CDM Smith

4651 Salisbury Road, Suite 420
Jacksonville, Florida 32256
tel: (904) 731-7109

December 18, 2020

Mr. Joe Dertien, P.E.
Solid Waste Section
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Subject: Trail Ridge Class I Landfill
WACS Facility ID No. 33628
Application for a Minor Modification to Solid Waste Operation Permit No. 0013493-028-SO-MM

Dear Mr. Dertien:

We are pleased to submit the enclosed application for a minor modification to the Trail Ridge Class I Landfill Operation Plan on behalf of the City of Jacksonville (City). Trail Ridge Class I Landfill is a Solid Waste Management Facility (Facility) located in Duval County, Florida, near the town of Baldwin.

Per our conference call on April 23, 2020, the City is proceeding with the procurement, construction, and operation of a leachate evaporator. The City plans to use leachate evaporation as the primary leachate disposal process, with leachate treatment at an off-site wastewater treatment plant as a backup. Residuals from the evaporation process will be returned to the open working face of the landfill. The residuals are sludge-like in consistency and meet the definition per Rule 62-701.200(106), Florida Administrative Code (FAC). The Facility is permitted to accept sludge. Therefore, the return of residuals to the open working face is not considered leachate recirculation.

This minor modification permit application is assembled to modify the solid waste Operation Plan to incorporate the operations of the leachate evaporator per Rule 62-701.500(2), FAC. The incorporation of this equipment does not require substantial technical evaluation and is not expected to lead to substantially different environmental impacts. FDEP is familiar with this technology based on a previously permitted leachate evaporator at the Springhill Regional Landfill, (WACS Facility ID No. 6319) where FDEP evaluated the same leachate evaporation equipment that is being proposed at the Trail Ridge Class I Landfill.

This package contains the following information:

- FDEP permit application form 62-701.900 (1), applicable sections.
- Excerpts of the modified Operation Plan.
- Trail Ridge Landfill leachate evaporator Figures.

- A permit application fee of $250 will be submitted separately in accordance to Rule 62-701.320(4)(b), FAC and Rule 62-4.050(4)(s)5., FAC.

A Prevention of Significant Deterioration Major Modification Air Construction Permit Application (PSD Application) was submitted on October 9, 2020, to the Division of Air Resource Management. The PSD Application includes addressing the air emissions of the leachate evaporator equipment.

Please contact me either at sterlinglm@cdmsmith.com or my direct number 904-527-6726 if I may further assist you in the review of this application.

Sincerely,

Lisa M Sterling

Lisa Sterling, P.E., BCEE, PMP
Project Manager
CDM Smith Inc.

cc: Jeff Foster, City of Jacksonville
Greg Mathes, Waste Management
Wei Liu, CDM Smith
Kurt Westerlund, CDM Smith

Solid Waste Operation Permit Minor Modification Application

Trail Ridge Landfill
WACS Facility ID No. 33628

Solid Waste Operation Permit
No. 0013493-028-SO-MM

December 2020

CDM Smith

Appendix A

Applicable Sections of FDEP Permit Application Form 62-701.900 (1)

CDM Smith

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

This permit application is to modify the Operation Plan to include leachate evaporation as a leachate disposal option.

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: Class I Trail Ridge Landfill

5. DEP ID number: 33628 County: Duval

6. Facility location (main entrance):
5110 US Hwy 301, Baldwin, Florida 32234

7. Location coordinates:

Section: 18, 19, 20, 21 Township: 3S Range: 23E

Latitude: 30 ° 13 ' 27 " Longitude: 82 ° 02 ' 40 "

Datum: NGVD29 Coordinate method: NAD83

Collected by: Damon Kelly Company/Affiliation: RM Angus

8. Applicant name (operating authority): City of Jacksonville, Solid Waste Division

Mailing address: 1031 Superior Street Jacksonville FL 32254
Street or P.O. Box City State Zip

Contact person: Jeffery S. Foster, P.G. Telephone: (904) 381-8205

Title: Solid Waste Environmental Engineer Manager

JSFoster@coj.net
E-Mail address (if available)

9. Authorized agent/Consultant: CDM Smith Inc.

Mailing address: 4651 Salisbury Road, Suite 420 Jacksonville FL 32256
Street or P.O. Box City State Zip

Contact person: Lisa M. Sterling, PE, BCEE, PMP Telephone: (904) 731-7109

Title: Associate Project Manager

SterlingLM@cdmsmith.com
E-Mail address (if available)

10. Landowner (if different than applicant): City of Jacksonville, Solid Waste Division

Mailing address: 1031 Superior Street Jacksonville FL 32254
Street or P.O. Box City State Zip

Contact person: Jeffery S. Foster, P.G. Telephone: (904) 381-8205

JSFoster@coj.net
E-Mail address (if available)

11. Cities, towns, and areas to be served:

City of Jacksonville (Duval County) and Northeast Florida

12. Population to be served:

Current: 986,000 Five-Year Projection: 1,052,000

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

14. Expected life of the facility: 66 years

15. Estimated costs:

Total Construction: $ N/A -- No Landfill Constr. Closing Costs: $ N/A

16. Anticipated construction starting and completion dates:

From: N/A -- Completed To: N/A -- Completed

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

_____ yds^3/day 2890 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 application is to incorporate the operation of leachate evaporator equipment into the Operation Plan.

2. Facility site supervisor: Greg Mathes

Title: General Manager Telephone: (904) 289-9100

gmathes@wm.com
E-Mail address (if available)

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

4. Weighing scales used: ☑ Yes ☐ No

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

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

7. Surrounding land use, zoning:

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

Silviculture

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):

Non-hazardous special waste. Leachate Evaporator residual.

9. Salvaging permitted: ☐ Yes ☑ No

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

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

12. Site located in: ☐ Floodplain ☐ Wetlands ☑ Other (describe):
Upland Pines Flatwoods

13. Days of operation: Monday-Friday, Saturday

14. Hours of operation: 6:00AM - 7:00PM* (M-F), 5:00AM - 1:00PM (S) *May vary depending upon waste receipt

15. Days working face covered: Daily with initial cover or tarpaulin

16. Elevation of water table: NC ft. Datum Used: NGVD29

17. Number of monitoring wells: NC

18. Number of surface monitoring points: NC

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):

21. Leachate collection method:

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

22. Leachate storage method:

☑ Tanks ☐ Surface impoundments

☐ Other (describe):

23. Leachate treatment method:

☐ Oxidation ☐ Chemical treatment

☐ Secondary ☐ Settling

☐ Advanced ☐ None

☑ Other (describe):

Transportation to off-site treatment at JEA WWTP

24. Leachate disposal method:

☐ Recirculated ☐ Pumped to WWTP

☑ Transported to WWTP ☐ Discharged to surface water/wetland

☐ Injection well ☐ Percolation ponds

☑ Evaporation ☐ Spray irrigation

☐ Other (describe):

25. For leachate discharged to surface waters:

Name and Class of receiving water:

NA

26. Storm Water:

Collected: ☑ Yes ☐ No

Type of treatment:

Wet detention

Name and Class of receiving water:

The stormwater ponds for the Trail Ridge Landfill Expansion discharge to headwaters of Deep Creek, which leads to the St. Mary's River, which flows to Atlantic Ocean. Both Deep Creek and the St. Mary's River are classified as Class III surface waters.

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

The ERP application for Trail Ridge Landfill Expansion was issued December 30, 2013.

Permit Number 16-307659-002-EI

PART S. CERTIFICATION BY APPLICANT AND ENGINEER OR PUBLIC OFFICER

1. Applicant:

The undersigned applicant or authorized representative of City of Jacksonville, Solid Waste Division _____ is aware that statements made in this form and attached information are an application for a operation (minor modification) permit from the Florida Department of Environmental Protection, and certifies that the information in this application is true, correct, and complete to the best of his/her knowledge and belief. Further, the undersigned agrees to comply with the provisions of Chapter 403, Florida Statutes, and all rules and regulations of the Department. It is understood that the Permit is not transferable, and the Department will be notified prior to the sale or legal transfer of the permitted facility.

Jeffrey S. Foster Digitally signed by Jeffrey S. Foster Date: 2020.12.18 11:57:08 -05'00'
Signature of Applicant or Agent

Jeffery S. Foster, P.G; Solid Waste Environmental Engineer Manager
Name and Title (please type)

JSFoster@coj.net
E-Mail Address (if available)

1031 Superior Street
Mailing Address

Jacksonville, Florida 32254
City, State, Zip Code

(904) 381-8205
Telephone Number

Date: 12/18/2020

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.

Lisa M Sterling
Signature

Lisa M. Sterling, PE, BCEE, PMP; Project Manager
Name and Title (please type)

64795
Florida Registration Number (please affix seal)

LISA MICHELLE STERLING
LICENSE
No 64795
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

4651 Salisbury Road, Suite 420
Mailing Address

Jacksonville, Florida 32256
City, State, Zip Code

sterlingsm@cdmsmith.com
E-Mail Address (if available)

(904) 527-6726
Telephone Number

Date: 12/18/2020

Appendix B

Proposed Edits to the Trail Ridge Landfill Operation Plan

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Appendix B

This application is submitted primarily to support a minor revision to the Operation Plan to reflect proposed changes to leachate management. The leachate is currently disposed by pumping the leachate to a tanker truck and hauling to a wastewater treatment plant.

The City of Jacksonville is proposing to utilize leachate evaporator equipment to reduce the volume of leachate and deposit the residuals from the evaporation process on the working face of the landfill. Leachate disposal via tanker truck to a wastewater treatment plant is to remain as a back-up disposal option.

The proposed modifications to the Trail Ridge Operation Plan, Section 1.14 Leachate Management language are presented below in underline and ~~strikethrough~~.

1.14 Leachate Management

Leachate Collection and Storage System

The primary leachate collection system consists of an 8-inch perforated HDPE collection pipe surrounded by an aggregate encasement, which is covered by a geotextile fabric. This collection system is located in a valley on top of the primary liner. Leachate is collected within each leachate sector (300 feet wide, typical) and directed to the collection system by a geonet drainage blanket located on top of the primary liner.

The primary leachate collection pipes discharge leachate into the riser pipe in the leachate collection sump, and it is pumped through a force main that terminates at the leachate vault on the east side of the landfill. The leachate collection sump consists of an 18- or 24-inch diameter HDPE pipe (riser pipe) surrounded by an aggregate sump. The riser pipe extends from the sump up to the leachate vault. Both of the 8-inch HDPE leachate collection pipes discharge directly into the riser pipe, which is in the sump for each phase in Phases 6-14. A small submersible pump is located inside each riser pipe. Level sensors in the riser pipe are used to control the pump, which removes leachate as it accumulates. The pumps are mounted on wheels and can be easily removed for maintenance.

The leachate pumps discharge into a leachate force main that transfers the leachate to the six fiberglass storage tanks (20,000 gallons each). The tanks are located inside a secondary containment area. The leachate storage tanks are visually inspected daily, Monday through Friday, by on-site personnel. A daily log (Monday through Friday) is kept outlining leachate generation and storage volumes. Excessive leakage through the primary liner will alert staff that an investigation is needed. ~~Leachate will be transported off-site by tanker at regular intervals based on leachate production. The leachate is transported to the Buckman Wastewater Treatment Facility for treatment and disposal.~~

The secondary (detection) leachate collection system is constructed and operates similarly to the primary system. The exceptions for this system include:

1. A layer of geonet collects leachate and directs it to the secondary leachate collection sump in lieu of the 8-inch HDPE perforated pipe.

Leachate System Operations and Maintenance

Each leachate vault box (located at the east end of each leachate collection pipe for Phases 1-5 and at the east end of 1 of the 2 leachate collection pipes for Phases 6-14) has a flow meter for the primary and secondary leachate collection system. The landfill operator will monitor the leachate level in and

record the flow from both the leachate collection (primary) and detention (secondary) sumps on a daily basis (in gallons), Monday through Friday.

If the reading in a flow meter is noticeably diminishing or otherwise reduced compared to the other flow meters and daily rainfall records, the flow meter and pump will be checked for proper operation. In the event it is deemed necessary, the leachate collection system will be either videoed to determine if there is a clog or other reason for diminished flow or the leachate collection pipe will be flushed. The leachate collection system will be jet cleaned or inspected by video recording at least once every 5 years. Additionally, the operator will maintain at least one backup pump on-site or have access to a backup pump that can be installed within hours of discovery that a pump is not operating.

The operator will operate and maintain the leachate collection system to collect and remove leachate from the landfill. The leachate will be stored ~~on-site~~ in the six 20,000-gallon leachate storage tanks ~~and will be transported to JEA's Buckman Wastewater Treatment Facility for treatment and disposal. If the Buckman Wastewater Treatment Facility is not able to accept the leachate, the next closest permitted disposal facility will be contacted to accept and treat the waste. The amount of leachate transported offsite will be recorded on a daily basis, Monday through Friday~~ before being sent to an on-site leachate evaporator or transported off-site for treatment and disposal.

A recording rain gauge is operated and maintained to record precipitation at the landfill. These precipitation records will be maintained and used to compare with leachate generation rates.

Leachate Treatment and Disposal

Leachate treatment and disposal will be accomplished through the thermal evaporation of leachate at on-site leachate evaporator(s). Leachate will be pumped to the evaporator(s) through a dual contained HDPE leachate force main from the leachate storage tanks. The leachate evaporator, residuals clarifier, and associated piping are located inside secondary containment. After most of the water has been evaporated from the leachate, the remaining residual is pumped to a tanker truck. The truck load-out area is paved with concrete and curbed to contain any spillage. The residual is then transported to the active face or it may be hauled off-site for disposal. The amount of leachate sent to be evaporated will be recorded daily.

As a secondary disposal option, the leachate can be pumped into tanker trucks and hauled to off-site wastewater treatment facilities for disposal including JEA's Buckman Wastewater Treatment Facility or the next closest permitted disposal facility. The amount of leachate transported off-site will be recorded daily.

Appendix C

Trail Ridge Landfill

Leachate Evaporator Figures

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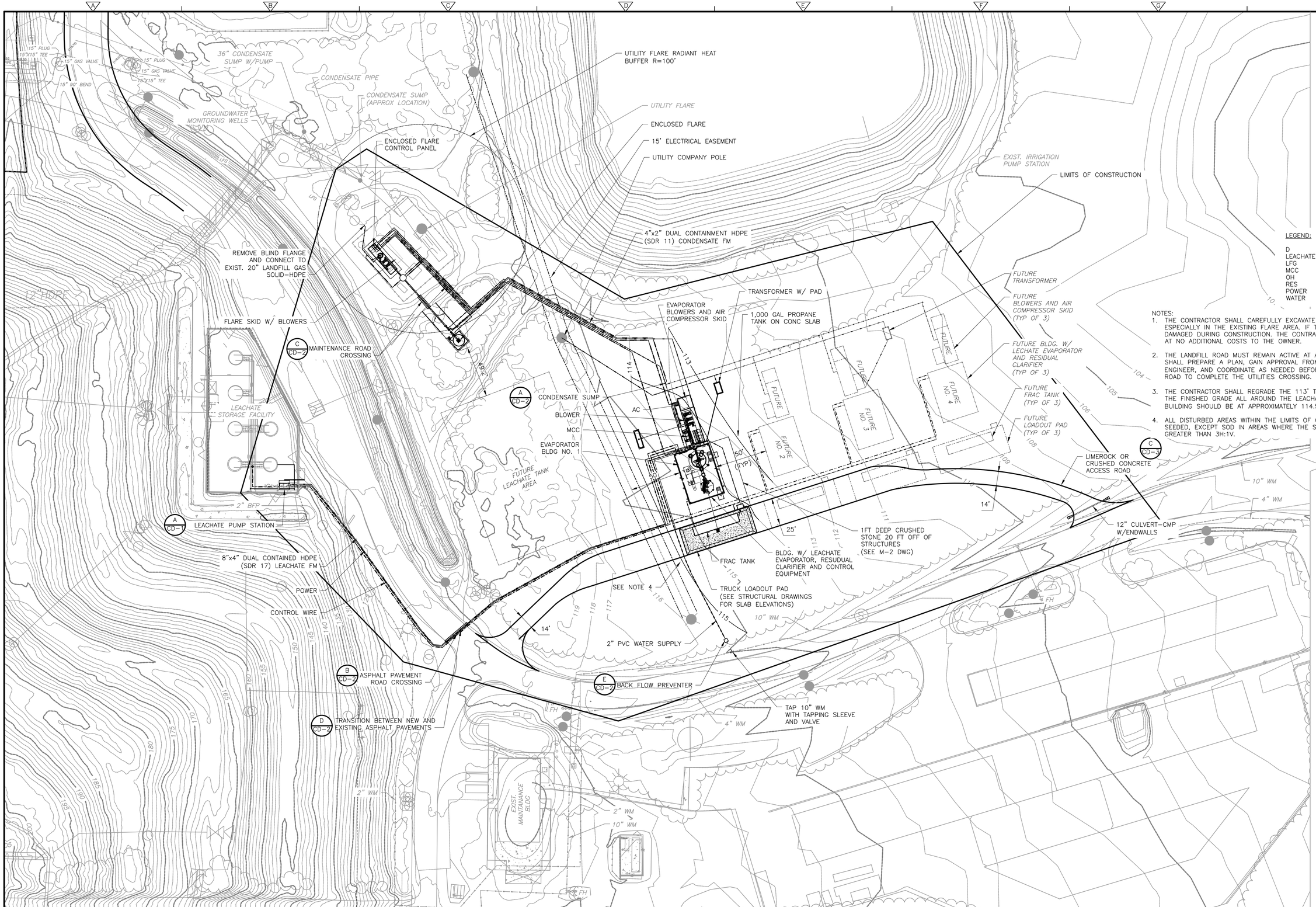


LEGEND:

D	FUTURE CONSTRUCTION DRAIN
LEACHATE	LEACHATE
LFG	LANDFILL GAS
MCC	MOTOR CONTROL CENTER
OH	OVERHEAD POWER
RES	RESIDUAL
POWER	UNDERGROUND ELECTRIC
WATER	POTABLE WATER

NOTES:

1. THE CONTRACTOR SHALL CAREFULLY EXCAVATE WHEN PLACING NEW PIPING, ESPECIALLY IN THE EXISTING FLARE AREA. IF THE EXISTING SYSTEM IS DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL MAKE ALL REPAIRS AT NO ADDITIONAL COSTS TO THE OWNER.
2. THE LANDFILL ROAD MUST REMAIN ACTIVE AT ALL TIMES. THE CONTRACTOR SHALL PREPARE A PLAN, GAIN APPROVAL FROM THE LANDFILL OPERATOR AND ENGINEER, AND COORDINATE AS NEEDED BEFORE/DURING OPEN CUTTING THE ROAD TO COMPLETE THE UTILITIES CROSSING.
3. THE CONTRACTOR SHALL REGRADE THE 113' TO 115' CONTOURS AS SHOWN. THE FINISHED GRADE ALL AROUND THE LEACHATE EVAPORATOR NO. 1 BUILDING SHOULD BE AT APPROXIMATELY 114.5'.
4. ALL DISTURBED AREAS WITHIN THE LIMITS OF CONSTRUCTION SHALL BE SEEDED, EXCEPT SOD IN AREAS WHERE THE SLOPE IS EQUAL TO OR GREATER THAN 3H:1V.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: K. WESTERLUND
DRAWN BY: A. NUNES
SHEET CHK'D BY: W. LIU
CROSS CHK'D BY: L. STERLING
APPROVED BY: J. CURRO
DATE: SEPTEMBER 2020

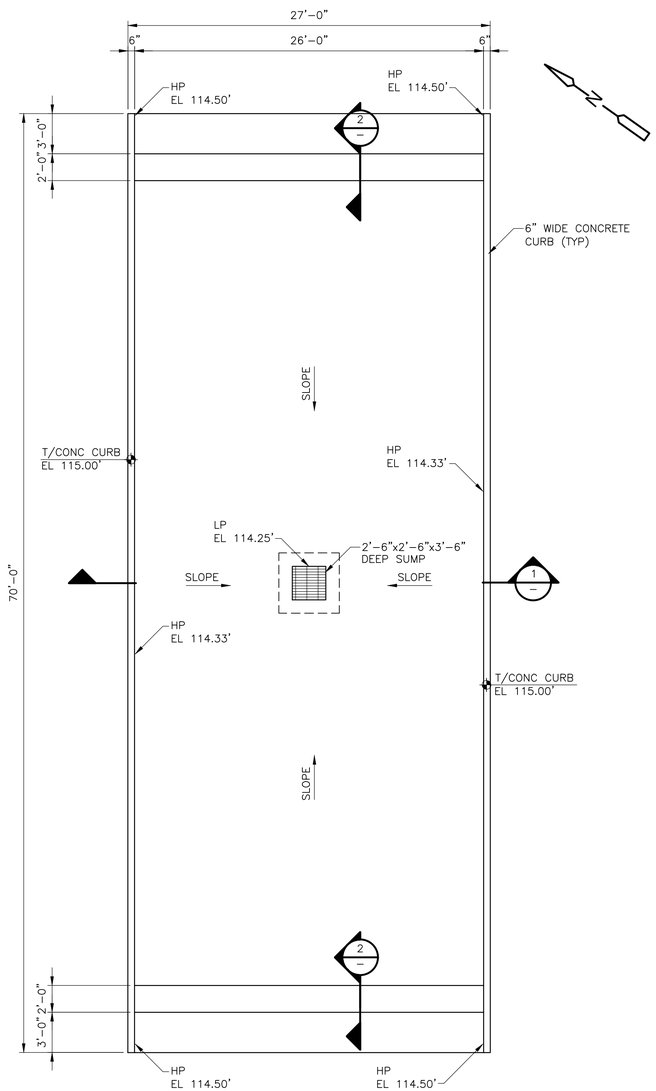
CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No. EB-0000020

CITY OF JACKSONVILLE

TRAIL RIDGE LANDFILL PHASE 6
LANDFILL GAS SYSTEM - PHASE II

SITE AND GRADING PLAN

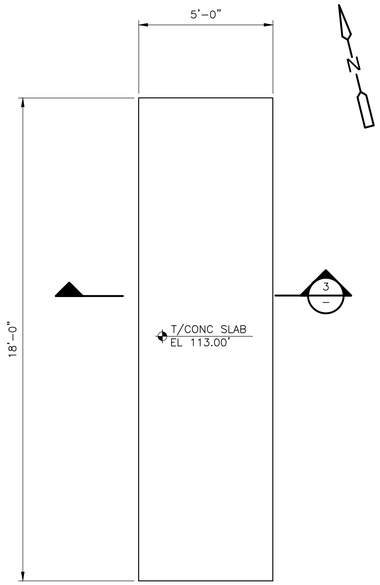
PROJECT NO. 9012-228686
FILE NAME: C002STPL.DWG
SHEET NO.
FIGURE 1



TRUCK LOADOUT SLAB

PLAN

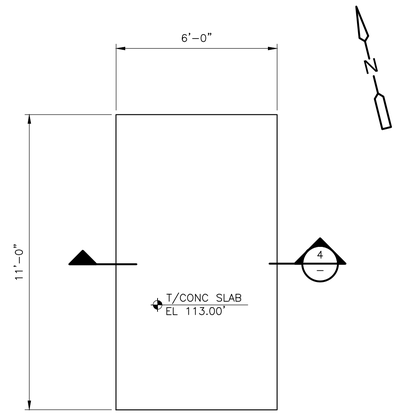
3/16" = 1'-0"



PROPANE TANK SLAB

PLAN

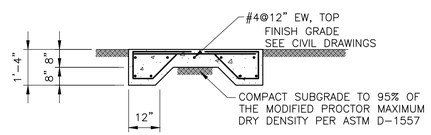
3/8" = 1'-0"



TRANSFORMER SLAB

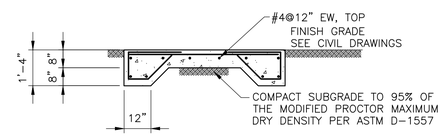
PLAN

3/8" = 1'-0"



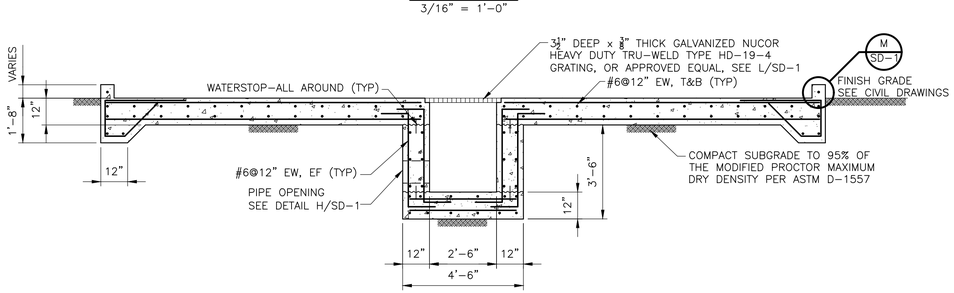
SECTION 3

3/8" = 1'-0"



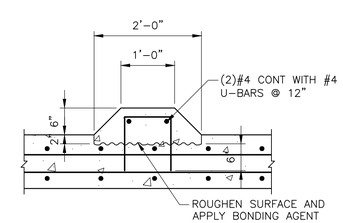
SECTION 4

3/8" = 1'-0"



SECTION 1

3/8" = 1'-0"



SECTION 2

3/4" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: H. MORATAYA
DRAWN BY: P. SCHIAVO
SHEET CHK'D BY: T. VERWEY
CROSS CHK'D BY: E. RIVERA
APPROVED BY: H. MORATAYA
DATE: SEPTEMBER 2020

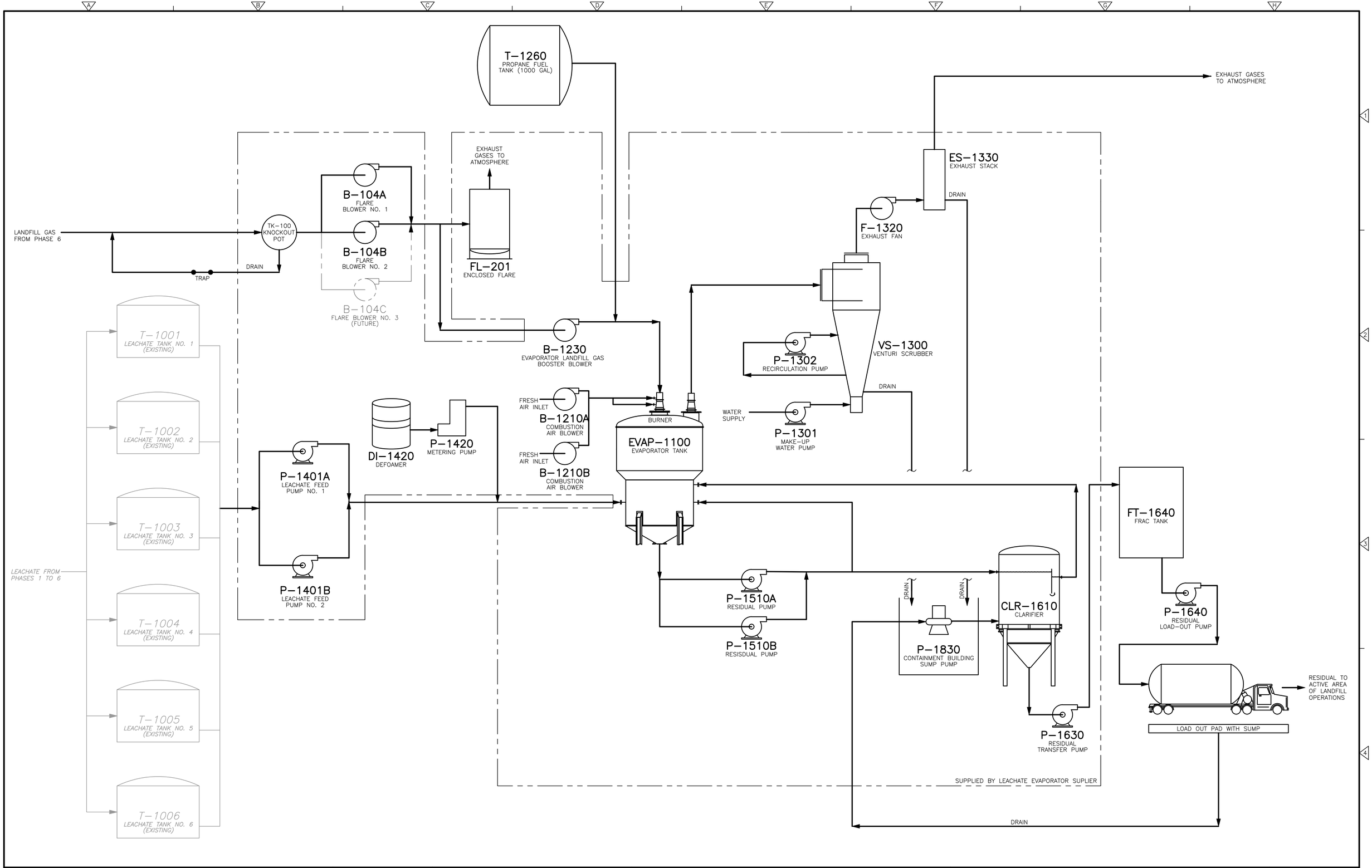
CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No. EB-0000020

CITY OF JACKSONVILLE

TRAIL RIDGE LANDFILL PHASE 6
LANDFILL GAS SYSTEM - PHASE II

MISCELLANEOUS EQUIPMENT SLABS

PROJECT NO. 9012-228686
FILE NAME: S002SLPL.DWG
SHEET NO.
FIGURE 2



REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. WILEY
DRAWN BY: R. CHARITY
SHEET CHK'D BY: T. WILEY
CROSS CHK'D BY: D. UBERT
APPROVED BY: T. WILEY
DATE: SEPTEMBER 2020

CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No. EB-0000020

CITY OF JACKSONVILLE

TRAIL RIDGE LANDFILL PHASE 6
LANDFILL GAS SYSTEM - PHASE II

PROCESS FLOW DIAGRAM

PROJECT NO. 9012–228686
FILE NAME: 1003PIDT.DWG
SHEET NO.
FIGURE 3