 8.1 and 8.2 for Ponds A and B, respectively.

8.3.2 Effluent Spray Irrigation

The SWMG operates a mobile irrigation system consisting of two irrigation reels. The mobile irrigation reels in **Figure 8-1** are shown positioned on the west side of Phase I and on the east side of Phase II. Additionally, **Figure 8-2** depicts a conceptual irrigation reel position on the north side of Section 7 of the CEA. These locations are shown for information purposes only since the position will change due to operational constraints with waste filling. Only effluent will be disposed of through the spray irrigation system.





LEGEND:

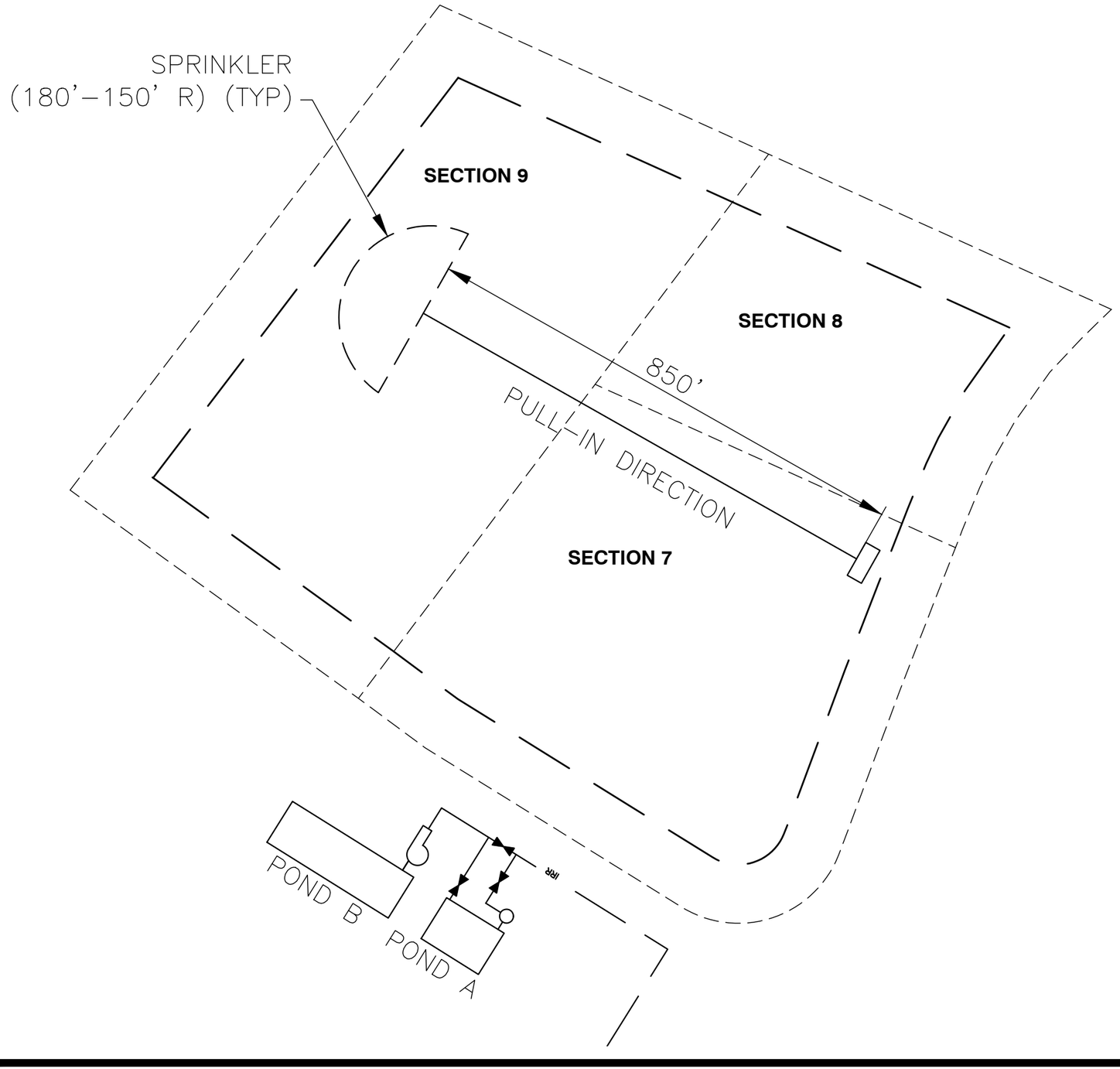
- APPROXIMATE LANDFILL LIMITS
- 100' SPRAY IRRIGATION MINIMUM SETBACK
- IRR 6"ø HDPE IRRIGATION HEADER
- GATE VALVE – NORMALLY CLOSED
- PUMP
- SOLENOID VALVE (TYP)

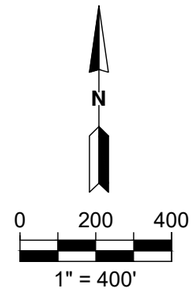
NOTE:

THE SPRAY IRRIGATION SPRINKLER REELS ARE MOBILE AND ARE MOVED AS NEEDED. THE LOCATIONS SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY.

SCS ENGINEERS

FIGURE 8–1. LOCATION OF PHASE I–VI IRRIGATION SPRINKLER REELS
HILLSBOROUGH COUNTY
FEBRUARY 2021





LEGEND:

- SECTION 7, 8, AND 9 BOUNDARY
- 100' SPRAY IRRIGATION MINIMUM SETBACK
- IRR 6"ø HDPE IRRIGATION HEADER
- GATE VALVE – NORMALLY CLOSED
- PUMP
- SOLENOID VALVE (TYP)

NOTE:

THE SPRAY IRRIGATION SPRINKLER REELS ARE MOBILE AND ARE MOVED AS NEEDED. THE LOCATION SHOWN IS FOR ILLUSTRATIVE PURPOSES ONLY.

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FIGURE 8–2. LOCATION OF CEA IRRIGATION SPRINKLER REEL
HILLSBOROUGH COUNTY
FEBRUARY 2021

The operational sequence of the mobile reel irrigators is as follows:

- Before each irrigation event, the medium-density polyethylene (PE) hose is stretched out with a vehicle (approximately 1,200 linear feet). At the end of the PE hose is a spray nozzle that applies the effluent across a large area to maximize evaporation and prevent runoff from draining into the stormwater system.
- Once both PE hoses have been stretched out across the top of the landfill, personnel manually turn on the irrigation pump. The pumps maintain an operating pressure in the irrigation reel. The reel is equipped with a drive system that automatically reels in the PE hose and spray irrigation nozzle at a preset rate (i.e., 200 feet per hour).
- At the end of the irrigation cycle, personnel manually turn off the irrigation pump.

Spray irrigation occurs under the following conditions:

- Spray irrigation is applied at a rate of one pass per day with a maximum application rate of 0.30 inch per day of effluent. Under no circumstances is effluent allowed to discharge as runoff to adjacent stormwater systems. Effluent is not sprayed during severe weather conditions or in quantities that may cause runoff, surface seeps, wind-blown spray outside of the landfill footprint, or ponding on the cover.
- Spraying takes place only when rainfall runoff into the on-site retention areas down gradient from the spray areas has terminated for two hours based on daily inspections of the influent point to each related retention area.
- Spray irrigation of effluent is not conducted within 100 feet of the landfill liner perimeter trench, on slopes steeper than 10%, nor on areas with permanent final cover.
- Spray irrigation may be used on areas with bare ground (little or no grass) or on areas which have been seeded to help with grass growth. These areas will not allow runoff to the stormwater system, as described in this Section.
- Spray irrigation of treated effluent will only be conducted only between 8:00 A.M. and 4:00 P.M.

The leachate reporting forms provided in **Appendix A** are completed monthly and submitted at least quarterly to FDEP and the Environmental Protection Commission (EPC) by the 15th of January, April, July, and October of each year. At a minimum, the following data are recorded daily.

- Effluent sprayed in gal/day.
- Rainfall on site in inches/day and time of day.
- Observed runoff influent to retention areas (yes and/or no).
- Time of day of inspection.

8.4 LEACHATE EVAPORATOR FACILITY VOLUME REDUCTION

The LEF is located to the north of the candlestick flare as shown in Figure 3-1. A mixture of leachate and effluent is pumped from Pond B to the LEF for volume reduction via forcemain. Upon arrival at the LEF, the leachate is subjected to heat generated by the combustion of landfill gas, evaporating water vapor and reducing the leachate volume. The liquid residuals remaining following processing are disposed of using the currently approved leachate disposal methods contained within this LMP Section 8.5 and in accordance with 62-701.500 FAC.

The LEF process area is located within a contained concrete pad that drains to a sump. Liquids collected in the LEF process area sump are returned to Pond B for storage and reprocessing as shown on Figure 4-1.

~~8.4~~8.5 LEACHATE AND EFFLUENT EVAPORATION VIA TRUCK-MOUNTED SPRAYING

Evaporation is employed as a supplemental method of disposing of leachate and processed LEF residuals. The supplemental evaporation of leachate and processed LEF residuals involves spraying small quantities ~~of leachate~~ —an average of 9,700 gallons per day—from a spray bar mounted on the rear of a tank truck onto active-fill areas of the landfill. This approach has been used successfully at the SCLF since 1984. The advantages of this method are the reduction of leachate and LEF residuals by evaporation, the promotion of the decomposition of organic matter in the landfilled refuse, and dust control.

The SWMG monitors the rate of application, soil moisture conditions, and the specific landfill areas used so that this leachate and LEF residuals disposal method does not generate runoff. Leachate and LEF residuals spray evaporation is applied under the following conditions.

- Leachate is only sprayed on active-fill areas, including the working face, and areas with the required six inches of initial cover.
- Leachate is not sprayed on areas with intermediate or final cover, seeded or unseeded.
- The maximum grade leachate may be sprayed on is 10H:1V slope. Areas within 150 feet of a 4H:1V or steeper sideslope may not be sprayed on. At all times, areas receiving leachate are controlled to prevent leachate runoff from entering the stormwater system.
- Leachate is not sprayed when it is raining.
- The tank truck spray bar method maximizes evaporation. The application rate of leachate will be such that leachate does not accumulate on the landfill surface nor infiltrate quickly into the covered refuse. Evaporation is the main goal of this leachate disposal method.
- Leachate is not sprayed at the end of the day on the initial cover of the working face or other areas. Spraying is done early in the morning after any dew evaporates and continues until early afternoon or until all available areas have been sprayed.

The SWMG evaporates leachate and effluent in full conformance with Chapter 62-701, FAC. The SWMG notifies FDEP of all evaporated quantities in the monthly water balance reports.

~~8.5~~8.6 EFFLUENT AND LEACHATE TRUCK LOADING FACILITIES

~~8.5.1~~8.6.1 Truck Loading Procedures

Truck loading facilities are located at the LTRF, Effluent Pond A, and the effluent/leachate storage tank (T6).

The truck loading stations include a loading arm for discharging stored leachate or effluent from the leachate storage tank (T1), effluent/leachate storage tank (T6) and Ponds A/B to a transfer tanker for disposal. Tanker trucks remove the liquid from the LTRF, effluent/leachate storage tank (T6), or Ponds A/B and transport the liquid to a permitted WWTF.

The truck loading facilities are equipped with flow meters that provide readout of the gallons of liquid that have been pumped into the tanker trucks. The capacity of each tanker truck is approximately 6,000 to 8,000 gallons, and the leachate tankers are normally filled. If the flow meter gauges are inoperable or not accurate, the quantity of leachate removed can be determined by converting the weight for the truck scale weight tickets to gallons (tons x 2,000 lb/ton/8.34 lb/gal = gallons).

Appendix A includes a Leachate Hauling/Disposal Reporting Form for use when loading leachate or effluent for off-site disposal. The daily field data entry form provided in **Appendix A** includes recording leachate storage tank (T1) levels. The external level indicators provide a measured indication of the depth of the leachate or effluent in the storage tanks. Information required includes the time of day and the level indicated on the side of the storage tank. Each reading of the storage tanks should be conducted at approximately the same time each day. This will provide the landfill operations personnel with a relative basis for comparing the amount of leachate stored daily and generated daily.

The SWMG has its own tanker trucks as well as a contract with haulers and WWTFs to haul and treat leachate stored in the tanks for disposal. The private tanker vehicles are required to have onboard pump systems or provide portable pumps if the storage system pumps fail.

~~8.5.2~~8.6.2 Wastewater Treatment Facilities

Leachate can be disposed of offsite at a permitted WWTF. Agreements exist with the Hillsborough County Public Utilities Department (PUD) allowing the discharge of leachate or effluent to three (3) of Hillsborough County's WWTFs (Valrico, Falkenburg, and South County WWTF). Hillsborough County and private contract fleets are used to haul the leachate to a lift station designated by PUD, which discharges to one of the approved WWTFs.

Alternatively, leachate may be hauled to one of the permitted wastewater treatment and disposal facilities listed in **Table 8.~~6~~5.2** by County-owned trucks and private contract fleets. Leachate will be measured by a flow meter as the tanker trucks are loaded at the LTRF truck loading stations.

Table 8.65.2 Private Leachate Treatment and Disposal Facilities

Facility Name	Address
Aqua Clean	3210 Whitten Rd., Lakeland, FL 33811
Universal Environmental Solutions	1650 Hemlock St., Tampa, FL 33605
Liquid Environmental Solutions (LES)	1640 Talleyrand Rd., Jacksonville, FL 32206
City of North Port	5355 Pan American Blvd., North Port, FL 34287
Frankens Energy LLC	925 74th Ave. SW, Vero Beach, FL 32968
Covanta Energy Corporation	3830 Rogers Industrial Park Rd., Okahumpka, FL 34762

9.0 LEACHATE FLOW MEASUREMENT, DATA COLLECTION, AND REPORTING

9.1 GENERAL LEACHATE FLOW MEASUREMENT

Once collected, the leachate is pumped to the leachate storage tank (T1). From the storage tank (T1), the leachate can be conveyed to the on-site LTRF for treatment or hauled off-site to a permitted wastewater treatment facility. Leachate quantities from each landfill area are measured via flow meters at each pump station that can provide readout of gallons of liquid removed.

If leachate is classified as a hazardous waste, it will be managed in accordance with Chapter 62-730, FAC, "Hazardous Waste."

9.1.1 Effluent Quality

To provide reasonable assurance of adequate leachate treatment, the SWMG samples and analyzes the treated leachate (effluent) semi-annually for primary and secondary drinking water parameters and EPA priority pollutants. Samples will be taken after the LTRF has achieved steady-state conditions with regard to its treatment capability or within 30 days after downtime due to maintenance or repairs, whichever is less.

In addition, effluent grab samples before disposal are taken for the following parameters at the frequency indicated:

Parameter	Frequency	Units
pH	weekly	Std. Units
BOD_5	monthly	mg/L
COD	monthly	mg/L
TSS	monthly	mg/L
NO_3-N	monthly	mg/L
TDS	monthly	mg/L

9.1.2 Biosolids Quantity and Disposal

The biosolids from the LTRF are disposed of at the SCLF if they are found to be non-hazardous and pass the paint filter test. The biosolids are sampled and analyzed annually for EPA priority pollutants, the toxicity characteristic leaching procedure (TCLP), and for the following parameters:

Parameters	Units
Total nitrogen	percent (dry weight)
Total phosphorus	percent (dry weight)
Total potassium	percent (dry weight)
Arsenic	mg/kg (dry weight)
Cadmium	mg/kg (dry weight)
Copper	mg/kg (dry weight)
Lead	mg/kg (dry weight
Mercury	mg/kg (dry weight)
Molybdenum	mg/kg (thy weight)
Nickel	mg/kg (dry weight)
Selenium	mg/kg (dry weight)
Zinc	mg/kg (dry weight)
pH	std. units
Solids	percent

If the biosolids are found to be hazardous, the material will be managed in accordance with Chapter 62-730, FAC, “Hazardous Waste.”

9.2 PHASES I-VI MONITORING

9.2.1 Flow Measurement

For Phases I-VI, the leachate quantity is recorded by flow meters at PS-A. SWMG personnel record flow meter readings each day the SCLF is open and the quantities are reported to FDEP. Sample leachate reporting forms are included in Appendix A.

9.2.2 PS-B Settlement Plates

Four settlement plates were installed at the bottom of each corner of the vault for PS-B in Phase VI. The rods for these plates have been extended during operation of the landfill. The elevation of these plates will be measured annually. The historical measurements are maintained at the Administration Building. The rods for the settlement plates will be less accurate as operations continue due to deformation from settlement of the waste between the top of waste and PS-B. If, after two consecutive annual measurements from any of the four settlement plates there is no change in elevation, that settlement plate is assumed to be malfunctioning and will not be measured in future events. The settlement at malfunctioning settlement plates is assumed to be the same as the settlement measured at adjacent functioning plates.

9.2.3 Bottom Liner Clay Evaluation

Approximately one year before a particular phase of Phases I-VI is entered, an in-situ, undisturbed, clay sample will be collected from beneath the phase proposed to be filled. The collected clay sample will be tested and the shear strengths computed.

The in-situ, undisturbed, clay sample will be tested either using a direct shear test (ASTM D-3080) or tri-axial test (ASTM D-2850/4767) method to determine the clay strength. Three individual testing points—covering the existing, proposed filling, and proposed final build-out pressures—will be conducted. A representative phi and cohesion value will be determined to cover proposed filling and final build-out strengths.

Slope stability models, using both sliding block and circular failure methods, will be conducted on the proposed filling and the final-build out conditions. If a factor of safety (FS) of 1.5 or greater is achieved for a particular filling scenario, that particular phase is deemed complete and no further testing for that phase is necessary. If a particular filling scenario does not achieve a FS of 1.5 or greater, recommendations for filling the phase will be provided.

Results of the slope stability models, along with a report and recommendations signed and sealed by a professional engineer, will be submitted to FDEP for approval at least six months before filling begins in that phase.

9.2.4 LCRS Monitoring Locations

In accordance with Alternate Procedure No. SWAP 19-1, the SWMG will collect daily liquid level measurements from the PS-B sump, from within the MP 2-2 riser, and from within the CO 2-1 header access cleanout, near the PS-2 intake. The liquid level in PS-B (PS-B reading) will be operated at or below 30 inches, the PS-B maintenance level. The liquid level in MP 2-2 will be maintained at or below 30 inches, the MP 2-2 maintenance level. The liquid level near the PS-2 intake, located within the primary LCRS, header pipe will be maintained at or below 30 inches, the CO 2-1 maintenance level. Should the liquid level within PS-B or the MP 2-2 monitoring point fall out of the maintenance

level range for four (4) consecutive days, the SWMG will enact LCRS inspections and liquids management actions, with the exception of an extraordinary rainfall event.

An extraordinary rainfall event is defined as precipitation resulting from a named tropical storm or hurricane, recognized by the National Oceanic and Atmospheric Administration that effects Hillsborough County, Florida. In the event of an extraordinary rainfall event, a 30-day exception would be allowed to achieve maintenance levels. The monitoring locations, maintenance levels, and liquids management actions that the SWMG will conduct are outlined in **Table 9.2.4**.

Table 9.2.4 Liquid Levels Maintenance Schedule

Monitoring Location	Performance Criteria	Liquids Management Actions
PS-B	At or Below 30 inches as measured from the PS-B reading	1. If the maintenance level rises above 30 inches for four (4) consecutive days, SWMG will inspect the pressure level sensor and verify proper operation. If the pressure level sensor is operating correctly and the PS-B maintenance level is not being met, proceed to the next appropriate corrective action. 2. If the maintenance level is above 30 inches for four (4) consecutive days a temporary pump will be installed into either CO 3-1, CO 1-1, or CO 2-4 header until the PS-B reading returns to the maintenance level.
MP 2-2	At or Below 30 inches as measured from the MP 2-2 pressure level sensor	1. If the maintenance level rises above 30 inches for four (4) consecutive days, SWMG will remove and inspect the PS-2 intake pipe. If the proper function of the intake pipe is verified, and the MP 2-2 maintenance level is not being met, proceed to the next step. 2. If the maintenance level rises above 30 inches for four (4) consecutive days, the SWMG will notify FDEP and install a temporary pump to remove liquid directly from the cutoff trench until the maintenance level can be maintained in MP 2-2 without the assistance of a temporary pump.
CO 2-1	At or Below 30 inches as measured from the CO 2-1 pressure level sensor	1. If the maintenance level rises above 30 inches for four (4) consecutive days, SWMG will inspect the pressure level sensor and verify proper operation. If the measurement device is operating correctly and the CO 2-1 maintenance level is not being met, proceed to the next step. 2. If the maintenance level rises above 30 inches for four (4) consecutive days, SWMG will remove and inspect the PS-2 intake pipe. If the proper function of the intake pipe is verified, and the CO 2-1 maintenance level is not being met, proceed to the next step. 3. If the maintenance level rises above 30 inches for four (4) consecutive days, the SWMG will notify FDEP and install a temporary pump to remove liquid directly from the cutoff trench (CO 1-4, CO 2-2, or CO 2-3) until maintenance levels can be maintained in CO 2-1 without the assistance of a temporary pump.

9.3 CAPACITY EXPANSION AREA MONITORING

9.3.1 Flow Measurement

Under standard practice, leachate from Sections 7 and 8 is collected from the sump risers in the southwest corner of Section 7 at PS-7 and leachate from Section 9 is collected from the south side slope riser at PS-9. The leachate from Sections 7 and 8 is pumped to the MLPS and then via force main to the leachate storage tank (T1). The leachate force main from PS-9 is tied into the MLPS force main to the leachate storage tank (T1); therefore, leachate is pumped directly from Section 9 to the leachate storage tank (T1). The leachate quantities from Section 9 and the MLPS are recorded by separate flow meters before the flow combines in the force main to the leachate storage tank (T1). SWMG personnel record flow meter readings each day the SCLF is open, and report the quantities to FDEP. Sample leachate reporting forms are included in Appendix A.

9.3.2 Leachate Detection Action Leakage Rate

The action leakage rate (ALR) is defined in 40 CFR 265.302 as the maximum design flow rate that the leak detection system (LDS) can remove without the leachate head on the bottom of the liner exceeding one foot. In accordance with Rule 62-701.400(3)(c)2., FAC, the LDS should be designed to limit the head in the LDS to less than one inch of head or the thickness of the geocomposite.

The ALR for Sections 7 and 8 is 100 gal/acre/day. The total estimated footprint area of Sections 7 and 8 is approximately 19.3 acres. An initial response ALR of 1,930 gpd (19.3 acres x 100 gal/acre/day) will be used for the flow rate measured from Sections 7 and 8. The leachate flow from the Section 7 and 8 LDS system is measured by the flow meter from the LDS pump in the southeast corner sump of Section 7.

The ALR for Section 9 is 306 gal/acre/day. The total estimated footprint of Section 9 is 15.2 acres. An initial response ALR of 4,651 gpd will be used for the flow rate measured from Section 9. The leachate flow from the Section 9 LDS system is measured by the flow meter from the LDS submersible pump in the south end sump of Section 9.

Initial ALR actions will include the following.

- Check the pump and flow meter at the LDS sideslope riser for proper operation.
- Increase the pumping rate from the LDS to lower the stored levels of leachate. A pocket or slug of leachate may have been conveyed to the LDS riser. Upon further pumping, the levels or flow rates may be lowered below the ALR.
- Check the cover or capping systems over Sections 7 and 8 or Section 9 to reduce infiltration into the LDS.
- Continue monitoring the flow rates out of the LDS, based on the recommendations above to determine further action, if needed.

If the ALR for Sections 7, 8, or 9 is exceeded, FDEP and EPC will be notified and a written assessment provided within seven days. The written assessment shall demonstrate continued compliance with the double-liner requirements specified in Rule 62-701.400(3)(c)2, FAC, or a corrective action plan and schedule for implementation shall be submitted for FDEP approval.

9.4 MAIN LEACHATE PUMP STATION

Operation of the MLPS is described in Section 4.3.

9.5 LEACHATE TREATMENT AND RECLAMATION FACILITY

Sampling of the LTRF effluent and biosolids is described in Sections 9.1.1 and 9.1.2.

10.0 MAINTENANCE AND INSPECTION

10.1 LEACHATE COLLECTION SYSTEM SCHEDULE FOR MAINTENANCE AND INSPECTION

The leachate facilities are inspected daily. The leachate collection and removal systems will be water pressure cleaned or video inspected as needed during the duration of the permit. The leachate system components will also be maintained as needed. Routine maintenance for these components at the SCLF is performed following the schedule in **Table 10.2~~1~~**.

10.2 STORAGE TANK MAINTENANCE AND INSPECTION

Storage tank maintenance and inspection procedures are discussed in Sections 5.0 and 7.0.

Table 10.2~~1~~ Schedule For Maintenance

Component	Frequency	Performance Criteria	Corrective Action
Pump Station A (PS-A)	Pump: semi-annual. Sump: annual.	Pump is unable to maintain the required levels in the sump. Inspect for sediment in sump and adequacy of level controls by testing the automatic on/off float settings (see LMP Section 4.1.1 for PS-A float settings).	Pump inspected for damage or other problems and repaired or replaced as needed. Replacement pump will be installed within 24 hours. If PS-A cannot be repaired before pumping is required, the bypass line will be used to pump leachate from PS-B directly to the MLPS. For level controls (i.e., floats and control panel), if testing fails, remedial measures will be initiated immediately by contacting an electrician and the condition will be corrected within 48 hours. Excessive sediment in the sump will be removed within two weeks after inspection.
Pump Station B (PS-B)	Pump: semi-annual. 18-inch access pipes; at time of permit renewal.	Pump is unable to maintain the required levels in the sump. Inspect for adequacy of level controls. Manually pump sump until air enters the pump; at that time bubbler should read between 0 to 4 inches (see LMP Section 4.1.2 for PS-B sensor settings). If blockage of the 4-inch suction line or the bubbler pressure tube is	Pump inspected for damage or other problems and repaired or replaced as needed. Replacement pump will be installed within 24 hours. For level controls failure, remedial measures will be initiated immediately by contacting DCC and the condition will be corrected within 48 hours. If needed, water

Component	Frequency	Performance Criteria	Corrective Action
		suspected, remove the suction line for inspection.	pressure clean the interior of the 4-inch suction line. The 18-inch access pipes will be water pressure cleaned and video inspected as needed at time of permit renewal. If the 18-inch access pipes are not performing adequately, the SWMG will submit to FDEP and EPC an evaluation report with proposed remedy.
Main Leachate Pump Station (MLPS)	Pump: semi-annual. Sump: annual.	Pump is unable to maintain the required levels in the sump. Inspect for sediment in sump and adequacy of level controls by testing the automatic on/off float settings (see LMP Section 4.3 for MLPS float settings).	Pump inspected for damage or other problems and repaired or replaced as needed. Replacement pump will be installed within 24 hours. For level controls (i.e., floats and control panel), if testing fails remedial measures will be initiated immediately by contacting an electrician and the condition will be corrected within 48 hours. Excessive sediment in the sump will be removed within two weeks after inspection.
Pump Station 2 (PS-2) Pump	Pump: semi-annual.	Pump is unable to maintain the required levels in the sump. Inspect for adequacy of level controls. Manually pump sump until air enters the pump; at that time bubbler should read between 0 to 4 inches (See LMP Section 4.1.3 and Table 9.2.4 for PS-2 sensor settings). If blockage of the 3-inch suction line or the bubbler pressure tube is suspected, remove the suction line for inspection.	Pump inspected for damage or other problems and repaired or replaced as needed. A temporary pump will be installed in the cutoff trench within 24 hours. For level controls failure, remedial measures will be initiated immediately by contacting DCC and the condition will be corrected within 48 hours. If needed, water pressure clean the interior of the 4-inch suction line.
Storage Pond A	Surface: annual.	Empty, water pressure clean, and remove sediment. Visually inspect geomembrane for punctures, seam continuity, and defects around concrete sump.	Defects found will be repaired before reusing the pond.
Storage Pond B	Surface: annual Leak detection: weekly.	Empty, water pressure clean, and remove sediment. Visually inspect geomembrane for punctures, seam continuity, and defects around concrete sump. If leak detection rate is higher than 1,500 gpd, empty pond and inspect geomembrane for defects.	Defects found will be repaired before reusing the pond.

Component	Frequency	Performance Criteria	Corrective Action
Storage Tanks	Exterior: weekly. Interior: whenever the tank is drained or every three years.	Inspect for adequacy of the cathodic protection system, leaks, corrosion, level controls, and maintenance deficiencies	Deficiencies that could result in failure of the tank or leaks will be corrected before reusing the tank. For level controls failure, remedial measures will be initiated immediately by contacting an electrician and the condition will be corrected within 48 hours.
Section 7 Pump	Semi-annual.	Pump is unable to maintain the required levels in the sump.	Pump inspected for damage or other problems and repaired or replaced as needed. Replacement pump will be installed within 24 hours.
Section 9 Pump	Semi-annual.	Pump is unable to maintain the required levels in the sump.	Pump inspected for damage or other problems and repaired or replaced as needed.
Leachate collection and removal system	Twice during permit period	Water pressure clean or video inspect as needed at the existing cleanout locations.	If any component is not performing adequately or if a problem is shown by the video inspection, the SWMG will submit to FDEP and EPC an evaluation report with proposed remedy.

11.0 CONTINGENCY PLANS

FDEP and EPC will be notified of any equipment failure or event that disrupts the routine operation of the leachate management system. If the need for storing leachate in Pond B and/or the effluent/leachate storage tank (T6) arises as described in Sections 8.2 and 7.0, respectively, the SWMG will notify the FDEP and EPC. The person responsible for operation of the SCLF is the Landfill Operations Manager (currently Mr. Larry E. Ruiz). The Landfill Operations Manager reports to the Solid Waste Management Group Director (currently Ms. Kimberly A. Byer). The SWMG will continue to evaluate the accuracy and applicability of this leachate management plan and will propose modifications as necessary to accomplish the objectives of the leachate management plan and continue the proper management of leachate at the SCLF. The following sections provide information regarding contingency operations for specific events which may occur at the SCLF.

11.1 REPLACEMENT OF FLOW METERS

If a flow meter ceases to operate, maintenance personnel will remove the instrument and insert a spare flow meter. If the spare flow meter is not available or not working, a pipe spool piece will be inserted in its place to allow the leachate to flow from the transfer pump. The instrument will be shipped to the service representative or manufacturer for repair or replacement. It is anticipated that the instrument could be removed from service for up to three months. This schedule includes the issue of a Hillsborough County purchase order, shipping, and maintenance time or new part delivery. During this time, leachate production will be determined by recording the run-time meter on the transfer pumps. Leachate production of a specific pump can be estimated by taking the difference in the run-time readings and the rated pump test flow rate.

11.2 STORAGE TANK SECONDARY CONTAINMENT SPILL COUNTERMEASURES

As discussed in previous sections, the LTRF leachate tank system is contained within a concrete containment area. The containment area has two sumps for stormwater drainage with 6-inch diameter HDPE pipes and gate valves that are normally closed. The effluent/leachate storage tank (T6) is contained within a HDPE liner. The containment area has one secondary sump for stormwater, effluent/leachate drainage. Before draining stormwater from the containment areas, the SWMG will visually inspect the stormwater and the tanks to ensure that no leaks have occurred. If no spills have occurred, the sump valves will be opened to drain the stormwater accumulated in the containment area. Under supervision by the Landfill ~~General~~ Manager (or qualified designee), the sump valves will be closed immediately after the stormwater is drained.

If a liquid spills from the LTRF tankage system, the following will be done.

1. Assess the cause of the spill and correct the condition promptly.
2. If the spill condition is at the leachate storage tank (T1) (575,000 gallons):
   a. Shut down the MLPS and PS-9.
   b. Shut down the LTRF filtrate pumps. The LTRF may continue to operate.
   c. With a sump pump, transfer the spilled liquid directly into tanker trucks for disposal at an off-site Hillsborough County WWTF or a permitted wastewater treatment and disposal facility listed in **Table 8.6.2**.

3. If the spill condition is at the LTRF process tank (T2) or the secondary stage clarifier tank (T3):
    a. Shut down the LTRF.
    b. The MLPS and PS-9 continue to operate.
    c. With a sump pump, transfer the spilled liquid directly into tanker trucks for disposal at an off-site Hillsborough County WWTF, a permitted wastewater treatment and disposal facility listed in **Table 8.6.2**, or into the leachate storage tank (T1).
4. If the spill condition is at the effluent storage tank (T5):
    a. Shut down the LTRF.
    b. The MLPS and PS-9 continue to operate.
    c. With a sump pump, transfer the spilled liquid directly into tanker trucks for disposal at an off-site Hillsborough County WWTF, a permitted wastewater treatment and disposal facility listed in **Table 8.6.2**, or into the leachate storage tank (T1).
5. If the spill condition is at the effluent/leachate storage tank (T6):
    a. Shut down the LTRF effluent pumps. The LTRF may continue to operate.
    b. With a sump pump, transfer the spilled liquid directly into tanker trucks for disposal at an off-site Hillsborough County WWTF, a permitted wastewater treatment and disposal facility listed in **Table 8.6.2**, or into the leachate storage tank (T1).
6. If the spill condition is at the glycerin tank (red tank at LTRF):
    a. Shut down the LTRF.
    b. ~~Turn the LTRF electrical power off at the circuit breaker located outside the LTRF office on the south wall and evacuate staff.~~ The MLPS and PS-9 continue to operate.
    c. ~~Shut down the MLPS and PS-9.~~Using the sump pump, transfer the spilled glycerin into the leachate storage tank (T1).
    d. Contact the current hazardous waste contractor. The contractor will manage the removal, off-site disposal, and containment area cleanup for glycerin.
7. For spill conditions ~~No. 2, 3, and 4~~ above, after the spilled liquid is removed, SWMG personnel will water pressure wash the containment area and the rinse water will be pumped directly into a tanker truck for disposal at an off-site county WWTF or a permitted wastewater treatment and disposal facility listed in **Table 8.6.2**.
8. If the leachate storage tank (T1) will remain out of service for more than 48 hours, the SWMG will resume leachate removal from the SCLF to either the effluent/leachate storage tank (T6) or Storage Pond B. Leachate hauling off site can resume from the effluent/leachate storage tank (T6) or Pond B. If the effluent/leachate storage tank (T6) is unavailable for leachate or effluent storage, Pond B can also be used for back-up storage capacity. Leachate can be diverted back to the leachate storage tank (T1) via the MLPS or to the truck loading facility from Pond B. Leachate can also be diverted back to the leachate storage tank (T1) from the effluent/leachate storage tank (T6).
9. Within 24 hours of the spill occurrence, the SWMG will verbally notify FDEP and EPC. A written report with remedial measures taken will be submitted to FDEP and EPC within seven days after the leachate spill incident.

Appendix A

Leachate Reporting and Inspection Forms

HILLSBOROUGH COUNTY SOUTHEAST COUNTY FACILITY
LEACHATE MANAGEMENT
DAILY FIELD DATA ENTRY FORM

Disposal Area (check one)	Phases I-VI	Sections 7-8	Section 9

Technician:	Start Time:

Location	Date (prior day)	Date (today)	Total
Pump Station A, gal			
Pump Station B, inches[8]			
Section 9 Pump #1, gal			
Section 9 Pump #2, gal			
Section 9 LDS, gal[1]			
Sections 7-8 Pump, gal			
Sections 7-8 LDS, gal[2]			
Depth in Pond B, feet[3]			
Pond B LDS, gal[4]			
Pond B Spray, gal			
Depth in Pond A, feet[5]			
Spray Irrigation Pump, gal[6]			
Main LTP Leachate Bypass, gal			
Depth in Leachate Tank, feet[7]			
Depth in Effluent Tank, feet[7]			
Pump Station 2, gal			
Cleanout 2-1, inches[8]			
Monitoring Port 2-2, inches[8]			

Notes:

(1) If rate is greater than 4,651 gallons per day, contact Supervisor immediately.

(2) If rate is greater than 1,930 gallons per day, contact Supervisor immediately.

(3) If greater than 4.4 feet, contact Supervisor immediately.

(4) If rate is greater than 1,500 gallons per day, contact Supervisor immediately.

(5) If greater than 3.7 feet, contact Supervisor immediately.

(6) If runoff observed, STOP irrigation and contact Supervisor immediately.

(7) If level is greater than 15 feet, contact Supervisor immediately.

(8) If level is greater than 30-inches, contact Supervisor immediately.

Comments:

TABLE 1. LEACHATE WATER BALANCE REPORT FORM
MONTH/YEAR
SOUTHEAST COUNTY LANDFILL, HILLSBOROUGH COUNTY, FLORIDA

I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX	XXI	XXII	XXIII	XXIV	XXV	XXVI
Day	Rainfall (in.)	Depth in Pond A (ft.)	Depth in Pond B (ft.)	Estimated Depth at PS-B (in)	Depth in CO 2-1 (in)	Depth in MP 2-2 (in.)	Leachate Pumped to MLPS from Phases I-VI (gal.)	Leachate Pumped from Sections 7-8 LDS (gal.)	Leachate Pumped to MLPS from Sections 7-8 (gal.)	Leachate Pumped to LTRF from MPLS (gal.)	Leachate Pumped to LTRF from Section 9 (gal.)	Leachate Pumped from Section 9 LDS (gal.)	Leachate in 575K Tank (gal.)	Effluent in 575K Tank (gal.)	Leachate Treated at LTRF (gal.)	Total Leachate Hauled (gal.)	Leachate Dust Control (Sprayed) (gal.)	Pond A Storage (gal.)	Pond B Storage (gal)	Effluent Sprayed Pond B (gal)	Leachate Treated at LEF (gal.)	Effluent Irrigation (gal.)	Effluent Dust Control (Sprayed) (gal.)	Total Effluent Hauled (gal.)	Total Evaporation (gal.)
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2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
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Total																									
Daily Average																									
Mo. Average																									

Notes:
1. NR = No Records, NA = Not Available.
2. Values in bold are estimated; values in italic are substitute for missing data and are based on averaged values.
3. Daily average is calculated by dividing the total by the actual days measured in the month.
4. Monthly average calculated by dividing the total by the number of days of the month.
5. Column II, Trace is less than 0.01 inches and is not included in total.
6. Columns III and IV, field measured at staff gauges.
7. Column VI is recorded from the pressure liquid level sensor in CO 2-1.
8. Column VII is recorded from the pressure liquid level sensor in MP 2-2.
9. Columns IX, Section 7-8 leak detection pumped into Section 7 leachate sump riser.
10. Column XIV and XV, calculated from depth in 575,000 gal. tanks.
11. Columns VIII-XIII, XVI-XVIII, and XXI-XXV, quantities from flow meters.
12. Column XXVI includes 80% of the daily values from Columns XVIII, XXIII - XXIV, plus 90%of Column XXII, plus 5% of the daily values from Column XXI.

TABLE 2. FIELD DATA ENTRY FORM
MONTH/YEAR
SOUTHEAST COUNTY LANDFILL, HILLSBOROUGH COUNTY, FLORIDA

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
Day	Rainfall (in.)	Flow Meter Pump Sta. A (gal.)	Flow Meter Pump Sta. 2 (gal.)	Reading PS-B (in.)	Section 9 Pump 1 (gal.)	Section 9 Pump 2 (gal.)	Section 9 LDS (gal.)	Sections 7-8 Pump (gal.)	Sections 7-8 LDS (gal.)	Pond B Depth (ft.)	Pond B Effluent Sprayed (gal)	Pond A Depth (ft.)	Effluent Spray Irrigation (gal.)	Depth in 575K Tank Leachate (ft.)	Depth in 575K Tank Effluent (ft.)	Leachate Treated at LTRF (gal.)	Leachate Hauled		Leachate Dust Control (Sprayed) (gal.)	Effluent Hauled		Effluent Dust Control (Sprayed) (gal)
																	Contractor (gal.)	County (gal.)		Contractor (gal.)	County (gal.)	
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2																						
3																						
4																						
5																						
6																						
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Notes:

1. NR = No Records, NA = Not Available.
2. Values in bold are estimated; values in italic are substitute for missing data and are based on averaged values
3. Columns H and J include quantities from leak detection system.
4. Column B, trace is less than 0.01 inches.
5. Columns C, D, E, F, G, H, I, J, K, L, N, and R-W are quantities from flow meters.
6. Columns K and M measured from staff gages in each pond.

Type of Cover	Phases I-VI acres		Section 7-9 acres
Open	5		0
Intermediate	134.4		34.5
Final	23		0
Not Opened	0		0

11. Columns VIII-XIII, XVI-XVIII, and XXI-XXV, quantities from flow meters.

TABLE 3. LEACHATE BALANCE SUMMARY
SOUTHEAST COUNTY LANDFILL
HILLSBOROUGH COUNTY, FLORIDA
YEAR

		Leachate Arriving at LTRF				Leachate Leaving LTRF			Effluent Disposal			Inflow / Outflow For LTRF		
Month	Rainfall (in.)	Condensate from LFG CS-1 (gal.)	Leachate from Section 9 Pumped to LTRF (gal.)	Leachate from Section 7-8 Pumped to LTRF (gal.)	Leachate from Phases I-VI Pumped to LTRF (gal.)	Total Leachate Hauled from LTRF (gal.)	Leachate Dust Control (Sprayed) (gal.)	Leachate Treated at LTRF (gal.)	Total Effluent Hauled (gal.)	Effluent Dust Control (Sprayed) (gal.)	Effluent Irrigation (gal.)	Total Inflow to LTRF (gal.)	Total Outflow from LTRF (gal.)	Change in Storage[2] (gal.)
January														
February														
March														
April														
May														
June														
July														
August														
September														
October														
November														
December														
YTD Total														

Note:
1. If the bypass at the effluent pond is ever used to pump effluent back to the LTRF, this table must be modified.
2. Change in storage represents total inflow to LTRF minus total outflow from LTRF.

Leachate Treatment Facility Flows

Day	Influent	Total	Effluent	Total
Last				
1		0		0
2		0		0
3		0		0
4		0		0
5		0		0
6		0		0
7		0		0
8		0		0
9		0		0
10		0		0
11		0		0
12		0		0
13		0		0
14		0		0
15		0		0
16		0		0
17		0		0
18		0		0
19		0		0
20		0		0
21		0		0
22		0		0
23		0		0
24		0		0
25		0		0
26		0		0
27		0		0
28		0		0
29		0		0
30		0		0
31		0		0

Southeast County Landfill
Storage Tanks Inspection

Date: _____ Time: _____

			LEACHATE	PROCESS	2ND STAGE CLARIFIER	METHANOL	EFFLUENT #1	EFFLUENT #2
			T1	T2	T3	T4	T5	T6
TANKS	1	Any visible leaks? (Y/N)						
	2	Any dents or scratches evident?						
	3	Any exterior corrosion?						
	4	Level controls in good condition?						
	5	Current Cathodic Protection		N/A	N/A	N/A	N/A	
	6	Volume of Tank (gals)	575,000	220,000	19,000	1,700	3,700	575,000
	7	Material of Construction:	STEEL	STEEL	STEEL	STEEL	STEEL	STEEL
PIPES	8	Any pipes bent or deformed?						
	9	Any joints or connections leak?						
	10	Are the pipes free of corrosion?						
CONTAINMENT	11	Is containment area in good condition?						
	12	Is there non-stormwater in the secondary containment area?						
	13	If no, was the stormwater released?						

Comments: _____

_____

Comments: _____

_____

Comments: _____

_____

Inspector's Signature: _____

SOLID WASTE MANAGEMENT DIVISION
SOUTHEAST COUNTY LANDFILL

LEACHATE HAULING / DISPOSAL REPORTING FORM

DATE: _____

DISPOSAL LOCATION: _____

Time loaded	PRODUCT E / L	LOAD NO.	GALLONS	METER READING START	METER READING END	pH	Time unloaded
		TOTAL:					

Signature: _____
Driver

Signature: _____
Plant Operator

Comments_____

Was sample taken: Y N if yes, sample was taken by: _____Date:_____Time:_____
Initials

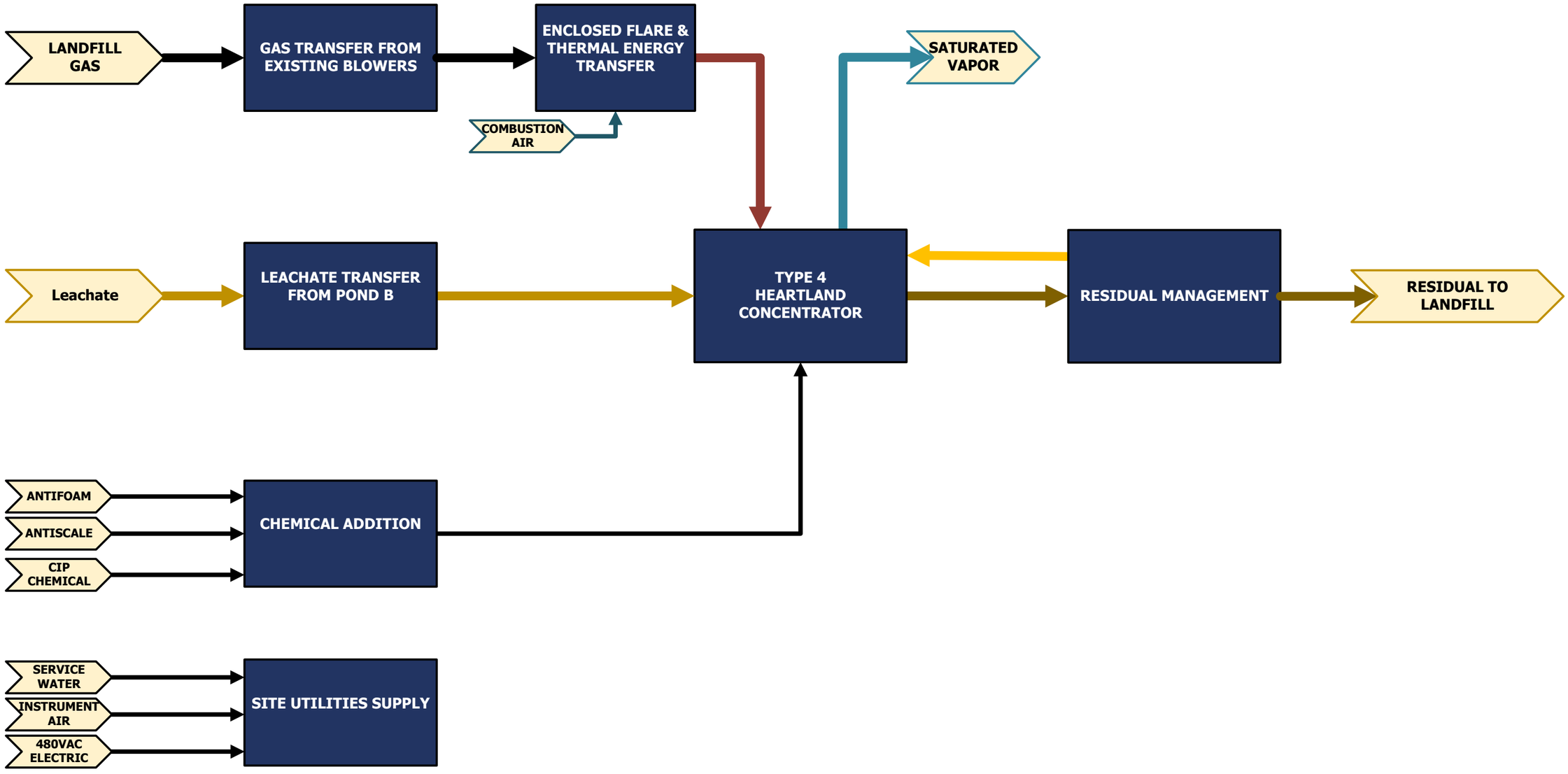
E = Effluent (Treated Leachate)
L = Leachate (Raw Leachate)

Note: Gallons are to be recorded and totaled daily.

APPENDIX B

LEACHATE EVAPORATOR FACILITY PROCESS FLOW DIAGRAM

Hillsborough County – Southeast Landfill
Heartland Brine Concentrator Project - Block Flow Diagram



APPENDIX C

LEACHATE EVAPORATOR FACILITY CONSTRUCTION DRAWINGS

Leachate Evaporator Facility Construction Drawings have been prepared, certified, and provided by others. The drawings include in this file have been resized to 11" X 17" and will not be to original scale if printed. An electronic file of the original digitally certified drawings has been provided as a separate file. SCS Engineers has provided these drawings only for reference, and did not direct design or production.

HILLSBOROUGH COUNTY
SOUTHEAST COUNTY LANDFILL
LEACHATE EVAPORATOR INSTALLATION
PERMIT DRAWINGS

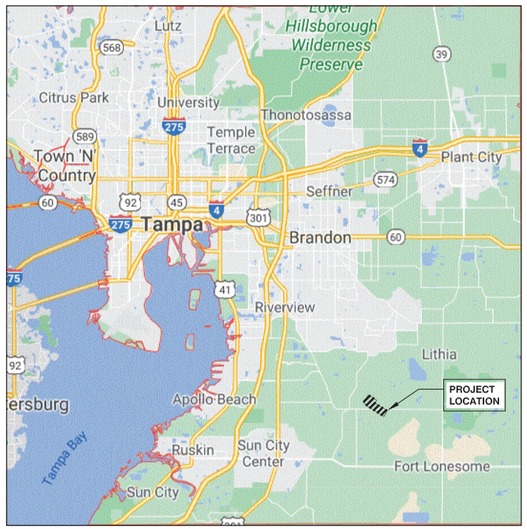
LITHIA, FLORIDA

DECEMBER, 2020

Hillsborough County Florida

BOARD OF COUNTY COMMISSIONERS

HARRY COHEN	- DISTRICT 1
KEN HAGAN	- DISTRICT 2
GWENDOLYN W. MYERS	- DISTRICT 3
STACY R. WHITE	- DISTRICT 4
MARIELLA SMITH	- DISTRICT 5
PAT KEMP	- DISTRICT 6
KIMBERLY OVERMAN	- DISTRICT 7



LOCATION MAP
NOT TO SCALE

INDEX OF SHEETS

CEC

305 SOUTH MAIN STREET
MONROE, NORTH CAROLINA 28112
(704) 283-9765

CEC JOB NO. 208.01.01

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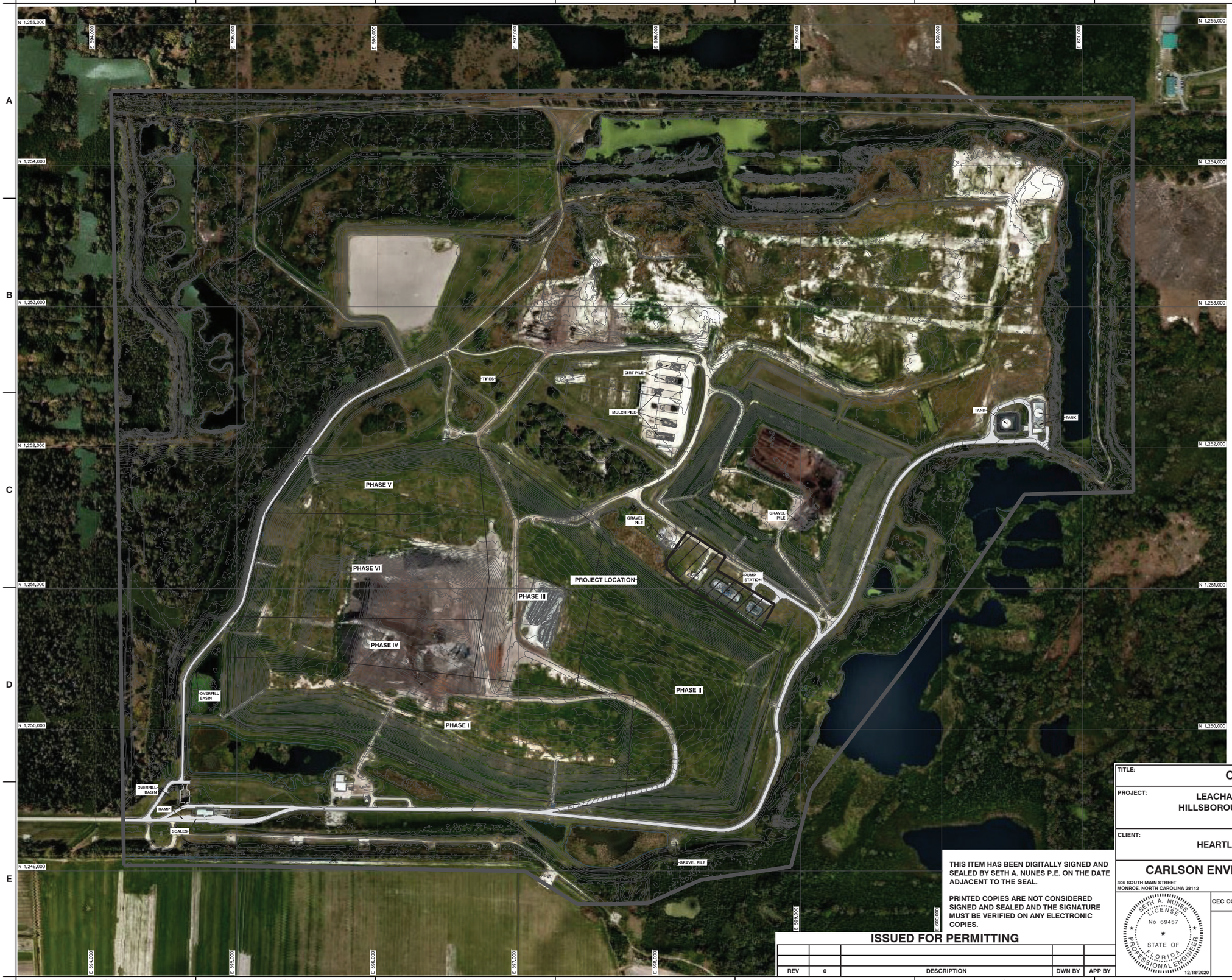
12/18/2020



N

0 300 600 900

GRAPHIC SCALE (FEET)

LEGEND

- PROPERTY BOUNDARY
- 10 FT TOPOGRAPHIC CONTOUR LINE
- 2 FT TOPOGRAPHIC CONTOUR LINE
- CELL BOUNDARY

NOTES:

1. AERIAL TOPOGRAPHY COMPILED BY PICKETT AND ASSOCIATES, INC. BASED ON AERIAL TOPOGRAPHY FROM JULY 2020.

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	0			

TITLE: **OVERALL SITE PLAN**

PROJECT: **LEACHATE EVAPORATOR INSTALLATION**
HILLSBOROUGH SOUTHEAST COUNTY LANDFILL
LITHIA, FLORIDA

CLIENT: **HEARTLAND WATER TECHNOLOGY, INC.**

CARLSON ENVIRONMENTAL CONSULTANTS, PC
305 SOUTH MAIN STREET
MONROE, NORTH CAROLINA 28112
(704) 283-9765
FAX (704) 283-9755

SETH A. NUNES LICENSE No 69457 STATE OF FLORIDA PROFESSIONAL ENGINEER
12/18/2020

CEC COA#: 06000001370 | SCALE: 1"=300'

PROJECT NO.: 208.01.01

DWG: OVERALL SITE PLAN

DATE: DECEMBER 2020

SHEET NO.: 2 OF 8

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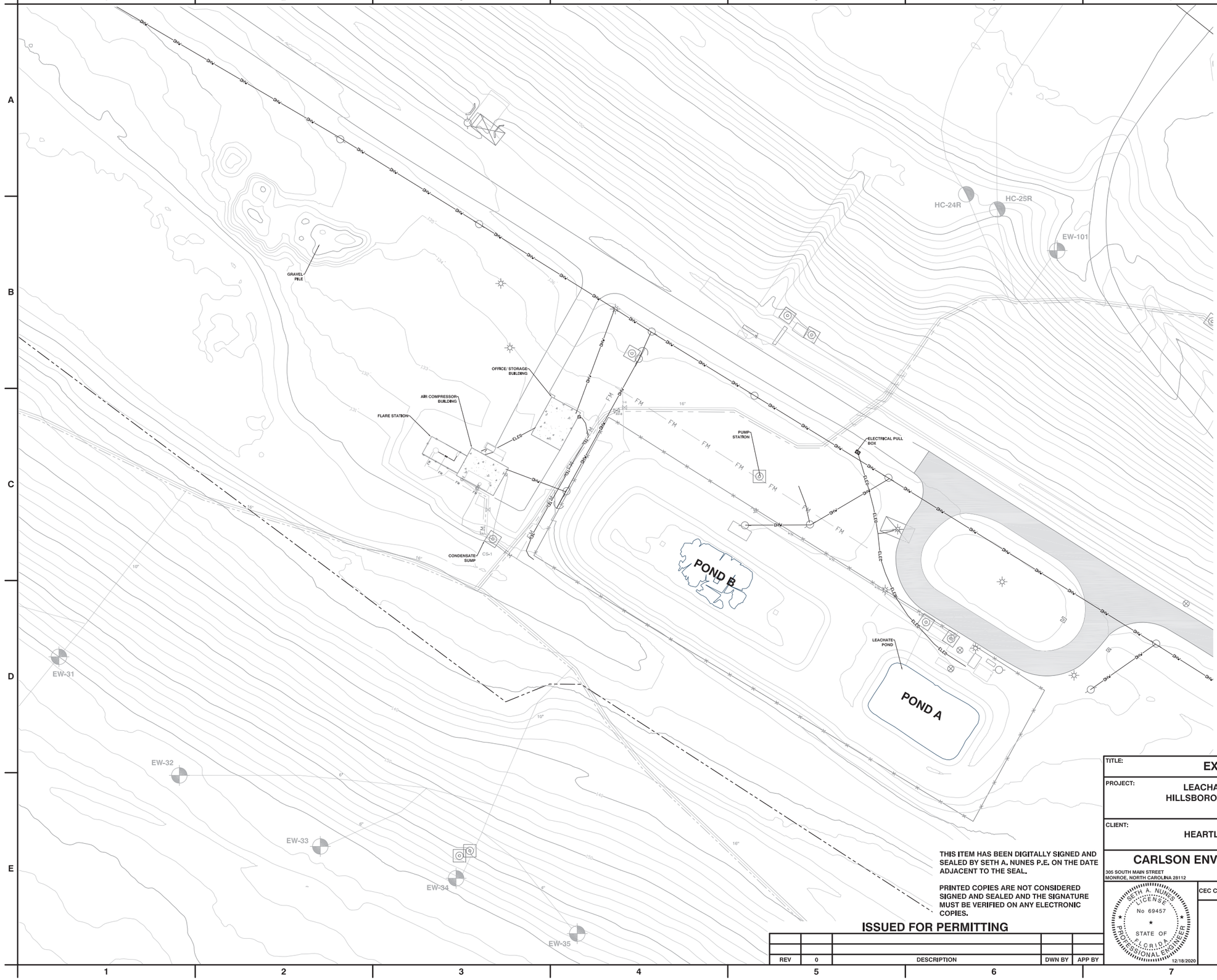

LEGEND

- 10 FT TOPOGRAPHIC CONTOUR LINE
- 2 FT TOPOGRAPHIC CONTOUR LINE
- CELL BOUNDARY
- FENCE LINE
- LFG HEADER/LATERAL
- LFG FORCEMAIN LINE
- LFG AIRLINE
- GAS LINE
- ELECTRICAL LINE
- OVER HEAD WIRES
- WATER MAIN
- DIRECTION OF CONDENSATE/ DEWATERING LIQUID FLOW
- DIRECTION OF LANDFILL GAS FLOW
- EW-XXX — LFG EXTRACTION WELL
- HC-XXX — HORIZONTAL COLLECTOR VERTICAL BORING
- LFG ISOLATION VALVE
- AIR ISOLATION VALVE/ BLOWOFF
- LFG ROAD CROSSING
- CONCRETE PAD
- ELECTRIC POLE
- LIGHT POLE
- TELEPHONE PEDESTAL
- ELECTRICAL PULL BOX
- HOSE BIBB

NOTES:

1. AERIAL TOPOGRAPHY COMPILED BY PICKETT AND ASSOCIATES, INC. BASED ON AERIAL TOPOGRAPHY FROM JULY 2020.

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TITLE: **EXISTING CONDITIONS**

PROJECT:
LEACHATE EVAPORATOR INSTALLATION
HILLSBOROUGH SOUTHEAST COUNTY LANDFILL
LITHIA, FLORIDA

CLIENT:
HEARTLAND WATER TECHNOLOGY, INC.

CARLSON ENVIRONMENTAL CONSULTANTS, PC
305 SOUTH MAIN STREET
MONROE, NORTH CAROLINA 28112
(704) 283-9766
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12/18/2020

CEC COA#: 06000001370 | SCALE: 1"=40'

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PROJECT NO.: 208.01.01
DWG: EXISTING CONDITIONS
DATE: DECEMBER 2020
SHEET NO.: 3 OF 8

IMPERVIOUS DRIVE 1: 1,424 S.F.
(NON-CONTAINED)

IMPERVIOUS CONTAINMENT
PAD: 4,100 S.F.
(CONTAINED)

IMPERVIOUS DRIVE 2: 444 S.F.
(NON -CONTAINED)

IMPERVIOUS AREA: 100 S.F.
(NON-CONTAINED)

3" O CONDUIT LINE
MAIN DISTRIBUTION PANEL
FINISHED FLOOR ELEV. 135.00
HEARTLAND EQUIPMENT SKID
10 X 10 X 4 SUMP (UNDER EQUIPMENT)
PERIMETER CONTAINMENT WALL
RESIDUAL MANAGEMENT TANK
CONCENTRATOR PANEL
ENCLOSED FLARE
WALL
CHEMICAL TANK
DECANT RETURN PUMP
DECANT TANK
10" SDR17
BACK-UP ELECTRICAL GENERATOR
FLARE STATION
16" HDPE SDR 17 HEADER
2" SDR 11 AIR SUPPLY LINE
2" HDPE SDR 11 CONDENSATE DISCHARGE LINE (TYP.)
2" MAX
CS-1
16"
WATER T.B.D.
10" HDPE SDR 17 HEADER
2" SDR 11 AIR SUPPLY LINE
2" HDPE SDR 11 CONDENSATE FORCEMAIN
2" HDPE SDR 11 DEWATERING DISCHARGE LINE
T&IN 2" HDPE SDR 11 CONDENSATE DISCHARGE LINE INTO EXISTING 3" FORCEMAIN WITH TEE
CONDUIT BUNDLE
3" O LEACHATE FEED LINE
2" O RETURN LINE
PUMP STATION
3" SDR LINE
ELECTRICAL PULL BOX
V-6
AV-8
POND B

N

0 20 40 60
GRAPHIC SCALE (FEET)

LEGEND

- 10 FT TOPOGRAPHIC CONTOUR LINE
- 2 FT TOPOGRAPHIC CONTOUR LINE
- CELL BOUNDARY
- FENCE LINE
- EXISTING LFG HEADER/LATERAL
- EXISTING LFG FORCEMAIN LINE
- EXISTING LFG AIRLINE
- EXISTING GAS LINE
- EXISTING ELECTRICAL LINE
- EXISTING OVER HEAD WIRES
- EXISTING WATER MAIN
- PROPOSED WATER MAIN
- PROPOSED LFG HEADER
- PROPOSED CONTOUR
- POWER ROUTING LINE
- LEACHATE ROUTING LINE
- ETHERNET ROUTING LINE
- DIRECTION OF CONDENSATE/ DEWATERING LIQUID FLOW
- DIRECTION OF LANDFILL GAS FLOW
- LFG ISOLATION VALVE
- AIR ISOLATION VALVE/ BLOWOFF
- LFG ROAD CROSSING
- CONCRETE PAD
- ELECTRIC POLE
- LIGHT POLE
- TELEPHONE PEDESTAL
- ELECTRICAL PULL BOX
- HOSE BIBB

IMPERVIOUS AREAS (S.F.)	
DRIVE 1	1,424
DRIVE 2	444
CONTAINMENT PAD	4,100
TOTAL	5,968

NOTES:

1. AERIAL TOPOGRAPHY COMPILED BY PICKETT AND ASSOCIATES, INC. BASED ON AERIAL TOPOGRAPHY FROM JULY 2020.
2. CONTRACTOR IS RESPONSIBLE FOR DRAINAGE DURING THE FOUNDATION CONSTRUCTION
3. SLAB AND STRUCTURAL DETAILS TO BE PROVIDED SEPARATELY.

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TITLE: **PROPOSED CONDITION**

PROJECT:
LEACHATE EVAPORATOR INSTALLATION
HILLSBOROUGH SOUTHEAST COUNTY LANDFILL
LITHIA, FLORIDA

CLIENT:
HEARTLAND WATER TECHNOLOGY, INC.

CARLSON ENVIRONMENTAL CONSULTANTS, PC
305 SOUTH MAIN STREET
MONROE, NORTH CAROLINA 28112
(704) 283-9765
FAX (704) 283-9755

SETH A. NUNES LICENSE No 69457 STATE OF FLORIDA PROFESSIONAL ENGINEER 12/18/2020

CEC COA#: 06000001370 | SCALE: 1"=20' | PROJECT NO.: 208.01.01

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DWG: PROPOSED CONDITION

DATE: DECEMBER 2020

SHEET NO.: 4 OF 8

IMPERVIOUS DRIVE 1: 1,424 S.F.
(NON-CONTAINED)

IMPERVIOUS CONTAINMENT
PAD: 4,100 S.F.
(CONTAINED)

IMPERVIOUS DRIVE 2: 444 S.F.
(NON -CONTAINED)

IMPERVIOUS AREA: 100 S.F.
(NON-CONTAINED)

3" Ø CONDUIT LINE
MAIN DISTRIBUTION PANEL
FINISHED FLOOR ELEV. 135.00
HEARTLAND EQUIPMENT SKID
10 X 10 X 4 SUMP (UNDER EQUIPMENT)
CONCENTRATOR PANEL
ENCLOSED FLARE
WALL
CHEMICAL TANK
DECANT RETURN PUMP
DECANT TANK
PERIMETER CONTAINMENT WALL
RESIDUAL MANAGEMENT TANK
25'
60'
37'
70'
134
12'
10" SDR17
BACK-UP ELECTRICAL GENERATOR
FLARE STATION
2" HDPE SDR 11 CONDENSATE DISCHARGE LINE (TYP.)
2" MAX
16" HDPE SDR 17 HEADER
2" SDR 11 AIR SUPPLY LINE
16"
CS-1
WATER
V-6
AV-8
2" HDPE SDR 11 CONDENSATE FORCEMAIN
2" HDPE SDR 11 DEWATERING DISCHARGE LINE
CONDUIT BUNDLE
3" Ø LEACHATE FEED LINE
2" Ø RETURN LINE
PUMP STATION
3" SDR LINE
ELECTRICAL PULL BOX
T&IN 2" HDPE SDR 11 CONDENSATE DISCHARGE LINE INTO EXISTING 3" FORCEMAIN WITH TEE
POND B

0 20 40 60
GRAPHIC SCALE (FEET)

LEGEND

- 10 FT TOPOGRAPHIC CONTOUR LINE
- 2 FT TOPOGRAPHIC CONTOUR LINE
- CELL BOUNDARY
- FENCE LINE
- EXISTING LFG HEADER/LATERAL
- EXISTING LFG FORCEMAIN LINE
- EXISTING LFG AIRLINE
- EXISTING GAS LINE
- EXISTING ELECTRICAL LINE
- EXISTING OVER HEAD WIRES
- EXISTING WATER MAIN
- PROPOSED WATER MAIN
- PROPOSED LFG HEADER
- PROPOSED CONTOUR
- POWER ROUTING LINE
- LEACHATE ROUTING LINE
- ETHERNET ROUTING LINE
- DIRECTION OF CONDENSATE/ DEWATERING LIQUID FLOW
- DIRECTION OF LANDFILL GAS FLOW
- LFG ISOLATION VALVE
- AIR ISOLATION VALVE/ BLOWOFF
- LFG ROAD CROSSING
- CONCRETE PAD
- ELECTRIC POLE
- LIGHT POLE
- TELEPHONE PEDESTAL
- ELECTRICAL PULL BOX
- HOSE BIBB

NOTES:

1. AERIAL TOPOGRAPHY COMPILED BY PICKETT AND ASSOCIATES, INC. BASED ON AERIAL TOPOGRAPHY FROM JULY 2020.
2. CONTRACTOR IS RESPONSIBLE FOR DRAINAGE DURING/AFTER THE FOUNDATION CONSTRUCTION
3. ELECTRICAL ROUTING AND DETAILS TO BE DETERMINED BY TECO. AND PROVIDED SEPARATELY.

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	0			

TITLE: **CONDUIT SCHEDULE**

PROJECT:
LEACHATE EVAPORATOR INSTALLATION
HILLSBOROUGH SOUTHEAST COUNTY LANDFILL
LITHIA, FLORIDA

CLIENT:
HEARTLAND WATER TECHNOLOGY, INC.

CARLSON ENVIRONMENTAL CONSULTANTS, PC
305 SOUTH MAIN STREET
MONROE, NORTH CAROLINA 28112
(704) 283-9765
FAX (704) 283-9755

SETH A. NUNES LICENSE No 69457 STATE OF FLORIDA PROFESSIONAL ENGINEER 12/18/2020

CEC COA#: 06000001370 | SCALE: 1"=20'

CEC

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PROJECT NO.: 208.01.01
DWG: CONDUIT SCHELUDE
DATE: DECEMBER 2020
SHEET NO.: 5 OF 8

IMPERVIOUS DRIVE 1: 1,424 S.F.
(NON-CONTAINED)

IMPERVIOUS CONTAINMENT
PAD: 4,100 S.F.
(CONTAINED)

IMPERVIOUS DRIVE 2: 444 S.F.
(NON -CONTAINED)

IMPERVIOUS AREA: 100 S.F.
(NON-CONTAINED)

225 LF SILT FENCE

3" Ø CONDUIT LINE

MAIN DISTRIBUTION PANEL

FINISHED FLOOR ELEV. 125.00

HEARTLAND EQUIPMENT SKID

10 X 10 X 4 SUMP (UNDER EQUIPMENT)

CONCENTRATOR PANEL

ENCLOSED FLARE

WALL

CHEMICAL TANK

DECANT TANK

DECANT RETURN PUMP

PERIMETER CONTAINMENT WALL

RESIDUAL MANAGEMENT TANK

70'
60'
25'
51'
37'
12'
134
136

10" SDR17

ELEC

BACK-UP ELECTRICAL GENERATOR

FLARE STATION

2" MAX

16" HDPE SDR 17 HEADER

2" SDR 11 AIR SUPPLY LINE

2" HDPE SDR 11 CONDENSATE DISCHARGE LINE (TYP.)

CS-1

16"

WATER T/B.D.

V-6

AV-8

2" HDPE SDR 11 CONDENSATE FORCEMAIN

2" HDPE SDR 11 DEWATERING DISCHARGE LINE

CONDUIT BUNDLE

3" Ø LEACHATE FEED LINE

2" Ø RETURN LINE

PUMP STATION

3" SDR LINE

ELECTRICAL PULL BOX

TIE-IN 2" HDPE SDR 11 CONDENSATE DISCHARGE LINE INTO EXISTING 3" FORCEMAIN WITH TEE

POND B

N

0 20 40 60
GRAPHIC SCALE (FEET)

LEGEND

- 10 FT TOPOGRAPHIC CONTOUR LINE
- 2 FT TOPOGRAPHIC CONTOUR LINE
- CELL BOUNDARY
- FENCE LINE
- EXISTING LFG HEADER/LATERAL
- EXISTING LFG FORCEMAIN LINE
- EXISTING LFG AIRLINE
- EXISTING GAS LINE
- EXISTING ELECTRICAL LINE
- EXISTING OVER HEAD WIRES
- EXISTING WATER MAIN
- PROPOSED WATER MAIN
- PROPOSED LFG HEADER
- PROPOSED CONTOUR
- POWER ROUTING LINE
- LEACHATE ROUTING LINE
- ETHERNET ROUTING LINE
- SILT FENCE
- DIRECTION OF CONDENSATE/ DEWATERING LIQUID FLOW
- DIRECTION OF LANDFILL GAS FLOW
- LFG ISOLATION VALVE
- AIR ISOLATION VALVE/ BLOWOFF
- LFG ROAD CROSSING
- CONCRETE PAD
- ELECTRIC POLE
- LIGHT POLE
- TELEPHONE PEDESTAL
- ELECTRICAL PULL BOX
- HOSE BIBB
- DRAINAGE FLOW

NOTES:

1. AERIAL TOPOGRAPHY COMPILED BY PICKETT AND ASSOCIATES, INC. BASED ON AERIAL TOPOGRAPHY FROM JULY 2020.
2. CONTRACTOR IS RESPONSIBLE FOR DRAINAGE DURING THE FOUNDATION CONSTRUCTION
3. DISTURBED AREAS TO BE REPAIRED, SEEDED AND STRAWED UPON COMPLETION.

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TITLE: **EROSION AND SEDIMENT PLAN**

PROJECT:
LEACHATE EVAPORATOR INSTALLATION
HILLSBOROUGH SOUTHEAST COUNTY LANDFILL
LITHIA, FLORIDA

CLIENT:
HEARTLAND WATER TECHNOLOGY, INC.

CARLSON ENVIRONMENTAL CONSULTANTS, PC
305 SOUTH MAIN STREET
MONROE, NORTH CAROLINA 28112
(704) 283-9765
FAX (704) 283-9755

SETH A. NUNES LICENSE No 69457 STATE OF FLORIDA PROFESSIONAL ENGINEER 12/18/2020

CEC COA#: 06000001370 | SCALE: 1"=20' | PROJECT NO.: 208.01.01

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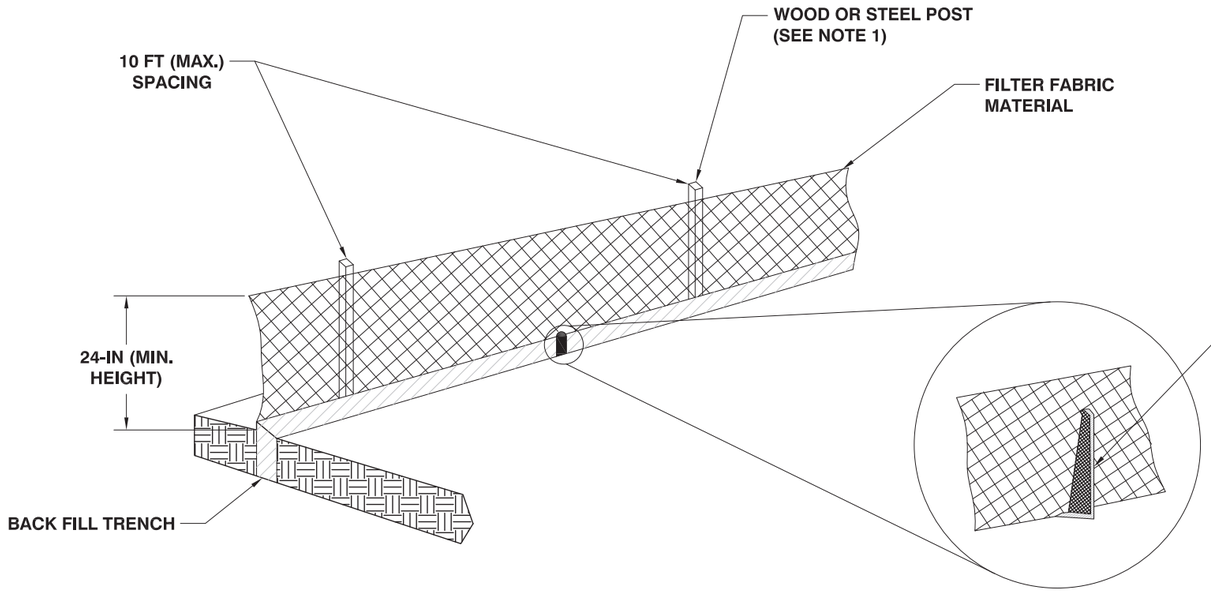
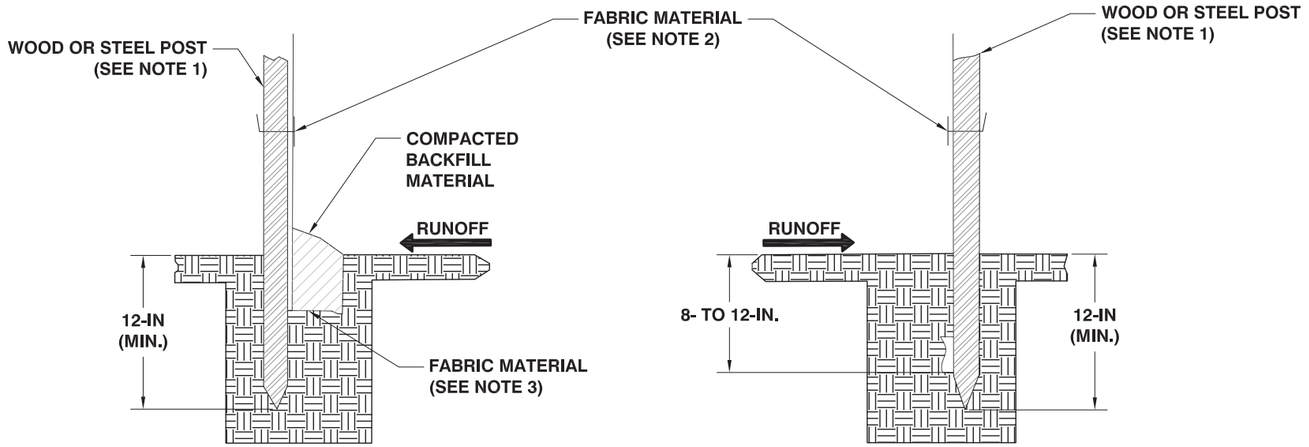
DWG: E & S PLAN

DATE: DECEMBER 2020

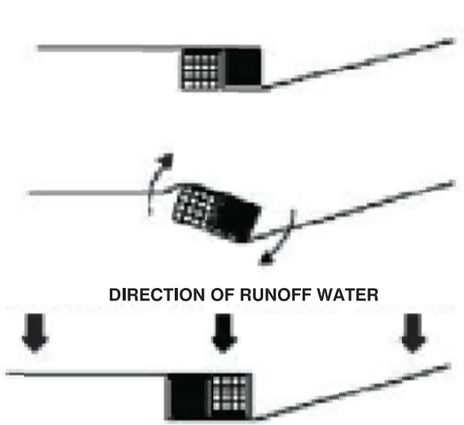
SHEET NO.: 6 OF 8



1/7 SILT FENCE DETAILS
NOT TO SCALE



ATTACHING TWO SILT FENCES WHEN TRENCHING IS USED



NOTES:

1. WOOD OR STEEL POST MUST BE INSTALLED BEFORE COMPACTING BACK FILL MATERIAL.
2. FABRIC MATERIAL MUST BE SECURELY FASTENED TO THE POSTS OR (IF USED) TO THE WIRE MESH.
3. FABRIC MATERIAL MUST BE PLACED IN A 6-IN X 6-IN TRENCH WITH A "L" SHAPE BEFORE BACKFILLING AND COMPACTING THE SOIL.

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TITLE: **EROSION AND SEDIMENT DETAILS**

PROJECT: LEACHATE EVAPORATOR INSTALLATION
HILLSBOROUGH SOUTHEAST COUNTY LANDFILL
LITHIA, FLORIDA

CLIENT: HEARTLAND WATER TECHNOLOGY, INC.

CARLSON ENVIRONMENTAL CONSULTANTS, PC
305 SOUTH MAIN STREET
MONROE, NORTH CAROLINA 28112
(704) 283-9765
FAX (704) 283-9755

SETH A. NUNES LICENSE No 69457 STATE OF FLORIDA PROFESSIONAL ENGINEER 12/18/2020

CEC COA#: 06000001370 | SCALE: NTS | PROJECT NO.: 208.01.01
DWG: E & S DETAILS
DATE: DECEMBER 2020
SHEET NO.: 7 OF 8

CEC
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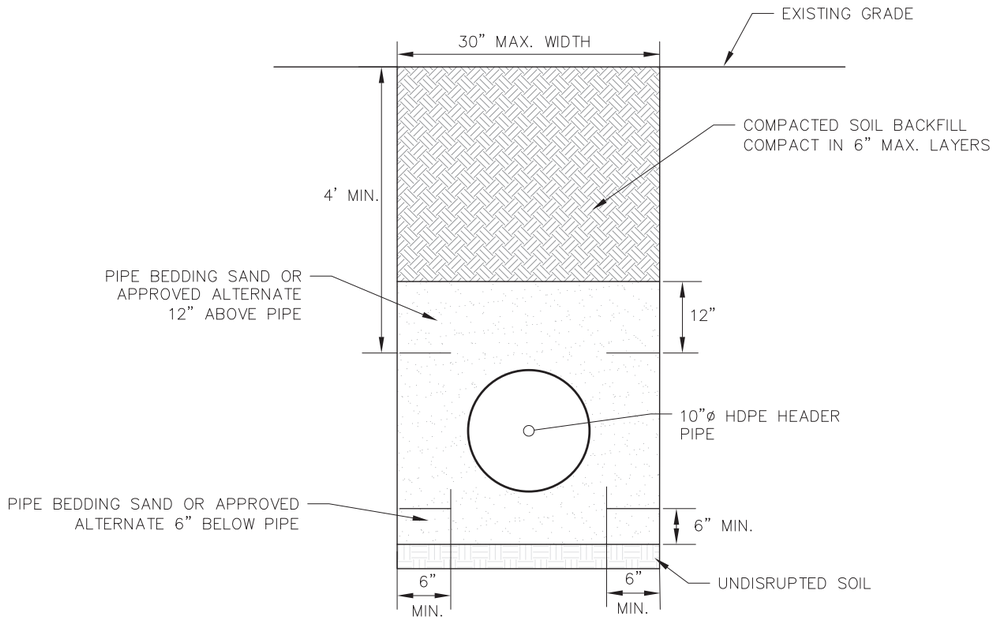

HEADER TRENCH (TYP.) 1/8

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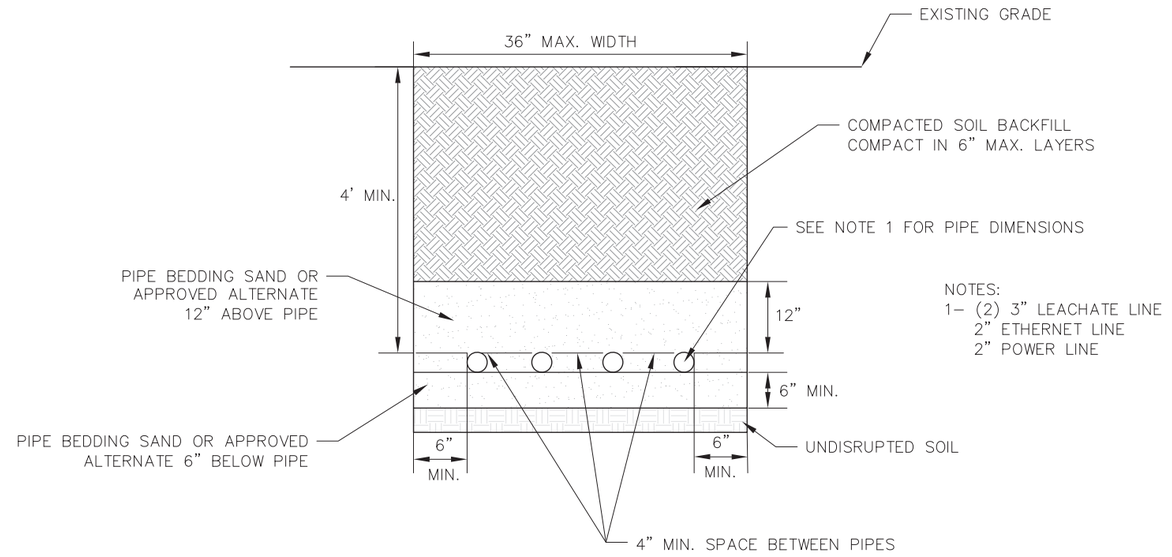

NOTES:
1- (2) 3" LEACHATE LINE
2" ETHERNET LINE
2" POWER LINE

CONDUIT BUNDLE 2/8

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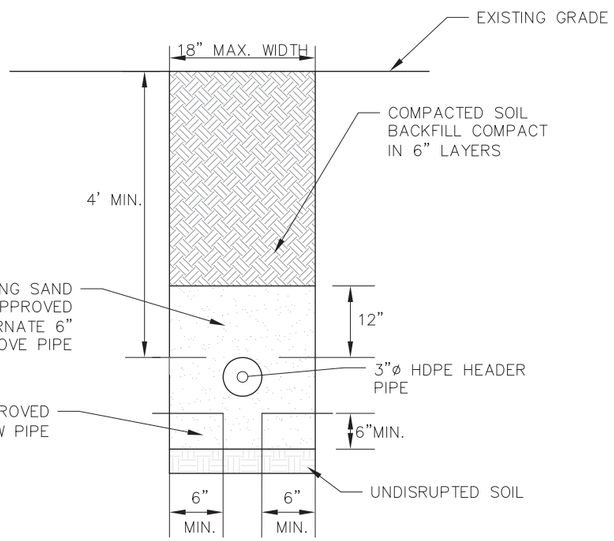

3" HDPE CONCENTRATOR LINE 3/8

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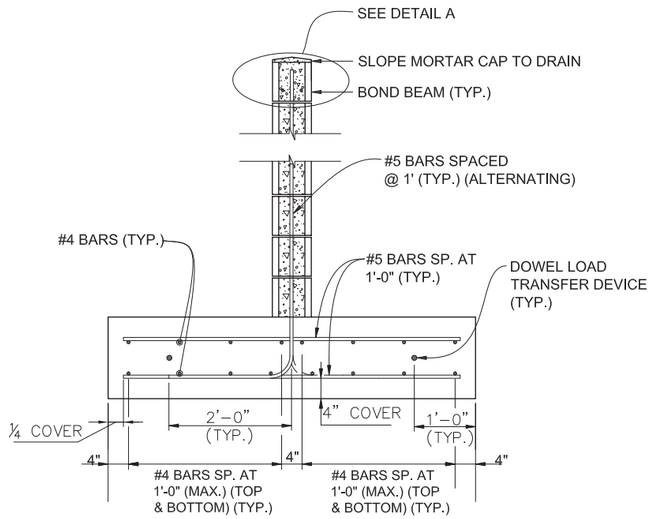

PERIMETER CONTAINMENT WALL (HEIGHT T.B.D.) 4/8

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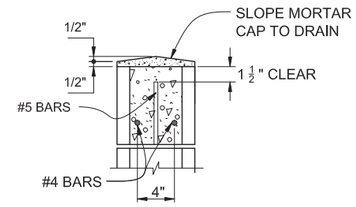

DETAIL A

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY SETH A. NUNES P.E. ON THE DATE ADJACENT TO THE SEAL.

PRINTED COPIES ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

ISSUED FOR PERMITTING

REV		DESCRIPTION	DWN BY	APP BY
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TITLE: **TRENCH & WALL DETAILS**

PROJECT: **LEACHATE EVAPORATOR INSTALLATION**
HILLSBOROUGH SOUTHEAST COUNTY LANDFILL
LITHIA, FLORIDA

CLIENT: **HEARTLAND WATER TECHNOLOGY, INC.**

CARLSON ENVIRONMENTAL CONSULTANTS, PC
305 SOUTH MAIN STREET
MONROE, NORTH CAROLINA 28112
(704) 283-9765
FAX (704) 283-9755

SETH A. NUNES LICENSE No 69457 STATE OF FLORIDA PROFESSIONAL ENGINEER 12/18/2020

CEC COA#: 06000001370 | SCALE: NTS | PROJECT NO.: 208.01.01

DWG: TRENCH & WALL DETAILS

DATE: DECEMBER 2020

SHEET NO.: 8 OF 8

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ATTACHMENT 2

Conformed February 2021 Leachate Management Plan (Digitally Certified as a Separate Electronic File)

Leachate Management Plan Phases I-VI and The Capacity Expansion Area Southeast County Landfill Hillsborough County, Florida

Hillsborough County - Public Utilities Department
Solid Waste Management Group (SWMG)
332 N. Falkenburg Road
Tampa, FL 33619

SCS ENGINEERS

09215600.11 | February 2021

3922 Coconut Palm Drive, Suite 102
Tampa, FL 33619
813-621-0080

LEACHATE MANAGEMENT PLAN
PHASES I-VI AND THE
CAPACITY EXPANSION AREA

Southeast County Landfill
Hillsborough County, Florida

Presented to:

Hillsborough County
Public Utilities Department
Solid Waste Management Group (SWMG)
332 N. Falkenburg Road
Tampa, FL 33619

Prepared by:

SCS ENGINEERS
3922 Coconut Palm Drive, Suite 102
Tampa, FL 33619
(813) 621-0080

February 2021
File No. 09215600.11

Kollan L. Spradlin, P.E.
FL Reg. No. 82852

Table of Contents

Table of Contents

Table of Contents

Section Page

Figures

Tables

Appendices

1.0 LEACHATE MANAGEMENT

The Hillsborough County Southeast County Facility (Facility) includes the Southeast County Landfill (SCLF), which is permitted by the Florida Department of Environmental Protection (FDEP) as a Class I landfill for Phases I-VI and the Capacity Expansion Area (CEA). This Leachate Management Plan (LMP) includes Phases I-VI and Sections 7, 8, and 9 of the CEA.

This plan will give the SCLF employees a general understanding of the requirements for managing the leachate generated from the Class I landfill operations within the Phases I-VI and CEA disposal areas. As defined in Rule 62-701.200(59), Florida Administrative Code (FAC), leachate is liquid that has passed through or emerged from solid waste and may contain soluble, suspended, or miscible materials. Leachate must be contained and kept separate from any groundwater or surface waters.

2.0 LEACHATE GENERATION

One of the goals of the landfill design and daily operation is to minimize leachate production from the landfill to reduce the cost associated with leachate treatment and thus minimize the potential environmental contamination risks. The methods described in this section can be used separately or simultaneously to achieve leachate reduction.

Leachate is generated as water passes through solid waste or as liquids drain from solid waste materials. Water may be from stormwater infiltration, irrigation, groundwater, or other sources added to the waste material. Liquids from the solid waste include moisture from food or waste products and fluids disposed of in the waste. Water and liquids that drain through or from the waste materials eventually drain via gravity into the collection systems at the bottom of the Class I disposal areas. Once collected, the leachate is pumped to the leachate storage tank or the leachate/effluent storage pond (Pond B). From the storage tank the leachate can be conveyed to the on-site Leachate Treatment and Reclamation Facility (LTRF) for treatment or hauled off site for treatment and disposal at a permitted wastewater treatment facility. Leachate may also be conveyed from Pond B to the Leachate Evaporator Facility (LEF) for volume reduction. Liquids, including precipitation, collected on the LEF containment pad and liquid residuals from the volume reduction process will be treated as leachate.

In addition, leachate is generated in the form of condensate from the collection of landfill gas (LFG) from Phases I-VI and the CEA. Condensate is managed by several methods, including drainage back to the landfill or collection in sumps at low areas. While LFG condensate collection and transmission are not addressed in the leachate management plan, condensate management is addressed within the Gas Collection and Control System (GCCS) Plan for the SCLF referenced as part of the SCLF Title V operating permit. This plan should be referenced for details regarding condensate management.

3.0 LEACHATE COLLECTION SYSTEMS

The leachate collection system for Phases I-VI and the leachate collection and detection systems for the CEA are depicted in **Figure 3-1** and **Figure 3-2**, respectively. Additional descriptions of these systems are provided in the following sections.

3.1 PHASES I-VI LEACHATE COLLECTION

Phases I-VI of the Facility were constructed directly above a waste clay settling area for a former phosphate mine known as Lonesome Phosphate Mine or Boyette Mine. The Phases I-VI landfill is approximately 162.4 acres. The settling area, also known as Settling Area No. 1, was built on natural ground with a perimeter dike constructed of sand borrowed from surrounding areas. As part of the phosphate mining operations, waste phosphatic clay and other soils were washed and phosphate minerals removed from the surrounding soils.

The washed waste phosphatic clays and soils were pumped to the settling areas and allowed to settle to the bottom of the settling ponds. The low-permeability waste phosphatic clays now form the bottom containment liner for the disposal of waste in the Phase I-VI area. A single layer of 36-mil chlorosulfonated polyethylene (CSPE) tied into the waste phosphatic clay layer as a side containment liner barrier.

The leachate collection and removal system for Phases I-VI consists of crushed granite rock and tire-chip-filled trenches, 8-inch diameter perforated Schedule 80 polyvinyl chloride (PVC) pipes in granite rock-filled trenches, and 8-inch diameter perforated high density polyethylene (HDPE) pipes in granite rock-filled trenches. The gravel and tire-filled trenches drain to the 8-inch pipes which then drain to Pump Station B (PS-B) located in the Phase VI disposal area. PS-B was designed to be the ultimate low point for the entire footprint of Phases I-VI after final placement of waste material and loading of the waste phosphatic clays. As the waste phosphatic clays are loaded, the clays settle. Excess water from within the clays is squeezed out during the loading of the clays and enters the leachate collection system.

3.2 CAPACITY EXPANSION AREA LEACHATE COLLECTION

3.2.1 Section 7

3.2.1.1 Leachate Collection System

Section 7 of the CEA landfill is approximately 12.5 acres. The dimensions of Section 7 are approximately 750 feet long (southwest to northeast) and 800 feet wide (northwest to southeast). Section 7 was designed with a double-liner system—one for leachate collection on the primary liner and the other for detection (secondary liner) of any leachate that may leak through the collection liner. A 300-mil bi-planar geocomposite was installed on the top of each of the 60-mil HDPE geomembranes to convey leachate toward collection trenches. Twelve inches of drainage sand and 12 inches of chipped tires were placed above the primary collection system to provide additional drainage collection and provide puncture protection of the underlying HDPE liners.

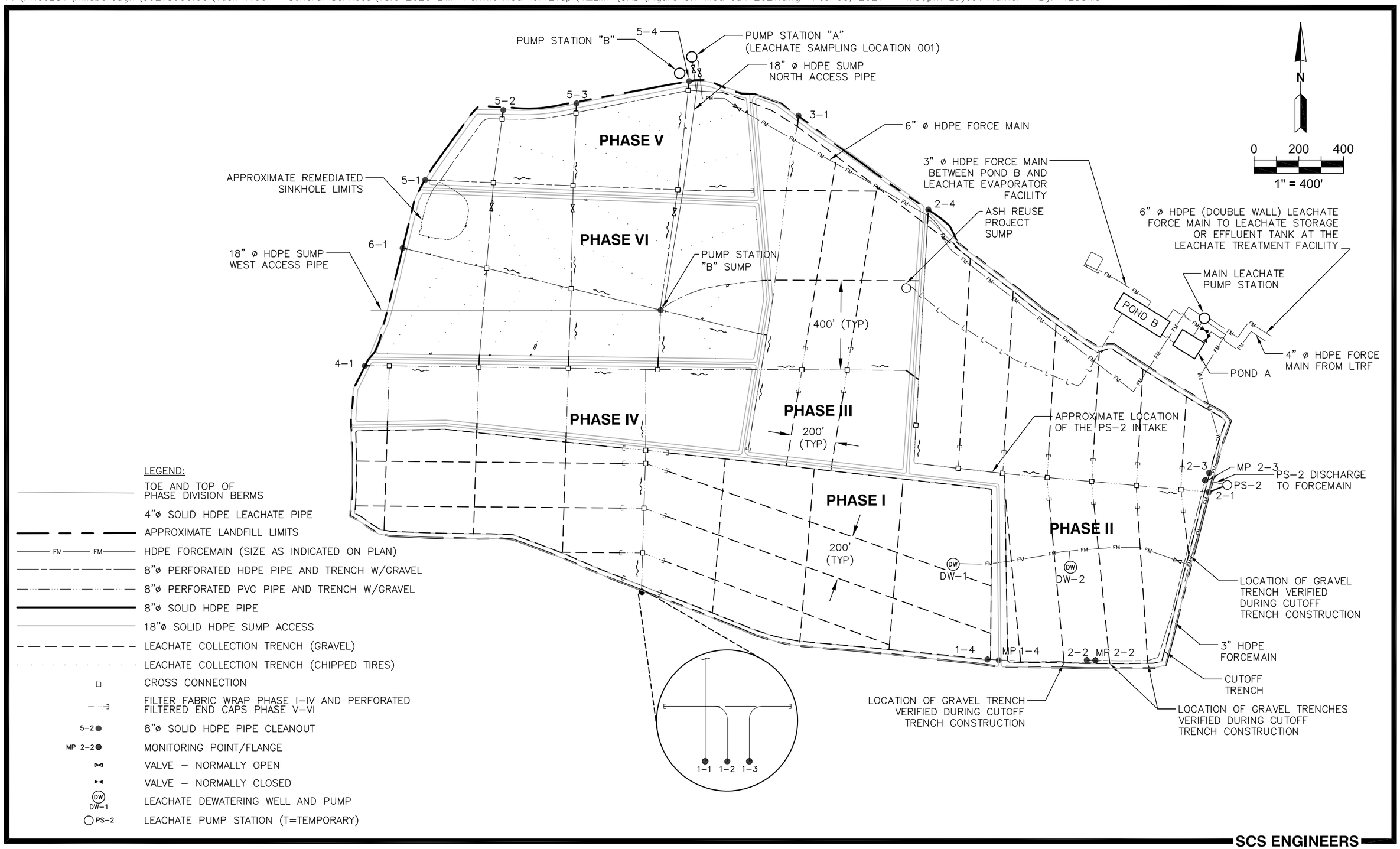

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FIGURE 3–1. PHASES I–VI LEACHATE COLLECTION AND REMOVAL SYSTEM
HILLSBOROUGH COUNTY
FEBRUARY 2021

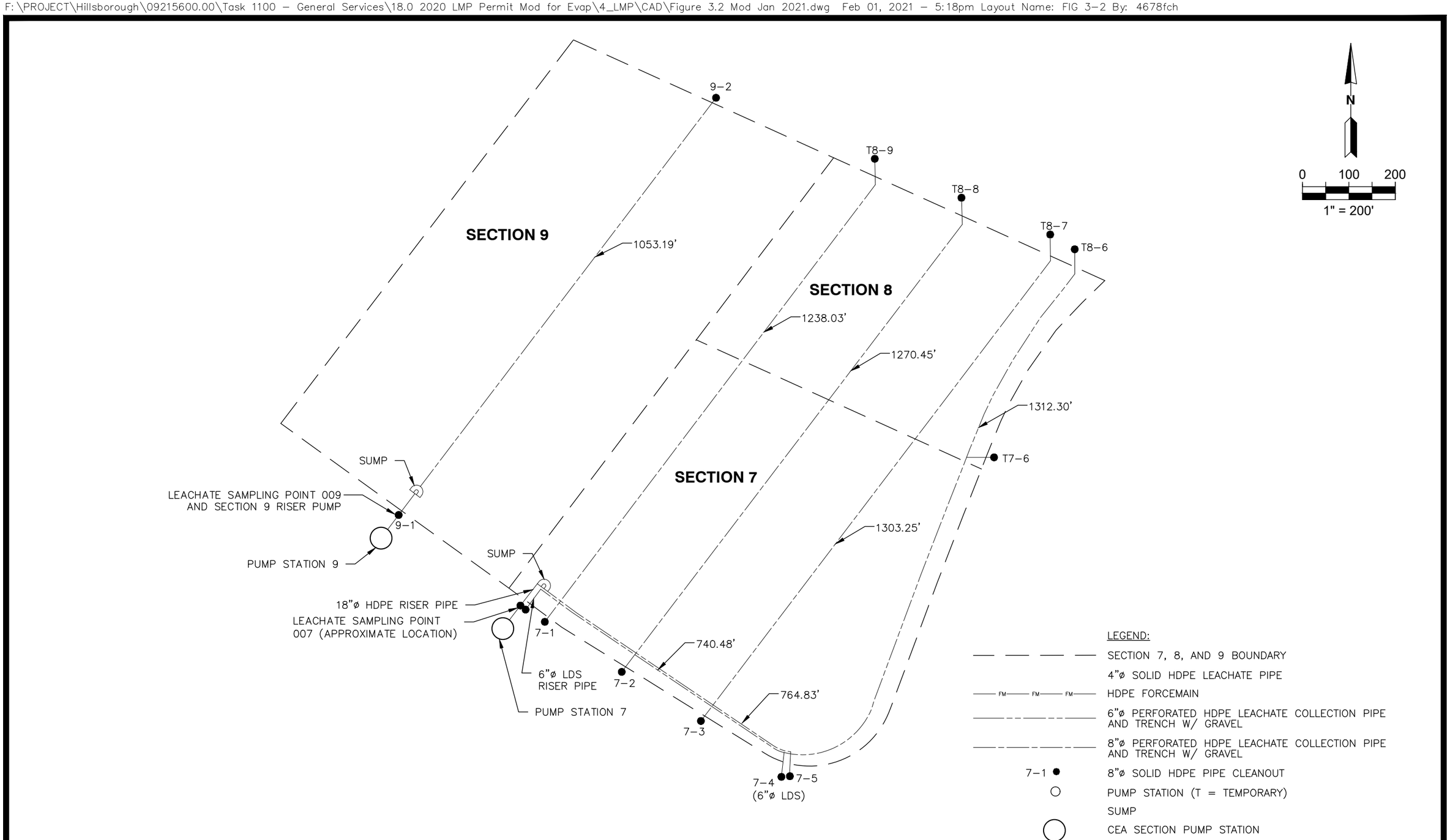

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FIGURE 3–2. CAPACITY EXPANSION AREA (SECTIONS 7, 8, AND 9) – LEACHATE COLLECTION AND REMOVAL SYSTEM
HILLSBOROUGH COUNTY
FEBRUARY 2021

Leachate travels through the primary geocomposite and sand/tire-chip drainage layer and is collected in the leachate collection trench. This trench consists of 8-inch perforated HDPE leachate collection pipes and gravel wrapped in a geotextile to minimize migration of sand into the pipes. Leachate that collects in the trench flows to a collection header and then toward a collection sump in the southwest corner of Section 7. The sump was designed as the lowest point in Section 7 and was filled with gravel. A riser pipe was installed in the gravel fill of the sump and contains a submersible pump for leachate removal.

3.2.1.2 Leachate Detection System

The leachate detection system of Section 7 consists of a bi-planar geocomposite between the primary and secondary geomembranes. The geocomposite drains leachate toward an 8-inch perforated HDPE pipe in a gravel-filled trench. The lateral pipes drain to a main header on the southwest end of Section 7. The main header drains to the low point of Section 7 containing a sump with gravel fill and a riser pipe. Leachate is removed from the Section 7 leachate detection system via the riser pipe using an above-grade pump.

During standard practices, the detection system is expected to collect a small volume of leachate. Leakage rates collected in the detection system will be used to monitor the performance of the collection system. The action leakage rate for the CEA is discussed in Section 9.3.2.

3.2.2 Section 8

3.2.2.1 Leachate Collection System

Section 8 of the CEA is approximately 6.8 acres. The dimensions of Section 8 are approximately 500 feet long (southwest to northeast) and 660 feet wide (northwest to southeast). Section 8 was designed with a double-liner system—one for leachate collection (primary liner) and the other (secondary liner) for detection of any leachate that may leak through the collection liner.

A 300-mil tri-planar geocomposite was installed on the top of each of the 60-mil HDPE geomembranes to convey leachate toward leachate collection trenches. Twelve inches of drainage sand and 12 inches of chipped tires were placed above the primary collection system to provide additional drainage collection and provide puncture protection of the underlying HDPE liners.

The design of Section 8 included connecting the leachate collection and detection system components to Section 7. Therefore, leachate travels through the upper geocomposite and sand/tire drainage layer and is collected in the leachate collection trenches in Section 8. These trenches consist of an 8-inch perforated HDPE leachate collection pipe and several feet of gravel wrapped in woven geotextile. Leachate that collects in the Section 8 trenches continues to flow though Section 7 trenches. Once in the Section 7 collection system, leachate drains to the sump in the southwest corner of Section 7.

3.2.2.2 Leachate Detection System

The leachate detection system of Section 8 consists of a tri-planar geocomposite between the primary and secondary geomembranes. The Section 8 tri-planar geocomposite was connected to the Section 7 bi-planar geocomposite. The geocomposite drains leachate to 8-inch perforated HDPE pipes in gravel filled trenches. The trenches flow through Sections 7 and 8. The lateral pipes drain to a main header on the southwest end of Section 7. The main header drains to the leachate sumps in the southwest corner of Section 7 as described in previous sections.

During standard practices the detection system should collect a small amount of leachate. Leakage rates collected in the Section 8 detection system cannot be measured independently from Section 7; however, since each system is connected, the total leakage measured in the Section 7 sump will be used to monitor the performance of the Sections 7 and 8 leachate detection systems.

3.2.3 Section 9

3.2.3.1 Leachate Collection System

Section 9 of the CEA landfill is approximately 15.2 acres. Section 9 is approximately 980 feet long (southwest to northeast) and 580 feet wide (northwest to southeast). The primary leachate collection system is composed of a combination of synthetic materials and natural granular materials. A geocomposite consisting of an HDPE geonet with the top and bottom sides bonded to a geotextile is directly above the primary 60-mil HDPE geomembrane. The geocomposite is overlain by a 12-inch-thick natural granular (sand) drainage layer and a 12-inch-thick chipped-tire drainage layer.

Leachate flows by gravity to a central leachate collection trench that conveys the leachate to the leachate collection sump on the south side of Section 9. The leachate collection pipe is a perforated 8-inch-diameter SDR 11 HDPE pipe surrounded by gravel and geotextile. From the sumps, leachate is pumped via a 6-inch SDR 11 HDPE forcemain to the LTRF located northeast of Sections 7 and 8.

3.2.3.2 Leachate Detection System

The leachate detection system for Section 9 includes a geocomposite consisting of a HDPE geonet with the top and bottom sides bonded to a geotextile installed between the primary and secondary geomembranes. Leachate entering the secondary Leachate Collection and Removal System (LCRS) flows by gravity through the geonet to the leak-detection trench. The trench, constructed at a slope of approximately 0.75%, conveys leachate to a leachate-detection sump on the south side of Section 9. From the sump, leachate is pumped via a 6-inch SDR 11 HDPE forcemain to the LTRF.

During standard practices, the detection system is expected to collect a small volume of leachate. Leakage rates collected in the detection system will be used to monitor the performance of the collection system. The action leakage rate for the CEA is discussed in Section 9.3.2.

3.3 BIOSOLIDS COMPOSTING FACILITY LEACHATE COLLECTION

The SWMG operates a Biosolids Composting Facility (BCF) at the Facility. BCF operations are permitted under the Hillsborough County Falkenburg Road Advanced Wastewater Treatment Facility (WWTF) Domestic Wastewater Facility Permit Number FL0040614 and is managed in accordance with the current *Biosolids Composting Facility Operations and Maintenance Plan,* which is maintained on site. The BCF Building and the Biosolids Receiving Area are curbed to contain residual moisture. Stormwater runoff that enters the BCF Building or the Biosolids Receiving Area will be treated as leachate. The leachate is conveyed to two 25,000 gallon storage tanks located at the BCF. Leachate hauling tankers transport the BCF leachate to a permitted disposal facility.

4.0 LEACHATE TRANSMISSION

A schematic of the leachate management system at the SCLF is shown in Figure 4-1. The following sections provide additional details for the transmission components of the leachate management system at the SCLF.

4.1 PHASES I-VI

4.1.1 Pump Station A (PS-A)

PS-A consists of an 8-foot inside-diameter below-grade concrete sump with a single submersible pump. From PS-A, leachate is pumped to the Main Leachate Pump Station (MLPS) via force main. The pump operation is set with the "on" float at 42 inches from the sump bottom and the "off" float at 18 inches from the sump bottom.

If a high-level condition occurs, the PS-A sump control panel will shut down Pump Station B (PS-B). It will also transmit a signal, via a transceiver, with the sump condition to the control computer in the LTRF, the effluent/leachate storage tank (T6), and the landfill administration office located at the scalehouse at the entrance of the SCLF. If PS-A will be inoperable for more than 8 hours, leachate from PS-B will be pumped through the bypass line directly to the MLPS or Pond B.

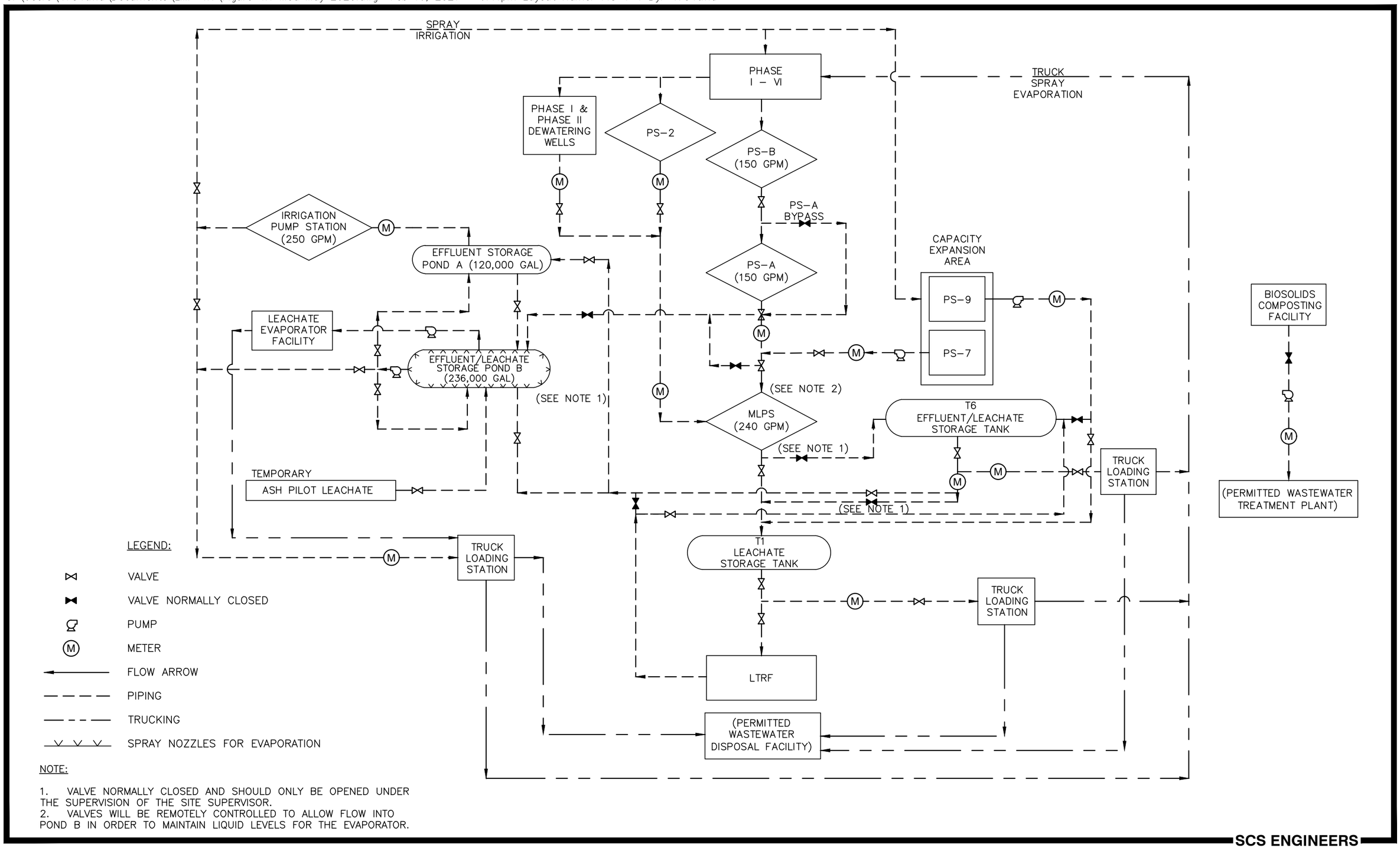
4.1.2 Pump Station B (PS-B)

PS-B sump (located in Phase VI) is the primary leachate collection point for Phases I-VI. Upon consolidation of the phosphatic clay liner, the low point for the final collection and removal of leachate within the landfill is projected to be at the PS-B sump location. The LCRS for the landfill was designed to drain to the PS-B sump.

PS-B sump consists of an 8-foot square (inside dimension) below-grade concrete vault. The vault has two 18-inch diameter HDPE horizontal access pipes, the main access pipe leading to PS-A, and an alternate access pipe leading toward the western perimeter of the landfill between cleanouts 4-1 and 6-1.

The primary pumps used to remove leachate from the PS-B sump are self-priming pumps each with a capacity of 150 gallons per minute (gpm). If the primary pumps fail, the operations contractor can obtain a secondary vacuum-assisted diesel pump that may be used as backup. PS-B sump is equipped with a level indicator located at the control panel near PS-A, and the SWMG monitors the liquid level daily to ensure that the levels noted below are maintained.

PS-B pumps leachate to PS-A via a vacuum-assisted pump. The PS-B pump is controlled by a bubbler liquid level measurement system with an "on" sensor is set at the PS-B maintenance level reading of 30-inches, and the "off" sensor is set at 15 inches from the bottom. The PS-B maintenance levels and operational procedures are outlined in Table 9.2.4. The settings provide for free flow of leachate into the landfill lower sump area from the surrounding Phase I-VI disposal areas.



NOTE:

1. VALVE NORMALLY CLOSED AND SHOULD ONLY BE OPENED UNDER THE SUPERVISION OF THE SITE SUPERVISOR.
2. VALVES WILL BE REMOTELY CONTROLLED TO ALLOW FLOW INTO POND B IN ORDER TO MAINTAIN LIQUID LEVELS FOR THE EVAPORATOR.

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FIGURE 4–1. LEACHATE MANAGEMENT SYSTEM SCHEMATIC
HILLSBOROUGH COUNTY
FEBRUARY 2021

4.1.3 Pump Station 2 (PS-2)

Pump Station 2 (PS-2) consists of a vacuum assisted pump with a 3-inch HDPE suction line into the Phase II clean out 2-1 (CO 2-1). The PS-2 pump is controlled with a liquid level indicator located adjacent to the intake pipe, within the CO 2-1 header. The pump discharges via a 3-inch HDPE buried forcemain directly into the MLPS. The pump will be operated by SWMG staff to supplement leachate removal from Phase II of the landfill and the Phase II Cut-off Trench. The primary goal of this pump is to maintain the leachate level in the Monitoring Port No. 2 (MP 2-2) and the CO 2-1 header below 30-inches. The CO 2-1 connection to the Phase II Cut-off Trench and the Phase II header allows PS-2 to influence the liquid level in MP 2-2. The leachate quantities pumped from CO 2-1 via the PS-2 pump will be recorded by an electronic flow meter.

4.1.4 Dewatering Wells

Dewatering wells were installed to provide supplemental leachate removal from Phases I and II. One well nest was installed in Phase I and one in Phase II. Each well nest consists of two 8-inch diameter HDPE well casings set within one 36-inch diameter borehole that spans from ground surface, through the waste, to 1-foot below the top of the clay liner. Each of the well casings contains a pneumatic pump connected to a 3-inch diameter HDPE buried forcemain conveying the leachate to the MLPS. The wells are topped with an all-weather polyethylene dual extraction well cap and 2-inch LFG wellhead. The Phase I leachate extraction wells are designated DW 1-1 and DW 1-2, and the Phase II leachate extraction wells are designated DW 2-1 and DW 2-2. The pneumatic pump counters will estimate the leachate quantities.

4.2 CAPACITY EXPANSION AREA

4.2.1 Section 7 – Pump Station 7 (PS-7)

The leachate collection and leachate detection system piping for Sections 7 and 8 drain to sumps in the southwest corner of Section 7 as shown in Figure 3-2. The leachate detection sump is pumped to the leachate collection sump by an above-grade pump located at PS-7. The leachate collection sump pumps leachate using a submersible pump in the sump to the MLPS or Pond B via an underground force main.

There are separate pumps for the leachate collection (submersible pump) and detection (above grade pump) sideslope risers. The levels in each sump are controlled with pressure transducers at the bottom of the riser pipes. These transducers are programmed for a high-level alarm at 48 inches, pump on at 24 inches, and pump off at 12 inches. All elevations are from the bottom of the Section 7 sump. Flow measurements are taken using readings from magnetic flow meters on each discharge line. Separate sampling ball valves allow separate leachate samples to be taken from either the collection or detection sumps.

4.2.2 Section 8 – (No Pumping Systems)

Section 8 was constructed by connecting the leachate collection and detection systems to the Section 7 systems. No pumping systems are included in the Section 8 design. Section 8 uses the sumps and pumps for Section 7 to pump leachate to the MLPS or Pond B.

4.2.3 Section 9 – Pump Station 9 (PS-9)

The Section 9 area includes sideslope riser pipes—two for the primary leachate collection and one for the leachate detection systems—with submersible pumps. All the pumps for the Section 9 area are controlled by a separate control panel located on the south side of Section 9. Leachate is conveyed by a buried forcemain which connects to the existing forcemain on the south side of Section 7. The forcemain then continues to the leachate storage tank (T1) or effluent/leachate storage tank (T6) northeast of the CEA.

The Section 9 pumps are controlled by a bubbler level sensing system at the PS-9 control panel. The standard practice bubbler settings for the leachate collection pumps from the bottom of the sump are high-level alarm at 36 inches, lag pump on at 33 inches, lead pump on at 27 inches, and low level alarm at six inches. The standard practice bubbler settings for the detection pump from the bottom of the sump are high-level alarm at 36 inches, pump on at 27 inches, and pump off at 21 inches.

In addition, the Section 9 pumps are deactivated when the leachate storage tank (T1) senses a high-level alarm.

4.3 MAIN LEACHATE PUMP STATION (MLPS)

The MLPS consists of a 7-foot-square (inside dimension) below-grade concrete sump with dual submersible pumps (i.e., one operating and one stand-by). Each submersible pump is rated to pump at a maximum discharge rate of 240 gpm. The operating pump is set for a 24-hour operation cycle with the “on” float at 48 inches from the sump bottom and the “off’ float at 24 inches from the sump bottom.

If a high-level condition occurs at the MLPS sump, the control panel will shut down PS-7, PS-A, PS-B, PS-2, and all pneumatic pumps. It will also transmit a signal, via a transceiver, with the sump condition to the control computer in the LTRF effluent/leachate storage tank (T6). Maintenance and inspection of the MLPS pump are described in Section 10.0.

From the MLPS, leachate is pumped to the 575,000-gallon leachate storage tank (T1) or to the 575,000-gallon effluent/leachate storage tank (T6) [effluent/leachate storage tank (T6)—for emergency use only, as described in Section 7.0] at the LTRF.

5.0 LEACHATE STORAGE TANK (T1)

Leachate from Phases I-VI and the CEA is currently stored in a 575,000-gallon (maximum capacity) glass-fused-to-steel aboveground raw leachate holding tank before being treated or hauled. The leachate level in the leachate storage tank (T1) is maintained to provide for the maximum storage capacity possible. The leachate storage tank (T1) is maintained with an average low level of six feet (as measured from the bottom of the tank) or 173,000 gallons to ensure that enough leachate is available for the LTRF to operate 3 days without interruptions. When the level in the leachate storage tank (T1) is below six feet, leachate hauling and spray evaporation will be temporarily reduced or stopped. Similarly, an action level is established for a high level of 11 feet (from bottom of tank) in the leachate storage tank (T1). A level of 11 feet provides a storage capacity in the leachate storage tank (T1) of 259,000 gallons (4 days' storage) to allow continuous operation of the landfill pump stations. When levels are above 11 feet, treatment, hauling, and/or spray evaporation will be increased.

If a high-level alarm condition occurs (at 17.5 feet) in the leachate storage tank (T1), the LTRF will continue to operate, and the MLPS, PS-9, and the LTRF filtrate pumps will be shut down. A signal indicating the leachate storage tank (T1) condition will be sent to the control computer in the LTRF. When a high-level alarm condition exists, additional hauling trucks will be used to transport the leachate to a WWTP, thus lowering the leachate level in the tank.

5.1 T1 SECONDARY CONTAINMENT SYSTEM

The LTRF leachate tank system is located within a concrete containment area. The secondary containment area has two sumps for stormwater drainage with 6-inch diameter HDPE pipes. The gate valves from the HDPE pipes are normally closed, in the event of an uncontrolled release. The gate valves are occasionally opened to release stormwater from the impoundment as needed. The LTRF secondary containment area was designed to hold 110% of the volume of the largest storage tank in case of failure of the tanks. Therefore, the concrete flooring and containment walls will be inspected weekly for cracks or structural deficiencies as discussed in Section 5.3. Any cracks will be immediately sealed using flexible concrete grout. Any structural deficiencies will be identified and corrective action taken to repair the walls.

5.2 T1 LIQUID LEVEL MONITORING

The leachate storage tank (T1) contains an overflow pipe. The overflow pipe is installed outside of the storage tank, with the tank sidewall penetration within 30 inches of the top of the sidewall of the tank. The tank is equipped with liquid level indicators that are float-operated with a direct readout. The level gauge boards are mounted in a highly visible location on the exterior of the tank. The tank level is recorded daily on the leachate reporting forms. An example form is provided in **Appendix A**.

5.3 T1 EXTERIOR AND INTERIOR INSPECTIONS

The following describes the inspections of the leachate storage tank (T1) and procedures to be followed after the inspections:

- Overfill Prevention System: The overfill prevention system components will be inspected weekly. These components include level sensors, gauges, high-level alarm, and automatic shutoff controls.

- Tank Exterior: The exterior of the tanks and the secondary containment system will be inspected weekly for adequacy of the impressed current cathodic protection system, leaks, corrosion, and maintenance deficiencies. The control panel for the impressed current cathodic protection system (located on the outside of the secondary containment walls next to the truck loading station) will be inspected to ensure that it is working properly. In addition, the inspection includes evaluating structural damage to the tank, damage to the coating system, loose connections, corrosion, visible leaks, and maintenance deficiencies. The inspector will also look for any structural damage to the concrete slab, peeling of the paint system, and visible leaks.
- Tank Interior: The interior of the tanks will be inspected whenever the tanks are drained or at least every three years. The inspector will look for any damage to the interior coating system, structural damage, cracking of the tank, visible leaks, and any accumulation of sludge.
- Procedures for Corrective Actions: If inspections reveal any deficiencies with the tank or the secondary containment system that could result in the system's failing to contain the leachate, the SWMG shall take immediate action to correct the situation by assessing the problem and coordinating the required actions. Failures or damage to the tanks will be repaired by the tank manufacturer or a designated contractor. The SWMG shall notify the manufacturer or designated contractor of the situation; the tank manufacturer or designated contractor will remediate the tanks and prepare a detailed damage-assessment report. FDEP will be notified in writing of the situation and of the proposed corrective action.

Inspection Reports: Inspection reports and reports of any remedial action measures taken will be maintained at the SCLF and will be made available to FDEP upon request. The weekly inspection report form is provided in **Appendix A**. All reports will be maintained for the life of the tanks and the containment system.

6.0 LEACHATE TREATMENT AND RECLAMATION FACILITY (LTRF)

In December 1994, the SWMG constructed an on-site LTRF. The LTRF system and operation are described in detail in the *General Process and Operation Manual for the Powder Activated Carbon Treatment (PACT) System, Volume III*, prepared by Zimpro Environmental, Inc. dated March 1994.

Process tanks and equipment are maintained in accordance with *General Process and Operation Manual for the Powder Activated Carbon Treatment (PACT) PACT System*, dated March 1994.

After treatment, the leachate is pumped through a 4-inch-diameter single-walled HDPE pipe to the effluent storage pond (Pond A) or the effluent/leachate storage tank (T6) described in Section 7.0. The effluent from the LTRF must meet pre-treatment standards before being pumped to a tanker truck for transport to Hillsborough County's wastewater treatment facilities.

7.0 EFFLUENT/LEACHATE STORAGE TANK (T6)

The effluent/leachate storage tank (T6) is a welded steel aboveground tank with a maximum capacity of 575,000 gallons. The effluent/leachate storage tank (T6) receives treated leachate (effluent) from the LTRF and pumps effluent to the effluent storage pond (Pond A) or stores the effluent for transport to Hillsborough County's wastewater treatment facilities or a permitted wastewater treatment and disposal facility listed in **Table 8.6.2**. If leachate must be stored in the effluent/leachate storage tank (T6) from the MLPS while the leachate storage tank (T1) is repaired or inspected, normal operations at the LTRF will stop. Once the leachate storage tank (T1) is repaired or inspected, the leachate stored in the effluent/leachate storage tank (T6) will be pumped back to the leachate storage tank (T1). The effluent/leachate storage tank (T6) will be cleaned of leachate before effluent storage resumes.

The following standard and special setting conditions are applicable to T6:

1. Pump effluent from the LTRF to the effluent/leachate storage tank (T6) (standard practice).
2. Pump effluent from the effluent/leachate storage tank (T6) to Pond A or the truck loading area (standard practice).
3. Pump leachate from the MLPS to the effluent/leachate storage tank (T6) (special condition).
4. Pump leachate from the effluent/leachate storage tank (T6) to the leachate storage tank (T1) (special condition).

7.1 T6 SECONDARY CONTAINMENT SYSTEM

The secondary containment system for the effluent/leachate storage tank (T6) can contain a minimum of 110% of the total volume of the tank. The effluent/leachate storage tank (T6) provides 575,000 gallons of maximum storage.

The secondary containment system consists of a 60-mil HDPE geomembrane lined basin. The tank is constructed at the bottom of the basin on a reinforced concrete pad and surrounded by a 6-inch thick reinforced concrete walkway. The lined basin is connected at the walkway slab and runs up 3H:1V sideslopes where it is anchored at a 12-foot wide berm.

The precipitation collected in the containment area is pumped into the adjacent stormwater management system via a horizontal submersible pump and sideslope riser. The sideslope riser system includes an additional camlock connection to be used for emergency effluent/leachate removal using an additional pump. Any spilled leachate and/or effluent that accumulates in the secondary sump is pumped to the leachate storage tank (T1) via a suction line originating from the horizontal centrifugal pump at the loading pad. The centrifugal pump is equipped with valves to operate in suction mode to remove any spilled effluent/leachate from the secondary sump. The submersible sump pump is manually operated to remove stormwater or used as an alternate for effluent/leachate removal.

Accumulated precipitation will be removed within 24 hours of observation. The precipitation will be pumped into the adjacent stormwater management system.

Accumulated liquid in the trench drain that is not precipitation resulting from a recent storm event will be treated as effluent and pumped into the effluent/leachate storage tank (T6).

7.2 T6 LIQUID LEVEL MONITORING

The effluent/leachate storage tank (T6) contains an 8-inch overflow pipe. The overflow pipe is installed outside of the effluent/leachate storage tank (T6) with the tank sidewall penetration within 30 inches of the top of the sidewall of the tank. The tank is equipped with liquid level indicators that are float operated with a direct readout. The control panel is mounted in a highly visible location on the exterior of the tank. When the high-level alarm condition occurs (at 17.5 feet), a visual and audible alarm (a light and horn) located at the control panel to alert staff of a potential problem before overflow. The effluent/leachate storage tank (T6) level is recorded daily on the leachate reporting forms provided in **Appendix A**.

7.3 T6 EXTERIOR AND INTERIOR INSPECTIONS

The following describes the inspections of the effluent/leachate storage tank (T6) and steps to be followed after the inspections.

- Overfill Prevention System: The overfill prevention system components will be inspected weekly. These components include level sensors, gauges, high-level alarm, and automatic shutoff controls.
- Tank Exterior: The exterior of the tank and the secondary containment system will be inspected weekly for adequacy of the cathodic protection system, leaks, corrosion, and maintenance deficiencies. In addition, the inspection includes an evaluation of any structural damage to the tank, damage to the coating system, loose connections, corrosion, visible leaks, and maintenance deficiencies. The inspector will also look for any structural damage to the concrete slab or HDPE lining of the secondary containment system, peeling of the paint system, and visible leaks.
- Tank Interior: The interior of the tank will be inspected whenever the tank is drained or at least every three years. The inspector will look for any damage to the interior coating system, structural damage, cracking of the tank, visible leaks, and accumulation of sludge.
- Procedures for Corrective Actions: If inspections reveal any deficiencies with the tank or the secondary containment system that could result in failure of the system to contain the leachate, the SWMG shall take immediate action to correct the situation by assessing the problem and coordinating the required actions. Failures or damage to the tanks will be repaired by the tank manufacturer or a designated contractor. The SWMG shall notify the manufacturer or designated contractor of the situation; the tank manufacturer or designated contractor will remediate the tanks and prepare a detailed damage assessment report. FDEP will be notified in writing of the situation and of the proposed corrective action.
- Inspection Reports: Inspection reports and reports of any remedial action measures taken will be maintained at the SCLF and will be made available to FDEP upon request. The weekly inspection report form is provided in **Appendix A**. All reports will be maintained for the life of the tanks and the containment system.

7.4 ACID MIXER AND TANK

The acid dosing pumps at the effluent/leachate storage tank (T6) pump station inject sulfuric acid into the 4-inch effluent pipe. Landfill personnel monitor the pH by pulling grab samples from the sampling port or reading from the pH meter at the control panel, thereby allowing the acid dosing to be optimized and preventing large swings in pH. The acid dosing rate is controlled by an operator at the control panel using the pH readout to adjust the acid dose to achieve the appropriate pH range. Also, the system includes controls between the acid dosing pumps and the pH meter to allow automatic acid dosing. The acid dosing pump controls are connected to the booster pump controls so acid dosing will only occur when the booster pumps are running. In addition, when the booster pumps are signaled off, the acid dosing pumps stop and the booster pumps continue to run for approximately 30 seconds to allow the piping system to be flushed of any residual acid.

8.0 LEACHATE AND EFFLUENT DISPOSAL

Leachate is disposed of at the SCLF by various methods, including treatment at the on-site LTRF, volume reduction at the LEF, hauling of raw leachate via tanker truck to a permitted WWTF, and truck-mounted spray evaporation of raw leachate within the contained working surface. Effluent from the on-site LTRF is disposed of by an effluent spray irrigation system, effluent evaporation, or transporting effluent via tanker trucks to a permitted WWTF.

8.1 EFFLUENT STORAGE POND

The effluent storage pond (Pond A) receives treated leachate (effluent) from the LTRF or the effluent/leachate storage tank (T6). The pond is lined with 80-mil HDPE and provides for temporary effluent storage of 120,000 gallons plus one foot of freeboard. Using the existing staff gauge in the pond, Pond A is maintained at a maximum depth of 3.7 feet (elevation 136.9) and a minimum depth of six inches. The minimum depth of six inches provides head over the liner to prevent damage due to uplift from wind and other elements. Off-site hauling could increase if levels in Pond A reach the maximum level of 3.7 feet. In addition, an overflow pipe allows flow from Pond A into Pond B. Similarly, if levels are below six inches, irrigation, evaporation, and off-site hauling from Pond A will be temporarily reduced.

The following standard and special setting conditions are applicable at Effluent Storage Pond A:

1. Pump effluent from Pond A to spray irrigation system (standard condition).
2. Pump effluent from Pond A to truck loading arm (standard condition).
3. Recirculate effluent in Pond A to stabilize pH (special condition).

8.2 EFFLUENT/LEACHATE STORAGE POND B

The effluent/leachate storage pond (Pond B) provides an additional storage volume of 236,000 gallons and is located west of Pond A, as shown in **Figure 3-1**. Pond B was designed with one foot of storage for the 25-year/24-hour storm and one foot of freeboard. The pond was designed to store either raw leachate or effluent; however, Pond B's primary use is for storage of effluent and leachate mixture for volume reduction at the LEF. The leachate and effluent mixture is pumped from Pond B to the LEF for volume reduction processing. Diversion of PS-A and PS-7 leachate from the MLPS to Pond B is controlled by a telemetry system that utilizes liquid level measurement devices and automatic valve controls to maintain the Pond B depth with at least one foot of freeboard.

Pond B was designed with an upper and lower 60-mil HDPE geomembrane. An HDPE geonet was installed between the two liners. The subbase for the lower geomembrane consists of six inches of soil with a saturated hydraulic conductivity of 1×10^{-5} centimeters per second or less, installed over the on-site soil which was cleared of vegetation and graded. Supplemental effluent evaporation in Pond B is provided using a spray evaporation system. The spray evaporation nozzle system was designed around the perimeter of the pond and consists of 30 nozzles, with an estimated flow capacity of 17-gpm per nozzle and a 510-gpm pump.

In general, the SWMG operates the spray evaporation system manually and only during the hours the landfill is open. The spray evaporation system is not operated during windy conditions (i.e., over 10 miles per hour) to prevent overspray outside the limits of the pond liner system.

The following standard and special setting conditions are applicable at Effluent/Leachate Storage Pond B:

1. Effluent and leachate mixture storage and spray evaporation operation in Pond B (standard practice).
2. Effluent and leachate mixture storage in Pond B for conveyance to the LEF for volume reduction processing (standard practice).
3.

8.2.1 Pilot Ash-Reuse Leachate

The SWMG operates a temporary ash-reuse project on top of Phase III. The project is managed in accordance with the "Temporary Ash Aggregate Screening and Storage Project Operation & Maintenance Plan" dated August 2017. The runoff within the project bermed area is treated as leachate and drains into a sump. The sump is connected to a diesel vacuum assisted pump. The pump discharge is routed within an aboveground HDPE pipe to the double-lined Pond B. All liquids in Pond B are either pumped into trucks to be hauled to a WWTP or pumped (via MLPS) to the LTRF for on-site treatment. At the completion of this project, the diesel pump and HDPE pipe will be removed.

8.3 EFFLUENT IRRIGATION

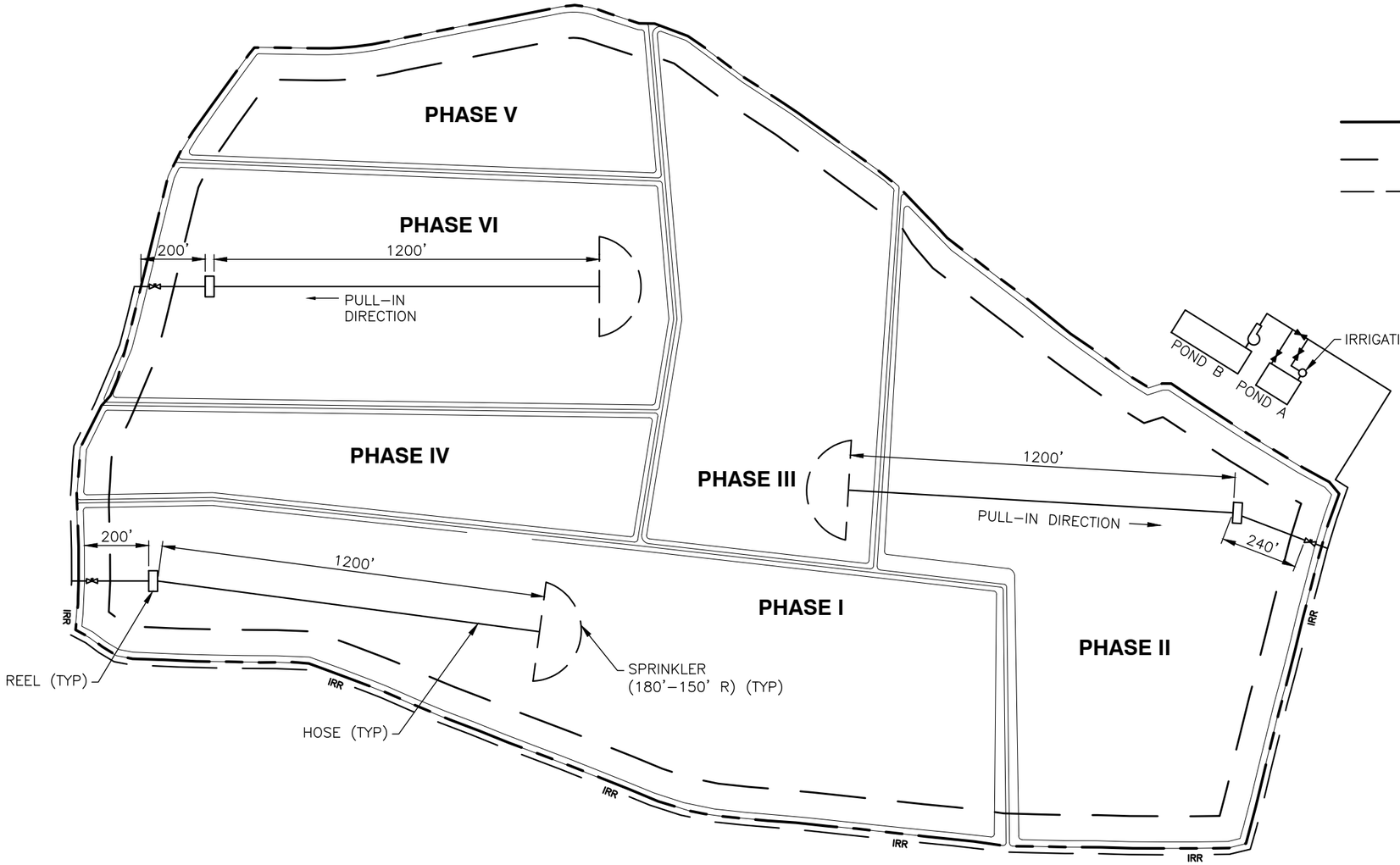
8.3.1 Effluent Irrigation Pump Station

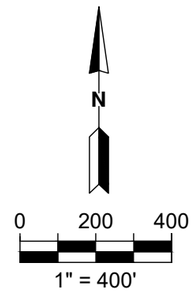
The effluent irrigation pump station consists of a 5-foot square (inside dimension) below-grade concrete sump with dual vertical turbine pumps (one operating and one stand-by). From the effluent irrigation pump station, effluent is pumped to the spray irrigation system on the landfill. The pump in operation is set manually depending on weather conditions.

The effluent irrigation pump station is hydraulically connected to Effluent Pond A, and Effluent Pond A is hydraulically connected via pipe to Effluent/Leachate Pond B; therefore, if the effluent irrigation pump station reaches high level, it will drain to Ponds A and B and not overflow. Ponds A and B are visually monitored by landfill operations personnel and if high level conditions occur, steps are initiated as described in Sections 8.1 and 8.2 for Ponds A and B, respectively.

8.3.2 Effluent Spray Irrigation

The SWMG operates a mobile irrigation system consisting of two irrigation reels. The mobile irrigation reels in **Figure 8-1** are shown positioned on the west side of Phase I and on the east side of Phase II. Additionally, **Figure 8-2** depicts a conceptual irrigation reel position on the north side of Section 7 of the CEA. These locations are shown for information purposes only since the position will change due to operational constraints with waste filling. Only effluent will be disposed of through the spray irrigation system.





LEGEND:

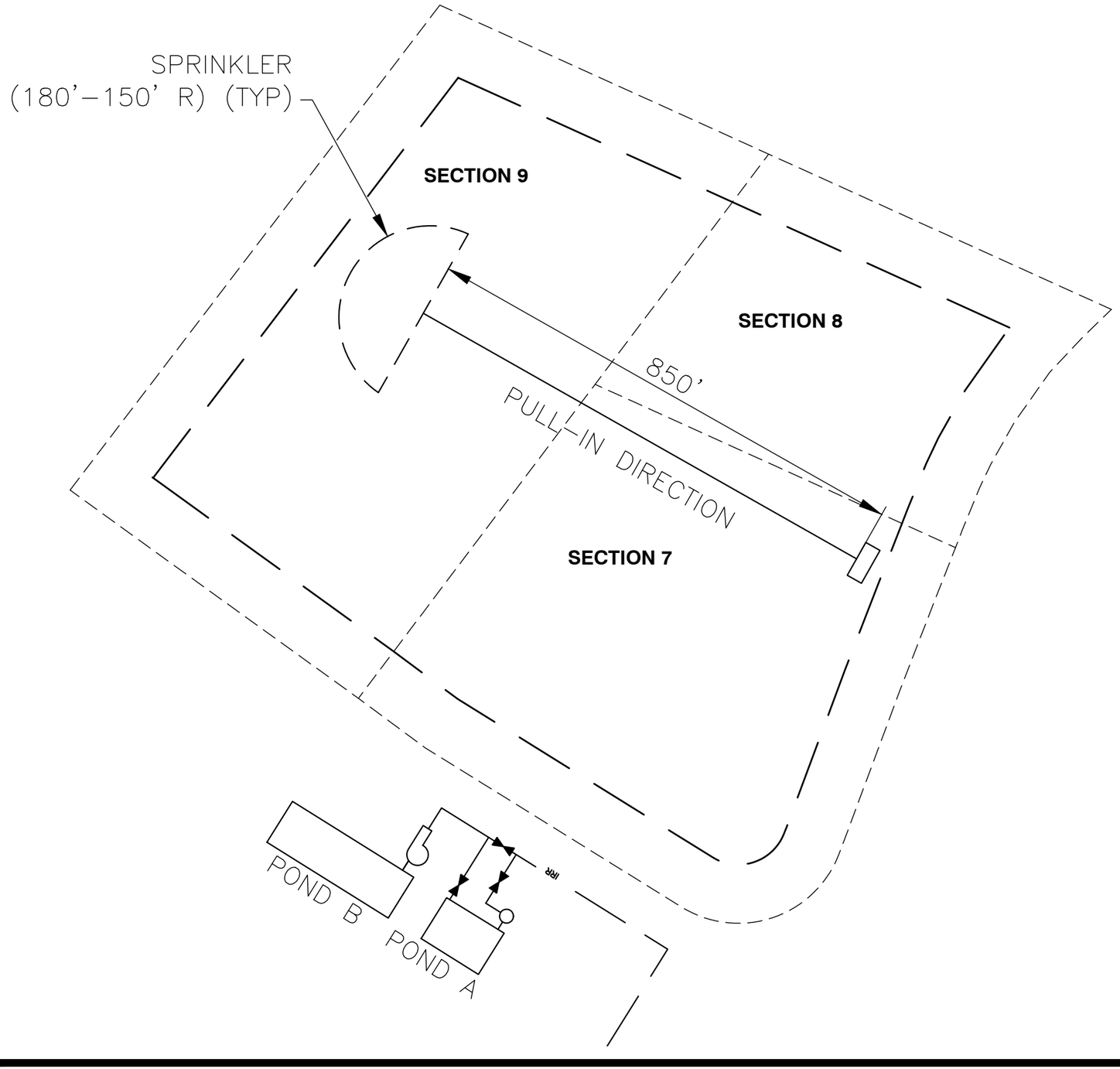
- APPROXIMATE LANDFILL LIMITS
- 100' SPRAY IRRIGATION MINIMUM SETBACK
- IRR 6"ø HDPE IRRIGATION HEADER
- GATE VALVE – NORMALLY CLOSED
- PUMP
- SOLENOID VALVE (TYP)

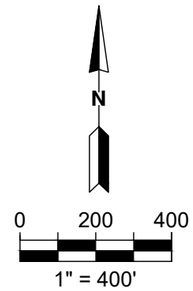
NOTE:

THE SPRAY IRRIGATION SPRINKLER REELS ARE MOBILE AND ARE MOVED AS NEEDED. THE LOCATIONS SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY.

SCS ENGINEERS

FIGURE 8–1. LOCATION OF PHASE I–VI IRRIGATION SPRINKLER REELS
HILLSBOROUGH COUNTY
FEBRUARY 2021





LEGEND:

- SECTION 7, 8, AND 9 BOUNDARY
- 100' SPRAY IRRIGATION MINIMUM SETBACK
- IRR 6"ø HDPE IRRIGATION HEADER
- GATE VALVE – NORMALLY CLOSED
- PUMP
- SOLENOID VALVE (TYP)

NOTE:

THE SPRAY IRRIGATION SPRINKLER REELS ARE MOBILE AND ARE MOVED AS NEEDED. THE LOCATION SHOWN IS FOR ILLUSTRATIVE PURPOSES ONLY.

SCS ENGINEERS

FIGURE 8–2. LOCATION OF CEA IRRIGATION SPRINKLER REEL
HILLSBOROUGH COUNTY
FEBRUARY 2021

The operational sequence of the mobile reel irrigators is as follows:

- Before each irrigation event, the medium-density polyethylene (PE) hose is stretched out with a vehicle (approximately 1,200 linear feet). At the end of the PE hose is a spray nozzle that applies the effluent across a large area to maximize evaporation and prevent runoff from draining into the stormwater system.
- Once both PE hoses have been stretched out across the top of the landfill, personnel manually turn on the irrigation pump. The pumps maintain an operating pressure in the irrigation reel. The reel is equipped with a drive system that automatically reels in the PE hose and spray irrigation nozzle at a preset rate (i.e., 200 feet per hour).
- At the end of the irrigation cycle, personnel manually turn off the irrigation pump.

Spray irrigation occurs under the following conditions:

- Spray irrigation is applied at a rate of one pass per day with a maximum application rate of 0.30 inch per day of effluent. Under no circumstances is effluent allowed to discharge as runoff to adjacent stormwater systems. Effluent is not sprayed during severe weather conditions or in quantities that may cause runoff, surface seeps, wind-blown spray outside of the landfill footprint, or ponding on the cover.
- Spraying takes place only when rainfall runoff into the on-site retention areas down gradient from the spray areas has terminated for two hours based on daily inspections of the influent point to each related retention area.
- Spray irrigation of effluent is not conducted within 100 feet of the landfill liner perimeter trench, on slopes steeper than 10%, nor on areas with permanent final cover.
- Spray irrigation may be used on areas with bare ground (little or no grass) or on areas which have been seeded to help with grass growth. These areas will not allow runoff to the stormwater system, as described in this Section.
- Spray irrigation of treated effluent will only be conducted only between 8:00 A.M. and 4:00 P.M.

The leachate reporting forms provided in **Appendix A** are completed monthly and submitted at least quarterly to FDEP and the Environmental Protection Commission (EPC) by the 15th of January, April, July, and October of each year. At a minimum, the following data are recorded daily.

- Effluent sprayed in gal/day.
- Rainfall on site in inches/day and time of day.
- Observed runoff influent to retention areas (yes and/or no).
- Time of day of inspection.

8.4 LEACHATE EVAPORATOR FACILITY VOLUME REDUCTION

The LEF is located to the north of the candlestick flare as shown in Figure 3-1. A mixture of leachate and effluent is pumped from Pond B to the LEF for volume reduction via forcemain. Upon arrival at the LEF, the leachate is subjected to heat generated by the combustion of landfill gas, evaporating water vapor and reducing the leachate volume. The liquid residuals remaining following processing are disposed of using the currently approved leachate disposal methods contained within this LMP Section 8.5 and in accordance with 62-701.500 FAC.

The LEF process area is located within a contained concrete pad that drains to a sump. Liquids collected in the LEF process area sump are returned to Pond B for storage and reprocessing as shown on Figure 4-1.

8.5 LEACHATE AND EFFLUENT EVAPORATION VIA TRUCK-MOUNTED SPRAYING

Evaporation is employed as a supplemental method of disposing of leachate and processed LEF residuals. The supplemental evaporation of leachate and processed LEF residuals involves spraying small quantities—an average of 9,700 gallons per day—from a spray bar mounted on the rear of a tank truck onto active-fill areas of the landfill. This approach has been used successfully at the SCLF since 1984. The advantages of this method are the reduction of leachate and LEF residuals by evaporation, the promotion of the decomposition of organic matter in the landfilled refuse, and dust control.

The SWMG monitors the rate of application, soil moisture conditions, and the specific landfill areas used so that this leachate and LEF residuals disposal method does not generate runoff. Leachate and LEF residuals spray evaporation is applied under the following conditions.

- Leachate is only sprayed on active-fill areas, including the working face, and areas with the required six inches of initial cover.
- Leachate is not sprayed on areas with intermediate or final cover, seeded or unseeded.
- The maximum grade leachate may be sprayed on is 10H:1V slope. Areas within 150 feet of a 4H:1V or steeper sideslope may not be sprayed on. At all times, areas receiving leachate are controlled to prevent leachate runoff from entering the stormwater system.
- Leachate is not sprayed when it is raining.
- The tank truck spray bar method maximizes evaporation. The application rate of leachate will be such that leachate does not accumulate on the landfill surface nor infiltrate quickly into the covered refuse. Evaporation is the main goal of this leachate disposal method.
- Leachate is not sprayed at the end of the day on the initial cover of the working face or other areas. Spraying is done early in the morning after any dew evaporates and continues until early afternoon or until all available areas have been sprayed.

The SWMG evaporates leachate and effluent in full conformance with Chapter 62-701, FAC. The SWMG notifies FDEP of all evaporated quantities in the monthly water balance reports.

8.6 EFFLUENT AND LEACHATE TRUCK LOADING FACILITIES

8.6.1 Truck Loading Procedures

Truck loading facilities are located at the LTRF, Effluent Pond A, and the effluent/leachate storage tank (T6).

The truck loading stations include a loading arm for discharging stored leachate or effluent from the leachate storage tank (T1), effluent/leachate storage tank (T6) and Ponds A/B to a transfer tanker for disposal. Tanker trucks remove the liquid from the LTRF, effluent/leachate storage tank (T6), or Ponds A/B and transport the liquid to a permitted WWTF.

The truck loading facilities are equipped with flow meters that provide readout of the gallons of liquid that have been pumped into the tanker trucks. The capacity of each tanker truck is approximately 6,000 to 8,000 gallons, and the leachate tankers are normally filled. If the flow meter gauges are inoperable or not accurate, the quantity of leachate removed can be determined by converting the weight for the truck scale weight tickets to gallons (tons x 2,000 lb/ton/8.34 lb/gal = gallons).

Appendix A includes a Leachate Hauling/Disposal Reporting Form for use when loading leachate or effluent for off-site disposal. The daily field data entry form provided in Appendix A includes recording leachate storage tank (T1) levels. The external level indicators provide a measured indication of the depth of the leachate or effluent in the storage tanks. Information required includes the time of day and the level indicated on the side of the storage tank. Each reading of the storage tanks should be conducted at approximately the same time each day. This will provide the landfill operations personnel with a relative basis for comparing the amount of leachate stored daily and generated daily.

The SWMG has its own tanker trucks as well as a contract with haulers and WWTFs to haul and treat leachate stored in the tanks for disposal. The private tanker vehicles are required to have onboard pump systems or provide portable pumps if the storage system pumps fail.

8.6.2 Wastewater Treatment Facilities

Leachate can be disposed of offsite at a permitted WWTF. Agreements exist with the Hillsborough County Public Utilities Department (PUD) allowing the discharge of leachate or effluent to three (3) of Hillsborough County's WWTFs (Valrico, Falkenburg, and South County WWTF). Hillsborough County and private contract fleets are used to haul the leachate to a lift station designated by PUD, which discharges to one of the approved WWTFs.

Alternatively, leachate may be hauled to one of the permitted wastewater treatment and disposal facilities listed in Table 8.6.2 by County-owned trucks and private contract fleets. Leachate will be measured by a flow meter as the tanker trucks are loaded at the LTRF truck loading stations.

Table 8.6.2 Private Leachate Treatment and Disposal Facilities

Facility Name	Address
Aqua Clean	3210 Whitten Rd., Lakeland, FL 33811
Universal Environmental Solutions	1650 Hemlock St., Tampa, FL 33605
Liquid Environmental Solutions (LES)	1640 Talleyrand Rd., Jacksonville, FL 32206
City of North Port	5355 Pan American Blvd., North Port, FL 34287
Frankens Energy LLC	925 74th Ave. SW, Vero Beach, FL 32968
Covanta Energy Corporation	3830 Rogers Industrial Park Rd., Okahumpka, FL 34762

9.0 LEACHATE FLOW MEASUREMENT, DATA COLLECTION, AND REPORTING

9.1 GENERAL LEACHATE FLOW MEASUREMENT

Once collected, the leachate is pumped to the leachate storage tank (T1). From the storage tank (T1), the leachate can be conveyed to the on-site LTRF for treatment or hauled off-site to a permitted wastewater treatment facility. Leachate quantities from each landfill area are measured via flow meters at each pump station that can provide readout of gallons of liquid removed.

If leachate is classified as a hazardous waste, it will be managed in accordance with Chapter 62-730, FAC, “Hazardous Waste.”

9.1.1 Effluent Quality

To provide reasonable assurance of adequate leachate treatment, the SWMG samples and analyzes the treated leachate (effluent) semi-annually for primary and secondary drinking water parameters and EPA priority pollutants. Samples will be taken after the LTRF has achieved steady-state conditions with regard to its treatment capability or within 30 days after downtime due to maintenance or repairs, whichever is less.

In addition, effluent grab samples before disposal are taken for the following parameters at the frequency indicated:

Parameter	Frequency	Units
pH	weekly	Std. Units
BOD_5	monthly	mg/L
COD	monthly	mg/L
TSS	monthly	mg/L
NO_3-N	monthly	mg/L
TDS	monthly	mg/L

9.1.2 Biosolids Quantity and Disposal

The biosolids from the LTRF are disposed of at the SCLF if they are found to be non-hazardous and pass the paint filter test. The biosolids are sampled and analyzed annually for EPA priority pollutants, the toxicity characteristic leaching procedure (TCLP), and for the following parameters:

Parameters	Units
Total nitrogen	percent (dry weight)
Total phosphorus	percent (dry weight)
Total potassium	percent (dry weight)
Arsenic	mg/kg (dry weight)
Cadmium	mg/kg (dry weight)
Copper	mg/kg (dry weight)
Lead	mg/kg (dry weight
Mercury	mg/kg (dry weight)
Molybdenum	mg/kg (thy weight)
Nickel	mg/kg (dry weight)
Selenium	mg/kg (dry weight)
Zinc	mg/kg (dry weight)
pH	std. units
Solids	percent

If the biosolids are found to be hazardous, the material will be managed in accordance with Chapter 62-730, FAC, “Hazardous Waste.”

9.2 PHASES I-VI MONITORING

9.2.1 Flow Measurement

For Phases I-VI, the leachate quantity is recorded by flow meters at PS-A. SWMG personnel record flow meter readings each day the SCLF is open and the quantities are reported to FDEP. Sample leachate reporting forms are included in Appendix A.

9.2.2 PS-B Settlement Plates

Four settlement plates were installed at the bottom of each corner of the vault for PS-B in Phase VI. The rods for these plates have been extended during operation of the landfill. The elevation of these plates will be measured annually. The historical measurements are maintained at the Administration Building. The rods for the settlement plates will be less accurate as operations continue due to deformation from settlement of the waste between the top of waste and PS-B. If, after two consecutive annual measurements from any of the four settlement plates there is no change in elevation, that settlement plate is assumed to be malfunctioning and will not be measured in future events. The settlement at malfunctioning settlement plates is assumed to be the same as the settlement measured at adjacent functioning plates.

9.2.3 Bottom Liner Clay Evaluation

Approximately one year before a particular phase of Phases I-VI is entered, an in-situ, undisturbed, clay sample will be collected from beneath the phase proposed to be filled. The collected clay sample will be tested and the shear strengths computed.

The in-situ, undisturbed, clay sample will be tested either using a direct shear test (ASTM D-3080) or tri-axial test (ASTM D-2850/4767) method to determine the clay strength. Three individual testing points—covering the existing, proposed filling, and proposed final build-out pressures—will be conducted. A representative phi and cohesion value will be determined to cover proposed filling and final build-out strengths.

Slope stability models, using both sliding block and circular failure methods, will be conducted on the proposed filling and the final-build out conditions. If a factor of safety (FS) of 1.5 or greater is achieved for a particular filling scenario, that particular phase is deemed complete and no further testing for that phase is necessary. If a particular filling scenario does not achieve a FS of 1.5 or greater, recommendations for filling the phase will be provided.

Results of the slope stability models, along with a report and recommendations signed and sealed by a professional engineer, will be submitted to FDEP for approval at least six months before filling begins in that phase.

9.2.4 LCRS Monitoring Locations

In accordance with Alternate Procedure No. SWAP 19-1, the SWMG will collect daily liquid level measurements from the PS-B sump, from within the MP 2-2 riser, and from within the CO 2-1 header access cleanout, near the PS-2 intake. The liquid level in PS-B (PS-B reading) will be operated at or below 30 inches, the PS-B maintenance level. The liquid level in MP 2-2 will be maintained at or below 30 inches, the MP 2-2 maintenance level. The liquid level near the PS-2 intake, located within the primary LCRS, header pipe will be maintained at or below 30 inches, the CO 2-1 maintenance level. Should the liquid level within PS-B or the MP 2-2 monitoring point fall out of the maintenance

level range for four (4) consecutive days, the SWMG will enact LCRS inspections and liquids management actions, with the exception of an extraordinary rainfall event.

An extraordinary rainfall event is defined as precipitation resulting from a named tropical storm or hurricane, recognized by the National Oceanic and Atmospheric Administration that effects Hillsborough County, Florida. In the event of an extraordinary rainfall event, a 30-day exception would be allowed to achieve maintenance levels. The monitoring locations, maintenance levels, and liquids management actions that the SWMG will conduct are outlined in **Table 9.2.4**.

Table 9.2.4 Liquid Levels Maintenance Schedule

Monitoring Location	Performance Criteria	Liquids Management Actions
PS-B	At or Below 30 inches as measured from the PS-B reading	1. If the maintenance level rises above 30 inches for four (4) consecutive days, SWMG will inspect the pressure level sensor and verify proper operation. If the pressure level sensor is operating correctly and the PS-B maintenance level is not being met, proceed to the next appropriate corrective action. 2. If the maintenance level is above 30 inches for four (4) consecutive days a temporary pump will be installed into either CO 3-1, CO 1-1, or CO 2-4 header until the PS-B reading returns to the maintenance level.
MP 2-2	At or Below 30 inches as measured from the MP 2-2 pressure level sensor	1. If the maintenance level rises above 30 inches for four (4) consecutive days, SWMG will remove and inspect the PS-2 intake pipe. If the proper function of the intake pipe is verified, and the MP 2-2 maintenance level is not being met, proceed to the next step. 2. If the maintenance level rises above 30 inches for four (4) consecutive days, the SWMG will notify FDEP and install a temporary pump to remove liquid directly from the cutoff trench until the maintenance level can be maintained in MP 2-2 without the assistance of a temporary pump.
CO 2-1	At or Below 30 inches as measured from the CO 2-1 pressure level sensor	1. If the maintenance level rises above 30 inches for four (4) consecutive days, SWMG will inspect the pressure level sensor and verify proper operation. If the measurement device is operating correctly and the CO 2-1 maintenance level is not being met, proceed to the next step. 2. If the maintenance level rises above 30 inches for four (4) consecutive days, SWMG will remove and inspect the PS-2 intake pipe. If the proper function of the intake pipe is verified, and the CO 2-1 maintenance level is not being met, proceed to the next step. 3. If the maintenance level rises above 30 inches for four (4) consecutive days, the SWMG will notify FDEP and install a temporary pump to remove liquid directly from the cutoff trench (CO 1-4, CO 2-2, or CO 2-3) until maintenance levels can be maintained in CO 2-1 without the assistance of a temporary pump.

9.3 CAPACITY EXPANSION AREA MONITORING

9.3.1 Flow Measurement

Under standard practice, leachate from Sections 7 and 8 is collected from the sump risers in the southwest corner of Section 7 at PS-7 and leachate from Section 9 is collected from the south side slope riser at PS-9. The leachate from Sections 7 and 8 is pumped to the MLPS and then via force main to the leachate storage tank (T1). The leachate force main from PS-9 is tied into the MLPS force main to the leachate storage tank (T1); therefore, leachate is pumped directly from Section 9 to the leachate storage tank (T1). The leachate quantities from Section 9 and the MLPS are recorded by separate flow meters before the flow combines in the force main to the leachate storage tank (T1). SWMG personnel record flow meter readings each day the SCLF is open, and report the quantities to FDEP. Sample leachate reporting forms are included in Appendix A.

9.3.2 Leachate Detection Action Leakage Rate

The action leakage rate (ALR) is defined in 40 CFR 265.302 as the maximum design flow rate that the leak detection system (LDS) can remove without the leachate head on the bottom of the liner exceeding one foot. In accordance with Rule 62-701.400(3)(c)2., FAC, the LDS should be designed to limit the head in the LDS to less than one inch of head or the thickness of the geocomposite.

The ALR for Sections 7 and 8 is 100 gal/acre/day. The total estimated footprint area of Sections 7 and 8 is approximately 19.3 acres. An initial response ALR of 1,930 gpd (19.3 acres x 100 gal/acre/day) will be used for the flow rate measured from Sections 7 and 8. The leachate flow from the Section 7 and 8 LDS system is measured by the flow meter from the LDS pump in the southeast corner sump of Section 7.

The ALR for Section 9 is 306 gal/acre/day. The total estimated footprint of Section 9 is 15.2 acres. An initial response ALR of 4,651 gpd will be used for the flow rate measured from Section 9. The leachate flow from the Section 9 LDS system is measured by the flow meter from the LDS submersible pump in the south end sump of Section 9.

Initial ALR actions will include the following.

- Check the pump and flow meter at the LDS sideslope riser for proper operation.
- Increase the pumping rate from the LDS to lower the stored levels of leachate. A pocket or slug of leachate may have been conveyed to the LDS riser. Upon further pumping, the levels or flow rates may be lowered below the ALR.
- Check the cover or capping systems over Sections 7 and 8 or Section 9 to reduce infiltration into the LDS.
- Continue monitoring the flow rates out of the LDS, based on the recommendations above to determine further action, if needed.

If the ALR for Sections 7, 8, or 9 is exceeded, FDEP and EPC will be notified and a written assessment provided within seven days. The written assessment shall demonstrate continued compliance with the double-liner requirements specified in Rule 62-701.400(3)(c)2, FAC, or a corrective action plan and schedule for implementation shall be submitted for FDEP approval.

9.4 MAIN LEACHATE PUMP STATION

Operation of the MLPS is described in Section 4.3.

9.5 LEACHATE TREATMENT AND RECLAMATION FACILITY

Sampling of the LTRF effluent and biosolids is described in Sections 9.1.1 and 9.1.2.

10.0 MAINTENANCE AND INSPECTION

10.1 LEACHATE COLLECTION SYSTEM SCHEDULE FOR MAINTENANCE AND INSPECTION

The leachate facilities are inspected daily. The leachate collection and removal systems will be water pressure cleaned or video inspected as needed during the duration of the permit. The leachate system components will also be maintained as needed. Routine maintenance for these components at the SCLF is performed following the schedule in **Table 10.2**.

10.2 STORAGE TANK MAINTENANCE AND INSPECTION

Storage tank maintenance and inspection procedures are discussed in Sections 5.0 and 7.0.

Table 10.2 Schedule For Maintenance

Component	Frequency	Performance Criteria	Corrective Action
Pump Station A (PS-A)	Pump: semi-annual. Sump: annual.	Pump is unable to maintain the required levels in the sump. Inspect for sediment in sump and adequacy of level controls by testing the automatic on/off float settings (see LMP Section 4.1.1 for PS-A float settings).	Pump inspected for damage or other problems and repaired or replaced as needed. Replacement pump will be installed within 24 hours. If PS-A cannot be repaired before pumping is required, the bypass line will be used to pump leachate from PS-B directly to the MLPS. For level controls (i.e., floats and control panel), if testing fails, remedial measures will be initiated immediately by contacting an electrician and the condition will be corrected within 48 hours. Excessive sediment in the sump will be removed within two weeks after inspection.
Pump Station B (PS-B)	Pump: semi-annual. 18-inch access pipes; at time of permit renewal.	Pump is unable to maintain the required levels in the sump. Inspect for adequacy of level controls. Manually pump sump until air enters the pump; at that time bubbler should read between 0 to 4 inches (see LMP Section 4.1.2 for PS-B sensor settings). If blockage of the 4-inch suction line or the bubbler pressure tube is	Pump inspected for damage or other problems and repaired or replaced as needed. Replacement pump will be installed within 24 hours. For level controls failure, remedial measures will be initiated immediately by contacting DCC and the condition will be corrected within 48 hours. If needed, water

Component	Frequency	Performance Criteria	Corrective Action
		suspected, remove the suction line for inspection.	pressure clean the interior of the 4-inch suction line. The 18-inch access pipes will be water pressure cleaned and video inspected as needed at time of permit renewal. If the 18-inch access pipes are not performing adequately, the SWMG will submit to FDEP and EPC an evaluation report with proposed remedy.
Main Leachate Pump Station (MLPS)	Pump: semi-annual. Sump: annual.	Pump is unable to maintain the required levels in the sump. Inspect for sediment in sump and adequacy of level controls by testing the automatic on/off float settings (see LMP Section 4.3 for MLPS float settings).	Pump inspected for damage or other problems and repaired or replaced as needed. Replacement pump will be installed within 24 hours. For level controls (i.e., floats and control panel), if testing fails remedial measures will be initiated immediately by contacting an electrician and the condition will be corrected within 48 hours. Excessive sediment in the sump will be removed within two weeks after inspection.
Pump Station 2 (PS-2) Pump	Pump: semi-annual.	Pump is unable to maintain the required levels in the sump. Inspect for adequacy of level controls. Manually pump sump until air enters the pump; at that time bubbler should read between 0 to 4 inches (See LMP Section 4.1.3 and Table 9.2.4 for PS-2 sensor settings). If blockage of the 3-inch suction line or the bubbler pressure tube is suspected, remove the suction line for inspection.	Pump inspected for damage or other problems and repaired or replaced as needed. A temporary pump will be installed in the cutoff trench within 24 hours. For level controls failure, remedial measures will be initiated immediately by contacting DCC and the condition will be corrected within 48 hours. If needed, water pressure clean the interior of the 4-inch suction line.
Storage Pond A	Surface: annual.	Empty, water pressure clean, and remove sediment. Visually inspect geomembrane for punctures, seam continuity, and defects around concrete sump.	Defects found will be repaired before reusing the pond.
Storage Pond B	Surface: annual Leak detection: weekly.	Empty, water pressure clean, and remove sediment. Visually inspect geomembrane for punctures, seam continuity, and defects around concrete sump. If leak detection rate is higher than 1,500 gpd, empty pond and inspect geomembrane for defects.	Defects found will be repaired before reusing the pond.

Component	Frequency	Performance Criteria	Corrective Action
Storage Tanks	Exterior: weekly. Interior: whenever the tank is drained or every three years.	Inspect for adequacy of the cathodic protection system, leaks, corrosion, level controls, and maintenance deficiencies	Deficiencies that could result in failure of the tank or leaks will be corrected before reusing the tank. For level controls failure, remedial measures will be initiated immediately by contacting an electrician and the condition will be corrected within 48 hours.
Section 7 Pump	Semi-annual.	Pump is unable to maintain the required levels in the sump.	Pump inspected for damage or other problems and repaired or replaced as needed. Replacement pump will be installed within 24 hours.
Section 9 Pump	Semi-annual.	Pump is unable to maintain the required levels in the sump.	Pump inspected for damage or other problems and repaired or replaced as needed.
Leachate collection and removal system	Twice during permit period	Water pressure clean or video inspect as needed at the existing cleanout locations.	If any component is not performing adequately or if a problem is shown by the video inspection, the SWMG will submit to FDEP and EPC an evaluation report with proposed remedy.

11.0 CONTINGENCY PLANS

FDEP and EPC will be notified of any equipment failure or event that disrupts the routine operation of the leachate management system. If the need for storing leachate in Pond B and/or the effluent/leachate storage tank (T6) arises as described in Sections 8.2 and 7.0, respectively, the SWMG will notify the FDEP and EPC. The person responsible for operation of the SCLF is the Landfill Operations Manager (currently Mr. Larry E. Ruiz). The Landfill Operations Manager reports to the Solid Waste Management Group Director (currently Ms. Kimberly A. Byer). The SWMG will continue to evaluate the accuracy and applicability of this leachate management plan and will propose modifications as necessary to accomplish the objectives of the leachate management plan and continue the proper management of leachate at the SCLF. The following sections provide information regarding contingency operations for specific events which may occur at the SCLF.

11.1 REPLACEMENT OF FLOW METERS

If a flow meter ceases to operate, maintenance personnel will remove the instrument and insert a spare flow meter. If the spare flow meter is not available or not working, a pipe spool piece will be inserted in its place to allow the leachate to flow from the transfer pump. The instrument will be shipped to the service representative or manufacturer for repair or replacement. It is anticipated that the instrument could be removed from service for up to three months. This schedule includes the issue of a Hillsborough County purchase order, shipping, and maintenance time or new part delivery. During this time, leachate production will be determined by recording the run-time meter on the transfer pumps. Leachate production of a specific pump can be estimated by taking the difference in the run-time readings and the rated pump test flow rate.

11.2 STORAGE TANK SECONDARY CONTAINMENT SPILL COUNTERMEASURES

As discussed in previous sections, the LTRF leachate tank system is contained within a concrete containment area. The containment area has two sumps for stormwater drainage with 6-inch diameter HDPE pipes and gate valves that are normally closed. The effluent/leachate storage tank (T6) is contained within a HDPE liner. The containment area has one secondary sump for stormwater, effluent/leachate drainage. Before draining stormwater from the containment areas, the SWMG will visually inspect the stormwater and the tanks to ensure that no leaks have occurred. If no spills have occurred, the sump valves will be opened to drain the stormwater accumulated in the containment area. Under supervision by the Landfill Manager (or qualified designee), the sump valves will be closed immediately after the stormwater is drained.

If a liquid spills from the LTRF tankage system, the following will be done.

1. Assess the cause of the spill and correct the condition promptly.
2. If the spill condition is at the leachate storage tank (T1) (575,000 gallons):
   a. Shut down the MLPS and PS-9.
   b. Shut down the LTRF filtrate pumps. The LTRF may continue to operate.
   c. With a sump pump, transfer the spilled liquid directly into tanker trucks for disposal at an off-site Hillsborough County WWTF or a permitted wastewater treatment and disposal facility listed in Table 8.6.2.

3. If the spill condition is at the LTRF process tank (T2) or the secondary stage clarifier tank (T3):
    a. Shut down the LTRF.
    b. The MLPS and PS-9 continue to operate.
    c. With a sump pump, transfer the spilled liquid directly into tanker trucks for disposal at an off-site Hillsborough County WWTF, a permitted wastewater treatment and disposal facility listed in **Table 8.6.2**, or into the leachate storage tank (T1).
4. If the spill condition is at the effluent storage tank (T5):
    a. Shut down the LTRF.
    b. The MLPS and PS-9continue to operate.
    c. With a sump pump, transfer the spilled liquid directly into tanker trucks for disposal at an off-site Hillsborough County WWTF, a permitted wastewater treatment and disposal facility listed in **Table 8.6.2**, or into the leachate storage tank (T1).
5. If the spill condition is at the effluent/leachate storage tank (T6):
    a. Shut down the LTRF effluent pumps. The LTRF may continue to operate.
    b. With a sump pump, transfer the spilled liquid directly into tanker trucks for disposal at an off-site Hillsborough County WWTF, a permitted wastewater treatment and disposal facility listed in **Table 8.6.2**, or into the leachate storage tank (T1).
6. If the spill condition is at the glycerin tank (red tank at LTRF):
    a. Shut down the LTRF.
    b. The MLPS and PS-9 continue to operate.
    c. Using the sump pump, transfer the spilled glycerin into the leachate storage tank (T1).
    d. Contact the current hazardous waste contractor. The contractor will manage the removal, off-site disposal, and containment area cleanup for glycerin.
7. For spill conditions above, after the spilled liquid is removed, SWMG personnel will water pressure wash the containment area and the rinse water will be pumped directly into a tanker truck for disposal at an off-site county WWTF or a permitted wastewater treatment and disposal facility listed in **Table 8.6.2**.
8. If the leachate storage tank (T1) will remain out of service for more than 48 hours, the SWMG will resume leachate removal from the SCLF to either the effluent/leachate storage tank (T6) or Storage Pond B. Leachate hauling off site can resume from the effluent/leachate storage tank (T6) or Pond B. If the effluent/leachate storage tank (T6) is unavailable for leachate or effluent storage, Pond B can also be used for back-up storage capacity. Leachate can be diverted back to the leachate storage tank (T1) via the MLPS or to the truck loading facility from Pond B. Leachate can also be diverted back to the leachate storage tank (T1) from the effluent/leachate storage tank (T6).
9. Within 24 hours of the spill occurrence, the SWMG will verbally notify FDEP and EPC. A written report with remedial measures taken will be submitted to FDEP and EPC within seven days after the leachate spill incident.

Appendix A

Leachate Reporting and Inspection Forms

HILLSBOROUGH COUNTY SOUTHEAST COUNTY FACILITY
LEACHATE MANAGEMENT
DAILY FIELD DATA ENTRY FORM

Disposal Area (check one)	Phases I-VI	Sections 7-8	Section 9

Technician:	Start Time:

Location	Date (prior day)	Date (today)	Total
Pump Station A, gal			
Pump Station B, inches[8]			
Section 9 Pump #1, gal			
Section 9 Pump #2, gal			
Section 9 LDS, gal[1]			
Sections 7-8 Pump, gal			
Sections 7-8 LDS, gal[2]			
Depth in Pond B, feet[3]			
Pond B LDS, gal[4]			
Pond B Spray, gal			
Depth in Pond A, feet[5]			
Spray Irrigation Pump, gal[6]			
Main LTP Leachate Bypass, gal			
Depth in Leachate Tank, feet[7]			
Depth in Effluent Tank, feet[7]			
Pump Station 2, gal			
Cleanout 2-1, inches[8]			
Monitoring Port 2-2, inches[8]			

Notes:

(1) If rate is greater than 4,651 gallons per day, contact Supervisor immediately.

(2) If rate is greater than 1,930 gallons per day, contact Supervisor immediately.

(3) If greater than 4.4 feet, contact Supervisor immediately.

(4) If rate is greater than 1,500 gallons per day, contact Supervisor immediately.

(5) If greater than 3.7 feet, contact Supervisor immediately.

(6) If runoff observed, STOP irrigation and contact Supervisor immediately.

(7) If level is greater than 15 feet, contact Supervisor immediately.

(8) If level is greater than 30-inches, contact Supervisor immediately.

Comments:

TABLE 1. LEACHATE WATER BALANCE REPORT FORM
MONTH/YEAR
SOUTHEAST COUNTY LANDFILL, HILLSBOROUGH COUNTY, FLORIDA

I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX	XXI	XXII	XXIII	XXIV	XXV	XXVI
Day	Rainfall (in.)	Depth in Pond A (ft.)	Depth in Pond B (ft.)	Estimated Depth at PS-B (in)	Depth in CO 2-1 (in)	Depth in MP 2-2 (in.)	Leachate Pumped to MLPS from Phases I-VI (gal.)	Leachate Pumped from Sections 7-8 LDS (gal.)	Leachate Pumped to MLPS from Sections 7-8 (gal.)	Leachate Pumped to LTRF from MPLS (gal.)	Leachate Pumped to LTRF from Section 9 (gal.)	Leachate Pumped from Section 9 LDS (gal.)	Leachate in 575K Tank (gal.)	Effluent in 575K Tank (gal.)	Leachate Treated at LTRF (gal.)	Total Leachate Hauled (gal.)	Leachate Dust Control (Sprayed) (gal.)	Pond A Storage (gal.)	Pond B Storage (gal)	Effluent Sprayed Pond B (gal)	Leachate Treated at LEF (gal.)	Effluent Irrigation (gal.)	Effluent Dust Control (Sprayed) (gal.)	Total Effluent Hauled (gal.)	Total Evaporation (gal.)
1																									
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
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28																									
29																									
30																									
31																									
Total																									
Daily Average																									
Mo. Average																									

Notes:
1. NR = No Records, NA = Not Available.
2. Values in bold are estimated; values in italic are substitute for missing data and are based on averaged values.
3. Daily average is calculated by dividing the total by the actual days measured in the month.
4. Monthly average calculated by dividing the total by the number of days of the month.
5. Column II, Trace is less than 0.01 inches and is not included in total.
6. Columns III and IV, field measured at staff gauges.
7. Column VI is recorded from the pressure liquid level sensor in CO 2-1.
8. Column VII is recorded from the pressure liquid level sensor in MP 2-2.
9. Columns IX, Section 7-8 leak detection pumped into Section 7 leachate sump riser.
10. Column XIV and XV, calculated from depth in 575,000 gal. tanks.
11. Columns VIII-XIII, XVI-XVIII, and XXI-XXV, quantities from flow meters.
12. Column XXVI includes 80% of the daily values from Columns XVIII, XXIII - XXIV, plus 90%of Column XXII, plus 5% of the daily values from Column XXI.

TABLE 2. FIELD DATA ENTRY FORM
MONTH/YEAR
SOUTHEAST COUNTY LANDFILL, HILLSBOROUGH COUNTY, FLORIDA

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
Day	Rainfall (in.)	Flow Meter Pump Sta. A (gal.)	Flow Meter Pump Sta. 2 (gal.)	Reading PS-B (in.)	Section 9 Pump 1 (gal.)	Section 9 Pump 2 (gal.)	Section 9 LDS (gal.)	Sections 7-8 Pump (gal.)	Sections 7-8 LDS (gal.)	Pond B Depth (ft.)	Pond B Effluent Sprayed (gal)	Pond A Depth (ft.)	Effluent Spray Irrigation (gal.)	Depth in 575K Tank Leachate (ft.)	Depth in 575K Tank Effluent (ft.)	Leachate Treated at LTRF (gal.)	Leachate Hauled		Leachate Dust Control (Sprayed) (gal.)	Effluent Hauled		Effluent Dust Control (Sprayed) (gal)
																	Contractor (gal.)	County (gal.)		Contractor (gal.)	County (gal.)	
1																						
2																						
3																						
4																						
5																						
6																						
7																						
8																						
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29																						
30																						
31																						
Totals																						

Notes:

1. NR = No Records, NA = Not Available.
2. Values in bold are estimated; values in italic are substitute for missing data and are based on averaged values
3. Columns H and J include quantities from leak detection system.
4. Column B, trace is less than 0.01 inches.
5. Columns C, D, E, F, G, H, I, J, K, L, N, and R-W are quantities from flow meters.
6. Columns K and M measured from staff gages in each pond.

Type of Cover	Phases I-VI acres		Section 7-9 acres
Open	5		0
Intermediate	134.4		34.5
Final	23		0
Not Opened	0		0

11. Columns VIII-XIII, XVI-XVIII, and XXI-XXV, quantities from flow meters.

TABLE 3. LEACHATE BALANCE SUMMARY
SOUTHEAST COUNTY LANDFILL
HILLSBOROUGH COUNTY, FLORIDA
YEAR

		Leachate Arriving at LTRF				Leachate Leaving LTRF			Effluent Disposal			Inflow / Outflow For LTRF		
Month	Rainfall (in.)	Condensate from LFG CS-1 (gal.)	Leachate from Section 9 Pumped to LTRF (gal.)	Leachate from Section 7-8 Pumped to LTRF (gal.)	Leachate from Phases I-VI Pumped to LTRF (gal.)	Total Leachate Hauled from LTRF (gal.)	Leachate Dust Control (Sprayed) (gal.)	Leachate Treated at LTRF (gal.)	Total Effluent Hauled (gal.)	Effluent Dust Control (Sprayed) (gal.)	Effluent Irrigation (gal.)	Total Inflow to LTRF (gal.)	Total Outflow from LTRF (gal.)	Change in Storage[2] (gal.)
January														
February														
March														
April														
May														
June														
July														
August														
September														
October														
November														
December														
YTD Total														

Note:
1. If the bypass at the effluent pond is ever used to pump effluent back to the LTRF, this table must be modified.
2. Change in storage represents total inflow to LTRF minus total outflow from LTRF.

Leachate Treatment Facility Flows

Day	Influent	Total	Effluent	Total
Last				
1		0		0
2		0		0
3		0		0
4		0		0
5		0		0
6		0		0
7		0		0
8		0		0
9		0		0
10		0		0
11		0		0
12		0		0
13		0		0
14		0		0
15		0		0
16		0		0
17		0		0
18		0		0
19		0		0
20		0		0
21		0		0
22		0		0
23		0		0
24		0		0
25		0		0
26		0		0
27		0		0
28		0		0
29		0		0
30		0		0
31		0		0

Southeast County Landfill
Storage Tanks Inspection

Date: _____ Time: _____

			LEACHATE	PROCESS	2ND STAGE CLARIFIER	METHANOL	EFFLUENT #1	EFFLUENT #2
			T1	T2	T3	T4	T5	T6
TANKS	1	Any visible leaks? (Y/N)						
	2	Any dents or scratches evident?						
	3	Any exterior corrosion?						
	4	Level controls in good condition?						
	5	Current Cathodic Protection		N/A	N/A	N/A	N/A	
	6	Volume of Tank (gals)	575,000	220,000	19,000	1,700	3,700	575,000
	7	Material of Construction:	STEEL	STEEL	STEEL	STEEL	STEEL	STEEL
PIPES	8	Any pipes bent or deformed?						
	9	Any joints or connections leak?						
	10	Are the pipes free of corrosion?						
CONTAINMENT	11	Is containment area in good condition?						
	12	Is there non-stormwater in the secondary containment area?						
	13	If no, was the stormwater released?						

Comments: _____

_____

Comments: _____

_____

Comments: _____

_____

Inspector's Signature: _____

SOLID WASTE MANAGEMENT DIVISION
SOUTHEAST COUNTY LANDFILL

LEACHATE HAULING / DISPOSAL REPORTING FORM

DATE: _____

DISPOSAL LOCATION: _____

Time loaded	PRODUCT E / L	LOAD NO.	GALLONS	METER READING START	METER READING END	pH	Time unloaded
		TOTAL:					

Signature: _____
Driver

Signature: _____
Plant Operator

Comments_____

Was sample taken: Y N if yes, sample was taken by: _____Date:_____Time:_____
Initials

E = Effluent (Treated Leachate)
L = Leachate (Raw Leachate)

Note: Gallons are to be recorded and totaled daily.